Exhibit C – Plans

Table of Contents

PLANS

CORONA-NORCO USD

CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

100% CONSTRUCTION DOCUMENTS

08-07-23

OWNER

Corona-Norco USD
2820 Clark Ave.
Norco, CA 92860
t: 951-736-5047
Contact: Jacquelyn Roberts

ARCHITECT

PBK Architects
8163 Rochester Avenue
Rancho Cucamonga, CA 91730
t: 909.987.0909
Contact: Gilbert Baez

CIVIL ENGINEER

Valued Engineering, Inc.
600 N. Mountain Avenue
Suite C102
Upland, CA 91786
t: 909-982-4601
Contact: Jeff Meiter

STRUCTURAL ENGINEER

Hohbach-Lewin, Inc.
511 Mission Street
South Pasadena, CA 91030
t: 626-441-1211
Contact: Les Tso

MEP ENGINEER

LEAF Engineers
8163 Rochester Ave #100
Rancho Cucamonga, CA 91730
t: 909-987-0909
Contact: Rex Wang

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

CORONA-NORCO USD TRANSPORTATION OFFICE AT
ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: ##-##### DSA FILE NO.: ###

Architect
LICENSED ARCHITECT
Yong You
No. C-31162
REN. 10-31-2023
STATE OF CALIFORNIA

COVER SHEET

G0.00

G0.01 - TITLE SHEET

0" 1"

DRAWING CONVENTIONS

PROPERTY LINE

AREA DRAIN

EXISTING ELEVATION — NO

FINISH GRADE ELEVATION — NO

NORTH SYMBOL — NORTH / TRUE NORTH

COLUMN LINE — O

FLOOR LINE — Name / Elevation

MATCH LINE

SECTION CALLOUT SYMBOL — 1 / A101

EXTERIOR ELEVATION SYMBOL — A1.01 / 12

INTERIOR ELEVATION SYMBOL — 2 / 3 A1.01 1 / 4

DOOR DESIGNATION — 101

WINDOW DESIGNATION — A

PARTITION TYPE — 1

EXISTING PARTITION

NEW PARTITION

REVISION NUMBER — 1

DETAIL ENLARGED — 1 / A-100

PLAN OR DETAIL ENLARGED — 1 / A-100

DETAIL SECTIONS AND VERTICAL SECTIONS — 1 / A101

DIMENSIONS — 6'-0" 4'-0" 10'-0"

NOTE: all dimensions to face of wall unless otherwise noted

SPOT ELEVATION — 18'-6"

SPOT COORDINATE — N - 58' 2" E - 150' 11"

MATCH LINE — SEE XX/X-XXX

SHEET NUMBER ON WHICH CONTINUATION IS FOUND

FENCING (WITH POSTS)

BREAK LINE

KEY NOTE — 12.34

ROOM NAME AND NUMBER — Room?name 101 150 SF

FIRE HOSE CABINET (RECESSED AND SURFACE MOUNTED) — FHC FHC

FIRE EXTINGUISHER CABINET (RECESSED AND SURFACE MOUNTED) — FEC FEC

EQUIPMENT DESIGNATION — 25C

TOILET ACCESSORY SYMBOL — TA1

SHOWER HEAD

FLOOR SINK — F.S.

FLOOR DRAIN — F.D.

OVERFLOW DRAIN AND ROOF DRAIN — OVERFLOW DRAIN, ROOF DRAIN

ROOF TOP UNIT REFER TO MECHANICAL FOR TYPE — RTU

GRAPHIC SCALE — 0 2' 4' 8' — SCALE: 1" = 4'-0"

ABBREVIATIONS

A.D.	AREA DRAIN	EQUIP	EQUIPMENT	MEP	MECHANICAL, ELECTRICAL AND PLUMBING	S.D.	SOAP DISPENSER
A.D.A.	AMERICANS WITH DISABILITIES ACT	EXIST	EXISTING			SCHED	SCHEDULE
A.F.F.	ABOVE FINISH FLOOR	EXP	EXPANSION	MEZZ.	MEZZANINE	SCPL	SOLID CORE PLASTIC LAMINATE
A.F.G.	ABOVE FINISH GRADE	EXT	EXTERIOR	MFR.	MANUFACTURE (R)		
A.H.J.	ATHORITY HAVING JURISDICTION	F.E.	FIRE EXTINGUISHER	MH.	MANHOLE	SECT	SECTION
		F.E.C.	FIRE EXTINGUISHER CABINET	MIN.	MINIMUM	SHT	SHEET
A/C	AIR CONDITIONING			MISC.	MISCELLANEOUS	SIM	SIMILAR
ACP.	ACOUSTICAL PANEL	F.H.C.	FIRE HOSE CABINET	MOD	MODULAR	SPC	SPECIAL COATING SYSTEM
ACT.	ACOUSTICAL TILE	FB.	FACE BRICK	MTL	METAL	SPEC	SPECIFICATION (S)
ADJ.	ABADJUSTABLE	FD.	FLOOR DRAIN	MTP.	METAL TOILET PARTITION	SQ.	SQUARE
ALT.	ALTERNATE	FIN.	FINISH (ED)			SS.	SOUND STRIP
ALUM.	ALUMINUM	FIXT.	FIXTURE	N.D.	NAPKIN DISPOSAL	SS. STL.	STAINLESS STEEL
ASPH.	ASPHALT	FLR.	FLOOR (ING)	N.I.C.	NOT IN CONTRACT	STD	STANDARD
∠	ANGLE	FLSHG.	FLASHING	N.R.	NOT RATED	STL	STEEL
		FLUOR	FLUORESCENT	N.T.S.	NOT TO SCALE	STRUC	STRUCTURAL
B.U.R.	BUILT-UP ROOF			N.V.	NAPKIN VENDOR	SUSP	SUSPENDED
BD.	BOARD	G.B.	GRAB BAR	NO.	NUMBER	SVDF	SHEET VINYL DANCE FLOORING
BLDG.	BUILDING	G.I.	GALVANIZED IRON	O.C.	ON CENTER (S)	SYS	SYSTEM
BLK.	BLOCK	GA.	GAUGE	O.C.E.W.	ON CENTER EACH WAY		
BM.	BEAM	GALV.	GALVANIZED	O.D.	OUTSIDE DIAMETER	T.B.	TACK BOARD
		GCMU	GLAZED CONCRETE MASONRY UNIT	O.F.C.I.	OWNER FURNISHED, CONTRACTOR INSTALLED	T.D.R.	TOWEL DISPENSER AND RECEPTACL
C	CHANNEL	GEN.	GENERAL	O.H.	OPPOSITE HAND	T.O.	TOP OF
C.J.	CONTROL JOINT	GEN.	GENERAL	OPNG.	OPENING	T.O.B.	TOP OF (WOOD) BLOCKING
C.M.U.	CONCRETE MASONRY UNIT	GL.	GLASS / GLAZING	OPP.	OPPOSITE	T.O.M.	TOP OF MASONRY
C.W.	COLD WATER	GL.	GLASS			T.O.S.	TOP OF STEEL
CAB. CABT	CABINET	GR.	GRADE	P. LAM.	PLASTIC LAMINATE	T.T.D.	TOILET TISSUE DISPENSER
CFMF	COLD FORMED METAL FRAMING	GTP.	GLAZED TILE PAVER	P.C.	PRECAST	TCNA	TILE COUNCIL OF NORTH AMERICA
		GYP.	GYPSUM DRYWALL	P.H.	PAPER HOLDER		
CL	CENTERLINE			P.L.	PROPERTY LINE	TEL	TELEPHONE
CLG.	CEILING	H.W.	HOT WATER	P.P.	POWER POLE	TERR.	TERRAZZO
CLR	CLEAR	HM	HOLLOW METAL FRAME	P.W.B.	PREFINISHED WALL BOARD	THK	THICK (NESS)
COL.	COLUMN	HORIZ.	HORIZONTAL	PL.	PLATE	TYP	TYPICAL
COMP.	COMPRESSIBLE	HT.	HEIGHT	PLUMB.	PLUMBING		
CONC.	CONCRETE			PLYWD.	PLYWOOD	U.N.O.	UNLESS NOTED OTHERWISE
COND.	CONDITION	I.D.	INSIDE DIAMETER	POL.	POLISHED	UR.	URINAL
CORR.	CORRIDOR	I.P.S.	IRON PIPE SIZE	PR.	PAIR		
CPT.	CARPET (ED)	INSUL	INSULATE (ED), (ION)	PREFIN.	PRE-FINISHED	V	VENT
CT.	CERAMIC TILE	INT.	INTERIOR	PT.	POINT	V.C.T.	VINYL COMPOSITION TILE
CTG	CLEAR TEMPERED GLAZING	ISA	INTERNATIONL SYMBOL OF ACCESSIBILITY	PTD.	PAINTED	V.I.F.	VERIFY IN FIELD
CTSK.	COUNTER SINK					VENT.	VENTILATING, VENTILATED
		JT.	JOINT	Q.T.	QUARRY TILE	VER.	VERIFY
D	DRYER					VERT.	VERTICAL
D.F.	DRINKING FOUNTAIN	L.P.	LIGHT POLE	R / RAD	RADIUS	VGB	(PREFINISHED) VINYL CLAD GYPSUM BOARD
D.P.	DAMPPROOFING	LAM.	LAMINATE (D)	RD	ROOF DRAIN	VWC	VINYL WALL COVERING
D.S.	DOWN SPOUT	LAV.	LAVATORY	RE. , REF.	REFER TO / REFERENCE / SEE		
DIA.	DIAMETER	LT.	LIGHT	RECP.	RECEPTACLE	W	WASHING MACHINE
DIM.	DIMENSION	LT. WT.	LIGHTWEIGHT	REINF.	REINFORCE (D), (ING)	W.P.	WATER PROOFING
DTL.	DETAIL			REQD.	REQUIRED	W.S.	WEATHERSTRIP
DWG.	DRAWING	M.O.	MASONRY OPENING	RES.	RESILIENT	W.W.	WATER WELL
		MAS.	MASONRY	REV.	REVISION (S), REVISED	W.W.F	WELDED WIRE FABRIC
E.J.	EXPANSION JOINT	MATL.	MATERIAL (S)	RF	RECREATIONAL RESILIENT FLOORING	W/	WITH
E.Q.	EQUAL	MAX.	MAXIMUM			WC	WATER CLOSET
EA.	EACH	MB.	MARKER BOARD	RPG.	RELOCATABLE PAINTED GYPSUM BOARD	WD	WOOD
EDF	ELECTRIC DRINKING FOUNTAIN	MECH.	MECHANICAL			WDW	WINDOW
EL.	ELEVATION (HEIGHT)	MEM	MEMBRANE	RSS.	ROD STOCK AND SEALANT	WT	WEIGHT
ELECT.	ELECTRICAL	MEM. WP.	MEMBRANE WATERPROOFING	S.C.	SEALED CONCRETE		
ELEV	ELEVATION (DRAWING)						

STATEMENT OF GENERAL CONFORMANCE

FOR ARCHITECTS/ENGINEERS WHO UTILIZE PLANS, INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND/OR CONSULTANTS
(Application No. 04-122251 File No. 33-H4)

[X] The drawings or sheets listed on the cover or index sheet (see asterisk *)
[ ] This drawing, page of specifications/calculations

have been prepared by other design professionals or consultants who are licensed and/or authorized to prepare such drawings in this state. It has been examined by me for:

1) design intent and appears to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications prepared by me, and
2) coordination with my plans and specifications and is acceptable for incorporation into the construction of this project.

The Statement of General Conformance "shall not be construed as relieving me of my rights, duties, and responsibilities under Sections 17302 and 81138 of the Education Code and Sections 4-336, 4-341 and 4-344" of Title 24, Part 1. *(Title 24, Part 1, Section 4-317 (b))*

I certify that: [X] The drawings or sheets listed on the cover or index sheet
[ ] This drawing or page

[X] is/are in general conformance and	[ ] is/are in general conformance and
[X] have been coordinated	[ ] have been coordinated
Signature — 05/19/2023 Date	Signature — Date
Architect or Engineer designated to be in general responsible charge	Architect or Engineer deligated responsibility for this portion of the work
YONG YOO	
Print Name	Print Name
NO. C-31162 — 10/31/2023	License Number — Expiration Date
License Number — Expiration Date	

DSA NOTES

1. ALL WORK SHALL CONFORM TO 2022 EDITION TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)
2. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART I, TITLE 24, CCR
3. A "DSA CERTIFIED" PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-32, PART 1, TITLE 24, CCR; CLASS 3
4. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.
5. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

SCOPE OF WORK

ALL CONSTRUCTION AND SERVICES REQUIRED TO PROVIDE...

RELOCATED AND REFURBISH ONE (1) 36'x40' MODULAR RELOCATABLE BUILDING TO AN EXISTING CAMPUS FOR THE CORONA-NORCO UNIFIED SCHOOL DISTRICT.

SITE IMPROVEMENTS INCLUDE, BUT ARE NOT LIMITED TO:
1. WALKWAYS
2. UTILITIES
3. LANDSCAPING
4. FOUNDATION / FOOTINGS (BELOW GRADE)

NOTE:
FIRE SAFETY DURING DEMOLITION AND/OR CONSTRUCTION SHALL COMPLY WITH 2022 CFC CHAPTER 33.

GENERAL NOTES

1. CONSTRUCTION DOCUMENTS DESCRIBE THE PRODUCTS, SYSTEMS, QUANTITIES, CONFIGURATION AND PERFORMANCE SPECIFICATIONS THAT DELIVER THE OVERALL DESIGN INTENT OF THE PROJECT.
2. THE CONSTRUCTION DOCUMENT DRAWINGS AND SPECIFICATIONS ARE COMPLIMENTARY, AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY BOTH.
3. PERFORMANCE BY THE CONSTRUCTION TEAM SHALL BE CONSISTENT WITH THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS AS NECESSARY TO DELIVER THE INDICATED RESULTS OF THE DESIGN INTENT.
4. IF CONFLICTS ARISE BETWEEN DRAWINGS AND SPECIFICATIONS, NOTIFY ARCHITECT IMMEDIATELY FOR DETERMINATION BEFORE PROCEEDING, OTHERWISE THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.
5. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH ALL GOVERNING CODES, ORDINANCES, REGULATIONS AND LAWS.
6. THE DESIGN ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS AND SCAFFOLDING IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
7. WHERE ANY CONFLICT OCCURS BETWEEN THE REQUIREMENTS OF LAWS, CODES, ORDINANCES, RULES AND REGULATIONS, THE MOST STRINGENT SHALL GOVERN.
8. ENACT ALL MEASURES TO PROTECT AND SAFEGUARD ALL EXISTING ELEMENTS TO REMAIN FROM BEING DAMAGED. REPLACE OR REPAIR EXISTING ELEMENTS DAMAGED BY THE EXECUTION OF THIS CONTRACT TO EQUAL OR BETTER CONDITION.
9. CUTTING, BORING, SAWCUTTING OR DRILLING THROUGH THE EXISTING OR NEW STRUCTURAL ELEMENTS SHALL NOT BE STARTED UNTIL THE DETAILS HAVE BEEN REVIEWED AND APPROVED BY THE ARCHITECT, AND STRUCTURAL ENGINEER OF RECORD.
10. VERIFY DIMENSIONS AND EXISTING CONDITIONS BEFORE COMMENCING WORK. REPORT DISCREPANCIES TO THE ARCHITECT PRIOR TO PROCEEDING WITH AFFECTED WORK.
11. REFLECTED CEILING PLAN DIMENSIONS ARE REFERENCED FROM FINISHED SURFACES UNLESS NOTED OTHERWISE. CEILING HEIGHTS ARE DIMENSIONED FROM FLOOR TO FINISHED CEILING HEIGHT.
12. DIMENSIONS NOTED AS "FIELD VERIFY" SHALL BE CHECKED AT THE SITE BY THE CONTRACTOR AND REVIEWED WITH THE ARCHITECT BEFORE INCORPORATING INTO THE WORK.
13. DO NOT SCALE DRAWING. WRITTEN DIMENSIONS TAKE PRECEDENCE. IF CLARIFICATION IS REQUIRED IN ORDER TO DETERMINE THE INTENT OF THE CONTRACT DOCUMENTS, CONTACT THE ARCHITECT.
14. NOTES OR DIMENSIONS LABELED "TYPICAL" SHALL APPLY TO SITUATIONS THAT ARE THE SAME OR SIMILAR.
15. ALL DIMENSIONS ARE TO FACE OF STUD, UNLESS NOTED OTHERWISE.
16. ALL SPACES WITH FLOOR DRAINS TO HAVE FINISHED FLOORS SLOPED TO DRAIN NOT TO EXCEED ONE IN FIFTY.
17. ALL FLOORS FINISH CHANGES SHALL OCCUR AT THE CENTERLINE OF DOORS UNLESS NOTED OTHERWISE. ALL FLOOR FINISH CHANGES SHALL HAVE THRESHOLDS OR REDUCER STRIPS.
18. COORDINATE HOUSEKEEPING PAD DIMENSIONS AND LOCATIONS WITH EQUIPMENT TO BE INSTALLED.
19. ALL DOORS IN INTERIOR GYP. BD STUD WALLS SHALL BE SET 4" OFF THE PERP. ADJ. WALL ON THE HINGE SIDE OF THE DOOR UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL CONTACT THE ARCHITECT IF ANY CONFLICTS OCCUR.
20. ALUM. THRESHOLDS TO BE SET IN FULL BED OF SEALANT AT ALL EXT. DOORS.
21. COORDINATE ROOF DRAIN LEADER LOCATIONS WITH FLOOR PLAN PRIOR TO SLAB CONSTRUCTION
22. PROVIDE VINYL REDUCER AT ALL DISSIMILAR FLOOR MATERIALS UNLESS OTHERWISE NOTED.
23. UNLESS OTHERWISE NOTED, ALL ELECTRICAL AND MECHANICAL OPERABLE DEVICES SHALL BE MOUNTED WITH THE HIGHEST OPERABLE CONTROL AT MAX. OF 42" AFF.
24. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE DSA APPROVED DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CONSTRUCTION CHANGE DOCUMENT, OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED REPAIR WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE REPAIR WORK, PER CAC, 2013, 4-317(c)

PROJECT DATA

PROJECT ADDRESS:

300 BUENA VISTA AVENUE
CORONA, CA 92882

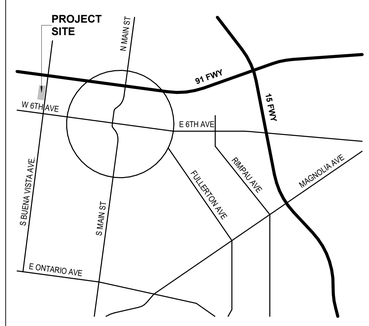
OCCUPANCY:	B/E
CONSTRUCTION TYPE:	V-B
AUTOMATIC SPRINKLER:	NO
NUMBER OF STORIES:	1
ACTUAL SQUARE FOOTAGE:	1,710 (INCLUDES EXTERIOR COVERED AREA)+ (E) 965 SF = 2,675 SF
ALLOWABLE SQUARE FOOTAGE:	2,675 SF < 9,000 SF (PER 2022 CBC TABLE 506.2) - OKAY

DEFERRED APPROVAL ITEMS

1. **NOT APPLICABLE.**
2. **NOT APPLICABLE.**

INSTALLATION OF THE ITEMS ABOVE SHALL NOT BE STARTED UNTIL DETAILED PLANS AND SPECIFICATIONS ARE SUBMITTED AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT (DSA)

VICINITY MAP



CODES & STANDARDS

PARTIAL LIST OF APPLICABLE CODES

2022 California Administrative Code (CAC)	(Part 1, Title 24, CCR)
2022 California Building Code (CBC)	(Part 2, Title 24, CCR)
2022 California Electrical Code (CEC)	(Part 3, Title 24, CCR)
2022 California Mechanical Code (CMC)	(Part 4, Title 24, CCR)
2022 California Plumbing Code (CPC)	(Part 5, Title 24, CCR)
2022 California Energy Code (CEC)	(Part 6, Title 24, CCR)
2022 California Fire Code (CFC)	(Part 9, Title 24, CCR)
2022 California Existing Building Code (CEBC)	(Part 10, Title 24, CCR)
2022 California Green Building Standards Code (CAL Green)	(Part 11, Title 24, CCR)
2022 California Referenced Standards Code	(Part 12, Title 24, CCR)
Title 19 CCR, Public Safety, State Fire Marshall Regulations	
2019 ASME A17.1/CSA B44-13 Safety Code For Elevators and Escalators (per 2022 CBC Part 2, Ch 35)	
Note: Cal/OSHA Elevator Unit enforces CCR Title 8 and uses the 2004 ASME A17.1 by adoption	

PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 13 Automatic Fire Sprinkler Systems	(2022 Edition)
NFPA 14 Standpipe and Hose Systems	(2019 Edition)
NFPA 17 Dry Chemical Extinguishing Systems	(2021 Edition)
NFPA 17a Wet Chemical Extinguishing Systems	(2021 Edition)
NFPA 20 Stationary Pumps for Fire Protection	(2019 Edition)
NFPA 24 Standard for the Installation of Private Fire Service Mains & their Appurtenances (CA amended)	(2019 Edition)
NFPA 25 Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems (CA amended)	*(2013 Edition)*
NFPA 72 National Fire Alarm & Signaling Code (CA amended)	(2022 Edition)
NFPA 80 Fire Doors and Other Opening Protectives	(2019 Edition)
NFPA 92 Standard for Smoke Control Systems	(2018 Edition)
NFPA 253 Critical Radiant Flux of Floor Covering Systems	(2019 Edition)
NFPA 2001 Clean Agent Fire Extinguishing Systems (CA amended)	(2018 Edition)
ICC 300 ICC Stds on Bleachers, Folding and Telescoping Seating and Grand stands	(2017 Edition)
UL 300 Fire Testing of Fire Extinguishing Sys for Protection of Restaurant Cooking Areas	2005 (R2010)
UL 464 Audible Signal Appliances	(2003 Edition)
UL 521 Heat Detectors for Fire Protective Signaling Systems	(1999 Edition)

For a complete list of applicable NFPA standards refer to 2022 CBC (SFM) Chapter 35 and California Fire Code Chapter 80

See California Building Code Chapter 35 for State of California amendments to the NFPA Standards.

SHEET NUMBERING

A2.01A
- **BUILDING AREA**
- **SEQUENCE (.01 - .99.....etc.)**
- **SHEET DISCIPLINE TYPE**

DISCIPLINE
- G - GENERAL (Cover, A0 Sheets)
- C - CIVIL
- L - LANDSCAPE
- D - DEMO
- A - ARCHITECTURAL
- S - STRUCTURAL
- I - INTERIORS
- M - MECHANICAL
- E - ELECTRICAL
- P - PLUMBING
- T - TECHNOLOGY

- 0 - GENERAL
- 1 - SITE PLANS & DETAILS
- 2 - FLOOR PLANS (Note: Flip Sheets are Schedules)
- 3 - ROOF
- 4 - ADA & ENLARGED PLANS
- 5 - PLAN DETAILS
- 6 - EXTERIOR/INTERIOR ELEVATIONS
- 7 - PARTITION TYPES & WALL SECTIONS
- 8 - CASEWORK ELEVATIONS
- 9 - WINDOWS, DOORS, FRAME ELEVATIONS & DETAILS
- 10 - REFLECTED CEILING PLANS & DETAILS

DRAWING INDEX

TOTAL # OF SHEETS: 64

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS [X] FLS [X] ACS [X]
DATE: 10/24/2023

PBK

ARCHITECT — PBK Architects, Inc.
PBK.com
RANCHO CUCAMONGA
8163 Rochestser Avenue, Suite 100
Rancho Cucamonga
California 91730
P 909-987-0909

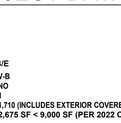
CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE



KEY PLAN — NORTH: PLAN TRUE

Consultant

Architect

LICENSED ARCHITECT — Yong Yoo — No. C-31162 — REN. 10-31-2023 — STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

REVISIONS

No.	Description	Date

100% CONSTRUCTION DOCUMENTS

TITLE SHEET

G0.01

FILE PATH: Z:\Projects\...
9/28/2023 2:18:14 PM

0" 1"

California
Department of Conservation
California Geological Survey

Gavin Newsom, Governor
David Shabazian, Director

John Vondriska
Administrative Director, Facilities
Corona-Norco Unified School District
2820 Clark Avenue,
Norco, CA 92860-1903

July 10, 2023

Subject: **Engineering Geology and Seismology Review for Transportation Office at Orange Grove High School – Office Expansion 300 South Buena Vista Avenue, Corona, CA CGS Application No. 04-CGS5974**

Dear Mr. Vondriska:

In accordance with your request and transmittal of documents received on May 23, 2023, the California Geological Survey (CGS) has reviewed the engineering geology and seismology aspects of the consulting report prepared for the subject project at the Transportation Office at Orange Grove High School in Corona. It is our understanding that this project involves relocating an existing Relocatable Building to the Transportation Office. This review was performed in accordance with Title 24, California Code of Regulations, 2022 California Building Code (CBC) and followed CGS Note 48 guidelines. We reviewed the following report:

> **Geotechnical Investigation, Proposed Transportation Office Expansion Project, Orange Grove High School, 300 South Buena Vista Avenue, Corona, California 92882:** Leighton Consulting, Inc., 10532 Acacia Street, Suite B-6, Rancho Cucamonga, CA 91730; company Project No. 13847.001, report dated April 25, 2023, 30 pages, 9 figures, 5 appendices.

Based on our review, the consultants provide a thorough and well-documented assessment of engineering geology and seismology issues with respect to the proposed improvements. The principal concerns identified by the consultants are the potential for strong ground shaking, dynamic settlement, and corrosive soils. The consultants recommend design spectral acceleration parameters of S_{DS} **= 1.381g** and S_{D1} = 0.882g. CGS **notes this value of S_{D1} must be increased by 50%** for structural design in accordance with Item 1 Exception in ASCE 7-16 Supplement 3, Section 11.4.8. Their evaluation indicates liquefaction, surface fault rupture, and slope instability are not design concerns for the project.

In conclusion, ***the engineering geology and seismology issues at this site are adequately assessed in the referenced reports, and no further information is requested***. If you have any further questions about this review letter, please contact the primary reviewer at Justin.LaForge@conservation.ca.gov.

Respectfully submitted,

Justin LaForge
Engineering Geologist
PG 9796

PROFESSIONAL GEOLOGIST — Justin S. LaForge — No. 9796 — STATE OF CALIFORNIA

Concur:

Jennifer Thornburg
Senior Engineering Geologist
PG 5476, CEG 2240

CERTIFIED ENGINEERING GEOLOGIST — Jennifer Thornburg — No. 2240 — STATE OF CALIFORNIA

Enclosures:

Note 48 Checklist Review Comments
Keyed to: *Note 48 - Checklist for the Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings*

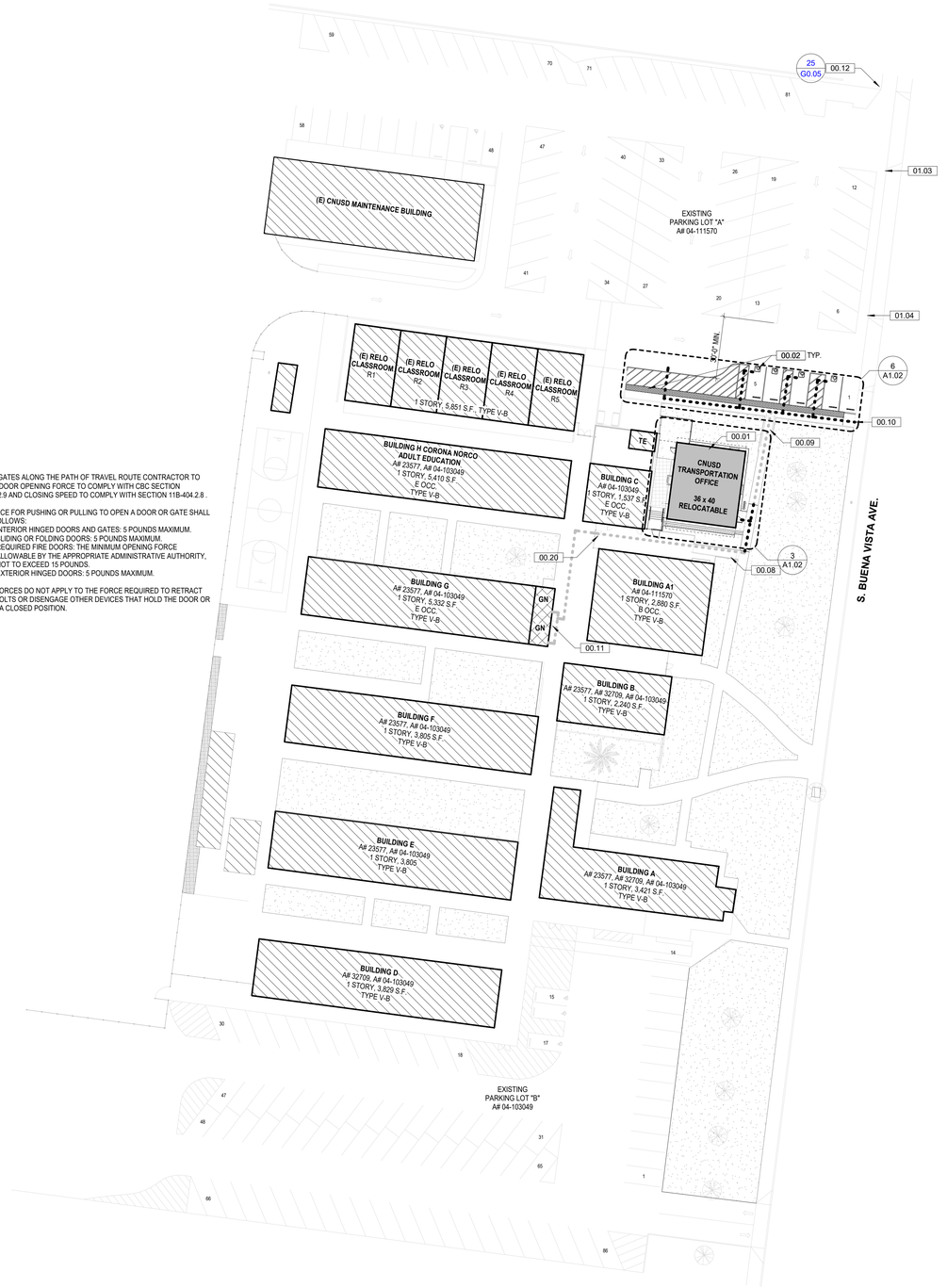
Copies to:

Steven Okubo, *Certified Engineering Geologist*, and Jason Hertzberg, *Registered Geotechnical Engineer*
Leighton Consulting, Inc., 10532 Acacia Street, Suite B-6, Rancho Cucamonga, CA 91730

Yong Yoo, *Architect*
PBK Architects, Inc., 8163 Rochester Avenue, Rancho Cucamonga, CA 91761

Geoffrey Chan, *Senior Structural Engineer*
Division of State Architect, 10920 Via Frontera, Suite 300, San Diego, CA 92127

6 CGS GEOHAZARD REPORT ACCEPTANCE LETTER



NOTE:

FOR (E) GATES ALONG THE PATH OF TRAVEL ROUTE CONTRACTOR TO ADJUST DOOR OPENING FORCE TO COMPLY WITH CBC SECTION 11B-404.2.9 AND CLOSING SPEED TO COMPLY WITH SECTION 11B-404.2.8 .

THE FORCE FOR PUSHING OR PULLING TO OPEN A DOOR OR GATE SHALL BE AS FOLLOWS:

1. INTERIOR HINGED DOORS AND GATES: 5 POUNDS MAXIMUM.
2. SLIDING OR FOLDING DOORS: 5 POUNDS MAXIMUM.
3. REQUIRED FIRE DOORS: THE MINIMUM OPENING FORCE ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY, NOT TO EXCEED 15 POUNDS.
4. EXTERIOR HINGED DOORS: 5 POUNDS MAXIMUM.

THESE FORCES DO NOT APPLY TO THE FORCE REQUIRED TO RETRACT LATCH BOLTS OR DISENGAGE OTHER DEVICES THAT HOLD THE DOOR OR GATE IN A CLOSED POSITION.

NORTH

4 ACCESSIBILITY SITE PLAN
1" = 30'-0"

PATH OF TRAVEL

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:
THE POT INDENTIFIED IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR **PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS**, AS PART OF THE DESIGN OF THIS PROJECT, THE POT WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WERE DETERMINED TO BE NONCOMPLIANT 1) HAVE BEEN IDENTIFIED AND 2) THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NONCOMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS.

DURING CONSTRUCTION, IF POT ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

ACCESSIBILITY LEGEND

- (E) ACCESSIBLE PATH OF TRAVEL PER A# 04-111570
- ACCESSIBLE PATH OF TRAVEL TO BE PROVIDED
- PROPERTY LINE
- (E) BUILDING(S) NOT IN SCOPE
- PROPOSED 36' X 40' RELOCATABLE BUILDING TO BE REFURBISHED
- GN — **GENDER NEUTRAL STAFF RESTROOM PER A# 04-103049**
  GN = GENDER NEUTRAL

ACCESSIBILITY KEYED NOTES

#	Description
00.01	PROPOSED RELOCATED 36' X 40' MODULAR BUILDING (CONSTRUCTION TYPE: VB, BUILDING AREA: 1,440, OCCUPANCY: B), P.C. 04-104816, A# 04-105264, SERIAL #'S: 38501, 38502 & 38503
00.02	(E) ACCESSIBLE PARKING AND DROP-OFF ZONE PER A# 04-111570 TO BE RESTRIPED PER THIS CONTRACT. SEE CIVIL DEMOLITION PLAN ON SHEET C1.1
00.08	(E) RAMP WITH 2% CROSS SLOPE AND MAX 1:12 RUN IN THE DIRECTION OF TRAVEL PER A# 04-111570
00.10	ACCESSIBLE CONNECTION TO PUBLIC RIGHT-OF-WAY PER THIS CONTRACT
00.11	(E) ACCESSIBLE DRINKING FOUNTAIN PER A# 04-111570
00.12	TOW-AWAY SIGN TO BE PROVIDED
00.20	(E) ACCESSIBLE HINGED GATE WITH MAXIMUM PUSHING OR PULLING FORCE OF 5 POUNDS.
01.03	(E) ENTRANCE SIGN
01.04	(E) WRONG WAY SIGN
00.09	(E) ACCESSIBLE RAMP WITH 2% CROSS SLOPE AND MAX 1:12 RUN IN THE DIRECTION OF TRAVEL, SEE C2.1 FOR SLOPES AND 14/A1.20 FOR (E) HANDRAIL ELEVATION.

DSA CERTIFICATION LIST

1. ORIGINAL DRAWINGS... **A# 23577** DSA APPROVED IN 1949
2. THE FOLLOWING PROJECT... **A# 32709** DSA APPROVED ON 01/28/1958
3. THE FOLLOWING PROJECT... **A# 04-103049** CLOSED WITH DSA CERTIFICATION ON 09/28/2006
4. THE FOLLOWING PROJECT... **A# 04-111570** CLOSED WITH DSA CERTIFICATION ON 03/03/2016

PARKING CALCULATION

(E) PARKING LOT A:	
STANDARD STALLS	75
VAN ACCESSIBLE STALLS	2
STD ACCESSIBLE STALLS	4
TOTAL P-LOT A STALLS	**81**
(E) PARKING LOT B:	
STANDARD STALLS	83
VAN ACCESSIBLE STALLS	1
STD ACCESSIBLE STALLS	2
TOTAL P-LOT B STALLS	**86**
TOTAL STALLS ON SITE	**167**

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

ARCHITECT PBK Architects, Inc.
PBK.com
RANCHO CUCAMONGA
8163 Rochester Avenue, Suite 100
Rancho Cucamonga
California 91730
P 909-987-0909

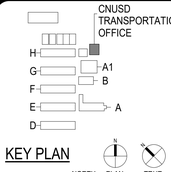
CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE



KEY PLAN — NORTH: PLAN TRUE

Consultant

Architect

LICENSED ARCHITECT — Yong Yoo — No. C-31162 — REN. 10-31-2023 — STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

REVISIONS

No.	Description	Date

100% CONSTRUCTION DOCUMENTS

SITE ACCESSIBILITY PLAN

G0.02

0" 1"

NORTH

6 FIRE ACCESS SITE PLAN
1" = 30'-0"

FIRE ACCESS LEGEND

- PROPERTY LINE
- (E) BUILDING NOT IN SCOPE
- NEW 36' X 40' RELOCATABLE BUILDING TO BE REFURBISHED
- (E) FIRE ACCESS LANE (A# 04-111570)

FIRE ACCESS KEYED NOTES

#	Description
00.01	PROPOSED RELOCATED 36' X 40' MODULAR BUILDING (CONSTRUCTION TYPE: VB, BUILDING AREA: 1,440, OCCUPANCY: B), P.C. 04-104816, A# 04-105264, SERIAL #'S: 38501, 38502 & 38503
01.02	EXISTING FIRE HYDRANT

FIRE FLOW REPORT HYDRAULIC MODEL
CITY OF CORONA

Project Number DWPF2023-0013
Date Issued 5/10/2023

APPLICANT INFORMATION

Name: **JACKIE ROBERTS**
Phone: **(951)230-2267**
Address: **2820 CLARK AVENUE Corona CA 92882**
Email: **Jacquelyn.Roberts@cunsd.k12.ca.us**

GENERAL INFORMATION

Site Address: **330 330 S BUENA VISTA AVE**
Site Location: **Within City Limits**
Type: **Commercial**
Notes: **Overhead Fire Sprinklers**

TEST INFORMATION

Test Date: **5/10/2023**
Flow Hydrant No: **2976**
Main Size (in): **10**
20 psi Residual Flow (gpm): **8668**
Simulated Flow (gpm): **3000**
Static Pressure (psi): **105**
Residual Pressure for Simulated Flow (psi): **91**

ADDITIONAL INFORMATION FOR RIVERSIDE COUNTY UNINCORPORATED AREA

Hydrant Type:
Hydrant Make & Model:
Distance to Hydrant (ft):
Nozzel Count:
Nozzel Size (in):
Can the water system provide at least 1,000 gpm at a 20 psi residual pressure?

Fee:Account: 570 50000 31903

Approved by: **Mohammed Ibrahim**

For inquiries concerning this report, please call **(951) 279 - 3592**

Printed: 5/10/2023

DSA 810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or DSA Publications webpages.

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for projects consisting of construction of a new campus, construction of new building(s), additions to existing buildings, and for site alternate design means for fire department emergency vehicle access, and fire suppression water supply.

Information associated with compliance items 1 through 3 below is to be provided for all project types indicated above. Information associated with items 4 through 7 is to be completed when an alternate means is utilized. Acknowledgement by the school district and signature from the Local Fire Authority (LFA) is only required when an alternate design means is being requested.

The Project Information and Fire & Life Safety Information sections are to be completed for all projects and imaged onto the fire access site plan. When an alternate design/means is proposed, all sections on pages 1 and 2 are to be completed and imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy *PL 09-01: Fire Flow for Buildings*.

PROJECT INFORMATION	
School District/Owner:	CORONA-NORCO UNIFIED SCHOOL DISTRICT
Project Name/School:	CNUSD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL
Project Address:	300 BUENA VISTA AVENUE

FIRE & LIFE SAFETY INFORMATION				
1.	Has a fire hydrant flow test been performed within the past 12 months? *(If yes, provide a copy of the test data.)*	Yes ☑		No ☐
2.	Was the fire hydrant water flow test performed as part of this LFA review?	Yes ☑		No ☐
3.	Is the project located within a designated fire hazard severity zone (FHSZ) as established by Cal-Fire? *(If yes, indicate FHSZ classification below.)*	Yes ☐		No ☑
	Refer to the following website for FHSZ locations: http://egis.fire.ca.gov/FHSZ/	Moderate ☐	High ☐	Very High ☐
	Wildland Interface Area (WIFA) *(If any designations are checked, project design must meet the requirements of CBC Chapter 7A.)*			WIFA ☐

DGS DSA 810 (revised 12/29/20) DIVISION OF THE STATE ARCHITECT — DEPARTMENT OF GENERAL SERVICES — Page 1 of 4 STATE OF CALIFORNIA

DSA 810
FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

CONDITION MEANS AND METHODS RESOLUTION		ALTERNATE ACCEPTED			
		Yes	No	N/A	N/R
4.	Emergency vehicle access roadways do not meet CFC requirements.			✓	
4a.	**Acceptable Alternate:** Emergency vehicle and personnel access as proposed by the project architect is acceptable for providing fire suppression and protection of life and property.				
5.	**Fire Hydrants:** Number and spacing does not meet CFC requirements.			✓	
5a.	**Acceptable Alternate:** Number of fire hydrants and spacing as proposed by the project architect is acceptable for fire suppression and protection of life and property.				
6.	**Fire Hydrants:** Water flow and pressure are less than CFC minimum.			✓	
6a.	**Acceptable Alternate:** The available flow and pressure is acceptable for providing fire suppression and protection of life and property.				
7.	Location of fire department connection(s) serving fire sprinkler systems or standpipe systems does not meet CFC requirements.			✓	
7a.	**Acceptable Alternate:** The location of fire department connection serving the fire sprinkler system and/or standpipe system is acceptable for providing fire suppression and protection of life and property.				

School District Acceptance of Acceptable Design Alternates

By signing this form, the school district acknowledges and accepts the proposed design as an alternative to California Building Code (CBC) and California Fire Code (CFC) minimum requirements, as indicated by one or more of the conditions indicated at items 4a, 5a, 6a or 7a, for providing fire and life safety protection of life and property.

Accepted by: Jacquelyn Roberts Title: Construction Director I, Facilities

Signature: Jacquelyn Roberts Date: 5/17/23

LOCAL FIRE AUTHORITY (LFA) INFORMATION		
LFA Agency Name:	Corona Fire Department	
LFA Review Official:	Cindi Schmitz	
Title:	FIRE MARSHAL	Work Phone: 951-736-2406
Work Email:	Cindi.Schmitz@coronaca.gov	

LFA Reviewer's Signature: C. Schmitz Date: 5-17-23

DGS DSA 810 (revised 12/29/20) DIVISION OF THE STATE ARCHITECT — DEPARTMENT OF GENERAL SERVICES — Page 2 of 4 STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
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PBK

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CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE
H
G
F
E
D
A1
B
A
KEY PLAN
NORTH: PLAN TRUE

Consultant

Architect
LICENSED ARCHITECT Yong Yoo No. C-31162 REN. 10-31-2023 STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD
DATE 08-07-23
PROJECT NUMBER 230010

REVISIONS

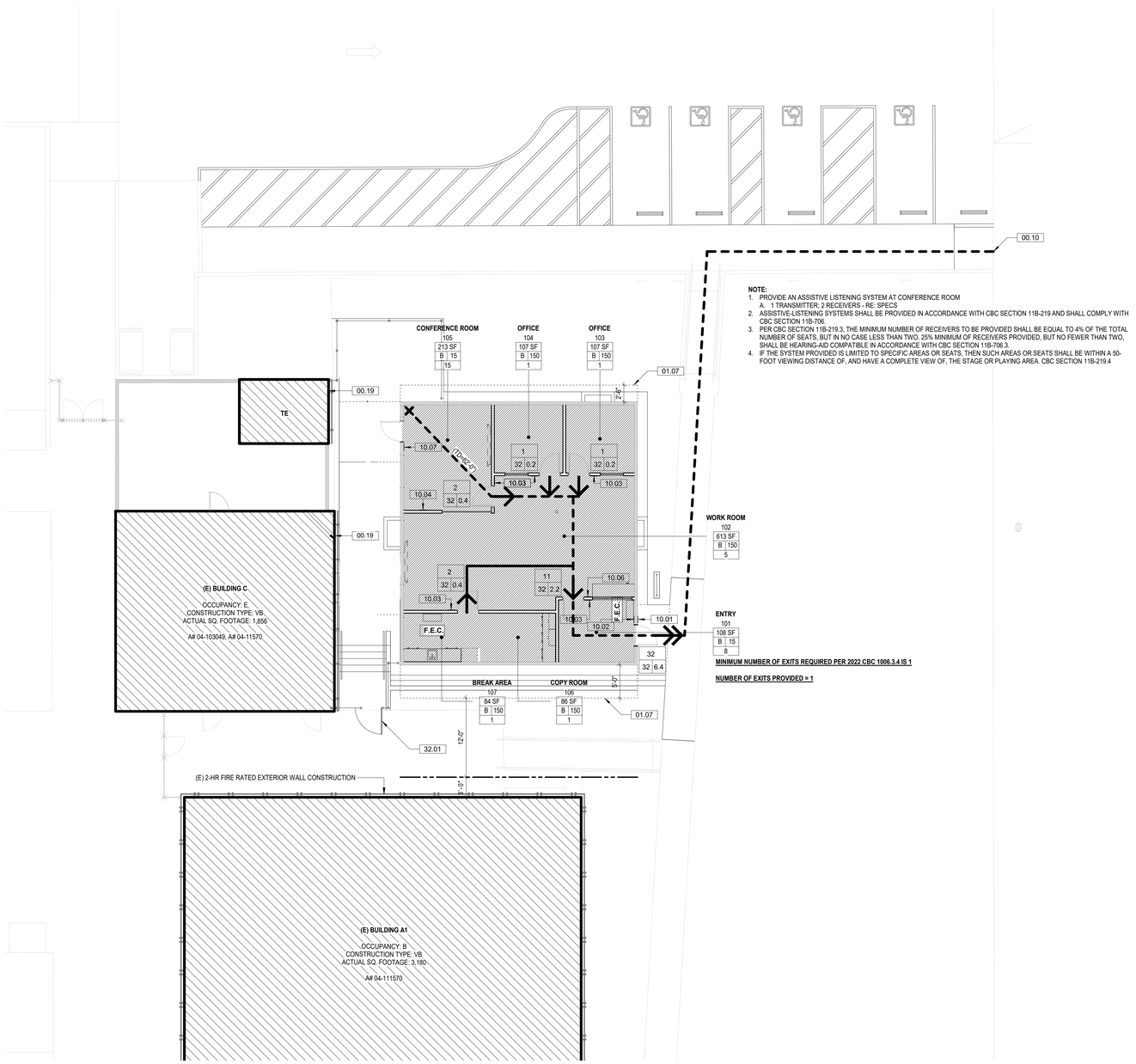
No.	Description	Date

100% CONSTRUCTION DOCUMENTS

FIRE ACCESS SITE PLAN

G0.03

0" 1"



NOTE:
1. PROVIDE AN ASSISTIVE LISTENING SYSTEM AT CONFERENCE ROOM
   A. 1 TRANSMITTER; 2 RECEIVERS - RE: SPECS
2. ASSISTIVE-LISTENING SYSTEMS SHALL BE PROVIDED IN ACCORDANCE WITH CBC SECTION 11B-219 AND SHALL COMPLY WITH CBC SECTION 11B-706.
3. PER CBC SECTION 11B-219.3, THE MINIMUM NUMBER OF RECEIVERS TO BE PROVIDED SHALL BE EQUAL TO 4% OF THE TOTAL NUMBER OF SEATS, BUT IN NO CASE LESS THAN TWO. 25% MINIMUM OF RECEIVERS PROVIDED, BUT NO FEWER THAN TWO, SHALL BE HEARING-AID COMPATIBLE IN ACCORDANCE WITH CBC SECTION 11B-706.3.
4. IF THE SYSTEM PROVIDED IS LIMITED TO SPECIFIC AREAS OR SEATS, THEN SUCH AREAS OR SEATS SHALL BE WITHIN A 50-FOOT VIEWING DISTANCE OF, AND HAVE A COMPLETE VIEW OF, THE STAGE OR PLAYING AREA. CBC SECTION 11B-219.4

MINIMUM NUMBER OF EXITS REQUIRED PER 2022 CBC 1006.3.4 IS 1

NUMBER OF EXITS PROVIDED = 1

NORTH

6 LIFE SAFETY PLAN
1/8" = 1'-0"

EXIT ANALYSIS & SIGNAGE PLAN KEYED NOTES

#	Description
00.10	ACCESSIBLE CONNECTION TO PUBLIC RIGHT-OF-WAY PER THIS CONTRACT
00.18	FIRE-RESISTANCE RATING REQUIREMENT FOR EXTERIOR WALL BASED ON FIRE SEPARATION DISTANCE TABLE 705.5 IS 1-HOUR. FULL HEIGHT 1-HOUR WALL WITH LESS THAN 15% PROTECTED OPENING ASSEMBLY.
00.19	(E) 2x6 @ 16" O.C. FULL HEIGHT WD STUD WALL (WITH NO OPENINGS) WITH 3/4" PLYWOOD SHEATHING AND 1" CEMENT PLASTER AT EXTERIOR AND INTERIOR FACE. 1-HR RATED WALL PER TABLE 721.1(2) ITEM 15-1.2
01.07	(E) ROOF OVERHANG SHOWN DASHED
10.01	BUILDING ENTRANCE SIGNAGE / ISA SIGNAGE - SEE: 24/G0.05
10.02	TACTILE 'EXIT' SIGN - SEE: 22/G0.05
10.03	ROOM IDENTIFICATION SIGN - SEE: 28/G0.05
10.04	ASSISTIVE LISTENING SYSTEM SIGN - SEE: 27/G0.05
10.06	TACTILE 'EXIT ROUTE' SIGN- SEE: 22/G0.05
10.07	TACTILE 'NOT AN EXIT' SIGN - SEE: 26/G0.05
32.01	4'-0" WIDE X 8'-0" HIGH HOT DIPPED GALVANIZED ORNAMENTAL SERVICE GATE WITH PANIC HARDWARE TO BE PROVIDED

SIGN TYPE LEGEND

ROOM IDENTIFICATION SIGNAGE TYPE B ..... 28 / G0.05

ASSISTIVE LISTENING SIGN ..... 27 / G0.05

TACTILE 'EXIT' & 'EXIT ROUTE' SIGN ..... 22 / G0.05

FIRE EXTINGUISHER CABINET ..... 24 / A6.01

BUILDING/ROOM IDENTIFICATION SIGNAGE ..... 24 / G0.05

OCCUPANCY TYPES

B - BUSINESS

(E) BUILDING NOT IN SCOPE

LIFE SAFETY SYMBOLS LEGEND

ASSUMED PROPERTY LINE

EXIT TRAVEL DIRECTION

(TD=__) EXIT ACCESS MAX TRAVEL DISTANCE (TD)

EXIT ACCESS

EXIT DISCHARGE

NON RATED

(E) 1-HR FIRE RATED

(E) 2-HR FIRE RATED EXTERIOR WALL CONSTRUCTION

F.E.C. FIRE EXTINGUISHER CABINET

CLASSROOM — ROOM NAME
400 — ROOM NUMBER
960 — ROOM AREA (SQ. FT.)
E 20 — OCCUPANT LOAD FACTOR
48 — ROOM OCCUPANT
OCCUPANCY TYPE

100 — COMBINED EXIT LOAD
32 20 — REQUIRED CLEAR EXIT WIDTH (IN INCHES)
PROVIDED CLEAR EXIT WIDTH (IN INCHES)

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NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE

KEY PLAN

H G F E D A1 B A

NORTH: PLAN TRUE

Consultant

Architect

LICENSED ARCHITECT Yong Yoo No. C-31162 REN. 10-31-2023 STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

REVISIONS

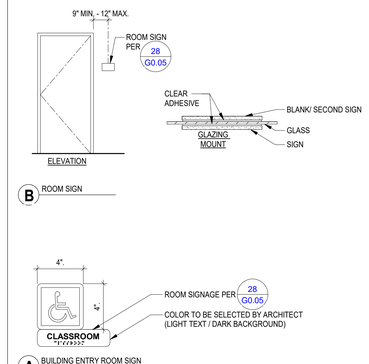
No.	Description	Date

100% CONSTRUCTION DOCUMENTS

CODE ANALYSIS & SIGNAGE PLAN

G0.04

0" 1"



NOTES:

1. FOR CHARACTER TYPE & BRAILLE, SEE ALSO DETAILS 14 G0.05 23 G0.05
2. SIGN MATERIAL SHALL BE PAINTED ES PLASTIC USING GRAPHIC PROCESS SAND-CARVED W/ 3/32" RAISED GRAPHIC AND LETTERS. PROVIDE MECHANICAL MOUNTING W/ COUNTERSUNK, VANDAL RESISTANT FASTENERS. MOUNT ON GLAZING WITH CLEAR SILICONE ADHESIVE AND A SECOND SIGN OR BLANK ALIGNED ON THE OTHER SIDE OF GLAZING TO MASK THE ADHESIVE.
3. PROVIDE ONE SIGN WHERE INDICATED ON PLANS OR SCHEDULE.

101400.08-S Rev 09/29/16

24 ROOM IDENTIFICATION SIGNAGE
1 1/2" = 1'-0"

CHARACTER REQUIREMENTS:

A. CHARACTER REQUIREMENTS FOR ALL SIGNS PER 2022 CBC 11B-703:

1. 3 CHARACTERS SHALL BE UPPERCASE.
2. CHARACTERS SHALL BE SANS SERIF. CHARTERS SHALL NOT BE ITALLIC, OBLIQUE, SCRIPT, HIGHLY DECORATIVE, OR OF OTHER UNUSUAL FORMS.
3. CHARACTER SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60 PERCENT MINIMUM AND 110 PERCENT MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER 'I'.
4. SPACING BETWEEN THE BASELINES OF SEPARATE LINES OF RAISED CHARACTERS WITHIN A MESSAGE SHALL BE 135 PERCENT MINIMUM AND 170 PERCENT MAXIMUM OF THE CHARACTER HEIGHT.
5. TEXT SHALL BE IN HORIZONTAL FORMAT.
6. CHARACTERS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH AND CONTRAST WITH ONE ANOTHER

B. RAISED CHARACTER REQUIREMENTS FOR SIGNS WITH BRAILLE PER 2022 CBC 11B-703.2:

1. RAISED CHARACTERS SHALL COMPLY WITH REQUIREMENTS NOTED IN PARAGRAPH 'A' ABOVE
2. RAISED CHARACTERS SHALL BE 1/32 INCH MIN ABOVE BACKGROUND.
3. RAISED CHARACTER HEIGHT MEASURED VERTICALLY FROM THE BASELINE OF THE CHARACTER SHALL BE 5/8 INCH MINIMUM AND 2 INCHES MAXIMUM BASED ON THE HEIGHT OF THE UPPERCASE LETTER 'I'.
4. STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 10 PERCENT MINIMUM AND 15 PERCENT MAXIMUM OF THE HEIGHT OF THE CHARACTER.
5. CHARACTER SPACING BETWEEN INDIVIDUAL RAISED LETTERS SHALL BE 1/8 INCH MINIMUM AND FOUR (4) TIMES THE RAISED CHARACTER STROKE WIDTH MAXIMUM.
6. ALL EDGES ON GEOMETRIC SYMBOLS SHALL BE EASED OR ROUNDED AT 1/16 INCH MINIMUM. VERTICES SHALL BE RADIUSED BETWEEN 1/8 INCH MINIMUM AND 1/4 INCH MAXIMUM.

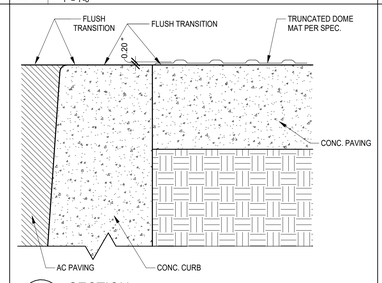
C. VISUAL CHARACTER REQUIREMENTS FOR SIGNS WITHOUT BRAILLE PER 2022 CBC 11B-703.5:

1. VISUAL CHARACTERS SHALL COMPLY WITH REQUIREMENTS NOTED IN PARAGRAPH 'A' ABOVE
2. MINIMUM CHARACTER HEIGHT SHALL CONFORM TO 2022 CBC TABLE 11B-703.5.5 BUT IN NO CASE SHALL BE LESS THAN 5/8 INCH.
3. HEIGHT FROM FINISH FLOOR SHALL BE NO LESS THAN 40 INCHES.
4. STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 10 PERCENT MINIMUM AND 20 PERCENT MAXIMUM OF THE HEIGHT OF THE CHARACTER.
5. SPACING BETWEEN INDIVIDUAL CHARACTERS SHALL BE MEASURED BETWEEN THE TWO CLOSEST POINTS OF ADJACENT CHARACTERS, EXCLUDING WORD SPACES. SPACING BETWEEN INDIVIDUAL CHARACTERS SHALL BE 10 PERCENT MINIMUM AND 35 PERCENT MAXIMUM OF CHARACTER HEIGHT.

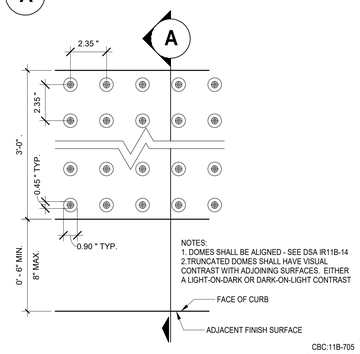
CHARACTER AND STROKE WIDTH TO HEIGHT PROPORTIONS.

321623.02-S Rev 12/15/17

23 CHARACTER REQ. FOR SIGNAGE
1" = 1'-0"

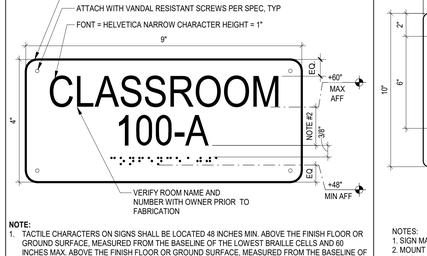


A SECTION



CBC:11B-705

11 TRUNCATED DOMES
3" = 1'-0"



NOTE:

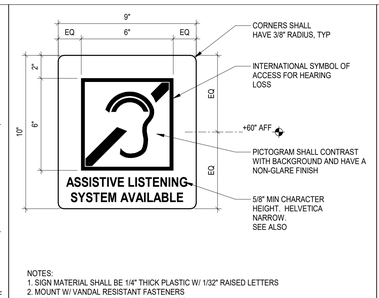
1. TACTILE CHARACTERS ON SIGNS SHALL BE LOCATED 48 INCHES MIN. ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE LOWEST BRAILLE CELLS AND 60 INCHES MAX. ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE HIGHEST LINE OF RAISED CHARACTERS.
2. SPACING BETWEEN THE BASELINES OF SEPARATE LINES OF RAISED CHARACTERS WITHIN A MESSAGE SHALL BE 135 PERCENT MIN. AND 170 PERCENT MAX. OF RAISED CHARACTER HEIGHT

28 TYP. ROOM IDENTIFICATION SIGN
6" = 1'-0"

NOTE: TACTILE CHARACTERS ON SIGNS SHALL BE LOCATED 48 INCHES MIN. ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE LOWEST BRAILLE CELLS AND 60 INCHES MAX. ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE HIGHEST LINE OF RAISED CHARACTERS.

101400.12-S

22 TACTILE EXIT SIGNS
3" = 1'-0"

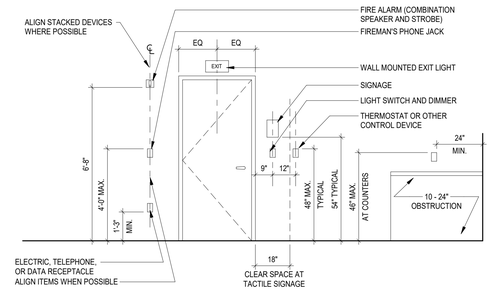


NOTES:
1. SIGN MATERIAL SHALL BE 1/4" THICK PLASTIC W/ 1/32" RAISED LETTERS
2. MOUNT W/ VANDAL RESISTANT FASTENERS
3. PROVIDE (2) ALS HEADSETS PER CLASSROOM

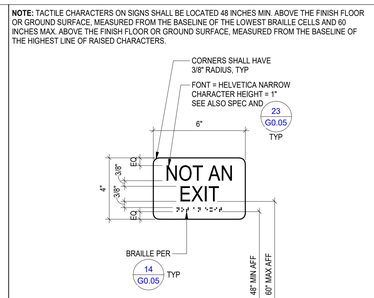
101400.13-S

27 ASSISTIVE LISTENING SIGNAGE
3" = 1'-0"

21 ENTRY MAT SYSTEM DETAIL
3" = 1'-0"

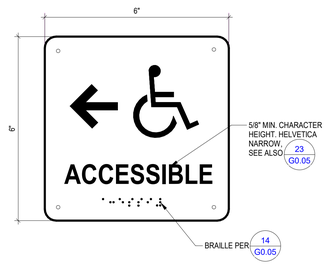


16 MISC. MOUNTING HEIGHTS
3/8" = 1'-0"



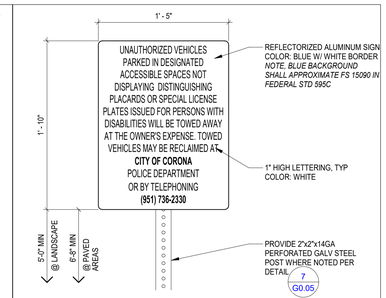
101400.01-S CBC 2019 - Rev 09/19

26 TACTILE NOT AN EXIT SIGN
3" = 1'-0"



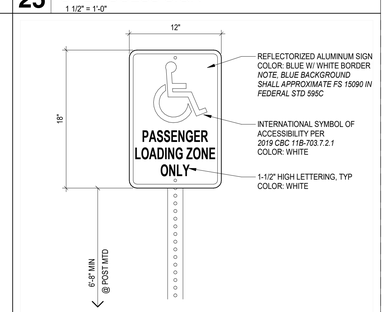
101400.15-S Rev 10/17

25 SITE ACCESS SIGN
1 1/2" = 1'-0"



101400.01-S CBC 2019 - Rev 09/19

25 SITE ACCESS SIGN
1 1/2" = 1'-0"

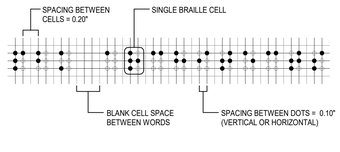


101400.03-S CBC 2019 - Rev 09/19

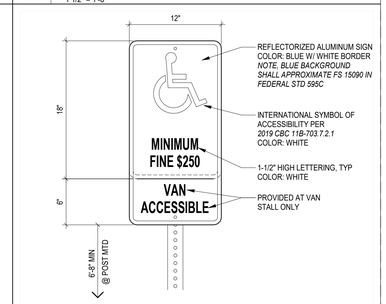
20 ROOM IDENTIFICATION SIGNAGE
6" = 1'-0"

BRAILLE REQUIREMENTS PER 2016 CBC 11B-703.3:

1. CONTRACTED CALIFORNIA GRADE 2 BRAILLE SHALL BE USED WHEREVER BRAILLE IS REQUIRED
2. BRAILLE DOTS SHALL HAVE A DOMED OR ROUNDED SHAPE
3. DOT BASE DIAMETER = 0.059 TO 0.063 INCHES
4. DOT HEIGHT = 0.025 TO 0.037 INCHES
5. SPACING BETWEEN DOTS AND CELLS PER BELOW...



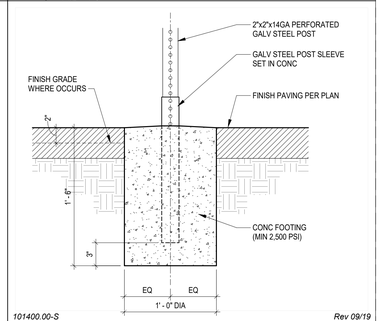
19 PASSENGER LOADING ZONE SIGN
1 1/2" = 1'-0"



101400.02-S CBC 2019 - Rev 09/19

14 BRAILLE STANDARDS FOR SIGNAGE
6" = 1'-0"

13 (E) ACCESSIBLE PARKING SIGN
1 1/2" = 1'-0"



101400.00-S Rev 09/19

7 SIGN POST FOOTING
1 1/2" = 1'-0"

IDENTIFICATION STAMP
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APP: 04-122251 INC:
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DATE: 10/24/2023

PBK

ARCHITECT PBK Architects, Inc. PBK.com
RANCHO CUCAMONGA
8163 Rochester Avenue, Suite 100
Rancho Cucamonga
California 91730
P 909-987-0909

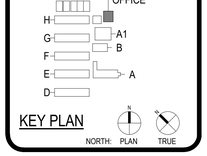
CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE



KEY PLAN

NORTH: PLAN TRUE

Consultant

Architect

LICENSED ARCHITECT
Yong Yao
No. C-31162
REN. 10-31-2023
STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

REVISIONS

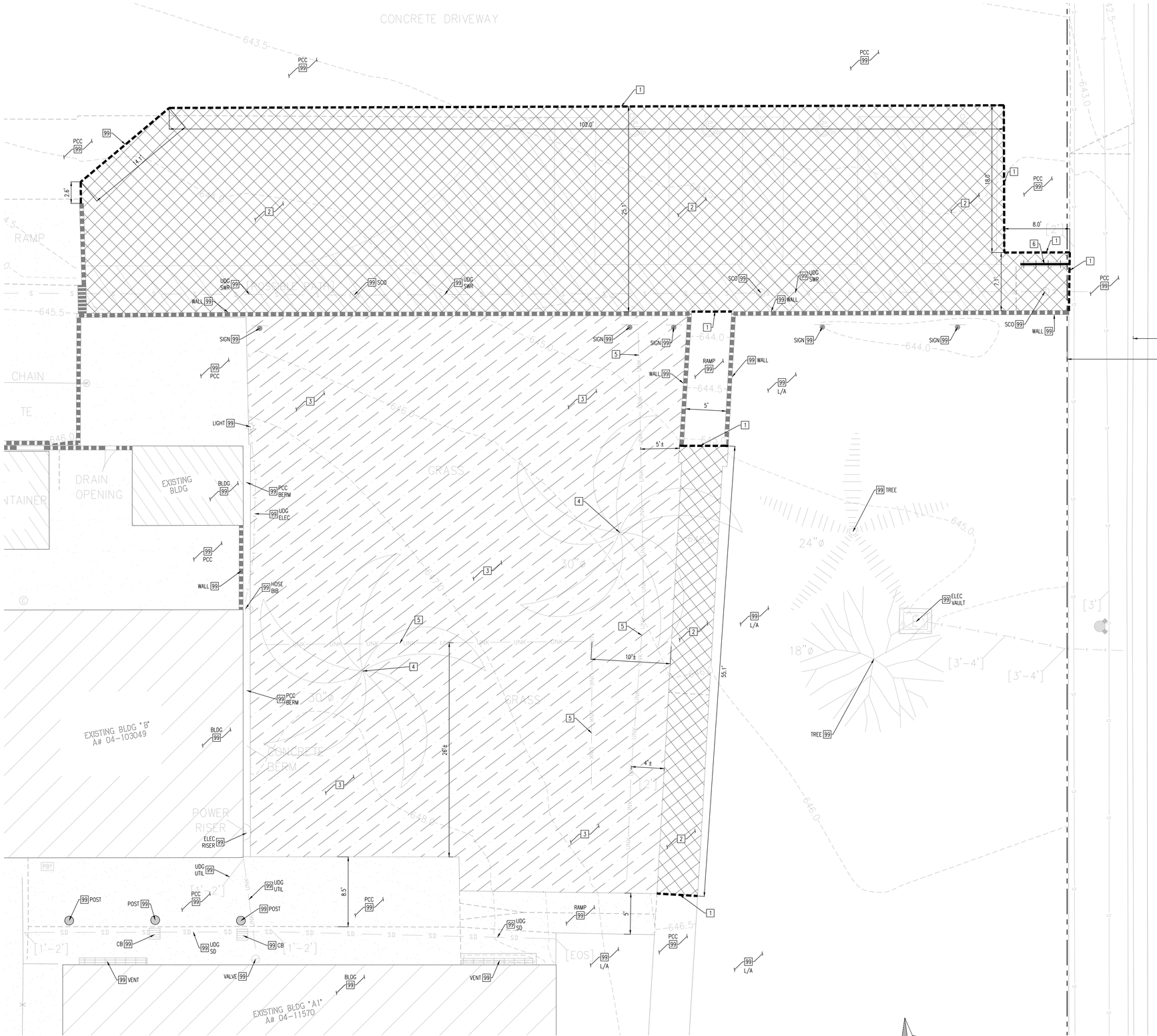
No.	Description	Date

100% CONSTRUCTION DOCUMENTS

ACCESSIBILITY DETAILS

G0.05

FILE PATH: Z:\Projects\...
9/28/2023 2:18:20 PM



DEMOLITION PLAN LEGEND & ABBREVIATIONS

- PCC DEMOLITION
- CLEAR ANG GRUB DEMOLITION
- SAWCUT
- CURB REMOVAL

BLDG	BUILDING
℄	CENTERLINE
CB	CATCH BASIN
EA	EACH
ELEC	ELECTRICAL
L/A	LANDSCAPING
LF	LINEAR FEET
PCC	PORTLAND CEMENT CONCRETE
SCO	SEWER CLEANOUT
SD	STORM DRAIN
SF	SQUARE FEET
SWR	SEWER
UDG	UNDERGROUND
UTIL	UTILITY

DEMOLITION ITEMS

		QUANITITES
1	SAWCUT PAVEMENT TO A CLEAN, STRAIGHT EDGE	165 LF
2	REMOVE PCC PAVEMENT AND DISPOSE	3,105 SF
3	CLEAR AND GRUB, DISPOSE	3,535 SF
4	REMOVE TREE AND DISPOSE	2 EA
5	CONTRACTOR TO POTHOLE AND VERIFY UNKNOWN UTILITY TYPE, SIZE, DEPTH AND LOCATION PRIOR TO CONSTRUCTION OF PROPOSED BUILDING	140 LF
6	REMOVE PCC CURB AND DISPOSE	6 LF
99	PROTECT IN PLACE, ITEM PER PLAN	

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

VALUED ENGINEERING, INC

CIVIL ENGINEERING ● LAND SURVEYING ● LAND PLANNING
600 N. MOUNTAIN AVE. STE C102, UPLAND, CA 91786
PHONE: (909) 982-4601

IDENTIFICATION STAMP
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PBK

ARCHITECT — PBK Architects, Inc. PBK.com
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8163 Rochester Avenue, Suite 100
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California 91730
P 909-987-0909

CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE

KEY PLAN — NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER — JEREY D. MAY — No. 64696 — CIVIL — STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT — Yong Yao — No. C-31162 — REN. 10-31-2023 — STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

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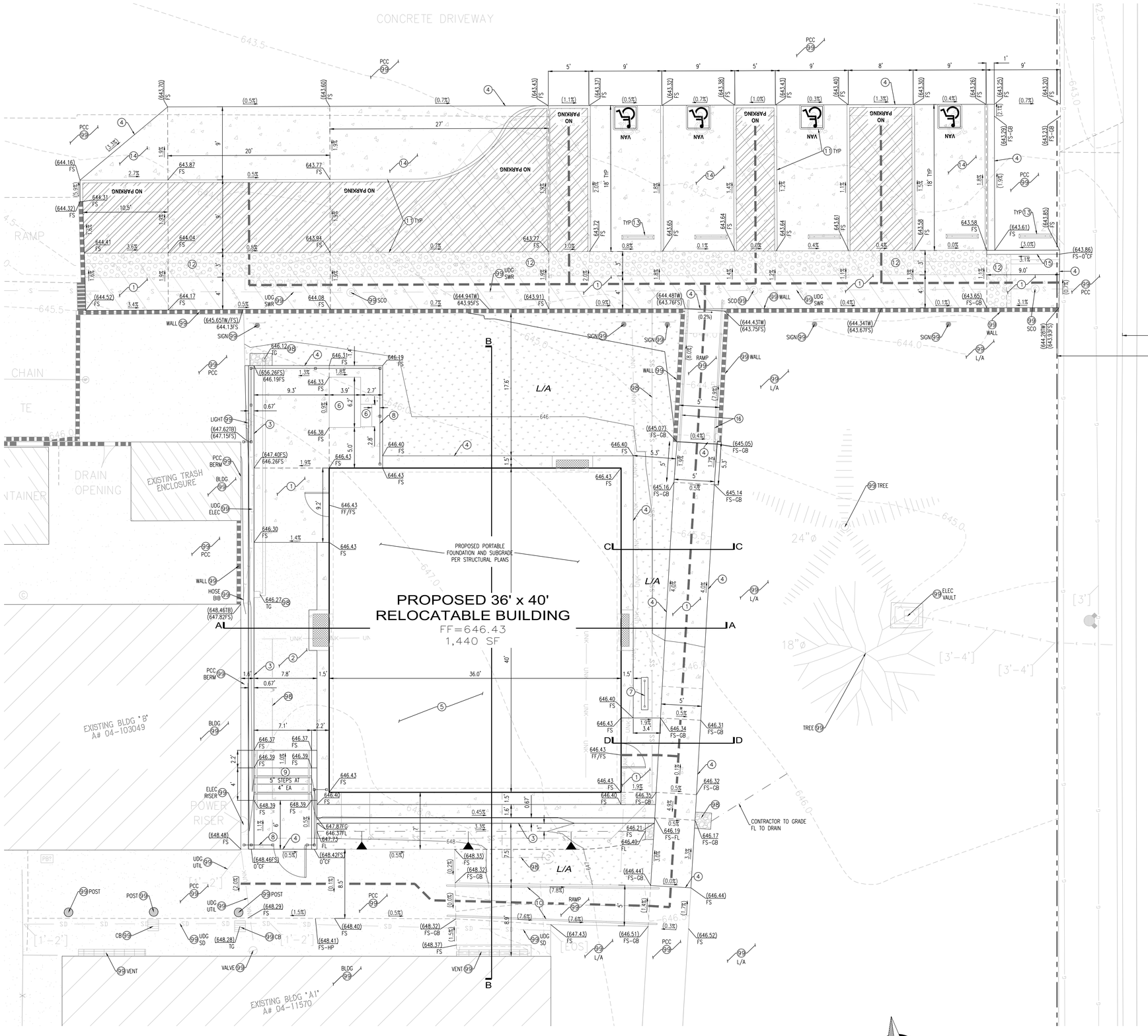
DEMOLITION PLAN

C1.1

File: P:_JOBS\0752301\CAD\SHEETS\GRADING\0752301 C1.1 DEMO.dwg Sep 27, 2023 - 4:06pm Kent



GRADING PLAN LEGEND & ABBREVIATIONS

- PROPOSED PCC PAVEMENT
- PROPOSED DECOMPOSED GRANITE
- PROPOSED LANDSCAPING
- ADA PATH OF TRAVEL

BLDG	BUILDING
℄	CENTERLINE
CB	CATCH BASIN
EA	EACH
ELEC	ELECTRICAL
FF	FINISH FLOOR
FS	FINISH SURFACE
GB	GRADE BREAK
HP	HIGH POINT
L/A	LANDSCAPING
LF	LINEAR FEET
PCC	PORTLAND CEMENT CONCRETE
SCO	SEWER CLEANOUT
SD	STORM DRAIN
SF	SQUARE FEET
SWR	SEWER
TB	TOP OF BERM
TC	TOP OF CURB
TW	TOP OF WALL
UDG	UNDERGROUND
UTIL	UTILITY

CONSTRUCTION ITEMS

		QUANTITIES
1	CONSTRUCT 4" PCC PAVEMENT OVER COMPACTED NATIVE SOIL	1,540 SF
2	CONSTRUCT DECOMPOSED GRANITE SURFACE	194 SF
3	CONSTRUCT RETAINING CURB PER DETAIL A/C5.1	108 LF
4	CONSTRUCT PAVEMENT JOINT JUNCTURE PER DETAIL B/C5.1	325 LF
5	FURNISH AND INSTALL RELOCATABLE BUILDING PER ARCHITECTURAL PLANS	--
6	CONSTRUCT PCC MECHANICAL PAD PER ARCHITECTURAL PLANS	--
7	CONSTRUCT SIGN PER ARCHITECTURAL PLANS	--
8	FURNISH AND INSTALL CHAIN LINK FENCE AND GATES PER ARCHITECTURAL PLANS	--
9	CONSTRUCT STEPS WITH HAND RAILING PER ARCHITECTURAL PLANS	--
10	EXISTING HAND RAILING AND RAMP PER A# 04-111570	--
11	INSTALL STRIPING PER ARCHITECTURAL PLANS	--
12	INSTALL ADA TRUNCATED DOMES PER ARCHITECTURAL PLANS	--
13	INSTALL PARKING WHEEL STOP PER ARCHITECTURAL PLANS	--
14	CONSTRUCT 7" PCC PAVEMENT OVER 4" COMPACTED AGGREGATE BASE OVER COMPACTIVE NATIVE SOIL	1,980 SF
15	CONSTRUCT 6" CURB (TYPE 6A) PER CITY OF CORONA STD. PLAN NO. 137	9 LF
98	SEE SHEET C2.2 FOR STORM DRAIN AND UTILITY ITEMS	
99	PROTECT IN PLACE, ITEM PER PLAN	
16	EXISTING HAND RAILING AT RAMP	

VALUED ENGINEERING, INC
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PHONE: (909) 982-4601

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P 909-987-0909

CORONA TRANSPORTATION

PROJECT ADDRESS:
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NORCO, CA 92860

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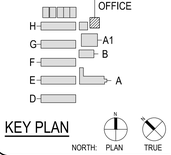
DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE



KEY PLAN

NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER
JEREY D. MAY
No. 64696
CIVIL
STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT
Yong Yao
No. C-31162
REN. 10-31-2023
STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

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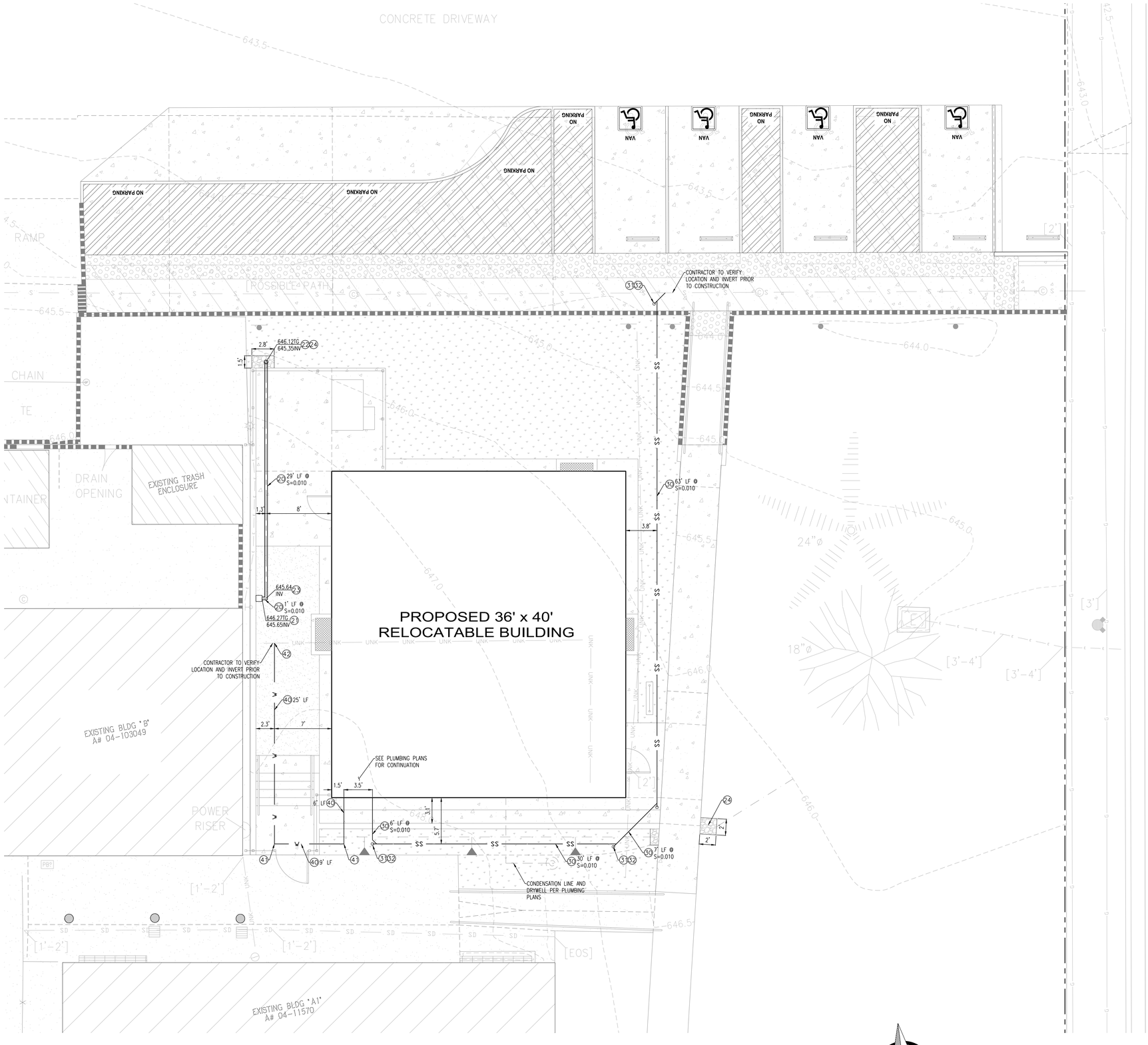
GRADING PLAN

C2.1

File: P:\JOBS\0752301\CAD\SHEETS\GRADING\0752301 C2.1 GRADE.dwg Sep 27, 2023 - 3:59pm Kent

0" 1"



STORM DRAIN ITEMS

		QUANTITIES
20	FURNISH AND INSTALL 4" PVC, SCHEDULE 40 STORM DRAIN PIPE PER MANUFACTURERS SPECIFICATIONS	30 LF
21	FURNISH AND INSTALL 9"x9" CATCH BASIN BY NDSPRO WITH D.I GRATE (OR APPROVED EQUAL) PER DETAIL C/C5.1	1 EA
22	FURNISH AND INSTALL 4" POP-UP DRAINAGE EMITTER BY NDSPRO (OR APPROVED EQUAL) PER DETAIL E/C5.1	1 EA
23	FURNISH AND INSTALL 4" PVC 90° BEND	1 EA
24	CONSTRUCT RIP-RAP SPLASH PAD WITH 6" ROCK, SIZE PER PLAN	3 EA

SEWER ITEMS

		QUANTITIES
30	FURNISH AND INSTALL 2" PVC, SCHEDULE 40 SEWER LINE PER MANUFACTURERS SPECIFICATIONS	106 LF
31	FURNISH AND INSTALL 2" PVC WYE	4 EA
32	FURNISH AND INSTALL SEWER CLEANOUT PER CITY OF CORONA STD. 307 PER DETAIL F/C5.1	4 EA

WATER ITEMS

		QUANTITIES
40	FURNISH AND INSTALL 3/4" PVC, SCHEDULE 80 DOMESTIC WATER PER MANUFACTURERS SPECIFICATIONS	40 LF
41	FURNISH AND INSTALL 3/4" PVC 90° BEND	2 EA
42	CONNECT TO EXIST DOMESTIC WATER	1 EA

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

VALUED ENGINEERING, INC
CIVIL ENGINEERING • LAND SURVEYING • LAND PLANNING
600 N. MOUNTAIN AVE., STE C102, UPLAND, CA 91786
PHONE: (909) 982-4601

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NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE

KEY PLAN

NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER JEFFREY D. ALLEN No. 64696 CIVIL STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT John Yoo No. C-31162 REN. 10-31-2023 STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

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UTILITY PLAN

C2.2

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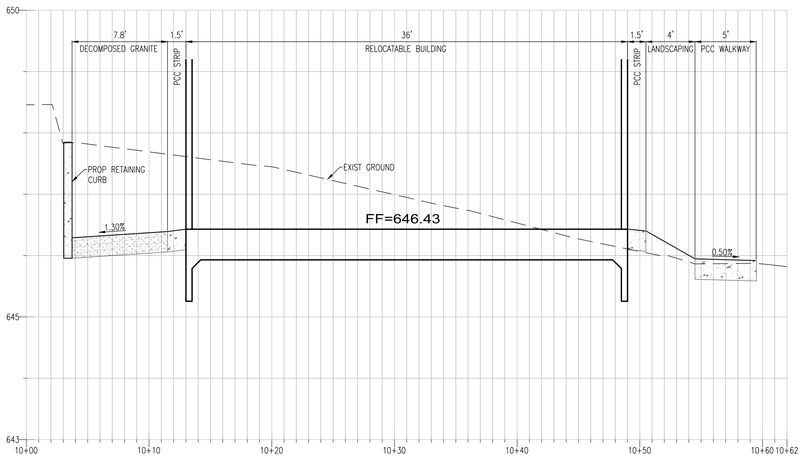
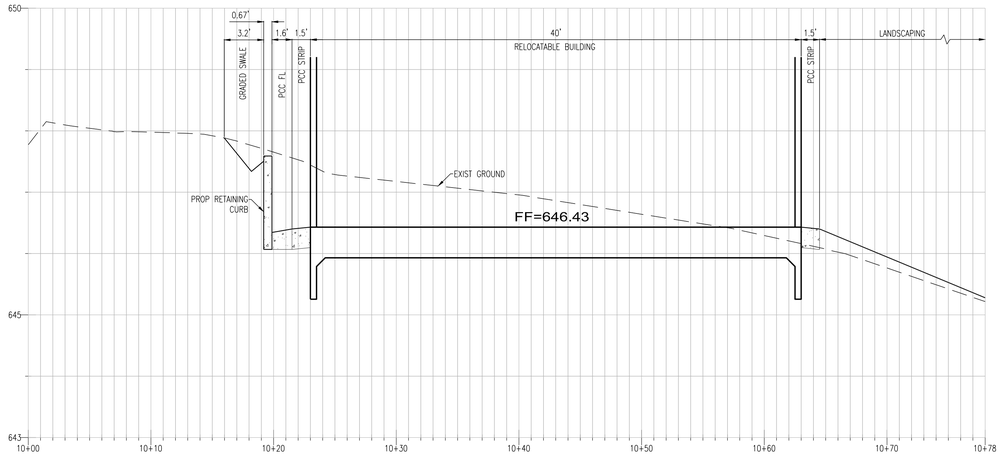


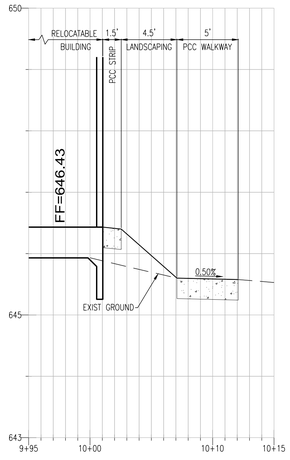
SECTION A-A

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'



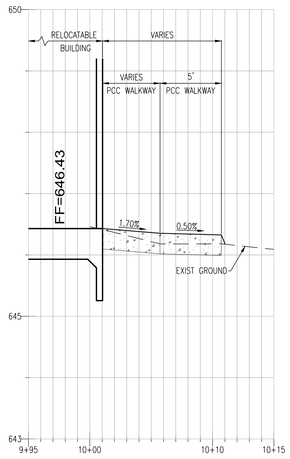
SECTION B-B

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'



SECTION C-C

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'



SECTION D-D

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'

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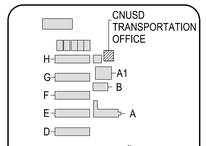
CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE



KEY PLAN

NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER
JEREY D. MAY
No. 64696
CIVIL
STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT
Yong Yao
No. C-31162
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STATE OF CALIFORNIA

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SECTIONS

C3.1

VALUED ENGINEERING, INC
CIVIL ENGINEERING ● LAND SURVEYING ● LAND PLANNING
600 N. MOUNTAIN AVE, STE C102, UPLAND, CA 91786
PHONE: (909) 982-4601

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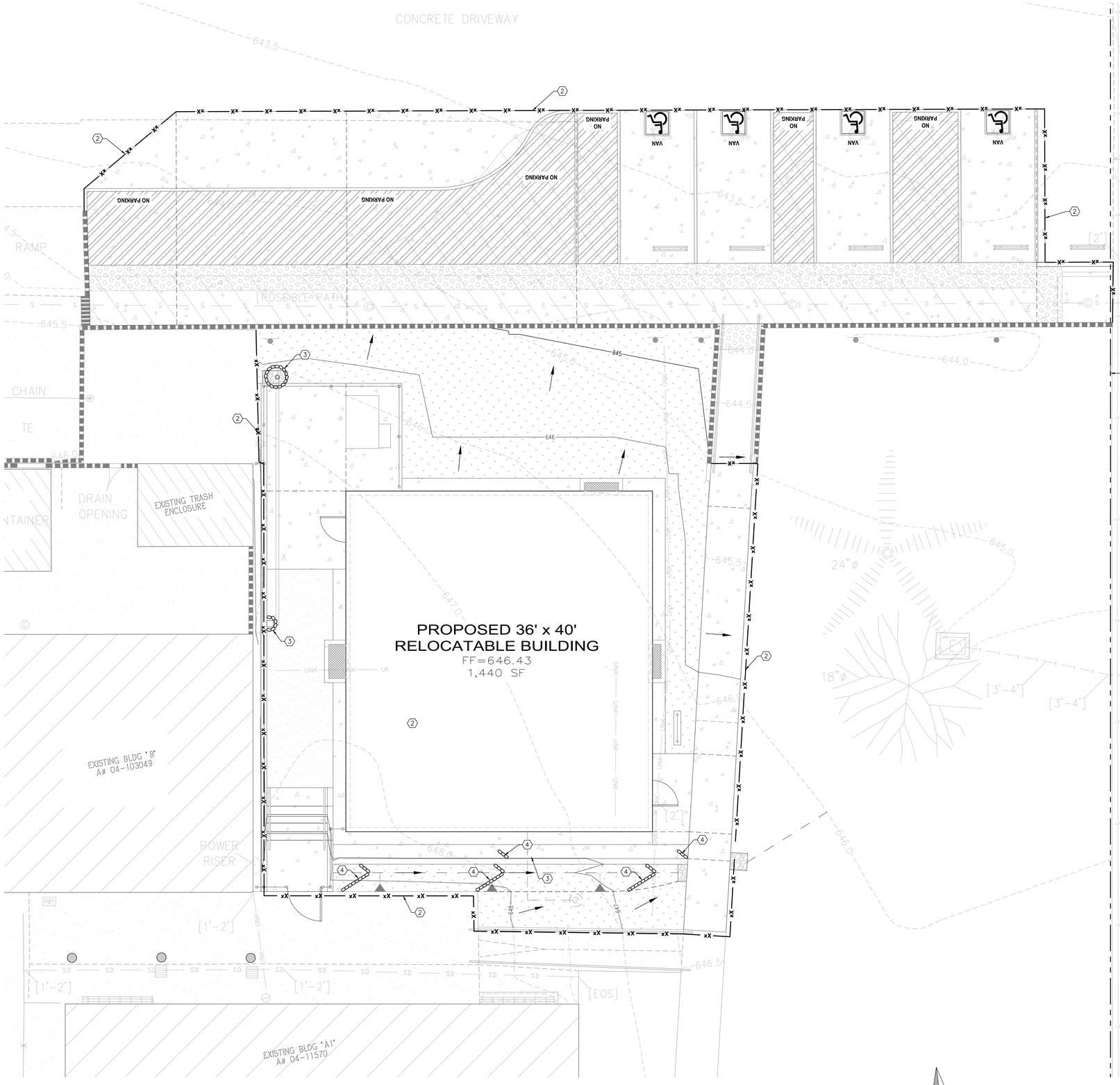


EROSION CONTROL AND BMP ITEMS

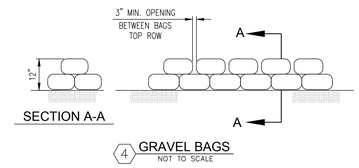
1. CONTRACTOR TO PREPARE AND IMPLEMENT A CONSTRUCTION SCHEDULE PER BMP (CASQA BMP HANDBOOK) EC-1
2. INSTALL SILT FENCE PER BMP (CASQA BMP HANDBOOK) SE-1
3. PLACE INLET PROTECTION PER BMP (CASQA BMP HANDBOOK) SE-10
4. PLACE GRAVEL BAGS 2 COURSE HIGH PER BMP (CASQA BMP HANDBOOK) SE-6 AND PER DETAIL ON THIS SHEET

OTHER NON-STORMWATER "BMPS"

NS-1	WATER CONSERVATION PRACTICES
NS-3	PAVING & GRIND OPERATIONS
NS-6	ILLICIT CONNECTION/DISCHARGE
NS-12	CONCRETE CURING
NS-13	CONCRETE FINISHING
WM-1	MATERIAL DELIVERY & STORAGE
WM-2	MATERIAL USE
WM-3	STOCKPILE MANAGEMENT
WM-4	SPILL PREVENTION & CONTROL
WM-5	SOLID WASTE MANAGEMENT
WM-6	HAZARDOUS WASTE MANAGEMENT
WM-8	CONCRETE WASTE MANAGEMENT
WM-9	SANITARY/SEPTIC WASTE MANAGEMENT
WM-10	LIQUID WASTE MANAGEMENT

LEGEND

- SILT FENCE PER SE-1
- GRAVEL BAGS PER SE-6
- INLET PROTECTION PER SE-10
- FLOW DIRECTION



SECTION A-A

4 GRAVEL BAGS
NOT TO SCALE

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

VALUED ENGINEERING, INC
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P 909-987-0909

CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE

KEY PLAN

NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D. NEWTON
No. 64696
CIVIL
STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT
Yong Yoo
No. C-31162
REN. 10-31-2023
STATE OF CALIFORNIA

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EROSION CONTROL PLAN

C4.1

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CATCH BASINS

9" Catch Basin Series

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
900FF	9" Catch Basin Filter	Blue Frame/ Black Bag	8	0.06	10ND	Polypropylene Frame Fabric is non-woven geotextile 956 PM/SF.
	Compatible with these basins: 900, 900-4 and 916 NDS Catch Basins, Risers and Kits					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
9XXGLK1	9" x 9" Catch Basin Kit	Black Grate	4	4.60	10ND	9" x 9" tapered Catch Basin. Polypropylene.
900GRKT	9" x 9" Catch Basin Kit	Green Grate	4	4.90	10ND	Kits include 2-opening Catch Basin, Grate, Screws, 2 Outlets and 1 Plug.
900KITDISP	9" x 9" Catch Basin Kits in Display Box	Blk/Grn Grates	8	39.2	10ND	DISP includes 4 kits with black grates and 4 green
900	9" x 9" Catch Basin 2-opening	Black	4	2.18	10ND	
900-4	9" x 9" Catch Basin 4-opening	Black	4	2.00	10ND	
	Requires either #1208, #1242, #1243, #1245 or #1266 Universal Outlet to connect pipe to basin. (see page 35)					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
916	9" x 9" Catch Basin Riser	Black	4	1.75	10ND	6" Riser for 9" x 9 Catch Basin. Styrene.
	Use with 9" x 9" Catch Basin Series. Stacks on top of 9" catch basins to add up to 6" to top of basin. Can be cut to size.					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
9000SG	9" x 9" Downspout Defender Grate	Black	4	0.8	10ND	9" x 9" Downspout Grate, Structural Foam Polyolefin with UV inhibitors. 146 GPM.
	Receives downspouts from 2" to 4" round or square. Fits all NDS 9" square Catch Basins, Risers and Low-Profile Adapters					
9000SGKIT	9" x 9" Low-Profile Downspout Kit	Black	4	2.25	10ND	Kit includes 9" Downspout Defender Grate, 930 low-profile adapter and 1243 outlet adapter. 146 GPM.
	Receives downspouts from 2" to 4" round or square. Fits 3" & 4" Corrugated Pipe, 3" & 4" Sewer and Drain Pipe, 4" Sewer and Drain Fittings, 4" Schedule 40 Pipe, and 3" & 4" Triple Wall Pipe.					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
981	9" x 9" Atrium Grate	Black	6	0.87	10ND	9" Structural Foam Polyolefin Dome Atrium Grate with UV inhibitor. Open surface area 31.50 square inches. 96.36 GPM.
991	9" x 9" Atrium Grate	Black	6	0.87	10ND	
	Use with 9" x 9" Catch Basin Series.					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
980	9" Square Grate	Black	8	1.50	10ND	9" Square Structural Foam Polyolefin Grate with UV Inhibitor. Open surface area 37.49 square inches. 114.69 GPM.
990	9" Square Grate	Green	8	1.50	10ND	
999	9" Square Grate	Gray	8	1.50	10ND	
999S	9" Square Grate	Sand	8	1.50	10ND	
	Use with 9" x 9" Catch Basin Series. NDS #980, 990, 999, 999S Class A Load Rated. ADA Compliant. NDS #930B Class B Load Rated. (see page 79). ADA Compliant.					

9" Catch Basin Series (continued)

Part No.	Description	Color	Pkg. Qty	Wt. Ea. lbs.	Product Class	Specifications
930B	9" Square Brass Grate	Brass	1	5.11	15BR	Open surface area 34.00 square inches. 194.01 GPM. Includes SS Screws.
	(see page 79). ADA Compliant.					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
913	9" Square Ductile Iron Grate	Black*	4	7.89	10ND	9" Square Heavy-Duty Ductile Iron Grate. Open surface area 21.70 square inches. 66.36 GPM.
	Use with 9" x 9" Catch Basin Series. *Painted for shipping & display only; grate will form iron-oxide patina (see page 79)					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
915	9" Square Galvanized Steel Grate	Galvanized Steel	4	3.80	10ND	9" Square Heavy-Duty Galvanized Steel Bar Grate. Open surface area 61.94 square inches. 189.48 GPM.
	Use with 9" x 9" Catch Basin Series. (see page 79)					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
930	9" x 9" Low-Profile Adapter	Black	8	0.75	10ND	9" x 9 Low-Profile Adaptor. Styrene.
930GRKT	9" x 9" Low-Profile Adapter with Flat Green Grate and 3" & 4" Universal Locking Outlet	Green Grate	8	n/a	10ND	Kits contain Low-Profile Adapter, 3" & 4" Universal Locking Outlet and Grate as described.
	Adapter alone requires #1242, #1243, #1245, #1266 or #1809 Universal Outlets to connect to 3", 4", 6" or 8" Sewer and Drain or Corrugated Pipes (see page 35). Kits contain #1243 outlet.					

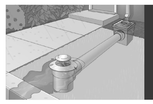
Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
931	9" x 9" Deep Housing Spigot Adapter	Black	10	2.40	10ND	9" x 9" Square Deep Housing Spigot Adaptor. Styrene.
	Fits 4" Corrugated Pipe. Use #933 to adapt to 4" Sewer and Drain Pipe.					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
933	Adapter Bushing	Black	20	0.30	10ND	Styrene.
	Bushing adapts #931 to fit 3" and 4" Sewer and Drain Pipes and 3" Corrugated Pipe.					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
932	9" x 9" Low-Profile Housing Adapter	Black	8	1.13	10ND	NDS #932, 9" x 9" Square Low-Profile Housing Adapter with 6" Outlet. Styrene.
	Fits 6" Spee-D® Basin and 6" Sewer and Drain Pipe & Fittings.					

C5.1 NDS 9"x9" CATCH BASIN AND GRATE

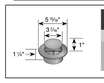
POP-UP DRAINAGE EMITTERS



The Pop-up Drainage Emitter is an easy, safe and efficient solution that allows water to be diverted and released to water-safe areas away from structures, erosion-prone landscapes and poor drainage areas.

Pop-up Drainage Emitters allow water captured by grates, catch basins, channel drains, Flo-Well, EZflow, downspouts and roof gutter systems to flow through drainage pipe and away from structural foundations to safe or useful areas. For example, water can be routed from a low area next to a foundation to a water-safe area in the landscape, or a curbside drainage system where allowed. The emitter opens under minimal hydrostatic pressure from water through upstream drainage pipes; the emitter closes as flow diminishes. The special patented design allows the Emitter to open with even the smallest flows. Since the Emitter is closed during dry weather, debris and rodents cannot enter the drain pipes. Spring automatically retracts – closes and prevents damage from lawn mowers. It's flat profile blends discreetly into the surrounding landscapes.

3" & 4" Pop-up Drainage Emitter

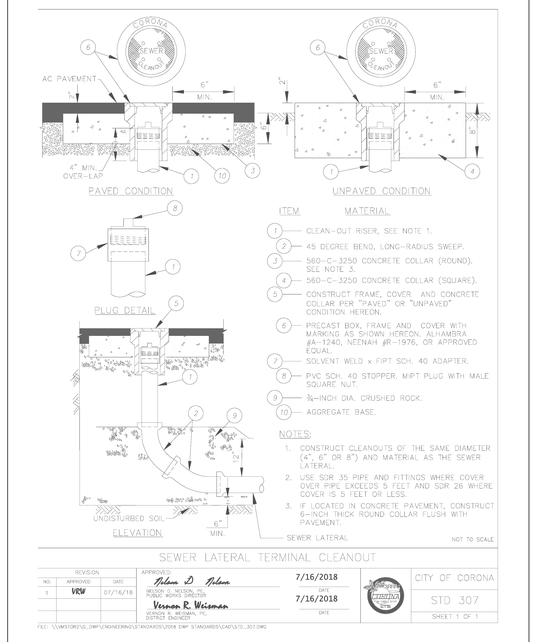


Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
420	3" & 4" Pop-up Drainage Emitter	Green	20	0.28	10ND	3" and 4" polyolefin spring-loaded Pop-up Drainage Emitter with UV inhibitor. 40 GPM capacity. 0.04 psi or 1" of head to raise top.
	Fits 3" and 4" Sewer and Drain Fittings. Ideal for discharging excess water from stormwater management system. Spring automatically retracts.					

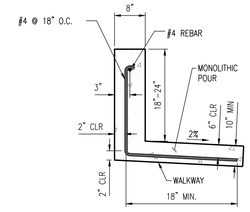
Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
321	Emitter with 3" Elbow	Green	25	0.60	10ND	NDS #420 polyolefin spring-loaded Pop-up Drainage Emitter with UV inhibitor, 3" styrene 90 degree elbow with 1/4" drain hole. 40 GPM. 0.04 psi or 1" of head to raise top.
	Fits 3" Sewer and Drain Pipe. Ideal for discharging excess water from stormwater management system. Spring automatically retracts.					

Part No.	Description	Color	Pkg. Qty	Wt. Ea. (lbs.)	Product Class	Specifications
421	Emitter with 4" Elbow	Green	20	0.85	10ND	NDS #420 polyolefin spring-loaded Pop-up Drainage Emitter with UV inhibitor, 4" styrene 90 degree elbow with 1/4" drain hole. 40 GPM. 0.04 psi or 1" of head to raise top.
	Fits 4" Sewer and Drain Pipe. Ideal for discharging excess water from stormwater management system. Spring automatically retracts.					

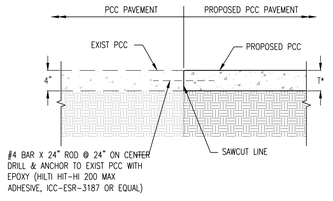
E C5.1 NDS 4" EMITTER



F C5.1 SEWER CLEANOUT



A C5.1 RETAINING CURB DETAIL



JUNCTURE OF EXISTING PCC PAVEMENT AND NEW PCC PAVEMENT

JUNCTURE OF NEW PCC AND LANDSCAPE AREA

B C5.1 PAVEMENT JOINT JUNCTURE DETAILS

VALUED ENGINEERING, INC
CIVIL ENGINEERING • LAND SURVEYING • LAND PLANNING
600 N. MOUNTAIN AVE, STE C102, UPLAND, CA 91786
PHONE: (909) 982-4601

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

ARCHITECT PBK Architects, Inc.
PBK.com
RANCHO CUCAMONGA
8163 Rochester Avenue, Suite 100
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California 91730
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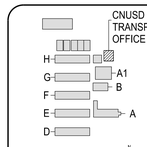
CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE



KEY PLAN
NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER JEREY D. MAY No. 64696 CIVIL STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT Yong Yoo No. C-31162 REN. 10-31-2023 STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-30-23	230010

REVISIONS

No.	Description	Date

DSA Submittal

CONSTRUCTION DETAILS

C5.1

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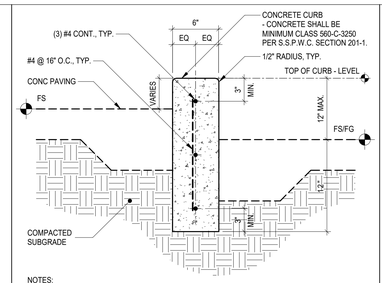
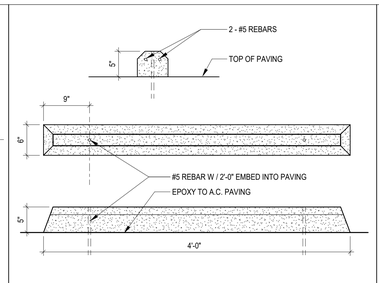
A1.02 - ENLARGED SITE PLAN

0" 1"



NOTES:
1. A 6" THICK LAYER OF CRUSHED AGGREGATE BASE SHALL BE PLACED UNDER CURB. MINIMUM COMPACTION OF 90% ON SUBGRADE AND 95% ON AGGREGATE BASE IS REQUIRED.
2. CONCRETE CURB SHALL BE MINIMUM CLASS 560-C-3250 PER S.S.P.W.C. SECTION 201-1
3. PLACE NO. 4 REBARS 3" MINIMUM FROM TOP AND BOTTOM OF CURB.

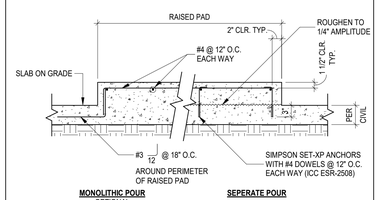
27 RETAINING CURB AT SLOPED WALK
1 1/2" = 1'-0"



CONCRETE: 3000 PSI MIN.
MIN. WEIGHT: AT 5'-0" LENGTH - 190 LBS.

26 CONCRETE WHEEL STOP
1" = 1'-0"

NOTES:
1. UNITS WITH A MAXIMUM EQUIPMENT HEIGHT OF 90" AND MAXIMUM OPERATING WEIGHT OF 1350 LBS SHALL BE PLACED ON RAISED CONCRETE PADS



MONOLITHIC POUR OPTIONAL

SEPERATE POUR

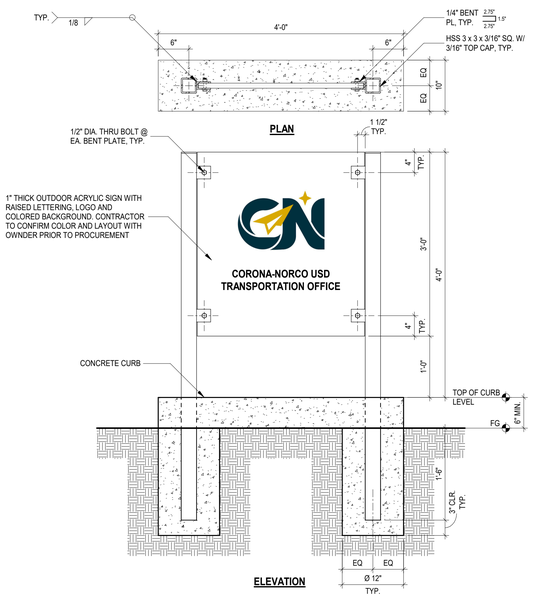
AT SLAB ON GRADE

25 RAISED CONCRETE PAD
3/4" = 1'-0"

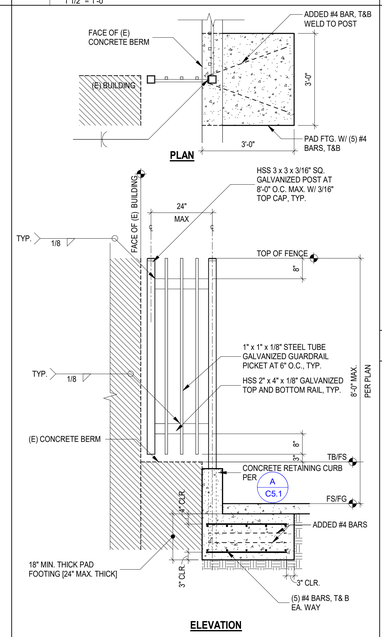
CONSTRUCTION KEYED NOTES

#	Description
00.03	(E) ACCESSIBLE PASSENGER DROP-OFF AND LOADING ZONE SIGN TO BE REMOVED AND REPLACED
00.04	(E) STANDARD ACCESSIBLE PARKING STALL SIGN PER A# 04-111570
00.06	(E) ACCESSIBLE VAN PARKING STALL SIGN PER A# 04-111570
00.13	PAINT INTERNATIONAL SYMBOL OF ACCESSIBILITY, TYP.
00.14	PAINT 4" PARKING STRIPE BLUE BORDER, TYP.
00.15	PAINT 4" CROSS STRIPING WHITE, TYP.
00.16	PAINT 12" HIGH WHITE LETTERS 'NO PARKING' IN AISLE, TYP.
00.21	TRUNCATED DOMES TO BE PROVIDED
00.22	PAINT 4" STRIPE BORDER WHITE
01.01	EXISTING CONCRETE PAVING TO REMAIN, PROTECT IN PLACE
01.06	(E) CONCRETE CURB TO REMAIN, PROTECT IN PLACE
01.08	(E) LANDSCAPING
01.09	(E) CLEAN OUT TO REMAIN, PROTECT IN PLACE
01.10	(E) HANDRAILS TO REMAIN, PROTECT IN PLACE
03.01	CONCRETE MOW STRIP TO BE PROVIDED
03.02	CONCRETE PAVING WITH 2% MAX. SLOPE TO BE PROVIDED - RE: CIVIL
03.05	CONCRETE RETAINING CURB TO BE PROVIDED
03.06	MECHANICAL CONCRETE PAD TO BE PROVIDED
03.08	CONCRETE STAIR ON GRADE
03.09	CONCRETE WALL TO BE PROVIDED
03.10	CONCRETE EDGE AT DECOMPOSED GRANITE TO MEET FLUSH
03.11	1/2" EXPANSION JOINT
03.12	CONCRETE WALL FOOTING BEYOND
03.13	8" DIA. CONCRETE FOOTING FOR 1 1/4" STD STL PIPE POST
03.14	4'-0" LONG PARKING WHEEL STOP TO BE PROVIDED; PAINT CONTRASTING COLOR, TYP.
03.15	(E) CONCRETE SLOPED WALK AND TRUNCATED DOMES TO BE REMOVED. PROVIDE NEW CONCRETE SLOPED WALK - RE: CIVIL
03.16	(E) TRUNCATED DOMES TO BE REMOVED AND REPLACED WITH CONCRETE PAVING - RE: CIVIL
03.17	CONCRETE CURB TO BE PROVIDED
05.01	FREESTANDING HANDRAIL AT STAIR
23.01	MECHANICAL UNIT ON 6" CONCRETE PAD - RE: MECHANICAL
32.01	4'-0" WIDE X 8'-0" HIGH HOT DIPPED GALVANIZED ORNAMENTAL SERVICE GATE WITH PANIC HARDWARE TO BE PROVIDED
32.02	CUSTOM MONUMENT ENTRY SIGN WITH VERBIAGE "CORONA-NORCO USD TRANSPORTATION OFFICE" TO BE PROVIDED
32.03	8'-0" HIGH HOT DIPPED GALVANIZED ORNAMENTAL FENCING TO BE PROVIDED
32.06	1'-0" x 4'-0" (NET OPENING) FOUNDATION VENT
32.07	2'-0" x 4'-0" (NET OPENING) ACCESS VENT

NOTE:
1. POWDER COAT ALL EXPOSED STEEL, COLOR TBD BY THE OWNER

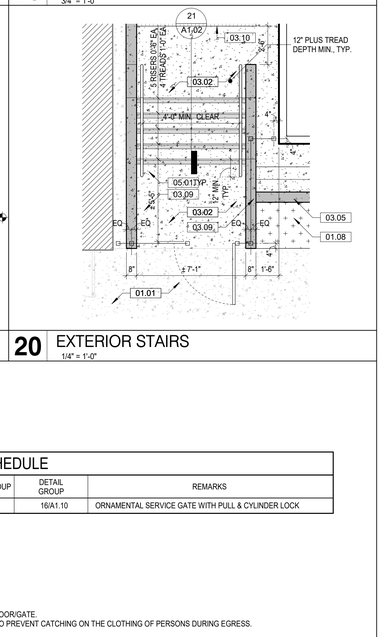


18 MONUMENT SIGN
1" = 1'-0"



NOTES:
1. ALL EXPOSED WELDS SHALL BE GROUND SMOOTH. REQUEST WELDING INSPECTION AFTER GRINDING.
2. ALL EXPOSED STEEL SHALL HAVE A GALVANIZED FINISH U.N.O.

16 GALV. ORNAMENTAL FENCING CENTILEVER
1/2" = 1'-0"



21 EXTERIOR STAIR SECTION
1/4" = 1'-0"

20 EXTERIOR STAIRS
1/4" = 1'-0"

GATE SCHEDULE

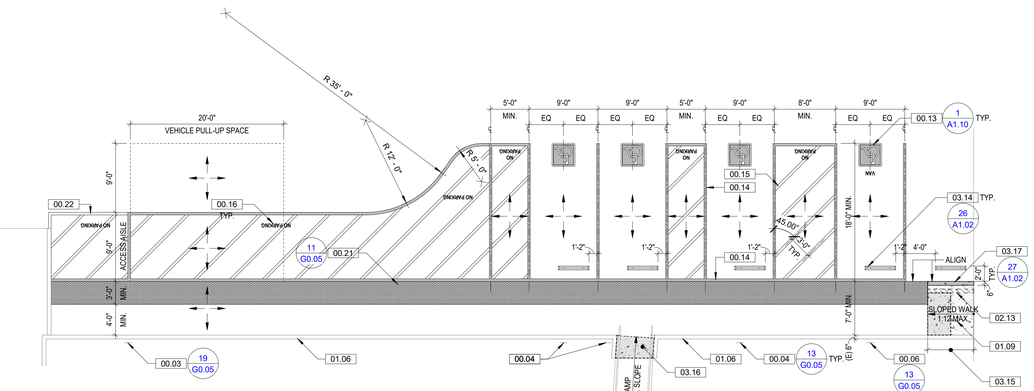
GATE #	SIZE (W X H)	MATERIAL	PANIC HARDWARE	HARWARE GROUP	DETAIL GROUP	REMARKS
G100	3'-0" X 8'-0"	STEEL	YES	1	16/A1.10	ORNAMENTAL SERVICE GATE WITH PULL & CYLINDER LOCK

HARDWARE GROUP 1

QTY	DECRIPTION	CATALOG NO.	FINISH	MFR
1 EA	PANIC HARDWARE	PA-AX-98-NL-OP-110MD-WH	630	VON
1 EA	CYLINDER	3000-058	626	C-R
1 EA	DOOR PULL	VR910 NL	630	IVE
1 EA	SURFACE CLOSER	4040XP EDA	689	LCN

NOTE:
- PANIC HARDWARE TO MEET SFM STANDARDS 12-10-3, SECTION 12-10-302.
- THE CROSS-BAR SHALL EXTEND ACROSS NOT LESS THAN ONE-HALF THE WIDTH OF THE DOOR/GATE.
- THE ENDS OF THE CROSS-BAR SHALL BE CURVED, GUARDED OR OTHERWISE DESIGNED TO PREVENT CATCHING ON THE CLOTHING OF PERSONS DURING EGRESS.

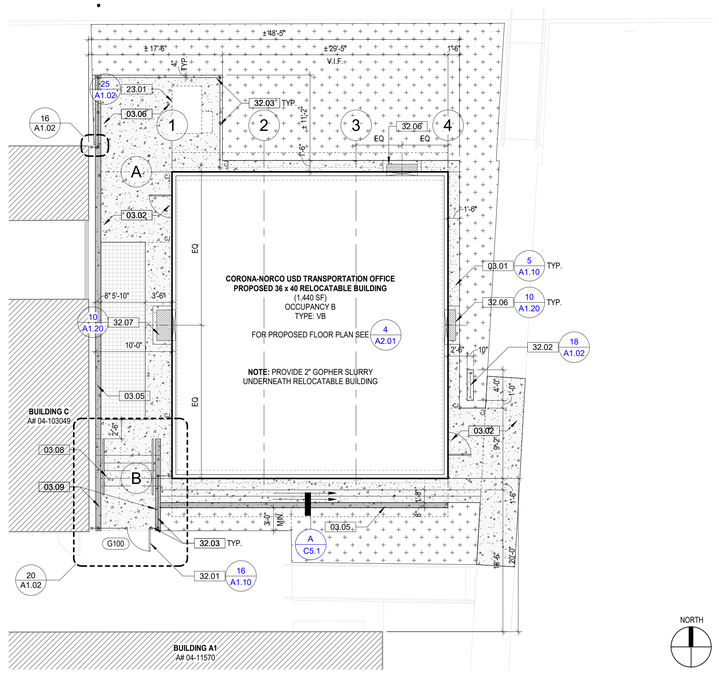
15 GATE SCHEDULE



NOTE:
1. EXISTING ACCESSIBLE DROP OFF AND ACCESSIBLE PARKING STRIPING TO BE REMOVED. BLACKOUT AS NECESSARY SO THAT NEW STRIPING IS EASILY LEGIBLE AND DISTINGUISHABLE FROM PAVEMENT.
2. EXISTING WHEEL STOPS TO BE REMOVED AND REPLACED, TYP.

NORTH

6 PARKING LOT "A" ACCESSIBLE PARKING RESTRIPING PLAN
1/8" = 1'-0"



NORTH

3 ENLARGED SITE PLAN
1/8" = 1'-0"

ENLARGED SITE PLAN LEGEND

- 8'-0" HIGH HOT DIPPED GALVANIZED ORNAMENTAL FENCING TO BE PROVIDED, SEE — 14 A1.10 / 16 A1.10
- CONCRETE RETAINING CURB TO BE PROVIDED U.N.O. — A C5.1
- (E) BUILDING NOT IN SCOPE
- **HATCH INDICATES:** 36 x 40 RELOCATABLE BUILDING TO BE REFURBISHED
- **HATCH INDICATES:** (E) LANDSCAPING / SOD TO BE REMOVED AND REPLACED AS NECESSARY TO PROVIDE PROPOSED SCOPE OF WORK. EXISTING IRRIGATION TO BE RE-ROUTED AS NECESSARY SUCH THAT IT IS FULLY FUNCTIONAL AND OPERATIONAL AS INTENDED BY THE DISTRICT.
- **HATCH INDICATES:** DECOMPOSED GRANITE SURFACING TO BE PROVIDED - SEE SPEC SECTION 32 15 40 AND CIVIL DRAWINGS
- **HATCH INDICATES:** CONCRETE PAVING TO BE PROVIDED RE: CIVIL DRAWINGS
- REFER TO SITE PLAN FOR EXPANSION JOINT AND CONTROL JOINT LOCATIONS EJ: EXPANSION JOINT @ 20'-0" MAX. SEE DETAIL — 8 A1.10; CJ: CONTROL JOINT @ 10'-0" MAX. SEE DETAIL
- **HATCH INDICATES:** (E) TRUNCATED DOMES TO BE REMOVED AND REPLACED WITH CONCRETE PAVING TO BE PROVIDED RE: CIVIL DRAWINGS — 9 A1.10; 10 A1.10
- **HATCH INDICATES:** TRUNCATED DOMES TO BE PROVIDED, SEE DETAIL — 11 G0.05
- 101 GATE NUMBER TAG SEE — 15 A1.02
- 2% MAX. SLOPE ALL DIRECTIONS

NOTE:
1. FOR TYPICAL SITE DETAILS SEE — A1.10
2. NON-SLIP FINISH IS REQUIRED ON ALL WALK SURFACES, TYP.
3. RE: CIVIL GRADING PLAN

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9/28/2023 2:17:55 PM

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

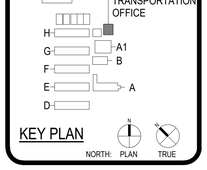
ARCHITECT PBK Architects, Inc.
PBK.com
RANCHO CUCAMONGA
8163 Rochester Avenue, Suite 100
Rancho Cucamonga
California 91730
P 909-987-0909

CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4



Consultant

Architect

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

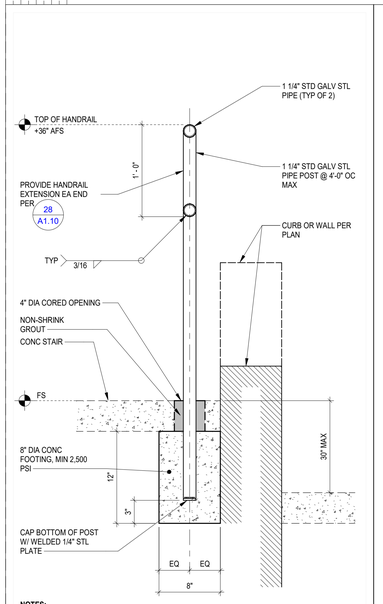
REVISIONS

No.	Description	Date

100% CONSTRUCTION DOCUMENTS

ENLARGED SITE PLAN

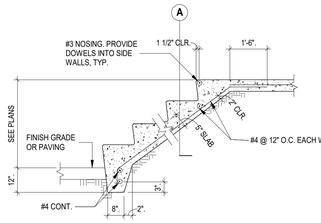
A1.02

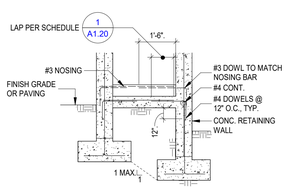


NOTES:
1. ALL EXPOSED WELDS SHALL BE GROUND SMOOTH
2. ALL EXPOSED STEEL SHALL HAVE A GALVINIZED FINISH U.N.O.
3. FINISH NON-SHRINK GROUT FLUSH TO ADJACENT CONCRETE TO PROVIDE UNIFORM APPEARANCE

055200.46-S *CBC 2019 - Rev 09/19*

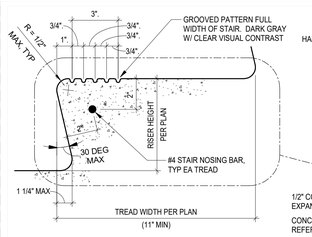
24 FREESTANDING HANDRAIL AT STAIR
1 1/2" = 1'-0"



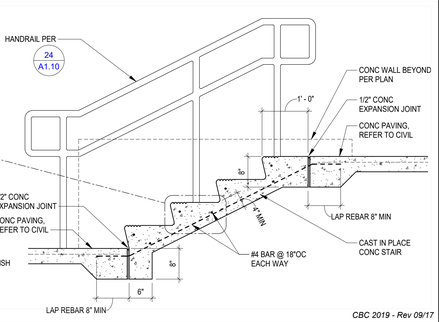


A DETAIL

23 STAIR ON GRADE
N.T.S.

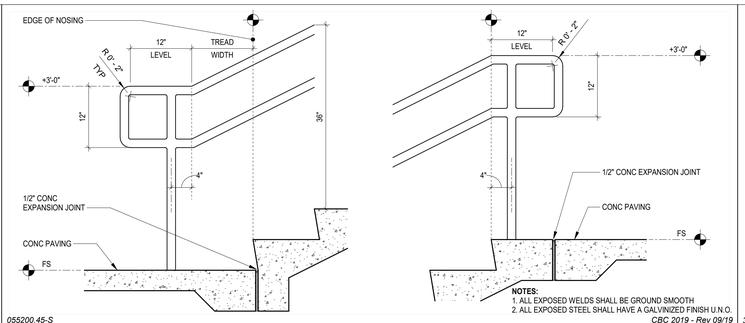


NOTES:
1. CONCRETE SHALL BE 2,500 PSI MIN, U.N.O.
2. ALL HORIZONTAL CONC WALKING SURFACES SHALL HAVE A MEDIUM BROOM FINISH
3. ALL TREADS SHALL SLOPE TOWARDS NOSING FOR DRAINAGE, 2% MAX.
4. FOR ADDITIONAL NOTES SEE 23 A1.10



321313.20-S *CBC 2019 - Rev 09/17*

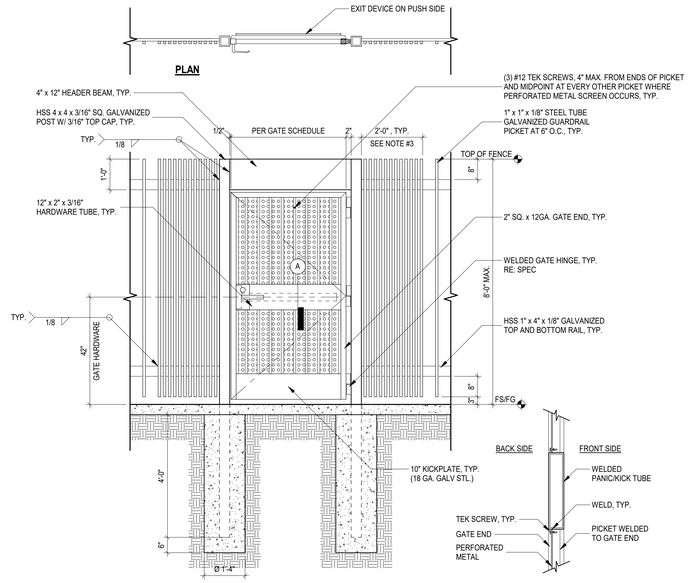
18 CONCRETE STAIR ON GRADE
3/4" = 1'-0"



NOTES:
1. ALL EXPOSED WELDS SHALL BE GROUND SMOOTH
2. ALL EXPOSED STEEL SHALL HAVE A GALVINIZED FINISH U.N.O.

055200.45-S *CBC 2019 - Rev 09/19*

28 FREESTANDING HANDRAIL AT STAIR -ELEVATION
1" = 1'-0"



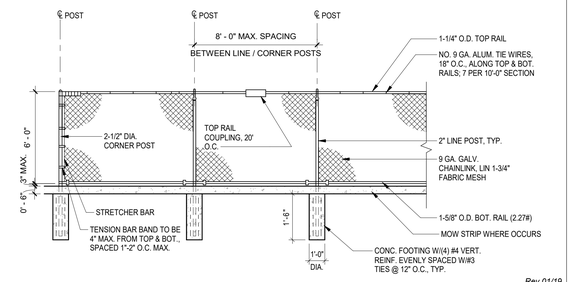
NOTES:
1. ALL EXPOSED WELDS SHALL BE GROUND SMOOTH. REQUEST WELDING INSPECTION AFTER GRINDING.
2. ALL EXPOSED STEEL SHALL HAVE A GALVANIZED FINISH U.N.O.
3. EXTENT OF 1" SOLID SQUARE GALVANIZED PICKETS AT 2" O.C.

16 GALV. ORNAMENTAL SERVICE GATE
1/2" = 1'-0"

NOT PART OF DSA REVIEW AND APPROVAL

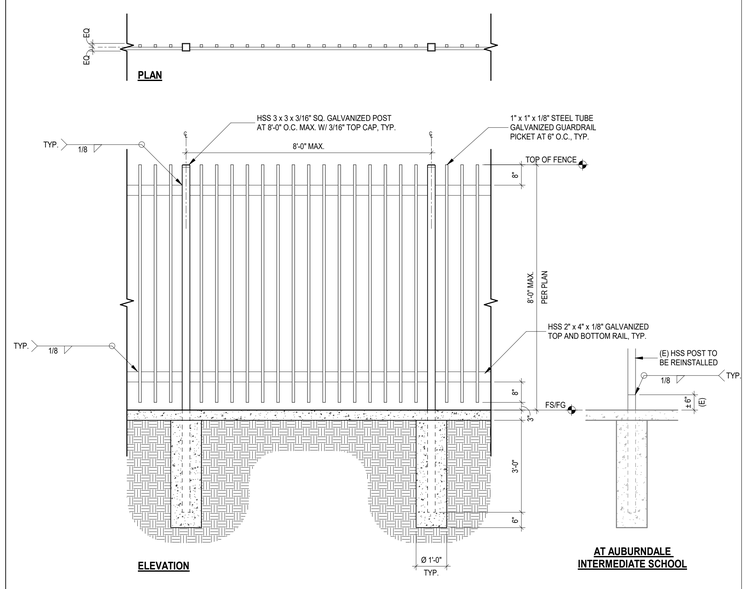
NOMINAL PIPE SIZE SCH. 40	WEIGHT LB/FT.
1-1/4"	2.27
1-1/2"	2.72
2"	3.65
2-1/2"	5.79
3"	7.58
3-1/2"	9.12
4"	10.80
6"	18.99
8"	28.58

NOTES:
1. U.N.O. ALL FENCE PIPING SHALL BE HOT DIP GALV., SCHEDULE 40 STEEL PIPE.
2. DIMENSIONS AND SIZES SHOWN ARE MIN. REQUIRED.
3. CONTRACTOR SHALL DESIGN AND BUILD FENCE TO WITHSTAND WIND LOADS PER REGULATIONS AND BE RESPONSIBLE FOR ITS FUTURE PERFORMANCE.



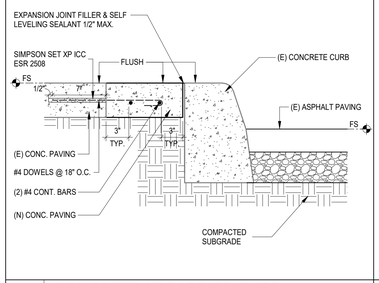
323113.16-S *Rev 01/19*

26 6' CHAINLINK FENCE (GALVANIZED)
1/4" = 1'-0"

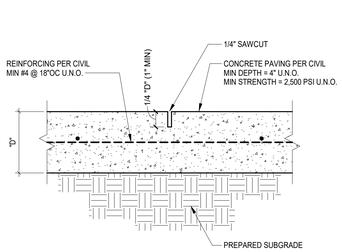


NOTES:
1. ALL EXPOSED WELDS SHALL BE GROUND SMOOTH. REQUEST WELDING INSPECTION AFTER GRINDING.
2. ALL EXPOSED STEEL SHALL HAVE A GALVANIZED FINISH U.N.O.

14 GALV. ORNAMENTAL FENCING PANEL
1/2" = 1'-0"



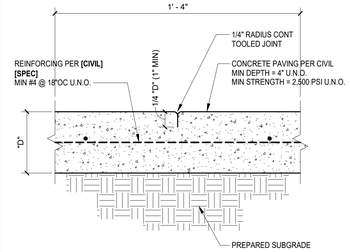
11 CONCRETE AT BARRIER CURB
1 1/2" = 1'-0"



NOTE:
CONTROL JOINTS TO BE PROVIDED @ 5'-0"OC MIN U.N.O.

033053.02-S *Rev 09/19*

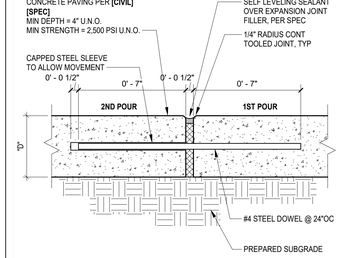
10 CONC CONTROL JOINT - SAWCUT
3" = 1'-0"



NOTE:
CONTROL JOINTS TO BE PROVIDED @ 5'-0"OC MIN U.N.O.

033053.01-S *Rev 09/19*

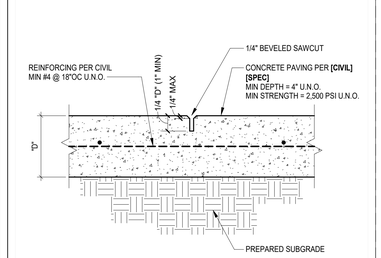
9 CONC CONTROL JOINT - TOOLED
3" = 1'-0"



NOTE:
EXPANSION JOINTS TO BE PROVIDED @ 20'-0"OC MIN U.N.O.

033053.05-S *Rev 09/19*

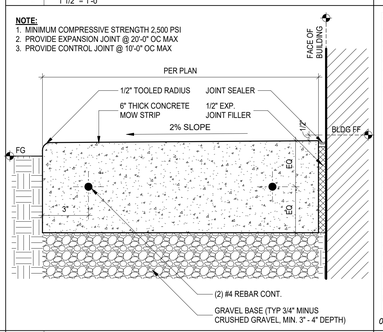
8 CONC EXP JOINT - TYP
3" = 1'-0"



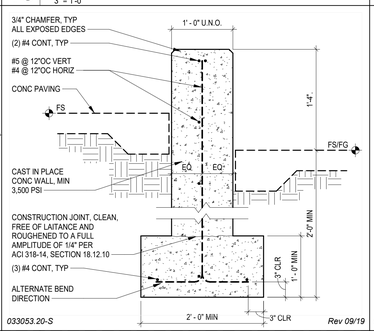
NOTE:
CONTROL JOINTS TO BE PROVIDED @ 5'-0"OC MIN U.N.O.

033053.03-S *Rev 09/19*

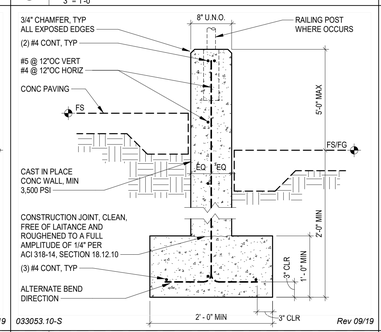
7 CONC CONTROL JOINT - BEVELED SAWCUT
3" = 1'-0"



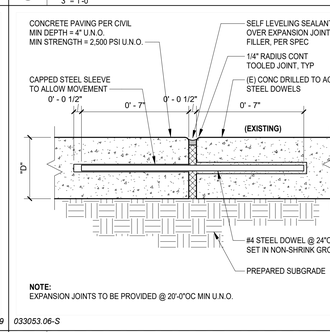
5 CONC. MOW STRIP
3" = 1'-0"



4 CONC PLANTER WALL
1" = 1'-0"



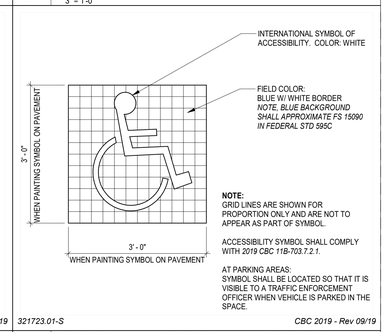
3 CONC WALL
1" = 1'-0"



NOTE:
EXPANSION JOINTS TO BE PROVIDED @ 20'-0"OC MIN U.N.O.

033053.06-S *Rev 09/19*

2 CONC EXP JOINT @ (E)
3" = 1'-0"



NOTE:
GRID LINES ARE SHOWN FOR PROPORTION ONLY AND ARE NOT TO APPEAR AS PART OF SYMBOL.

ACCESSIBILITY SYMBOL SHALL COMPLY WITH *2019 CBC 11B-703.7.2.1.*

AT PARKING AREAS:
SYMBOL SHALL BE LOCATED SO THAT IT IS VISIBLE TO A TRAFFIC ENFORCEMENT OFFICER WHEN VEHICLE IS PARKED IN THE SPACE.

321723.01-S *CBC 2019 - Rev 09/19*

1 ISA
3/4" = 1'-0"

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

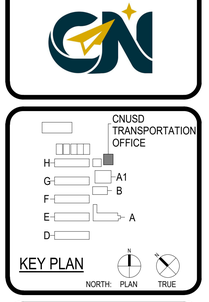
ARCHITECT
PBK Architects, Inc.
PBK.com
RANCHO CUCAMONGA
8163 Rochester Avenue, Suite 100
Rancho Cucamonga
California 91730
P 909-987-0909

CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4



Consultant

Architect
LICENSED ARCHITECT
Tong Yao
No. C-31162
REN. 10-31-2023
STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

REVISIONS

No.	Description	Date

100% CONSTRUCTION DOCUMENTS

TYPICAL SITE DETAILS

A1.10

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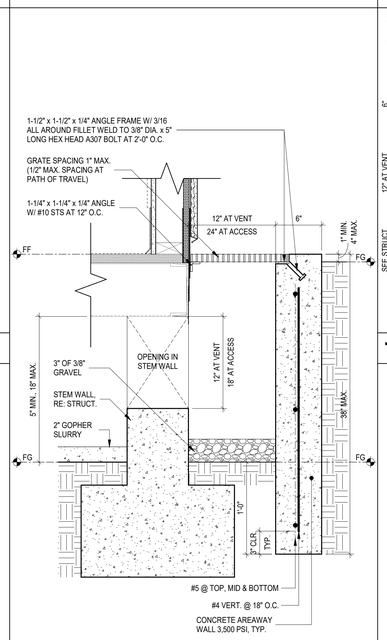
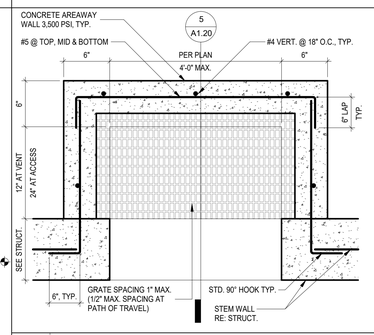
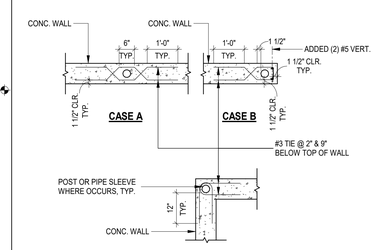
0" 1"



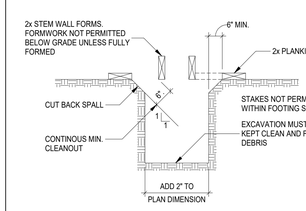
5 FOUNDATION VENT/ACCESS SECTION
1 1/2" = 1'-0"



10 FOUNDATION VENT/ACCESS PLAN
1 1/2" = 1'-0"

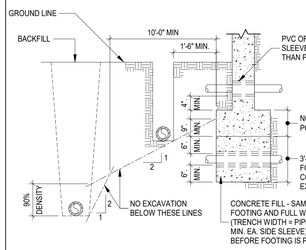


4 POST IN WALL
1/2" = 1'-0"



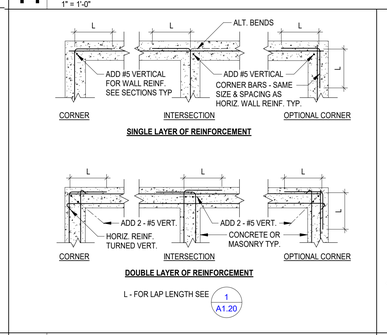
NOTE:
FOUNDATION CONCRETE MAY BE PLACED DIRECTLY INTO NEAT EXCAVATIONS PROVIDED THE FOUNDATION TRENCH WALLS ARE STABLE AS DETERMINED BY THE ARCHITECT (STRUCTURAL ENGINEER) SUBJECT TO THE APPROVAL OF THE DIVISION OF THE STATE ARCHITECT.

9 MIN. MANDATORY FORMWORK
N.T.S.

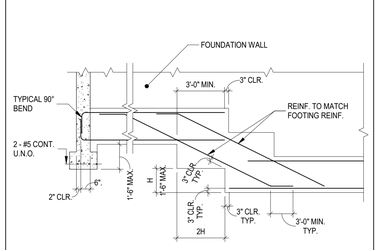


NOTE: FOR PIPES MORE THAN 3'-0" BELOW BOTTOM OF FOOTING, TRENCH MAY BE BACKFILLED WITH CONTROLLED, COMPACTED FILL PER SPECIFICATIONS.

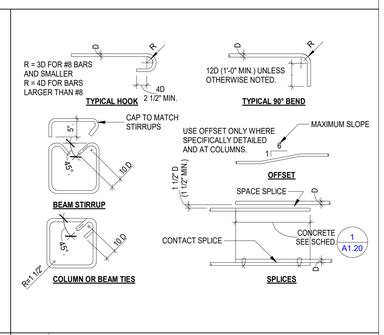
3 PIPE AT FOOTING
N.T.S.



8 CORNERS AND INTERSECTIONS
N.T.S.



2 STEPPED FOOTING
N.T.S.



7 BAR BENDING DETAIL
N.T.S.

REINFORCING BAR SPLICE SCHEDULE (INCHES)

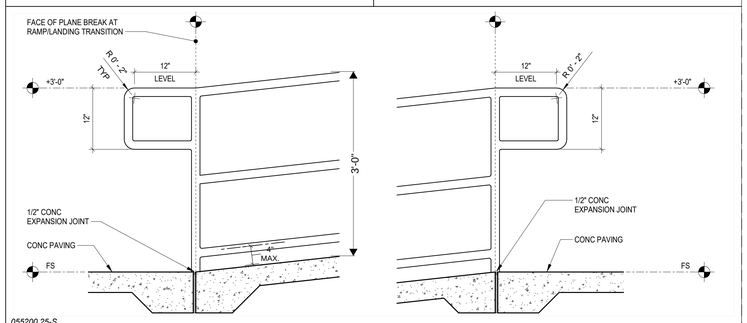
BAR SIZE	BAR LOCATION	f'c (NORMAL WEIGHT CONCRETE), psi			
		2500	3000	3500	4000
#3	TOP			20	
	OTHER			16	
#4	TOP			26	
	OTHER			20	
#5	TOP			33	
	OTHER			26	
#6	TOP			51	
	OTHER			40	
#7	TOP			75	
	OTHER			58	
#8	TOP			88	
	OTHER			68	
#9	TOP			96	
	OTHER			74	
#10	TOP			107	
	OTHER			82	
#11	TOP			118	
	OTHER			91	

NOTES:
1. ABOVE SCHEDULE IS BASED ON CALIFORNIA BUILDING CODE, 2019 EDITION, CLASS B SPLICE
2. TOP REINFORCEMENT IS DEFINED AS HORIZONTAL REINFORCEMENT WHERE MORE THAN 12 IN. OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE SPLICE.
3. CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED SHALL NOT BE LESS THAN 2 BAR DIAMETERS.
4. CLEAR COVER SHALL NOT BE LESS THAN 1 BAR DIAMETER.

1 REBAR SPLICE SCHEDULE
N.T.S.

055200.25-S

14 (E) FREESTANDING HANDRAIL AT RAMP -ELEVATION
1" = 1'-0"



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

ARCHITECT PBK Architects, Inc.
PBK.com
RANCHO CUCAMONGA
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Rancho Cucamonga
California 91730
P 909-987-0909

CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE

H G F E D A1 B A

KEY PLAN

NORTH: PLAN TRUE

Consultant

Architect

LICENSED ARCHITECT Yong Yoo No. C-31162 REN 10-31-2023 STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

REVISIONS

No.	Description	Date

100% CONSTRUCTION DOCUMENTS

TYPICAL SITE DETAILS CONT.

A1.20

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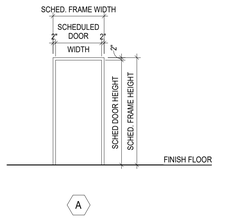
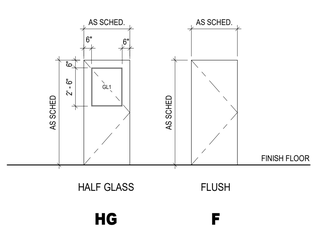
A2.01 - DEMOLITION AND PROPOSED FLOOR PLAN & RCP

0" 1"





DOOR SCHEDULE

	DOOR							FRAME			DETAILS						
			PAIR/	SIZE W x H			DOOR								PANIC	FIRE RATING	
DOOR #	TYPE	(E) / (N)	SINGLE	W	H	MATL	FINISH	TYPE	MATL	FINISH	THRESHOLD	JAMB	HEAD	H.W.	HARDWARE	LABEL	REMARKS
101A	F	New Construction	S	3' -0"	6' - 8"	HM	P	A	HM	P	2/A9.02	3/A9.02	8/A9.02	1.0	YES	-	PH. ACS
101B	HG	New Construction	S	3' -0"	7' -0"	WD	P	A	HM	P	4/A9.02	9/A9.02	9/A9.02	3.0	NO	-	PH. ACS
103A	HG	New Construction	S	3' -0"	7' -0"	WD	P	A	HM	P	-	9/A9.02	9/A9.02	4.0	NO	-	
104A	HG	New Construction	S	3' -0"	7' -0"	WD	P	A	HM	P	-	9/A9.02	9/A9.02	4.0	NO	-	
105A	F	New Construction	S	3' -0"	6' -8"	HM	P	A	HM	P	2/A9.02	3/A9.02	8/A9.02	2.0	NO	45 MIN.	
105B	HG	New Construction	S	3' -0"	7' -0"	WD	P	A	HM	P	-	9/A9.02	9/A9.02	4.0	NO	-	
107A	HG	New Construction	S	3' -0"	7' -0"	WD	P	A	HM	P	4/A9.02	9/A9.02	9/A9.02	4.0	NO	-	

DOOR SCHEDULE ABBREVIATIONS

HM	HOLLOW METAL
P	PAINT
SCW	SOLID CORE WOOD
PH	PANIC HARDWARE
ACS	ACCESS CONTROL - RE: ELEC.

DOOR SCHEDULE GENERAL NOTES

1. THE FORCE FOR PUSHING OR PULLING OPEN AN INTERIOR AND EXTERIOR HINGED DOOR NOT TO EXCEED 5 POUNDS MAXIMUM
2. THERE SHALL BE A FLOOR OR LANDING ON EACH SIDE OF A DOOR. SUCH FLOOR OR LANDING SHALL BE AT THE SAME ELEVATION ON EACH SIDE OF THE DOOR. LANDINGS SHALL BE LEVEL EXCEPT FOR EXTERIOR LANDINGS, WHICH ARE PERMITTED TO HAVE A SLOPE NOT TO EXCEED 2 PERCENT MAX. IN ANY DIRECTION.
3. THRESHOLDS AT DOORWAYS SHALL NOT EXCEED 1/2" IN HEIGHT. RAISED THRESHOLDS AND FLOOR LEVEL CHANGES GREATER THAN 1/4" AT DOORWAYS SHALL BE BEVELED WITH A SLOPE NOT GREATER THAN ONE UNIT VERTICAL IN TWO UNITS HORIZONTAL.
4. DOORS SHALL HAVE AN OPENING FORCE OF 5 POUNDS MAXIMUM PER CBC 11B-404.2.9.
5. HARDWARE SHALL UNLATCH WITH 5 POUNDS MAXIMUM FORCE PER CBC 11B-309.4.

GENERAL DEMOLITION NOTES:

1. THE DEMOLITION PLAN OUTLINES SOME OF THE SCOPE OF THE WORK INVOLVED FOR THE DEMOLITION PHASE OF THIS PROJECT. CONTRACTOR SHALL REVIEW ALL SHEETS FOR ADDITIONAL DEMO SCOPE.
2. CONTRACTOR SHALL VERIFY EXISTING SITE AND BUILDING CONDITIONS AND DIMENSIONS IN THE FIELD PRIOR TO COMMERCIAL DEMOLITION ACTIVITIES. CONTRACTOR SHALL NOT SCALE DRAWINGS. CONTRACTOR WILL NOTIFY ARCHITECT OF ANY DISCREPANCIES IN WRITING.
3. AFTER AWARD OF THE CONTRACT, CHANGE ORDER REQUESTS FOR ADDITIONAL MONEY WILL NOT BE APPROVED IF THE WORK COULD HAVE BEEN ANTICIPATED DURING A SITE VISIT BY THE CONTRACTOR.
4. CONTRACTOR WILL BE REQUIRED TO REPAIR, REPLACE, OR PATCH EXISTING BUILDINGS, DRIVEWAYS, SIDEWALKS, CANOPIES, AND/OR PARKING AREAS DISTURBED BY DEMOLITION.
5. CONTRACTOR WILL BE REQUIRED TO REGRADE AND HYDROMULCH AREAS AFFECTED BY DEMOLITION.
6. ALL FURNITURE WILL BE REMOVED OR RELOCATED BY THE OWNER AS NECESSARY PRIOR TO THE DEMOLITION WORK OF THIS PROJECT. CONTRACTOR SHALL COORDINATE WITH OWNER AS REQUIRED.
7. REMOVE EXISTING CONSTRUCTION TO THE EXTENT INDICATED ON THE DRAWINGS. SHOULD ANY DAMAGE OCCUR TO ANY EXISTING CONSTRUCTION TO REMAIN, THE CONTRACTOR SHALL REPAIR THE DAMAGE. TO MATCH EXISTING/ADJACENT CONSTRUCTION.
8. CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO DEMOLITION ACTIVITIES.
9. CONTRACTOR SHALL REMOVE DEBRIS REGULARLY AS NECESSARY TO ELIMINATE INTERFERENCE WITH ROADS, STREET, WALKS, AND ALL OTHER ADJACENT FACILITIES.
10. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION OF TEMPORARY DUST AND/OR SOUND PARTITION BETWEEN CONSTRUCTION AREA AND AREAS NOT IN SCOPE AS NECESSARY. DEMOLITION ACTIVITIES SHALL BE PERFORMED SO AS TO PRODUCE MINIMAL DISTURBANCE TO EXISTING FACILITY AND OCCUPANTS (I.E. MINIMIZE EXCESSIVE AND PROLONGED NOISE LEVELS AND DUST.)
11. NOTIFY THE BUILDING OWNER OF ANY MATERIALS, FIXTURES, ETC. TO BE REMOVED THAT ARE DEEMED SALVAGEABLE. TURN OVER ANY REQUESTED ITEMS TO THE BUILDING OWNER IN GOOD CONDITION.
12. THE CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
13. MAINTAIN THE INTEGRITY OF ALL EXISTING RATED WALLS, FIRE SEAL ANY PENETRATIONS WITH U.L. APPROVED ASSEMBLY.
14. WHEN UNANTICIPATED MECHANICAL, ELECTRICAL OR STRUCTURAL ELEMENTS THAT CONFLICT WITH THE INTENDED FUNCTION OR DESIGN ARE ENCOUNTERED, DETERMINE THE NATURE AND EXTENT OF THE CONFLICT AND NOTIFY THE ARCHITECT IMMEDIATELY FOR RESOLUTION.
15. PROTECT EXISTING SITE IMPROVEMENTS AND LANDSCAPING TO REMAIN. INCLUDING BUT NOT LIMITED TO EXISTING TREES AND OTHER VEGETATION INDICATED TO REMAIN IN PLACE AGAINST UNNECESSARY CUTTING, BREAKING, OR SKINNING OF ROOTS, SKINNING OR BRUISING OF BARK, SMOTHERING OF TREES BY STOCKPILING CONSTRUCTION MATERIAL OR EXCAVATED MATERIAL WITHIN DRIP LINES.
16. CONTRACTOR SHALL PROVIDE TRAFFIC HANDLING MEASURES AS NECESSARY TO PROTECT THE GENERAL PUBLIC AT ALL TIMES, AND AS REQUIRED BY GOVERNING AUTHORITIES.
17. DO NOT INTERRUPT EXISTING UTILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES, AS ACCEPTABLE TO GOVERNING AUTHORITIES.
18. WHEN UTILITY SERVICES ARE REQUIRED TO BE REMOVED, RELOCATED, OR ABANDONED, PROVIDE BYPASS CONNECTIONS TO MAINTAIN CONTINUITY OF SERVICE BEFORE PROCEEDING WITH DEMOLITION.
19. CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT ALL UTILITY COMPANIES INCLUDING BUT NOT LIMITED TO THE FOLLOWING: ELECTRIC, GAS, WATER, TELEPHONE, STORM SEWER, AND SANITARY SEWER FOR FIELD LOCATION OF ALL UNDERGROUND AND OVERHEAD UTILITY LINES. PRIOR TO COMMENCEMENT WITH ANY DEMOLITION WORK, CONTRACTOR SHALL IDENTIFY ALL ELECTRICAL CIRCUITS SERVICING THE AREA INVOLVED WITH THIS DEMOLITION. THOSE CIRCUITS SHALL THEN BE LOCKED OUT AND TAGGED OUT IF THEY DO NOT SERVICE ANY OF THE REMAINING BUILDING. THOSE CIRCUITS WHICH ARE IDENTIFIED TO SERVICE BOTH THE AREA TO BE DEMOLISHED AND THE REMAINING BUILDING SHALL BE SPLIT SO AS TO KILL ALL ELECTRICAL POWER TO THE AREA TO BE DEMOLISHED WHILE MAINTAINING POWER TO THE REMAINDER OF THE BUILDING.
20. CONTRACTOR TO RE-LOCATE UTILITIES & EQUIPMENT AS REQUIRED TO ACCOMMODATE NEW HVAC, ELECTRICAL & PLUMBING REQUIREMENTS FOR NEW RENOVATION WORK.
21. REFER TO DEMOLITION PLUMBING PLANS FOR EXTENT OF CONCRETE SLAB TO BE REMOVED AND REPLACED FOR UNDER FLOOR PIPING INSTALLATION.
22. EXISTING WALLS (OR PORTIONS OF WALLS) TO BE REMOVED SHALL BE CUT FLUSH WHERE INTERSECTING WITH WALLS TO REMAIN. REMAINING WALLS TO BE PATCHED AND FINISHED SMOOTH.
23. NEW OPENING TO BE CUT IN EXISTING WALLS SHALL BE SAW-CUT AT LOCATIONS INDICATED TO THE HEIGHT AND WIDTH INDICATED. NEW LINTELS SHALL BE INSTALLED TO SUPPORT EXISTING WALL CONSTRUCTION ABOVE AS INDICATED ON THE DRAWINGS, OR IF NOT INDICATED, AS REQUIRED FOR NEW WALL CONSTRUCTION PER STRUCTURAL DRAWINGS.
24. WHERE EXISTING INTERIOR WALLS ARE REPLACED OR REMOVED, REMOVE MEP SYSTEMS BACK TO PANEL OR MECHANICAL ROOM OR FARTHEST POSSIBLE POINT WITHOUT DISTURBING EXISTING CONSTRUCTION, REMOVE EXISTING MECHANICAL EQUIPMENT, RELOCATE POWER PER MEP DRAWINGS
25. REFER TO MEPT DRAWINGS FOR DEMOLITION OF MEPT SYSTEMS. IDENTIFY WORK REQUIRED BY THIS CONTRACTOR WHICH MAY AFFECT DEMOLITION AND/OR REPAIRS OF ARCHITECTURAL ELEMENTS. COORDINATE WITH RELATED SUBS THE EXTENT OF ALL DEMOLITION WORK.
26. PATCH FLOORS, WALLS CEILINGS WHICH REMAIN AT LOCATIONS WHERE PIPES, CONDUITS, ETC. ARE REMOVED AS REQUIRED TO MATCH EXISTING CONDITIONS OR TO RECEIVE NEW FINISHES.
27. WHERE EXISTING FINISH FLOOR IS REMOVED, PREPARE SURFACE TO RECEIVE NEW FLOORING
28. NOTIFY ARCHITECT & OWNER OF ANY POSSIBLE ASBESTOS CONTAINING MATERIALS DISCOVERED BEFORE PROCEEDING WITH WORK, PROTECT INTERIOR CONSTRUCTION TO REMAIN DURING DEMOLITION AND CONSTRUCTION.
29. CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS BEFORE COMMENCING WORK.
30. CONTRACTOR TO PROVIDE ALL NECESSARY SHORING FOR PROTECTION OF EXISTING STRUCTURE AND FOUNDATION TO REMAIN.
31. ALL DASHED LINES ARE DEMOLITION LINES UNLESS NOTED OTHERWISE.
32. REMOVE ALL (E) FIRE EXTINGUISHERS, TAG & SALVAGE TO THE DISTRICT.
33. REMOVE ALL (E) ROOM SIGNAGE.
34. CONTRACTOR SHALL SECURE PROJECT SITE AND BUILDING(S) OR AREAS WHERE SCOPE-OF-WORK WILL BE PERFORMED FROM UNAUTHORIZED ENTRY AT ALL TIMES.

DEMOLITION KEYED NOTES

#	Description
02.01	EXISTING ROOM CAPACITY SIGNAGE TO BE REMOVED AND REPLACED
02.02	EXISTING ROOM IDENTIFICATION SIGNAGE WITH ISA TO BE REMOVED AND REPLACED
02.03	EXISTING TACTILE EXIT SIGN TO BE REMOVED AND REPLACED
02.04	EXISTING WALL MOUNTED BARD UNIT TO BE REMOVED - RE: MECHANICAL
02.05	EXISTING WALL CLOCK TO BE REMOVED AND REPLACED
02.06	EXISTING FIRE EXTINGUISHER TO REMOVED AND SALVAGED TO THE DISTRICT
02.07	EXISTING ELECTRICAL PANEL 'A' TO REMAIN - RE: ELECTRICAL
02.08	EXISTING HVAC RETURN TO BE REMOVED. PROVIDE WINDOW AT EXISTING OPENING, SEE WINDOW D ON SHEET A9.02
02.09	EXISTING THERMOSTAT TO BE REMOVED AND REPLACED - RE: MECHANICAL
02.10	EXISTING VINYL COVERED TACK BOARD & 5/8" TYPE 'X' GYP. BD. TO BE REMOVED. EXISTING STUDS TO REMAIN
02.14	EXISTING WOOD STUD WALL TO REMAIN. EXTERIOR PLYWOOD AND SIDING TO BE REMOVED. REPLACE EXTERIOR PLYWOOD AND PREP FOR 7/8" STUCCO EXTERIOR FINISH

DEMOLITION LEGEND

- WALL TO BE REMOVED
- DOOR TO BE REMOVED
- N.I.C. — (E) SPACE N.I.C.
- REMOVED EXISTING FLOOR FINISH
- REMOVE INTERIOR MILLWORK
- EXISTING WOOD STUD WALL TO REMAIN. EXTERIOR PLYWOOD AND SIDING TO BE REMOVED. REPLACE EXTERIOR PLYWOOD AND PREP FOR 7/8" STUCCO EXTERIOR FINISH

DEMOLITION REFLECTED CEILING PLAN LEGEND

- WALL TO BE REMOVED
- EXISTING T-BAR CEILING GRID AND ACT PANELS TO BE DEMOLISHED
- (E) AREA N.I.C.
- LIGHT FIXTURE(S), REFER TO ELECTRICAL DRAWINGS (REMOVE WHEN SHOWN DASHED)
- MECHANICAL GRILLES (MECHANICAL GRILLES TO BE (REMOVE WHEN SHOWN DASHED)
- EXIT SIGN, REFER TO ELECTRICAL DRAWINGS (REMOVE WHEN SHOWN DASHED)
- ACCESS PANEL (REMOVE WHEN SHOWN DASHED)

30 DOOR FRAME ELEVATION TYPES

1/4" = 1'-0"

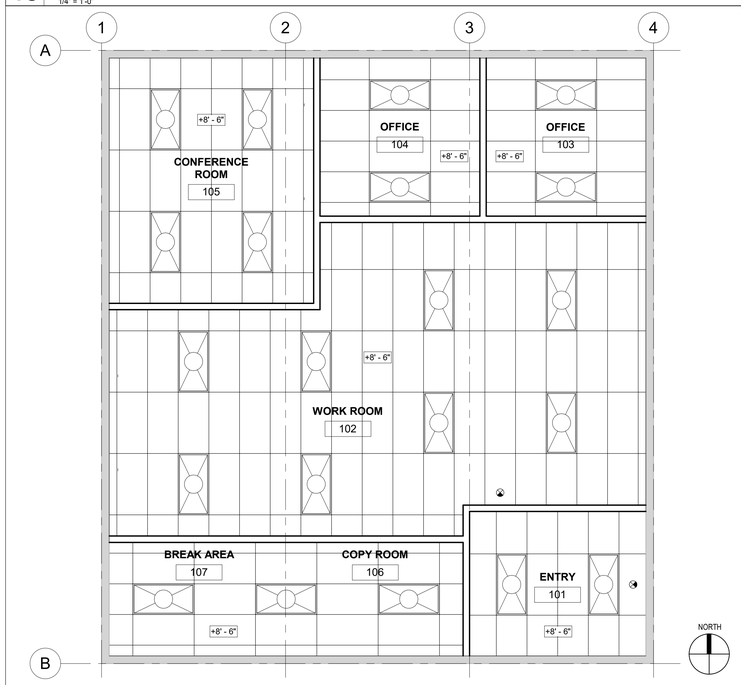
29 DOOR PANEL ELEVATION TYPES

1/4" = 1'-0"

28 DOOR SCHEDULE

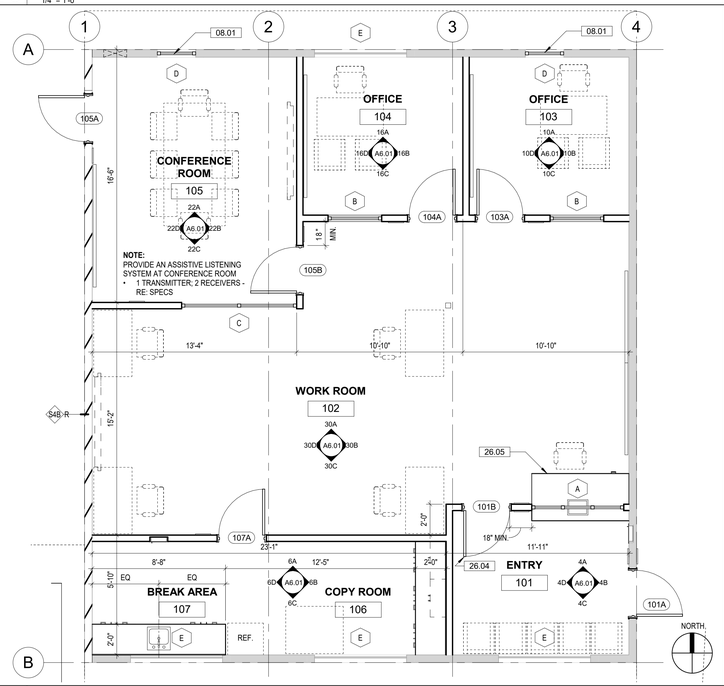
18 DEMOLIITON REFLECTED CEILING PLAN

1/4" = 1'-0"



16 DEMOLITION FLOOR PLAN

1/4" = 1'-0"



GENERAL NOTES

1. CONTRACTOR SHALL VISIT SITE TO ASCERTAIN EXACT EXISTING CONDITIONS AND COMPONENTS RELATED TO THE WORK DESCRIBED BY THESE DOCUMENTS. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ACCEPTED MANUFACTURER'S PRINTED INSTRUCTIONS AND WARRANTY REQUIREMENTS.
2. AFTER SUBSTANTIAL COMPLETION, THE GENERAL CONTRACTOR SHALL EXAMINE AND CLEAN AREA OF WORK OF DEBRIS.
3. PAINT ALL EXISTING AND PROPOSED CONDUIT.

CONSTRUCTION KEYED NOTES

#	Description
08.01	EXTERIOR WINDOW TO BE PROVIDED AT EXISTING HVAC RETURN OPENING, SEE 6/A9.02 WINDOW TYPE D
26.04	POWER DOOR LOCK. INTEGRATE WITH TIME-DELAYED MOMENTARY PUSH BUTTON LOCATED AT RECEPTION DESK.
26.05	PROVIDE TIME-DELAYED MOMENTARY PUSH BUTTON. WIRE DIRECTLY TO DOOR LOCK CONTROL CIRCUIT AT ENTRY DOOR.

FLOOR PLAN LEGEND

- EXISTING WOOD STUD WALL TO REMAIN. EXTERIOR PLYWOOD & SIDING TO BE REMOVED. PROVIDE EXTERIOR PLYWOOD & 7/8" STUCCO EXTERIOR FINISH - SEE 2/A7.01
- EXISTING WOOD STUD WALL TO REMAIN. EXTERIOR PLYWOOD & SIDING TO BE REMOVED. PROVIDE EXTERIOR PLYWOOD & 7/8" STUCCO EXTERIOR FINISH **1-HR WALL CONSTRUCTION** - SEE 2/A7.01
- TYPE -S4A- PARTITION WALL, TYP. U.N.O. - SEE A7.01
- S4A-R — WALL PARTITIONS TAG SEE A7.01
  - 'R' DESIGNATES RATED CONDITION, WHERE OCCURS
  - LETTER INDICATES PARTITION TYPE
  - # INDICATES CORE WIDTH
  - LETTER INDICATES CORE TYPE (S = STUD)
- #-## — WINDOW NUMBER TAG SEE A9.02
- 101 — DOOR NUMBER TAG SEE 28/A2.01
- (E) AREA N.I.C.

NOTES:

1. FOR FINISHES, SEE ROOM FINISH SCHEDULES ON A9.01
2. REFER TO MECHANICAL PLANS FOR DUCT PENETRATIONS THROUGH EXISTING WALLS. COORDINATE WITH REFERENCED STRUCTURAL DETAIL FOR REQUIRED FRAMING MODIFICATION.
3. CONTROLS OF THE MANUAL OPERATED ROLLER SHADES SHALL BE AT AN ACCESSIBLE HEIGHT OF 44" MAX A.F.F.
4. ALL CASEWORK TO INCLUDE LOCKS. ALL LOCKS TO BE KEYED ALIKE FOR ENTIRE TRANSPORTATION OFFICE BUILDING.
5. ALL EXTERIOR WINDOWS ARE EXISTING TO REMAIN, SEE A9.01

REFLECTED CEILING PLAN LEGEND

- HATCH INDICATES: 2'x4' SUSPENDED CEILING TO BE PROVIDED 1/A10.10
- LIGHT FIXTURE(S), REFER TO ELECTRICAL DRAWINGS 20/A10.10
- MECHANICAL GRILLES, REFER TO MECHANICAL DRAWINGS FOR ACT 20/A10.10
- INDICATES LEVEL CHANGE
- INDICATES LOCATION OF EXIT SIGN 17/A10.10

6 PROPOSED RCP

1/4" = 1'-0"

4 PROPOSED FLOOR PLAN

1/4" = 1'-0"

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CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

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100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE

KEY PLAN

NORTH: PLAN TRUE

Consultant

Architect

LICENSED ARCHITECT
Tong Yao
No. C-31162
REN. 10-31-2023
STATE OF CALIFORNIA

CLIENT
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DATE	PROJECT NUMBER
08-07-23	230010

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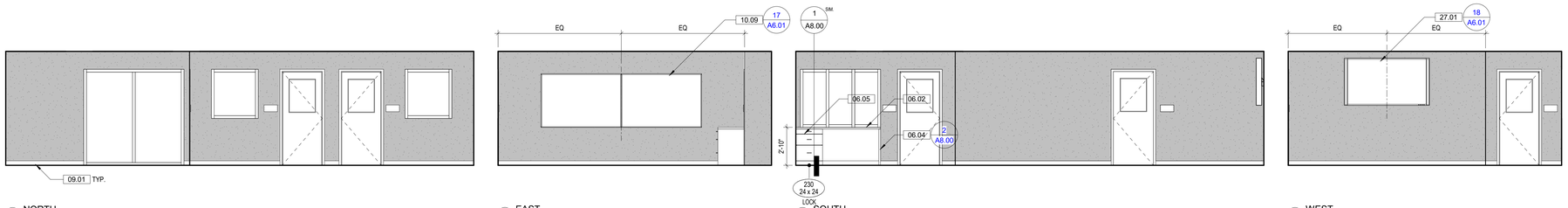
DEMOLITION AND PROPOSED FLOOR PLAN & RCP

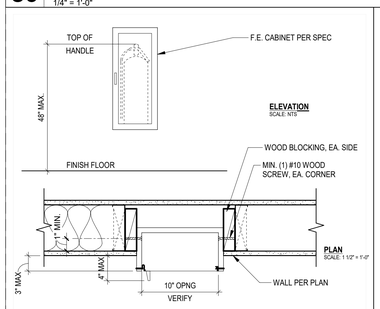
A2.01

0" 1"



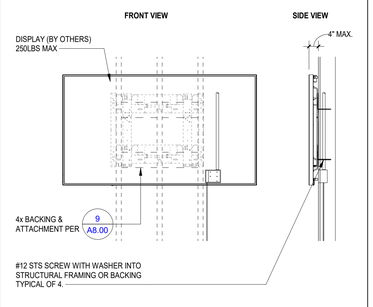
30A NORTH 1/4" = 1'-0"
30B EAST 1/4" = 1'-0"
30C SOUTH 1/4" = 1'-0"
30D WEST 1/4" = 1'-0"

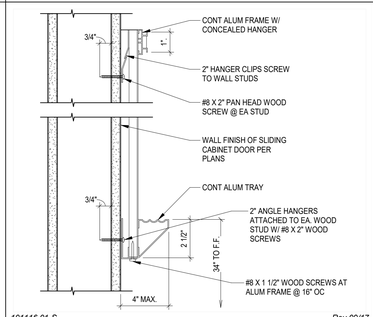
30 WORK ROOM INTERIOR ELEVATIONS
1/4" = 1'-0"



104413.01-S CBC 2019 - Rev 10/17

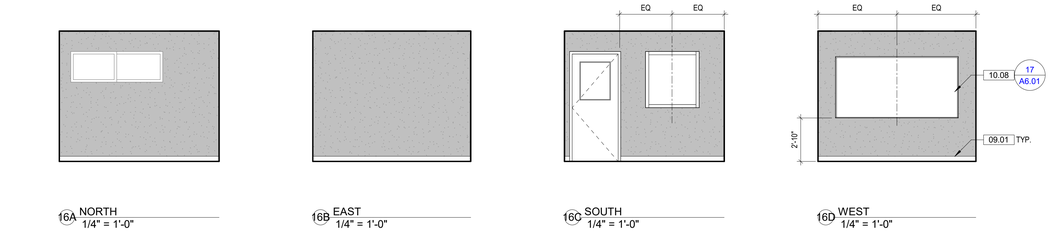
24 FIRE EXTINGUISHER CABINET
1 1/2" = 1'-0"





101116.01-S Rev 09/17

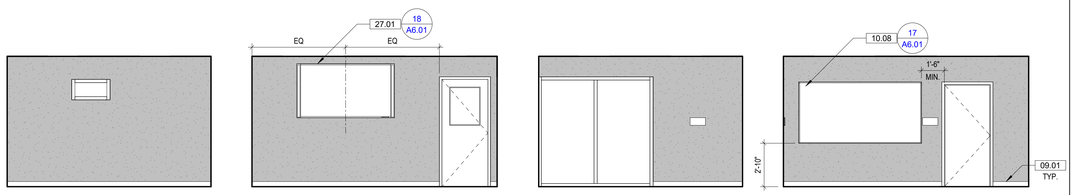
22 CONFERENCE ROOM 105 INTERIOR ELEVATIONS
1/4" = 1'-0"



16A NORTH 1/4" = 1'-0"
16B EAST 1/4" = 1'-0"
16C SOUTH 1/4" = 1'-0"
16D WEST 1/4" = 1'-0"

CONSTRUCTION KEYED NOTES

#	Description
06.01	PLAM COUNTERTOP WITH 4" BACK SPLASH
06.02	PLAM COUNTERTOP WITHOUT BACK SPLASH
06.03	PLAM UPPER CABINET
06.04	PLAM COUNTERTOP END SUPPORT
06.05	PLAM BASE CABINET
09.01	4" RESILIENT BASE, TYP.
09.02	CUSTOM GRAPHIC DECAL TO BE PROVIDED ON ENTIRETY OF WALL. CONTRACTOR TO CONFIRM GRAPHIC WITH THE DISTRICT PRIOR TO INSTALLATION
10.08	8'-0"W x 4'-0"H MAGNETIC DRY ERASE BOARD
10.09	12'-0"W x 4'-0"H MAGNETIC DRY ERASE BOARD
10.10	FIRE EXTINGUISHER CABINET, REFER TO SPEC
22.01	ACCESSIBLE SINK - RE: PLUMBING
26.02	IDF CABINET - RE: TECHNOLOGY
26.03	RECESSED ELECTRICAL CABINET TO BE PROVIDED - RE: ELECTRICAL
27.01	WALL MOUNTED FLAT SCREEN TELEVISION (OFCI, MAX.WEIGHT 60 LBS). 4" MAX PROJECTIONS. PROVIDE T.V. MOUNTING BRACKET AND INSTALL PER MANUFACTURERS RECOMMENDATIONS.

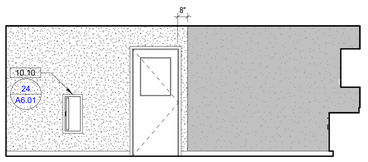


22A NORTH 1/4" = 1'-0"
22B EAST 1/4" = 1'-0"
22C SOUTH 1/4" = 1'-0"
22D WEST 1/4" = 1'-0"

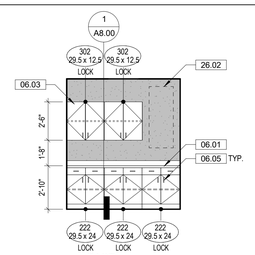
18 AV DISPLAY MOUNTING BRACKET
1/2" = 1'-0"

17 MARKERBOARD SECTION
3" = 1'-0"

16 OFFICE 104 INTERIOR ELEVATIONS
1/4" = 1'-0"



6A NORTH 1/4" = 1'-0"



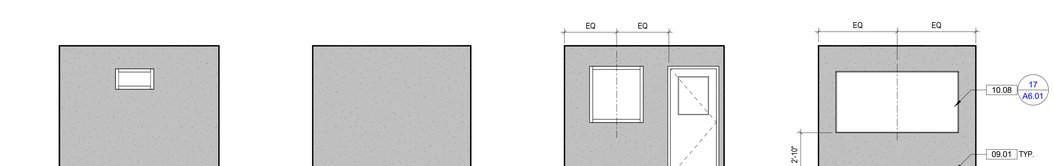
6B EAST 1/4" = 1'-0"

INTERIOR ELEVATION LEGEND

HATCH INDICATES:
TACKBOARD TO BE PROVIDED
SEE FINISH SCHEDULE FOR ADDITIONAL INFORMATION

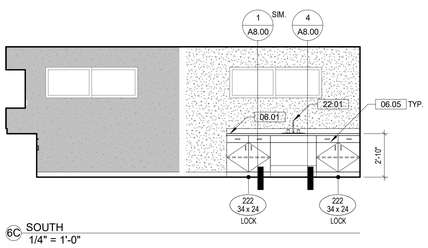
NOTE: TACK PANELS ARE TO BE INDIVIDUAL 48" WIDE PANELS MAXIMUM. DO NOT RUN VINYL CONTINUOUSLY ACROSS PANEL JOINTS.

HATCH INDICATES:
GYP. BD. FINISH TO BE PROVIDED
SEE FINISH SCHEDULE FOR ADDITIONAL INFORMATION

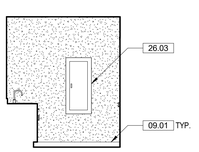


10A OFFICE 103 - NORTH 1/4" = 1'-0"
10B OFFICE 103 - EAST 1/4" = 1'-0"
10C OFFICE 103 - SOUTH 1/4" = 1'-0"
10D OFFICE 103 - WEST 1/4" = 1'-0"

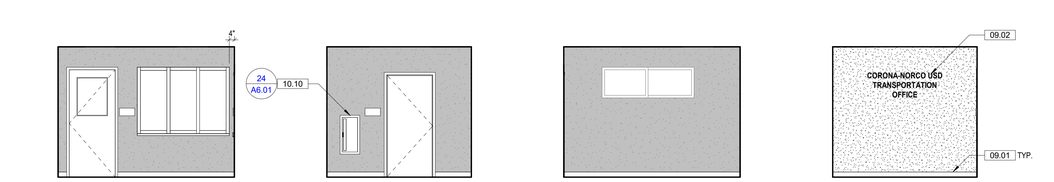
10 OFFICE 103 INTERIOR ELEVATIONS
1/4" = 1'-0"



6C SOUTH 1/4" = 1'-0"



6D WEST 1/4" = 1'-0"



4A NORTH 1/4" = 1'-0"
4B EAST 1/4" = 1'-0"
4C SOUTH 1/4" = 1'-0"
4D WEST 1/4" = 1'-0"

6 BREAK ROOM & COPY ROOM INTERIOR ELEVATIONS
1/4" = 1'-0"

4 ENTRY INTERIOR ELEVATIONS
1/4" = 1'-0"

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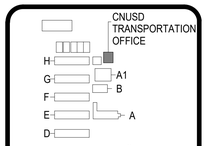

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INTERIOR ELEVATIONS

A6.01

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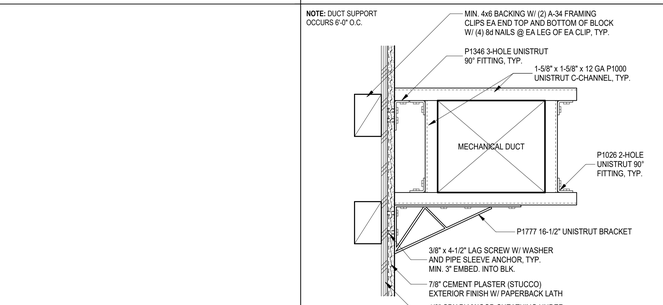
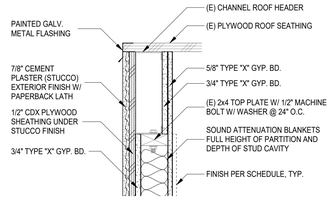
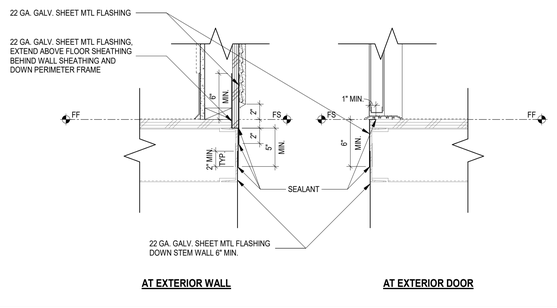


17 DUCT WALL ANCHORAGE
1 1/2" = 1'-0"



16 1-HR TOP OF WALL AT SIDE WALL
1 1/2" = 1'-0"

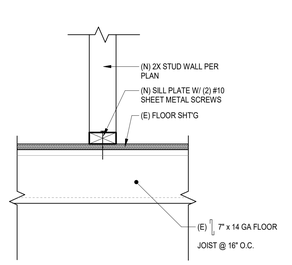


15 TYPICAL WALL FLASHING
1 1/2" = 1'-0"

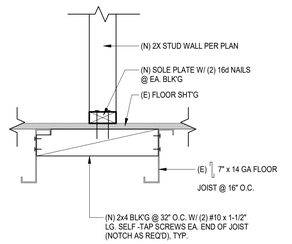
GYPSUM WALLBOARD PARTITION NOTES:

1. SET ALL FLOOR PLATES ON A CONTINUOUS RIBBON OF SEALANT.
2. AT PARTITIONS DESIGNATED TO HAVE SOUND ATTENUATION BLANKETS:
   - **A.** PROVIDE 3-1/2" OR 6" THICK (MATCH STUD SIZE) SOUND ATTENUATION BLANKETS OR BATTS FULL HEIGHT OF PARTITION, UNLESS NOTED OTHERWISE.
   - **B.** SEAL PARTITION PERIMETER AND ALL PENETRATIONS WITH ACOUSTICAL SEALANT.
   - C. TAPE AND BED OR CAULK ALL JOINTS BETWEEN FIRST AND SECOND LAYERS OF GYPSUM BOARD AND AT ALL SOUND RATED WALLS TAKEN THROUGH THE CEILING.
   - D. PROVIDE CONTINUOUS ACOUSTICAL SEALANT AT BOTTOM OF PARTITION ON BOTH SIDES AT NON-RATED PARTITIONS AND PROVIDE CONTINUOUS FIRE RATED SEALANT AT FIRE-RATED PARTITIONS.
3. PROVIDE TILE GLASS-MAT WATER RESISTANT GYPSUM BACKER BOARD ON WALLS BEHIND AND ADJACENT TO PLUMBING FIXTURES, AND BEHIND ALL CERAMIC TILE AT ALL DAMP LOCATIONS AT GYPSUM BOARD PARTITIONS.
4. RIGIDLY BRACE ALL DOOR JAMBS AT THE HEAD, HINGE AND STRIKE SIDES AND WINDOW AT THE HEAD, SILL AND JAMBS.
5. LOCATE CONTROL JOINTS IN GYPSUM BOARD PARTITIONS AS FOLLOWS:
   - A. PARTITIONS OR FURRING RUNS EXCEEDING 30'-0"
   - B. WHERE A PARTITION ABUTS A STRUCTURAL ELEMENT OR DISSIMILAR WALL
   - C. CONSTRUCTION CHANGES WITHIN PLANE OF PARTITION
   - D. AT EXPANSION OR CONTROL JOINTS THROUGHOUT THE BUILDING
   - E. AT BOTH JAMBS OF INTERIOR AND EXTERIOR DOOR AND WINDOW FRAMES, ABOVE AND BELOW FULL HEIGHT OF WALL.
6. FIRE RATED PARTITIONS:
   - A. PROVIDE TYPE "X" FIRE RESISTIVE GYPSUM BOARD, 5/8" THICK UNLESS NOTED OTHERWISE
   - B. FILL ALL VOIDS AT DECK WITH FOAM FIRESTOP SEALANT
   - C. SEAL PARTITION PERIMETER AND ALL PENETRATIONS WITH RATED SEALANT
   - D. REFER TO UL MANUAL FOR RATED PARTITION DESCRIPTIONS AND DETAILED CONSTRUCTION NOTES.
7. EXTEND GYPSUM BOARD ABOVE ADJACENT FINISHED CEILING MINIMUM OF SIX INCHES (6").

13 PARTITION TYPE-TYP NOTES
3/4" = 1'-0"

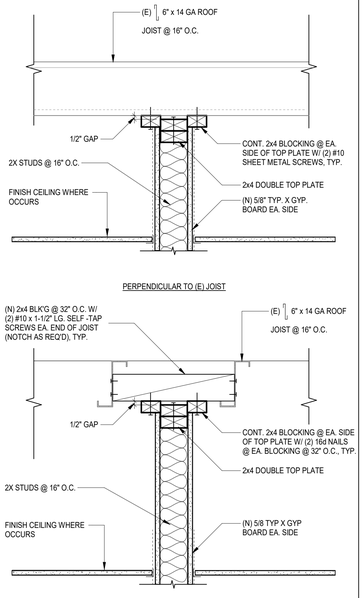


(B) PERPENDICULAR TO (E) FJ



(A) PARALLEL TO (E) FJ

6 INTERIOR WALL BASE
1 1/2" = 1'-0"

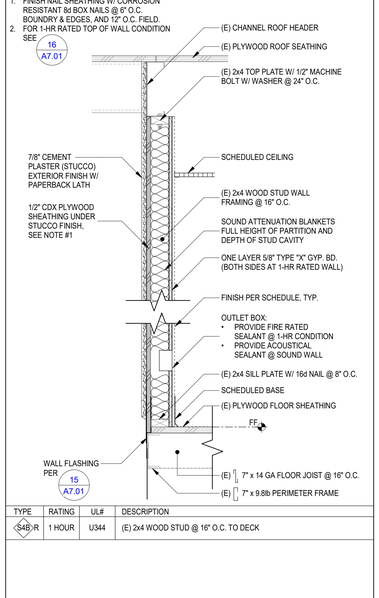


PERPENDICULAR TO (E) JOIST

PARALLEL TO (E) JOIST

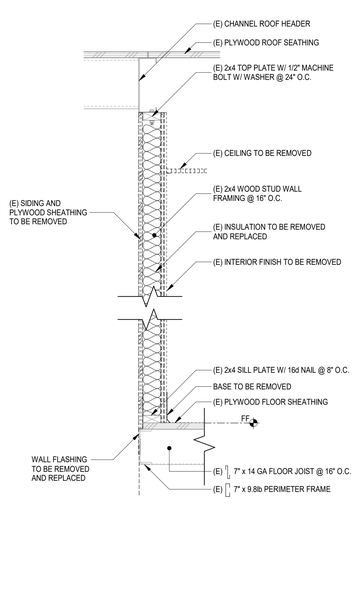
5 NON-RATED HEAD OF WALL ANCHORAGE
1 1/2" = 1'-0"

NOTE:
1. FINISH NAIL SHEATHING W/ CORROSION RESISTANT 8d BOX NAILS @ 6" O.C. BOUNDRY & EDGES, AND 12" O.C. FIELD.
2. FOR 1-HR RATED TOP OF WALL CONDITION SEE 16/A7.01



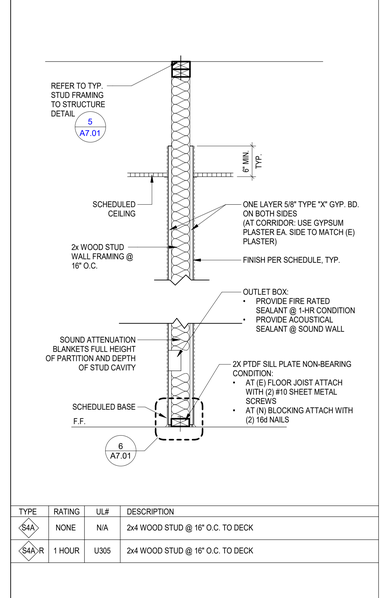
TYPE	RATING	UL#	DESCRIPTION
S48-R	1 HOUR	U344	(E) 2x4 WOOD STUD @ 16" O.C. TO DECK

3 PARTITION TYPE 'B'
1" = 1'-0"



NOTE:
1. FOR REMODEL CONDITION SEE PARTITION TYPE 'B' 3/A7.01

2 (E) EXT. WALL SECTION PARTIAL DEMO
1" = 1'-0"



TYPE	RATING	UL#	DESCRIPTION
S44A	NONE	N/A	2x4 WOOD STUD @ 16" O.C. TO DECK
S44A-R	1 HOUR	U305	2x4 WOOD STUD @ 16" O.C. TO DECK

1 PARTITION TYPE 'A'
1" = 1'-0"

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CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

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DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

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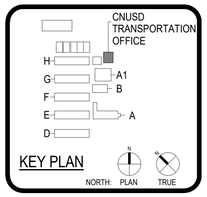

KEY PLAN
NORTH: PLAN TRUE

Consultant

Architect
LICENSED ARCHITECT
Tong You
No. C-31162
REN. 10-31-2023
STATE OF CALIFORNIA

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CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

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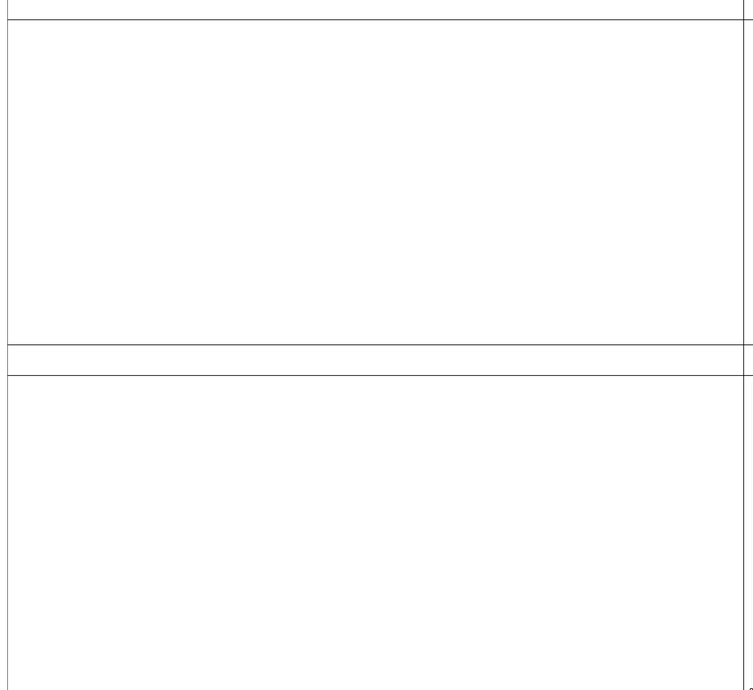
PARTITION TYPES & WALL SECTIONS

A7.01

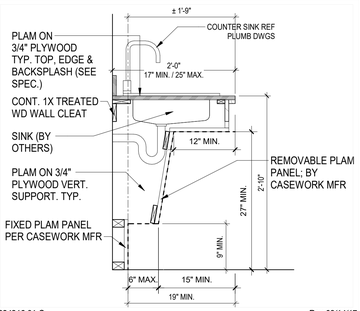
A8.00 - CASEWORK DETAILS

0" 1"



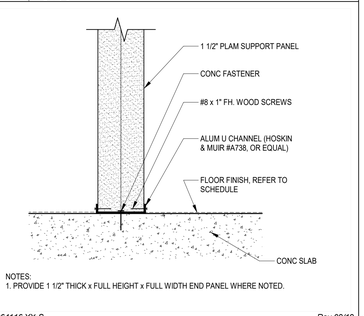
224216.01-S Rev 09/14/17

4 TYP ACCESSIBLE SINK
1" = 1'-0"



061053.01-S Rev 09/19

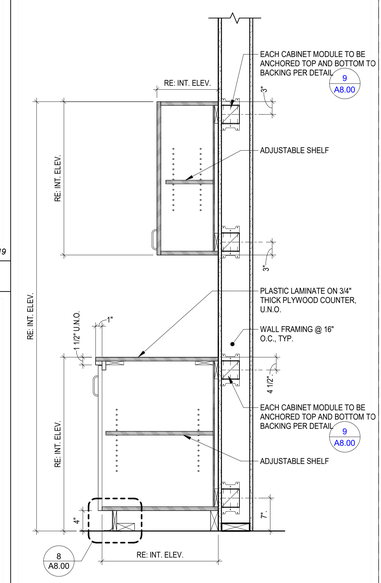
3 CASEWORK BACKING @ (E) WD STUD WALL
3" = 1'-0"



NOTES:
1. PROVIDE 1 1/2" THICK x FULL HEIGHT x FULL WIDTH END PANEL WHERE NOTED.

064116.XX-S Rev 09/19

2 COUNTERTOP SUPPORT ANCHORAGE
3" = 1'-0"



064116.10-S Rev 09/19

1 BASE & UPPER CABINET, TYP
1" = 1'-0"

NOTE: FOR BACKING @ (E) GYP BD TO REMAIN REFER TO 3 A8.00

061053.02-S Rev 09/19

9 CASEWORK BACKING @ WD STUD WALL
3" = 1'-0"

064116.01-S Rev 09/19

8 BASE CABINET ANCHORAGE
3" = 1'-0"

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H
G
F
E
D
A1
B
A

KEY PLAN
NORTH: PLAN TRUE

Consultant

Architect

LICENSED ARCHITECT
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No. C-31162
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CASEWORK DETAILS

A8.00

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0" 1"

A9.01 - FINISH FLOOR PLAN AND SCHEDULE

FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALL FINISH				CEILING FINISH	CEILING HEIGHT	COMMENTS
				NORTH WALL	EAST WALL	SOUTH WALL	WEST WALL			
101	ENTRY	CPT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
102	WORK ROOM	CPT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
103	OFFICE	CPT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
104	OFFICE	CPT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
105	CONFERENCE ROOM	CPT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
106	COPY ROOM	LVT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
107	BREAK AREA	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	8'-6"	

FINISH FLOOR LEGEND

- LUXURY VINYL TILE FLOORING (LVT-1)
- CARPET (CPT-1)
- ENTRY MAT (EM-1) — 21 / G0.05
- INTERIOR FIELD PAINT COLOR (P-1)
- TACKABLE SURFACE (TS-1)
- DOOR PAINT COLOR (P-4 @ INTERIOR DOORS & P-5 AT EXTERIOR DOORS) - PROVIDE SPLIT FACE PAINT AT EXTERIOR DOORS
- EXTERIOR PAINT COLOR (P-2) - ACCENT PAINT COLOR (P-3)

27 FINISH SCHEDULE

FINISH ABBREVIATIONS

ACT	ACOUSTICAL CEILING PANEL
CPT	CARPET
EM	ENTRY MAT
LVT	LUXURY VINYL TILE
MB	MARKERBOARD
P	PAINT
PL	PLASTIC LAMINATE
RB	RUBBER BASE
TS	TACKABLE SURFACE
WSC	WINDOW SHADE CLOTH

NOTES:
1. ALL FINISH MATERIALS MUST MEET THE FLAME SPREAD RATINGS PER 2016 CBC, CHAPT 8.
2. REFER TO INTERIOR ELEVATIONS FOR SPECIFIC MATERIAL LOCATIONS.
3. NON-CONFIRMED ITEMS IN THE DESIGN MUST BE CONFIRMED WITH THE CLIENT AND THE ARCHITECT.
4. ANY CHANGES TO FLOOR PLAN LAYOUT DURING THE PROJECT MIGHT CHANGE FINISHES. FINISHES MUST BE CONFIRMED WITH PBK PRIOR TO INSTALLATION.
5. FOR MANUFACTURERS AND COLORS, SEE FINISH SCHEDULE. ALL FINISHES TO BE INSTALLED IN ACCORADANCE WITH MANUFACTURER'S SPECIFICATIONS.
6. PAINT ALL EXPOSED DUCTWORK, CONDUIT, ELECTRICAL EQUIPMENT, ETC TO MATCH ADJACENT SURFACES, UNO.
7. PAINT ALL NON-FACTORY FINISHED EXPOSED METAL.
8. REFER TO TYPICAL FLOORING TRANSITION DETAILS FOR ALL FLOORING MATERIALS.
9. FLOORING TRANSITIONS AT DOORS SHOULD BE LOCATED UNDER, AND CONCELED BY THE DOOR IN THE CLOSED POSITION, UNO.
10. CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING FINISHED FLOORING SURFACES FROM DAMAGE DURING ALL CONSTRUCTION PHASES.
11. REFER TO REFLECTED CEILING PLANS FOR CEILING HEIGHTS.
12. ALL ELECTRICAL DEVICE COVERS ARE TO BE WHITE, UNO.
13. CARPET PATTERNS TO RUN PARALLEL TO CORRIDOR AND/OR PARALLEL TO THE LONG DIMENSION OF A ROOM OR SPACE, UNO.
14. ALL HOLLOW METAL DOOR FRAMES TO BE PAINTED TO MATCH ADJACENT WALL COLOR.
15. FOR PLASTIC LAMINATE LOCATIONS SEE CABINETRY DEATAIL DRAWINGS.
16. SUBCONTRACTORS TO SUBMIT FINISH SAMPLES (PLASTIC LAMINATE, PAINT, FLOORING, ETC.) TO PBK FOR APPROVAL PRIOR TO INSTALLATION. ALLOW SUFFICIENT TIME TO REORDER IF MATERIAL IS DEFECTIVE OR UNACCEPTABLE.

MATERIAL SCHEDULE

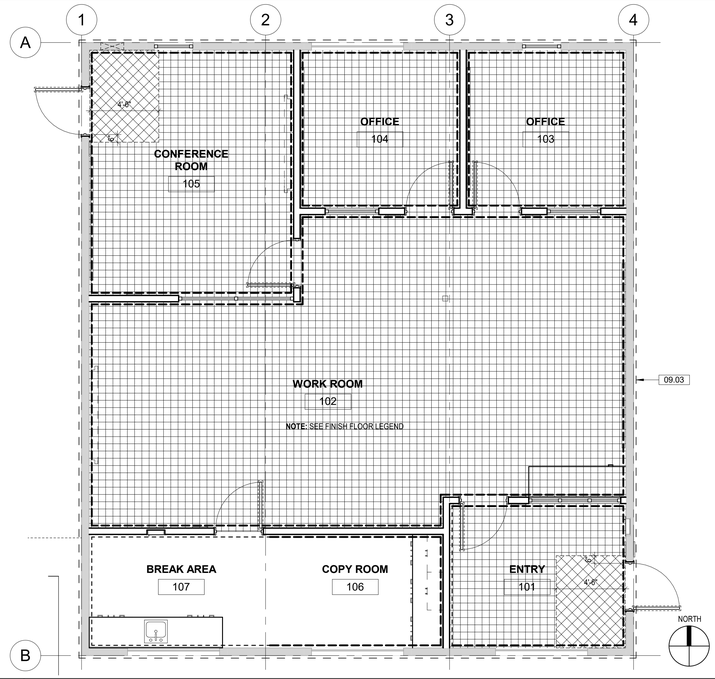
ITEM	MANUFACTURER	DESCRIPTION	COLOR	SIZE	LOCATION	NOTES
CARPET						
CPT-1	MOHAWK	LEARN AND LIVE	SABBATICAL	12" x 36"	SEE FINISH PLAN	
ENTRY MAT						
EM-1	MOHAWK	TUFF STUFF II	FIRST STEP II - GT315	SEE FINISH PLAN	SEE FINISH PLAN	
LUXURY VINYL TILE						
LVT-1	ALTRO FLOORS	LVT	PLATINUM CONCRETE	500 x 1000 mm	SEE FINISH PLAN	
PLASTIC LAMINATE						
PL-1	WILSONART	HPL	7982-38 BUKA BARK	N/A	@ CABINETS	REFER TO MILLWORK DRAWINGS
PL-2	WILSONART	HPL	D427-60 LINEN	N/A	@ COUNTER-TOPS	REFER TO MILLWORK DRAWINGS
INTERIOR PAINT						
P-1	DUNN EDWARDS	PAINT	DE6226 - FOGGY DAY	N/A	INT. FIELD COLOR	LOW SHEEN FINISH
P-2	DUNN EDWARDS	PAINT	DE6359 - SILVER SETTING	N/A	EXT. FIELD COLOR	
P-3	DUNN EDWARDS	PAINT	DE5852 - RAINY LAKE	N/A	EXT. ACCENT COLOR	
P-4	DUNN EDWARDS	PAINT	DEA002 - BLACK	N/A	INT. DOOR COLOR	
P-5	DUNN EDWARDS	PAINT	DE5852 - RAINY LAKE	N/A	EXT. DOOR COLOR	
RESILIENT BASE						
RB1	MOHAWK	DURACOVE 4" RUBBER BASE	073 AIRCRAFT CARRIER	4" H	@NEW FLOORING	
WINDOW SHADE CLOTH						
WSC-1	MECHOSHADE	ECOVEIL SYSTEM	1369 SILVER BIRCH	N/A	WINDOWS	5% OPENESS
MARKERBOARD						
MB-1	POLYVISION	TBD	BRILLIANT WHITE	SEE INTERIOR ELEV.	SEE INTERIOR ELEV.	MAGNETIC CERAMIC COATED STEEL
TACKABLE SURFACE						
TS-1	KOROSEAL / CHATFIELD CLARKE	INTERLOOM	LUSTER NM21-07	N/A	SEE FINISH PLAN	
ACOUSTIC CEILING PANEL						
ACT1	ARMSTRONG	SCHOOL ZONE FINE FISSURED	WHITE	2' x 4' TILES	CEILING	

*REFER TO INTERIOR ELEVATION FOR SPECIFIC PATTERN

15 MATERIAL SCHEDULE

CONSTRUCTION KEYED NOTES

#	Description
09.03	EXTERIOR PLASTER WITH PAINT FINISH TO BE PROVIDED, TYP. - SEE FINISH FLOOR LEGEND



3 PROPOSED FLOOR PLAN

1/4" = 1'-0"

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CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

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KEY PLAN

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Consultant

Architect

LICENSED ARCHITECT Yong Yoo No. C-31162 REN. 10-31-2023 STATE OF CALIFORNIA

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FINISH FLOOR PLAN AND SCHEDULE

A9.01

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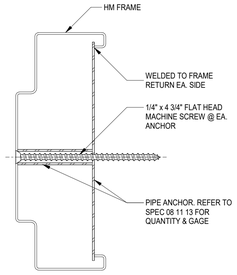
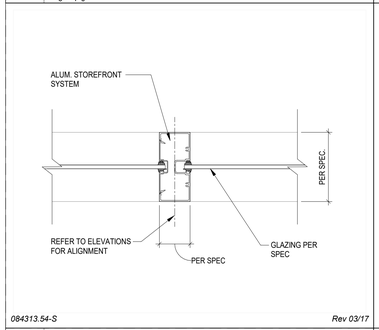
0" 1"



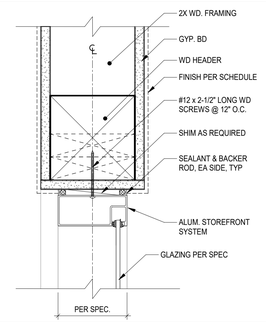
NOTE: PRE-DRILL AND FORM COUNTERSINK AT CENTER OF FRAME FOR EACH ATTACHMENT

24 HM DOOR FRAME JAMB/HEAD ANCHOR
6" = 1'-0"

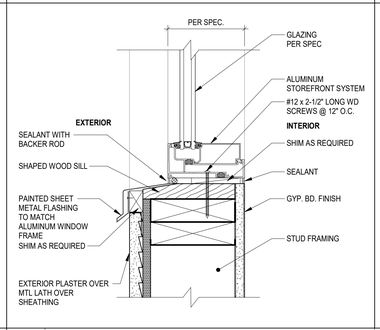


084313.54-S Rev 03/17

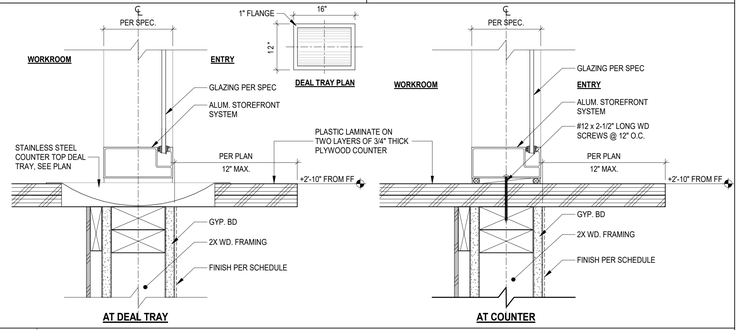
18 INT STOREFRONT - VERT MULLION
3" = 1'-0"



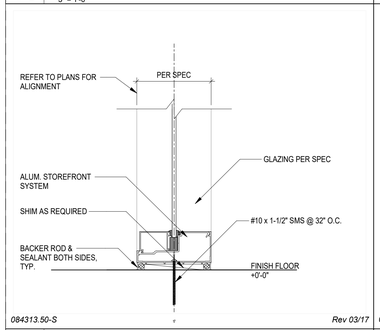
17 INT STOREFRONT - HEAD/JAMB/SILL
3" = 1'-0"



16 EXT STOREFRONT - SILL @ WD STUD WALL
3" = 1'-0"

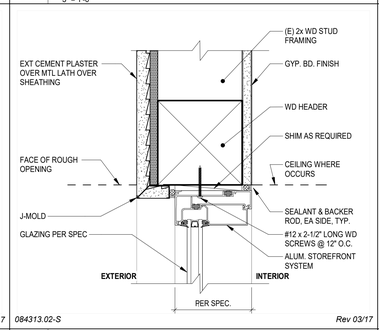


15 INT PASS THRU WINDOW - SILL
3" = 1'-0"



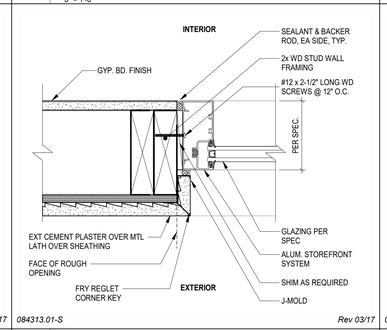
084313.50-S Rev 03/17

12 INT STOREFRONT - SILL @ CONC
3" = 1'-0"



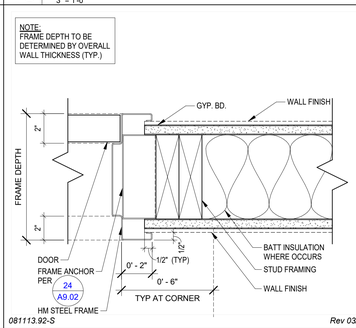
084313.02-S Rev 03/17

11 EXT STOREFRONT - HEAD
3" = 1'-0"



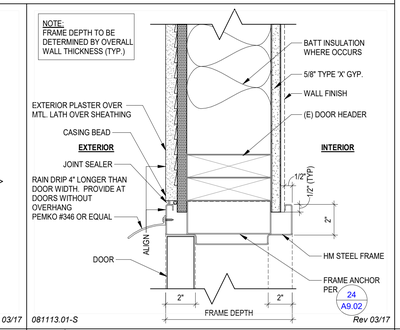
084313.01-S Rev 03/17

10 EXT STOREFRONT - JAMB
3" = 1'-0"



081113.92-S Rev 03/17

9 HM DOOR FRAME INT JAMB/HEAD
3" = 1'-0"



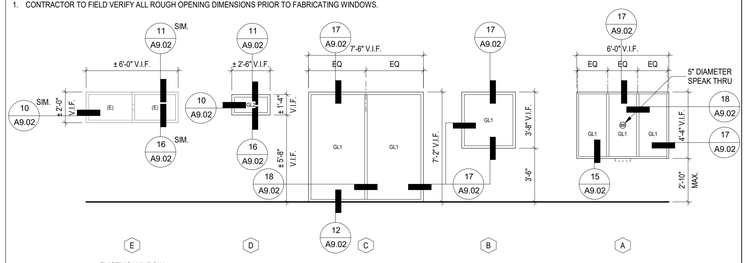
081113.01-S Rev 03/17

8 HM DOOR FRAME EXT HEAD
3" = 1'-0"

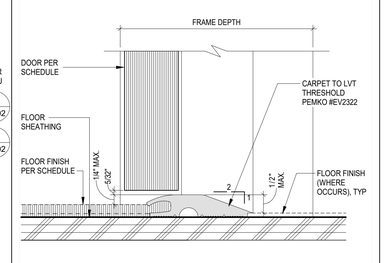
WINDOS TYPE ABBREVIATIONS

GL1 GLAZING - 1/4" CLEAR, TEMPERED, REFER TO SPEC
GL2 GLAZING - 1" INSULATED LOW-E, TEMPERED, REFER TO SPEC

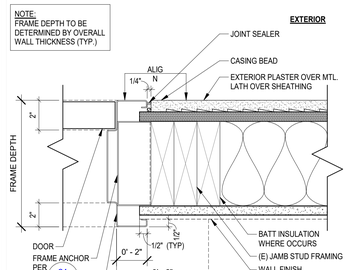
NOTE:
1. CONTRACTOR TO FIELD VERIFY ALL ROUGH OPENING DIMENSIONS PRIOR TO FABRICATING WINDOWS.



6 WINDOW TYPES
1/4" = 1'-0"

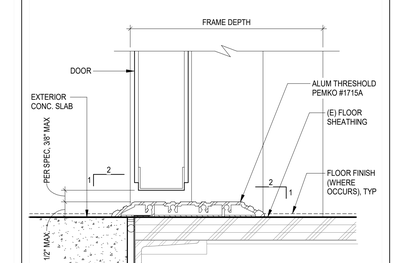


4 CARPET TO LVT INT. DOOR THRESHOLD
6" = 1'-0"



081113.02-S Rev 03/17

3 HM DOOR FRAME EXT JAMB
3" = 1'-0"



081100.00-S Rev 09/19

2 EXT SILL @ HM DOOR
6" = 1'-0"

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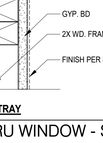

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Architect

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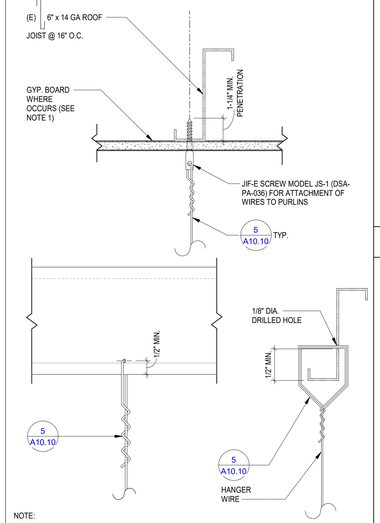
DOOR SCHEDULE, WINDOW TYPES AND DOOR DETAILS

A9.02

0" 1"



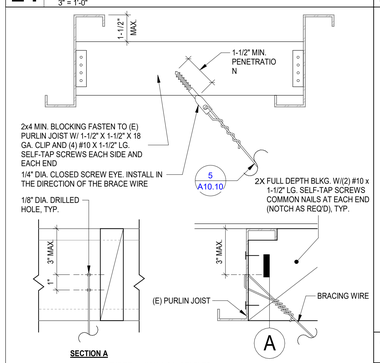
NOTE:

(1) WHEN FIRE RATED GYP. BOARD IS INSTALLED ON THE BOTTOM FLANGES, USE SCREW EYES W/ SUFFICIENT LENGTH TO AVOID DAMAGING THE FIRE RATED GYP. BOARD AND MEET MIN. PENETRATION.

095100.4.25-S DSA IR 25-2.13 #4.25 - Rev 02/10/16

24 HANGER WIRE TO Z PURLINS

3" = 1'-0"

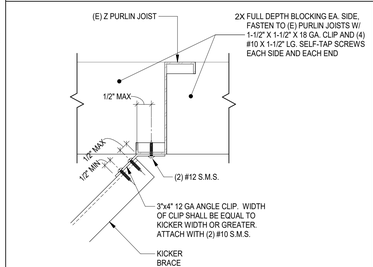


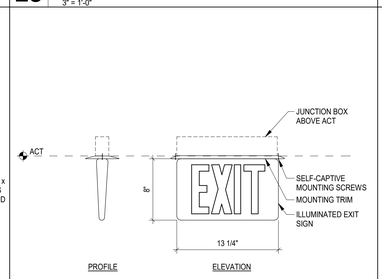
6 METAL STUD BRACE @ CEILING

3" = 1'-0"

23 METAL STUD BRACE @ FRAMING

3" = 1'-0"



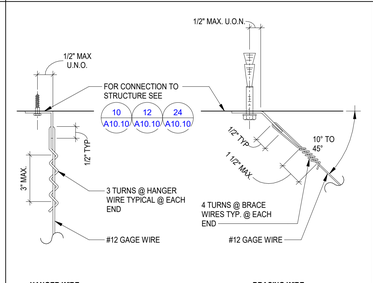


17 CEILING MOUNTED EXIT SIGN

1 1/2" = 1'-0"

5 HANGER & BRACING WIRE TYP CXN

3" = 1'-0"

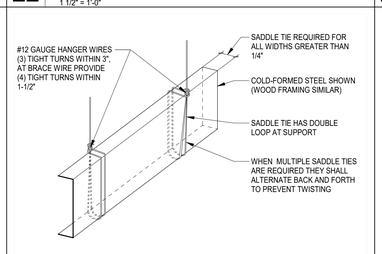


NOTE:
1. KICKER BRACE = 2-1/2" 20GA METAL STUD (250S137-33) FOR SPANS 5'-0" AND LESS
2. KICKER BRACE = 4" 18GA METAL STUD (400S162-43) FOR SPANS 5'-0" TO 8'-0"
3. KICKER BRACE = 4" 16GA METAL STUD (400S200-54) FOR SPANS 8'-0" TO 12'-6"

095100.4.10-S DSA IR 25-2.13 #4.10 - Rev 02/10/16

22 STRUT TO (E) Z PURLIN

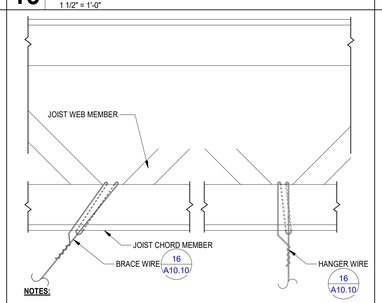
1 1/2" = 1'-0"



095100.4.29-S DSA IR 25-2.19 #4.29 - Rev 03/18/22

16 TYP SADDLE TIE DETAIL

1 1/2" = 1'-0"

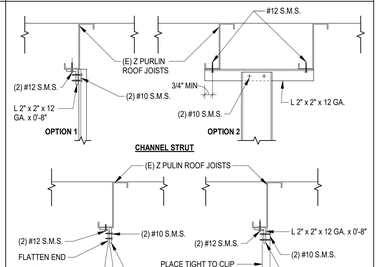


NOTES:
1. BRACE WIRE SHALL ALIGN PARALLEL WITH THE TRUSS BOTTOM CHORD

095100.4.39-S DSA IR 25-2.13 #4.39 - Rev 02/10/16

10 BRACE WIRE TO OPEN-WEB STL JOIST

1 1/2" = 1'-0"



095100.5.20-S DSA IR 25-2.13 #5.20 - Rev 02/10/16

21 COMPRESSION STRUT - CHANNEL -

1 1/2" = 1'-0"

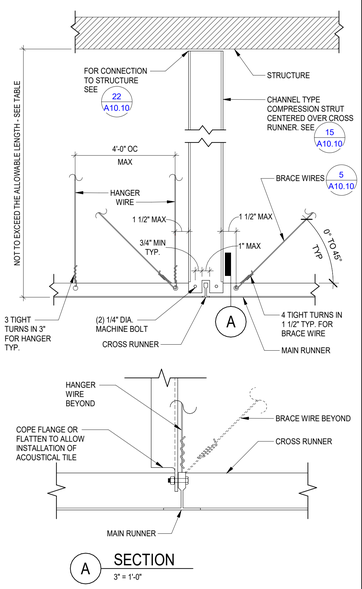
EMT COMPRESSION STRUT	MAXIMUM LENGTH
1/2" DIAMETER EMT (0.042" WALL THICKNESS)	5'-10"
3/4" DIAMETER EMT (0.049" WALL THICKNESS)	7'-8"
1" DIAMETER EMT (0.057" WALL THICKNESS)	9'-9"
1 1/4" DIAMETER EMT (0.065" WALL THICKNESS)	12'-9"
1 1/2" DIAMETER EMT (0.065" WALL THICKNESS)	14'-9"
2" DIAMETER EMT (0.065" WALL THICKNESS)	18'-10"

CHANNEL COMPRESSION STRUT	MAXIMUM LENGTH
250S125-33	5'-0"
250S137-33	6'-10"
362S137-33	8'-0"
250137-43	8'-10"
400S137-43	10'-10"

095100.3.21-S DSA IR 25-2.13 #3.21 - Rev 02/10/16

15 COMPRESSION STRUT TABLE

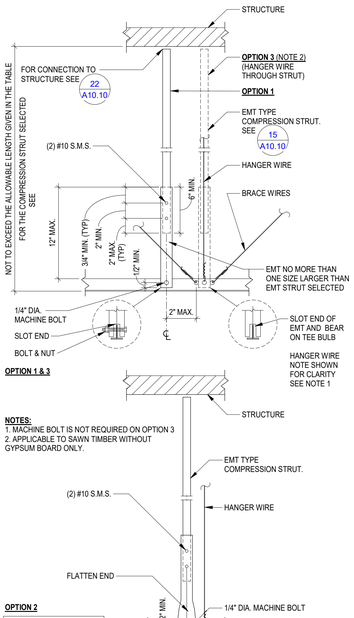
1/2" = 1'-0"



095100.3.10-S DSA IR 25-2.13 #3.10 - Rev 02/10/16

3 COMPRESSION STRUT - CHANNEL

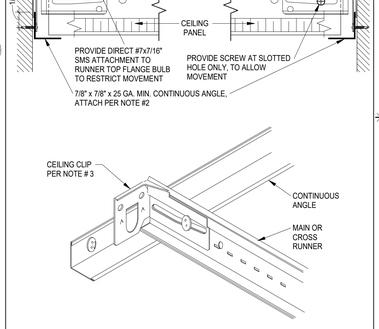
1 1/2" = 1'-0"



095100.3.20-S DSA IR 25-2.13 #3.20 - Rev 02/10/16

14 TYP CEILING PLAN

1/8" = 1'-0"



NOTES:

1. PROVIDE #12 GAGE HANGER WIRES AT THE ENDS OF ALL MAIN AND CROSS RUNNERS WITHIN EIGHT (8) INCHES OF THE SUPPORT OF WITHIN ONE-FORTH (1/4) OF THE LENGTH OF THE END TEE WHICHEVER IS LESS, FOR THE PERIMETER OF THE CEILING AREA. PERIMETER WIRES ARE NOT REQUIRED WHEN THE LENGTH OF THE END TEE IS EIGHT (8) INCHES OR LESS.
2. FASTEN ANGLE TO WALL FRAMING AS FOLLOWS: AT WOOD STUD FRAMING: (1) #10 WOOD SCREW TO 2X MIN. WALL STUD @ 24" O.C.
3. CELING CLIP: ARMSTRONG BERC2 CLIP, OR EQUAL ATTACHED TO WALL MOLDING TWO (2) SCREWS

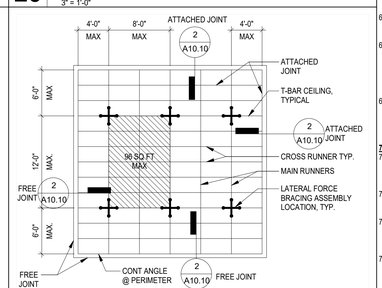
095100.2.60-S DSA IR 25-2.13 #2.60 - Rev 02/10/16

2 SUSPENDED CEILING PERIMETER JOINTS

6" = 1'-0"

20 SUSPENDED LIGHT FIXT./AIR TERMINALS

3" = 1'-0"

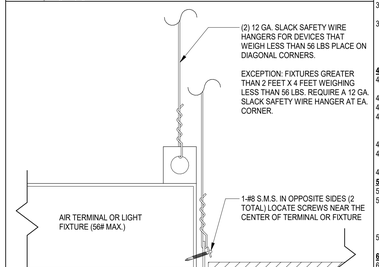


NOTE: BRACING WIRES AND COMP. STRUT SHALL OCCUR AT EVERY 96 SQ. FT. MAX. IN ROOMS OVER 144 SQ. FT.

095100.2.10-S DSA IR 25-2.19 #2.11 - Rev 03/18/22

26 CEILING WIRE SPLICES

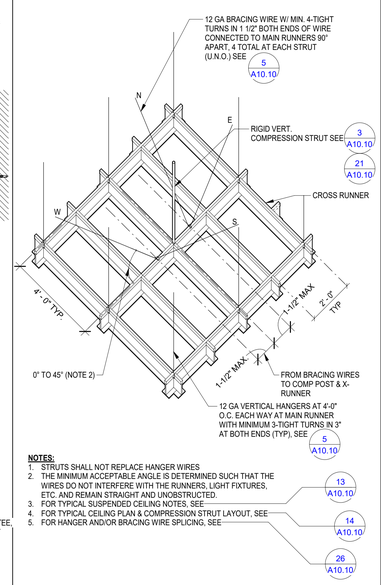
6" = 1'-0"



095100.2.80-S DSA IR 25-2.13 #2.80 - Rev 02/10/16

13 SUSPENDED CEILING NOTES

1/2" = 1'-0"



NOTES:
1. STRUTS SHALL NOT REPLACE HANGER WIRES.
2. THE MINIMUM ACCEPTABLE ANGLE IS DETERMINED SUCH THAT THE WIRES DO NOT INTERFERE WITH THE RUNNERS, LIGHT FIXTURES, ETC. AND REMAIN STRAIGHT AND UNOBSTRUCTED.
3. FOR TYPICAL SUSPENDED CEILING NOTES, SEE
13 A10.10
4. FOR TYPICAL CEILING PLAN & COMPRESSION STRUT LAYOUT, SEE
14 A10.10
5. FOR HANGER AND/OR BRACING WIRE SPLICING, SEE
26 A10.10

095100.2.35-S DSA IR 25-2.13 #2.35 - Rev 06/30/17

1 SUSPENDED CEILING SYSTEM

3/8" = 1'-0"

1. CEILING SYSTEM GENERAL NOTES:
1.01 CEILING SYSTEM COMPONENTS SHALL COMPLY WITH ASTM C635 AND SECTION 5.1 OF ASTM E580.
1.02 THE CEILING GRID SYSTEM MUST BE RATED HEAVY DUTY AS DEFINED BY ASTM C635.
1.03 CEILING SYSTEMS. THE FOLLOWING CEILING SYSTEM(S) IS/ARE PART OF THE SCOPE OF THIS PROJECT:
MANUFACTURER'S NAME _ARMSTRONG_
PRODUCT EVALUATION REPORT TYPE AND NUMBER _ICC-ES ESR-1308_
MANUFACTURER'S MODEL NUMBER - MAIN RUNNER _HEAVY DUTY PRELUDE 7301_
MANUFACTURER'S CATALOG NUMBER - CROSS RUNNER _XL7328_
1.04 SEISMIC WALL CLIP:
MANUFACTURER'S MODEL _BERC2_
1.05 CEILING PANELS SHALL NOT SUPPORT ANY LUMINAIRES, AIR TERMINALS OR DEVICES.
1.06 FOR CEILING INSTALLATIONS UTILIZING ACOUSTICAL TILE PANELS OF MINERAL OR GLASS FIBER, IT IS NOT MANDATORY TO PROVIDE 3/4" CLEARANCE BETWEEN THE ACOUSTICAL TILE PANELS AND THE WALL ON THE SIDES OF THE CEILING WHICH ARE FREE TO SLIP. FOR ALL OTHER CEILING PANEL TYPES, PROVIDE 3/4" CLEARANCE BETWEEN THE CEILING PANEL AND THE WALL ON THE SIDES OF THE CEILING FREE TO SLIP. CLEARANCE BETWEEN CEILING GRID RUNNERS/MEMBERS AND WALLS SHALL COMPLY WITH THE DETAILS ON THESE DRAWINGS REGARDLESS OF CEILING TILE MATERIAL.

2. MATERIALS:
2.01 CEILING WIRE SHALL BE CLASS 1 ZINC COATED (GALVINIZED) CARBON STEEL CONFORMING TO ASTM A641. WIRE SHALL BE #12 GAGE (0.106" DIAMETER) WITH SOFT TEMPER AND MINIMUM TENSILE STRENGTH = 70 KSI.
2.02 GALVANIZED SHEET STEEL (INCLUDING THAT USED FOR METAL STUD AND TRACK COMPRESSION STRUTS/POST) SHALL CONFORM TO ASTM A653, OR OTHER EQUIVALENT SHEET STEEL LISTED IN SECTION A3.1 OF THE NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, (AISI S100). MATERIAL 43 MIL (18 GAUGE) AND LIGHTER SHALL HAVE A MINIMUM YIELD STRENGTH OF 33 KSI. MATERIAL 54 MIL (16 GAUGE) AND HEAVIER SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI.
2.03 ELECTRICAL METALLIC TUBE (EMT) SHALL BE ANSI C80.3/UL 797 CARBON STEEL WITH G90 GALVANIZING. EMT SHALL HAVE MINIMUM YIELD STRENGTH (Fy) OF 30 KSI AND MINIMUM ULTIMATE STRENGTH (Fu) OF 48 KSI.

3. ATTACHMENT OF HANGER AND BRACING WIRES:
3.01 SEPARATE ALL CEILING HANGER AND BRACING WIRES AT LEAST SIX (6) INCHES FROM ALL UNBRACED DUCTS, PIPES, CONDUIT, ETC.
3.02 HANGER AND BRACING WIRES SHALL NOT ATTACH TO OR BEND AROUND OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO: PIPING, DUCTWORK, CONDUIT AND EQUIPMENT.
3.03 HANGER WIRES THAT ARE MORE THAN ONE (HORIZONTAL) IN SIX (VERTICAL) OUT OF PLUMB SHALL HAVE COUNTER-SLOPING WIRES.
3.04 SLACK SAFETY WIRES SHALL BE CONSIDERED HANGER WIRES FOR INSTALLATION AND TESTING REQUIREMENTS.
3.05 HANGER AND BRACING WIRE ANCHORAGE TO THE STRUCTURE SHALL BE INSTALLED IN SUCH A MANNER THAT THE DIRECTION OF THE ANCHORAGE ALIGNS CLOSELY WITH THE DIRECTION OF THE WIRE. (E.G. BRACING WIRE CEILING CLIPS MUST BE BENT AS SHOWN IN THE DETAILS AND ROTATED AS REQUIRED TO ALIGN CLOSELY WITH THE DIRECTION OF THE WIRE, SCREW EYES IN WOOD MUST BE INSTALLED SO THEY ALIGN CLOSELY WITH THE DIRECTION OF THE WIRE, ETC.)

4. FASTENERS AND WELDING:
4.01 SHEET METAL SCREWS SHALL COMPLY WITH ASTM C1513, ASME B18.6.3. PENETRATION OF SCREWS THROUGH JOINED MATERIAL SHALL NOT BE LESS THAN THREE EXPOSED THREADS.
4.02 EXPANSION ANCHORS SHALL BE: N/A
4.03 POWER-ACTUATED FASTENERS SHALL BE: HILTI-XU 15 PAP (0.145" DIA.) (ICC ESR-2269)
4.04 IF NOT OTHERWISE SPECIFIED IN THE EVALUATION REPORT, POWER-ACTUATED FASTENERS INSTALLED IN STEEL SHALL BE INSTALLED SO THE ENTIRE POINTED END OF THE FASTENER IS DRIVEN THROUGH THE STEEL MEMBER.
4.05 POWER-ACTUATED FASTENERS IN CONCRETE ARE NOT PERMITTED FOR BRACING WIRES.
4.06 CONCRETE REINFORCEMENT AND PRESTRESSING TENDONS SHALL BE LOCATED BY NON DESTRUCTIVE MEANS PRIOR TO INSTALLING POST - INSTALLED ANCHOR.
4.07 WELDING SHALL BE IN ACCORDANCE WITH AWS D1.3 USING E60XX SERIES ELECTRODES.

5. TESTING: ALL FIELD TESTING MUST BE PERFORMED IN THE PRESENCE OF THE PROJECT INSPECTOR.
5.01 ALL FIELD TESTING MUST BE PERFORMED IN THE PRESENCE OF THE PROJECT INSPECTOR.
5.02 POST-INSTALLED ANCHORS IN CONCRETE USED TO SUPPORT HANGER WIRES SHALL BE TESTED AT A FREQUENCY OF 10 PERCENT. POWER ACTUATED FASTENERS IN CONCRETE SHALL BE FIELD TESTED FOR 200 LBS. IN TENSION. ALL OTHER POST-INSTALLED ANCHORS IN CONCRETE SHALL BE TESTED IN ACCORDANCE WITH CBC SECTION 1910A.5.
5.02 POST-INSTALLED ANCHORS IN CONCRETE USED TO ATTACH BRACING WIRES SHALL BE TESTED AT A FREQUENCY OF 50 PERCENT IN ACCORDANCE WITH CBC SECTION 1910A.5.

6. LUMINAIRES:
6.01 ALL LIGHT FIXTURES SHALL BE POSITIVELY ATTACHED TO THE CEILING SUSPENSION SYSTEMS BY MECHANICAL MEANS TO RESIST A HORIZONTAL FORCE EQUAL TO THE WEIGHT OF THE LUMINAIRE. A MINIMUM OF TWO SCREWS OR APPROVED FASTENERS ARE REQUIRED AT EACH LUMINAIRE, PER ASTM E580, SECTION 5.3.1.
6.02 SURFACE-MOUNTED LUMINAIRES SHALL BE ATTACHED TO THE MAIN RUNNER WITH AT LEAST TWO POSITIVE CLAMPING DEVICES. THE CLAMPING DEVICE SHALL COMPLETELY SURROUND THE SUPPORTING CEILING RUNNER AND BE MADE OF STEEL WITH A MINIMUM THICKNESS OF #14 GAUGE. ROTATIONAL SPRING CATCHES DO NOT COMPLY. A #12 GAGE SLACK SAFETY WIRE SHALL BE CONNECTED FROM EACH CLAMPING DEVICE TO THE STRUCTURE ABOVE. PROVIDE ADDITIONAL SUPPORTS WHEN A LUMINAIRE IS EIGHT (8) FEET OR LONGER OR EXCEEDS 56 LB. MAXIMUM SPACING BETWEEN SUPPORTS SHALL NOT EXCEED EIGHT (8) FEET.
6.03 LUMINAIRES WEIGHING LESS THAN OR EQUAL TO 10 LB. MAY BE SUPPORTED DIRECTLY ON THE CEILING RUNNERS, SHALL HAVE A MINIMUM OF ONE (1) #12 GAUGE SLACK SAFETY WIRE CONNECTED FROM THE FIXTURE HOUSING TO THE STRUCTURE ABOVE.
6.04 LUMINAIRES WEIGHING GREATER THAN 10 POUNDS BUT LESS THAN OR EQUAL TO 56 LB. MAY BE SUPPORTED DIRECTLY ON THE CEILING RUNNERS, BUT THEY SHALL HAVE A MINIMUM OF TWO (2) #12 GAUGE SLACK SAFETY WIRE CONNECTED FROM THE FIXTURE HOUSING AT DIAGONAL CORNERS TO THE STRUCTURE ABOVE.
EXCEPTION: ALL LUMINAIRES GREATER THAN TWO BY FOUR FEET WEIGHING LESS THAN 56 LB. SHALL HAVE A #12 GAUGE SLACK SAFETY WIRE AT EACH CORNER
6.05 ALL LUMINAIRES WEIGHING GREATER THAN 56 LB. SHALL BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN FOUR (4) TAUT #12 GAUGE HANGER WIRES (ONE AT EACH CORNER) ATTACHED FROM THE FIXTURE HOUSING TO THE STRUCTURE ABOVE OR OTHER APPROVED HANGERS. THE FOUR (4) TAUT #12 GAUGE WIRES OR OTHER APPROVED HANGERS, INCLUDING THEIR ATTACHMENT TO THE STRUCTURE ABOVE, SHALL BE CAPABLE OF SUPPORTING FOUR (4) TIMES THE WEIGHT OF THE FIXTURE.

7. SERVICES WITHIN THE CEILING:
7.01 ALL FLEXIBLE SPRINKLER HOSE FITTING MOUNTING BRACKETS, CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES SHALL BE POSITIVELY ATTACHED TO THE CEILING SUSPENSION SYSTEMS BY MECHANICAL MEANS. SCREWS OR APPROVED FASTENERS ARE REQUIRED. A MINIMUM OF TWO ATTACHMENTS ARE REQUIRED AT EACH COMPONENT.
7.02 CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES WEIGHING LESS THAN OR EQUAL TO 20 LB. SHALL HAVE ONE (1) #12 GAGE SLACK SAFETY WIRE ATTACHED FROM THE TERMINAL OR SERVICE TO THE STRUCTURE ABOVE.
7.03 FLEXIBLE SPRINKLER HOSE FITTINGS, CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES WEIGHING MORE THAN 20 LB. BUT LESS THAN OR EQUAL TO 56 LB. SHALL HAVE TWO (2) #12 GAUGE SLACK SAFETY WIRES (AT DIAGONAL CORNERS) CONNECTED FROM THE TERMINAL OR SERVICE TO THE STRUCTURE ABOVE.
7.04 FLEXIBLE SPRINKLER HOSE FITTINGS, CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES WEIGHING MORE THAN 56 LB. SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE ABOVE BY NOT LESS THAN FOUR (4) TAUT #12 GAUGE HANGER WIRES ATTACHED FROM THE TERMINAL OR SERVICE TO THE STRUCTURE ABOVE OR OTHER APPROVED HANGERS.

8. OTHER DEVICES WITHIN THE CEILING:
8.01 ALL LIGHTWEIGHT MISCELLANEOUS DEVICES, SUCH AS STROBE LIGHTS, OCCUPANCY SENSORS, SPEAKERS, EXIT SIGNS, ETC., SHALL BE ATTACHED TO THE CEILING GRID. IN ADDITION, DEVICES WEIGHING MORE THAN 10 LBS. SHALL HAVE A #12 GAUGE SLACK SAFETY WIRE ANCHORED TO THE STRUCTURE AT 10'/16' ABOVE. DEVICES WEIGHING MORE THAN 20 LB. SHALL BE SUPPORTED INDEPENDENTLY FROM THE STRUCTURE ABOVE.

095100.6.10-S DSA IR 25-2.13 #6.10 - Rev 02/10/16

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IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

ARCHITECT PBK Architects, Inc.
PBK.com
RANCHO CUCAMONGA
8163 Rochester Avenue, Suite 100
Rancho Cucamonga
California 91730
P 909-987-0909

CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE
H
G
F
E
D
A1
B
A
KEY PLAN
NORTH: PLAN TRUE

Consultant

Architect
LICENSED ARCHITECT Tong Yoo No. C-31162 REN. 10-31-2024 STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD
DATE 08-07-23
PROJECT NUMBER 230010

REVISIONS

No.	Description	Date

100% CONSTRUCTION DOCUMENTS

CEILING DETAILS

A10.10

STRUCTURAL GENERAL NOTES

- <u>GENERAL</u>

A. THESE DRAWINGS ARE COPY RIGHTED INSTRUMENTS OF SERVICE OF HOHBACH-LEWIN, INC. FOR USE ONLY ON THIS PROJECT.

B. CONTRACTOR RESPONSIBILITY - CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, SEQUENCES AND SAFETY PRECAUTIONS, INCLUDING BUT NOT LIMITED TO SHORING AND TEMPORARY BRACING.

C. DIMENSIONS - USE WRITTEN DIMENSIONS ONLY. VERIFY ALL DIMENSIONS AT JOB SITE BEFORE COMMENCING WORK AND REPORT ANY DISCREPANCIES. WHERE NO DIMENSIONS ARE PROVIDED, OBTAIN CLARIFICATION PRIOR TO PROCEEDING WITH WORK. DO NOT SCALE DRAWINGS.

D. COORDINATION - OPENINGS THROUGH WALLS AND FLOORS FOR MECHANICAL AND ELECTRICAL SYSTEMS SHALL BE COORDINATED BY CONTRACTOR AND CONSTRUCTED PER TYPICAL DETAILS SHOWN IN THESE DOCUMENTS. NO MECHANICAL OR ELECTRICAL SYSTEM COMPONENTS SHALL BE EMBEDDED IN SLABS OR WALLS UNLESS SPECIFICALLY DETAILED IN THESE DOCUMENTS.

E. OMISSIONS AND CONFLICTS - OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE CONSTRUCTION DOCUMENTS SHOULD BE BROUGHT TO THE ATTENTION OF THE DESIGN TEAM. IF CERTAIN FEATURES ARE NOT FULLY DELINEATED IN THE CONSTRUCTION DOCUMENTS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS FOR SIMILAR CONDITIONS THAT ARE DELINEATED.

F. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THEIR SHOP DRAWINGS AND WORK.

G. THERE SHALL BE NO CHANGE IN SIZE OR DIMENSION OF A STRUCTURAL MEMBER, NOR SHALL ANY OPENINGS BE MADE IN ANY STRUCTURAL MEMBER, WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

H. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON THE STRUCTURE. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE STRUCTURE AT THE TIME THE LOADS ARE IMPOSED.

I. THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS.

J. SEE DRAWINGS OTHER THAN STRUCTURAL FOR: TYPES OF FLOOR FINISH AND THEIR LOCATION, DEPRESSIONS IN FLOOR SLABS, OPENINGS IN WALLS AND FLOORS REQUIRED BY ARCHITECTURAL AND MECHANICAL FEATURES, AND ROADWAY PAVING, WALKS, RAMPS, STAIRS, CURBS, ETC.

K. TYPICAL DETAILS - DETAILS NOTED AS TYPICAL ARE APPLICABLE WHERE SPECIFIED ON THE STRUCTURAL DRAWINGS AND WHEREVER THE CONDITION OCCURS THROUGHOUT THE PROJECT, INCLUDING LOCATIONS WHERE THE DETAIL IS NOT EXPLICITLY SPECIFIED OR REFERENCED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY LOCATIONS WHERE TYPICAL DETAILS ARE APPLICABLE PRIOR TO CONSTRUCTION.

- <u>EXISTING CONSTRUCTION/ CONDITIONS:</u>

A. SHORING: THE CONTRACTOR SHALL PROVIDE SHORING WHEREVER NECESSARY TO ALLOW INSTALLATION OF THE WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE DESIGN, INSTALLATION AND MAINTENANCE OF ALL SHORING AND TEMPORARY WORK REQUIRED THROUGHOUT THE PROGRESS OF THE WORK.

B. EXISTING CONSTRUCTION: EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS WAS OBTAINED FROM LIMITED VISUAL OBSERVATIONS. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND SHALL NOTIFY THE STRUCTURAL ENGINEER OF RECORD OF ALL EXCEPTIONS AND RECEIVE DIRECTION PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

C. DEMOLITION: THE REMOVAL, CUTTING, DRILLING. ETC. OF EXISTING WORK SHALL BE PERFORMED WITH GREAT CARE AND WITH APPROPRIATE TOOLS IN ORDER TO NOT JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE BUILDING. SEE ARCHITECTURAL DRAWINGS FOR REQUIRED DEMOLITION.

- <u>DESIGN BASIS</u>

A. APPLICABLE CODE: CALIFORNIA BUILDING CODE (CBC), 2022 EDITION.

B. VERTICAL LOAD - LIVE LOADS:
   1. FLOOR LOAD: <u>50 psf</u> + 20 psf PARTITION LOAD

C. VERTICAL LOAD - ROOF LOAD: <u>20 psf</u>

D. LATERAL LOADS:
   1. DESIGN WIND CRITERIA: PER ASCE 7-16
      BASIC DESIGN WIND SPEED: <u>96 mph</u>
      ALLOWABLE STRESS DESIGN WIND SPEED: <u>75 mph</u>
      RISK CATEGORY = II
      WIND EXPOSURE: <u>C</u>
      INTERNAL PRESSURE COEFFIECENT = GCpi = -/+ 0.18
      EXTERNAL PRESSURE COEFFICENT = GCpf = -/+ 0.8

   2. DESIGN SEISMIC CRITERIA:
      RISK CATEGORY = <u>II</u>
      SEISMIC IMPORTANCE FACTOR, Ie = 1.0
      S_S = 2.071g
      S_1 = 0.778g
      SITE CLASS: <u>D</u>
      S_{DS} = <u>1.381g</u>
      SEISMIC DESIGN CATEGORY= <u>E</u>
      BASIC FORCE RESISISTING SYSTEM = WOOD SHEAR WALLS
      DESIGN BASE SHEAR, V= 12.1 KIPS
      SEISMIC RESPONSE COEFFICIENT (s), C_S = 0.22
      RESPONSE MODIFICATION COEFF., R = 6.5, OMEGA = 3, Cd = 4
      EQUIVALENT LATERAL FORCE PROCEDURE
      NO HORIZONTAL IRREGULARITIES
      NO VERTICAL IRREGULARITIES
      BASE LOCATION = At GROUND

- <u>CONCRETE</u>

A. CONCRETE SHALL BE SUPPLIED AND PLACED IN ACCORDANCE WITH ACI 318.

B. CONCRETE SHALL BE AS FOLLOWS:

CONCRETE USE	STRENGTH AT 28 DAYS U.O.N.	W/C RATIO	MAX. AGGREGATE SIZE	WEIGHT	SHRINKAGE
FOUNDATIONS	3000 psi	0.50 MAX.	3/4" TO 1"	145pcf	-
ALL OTHER CONCRETE	3000 psi	0.50 MAX.	3/4"	145pcf	.045%

C. STRENGTH: COMPRESSIVE STRENGTH IN PSI WHEN TESTED IN ACCORDANCE WITH ASTM C39

D. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE II.

E. AGGREGATE FOR STONE CONCRETE SHALL CONFORM TO ASTM C-33. FOR LOW SHRINKAGE AGGREGATE; USE LIMESTONE OR GRANITE. AGGREGATE FOR LIGHTWEIGHT CONCRETE SHALL CONFORM TO ASTM C-330.

F. FLY ASH: ASTM C 618, ASTM C 311 CLASS N OR F. MAXIUMUM FLY ASH CONTENT BY MASS OF CEMENTITIOUS MATERIAL IS 15%.

G. ADMIXTURES: MIX SHALL CONTAIN POLYMER BASED, WATER REDUCING ADMIXTURE. THE FOLLOWING TYPES OF ADMIXTURES ARE ALLOWED AS PLASTICIZERS AND/ OR SET ACCELERATORS TO IMPROVE WORKABILITY. 1. ASTM C494, TYPES A, C, E, G. HIGH RANGE WATER REDUCERS SHALL ALSO MEET REQUIREMENTS OF ASTM C 1017. 2. THE INITIAL SLUMP OF THE CONCRETE BEFORE INTRODUCING ADMIXTURES SHOULD BE MINIMUM 2" INCHES

H. SHRINKAGE - CONTRACTOR TO PROVIDE CONCRETE MIX HISTORY DATA OR PROVIDE TESTING REPORT.

I. MINIMUM REINF. COVER FOR CAST-IN-PLACE CONCRETE:
   1. CONC. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . 3"
   2. CONC. FORMED BELOW GRADE OR EXPOSED TO WEATHER:
   NO. 6 AND GREATER . . . . 2"
   NO. 5 AND SMALLER . . . . 1 1/2"
   3. CONC. NOT EXPOSED TO WEATHER NOR IN CONTACT WITH GROUND:
      SLABS, WALLS, AND JOISTS: NO. 11 AND SMALLER . . . . 1"
      BEAMS AND COL: PRIMARY REINF., TIES, STIRRUPS, SPIRALS . . . . 1 1/2"

J. PLACEMENT
   1. ALL REINFORCING BARS, ANCHOR BOLTS, AND ALL OTHER CONC. INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
   2. CHAMFER ALL CORNERS OF CONCRETE TO PREVENT DAMAGE.
   3. CONSTRUCTION TOLERANCE SHALL COMPLY TO ACI 117.
   4. CONCRETE SHALL BE PLACED IN A CONTINUOUS OPERATION BETWEEN PREDETERMINED CONSTRUCTION JOINTS.
   5. USE VIBRATORS TO CONSOLIDATE CONCRETE. DO NOT USE VIBRATORS TO MOVE CONCRETE.
   6. CONCRETE SHALL BE CONTINUOUSLY CURED FOR 7 DAYS AFTER PLACEMENT IN ANY APPROVED MANNER. FOOTINGS ARE EXEMPTED FROM THIS REQUIREMENT.
   7. PATCHING OF CONCRETE: ALL INSERT HOLES AND OTHER IMPERFECTIONS ON THE SURFACES OF THE CONCRETE SHALL BE FILLED WITH GROUT, BRUSHED AND SACKED TO A UNIFORM FINISH.

K. CONSTRUCTION JOINTS:
   1. CONSTRUCTION JOINTS SHOWN MAY BE PROVIDED AT CONTRACTORS OPTION. ANY PROPOSED CONSTRUCTION JOINTS NOT SHOWN MUST BE SUBMITTED TO THE DESIGN PROFESSIONAL OF RECORD FOR APPROVAL.
   2. ROUGHENED CONSTRUCTION JOINTS (R.C.J.): WHERE NOTED ON DRAWINGS R.C.J. ROUGHEN JOINT TO MINIMUM 1/4 INCH AMPLITUDE.

L. ALL CONC. TO BE REINFORCED.

CONCRETE CONTINUOUS BATCH PLANT INSPECTION EXEMPTED PER CBC 1705.3.3.2

- <u>REINFORCING STEEL</u>

A. REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH ACI 315 AND ACI 318.

B. REINFORCING STEEL SHALL BE AS FOLLOWS:

REINF.	TYPE
BARS/TIES/SPIRALS	ASTM A615, GRADE 60, U.O.N.
WELDED REINF.	ASTM A706, GRADE 60 OR 80 AS NOTED
TIE AND SPIRAL WIRE REINF.	ASTM A1064, GRADE 60
WELDED WIRE REINF.	ASTM A1064, GRADE 60
REINF. USE	TYPE
FOUNDATIONS	ASTM A615, GRADE 60
CONVENTIONAL SLABS/BEAMS	ASTM A615, GRADE 60

* THE ACTUAL YIELD STRENGTH BASED ON MILL TESTS DOES NOT EXCEED Fy BY MORE THAN 18,000 PSI; AND THE RATIO OF THE ACTUAL TENSILE STRENGTH TO THE ACTUAL YIELD STRENGTH IS NOT LESS THAN 1.25.

C. DO NOT FIELD BEND OR STRAIGHTEN IN ANY MANNER THAT WILL DAMAGE REINFORCING.

D. PROVIDE SPLICES IN REINFORCING ONLY WHERE SHOWN ON DRAWINGS OR APPROVED IN WRITING BY ENGINEER OF RECORD.

E. WELDING TO CONFORM TO AWS D1.4

- <u>STEEL</u>

A. STRUCTURAL STEEL TO BE SUPPLIED DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH A.I.S.C. SPECIFICATIONS.

B. U.O.N. STEEL SHALL BE AS FOLLOWS:
   1. SHAPES AND PLATES: ASTM A36, ASTM A572 GR. 50 AS NOTED.
   2. BOLTS: ASTM A307
   3. ANCHOR RODS: F1554 GR. 36 TYP., U.O.N.
   4. WELDING ELECTRODES: E-70xx U.O.N.

C. WELDING TO CONFORM TO AWS AND TO BE PERFORMED BY CERTIFIED WELDERS.

D. ALL FILLET WELDS SHOWN ARE MINIMUM REQUIRED BY STRESS. INCREASE WELDS TO A.I.S.C. MINIMUM SIZES BASED ON THICKNESS OF MATERIAL JOINED U.O.N.

E. STEEL NOT RECEIVING FIRE PROOFING SHALL BE SHOP PRIMED.

F. ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIP ZINC GALVANIZED U.O.N.

STRUCTURAL SHEET INDEX

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IDENTIFICATION STAMP
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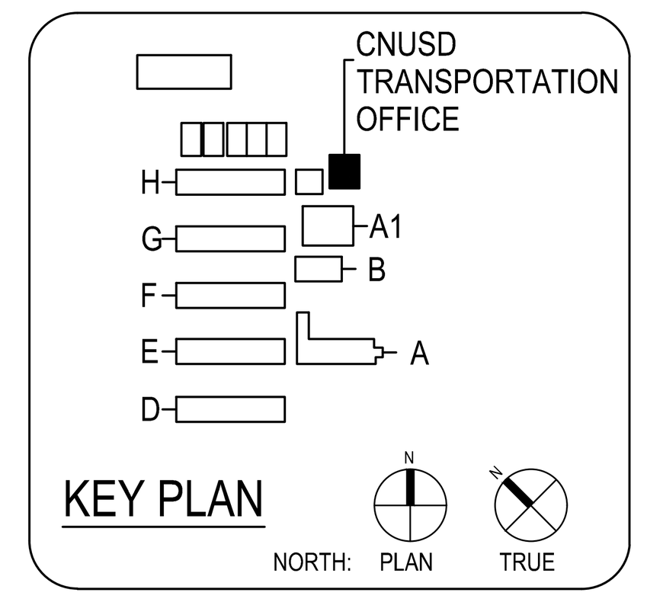
DSA Submittal
DSA APPL NO.:04-121956 DSA FILE NO.: 33-9



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SAN BERNARDINO CITY USD

DATE	PROJECT NUMBER
05/19/23	-

REVISIONS

No.	Description	Date

DSA Submittal

STRUCTURAL GENERAL NOTES

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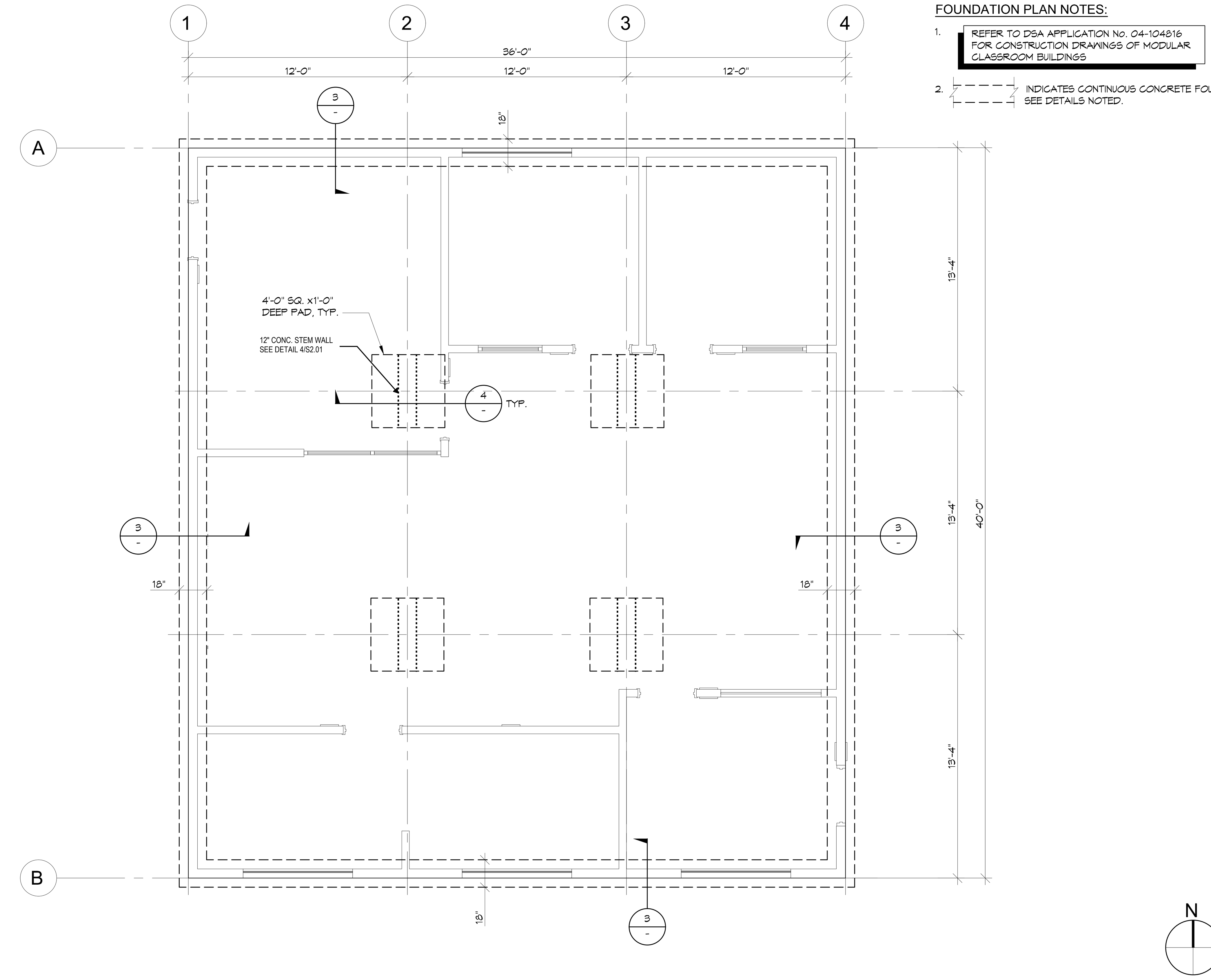
HOHBACH-LEWIN #16887

S1.00



FOUNDATION PLAN NOTES:

1. REFER TO DSA APPLICATION No. 04-104816 FOR CONSTRUCTION DRAWINGS OF MODULAR CLASSROOM BUILDINGS
2. INDICATES CONTINUOUS CONCRETE FOUNDATION, SEE DETAILS NOTED.

13

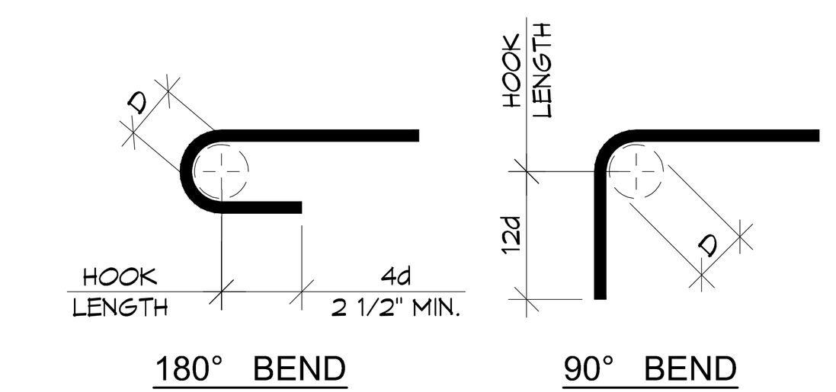
9

14

10

6 FOUNDATION PLAN

1/4"=1'-0"

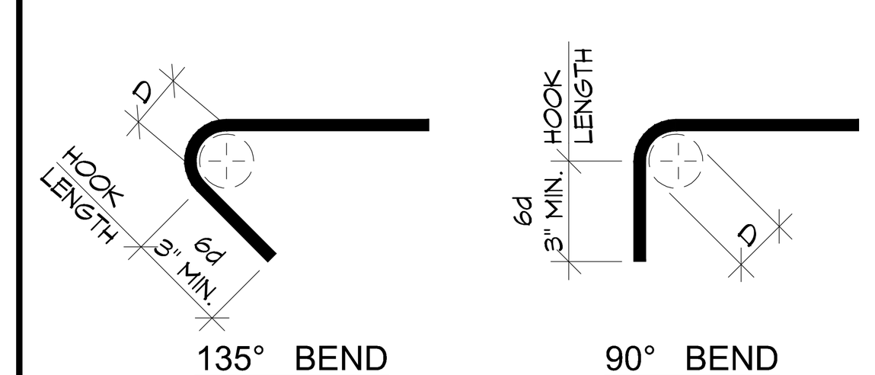


NOTE:
d = BAR DIAMETER
D = MINIMUM DIAMETER OF BEND
D = 6d FOR #3 THROUGH #8
D = 8d FOR #9 THROUGH #11

BAR SIZE	STANDARD HOOK		
	D (IN.)	HOOK LENGTH (IN.)	
		90°	180°
#3	2 1/4	4 1/2	2 1/2
#4	3	6	2 1/2
#5	3 3/4	7 1/2	2 1/2
#6	4 1/2	9	3
#7	5 1/4	10 1/2	3 1/2
#8	6	12	4
#9	9	13 1/2	4 1/2

1A STANDARD REINFORCING STEEL HOOKS

N.T.S.



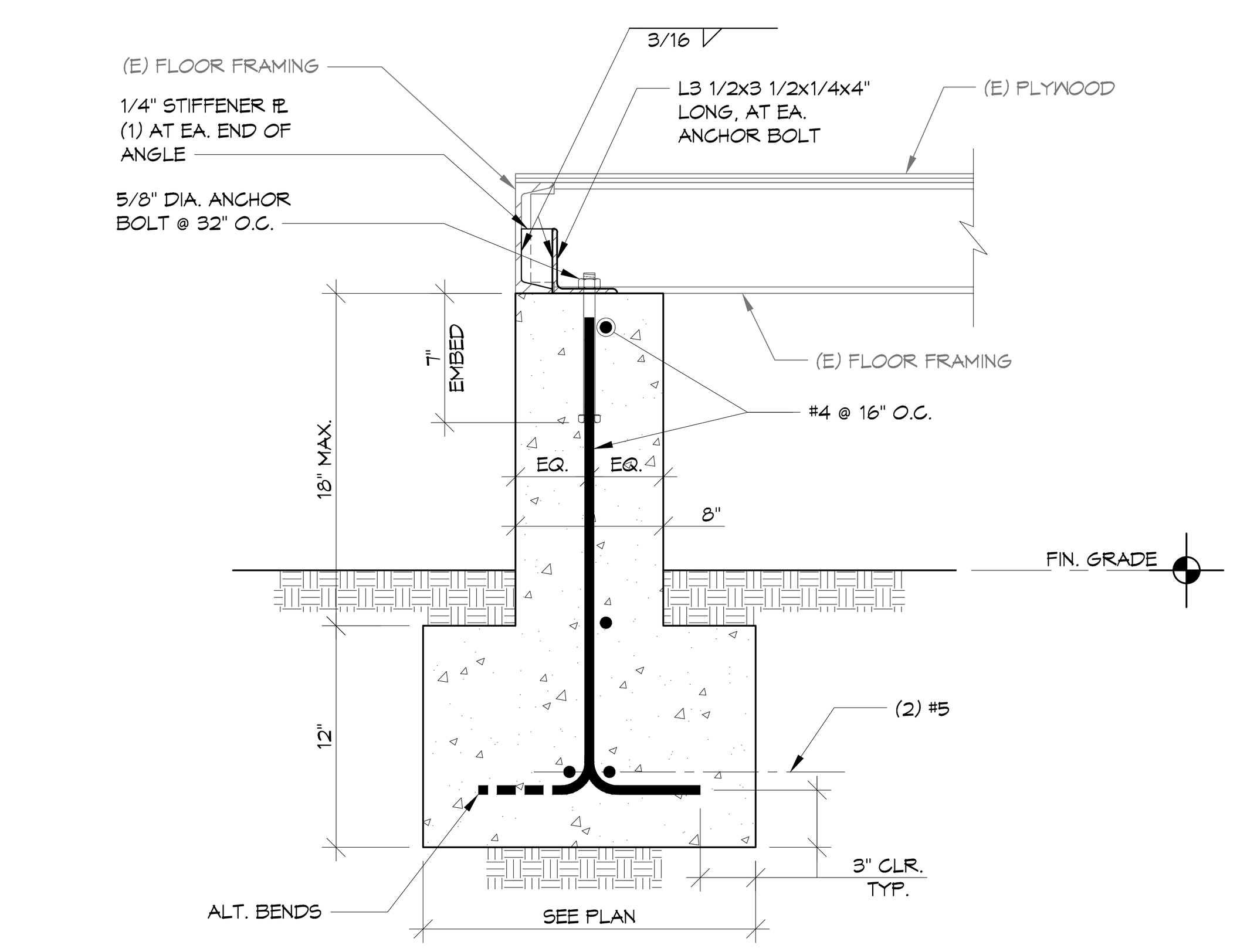
NOTE:
d = BAR DIAMETER
D = MINIMUM DIAMETER OF BEND
D = 4d FOR #5 AND SMALLER

BAR SIZE	STIRRUP & TIE HOOK		
	D (IN.)	HOOK LENGTH (IN.)	
		90°	135°
#3	1 1/2	3	3
#4	2	3	3
#5	2 1/2	4	4

7 TYPICAL STIRRUP AND TIE HOOKS

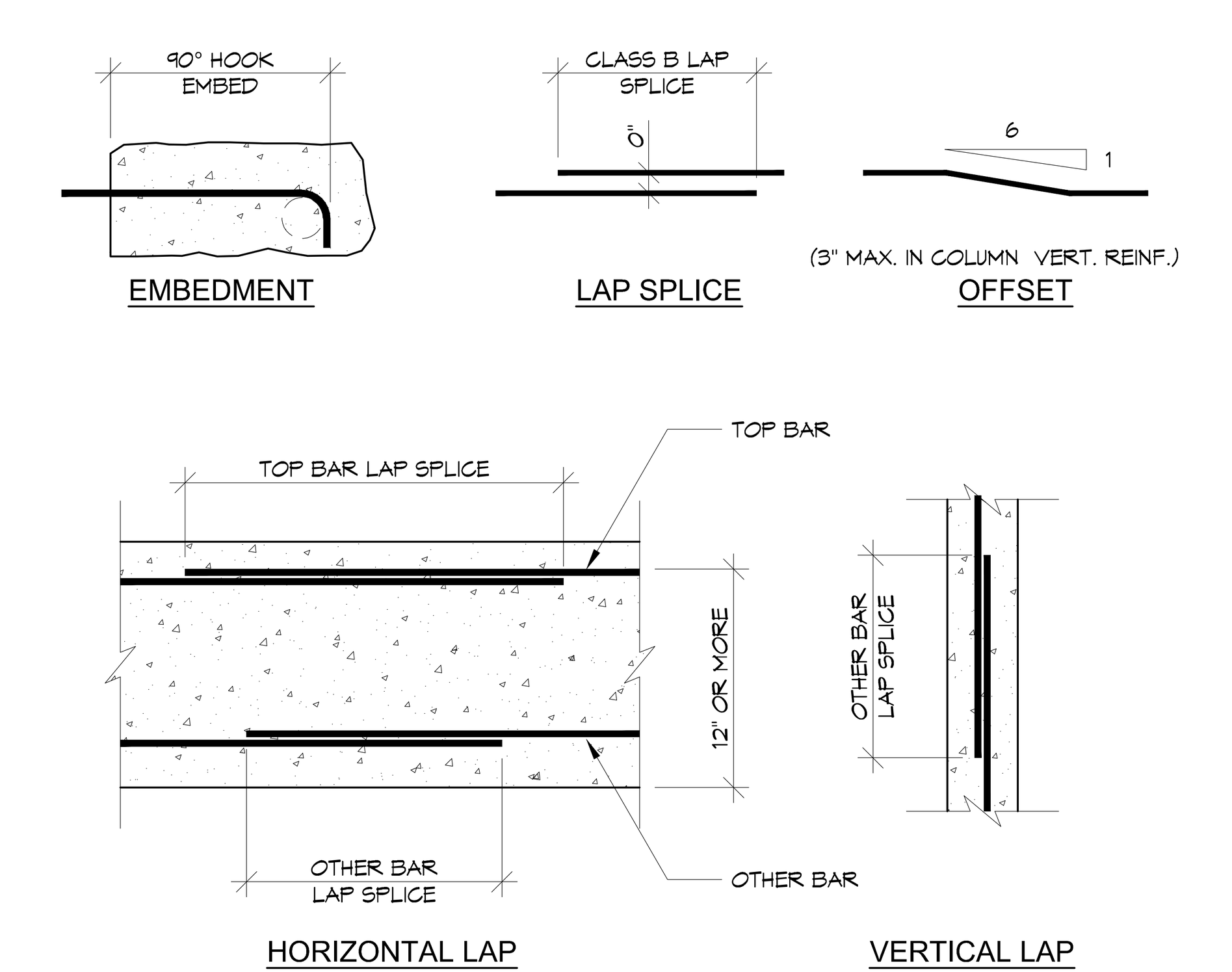
S501-01

N.T.S.



3 FOOTING DETAIL

1 1/2"=1'-0"



15

11 TYPICAL REINFORCEMENT EMBED, LAP SPLICE AND OFFSET

S501-03

1"=1'-0"

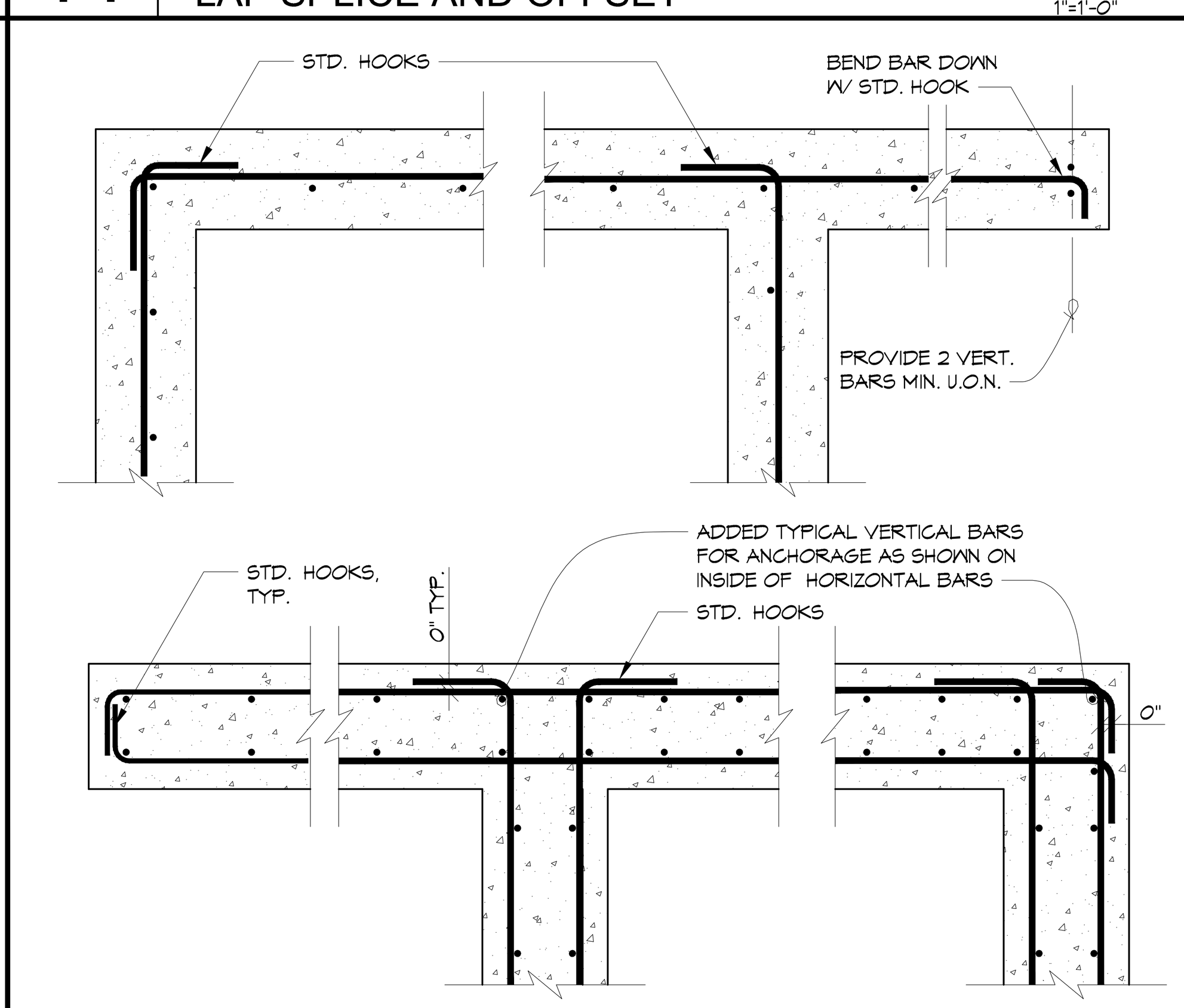
CLASS B TENSION LAP SPLICE FOR GRADE 60 REINF. [2, 3]

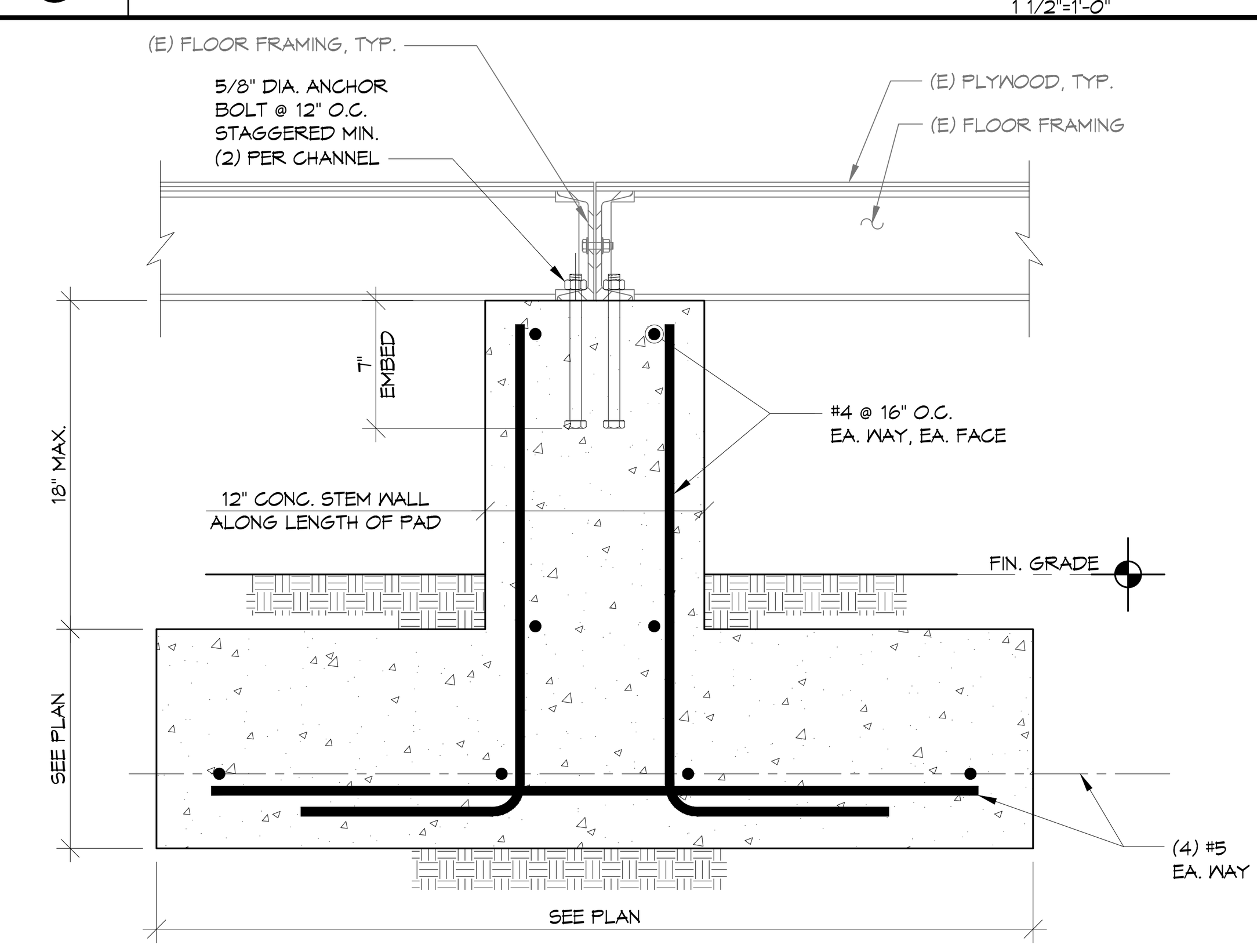
f'c	2,500		3,000		4,000		5,000	
BAR SIZE	TOP [1] (IN)	OTHER (IN)	TOP [1] (IN)	OTHER (IN)	TOP [1] (IN)	OTHER (IN)	TOP [1] (IN)	OTHER (IN)
#3	31	24	28	22	25	19	22	17
#4	41	32	38	29	33	25	29	23
#5	51	39	47	36	41	31	36	28
#6	61	47	56	43	49	37	44	34
#7	89	69	81	63	71	54	63	49
#8	102	78	93	72	81	62	72	56
#9	115	88	105	81	91	70	81	63
#10	127	98	116	90	101	78	90	69

STANDARD HOOK AND HEADED BAR EMBEDMENT GRADE 60 REINF.

f'c	2,500		3,000		4,000		5,000	
BAR SIZE	HOOKED [4] (IN)	HEADED [4, 5] (IN)	HOOKED [4] (IN)	HEADED [4, 5] (IN)	HOOKED [4] (IN)	HEADED [4, 5] (IN)	HOOKED [4] (IN)	HEADED [4, 5] (IN)
#3	6	6	6	6	6	6	6	6
#4	8	6	8	6	7	6	7	6
#5	11	8	10	8	10	7	9	7
#6	14	10	13	10	13	9	12	9
#7	18	13	17	12	16	12	15	11
#8	21	16	20	15	19	14	18	14
#9	25	19	24	18	23	17	22	16
#10	30	22	28	21	27	20	26	19

NOTES:
1. TOP BARS = HORIZONTAL BARS WITH 12" OR GREATER OF FRESH CONCRETE CAST BELOW THEM. SEE DET. 3/-.
2. LAP SPLICES ARE BASED UPON A MINIMUM CLEAR COVER GREATER THAN 1.0db AND A MINIMUM CLEAR SPACING GREATER THAN 2db. WHERE EITHER OF THESE REQUIREMENTS IS NOT MET, INCREASE THE LAP LENGTH BY 50%.
3. USE CLASS B TENSION LAP SPLICES FOR ALL BAR SPLICES U.O.N., TYP.
4. HOOKED AND HEADED BAR EMBEDMENTS ARE BASED UPON A MINIMUM CENTER-TO-CENTER SPACING OF 6db MIN. WHERE THIS REQUIREMENT IS NOT MET, INCREASE THE EMBEDMENT LENGTH BY 60%.
5. HEADED BAR SHALL HAVE A MINIMUM CLEAR COVER OF AT LEAST 2db AND NET HEAD BEARING AREA OF AT LEAST 4Ab WHERE Ab IS THE BAR AREA.
6. FOR ADDITIONAL INFORMATION, SEE DET. 11/-.





16

12 TYPICAL CONCRETE MEMBER INTERSECTIONS

S501-04

1"=1'-0"

8 TYPICAL GRADE 60 REINFORCEMENT EMBED AND LAP SPLICE

S501-02A*

4 FOOTING DETAIL

1 1/2"=1'-0"

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DSA Submittal

DSA APPL NO.:04-121956 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE
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A1
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KEY PLAN
NORTH: PLAN TRUE

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FOUNDATION PLAN AND DETAILS

HOHBACH-LEWIN #16887

S2.01

M0.00 - MECHANICAL SYMBOLS, LEGENDS & GENERAL NOTES

0" 1"

TITLE 24 NOTES

THE FOLLOWING SHALL BE REQUIRED WHETHER OR NOT SPECIFICALLY SHOWN OR MENTIONED IN DRAWINGS AND/OR SPECIFICATIONS:

1. EQUIPMENT SHALL MEET EFFICIENTY REQUIREMENTS OF TABLES 110.2-A THROUGH 110.2-K.
2. ALL AIR-COOLED, UNITARY, DX UNITS (PACKAGED, SPLIT-SYSTEM, HEAT PUMPS AND VRF) WITH ECONOMIZERS SHALL BE EQUIPPED WITH FAULT DETECTION AND DIAGNOSTICS SYSTEMS.
3. PIPE INSULATION FOR SPACE CONDITIONING AND SERVICE WATER-HEATING WITH FLUID TEMPERATURES LISTED IN TABLE 120.3-A SHALL HAVE INSULATION LEVELS AS SPECIFIED IN SUBSECTION (A) AND (B).
4. MECHANICAL HEATING AND COOLING EQUIPMENT SHALL BE THE SMALLEST SIZE, WITHIN THE AVAILABLE OPTIONS OF THE DESIRED EQUIPMENT LINE, NECESSARY TO MEET THE DESIGN HEATING AND COOLING LOADS OF THE BUILDING, AS CALCULATED ACCORDING TO THE REQUIREMENTS OF SECTION 140.4(B).
5. HVAC MOTORS FOR FANS THAT ARE LESS THAN 1 HP AND 1/12 HP OR GREATER SHALL BE ECM OR HAVE A MINIMUM MOTOR EFFICIENCY OF 70%. MOTORS SHALL ALSO HAVE MEANS TO ADJUST MOTOR SPEED FOR BALANCING OR REMOTE CONTROL.
6. ELECTRIC RESISTANCE HEATING SYSTEMS ARE NOT PROVIDED FOR SPACE HEATING.
7. IN DRIER CLIMATES AND WHEN LARGE OUTDOOR AIR FRACTIONS ARE REQUIRED, EVAPORATIVE PRE-COOLING PACKAGES WERE EVALUATED TO PRE-COOL OUTSIDE AIR AND COOL THE AIR FLOWING OVER THE DX CONDENSING UNIT.
8. ZONE EACH AIR HANDLER TO SERVE ONLY AREAS WITH COMMON LOADS TO ALLOW MORE AGGRESSIVE CONTROL STRATEGIES AND IMPROVE COMFORT. HAVE DIFFERENT AHU'S SERVING CORE VS. PERIMETER AREAS.
9. THE DESIGN ACCOMMODATES PARTIAL OCCUPANCY ENERGY SAVINGS WHEN THE OWNER'S REQUIREMENTS OR NARRATIVE DESCRIBE ANY POSSIBLITY OF PARTIAL OCCUPANCY, BY ZONING AIR HANDLERS BY FLOOR OR BY PART OF A FLOOR, OR BY INCORPORATING CONTROLLED FLOOR DAMPERS, OR VAV AIR TERMINALS GOING TOTALLY SHUT WHEN NOT OCCUPIED, ETC.
10. EACH ZONE IS CONTROLLED BY AN INDIVIDUAL THERMOSTATIC CONTROL. CONTROLS SHALL BE CAPABLE OF SETTING TEMPERATURES TO 55 DEG F FOR HEATING AND 85 DEG F FOR COOLING AND PROVIDE A TEMPERATURE DEADBAND OF AT LEAST 5 DEG F IF CONTROLLING BOTH HEATING AND COOLING.
11. EACH SPACE CONDITIONING SYSTEM SHALL BE EQUIPPED WITH CONTROLS TO SHUT THE SYSTEM OFF DURING PERIODS OF NONUSE AND WILL TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN SETBACK AND SETUP TEMPERATURES WHILE KEEPING VENTILATION DAMPERS CLOSED.
12. SYSTEMS SERVING MULTIPURPOSE ROOMS LESS THAN 100 SF AND CLASSROOMS, CONFERENCE, AUDITORIUM OR MEETING CENTER ROOMS GREATER THAN 750 SF SHALL HAVE OCCUPANCY SENSORS THAT INTERFACE WITH HVAC CONTROLS TO AUTOMATICALLY SETUP THE COOLING SETPOINT BY 2F OR MORE AND AUTOMATICALLY RESET THE MINIMUM REQUIRED VENTILATION RATE. THESE OCCUPANT SENSOR VENTILATION CONTROL DEVICES MUST MEET THE REQUIREMENTS OF SECTION 120.1(C)5.
13. OUTDOOR AIR SUPPLY AND EXHAUST EQUIPMENT SHALL BE INSTALLED WITH DAMPERS THAT AUTOMATICALLY CLOSE UPON EF FAN SHUTDOWN.
14. HVAC SYSTEMS WITH DDC TO THE ZONE LEVEL SHALL BE PROGRAMMED TO ALLOW CENTRALIZED DEMAND SHED FOR NON-CRITICAL ZONES.
15. ZONE CONTROLS PREVENT REHEATING, RECOOLING AND SIMULTANEOUS PROVISIONS OF HEATING AND COOLING TO THE SAME ZONE.
16. EACH WALL MOUNTED THRMOSTAT SHALL BE LOCATED AWAY FROM POTENTIAL SOURCES THAT WOULD ADVERSELY AFFECT THE READING (CLOSE TO COPIERS, DIRECT SUNLIGHT, BELOW OR ABOVE A SUPPLY AIR DIFFUSER OR CONVECTOR, ETC.). ANY THERMOSTATS MOUNTED ON EXTERIOR WALLS SHALL BE INSTALLED IN SEALED AND INSULATED JUNCTION BOXES.
17. CORNER OFFICE SHALL ALWAYS HAVE THEIR OWN THERMOSTATS, AIR TERMINAL BOXES OR FIN-TUBE RADIATORS.
18. CONTROL SEQUENCES SHALL BE LISTED FOR EQUIPMENT OPERATED BY STAND-ALONE PACKAGED CONTROLS. UNOCCUPIED SEQUENCES SHALL BE INCLUDED.
19. CONTROL SEQUENCES SHALL BE PROVIDED FOR EACH PIECE OF EQUIPMENT LISTED IN THE EQUIPMENT SCHEDULE THAT IS MONITORED OR CONTROLLED BY THE BUILDING AUTOMATION SYSTEM (BAS). UNOCCUPIED SEQUENCES SHALL BE INCLUDED.
20. OUTSIDE AIR TEMPERATURE SENSORS SHALL BE IN A COMMERCIALLY DESIGNED SOLAR SHIELD LOCATED ON A NORTH WALL OR SOME OTHER LOCATION OUT OF DIRECT SUNLIGHT AND AWAY FROM BUILDING EXHAUST OR HEAT REJECTION EQUIPMENT.
21. THE OUTDOOR AIR-VENTILATION RATE AND AIR-DISTRIBUTION ASSUMPTIONS MADE IN THE DESIGN OF THE VENTILATING SYSTEM ARE CLEARLY IDENTIFIED ON THE PLANS.
22. EACH SPACE IS DESIGNED TO HAVE NATURAL VENTILATION OR MECHANICAL VENTILATION THAT IS NO LESS THAN THE LARGER OF CONDITIONED FLOOR AREA TIMES THE REQUIREMENTS IN TABLE 120.1-A OR 15 CFM TIMES THE EXPECTED NUMBER OF OCCUPANTS.
23. THE MINIMUM AND MAXIMUM OUTDOOR AIR RATES FOR EACH AIR HANDLER ARE LISTED ON THE EQUIPMENT SCHEDULES.
24. THE OUTDOOR AIR-VENTILATION RATES ARE BASED ON PLANNED OWNER OCCUPANCY AS DEFINED IN OWNER'S DESIGN INTENT AND ARE NOT BASED ON MAXIMUM EGRESS OCCUPANCY RATES.
25. HVAC SYSTEMS THAT HAVE AN ECONOMIZER, SERVE A SPACE WITH A DESIGN OCCUPANT DENSITY GREATER THAN OR EQUAL TO 25 PEOPLE PER 1000 SF, AND ARE EITHER A SINGLE ZONE SYSTEM WITH ANY CONTROLS OR MULTIPLE ZONE SYSTEM WITH DDC CONTROLS TO THE ZONE LEVEL MUST HAVE DEMAND CONTROL VENTILATION CONTROLS. THE FOLLOWING MUST BE MET:
    - A. CO2 SENSORS INSTALLED IN EACH ROOM SERVED BY SYSTEMS WITH DCV CONTROLS.
    - B. CO2 SENSORS ARE LOCATED BETWEEN 3 FT AND 6 FT ABOVE THE FLOOR.
    - C. CO2 CONCENTRATIONS MAINTAINED AT LESS THAN OR EQUAL TO 600 PPM PLUS OUTDOOR PPM.
    - D. DURING HOURS OF EXPECTED OCCUPANCY, CONTROLS MAINTAIN THE SYSTEM VENTILATION RATE.
26. EACH COOLING FAN SYSTEM THAT HAS A DESIGN MECHANICAL COOLING CAPACITY OVER 54,000 BTU/H SHALL HAVE AN AIR ECONOMIZER OR A WATER ECONOMIZER. AIR ECONOMIZERS MUST COMPLY WITH THE HIGH LIMIT SHUTOFF CONTROLS SHOWN IN TABLE 140.4-B.
27. INTEGRATED ECONOMIZER CONTROLS SHALL BE SET UP SUCH THAT PARTIAL COOLING IS PROVIDED BY THE ECONOMIZER EVEN WHEN ADDITIONAL MECHANICAL COOLING ID REQUIRED.
28. ECONOMIZER DAMPERS SHALL BE DRIVEN BY DIRECT DRIVE ACTUATORS RATHER THAN ROD LINKAGES, WHICH CAN BE A MAJOR CAUSE OF ECONOMIZER MALFUNCTION.
29. BAROMETRIC RELIEF IS USED, IF POSSIBLE. IF NOT, RELIEF FANS (RATHER THAN RETURN FANS) SHALL BE USED IN MOST CASES.
30. OUTDOOR AND RETURN AIR SENSORS SHALL BE PROPERLY SELECTED, PROPERLY LOCATED TO PROVIDE ACCURATE AND REPEATABLE MEASUREMENTS FOR CONTROLLING ECONOMIZER OPERATION. AVERAGING SENSORS COVER THE ENTIRE DUCT OR COIL FACE AREAS.
31. ALL AIR DISTRIBUTION SYSTEM DUCTS AND PLENUMS MUST BE INSTALLED, SEALED AND INSULATED AS REQUIRED BY 120.4(A).
32. DUCT SEALING LEAKAGE RATES SHALL BE NO MORE THAN 6% OF AIR FLOW FOR NEW DUCT SYSTEMS AND NO MORE THAN 15% OF AIR FLOW FOR ALTERED EXISTING DUCT SYSTEMS.
33. DUCT SHALL UTILIZE LOW STATIC PRESSURE DESIGN. IDENTIFY THE MOST RESTRICTIVE BRANCH FROM THE FAN TO THE LAST AIR TERMINAL UNIT. IDENTIFY POSSIBLE MEANS OF SIGNIFICANTLY REDUCING THE PRESSURE DROP. BRANCH DUCT SYSTEMS SHALL DESIGNED FOR EQUAL PRESSURE DROP, WHEN POSSIBLE.
34. DUCT BRANCHES WITH SIGNIFICANTLY DIFFERING STATIC PRESSURE REQUIREMENTS SHALL HAVE VOLUME CONTROL STRATEGICALLY PLACED TO AID IN TAB WORK.
35. FAN SHALL DISCHARGE INTO DUCT SECTIONS THAT REMAIN STRAIGHT FOR AS LONG AS POSSIBLE (IDEALLY 10 DUCT DIAMETERS) TO REDUCE FAN INEFFICIENCIES FROM SYSTEM EFFECTS.
36. DUCT VELOCITIES SHALL GENERALLY BE BELOW 2,000 FPM FOR DUCTS IN CEILING PLENUMS, 1500 FPM FOR EXPOSED DUCTS AND 3500 FPM IN MECHANICAL ROOMS AND NON-NOISE SENSITIVE SHAFTS AND DO NOT REDUCE ANY DUCT SIZES LISTED ON PLANS.
37. DUCT FRICTION RATES SHALL GENERALLY BE LESS THAN O.25" WC PER 100 LINEAL FEET NEARER THE FAN, 0.15 TO 0.20" IN THE MAIN DUCTS AND 0.08 TO 0.12" WC/100' NEARER THE END OF THE SYSTEM. DESIGNS OVER THESE RATES SHALL BE QUESTIONED. VERY ENERGY EFFICIENT DESIGN CAN LOWER THESE VALUES BY UP TO 40%.
38. CONTRACTOR SHOP DRAWINGS SHALL BE SUFFICIENTLY DETAILED TO ENSURE THAT DISTRIBUTION SYSTEM DESIGN INTENT IS ADEQUATELY CONVEYED TO MATCH PLANS. IF SUFFICIENT DETAIL IS NOT INCLUDED IN DRAWINGS, INSTALLATIONS MAY RESULT IN SIGNIFICANTLY HIGHER PRESSURE DROPS AND HENCE HIGHER ENERGY CONSUMPTION AND OTHER OPERATING ISSUES.
39. ACCEPTANCE REQUIREMENTS ARE CLEARLY IDENTIFIED IN CONSTRUCTION DOCUMENTS.
40. COMMISSIONING MEASURES OR REQUIREMENTS ARE REFLECTED IN THE CONSTRUCTION DOCUMENTS.
41. REQUIREMENTS FOR FUNCTIONAL PERFORMANCE TESTS ARE REFLECTED IN THE CONSTRUCTION DOCUMENTS.
42. COOLING SYSTEMS IDENTIFIED IN TABLE 140.4-D SHALL HAVE FAN CONTROLS TO VARY THE INDOOR FAN AIRFLOW AS A FUNCTION OF LOAD:
    - A. DX AND CHILLED WATER COOLING SYSTEMS THAT CONTROL CAPACITY BASED ON OCCUPIED SPACE TEMPERATURE SHALL HAVE A MINIMUM OF 2 STAGES OF CONTROL.
    - B. SYSTEMS THAT CONTROL SPACE TEMPERATURE BY MODULATING AIRFLOW TO THE SPACE SHALL HAVE PROPORTIONAL FAN CONTROL.
    - C. SYSTEMS WITH AIR SIDE ECONOMIZER SHALL HAVE A MINIMUM OF 2 SPEEDS OF FAN CONTROL DURING ECONOMIZER OPERATION.
43. FAN CABINET ENCLOSURE AND INTERNAL COMPONENTS SHALL BE ELECTED TO MINIMIZE PRESSURE DROP, E.G. FACE VELOCITY IS LESS THAN 500 FPM, LOW PRESSURE DROP COILS, FILTERS, ETC.
44. FAN WHEEL SHALL BE SELECTED FOR EFFICIENT OPERATION, E.G. LARGER DIAMETER ROTATING AT LOWER SPEED.
45. SYSTEMS THAT SERVE MULTIPLE ZONES SHALL HAVE CONTROLS THAT AUTOMATICALLY RESET SUPPLY AIR TEMPERATURE. ZONES WITH HIGH INTERNAL LOADS WITH NEAR CONSTANT AIRFLOW SHALL BE DESIGNED FOR THE ELEVATED RESET SUPPLY AIR TEMPERATURE. RESET CONTROLS SHALL BE IN RESPONSE TO BUILDING LOADS OR TO OUTDOOR AIT TEMPERATURE AND SHALL BE AT LEAST 25% OF THE DIFFERENCE BETWEEN SUPPLY AIR AND DESIGN ROOM AIR TEMPERATURE. CONTROL SEQUENCES ARE IDENTIFIED IN CONSTRUCTION DOCUMENTS.
46. SAT RESET SHALL BE ESTABLISHED WITH AN AGGRESSIVE RESET SCHEDULE OF 10F, E.G. 55F DURING WARM WEATHER AND 65F DURING COOL WEATHER.

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH CURRENT CALIFORNIA CODE OF REGULATIONS TITLE 24, ALL OTHER APPLICABLE CODES AND REGULATIONS, SMACNA AND ASHRAE GUIDELINES, AND LOCAL CODES.
2. ALL HVAC EQUIPMENT SHALL BE COMPLIANT WITH EFFICIENCY STANDARDS PER TITLE-24, PART 6.
3. ALL FRESH AIR INTAKES SHALL BE AT LEAST 10 FEET IN A HORIZONTAL DIRECTION FROM ALL EXHAUST, FLUE, FUEL BURNING APPLIANCE AND PLUMBING VENT OUTLETS. FOR GAS/ELECTRIC AIR CONDITIONING UNITS WHERE THE CODE REQUIRED CLEARANCES ARE NOT MET, A FACTORY FLUE GAS DEFLECTOR AND EXTENSION SHALL BE USED TO MINIMIZE THESE CLEARANCES. CONTRACTOR SHALL DETERMINE LOCATIONS WHERE REQUIRED PRIOR TO BID. THIS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
4. AIR FILTERS SHALL BE STATE FIRE MARSHAL APPROVED AND LISTED. PREFORMED FILTERS HAVING COMBUSTIBLE FRAMING SHALL BE TESTED AS A COMPLETE ASSEMBLY. AIR FILTERS IN ALL OCCUPANCIES SHALL BE PER TITLE-24 PART 6 AND APPLICABLE ASHRAE REQUIREMENTS. FILTERS SHALL BE ACCESSIBLE
5. REVIEW THESE PLANS AND SPECIFICATIONS PRIOR TO BID. REVIEW PLANS AND SPECIFICATIONS OF OTHER RELATED TRADES INCLUDING ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND FIRE PROTECTION.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AS THESE ARE PART OF THE CONTRACT DOCUMENTS. WHERE A CONFLICT OCCURS BETWEEN THIS SPECIFICATION AND OTHER SPECIFICATIONS ISSUED AS A PART OF THE CONTRACT DOCUMENTS, THE MORE STRINGENT REQUIREMENT SUPERCEDES.
7. THESE DRAWINGS ARE DIAGRAMMATIC ONLY AND NOT INTENDED TO INDICATE ALL REQUIRED OFFSETS, BENDS, ELBOWS, TRANSITIONS, FITTINGS AS REQUIRED TO CONFORM TO THE BUILDING STRUCTURE, CLEARANCE INSIDE CEILINGS, AVOIDANCE OF OBSTRUCTIONS, AND MAINTAINING HEAD CLEARANCE.
8. COORDINATE INSTALLATION WITH ALL OTHER TRADES PRIOR TO INSTALLATION OF EQUIPMENT OR MATERIALS, INCLUDING BUT NOT LIMITED TO, STRUCTURAL, ARCHITECTURAL, ELECTRICAL, AND PLUMBING.
9. COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH THE ARCHITECTURAL REFLECTIVE CEILING PLANS, ELECTRICAL LIGHTING LAYOUT, AND ARCHITECTURAL ROOM ELEVATIONS. THE ARCHITECT AND ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY CONFLICTS PRIOR TO FABRICATION AND INSTALLATION.
10. COORDINATE THE LOCATION OF ALL ROOF OPENINGS AND THE LOCATIONS OF ALL ROOF MOUNTED EQUIPMENT WITH THE STRUCTURAL AND ARCHITECTURAL WEIGHTS FOR PLATFORM AND CURB SIZES, FOR ROOF AND WALL PENETRATION DETAILS AND REQUIREMENTS, SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS. REQUIRED PLATFORMS AND FLASHINGS FOR MECHANICAL EQUIPMENT SHALL BE AS INDICATED ON THE STRUCTURAL AND ARCHITECTURAL PLANS, UNLESS NOTED OTHERWISE.
11. HIRE A TEST AND BALANCE AGENCY TO PERFORM THE TESTING PROCEDURES, REQUIRED BY THE MECH-2A THROUGH MECH-11A CERTIFICATE OF ACCEPTANCE FORMS, AS APPLICABLE FOR ALL NEWLY INSTALLED HEATING AND COOLING SYSTEMS. THE CONTRACTOR AND TEST AND BALANCE AGENCY ARE RESPONSIBLE FOR OBTAINING THE CERTIFICATE OF ACCEPTANCE FORMS REQUIRED BY THE IOR. THE TEST AND BALANCE AGENCY SHALL BE WELL VERSED WITH ALL THE REQUIREMENTS OF THESE CERTIFICATE OF ACCEPTANCE FORMS, AND SHALL COORDINATE AND WORK WITH THE EQUIPMENT AND CONTROLS INSTALLERS TO COMPLY WITH THESE REQUIREMENTS IN A TIMELY MANNER WITHIN THE PROJECT SCHEDULE. THE AIR BALANCE CONTRACTOR SHALL BE A MEMBER OF AABC (ASSOCIATED AIR BALANCE COUNCIL).
12. PAINT ALL EXPOSED DUCTWORK, DUCT SUPPORTS, ACCESSORIES, REGISTERS, GRILLES, DIFFUSERS, AND APPURTENANCES, WHETHER OR NOT COLORS ARE DESIGNATED IN SCHEDULES, EXCEPT WHERE A SURFACE OR MATERIAL IS SPECIFICALLY INDICATED NOT TO BE PAINTED OR IS TO REMAIN NATURAL. WHERE AN ITEM OR SURFACE IS NOT SPECIFICALLY MENTIONED, PAINT THE SAME AS SIMILAR ADJACENT MATERIALS OR SURFACES. IF COLOR OR FINISH IS NOT DESIGNATED, THE ARCHITECT WILL SELECT FROM STANDARD COLORS OR FINISHES AVAILABLE. PAINTING INCLUDES FIELD PAINTING EXPOSED BARE AND COVERED PIPES AND DUCTS (INCLUDING COLOR CODING), HANGERS, EXPOSED STEEL AND IRON WORK, AND PRIMED METAL SURFACES OF MECHANICAL EQUIPMENT.
13. PROVIDE ALL LABOR, MATERIAL, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, AND OTHER WORK AS REQUIRED. FOR A COMPLETE AND PROPERLY OPERATING MECHANICAL SYSTEM.
14. ALL MATERIALS SHALL BE NEW AND OF THE SAME MANUFACTURER FOR EACH CLASS OR GROUP OF EQUIPMENT. EQUIPMENT SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES, AND SHALL BEAR THE INSPECTION LABEL WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH THE APPROVAL OF THE GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY THE LATEST EDITION OF CMC, CBC U.L., SMACNA AND ASHRAE GUIDELINES. INSTALL PER MANUFACTURERS' RECOMMENDATIONS, AND INSTALLATION INSTRUCTIONS.
15. OBTAIN AND PAY FOR ALL NECESSARY BUILDING PERMITS AND VARIANCES. COORDINATE TEMPORARY CONSTRUCTION REQUIREMENTS WITH ALL TRADES PRIOR TO CONSTRUCTION. INCLUDE ALL COSTS IN THE BID.
16. IF THE CONTRACTOR PROPOSES ALTERNATE EQUIPMENT OR MATERIAL, THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL DSA APPROVALS, PAY ALL RELATED FEES AND OBTAIN APPROVAL FROM OWNER & ENGINEER OF RECORD. PROVIDE TITLE-24 COMPLIANCE CERTIFICATION AND ALL ASSOCIATED FEES REQUIRED. COORDINATE SUBMITTED EQUIPMENT WITH OTHER TRADES. INCLUDE IN THE SHOP DRAWINGS THE EQUIPMENT SUBMITTED FOR APPROVAL WITH A DIFFERENT PHYSICAL SIZE OR ARRANGEMENT FROM THAT SHOWN.
17. PROVIDE SHOP DRAWINGS PER PROJECT SCHEDULE, SEE 23 00 00 SPECIFICATIONS FOR REQUIREMENTS. IF SHOP DRAWINGS ARE NOT PROVIDED TO THE ENGINEER FOR REVIEW, AND ANY CONFLICTS OCCUR BETWEEN TRADES, DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NECESSARY TO RESOLVE THE CONFLICT AND BEAR ALL COSTS INCURRED FOR ALL REVISIONS, AT NO ADDITIONAL COST TO THE DISTRICT. THE DISTRICT AND ENGINEER SHALL BE NOTIFIED IMMEDIATELY PRIOR TO FABRICATION AND INSTALLATION OF ALL WORK THAT CAUSES CONFLICTS BETWEEN TRADES.
18. PROVIDE ALL MANUFACTURER'S PRODUCT DATA CLEARLY INDICATING MODEL NUMBERS, CAPACITIES, CONSTRUCTION, ELECTRICAL INFORMATION, AND OPTIONAL ACCESSORIES, PER PROJECT SCHEDULE AND PRIOR TO THE START OF WORK. THESE SHALL BE REVIEWED BY THE MECHANICAL ENGINEER PRIOR TO PURCHASING.
19. SUBMIT TO THE OWNER ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, "AS-BUILTS", ETC. AT THE COMPLETION OF THE JOB. PROVIDE THE OWNER WITH COMPLETE MECHANICAL "AS-BUILTS" INDICATING FINAL EQUIPMENT LOCATIONS, DUCTWORK AND PIPE ROUTING, ETC.
20. OBTAIN APPROVAL FROM THE OWNER ON ALL ADDENDA AND CONSTRUCTION CHANGE DOCUMENT (CCD) PRIOR TO DOING THE WORK.
21. INSTALL ALL EQUIPMENT, ACCESSORIES, AND MATERIAL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS.
22. PROVIDE FIRESTOPPING FOR PIPE AND DUCT PENETRATIONS THROUGH RATED WALLS. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AS NECESSARY PRIOR TO INSTALLATION.
23. ANY MATERIAL EXPOSED WITHIN A PLENUM OR DUCT MUST HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25, AND A SMOKE DEVELOPED RATING OF NOT MORE THAN 50, AND A MOLD/HUMIDITY RESISTANCE PER U.L. 181.
24. ALL EQUIPMENT, DUCTS, PIPING, AND OTHER DEVICES AND MATERIALS OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHERPROOFED.
25. LOCATE ALL EQUIPMENT SUCH THAT CODE REQUIRED ACCESS IS MAINTAINED, INCLUDING N.E.C. REQUIREMENTS. ACCESS PANELS WHERE REQUIRED, SHALL BE COORDINATED WITH ARCHITECT, AND PROVIDED BY FACTORY OR BE FIELD-PROVIDED. FOR ATTIC EQUIPMENT, G.C. TO PROVIDE A CATWALK & LIGHT PER CMC FOR ATTIC EQUIPMENT.
26. FOR INACCESSIBLE AREAS THE CONTRACTOR SHALL PROVIDE ACCESS PANELS FOR ALL DAMPERS, EQUIPMENT, SMOKE DETECTORS, AND CONTROL DEVICES. THESE PANELS SHALL MATCH THE RATING OF THE WALL AND/OR CEILING WHERE THEY ARE LOCATED IN. MINIMUM ACCESS PANEL SIZES SHALL BE AS FOLLOWS:
    1) HAND ACCESS: 12"x12" MIN.
    2) BODY ACCESS: 30"x30" MIN.
27. ALL EQUIPMENT WITH MOVING PARTS SHALL BE PROVIDED WITH FLEXIBLE DUCT AND PIPE CONNECTIONS.
28. LABEL ALL EQUIPMENT AS TO THE SPACE IT SERVES. SEE SPECIFICATIONS FOR IDENTIFICATION STANDARDS. LABEL DUCT SMOKE DETECTOR LOCATIONS (AT CEILING) AS TO THE EQUIPMENT IT SERVES.
29. A/C UNITS PROVIDED WITH ECONOMIZER CYCLE DAMPERS SHALL HAVE OSA DAMPERS SET UP TO CLOSE AUTOMATICALLY ON FAN SHUT DOWN.
30. PROVIDE MANUAL VOLUME DAMPERS AND BACKDRAFT DAMPERS FOR FRESH AIR INTAKES ON ALL AIR HANDLING EQUIPMENT AND EXHAUST FANS SERVING CONDITIONED SPACES. EXCEPTION: EQUIPMENT WITH FACTORY-ECONOMIZERS.
31. DRAWINGS ARE FOR REFERENCE ONLY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION PRIOR TO BID DATE.
32. OWNER RETAINS SALVAGE RIGHTS, PROVIDE A MINIMUM OF 72 HOURS NOTICE PRIOR TO REMOVAL OF ROOF TOP UNITS AND EXHAUST FANS.
33. PATCH AND SEAL ALL SLAB, ROOF AND WALL OPENINGS WITH LIKE MATERIAL WHERE MECHANICAL EQUIPMENT ONCE PENETRATED.
34. REMOVE EXISTING AND PROVIDE ALL NEW DUCT AND PIPE HANGER SUPPORTS WHERE DUCT AND PIPE IS BEING REPLACED.
35. PROVIDE ALL NEW PIPE SUPPORTS WHERE PIPING IS SCHEDULED TO BE REPLACED.
36. OUTDOOR REFRIGERANT PIPING TO BE INSULATED AND ALUMINUM WRAPPED.
37. CONTRACTOR IS RESPONSIBLE FOR COMPLETE AND OPERABLE SYSTEM.
38. ALL MECHANICAL EQUIPMENTS, PIPES AND DUCTS SHALL BE SUPPORTED AND BRACED PER THE CURRENT CALIFORNIA BUILDING CODE. ALL MECHANICAL COMPONENTS SHALL BE ABLE TO RESIST THE EFFECTS OF SEISMIC FORCES.
39. MECHANICAL WORK SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS.
40. CONTRACTOR SHALL PROTECT EXISTING BUILDING INFRASTRUCTURE DURING CONSTRUCTION FROM OUTDOOR ELEMENT. IF DAMAGED, CONTRACTOR SHALL REPLACE DAMAGED BUILDING COMPONENTS WITH NEW AT NO ADDITIONAL COST TO THE OWNER.
41. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS.
42. ALL DUCT JOINTS SHALL BE MADE WITH MASTIC SEALANT, SHEET METAL SCREWS AND TAPED AIR TIGHT WITH HARDCAST OR EQUIV., MINIMUM 2-1/2" WIDTH.
43. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT, MECHANICAL ENGINEER AND DSA FIELD ENGINEER.
44. A COPY OF THE GUIDELINES PUBLISHED BY SMACNA AND APPROVED BY DSA SHALL BE PROVIDED BY THE CONTRACTOR AND KEPT ON THE JOB AT ALL TIMES.
45. CONTRACTOR SHALL COORDINATE ALL DUCTWORK ROUTING WITH WORK OF OTHER TRADES AND MAKE ANY OFFSET AS REQUIRED TO AVOID CONFLICT WITH PIPING, LIGHT FIXTURES, TRUSSES, ETC.
46. COORDINATE ALL EQUIPMENT VOLTAGES WITH ELECTRICAL PRIOR TO ORDERING ANY EQUIPMENT.

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC, SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTER 13, 26 AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRIC, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

1. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
2. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUND PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTION 1617A.1.24, 1617A.1.25, AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., OSHPD OPM FOR2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO START OF AND DURING THE HANGING AND BRACING OF DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP ☐ MD ☐ PP ☐ E ☐ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES & DETAILS.

MP ☒ MD ☒ PP ☐ E ☐ OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVAL (OPM #) # 0203-13.

CAL GREEN NOTES

1. TESTING AND ADJUSTING. TESTING AND ADJUSTING OF SYSTEMS SHALL BE REQUIRED FOR NEW BUILDING LESS THAN 10,000 SQUARE FEET OR NEW SYSTEMS TO SERVE AN ADDITION OR ALTERATION SUBJECT TO SECTION 303.1

2. SYSTEMS. DEVELOP A WRITTEN PLAN OF PROCEDURES FOR TESTING AND ADJUSTING SYSTEMS. SYSTEMS TO BE INCLUDED FOR TESTING AND ADJUSTING SHALL INCLUDE, AS APPLICABLE TO THE PROJECT:

    A. HVAC SYSTEMS AND CONTROLS.
    B. INDOOR AND OUTDOOR LIGHTING AND CONTROLS.
    C. WATER HEATING SYSTEMS.
    D. RENEWABLE ENERGY SYSTEMS.
    E. LANDSCAPE IRRIGATION SYSTEMS.
    F. WATER REUSE SYSTEMS.

3. PROCEDURES. PERFORM TESTING AND ADJUSTING PROCEDURES IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND APPLICABLE STANDARDS ON EACH SYSTEM.

    A. HVAC BALANCING. IN ADDITION TO TESTING AND ADJUSTING, BEFORE A NEW SPACE-CONDITIONING SYSTEM SERVING A BUILDING OR SPACE IS OPERATED FOR NORMAL USE, BALANCE THE SYSTEM IN ACCORDANCE WITH THE PROCEDURES DEFINED BY THE TESTING ADJUSTING AND BALANCING BUREAU NATIONAL STANDARDS; THE NATIONAL ENVIRONMENTAL BALANCING BUREAU PROCEDURAL STANDARDS; ASSOCIATED AIR BALANCE COUNCIL NATIONAL STANDARDS OR AS APPROVED BY THE ENFORCING AGENCY.

4. REPORTING. AFTER COMPLETION OF TESTING, ADJUSTING AND BALANCING, PROVIDE A FINAL REPORT OF TESTING SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.

5. OPERATION AND MAINTENANCE (O & M) MANUAL. PROVIDE THE BUILDING OWNER OR REPRESENTATIVE WITH DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS AND COPIES OF GUARANTIES/WARRANTIES FOR EACH SYSTEM. O & M INSTRUCTIONS SHALL BE CONSISTENT WITH OSHA REQUREMENTS IN CCR, TITLE 8, SECTION 5142, AND OTHER RELATED REGULATIONS.

    A. INSPECTIONS AND REPORTS. INCLUDE A COPY OF ALL INSPECTION VERIFICATIONS AND REPORTS REQUIRED BY THE ENFORCING AGENCY.

6. TEMPORARY VENTILATION. THE PERMANENT HVAC SYSTEM SHALL ONLY BE USED DURING CONSTRUCTION IF NECESSARY TO CONDITION THE BUILDING WITHIN THE REQUIRED TEMPERATURE RANGE FOR MATERIAL AND EQUIPMENT INSTALLATION. IF THE HVAC SYSTEM IS USED DURING CONSTRUCTION, USE RETURN AIR FILTERS WITH A MINIMUM REPORTING VALUE (MERV 13) OF 13, BASED ON ASHRAE 52.2-1999 OR AN AVERAGE EFFICIENCY OF 30 PERCENT BASED ON ASHRAE 52.1-1992. REPLACE ALL FILTERS IMMEDIATELY PRIOR TO OCCUPANCY, OR, IF THE BUILDING IS OCCUPIED DURING ALTERATIONS, AT THE CONCLUSION OF CONSTRUCTION.

7. COVERING OF DUCT OPENINGS AND PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. AT THE TIME OF ROUGH INSTALLATION AND DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING, COOLING AND VENTILATION EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH WRAP, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST, WATER AND DEBRIS WHICH MAY ENTER THE SYSTEM.

8. FILTERS. IN MECHANICALLY VENTILATED BUILDINGS, PROVIDE REGULARLY OCCUPIED AREAS OF THE BUILDING WITH AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY THAT PROVIDE AT LEAST A MINIMUM EFFICIENCY REPORTING VALUE (MERV 13) OF 13. MERV 13 FILTERS SHALL BE INSTALLED PRIOR TO OCCUPANCY AND RECOMMENDATIONS FOR MAINTENANCE WITH FILTERS OF THE SAME VALUE SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUAL.

    EXCEPTIONS:
    A. AN ASHRAE 10-PERCENT TO 15-PERCENT EFFICIENCY FILTER SHALL BE PERMITTED FOR AN HVAC UNIT MEETING THE 2019 CALIFORNIA ENERGY CODE HAVING 60,000 BTU/H OR LESS CAPACITY PER FAN COIL, IF THE ENERGY USE OF THE AIR DELIVERY SYSTEM IS 0.4 W/CFM OR LESS AT DESIGN AIR FLOW.
    B. EXISTING MECHANICAL EQUIPMENT.

9. OZONE DEPLETION AND GREENHOUSE GAS REDUCTIONS. INSTALLATIONS OF HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT SHALL COMPLY WITH SECTIONS 5.508.1.1 AND 5.508.1.2.

    A. CHLOROFLOUROCARBONS (CFCS). INSTALL HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT THAT DO NOT CONTAIN CFCS.
    B. HALONS. INSTALL HVAC REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT THAT DO NOT CONTAIN HALONS.

10. ADHESIVES, ADHESIVE BONDING PRIMERS, ADHESIVE PRIMERS, SEALANTS, SEALANT PRIMERS AND CAULKS SHALL COMPLY WITH LOCAL OR REGIONAL AIR POLLUTION CONTROL OR AIR QUALITY MANAGEMENT DISTRICT RULES WHERE APPLICABLE, OR SCAQMD RULE 1168 VOC LIMITS, AS SHOWN IN TABLES 5.504.4.1.

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
1	KEY NOTES
1	DEMOLITION KEY NOTES
01 M-2	DETAIL DESIGNATION DETAIL NUMBER SHEET NO. WHERE SHOWN
AC 1	EQUIPMENT DESIGNATION UNIT ABBREVIATION NUMBER
A 10X10-3 120 F/S	GRILLE DESIGNATION NECK SIZE & BLOW FIRE/SMOKE DAMPER WHERE REQ'D CFM
-	SECTION CALLOUT
◕	POINT OF CONNECTION
◑	POINT OF DISCONNECTION
	NEW LINEWORK
	EXISTING LINEWORK
	DEMOLITION LINEWORK
16"x12"	SHEET METAL DUCT
16"x12"	HIDDEN SHEET METAL DUCT
16"x12"	INTERNALLY INSULATED SHEET METAL DUCT
	DIRECTION OF FLOW
	STANDARD BRANCH FOR SUPPLY AND RETURN
	ROUND ELBOW DOWN
	ROUND ELBOW UP
	RECTANGULAR TO ROUND TRANSITION
8"	FLEXIBLE DUCT
FC	FLEX CONNECTION
BDD	BACK DRAFT DAMPER
FD	FIRE DAMPER
F/S	COMBINATION FIRE AND SMOKE DAMPER
M	MOTORIZED DAMPER
	SUPPLY DIFFUSER: 2-WAY/3-WAY/4-WAY
	GRILLE: RETURN/EXHAUST
	1'x2' RETURN AIR GRILLE
	2'x2' RETURN AIR GRILLE
UP ☒ ☒ DN	SUPPLY AIR DUCT SECTION
UP ◩ ⧄ DN	RETURN AIR DUCT SECTION
UP ◩ ⧅ DN	EXHAUST AIR DUCT SECTION
	POWER OR GRAVITY ROOF VENTILATOR - EXHAUST
	POWER OR GRAVITY ROOF VENTILATOR - SUPPLY
UC	UNDERCUT DOOR
TG	TRANSFER GRILLE OR LOUVER
DG	DOOR GRILLE OR LOUVER

SYMBOL	DESCRIPTION
D X	DX COOLING COIL
H C	HEATING COIL
	DAMPER, OPPOSED BLADE
	DAMPER, PARALLEL BLADE
	FILTER
	HUMIDIFIER
	LOUVER
AD	ACCESS DOOR OR ACCESS PANEL (AP) IN DUCTWORK
1" 2"	STATIC PRESSURE CHANGE TAG
2"	STATIC PRESSURE TAG
	TURNING VANES (RECTANGULAR)
	DRAIN, FUNNEL
	CENTRIFUGAL FAN
	ANALOG SIGNAL
	DIGITAL SIGNAL
	ELECTRIC LEAD
	INSTRUMENT CAPILLARY TUBING
	ELECTRONIC 3-WAY VALVE
	ELECTRONIC 2-WAY VALVE
	DDC INPUT
□	DDC OUTPUT
○	LOCALLY MOUNTED INSTRUMENT
C02	CARBON DIOXIDE SENSOR
DPS	DIFFERENTIAL PRESSURE SENSOR
FM	FLOW METER
FS	AIRFLOW SENSOR
HS	RELATIVE HUMIDITY SENSOR
TS	TEMPERATURE SENSOR
TS	AVERAGING TEMPERATURE SENSOR
	METAL DUCT
R	EMS CO2 SENSOR
T	THERMOSTAT
PS	PRESSURE SWITCH
SD	SMOKE DETECTOR
SP	STATIC PRESSURE SENSOR
RS	REFRIGERANT SENSOR
D	DEW POINT SENSOR
H	SPACE HUMIDITY SENSOR
S	SWITCH
▲	FIRE WALL PENETRATION
(E)	EXISTING
(N)	NEW

DRAWING INDEX

SHEET	DESCRIPTION
M0.00	MECHANICAL SYMBOLS, LEGENDS & GENERAL NOTES
M0.01	MECHANICAL TITLE 24
M0.02	MECHANICAL TITLE 24
M1.01	MECHANICAL SITE PLAN
M2.01	MECHANICAL FLOOR PLANS
M5.01	MECHANICAL SCHEDULES
M6.01	MECHANICAL DETAILS

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AAV	AUTOMATIC AIR VENT
ABV	ABOVE
AC	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
ALUM	ALUMINUM
AO	ANALOG OUTPUT
AP	ACCESS PANEL
B	BOILER
BDD	BACK DRAFT DAMPER
BEL	BELOW
BFC	BELOW FINISHED CEILING
BFP	BACK FLOW PREVENTER
BG	BLAST GATE
BHP	BREAK HORSEPOWER
BLDG	BUILDING
BOB	BOTTOM OF BEAM
BOP	BOTTOM OF PIPE
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CL	CENTER LINE
CLG	CEILING
CO	CLEANOUT
COL	COLUMN
CP	CONDENSATE PUMP
CT	COOLING TOWER
CU	CONDENSING UNIT
CV	CONSTANT VOLUME BOX
D	DRAIN
DB	DRY BULB
DEG	DEGREES
DI	DIGITAL INPUT
DIA	DIAMETER
DL	DOOR LOUVER
DN	DOWN
DO	DIGITAL OUTPUT
DP	DIFFERENATIAL PRESSURE
DS	DUCT SILENCER
DX	DIRECT EXPANSION
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EFF	EFFICIENCY
EGC	EGGCRATE GRILLE
EJ	EXPANSION JOINT
EL	ELEVATION
EQ	EQUAL
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EXIST / (E)	EXISTING
°F	DEGREES FAHRENHEIT
FA	FREE AREA
FC	FAN COIL UNIT
FD	FIRE DAMPER
FG	FILTER GRILLE
FLA	FULL LOAD AMPS
FLR	FLOOR
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FP	FIRE PUMP
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FS	FLOW SWITCH
FT	FEET / FOOT
FX	FLEXIBLE CONNECTION
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HD	HEAD
HOA	HANDS OFF AUTO
HP	HEAT PUMP
HP	HORSEPOWER
HT	HEIGHT
HV	HEATING AND VENTILATING UNIT
HWC	HOT WATER CONVERTER
HWP	HEATING HOT WATER RETURN
HWR	HOT WATER PUMP
HWS	HEATING HOT WATER SUPPLY
HZ	HERTZ
IC	MOTOR STATUS
ICW	INDUSTRIAL COLD WATER
ID	INSIDE DIAMETER
IN	INCHES
IW	INDIRECT WASTE

ABBREVIATION	DESCRIPTION
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LD	LINEAR DIFFUSER
LF	LINEAR FEET
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPS
MH	MANHOLE
MIN	MINIMUM
MOCP	MAXIMUM OVERLOAD CIRCUIT PROTECTION
MOD	MOTOR OPERATED DAMPER
MTD	MOUNTED
MUA	MAKE-UP AIR UNIT
(N)	NEW
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
OAT	OUTSIDE AIR TEMPERATURE
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSA	OUTSIDE AIR
PBD	PARALLEL BLADE DAMPER
PD	PRESSURE DROP
PERF	PERFORATED
PH	PHASE
PR	PRESSURE RELIEF
PS	PRESSURE SWITCH
PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	PRESSURE TRANSMITTER
PTAC	PACKAGED TERMINAL AIR CONDITIONER
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
RAR	RETURN AIR REGISTER
RD	ROOF DRAIN
RF	RETURN FAN
RG	RETURN AIR GRILLE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SAR	SUPPLY AIR REGISTER
SAV	STAGED AIR VOLUME
SD	SMOKE DAMPER
SF	SUPPLY FAN
SI	SPEED INDICATOR
SK	SPEED CONTROL
SMBH	SENSIBLE MBH
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SS	STAINLESS STEEL
STD	STANDARD
TAD	TRANSFER AIR DUCT
TEFC	TOTALLY ENCLOSED FAN COOLED
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TI	TEMPERATURE INDICATOR
TMBH	TOTAL MBH
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UC	UNDERCUT
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UTR	UP THROUGH ROOF
V	VOLTS
VA	DAMPER/VALVE ACTUATOR
VAV	VARIABLE AIR VOLUME UNIT
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VP	VELOCITY PRESSURE
VTR	VENT THROUGH ROOF
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN
WG	WATER GAUGE
WT	WEIGHT

MOUNTING OVER OBSTRUCTION DETAIL

NOTE:

1. THIS DETAIL APPLIES TO MOUNTING OF ANY MECHANICAL AND ELECTRICAL DEVICE WHICH CONTAINS AN OPERABLE PART THAT IS ADJUSTABLE BY THE OCCUPANT. THIS DOES NOT APPLY TO SENSORS OR CONTROLS THAT ARE ONLY ADJUSTABLE THROUGH THE BUILDING AUTOMATION SYSTEM (IE: TEMPERATURE AND HUMIDITY SENSORS).
2. FOR 24" REACH TO CONTROLS, OUTLETS OR SWITCHES ON THE WALL AT THE ACCESSIBLE WORK SURFACE WITH KNEE/TOE SPACE, AN ADDITIONAL 7" MUST BE ADDED TO THE KNEE SPACE.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

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CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

KEY PLAN
NORTH: PLAN TRUE

Consultant
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No.M36155
Exp.09-30-2024
MECHANICAL

Architect
Yong Yoo
No. C-31162
REN. 10-31-2023

CLIENT	
CORONA-NORCO USD	
DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date

DSA Submittal

MECHANICAL SYMBOLS, LEGENDS & GENERAL NOTES

M0.00

FILE PATH: Z:\Projects\...
10/5/2023 10:58:48 AM

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	**(Page 1 of 14)**
Project Name: CN USD Transportation Center Relocatable	**Date Prepared:** 2023-05-10

A. General Information

1	Project Name	CN USD Transportation Center Relocatable			
2	Run Title	Title 24 Analysis			
3	Project Location	2820 Clarke Ave			
4	City	Norco	5	Standards Version	Compliance 2022
6	Zip code	92860	7	Compliance Software (version)	EnergyPro 9.1
8	Climate Zone	10	9	Building Orientation (deg)	270
10	Building Type(s)	• Nonresidential	11	Weather File	MARCH-AFB_STYP20.epw
12	Project Scope	• Existing alteration	13	Number of Dwelling Units	0
14	Total Conditioned Floor Area in Scope (ft^2)	1440	15	Total # of hotel/motel rooms	0
16	Total Unconditioned Floor Area (ft^2)	0	17	Fuel Type	Natural gas
18	Nonresidential Conditioned Floor Area	1440	19	Total # of Stories (Habitable Above Grade)	1
20	Residential Conditioned Floor Area	0			

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	**(Page 2 of 14)**

B. PROJECT SUMMARY

Table B shows which building components are included in the performance calculation. If indicated as not included, the project must show compliance prescriptively if within the permit application.

Building Components Complying via Performance						Building Components Complying Prescriptively	
Envelope (See Table G)	Nonres	Not Included	Solar Thermal Water Heating (See Table I3)	☐	Performance	The following building components are ONLY eligible for prescriptive compliance and should be documented on the NRCC form listed if within the scope of the permit application (i.e. compliance will not be shown on the NRCC-PRF-E).	
	MultiFam	Not Included		☒	Not Included		
Mechanical (See Table H)	Nonres	Performance	Covered Process: Commercial Kitchens (see Table J)	☐	Performance	Indoor Lighting (Unconditioned) 140.6 & 170.2(e)	NRCC-LTI-E is required
	MultiFam	Not Included		☒	Not Included	Outdoor Lighting 140.7 & 170.2(e)	NRCC-LTO-E is required
Domestic Hot Water (See Table I)	Nonres	Not Included	Covered Process: Laboratory Exhaust (see Table J)	☐	Performance	Sign Lighting 140.8 & 170.2(e)	NRCC-LTS-E is required
	MultiFam	Not Included		☒	Not Included	**Building Components Complying with Mandatory Measures**	
Lighting (Indoor Conditioned, see Table K)	Nonres	Performance	Photovoltaics (see Table F)	☒	Performance	Electrical power systems, commissioning, solar ready, elevator and escalator requirements are mandatory and should be documented on the NRCC form listed if applicable (i.e. compliance will not be shown on the NRCC-PRF-E.)	
	MultiFam	Not Included		☐	Not Included	Electrical Power Distribution 110.11	NRCC-ELC-E is required
			Battery (see Table F)	☐	Performance	Commissioning 120.8	NRCC-CXR-E is required
				☒	Not Included	Solar and Battery 110.10	NRCC-SAB-E is required

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	**(Page 3 of 14)**

C1. COMPLIANCE SUMMARY

	COMPLIES[3]		
	Time Dependent Valuaton (TDV)		Source Energy Use
	Efficiency[1] (kBtu/ft^2 - yr)	Total[2] (kBtu/ft^2 - yr)	Total[2] (kBtu/ft^2 - yr)
Standard Design	326.27	326.27	25.65
Proposed Design	191.44	191.44	13.99
Compliance Margins	**134.83**	**134.83**	**11.66**
	Pass	**Pass**	**Pass**

[1] *Efficiency measures include improvements like a better building envelope and more efficient equipment*
[2] *Compliance Totals include efficiency, photovoltaics and batteries*
[3] *Building complies when efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded*

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	**(Page 4 of 14)**

C2. TDV ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual TDV Energy Use, kBtu/ft^2 - yr)

	COMPLIES[2]		
Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)[1]
Space Heating	13.71	19.58	-5.87
Space Cooling	97.54	79.15	18.39
Indoor Fans	175.37	47.3	128.07
Heat Rejection	0	0	0
Pumps & Misc.	0	0	0
Domestic Hot Water	10.83	10.83	0
Indoor Lighting	28.82	34.58	-5.76
Flexibility	---	---	---
EFFICIENCY COMPLIANCE TOTAL	**326.27**	**191.44**	**134.83 (41.3%)**
Photovoltaics	---	---	---
Batteries	---	---	---
TOTAL COMPLIANCE	**326.27**	**191.44**	**134.83 (41.3%)**

[1] *Notes: This number in parenthesis following the Compliance Margin in column 4, represents the Percent Better than Standard.*

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	**(Page 5 of 14)**

C3. TDV ENERGY RESULTS FOR NON-REGULATED COMPONENTS[1]

Non-Regulated Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)[1]
Receptacle	106.98	106.98	---
Process	---	---	---
Other Ltg	---	---	---
Process Motors	---	---	---
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**433.25**	**298.42**	**134.83 (31.1%)**

[1] *Notes: This table is not used for Energy Code Compliance.*

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	**(Page 6 of 14)**

C4. SOURCE ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual SOURCE Energy Use, kBtu/ft^2 /yr)

	COMPLIES[2]		
Energy Component	Standard Design (SOURCE)	Proposed Design (SOURCE)	Compliance Margin (SOURCE)[1]
Space Heating	2.04	2.91	-0.87
Space Cooling	3.91	2.99	0.92
Indoor Fans	16.53	4.48	12.05
Heat Rejection	0	0	0
Pumps & Misc.	0	0	0
Domestic Hot Water	0.99	0.99	0
Indoor Lighting	2.18	2.62	-0.44
Flexibility	---	---	---
EFFICIENCY COMPLIANCE TOTAL	**25.65**	**13.99**	**11.66 (45.5%)**
Photovoltaics	---	---	---
Batteries	---	---	---
TOTAL COMPLIANCE	**25.65**	**13.99**	**11.66 (45.5%)**

[1] *Notes: This number in parenthesis following the Compliance Margin in column 4, represents the Percent Better than Standard.*

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	**(Page 7 of 14)**

C5. SOURCE ENERGY RESULTS FOR NON-REGULATED COMPONENTS[1]

Non-Regulated Energy Component	Standard Design (SOURCE)	Proposed Design (SOURCE)	Compliance Margin (SOURCE)[1]
Receptacle	7.54	7.54	---
Process	---	---	---
Other Ltg	---	---	---
Process Motors	---	---	---
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**33.19**	**21.53**	**11.66 (35.1%)**

[1] *Notes: This table is not used for Energy Code Compliance.*

C6. 'ABOVE CODE' QUALIFICATIONS

☐ This project is pursuing CalGreen Tier 1 ☐ This project is pursuing CalGreen Tier 2

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	**(Page 8 of 14)**

C7. ENERGY USE SUMMARY

Energy Component	Standard Design Site (MWh)	Proposed Design Site (MWh)	Margin (MWh)	Standard Design Site (MBtu)	Proposed Design Site (MBtu)	Margin (MBtu)
Space Heating	0.6	0.9	-0.3	---	---	---
Space Cooling	3.8	3.1	0.7	---	---	---
Indoor Fans	8.9	2.4	6.5	---	---	---
Heat Rejection	---	---	---	---	---	---
Pumps & Misc.	---	---	---	---	---	---
Domestic Hot Water	0.6	0.6	0	---	---	---
Indoor Lighting	1.6	1.9	-0.3	---	---	---
Flexibility	---	---	---	---	---	---
EFFICIENCY TOTAL	**15.5**	**8.9**	**6.6**	**0**	**0**	**0**
Photovoltaics	---	---	---	---	---	---
Batteries	---	---	---	---	---	---
ENERGY USE SUBTOTAL	**15.5**	**8.9**	**6.6**	**0**	**0**	**0**
Receptacle	6.2	6.2	0	---	---	---
Process	---	---	---	---	---	---
Other Ltg	---	---	---	---	---	---
Process Motors	---	---	---	---	---	---
ENERGY USE TOTAL	**21.7**	**15.1**	**6.6**	**0**	**0**	**0**

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	**(Page 9 of 14)**

C8. ENERGY USE INTENSITY (EUI)

	Standard Design (kBtu/ft^2 / yr)	Proposed Design (kBtu/ft^2 / yr)	Margin (kBtu/ft^2 / yr)	Margin Percentage
GROSS EUI[1]	51.42	35.78	15.64	30.42
NET EUI[1]	51.42	35.78	15.64	30.42

[1] *Notes: Gross EUI is Energy Use Total (not including PV)/Total Building Area. Net EUI is Energy Use Total (including PV)/Total Building Area.*

D1. EXCEPTIONAL CONDITIONS

• The project uses the Simplified Geometry Performance Modeling Approach which is not capable of modeling daylighting controls and assumes the prescriptive Secondary Daylit Control requirements are met. PRESCRIPTIVE COMPLIANCE documentation (form NRCC-LTI-02-E) for the requirements of section 140.6(d) Automatic Daylighting Controls in Secondary Daylit Zones is required.
• The building does not include service water heating. Verify that service water heating is not required and is not included in the design.

F1. REQUIRED PV SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception[1]	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)

[1] *See Table D1 for any PV exceptions used.*

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

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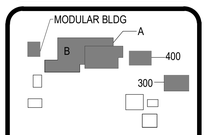
DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9



Consultant

REGISTERED PROFESSIONAL ENGINEER
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Architect

LICENSED ARCHITECT
Yong You
No. C-31162
REN. 10-31-2022
STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date

DSA Submittal

MECHANICAL TITLE 24

M0.01

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	(Page 10 of 14)

F1B. PV BATTERY BUILDING TYPE(S)

01	02	03
Building Occupancy Type* (from Table 140.10-A/B and 170.2-U/V)	Conditioned Floor Area (ft²)	Unconditioned Floor Area (ft²)
Grocery	0	0
High-Rise Multifamily	0	0
Office, Financial Institutions, Unleased Tenant Space	0	0
Retail	0	0
School	0	0
Warehouse	0	0
Auditorium, Convention Center, Hotel/Motel, Library, Medical Office Building/Clinic, Restaurant, Theater	0	0
None	1440	0

Building Occupancy Types are defined in Section 100.1 of the Energy Code

H1. DRY SYSTEM EQUIPMENT (FURNACES, AIR HANDLING UNITS, HEAT PUMPS, VRF, ECONOMIZERS ETC.)

01	02	03	04	05	06	07	08	09	10	11	12
			Heating				Cooling				
Equipment Name	Equipment Type	Qty	Total Heating Output (kBtu/h)	Supp Heat Output (kBtu/h)	Efficiency Unit	Efficiency	Total Cooling Output (kBtu/h)	Efficiency Unit	Efficiency	Economizer Type (if present)	Status[1]
HP-1	Single Zone Heat Pump (SZHP) Air System	1	56.8	0	N/A	NA	60.3	EER SEER	11.8 14.3	Fixed DB	N

[1] *Status: N - New, A - Altered, E - Existing*

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	(Page 11 of 14)

H3. NONRESIDENTIAL / COMMON USE AREA FAN SYSTEMS SUMMARY

01	02	03	04	05	06	07	08	09	10	11	12	13
			Supply Fan				Return / Relief Fan					
Name or Item Tag	Qty	Design OA CFM	CFM	Power	Power Units	Control	Fan Type	CFM	Power	Power Units	Control	Status[1]
HP-1	1	216	1,800	0.47	BHP	Constant Vol	N/A	N/A	N/A	N/A	N/A	N

[1] *Status: N - New, A - Altered, E - Existing*

H8. SYSTEM SPECIAL FEATURES

01	02	03	04
System Name	Equipment Type	Interlocks per 140.4(n)[1]	Other Special Features and Controls
HP-1	Single Zone Heat Pump (SZHP) Air System	N/A	Fixed DB

Notes: This table includes controls related to the performance path only. For projects using the prescriptive path, mandatory and prescriptive controls requirements are documented on the NRCC-MCH-E.

[1] *Yes = interlocks are provided, No = interlocks are not provided, NA means no operable openings.*

H9. NONRESIDENTIAL / COMMON USE AREA & HOTEL/MOTEL VENTILATION

01	02	03	04	05	06	07
	Mechanical Ventilation					
Zone Name	Ventilation Function	# of People# of People	Supply OA CFM	Exhaust CFM	Conditioned Area (sf)	DCV or Occupant Sensor Controls, or Both
1-Relocatabe Office	Office - Office space	7.2	216	0	1440	N/A

H11. ZONAL SYSTEM AND TERMINAL UNIT SUMMARY

01	02	03	04	05	06	07	08	09	10	11	12
			Rated Capacity (kBtuh)		Airflow (cfm)			Fan			
System ID	System Type	Qty	Heating	Cooling	Design	Min.	Min. Ratio	Power	Power Units	Cycles	VSD
1-Relocatabe Office-Trm	Uncontrolled	1	N/A	N/A	1,800	N/A	0	N/A	N/A	N/A	☐

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	(Page 12 of 14)

K1. INDOOR CONDITIONED LIGHTING GENERAL INFO

01	02	03	04	05	06
				Additional (Custom) Allowance	
Occupancy Type[1]	Conditioned Floor Area[2] (ft²)	Installed Lighting Power (Watts)	Lighting Control Credits (Watts)	Area Category Footnotes (Watts)	Area Category Footnotes (Watts)
Office (250 square feet)	1440	864	0	0	0
Building Totals:	**1440**	**864**	**0**	**0**	**0**

[1] *See Table 140.6-C*
[2] *See NRCC-LTI--E for unconditioned spaces*
[3] *Lighting information for existing spaces modeled is not included in this table*

K4. INDOOR CONDITIONED LIGHTING MANDATORY LIGHTING CONTROL

See NRCC-LTI-E for mandatory controls

L. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections made by Documentation Author indicate which Certificates of Installation must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online

Building Component	Form/Title
Envelope	NRCI-ENV-01-E - Must be submitted for all buildings
Mechanical	NRCI-MCH-01-E - Must be submitted for all buildings
Mechanical	NRCI-MCH-E - For all buildings with Mechanical Systems
Indoor Lighting	NRCI-LTI-E - Indoor Lighting (for all buildings)

M. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections made by Documentation Author indicate which Certificates of Acceptance must be submitted for the features to be recognized for compliance. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP).

Building Component	Form/Title
Envelope	NRCA-ENV-02-F - NRFC label verification for fenestration

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	(Page 13 of 14)

M. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections made by Documentation Author indicate which Certificates of Acceptance must be submitted for the features to be recognized for compliance. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP).

Building Component	Form/Title
Mechanical	NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap
Mechanical	NRCA-MCH-03-A - Constant Volume Single Zone HVAC
Mechanical	NRCA-MCH-05-A - Air Economizer Controls
Mechanical	NRCA-MCH-12-A FDD for Packaged Direct Expansion Units

N. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

Selections made by Documentation Author indicate which Certificates of Verification must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online

There are no Certificates of Verification applicable to this project

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD	NRCC-PRF-E
Nonresidential Performance Compliance Method	(Page 14 of 14)

Documentation Author's Declaration Statement

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Company: Leaf Engineers	Signature Date: 05/11/2023
Address: 8163 Rochester Ave, Ste. 100	CEA/HERS Certification Identification (if applicable):
City/State/Zip: , Rancho Cucamonga, CA 91730	Phone:

Responsible Person's Declaration statement

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I understand that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections, and I will take the necessary steps to accomplish this requirement.
6. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy, and I will take the necessary steps to accomplish these requirements.

Responsible Designer Name: Rex Wang	Responsible Designer Signature:	
Company: LEAF		
Address: 8163 Rochester Ave, Ste. 100	Date Signed: 05/11/2023	
City/State/Zip: Rancho Cucamonga, CA 91730	License #: M36155	
Phone: 909-987-0909	Title:	Scope:

IDENTIFICATION STAMP
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APP: 04-122251 INC:
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DATE: 10/24/2023

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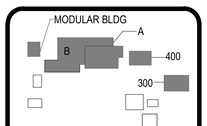
CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



Consultant

REGISTERED PROFESSIONAL ENGINEER
REX DAVID WANG
No.M36155
Exp.09-30-2024
STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT
Yong Yoo
No. C-31162
REN. 10-31-2022
STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

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No.	Description	Date

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MECHANICAL TITLE 24

M0.02

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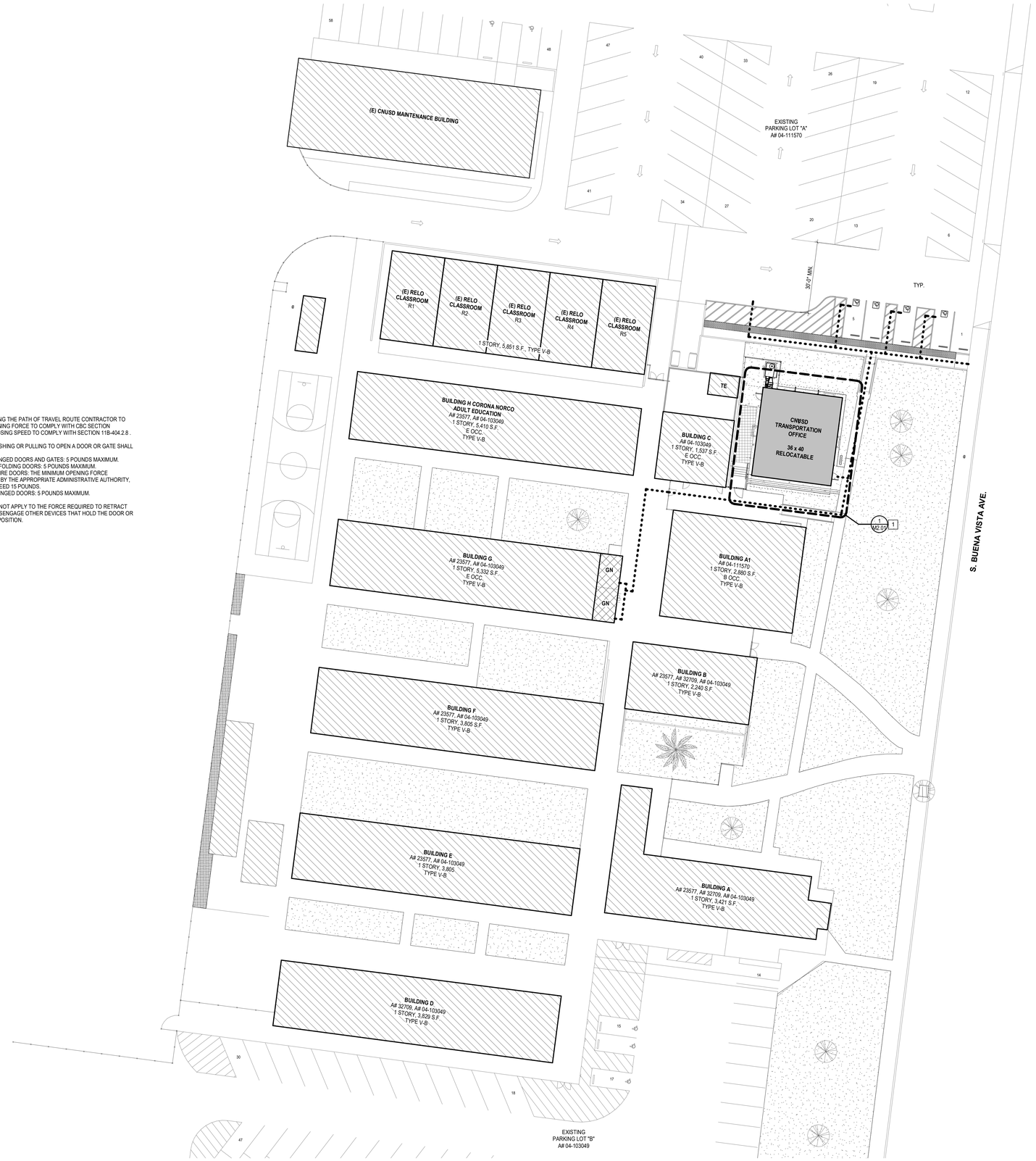
M1.01 - MECHANICAL SITE PLAN

0" 1"



NOTE:

FOR (E) GATES ALONG THE PATH OF TRAVEL ROUTE CONTRACTOR TO ADJUST DOOR OPENING FORCE TO COMPLY WITH CBC SECTION 11B-404.2.9 AND CLOSING SPEED TO COMPLY WITH SECTION 11B-404.2.8 .

THE FORCE FOR PUSHING OR PULLING TO OPEN A DOOR OR GATE SHALL BE AS FOLLOWS:

1. INTERIOR HINGED DOORS AND GATES: 5 POUNDS MAXIMUM.
2. SLIDING OR FOLDING DOORS: 5 POUNDS MAXIMUM.
3. REQUIRED FIRE DOORS: THE MINIMUM OPENING FORCE ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY, NOT TO EXCEED 15 POUNDS.
4. EXTERIOR HINGED DOORS: 5 POUNDS MAXIMUM.

THESE FORCES DO NOT APPLY TO THE FORCE REQUIRED TO RETRACT LATCH BOLTS OR DISENGAGE OTHER DEVICES THAT HOLD THE DOOR OR GATE IN A CLOSED POSITION.

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODES
2. ALL WORK SHALL MEET MINIMUM STANDARDS OF CONSTRUCTION AND WORKMANSHIP AS PER CALIFORNIA MECHANICAL CODE, CALIFORNIA PLUMBING CODE, CALIFORNIA TITLE 24 STANDARDS, APPLICABLE NFPA REGULATIONS AND APPLICABLE ASHRAE STANDARDS.
3. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF ALL SERVICES BEFORE CONSTRUCTION
4. THERE IS LIMITED SPACE AVAILABLE ABOVE CEILING. CONTRACTOR SHALL VERIFY THAT THE DUCTS SHOWN ON DRAWINGS CAN BE ROUTED TO AVOID ROOF STRUCTURAL BEAMS AND PROPOSE ANY DUCT MODIFICATION WITH THE OWNER/ENGINEER PRIOR TO INSTALLATION
5. DUCT SIZES ARE INSIDE DIMENSION
6. EXTERIOR DUCT DIMENSION IS THE INSIDE DIMENSION
7. EXTERIOR DUCTS SHALL BE INSULATED AND WRAPPED TO WITHSTAND WEATHER
8. PROVIDE VOLUME DAMPERS IN BRANCH DUCTS TO REGISTERS AND DIFFUSERS
9. DUCT INSULATION SHALL BE A MINIMUM OF R-8
10. INSTALL FIRE DAMPERS IN ALL FIRE RATED WALLS
11. PROVIDE FACTORY RECOMMENDED THERMOSTAT FOR HEAT PUMP

KEY NOTES

1 AREA OF WORK

1 | SITE PLAN
1" = 20'-0"

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CORONA TRANSPORTATION

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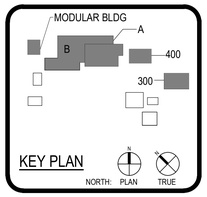

KEY PLAN
NORTH: PLAN TRUE

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Yoshi Yoo
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MECHANICAL SITE PLAN

M1.01

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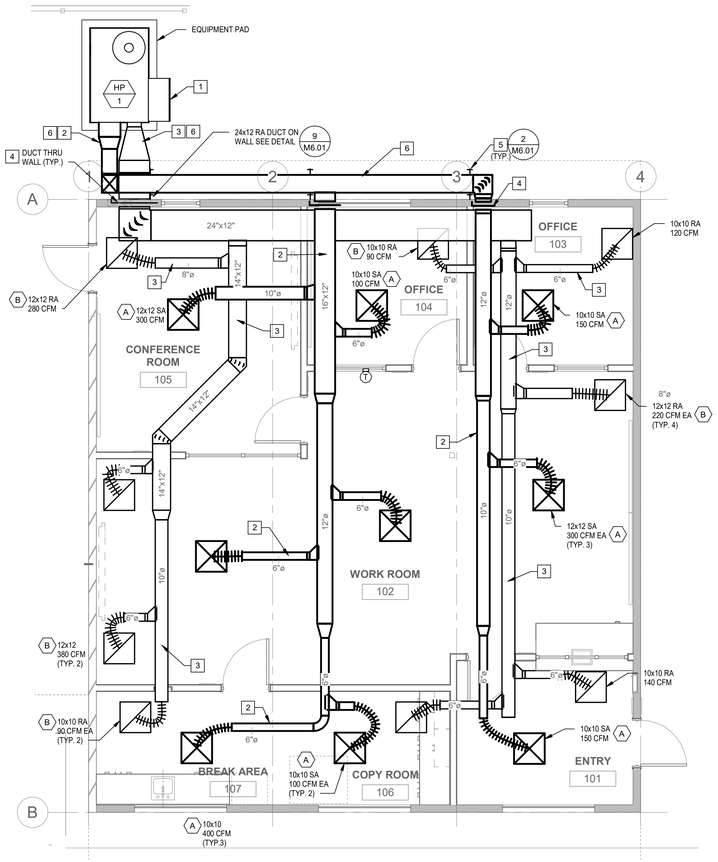

1 MECHANICAL FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODES
2. ALL WORK SHALL MEET MINIMUM STANDARDS OF CONSTRUCTION AND WORKMANSHIP AS PER CALIFORNIA MECHANICAL CODE, CALIFORNIA PLUMBING CODE, CALIFORNIA TITLE 24 STANDARDS, APPLICABLE NFPA REGULATIONS AND APPLICABLE ASHRAE STANDARDS.
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9. DUCT INSULATION SHALL BE A MINIMUM OF R-8
10. INSTALL FIRE DAMPERS IN ALL FIRE RATED WALLS
11. PROVIDE FACTORY RECOMMENDED THERMOSTAT FOR HEAT PUMP

KEY NOTES

1. ECONOMIZER HOOD
2. SUPPLY AIR DUCT
3. RETURN AIR DUCT
4. FIRE DAMPER ON WALL
5. DUCT SUPPORT
6. DUCT DIMENSIONS FOR EXTERIOR DUCT IS FOR DUCTS WITH EXTERIOR INSULATION. IF EXTERIOR DUCT WILL BE LINED WITH INTERNAL INSULATION, DUCT SIZES MUST BE 2 INCHES LARGER IN WIDTH FOR BOTH SIDES.

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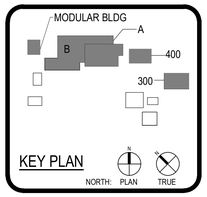

Consultant

Architect

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MECHANICAL FLOOR PLANS

M2.01

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AIR SOURCE HEAT PUMP SCHEDULE

SYMBOL	MAKE	MODEL	NOMINAL	EFFCY	COOLING CAPACITY		ENTERING AIR °F		OUTDOOR	SUPPLY AIR	ESP	OUTSIDE AIR	HEATING CAPACITY			COMPRESSOR				FAN AMPS			WEIGHTS				FILTER	OPTIONS
			TONS	SEER	TOTAL MBH	SENSIBLE MBH	TDB	TWB	AIR TDB	CFM	IN WC	CFM	OUTDOOR AIR TDB	MBH	COP	V-Ph-Hz	RLA	LRA	MCA	OFM	IFM	POWER EXHAUST	14 IN. CURB LBS.	UNIT LBS.	ECONOMIZER POWER EXH.	TOTAL LBS	UNIT/SIZE	ECONOMIZER
HP 1	CARRIER	50FCQ06	5	14.3	60.3	45.3	80	67	95	1800	0.6	200	47	56.8	3.8	208-3-60	13.7	83	31	1.5	7.2	1.9	95	584	74	753	4-16x16x2	YES

NOTES:

1. WITH DRY-BULB ECONOMIZER.
2. MERV 8 FILTERS.
3. TITLE-24 COMPLIANT FACTORY THERMOSTAT.
4. POWER EXHAUST WITH BAROMETRIC RELIEF.
5. SMOKE DETECTOR IN SUPPLY AND RETURN.
6. PROVIDE MANUFACTURER FURNISHED FUSED DISCONNECT

AIR DISTRIBUTION SCHEDULE

SYMBOL	TYPE	MAKE & MODEL	DESCRIPTION
A	CEILING SUPPLY	TITUS MODEL MCD-3	MODULAR CORE DIFFUSER WITH FRAME FOR LAY-IN T-BAR CEILING, FLUSH FACE MOUNTING.
B	CEILING RETURN	TITUS MODEL PAR-3	PERFORATED FACE DIFFUSER WITH FRAME FOR LAY-IN T-BAR CEILING, FLUSH FACE MOUNTING.

NOTES:
1. EQUIVALENT MODELS OF KRUEGER, ANEMOSTAT, PRICE OR J&J ARE ACCEPTABLE.
2. REFER TO THE FLOOR PLANS FOR NECK SIZE, CFM, AIR DIFFUSION PATTERN AND FIRE/DAMPER, IF REQUIRED.
3. PROVIDE AIR CONTROL GRID FOR ALL CEILING SUPPLY DIFFUSERS SET AT 90°.
4. INTERIOR OF ALL GRILLES SHALL BE PAINTED FLAT BLACK.

DUCT CONSTRUCTION STANDARDS

DIMENSION OF LONGEST SIDE, INCHES	SHEET METAL GAGE (ALL FOUR SIDES)	TRANSVERSE REINFORCING (1)					
		MINIMUM REINFORCING ANGLE SIZE AND MAXIMUM LONGITUDINAL SPACING BETWEEN TRANSVERSE JOINTS &/OR INTERMEDIATE REINFORCING	AT JOINTS				
			MIN. HT. IN.	DRIVE SLIP / PLAIN S SLIP	HEMMED S SLIP	ALTER'NT BAR SLIP	REINFORCED BAR SLIP
				RECOM-MENDED GAGE	RECOM-MENDED GAGE	RECOM-MENDED GAGE	RECOM-MENDED GAGE
UP THRU 12	26	NONE REQUIRED	1	26	26	24	24
13 - 18	24	NONE REQUIRED	1	24	24	24	24
19 - 30	24	1" X 1" X 1/8" @ 60 IN.	1		24	24	24
31 - 42	22	1" X 1" X 1/8" @ 60 IN.	1			22	22
43 - 60	20	1" X 1" X 1/8" @ 60 IN.	1				20
61 & ABOVE	18	1" X 1" X 1/8" @ 60 IN.	1				18

(1) TRANSVERSE REINFORCING SIZE IS DETERMINED BY DIMENSION OF SIDE TO WHICH ANGLE IS APPLIED.

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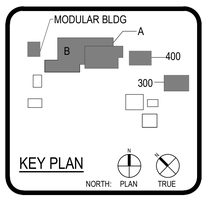

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REGISTERED PROFESSIONAL ENGINEER
REZ DAVID IMANG
No.M36155
Exp.09-30-2024
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Architect

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No. C-31162
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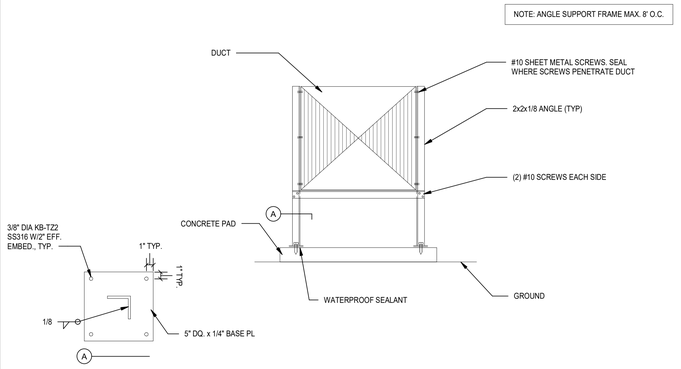
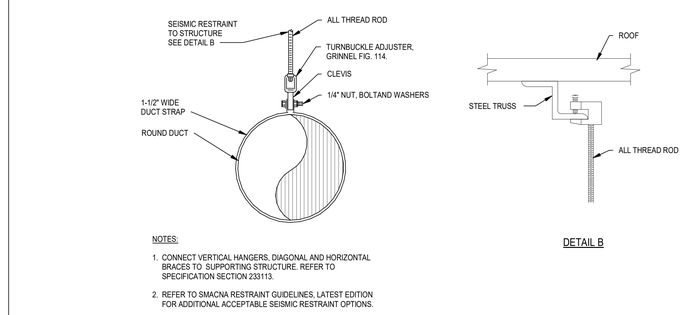
MECHANICAL SCHEDULES

M5.01

0" 1"



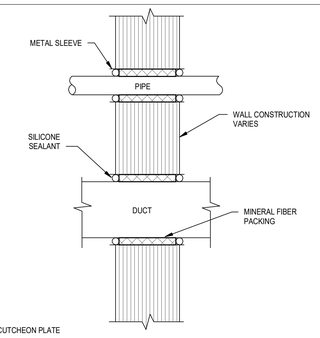
11 DUCT SUPPORT DETAIL
NOT TO SCALE



NOTES:

1. CONNECT VERTICAL HANGERS, DIAGONAL AND HORIZONTAL BRACES TO SUPPORTING STRUCTURE. REFER TO SPECIFICATION SECTION 233113.
2. REFER TO SMACNA RESTRAINT GUIDELINES, LATEST EDITION FOR ADDITIONAL ACCEPTABLE SEISMIC RESTRAINT OPTIONS.

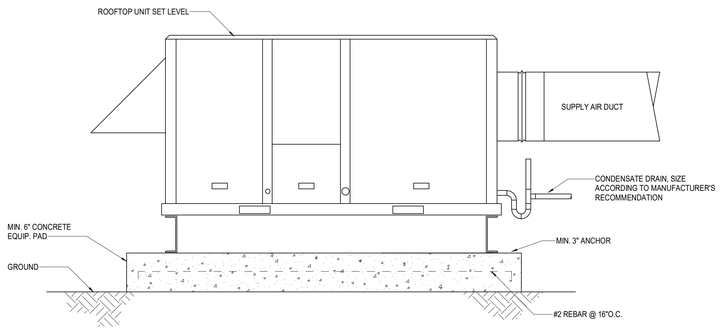
8 ROUND DUCT SUPPORT DETAIL
NOT TO SCALE



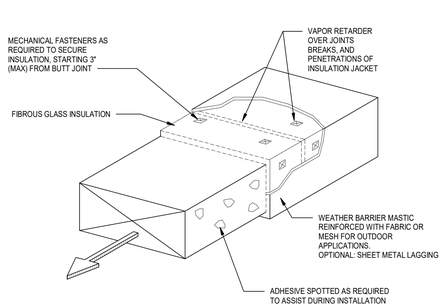
NOTE:

1. REFER TO SPECIFICATIONS FOR ESCUTCHEON PLATE REQUIREMENTS.
2. SUPPORT PIPES & DUCTS ON EITHER SIDE OF WALL. DO NOT LET THEM LOAD ONTO THE WALL.

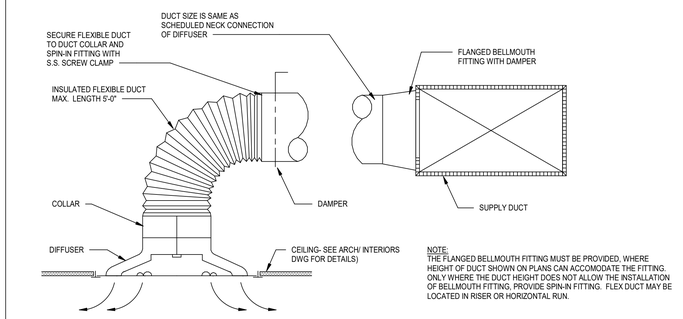
4 DUCT OR PIPE THRU NON RATED WALL DETAIL
NOT TO SCALE



10 HEAT PUMP ON GROUND DETAIL
NOT TO SCALE

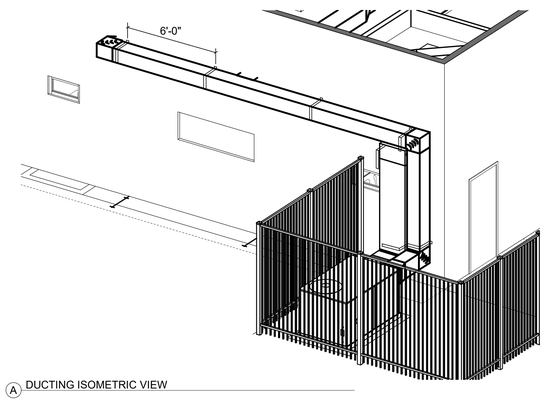


7 EXTERIOR DUCT DETAIL
NOT TO SCALE

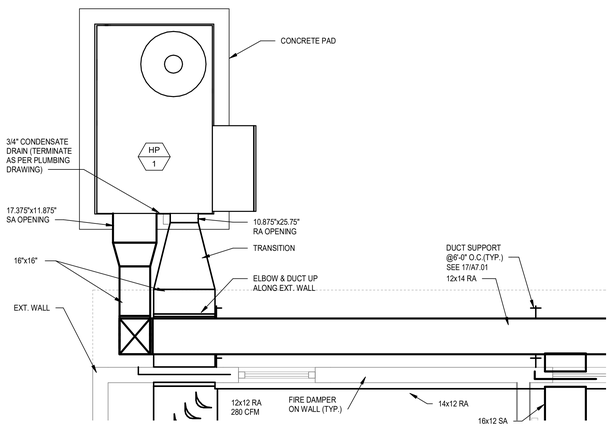


NOTE:
THE FLANGED BELLMOUTH FITTING MUST BE PROVIDED, WHERE HEIGHT OF DUCT SHOWN ON PLANS CAN ACCOMODATE THE FITTING. ONLY WHERE THE DUCT HEIGHT DOES NOT ALLOW THE INSTALLATION OF BELLMOUTH FITTING, PROVIDE SPIN-IN FITTING. FLEX DUCT MAY BE LOCATED IN RISER OR HORIZONTAL RUN.

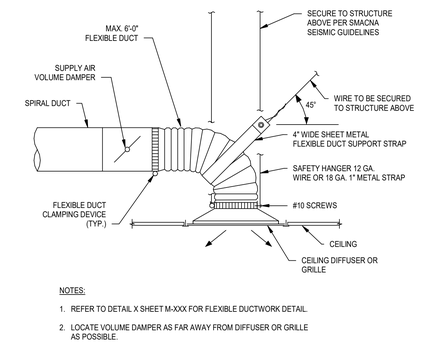
3 CEILING DIFFUSER CONNECTION DETAIL
NOT TO SCALE



Ⓐ DUCTING ISOMETRIC VIEW



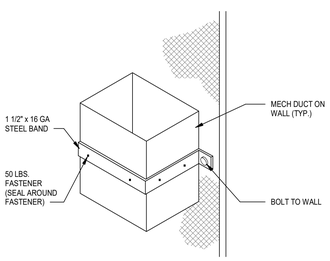
9 HEAT PUMP DUCTING DETAIL
NOT TO SCALE



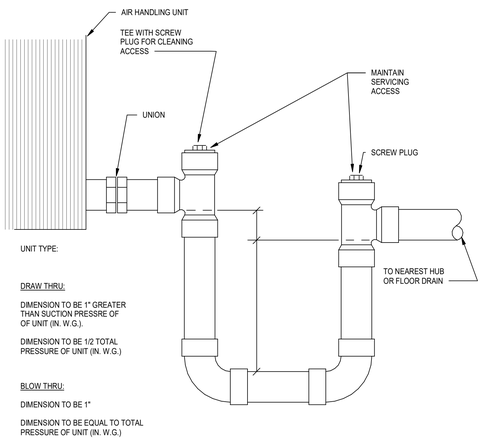
NOTES:

1. REFER TO DETAIL X SHEET M-XXX FOR FLEXIBLE DUCTWORK DETAIL.
2. LOCATE VOLUME DAMPER AS FAR AWAY FROM DIFFUSER OR GRILLE AS POSSIBLE.

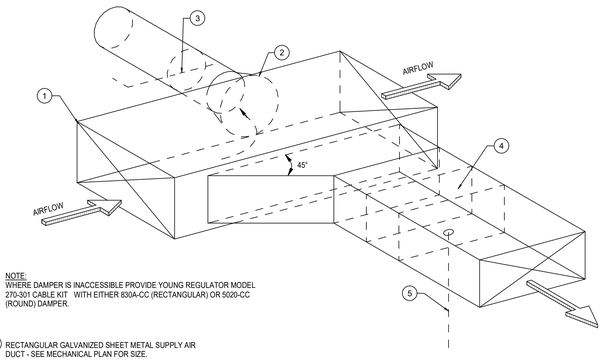
6 LAY IN DIFFUSER CONNECTION DETAIL
NOT TO SCALE



2 DUCT SUPPORT ON WALL DETAIL
NOT TO SCALE



5 CONDENSATE TRAP PIPING DETAIL
NOT TO SCALE



NOTE:
WHERE DAMPER IS INACCESSIBLE PROVIDE YOUNG REGULATOR MODEL 270-301 CABLE KIT WITH EITHER 830A-CC (RECTANGULAR) OR 5020-CC (ROUND) DAMPER.

1. RECTANGULAR GALVANIZED SHEET METAL SUPPLY AIR DUCT - SEE MECHANICAL PLAN FOR SIZE.
2. CUT OPENING ACCURATELY FOR SPIN IN (FLARED) FITTING - WHERE POSSIBLE.
3. BUTTERFLY DAMPER W/ LOCKING QUAD. (TYP)
4. VOLUME CONTROL DAMPER WITH LOCKING QUADRANT.
5. DAMPER REGULATOR

1 BRANCH DUCT TAKE-OFF & DMP. DETAIL
NOT TO SCALE

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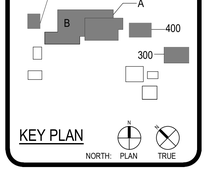

KEY PLAN
NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER
ALEX SAVIO WANG
No.M36155
Exp.09-30-2024
MECHANICAL
STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT
YUPING YOU
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MECHANICAL DETAILS

M6.01

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E0.00 - ELECTRICAL SYMBOLS, LEGENDS & GENERAL NOTES

0" 1"

ELECTRICAL SYMBOL LEGEND

1. EVERY SYMBOL SHOWN ON LEGEND MAY NOT APPEAR ON DRAWINGS.

CIRCUIT RELATED:

LIGHTING OR POWER CIRCUIT(S). ARROW INDICATES HOME RUN
NOTE: HOMERUN INDICATES INSTALLATION OF NEW WIRE AND CONDUIT (#12 WIRE, 3/4"C, UNLESS OTHERWISE NOTED) FROM SOURCE PANELBOARD TO LOAD. HOMERUN INDICATES CONNECTION OF NEW LOADS TO EXISTING CIRCUITS IN LIEU OF PANELBOARD WHERE NOTED ON PLANS.

JUNCTION BOX

GROUNDING FIXTURE

LIGHTING:

LED LIGHTING FIXTURE. LETTER INDICATES TYPE, SMALL LETTER INDICATES SWITCH CONTROL, NUMBER INDICATES CIRCUIT, CROSS HATCHING INDICATES FIXTURE ON EMERGENCY SYSTEM, FOR SOLID CIRCLE WITHIN FIXTURE REFERENCE APPROPRIATE CATEGORY "A" CIRCUIT RELATED SYMBOL

STRIP TYPE LED LIGHTING FIXTURE. LETTER INDICATES TYPE, SMALL LETTER INDICATES SWITCH CONTROL, NUMBER INDICATES CIRCUIT, FOR SOLID CIRCLE ATTACHED TO FIXTURE REFERENCE APPROPRIATE CATEGORY "A" CIRCUIT RELATED SYMBOL

LED LIGHTING FIXTURE. LETTER INDICATES TYPE, SMALL LETTER INDICATES SWITCH CONTROL, NUMBER INDICATES CIRCUIT, FOR SOLID CIRCLE REFERENCE APPROPRIATE CATEGORY "A" CIRCUIT RELATED SYMBOL

DESIGNATES FIXTURE ON EMERGENCY POWER. RE: LIGHTING PLAN NOTES AND FIXTURE SCHEDULE NOTES FOR ADDITIONAL INFORMATION

WALL OR BRACKET MOUNTED FIXTURE OR DEVICE

EXIT LIGHT FIXTURE. LETTER INDICATES TYPE, NUMBER INDICATES CIRCUIT, NUMBER AND LOCATION OF SHADED TRIANGLE SECTIONS INDICATE NUMBER OF EXIT SIGN FACES AND DIRECTION OF EACH FACE. PROVIDE CHEVRON DIRECTIONAL INDICATORS AS SHOWN ON DRAWINGS

CONTROL:

SWITCH. SMALL LETTER INDICATES FIXTURES CONTROLLED, "P" INDICATES PILOT LIGHT, "WP" INDICATES WEATHERPROOF, "K" INDICATES KEY POERATED, "MO" INDICATES SPDT MOMENTARY CONTACT, "2" INDICATES DPDT, "3" INDICATES 3-WAY, "4" INDICATES 4-WAY, "M" INDICATES MANUAL MOTOR STARTER, CIRCUIT DESIGNATION NEXT TO SWITCH INDICATES BRANCH CIRCUIT NUMBER

WALL BOX DIMMER SWITCH. "MARK" INDICATES WATTAGE IF OTHER THAN 600, "3D" INDICATES 3-WAY DIMMER

DUAL TECHNOLOGY CEILING MOUNTED OCCUPANCY SENSOR

CEILING MOUNTED RESTROOM OCCUPANCY SENSOR

CEILING MOUNTED CORRIDOR OCCUPANCY SENSOR

POWER OUTLETS:

20A-125V DUPLEX RECEPTACLE

20A-125V GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE. "WP" INDICATES WEATHER PROOF DEVICE

20A-125V DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER TOP. REFER TO ARCHITECT FOR EXACT HEIGHT ABOVE COUNTER

20A-125V FOURPLEX RECEPTACLE. SAME SYMBOLOGY AS DUPLEX RECEPTACLE

20A-125V FLUSH FLOOR DUPLEX RECEPTACLE. 20A WHEN INDICATED OR IF BRANCH CIRCUIT SERVES ONLY SINGLE DUPLEX. PROVIDE CARPED FLANGE WHERE APPLICABLE

LC1-X CIRCUIT DESIGNATION NEXT TO RECEPTACLE DEVICES INDICATES BRANCH CIRCUIT NUMBER. SEE PANEL SCHEDULES FOR INFORMATION.

EQUIPMENT:

+42" A NOTATION INDICATING THE MOUNTING HEIGHT OF A DEVICE AS MEASURED FROM FINISHED FLOOR OR GRADE TO CENTER LINE OF DEVICE

DISCONNECT SWITCH. FRAME SIZE/FUSE SIZE/POLES AS INDICATED, "NF" INDICATES NON-FUSIBLE. NEMA 1 ENCLOSURE UNLESS OTHERWISE NOTED. PROVIDE FUSED BUSWAY PLUG WHEN SWITCH IS INDICATED ON BUSWAY. ALL DISCONNECT SWITCHES SHALL BE 30/NF/3 UNLESS OTHERWISE NOTED

PANELBOARD

SWITCHBOARD / DP

TRANSFORMER

GROUNDING CONNECTION TO GROUNDING ELECTRODE AS DEFINED IN CEC ARTICLE 250

REMODEL:

(E) EQUIPMENT WITH "E" ADJACENT IS EXISTING TO REMAIN.

(R) EXISTING EQUIPMENT WITH "R" ADJACENT IS TO BE COMPLETELY DISCONNECTED AND REMOVED.

(RR) EXISTING EQUIPMENT WITH "RR" ADJACENT IS TO BE DISCONNECTED, REMOVED AND RELOCATED TO NEW LOCATION AND RECONNECTED AS REQUIRED.

(ER) EQUIPMENT WITH "ER" ADJACENT IS RELOCATED EQUIPMENT SHOWN IN NEW LOCATION.

NO TAG INDICATES NEW EQUIPMENT.

(E) PNL-CKT CIRCUIT DESIGNATION WITH PREFIX "(E)" DENOTES EXISTING CIRCUIT AND EQUIPMENT IS TO REMAIN.

GENERAL NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE INCLUDING ALL AREAS INDICATED ON THE DRAWINGS. HE SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND BY SUBMITTING A BID, ACCEPTS THE CONDITIONS UNDER WHICH HE SHALL BE REQUIRED TO PERFORM HIS WORK.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS AND ADDENDA (DRAWINGS AND SPECIFICATIONS.) HE SHALL CHECK THE CONTRACT DOCUMENTS OF THE OTHER TRADES AND DETERMINE HIS RESPONSIBILITIES. FAILURE TO DO SO SHALL NOT RELEASE THE CONTRACTOR FROM COMPLETING ALL RESPONSIBLE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. THE CONTRACTOR SECURE AND PAY FOR ALL PERMITS, FEES, CHARGES, AND INCIDENTAL COSTS NECESSARY FOR EXECUTION AND COMPLETION OF ELECTRICAL WORK, INCLUDING ALL CHARGES BY STATE, COUNTY AND LOCAL GOVERNMENTAL AGENCIES.
4. ALL ELECTRICAL WORK REFERENCED HEREIN SHALL BE COORDINATED WITH OTHER TRADES AND SITE CONDITIONS. ANY COSTS TO INSTALL WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE CONTRACT DOCUMENTS SHALL BE INCURRED BY THE CONTRACTOR, ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT DURING BID TIME FOR CLARIFICATION. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERPRETATION OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.
5. PROVIDE TEMPORARY POWER FACILITIES AND CONNECTIONS FOR ALL FEEDERS, BRANCH CIRCUITS OR SIGNAL AND COMMUNICATIONS SYSTEMS BEING DISCONNECTED IN ORDER TO MAINTAIN SYSTEMS IN OPERATION.
6. ALL INTERRUPTION OF ELECTRICAL POWER SHALL BE KEPT TO A MINIMUM. HOWEVER WHEN AN INTERRUPTION IS NECESSARY, THE SHUTDOWN MUST BE COORDINATED WITH THE OWNER AND ENGINEER 14 DAYS PRIOR TO THE OUTAGE AND OVERTIME PAY SHALL BE INCLUDED IN THE CONTRACTOR'S BID. WORK IN EXISTING SWITCHBOARDS OR PANEL BOARDS SHALL BE COORDINATED WITH THE OWNER PRIOR TO REMOVING ACCESS PANELS OR DOORS.
7. AFTER ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS HAVE BEEN FULLY COMPLETED. REPRESENTATIVES OF THE OWNERS WILL INSPECT THE WORK. THE CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM TO THE FULL SATISFACTION OF EACH REPRESENTATIVE, FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE OWNER AFTER RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCETANCE FROM EACH REPRESENTATIVE.
8. FURNISH A ONE YEAR WRITTEN GUARANTEE OF MATERIALS AND WORKMANSHIP FROM THE DATE OF PUNCH LIST COMPLETION.
9. ALL FINAL CONNECTIONS TO OWNER FURNISHED EQUIPMENT SHALL BE MADE BY THE CONTRACTOR.
10. EXACT METHOD AND LOCATION OF CONDUIT PENETRATION AND OPENINGS IN CONCRETE OR MASONARY WALLS, GRADEBEAMS, FLOORS OR STRUCTURAL STEEL MEMBER SHALL BE AS DIRECTED BY THE STRUCTURAL ENGINEER. PERFORM CORING, SAWCUTTING, PATCHING, AND REFINISHING OF WALLS AND SURFACES WHEREVER IT IS NECESSARY TO PENETRATE. OPENINGS SHALL BE SEALED IN AN APPROVED METHOD TO MEET THE FIRE RATING OF THE PARTICULAR WALL. FLOOR OR CEILING EXACT METHOD AND LOCATION OF CONDUIT PENETRATIONS AND OPENINGS IN CONCRETE WALLS OR FLOORS SHALL BE UL APPROVED.
11. FINAL CONNECTIONS TO VIBRATING EQUIPMENT AND AT SEISMIC SEPARATIONS SHALL BE FLEXIBLE STEEL CONDUIT IN DRY INTERIOR LOCATIONS, AND LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN AREAS EXPOSED TO WEATHER, DAMP LOCATIONS, CONNECTIONS TO TRANSFORMER ENCLOSURES, AND FINAL CONNECTIONS TO MOTORS.
12. EQUIPMENT OUTLETS, LIGHTING FIXTURES, CONDUIT, WIRE AND CONNECTION METHODS IN HVAC AIR-PLENUMS SHALL BE APPROVED FOR USE IN PLENUMS AND SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE.
13. ROUTE EXPOSED CONDUIT AND CONDUIT ABOVE ACCESSIBLE CEILING SPACES PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING, ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.
14. CONDUIT SHALL NOT BE INSTALLED IN ANY FLOOR SLAB. CONDUIT SHALL BE INSTALLED CONCEALED IN THE CEILING SPACE, CONCEALED WALLS, OR 24" MINIMUM BELOW SLAB ON GRADE UNLESS NOTED OTHERWISE.
15. LOCATE ELECTRICAL EQUIPMENT AND BOXES IN ACCESSIBLE CEILING SPACE OR PROVIDE AN ACCESS PANEL FOR INACCESSIBLE CEILING SYSTEMS. ACCESS DOORS SHALL BE A MINIMUM DIMENSION OF 24" x 24" ACCESS DOOR LOCATIONS SHALL SUIT ACCESSIBILITY AND CONSTRUCTION CONDITIONS. ACCESS DOORS SHALL HAVE A FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED.
16. COORDINATE REQUIRED ACCESS DOORS IN NON-ACCESSIBLE CEILING TO SUIT FIELD CONDITIONS. THE EXACT SIZES AND PHYSICAL LOCATIONS SHALL SUIT ACCESSIBILITY AND CONSTRUCTION CONDITIONS. ACCESS DOORS SHALL BE PROVIDED IN OTHER SECTIONS OF THE SPECIFICATIONS. ACCESS DOORS SHALL HAVE A FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED.
17. WHENEVER A DISCREPANCY OF ANY SYSTEM AND/OR EQUIPMENT ARISES ON THE CONTRACT DOCUMENTS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON THE DRAWINGS OR SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE OWNER AND ARCHITECT/ENGINEER.
18. STRAIGHT FEEDER BRANCH CIRCUIT AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS.
19. PANEL SCHEDULES SHALL BE REVISED TO REFLECT FINAL ROOM NAMES AND NUMBERS USING OWNER'S ROOM NAMES AND NUMBERS DESIGNATIONS. CONTRACTOR TO PROVIDE FINAL PANEL SCHEDULE TO EEOR AT COMPLETION OF PROJECT.
20. WHERE OUTLETS OCCUR AT TACKABLE WALL PANELS OR OTHER WALL FINISHES. PROVIDE EXTENSION RINGS AS REQUIRED SO THAT NO SPACE WILL EXIST BETWEEN DEVICE PLATE AND BACKBOX PER CALIFORNIA ELECTRICAL CODE 314.20 SEE ARCHITECTURAL ELEVATIONS FOR WALL FINISHES AND LOCATIONS.
21. COORDINATE LOCATIONS OF ALL SEISMIC SEPARATIONS.
22. ALL 120V POWER REQUIRED FOR THE FUNCTIONALITY OF ALL LOW VOLTAGE / TECHNOLOGY SYSTEMS SHALL BE A DEDICATED CIRCUIT AND ON EMERGENCY POWER WHEN AVAILABLE. CABLING CONTRACTOR SHALL COORDINATE ALL 120V POWER REQUIREMENTS AND LOCATIONS WITH ELECTRICAL CONTRACTOR FOR ALL EQUIPMENT.
23. SYSTEM WIRING AND EQUIPMENT INSTALLATION SHALL BE IN ACCORDANCE WITH GOOD ENGINEERING PRACTICES AS ESTABLISHED BY THE EIA AND THE CEC.
24. ALL AC POWER CABLES ARE TO BE INSTALLED WITH A MINIMUM OF 12 INCHES OF SEPARATION FROM TECHNOLOGY LOW VOLTAGE CABLES, INTERCOM, FIRE ALARM, SECURITY CABLES IN ANY PARALLEL OPEN WIRE RUN.
25. CONTRACTOR SHALL PROVIDE AND INSTALL ALL SLEEVES REQUIRED TO INSTALL ELECTRICAL OR COMMUNICATION CABLING THROUGH RATED WALLS. ALL CONDUIT SLEEVES SHALL HAVE PROTECTIVE BUSHING ON BOTH ENDS, BE DEDICATED FOR ELECTRICAL OR TEHCNOLOGY SYSTEMS ONLY AND SHALL NOT SHARE WITH OTHER BUILDING TRADES.
26. CONTRACTOR SHALL MAINTAIN WALL RATING WITH PROPER FIRE BLOCKING METHODS.
27. ALL CONDUCTORS SHALL BE UL LISTED, COPPER #12 MINIMUM SIZE, TYPE THHN/THWN THERMOPLASTIC, 600 VOLT, 75 DEGREES CELSIUS WET AND 90 DEGREES CELSIUS DRY, UNLESS NOTED OTHERWISE.
28. ALL CABLING SHALL BE ROUTED IN CONDUIT. SIZE CONDUIT AS REQUIRED TO ROUTE SYSTEMS WITH MAXIMUM 40% CABLE FILL. MINIMUM CONDUIT SIZE SHALL BE 3/4" INTERIOR & 1" EXTERIOR.
29. ALL CONDUIT STUB OUTS AND SLEEVES SHALL HAVE PROTECTIVE BUSHINGS TO PREVENT CABLE DAMAGE. BUSHING TO BE INSTALLED PRIOR TO CABLE INSTALLATION. CUTTING BUSHING AND INSTALLING AFTER CABLE IS INSTALLED WILL NOT BE ACCEPTED.

UTILITY PENETRATIONS NOTE

UTILITY PENETRATIONS OF ANY KIND IN FIRE AND SMOKE PARTITIONS AND CEILING ASSEMBLIES SHALL BE FIRESTOPPED AND SEALED WITH AN APPROVED UL LISTED SYSTEM OR MATERIAL.

STEEL ELECTRICAL OUTLET BOXES WHICH DO NOT EXCEED 16 SQUARE INCHES IN AREA, NEED NOT BE PROTECTED IN ONE HOUR OR TWO HOUR FIRE RATED WALLS, PARTITIONS, CEILING, OR AREA SEPARATION UNLESS THEY:

1. OCCUR ON OPPOSITE SIDES OF THE WALL WITHIN 24 INCH HORIZONTAL DISTANCE OF ONE ANOTHER IN THIS CASE , ONLY ONE OUTLET BOX NEEDS TO BE PROTECTED BY AN APPROVED FIRESTOP MATERIAL OR DETAIL TO CORRECT THIS CONDITION.
2. OCCUR IN COMBINATION WITH OUTLET BOXES OF ANY SIZE SUCH THAT THE AGGREGATE AREA OF UNPROTECTED OUTLET BOXES EXCEEDS 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL AREA IN THIS CASE, ONLY A SUFFICIENT NUMBER OF OUTLET BOXES NEED TO BE PROTECTED BY AN APPROVED MATERIAL OR DETAIL TO DECREASE THE AGGREGATE AREA OF UNPROTECTED UTILITY BOXES TO LESS THAN 100 SQUARE FEET OF WALL.

STEEL ELECTRICAL OUTLET BOXES WHICH EXCEED 16 SQUARE INCHES IN AREA, AND ALL OTHER STEEL UTILITY OUTLET BOXES REGARDLESS OF SIZE, SHALL BE PROTECTED BY AN APPROVED FIRESTOP MATERIAL AS LISTED OR EQUAL.

FIRESTOPPING MATERIAL:
MPP-1 MOLDABLE PUTTY PADS

3M CONTRACTOR PRODUCTS
MINNEAPOLIS,
MN 3M TEST REPORT NO. 1167
DATED AUGUST 21, 1987

FLAMESAFE FSP 1077 FIRESTOP PADS
INTERNATIONAL PROTECTIVE COATINGS
OAKHURST, NJ

FSP FIRESTOP PUTTY PADS
HEVI-DUTY NELSON PRODUCTS
TULSA, OK

STEEL UTILITY BOXES WHICH EXCEED 100 SQUARE INCHES IN AREA SHALL BE PROTECTED BY ENCASEMENT.

UTILITY AND ELECTRICAL OUTLETS OR BOXES SHALL BE SECURELY FASTENED TO THE STUD FRAMING OF THE WALL, PARTITION OR CEILING ASSEMBLY. THE OPENING IN THE GYPSUM BOARD FACING SHALL BE CUT SO THAT THE CLEARANCE BETWEEN THE BOX AND THE GYPSUM BOARD DOES NOT EXCEED 1/8 INCH IN SMOKE WALLS OR PARTITIONS, THE 1/8 INCH CLEARANCE SHALL BE FILLED WITH AN APPROVED FIRE-RATED SEALANT.

APPLICABLE CODES

PARTIAL LIST OF APPLICABLE CODES AS OF JANUARY 1, 2023.
2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
2022 ASME A17.1/CSA B44-13 SAFETY CODE FOR ELEVATORS AND ESCALATORS (PER 2019 CBC PART 2 CH 35)

NOTE: CAL/OSHA ELEVATOR UNIT ENFORCES CCR TITLE 8 AND USES THE 2004 ASME A17.1 BY ADOPTION

EQUIPMENT ANCHORAGE NOTES

MEP COMPONENT ANCHORAGE NOTES:

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC, SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTER 13, 26 AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRIC, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

1. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
2. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUND PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTION 1617A.1.24, 1617A.1.25, AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO START OF AND DURING THE HANGING AND BRACING OF DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☐ MD☐ PP☐ E☒ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES & DETAILS.

MP☐ MD☐ PP☐ E☐ OPTION 2: SHALL COMPLY WITH THE APPLICABLE HCAI PRE-APPROVAL (OPM #) #_____.

DRAWING INDEX

DIAGRAMMATIC NOTE

DRAWINGS ARE DIAGRAMMATIC AND DO NOT INDICATE DETAILED CONDUIT ROUTING OR LENGTHS REQUIRED FOR COMPLETE INSTALLATION. ROUTING OF RACEWAYS SHALL BE AT THE OPTION OF THE CONTRACTOR BUT SHALL BE IN STRICT COMPLIANCE WITH STRUCTURAL REQUIREMENTS, CONTRACT DOCUMENTS AND SPECS UNLESS OTHERWISE NOTED. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES. DO NOT SCALE THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL AND/OR MECHANICAL ITEMS OR FEATURES. REFER TO ARCHITECTURAL AND STRUCTURAL CONTRACT DOCUMENTS FOR FEATURES, REFER TO ARCHITECTURAL AND STRUCTURAL CONTRACT DOCUMENTS FOR DIMENSIONS.

DEVICE LOCATIONS NOTE

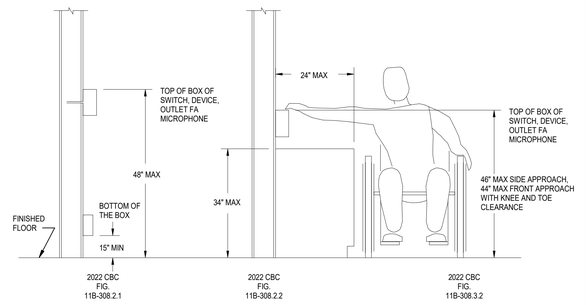
THE LOCATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL ELEVATIONS, DETAILS, OR SECTIONS PRIOR TO INSTALLATION. ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE RECESSED IN WALLS UNLESS OTHERWISE NOTED. OUTLETS NOT INDICATED ON ARCHITECTURAL ELEVATIONS SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ROUGH-IN, UNLESS OTHERWISE NOTED. ELECTRICAL DEVICES SHALL BE MOUNTED PER "ACCESSIBLE DEVICE MOUNTING HEIGHT" DETAIL.

COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT SUPPLY POWER AND MAKE CONNECTION TO MOTORS AND EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AS INDICATED ON THE SINGLE LINE DIAGRAM, ELECTRICAL DRAWINGS, AND DRAWINGS OF OTHER TRADES. REVIEW THE DRAWINGS OF OTHER TRADES FOR CONTROL DIAGRAMS, SIZE AND LOCATION OF EQUIPMENT, DISCONNECT SWITCHES, STARTERS, WIRING, CONTROLS, AND CONDUIT FOR MECHANICAL AND PLUMBING OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGHING IN ALL CONDUIT TO THIS EQUIPMENT.

STRUCTURAL NOTE

UNLESS SPECIFICALLY SHOWN ON THESE PLANS, STRUCTURAL MEMBERS SHALL NOT BE CUT, DRILLED, OR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DIVISION OF THE STATE ARCHITECT.

MOUNTING OVER OBSTRUCTION DETAIL



NOTE:

1. THIS DETAIL APPLIES TO MOUNTING OF ANY MECHANICAL AND ELECTRICAL DEVICE WHICH CONTAINS AN OPERABLE PART THAT IS ADJUSTABLE BY THE OCCUPANT. THIS DOES NOT APPLY TO SENSORS OR CONTROLS THAT ARE ONLY ADJUSTABLE THROUGH THE BUILDING AUTOMATION SYSTEM (IE: TEMPERATURE AND HUMIDITY SENSORS).

UL LISTINGS NOTE

ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATIES (UL) AND BEAR THEIR LABEL OR LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING AUTHORITY.

ALL EQUIPMENT/DEVICES INSTALLED RECESSED IN FIRE RATED CEILINGS OR WALLS SHALL BE ENCLOSED WITH AN APPROVED UL LISTED ENCLOSURE CARRYING THE SAME FIRE RATING AS THE CEILING OR WALL.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC: A
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

ARCHITECT PBK Architects, Inc.
PBK.com
RANCHO CUCAMONGA
8163 Rochester Avenue, Suite 100
Rancho Cucamonga
California 91730
P 909-987-0909

CONSULTANT LEAF Engineers

LEAF ENGINEERS
8163 Rochester Avenue, Suite 100
Rancho Cucamonga, CA 91730
909.987.0909
leafengineers.com

CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

MODULAR BLDG
A
B
400
300
KEY PLAN
NORTH: PLAN TRUE

Consultant
REGISTERED PROFESSIONAL ENGINEER
RONALD C DELA CRUZ
No. E 23576
Exp. 09-30-2025
ELECTRICAL
STATE OF CALIFORNIA

Architect
LICENSED ARCHITECT
Tong Yao
No. C-31162
REN. 10-31-2023
STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date

DSA Submittal

ELECTRICAL SYMBOLS, LEGENDS & GENERAL NOTES

E0.00

FILE PATH: Z:\Projects\...
10/5/2023 11:14:16 AM

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
This document is used to demonstrate compliance with requirements in 110.9, 110.12(c), 130.0, 130.1, 140.6 and 141.0(b)2 for indoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies. It is also used to document compliance with requirements in 160.5, 170.2(e) and 180.2(b)4 for indoor lighting scopes using the prescriptive path for multifamily occupancies. Multifamily includes dormitory and senior living facilities.	
Project Name: Corona Transportation	**Report Page:** (Page 1 of 7)
Project Address: 2820 Clark Ave. Norco CA. 92860	**Date Prepared:** 2023-05-12T15:17:42-04:00

A. GENERAL INFORMATION

01	Project Location (city)	Norco	04	Total Conditioned Floor Area (ft²)	1,440
02	Climate Zone	10	05	Total Unconditioned Floor Area (ft²)	0
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	1
● Classroom					

B. PROJECT SCOPE

This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.6 / 170.2(e) or 141.0(b)2 / 180.2(b)4 for alterations.

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)	Calculation Method	Area (ft²)
☐ New Lighting System	N/A	0	N/A	0
☐ New Lighting System - Parking Garage	N/A	0	N/A	0
☒ Altered Lighting System	Complete Building Method	1440	N/A	0
Total Area of Work (ft²)	1440			

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
Project Name: Corona Transportation	**Report Page:** (Page 4 of 7)
	Date Prepared: 2023-05-12T15:17:42-04:00

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

Area Level Controls

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Manual Area Controls 130.1(a) / 160.5(b)4A	Multi-Level Controls 130.1(b) / 160.5(b)4B	Shut-Off Controls 130.1(c) // 160.5(b)4C	Primary/Sky lit Daylighting 130.1(d) / 160.5(b)4D	Secondary Daylighting 130.1(d) / 160.5(b)4D	Interlocked Systems 140.6(a)1/ 170.2(e)2A	Field Inspector	
								Pass	Fail
Admin Office	Office	Readily Accessible	Dimmer	Occupancy Sensor	NA: <= 80 % LP (alt only)	NA: <= 80 % LP (alt only)	No	☐	☐
					13				
					Plan Sheet Showing Daylit Zones:				

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Each area complying using the Complete Building or Area Category Methods per 140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per 140.6(c) or adjustments per 140.6(a) are being used .

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft²)	Area (ft²)	Allowed Wattage (Watts)	Additional Allowance / Adjustment	
					Area Category	PAF
Admin Office	Office	0.6	1,440	864	No	No
		TOTALS:	1,440	864	See Tables J, or P for detail	

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM

This section does not apply to this project.

Registration Number: | Generated Date/Time: | Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: 107658-0523-0002 Report Generated: 2023-05-12 12:17:46

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
Project Name: Corona Transportation	**Report Page:** (Page 7 of 7)
Project Address: 2820 Clark Ave. Norco CA. 92860	**Date Prepared:** 2023-05-12T15:17:42-04:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Nicole Oropeza	Documentation Author Signature: Nicole Oropeza
Company: LEAF Engineers	Signature Date: 05-12-2023
Address: 8163 Rochester Ave.	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Rancho Cucamonga CA. 91730	Phone: (909) 987-0909

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Ronald Dela Cruz	Responsible Designer Signature: Ronald Dela Cruz
Company: LEAF Engineers	Date Signed: 05-12-2023
Address: 8163 Rochester Ave.	License: E 23576
City/State/Zip: Rancho Cucamonga CA. 91730	Phone: (909) 987-0909

Registration Number: | Generated Date/Time: | Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: 107658-0523-0002 Report Generated: 2023-05-12 12:17:46

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
Project Name: Corona Transportation	**Report Page:** (Page 2 of 7)
	Date Prepared: 2023-05-12T15:17:42-04:00

C. COMPLIANCE RESULTS

If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per 140.6(b)1 / 170.2(e)	Allowed Lighting Power per 140.6(b) / 170.2(e) (Watts)						Adjusted Lighting Power per 140.6(a) / 170.2(e) (Watts)				Compliance Results
	01	02	03	04		05	06	07		08	09
	Complete Building 140.6(c)1	Area Category 140.6(c)2 / 170.2(e)4	Area Category Additional 140.6(c)2G / 170.2(e)4Av (+)	Tailored 140.6(c)3 / 170.2(e)4B (+)	=	**Total Allowed** (Watts)	Total Designed (Watts)	Adjustments PAF Lighting Control Credits 140.6(a)2 / 170.2(e)1B (-)	=	**Total Adjusted** (Watts) *Includes Adjustments	**05 must be >= 08 140.6 / 170.2(e)**
	(See Table I)	(See Table I)	(See Table J)	(See Table K)			(See Table F)	(See Table P)			
Conditioned	864				=	864	≥ 644.7		=	644.7	COMPLIES
Unconditioned					=		≥		=		
								Controls Compliance (See Table H for Details)			COMPLIES
								Rated Power Reduction Compliance (See Table Q for Details)			

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Registration Number: | Generated Date/Time: | Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: 107658-0523-0002 Report Generated: 2023-05-12 12:17:46

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
Project Name: Corona Transportation	**Report Page:** (Page 5 of 7)
	Date Prepared: 2023-05-12T15:17:42-04:00

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

This section does not apply to this project.

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY

This section does not apply to this project.

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING

This section does not apply to this project.

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED DECORATIVE /SPECIAL EFFECTS

This section does not apply to this project.

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE

This section does not apply to this project.

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))

This section does not apply to this project.

Q. RATED POWER REDUCTION COMPLIANCE FOR ONE-FOR-ONE ALTERATIONS

This section does not apply to this project.

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS

This section does not apply to this project.

Registration Number: | Generated Date/Time: | Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: 107658-0523-0002 Report Generated: 2023-05-12 12:17:46

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
Project Name: Corona Transportation	**Report Page:** (Page 3 of 7)
	Date Prepared: 2023-05-12T15:17:42-04:00

F. INDOOR LIGHTING FIXTURE SCHEDULE

This table includes all planned permanent and portable lighting other than dwelling unit/ hotel/ motel room lighting. Multifamily dwelling unit and hotel/motel room lighting is documented in Table T. If using Table T to document lighting in multifamily common use areas providing shared provisions for living, eating, cooking or sanitation, those luminaires are not included here.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How is Wattage determined	Total Number of Luminaires	Excluded per 140.6(a)3 / 170.2(e)2C	Design Watts	Field Inspector	
									Pass	Fail
A	2X4 Troffer	No	NA	30.7	Mfr. Spec	21	No	644.7	☐	☐
							Total Designed Watts: CONDITIONED SPACES	644.7		

[1]*FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per 140.6(a)4B / 170.2(e)2D is adjusted to be 75% /80% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.*

[2]*Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b). Wattage used must be the maximum rated for the luminaire, not the lamp.*

G. MODULAR LIGHTING SYSTEMS

This section does not apply to this project.

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

This table includes lighting controls for conditioned and unconditioned spaces.

Building Level Controls

01	02	03	
		Field Inspector	
		Pass	Fail
Mandatory Demand Response 110.12(c)	Shut-off controls 130.1(c) / 160.5(b)4C	☐	☐
NA < 4,000W subject to multilevel	See Area/Space Level Controls		

Registration Number: | Generated Date/Time: | Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: 107658-0523-0002 Report Generated: 2023-05-12 12:17:46

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
Project Name: Corona Transportation	**Report Page:** (Page 6 of 7)
	Date Prepared: 2023-05-12T15:17:42-04:00

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)

This section does not apply to this project.

T. DWELLING UNIT LIGHTING

This section does not apply to this project.

U. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selections have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-LTI-E - Must be submitted for all buildings

V. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selections have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "-A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified
NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	Admin Office

Registration Number: | Generated Date/Time: | Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: 107658-0523-0002 Report Generated: 2023-05-12 12:17:46

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CONSULTANT LEAF Engineers
LEAF ENGINEERS
8163 Rochester Avenue, Suite 100
Rancho Cucamonga, CA 91730
909.987-0909
leafengineers.com

CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

MODULAR BLDG
A
B
400
300
KEY PLAN
NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER
RONALD C DE LA CRUZ
No. E 23576
Exp: 09-30-2025
ELECTRICAL
STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT
Yong Yoo
No. C-31162
REN: 10-31-2023
STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date

DSA Submittal

ELECTRICAL TITLE 24

E0.01

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
This document is used to demonstrate compliance with requirements in 110.9, 130.0, 130.2, 140.7, and 141.0(b)2i for outdoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies. It is also used to document compliance with requirements in 160.5, 170.2(e)6, 180.1(a) and 180.2(b)4Bv for outdoor lighting scopes using the prescriptive path for multifamily and mixed-use occupancies. Multifamily includes dormitory and senior living facilities.	
Project Name: Corona Transportation	**Report Page:** (Page 1 of 7)
Project Address: 2820 Clark Ave. Norco CA. 92860	**Date Prepared:** 2023-05-12T15:27:21-04:00

A. GENERAL INFORMATION

01	Project Location (city)	Norco	04	Total Illuminated Hardscape Area (ft²)	100
02	Climate Zone	10			
03	Outdoor Lighting Zone per Title 24 Part 1	10.114 or as designated by Authority Having Jurisdiction (AHJ):			
☐	LZ-0: Very Low - Undeveloped Parkland	☐ LZ-2: Moderate - Urban Clusters	☐ LZ-4: High - Must be reviewed by CA Energy Commission for Approval		
☐	LZ-1: Low - Rural Areas	☒ LZ-3: Moderately High - Urban Areas			
05	Occupancy Types within Project				
● Office					

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.7 / 170.2(e)6 or 141.0(b)2i / 180.2(b)4Bv for alterations.

My Project Consists of:

01	02		
☐	New Lighting System	Must Comply with Allowances from 140.7 / 170.2(e)6	
☒	Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)?	○ Yes ● No
03		04	05
% of Existing Luminaires Being Altered[1]		Sum Total of Luminaires Being Added or Altered	Calculation Method
☐ < 10% ☐ >= 10% and < 50% ☒ >= 50%		4	Calculated Allowance per 140.7 / 170.2(e)6

[1] *FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.*

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
Project Name: Corona Transportation	**Report Page:** (Page 2 of 7)
	Date Prepared: 2023-05-12T15:27:21-04:00

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through N. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) 140.7 / 170.2(e)6 or 141.0(b)2i / 180.2(b)4Bv												Compliance Results		
01		02		03	04		05		06		07		08	09
General Hardscape Allowance 140.7(d)1 / 170.2(e)6 (See Table I)	+	Per Application 140.7(d)2 / 170.2(e)6 (See Table J)	+	Sales Frontage 140.7(d)2 (See Table K)	+	Ornamental 140.7(d)2 / 170.2(e)6 (See Table L)	+	Per Specific Area 140.7(d)2 / 170.2(e)6 (See Table M)	OR	Existing Power Allowance 141.0(b)2L / 180.2(b)4Bv (See Table N)	=	**Total Allowed** (Watts)	≥	**Total Actual** (Watts)	**07 must be >= 08**
266.39	+	72	+	---	+	---	+	---	OR	---	=	338.4	≥	72	COMPLIES
Shielding Compliance (See Table G for Details)															N/A
Controls Compliance (See Table H for Details)															---

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
Project Name: Corona Transportation	**Report Page:** (Page 3 of 7)
	Date Prepared: 2023-05-12T15:27:21-04:00

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

For new or altered lighting systems demonstrating compliance with 140.7 / 170.2(e)6 all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per 141.0(b)2i only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included). Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

Designed Wattage:

01	02		03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description		Watts per luminaire[1,2]	How is Wattage determined	Total Number Luminaires[2]	Luminaire Status[3]	Excluded per 140.7(a) / 170.2(e)6A	Design Watts	Cutoff Req. > 6,200 initial lumen output 130.2(b) / 160.5(c)1[4]	Field Inspector	
										Pass	Fail
W	Wallpack	☐ Linear	18	Mfr. Spec	4	Existing Alteration	☐	72	NA: < 6200 lumens	☐	☐
							Total Design Watts:	72			

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.
EX: Luminaire is lighting a statue; EXCEPTION 2 to 130.2(b)

[1] *FOOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b)*
[2] *For linear luminaires, wattage should be indicated as W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.*
[3] *Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.*
[4] *Compliance with mandatory shielding requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by 130.2(b)/ 160.5(c)*

G. SHIELDING REQUIREMENTS (BUG)

This section does not apply to this project.

H. OUTDOOR LIGHTING CONTROLS

This section does not apply to this project.

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
Project Name: Corona Transportation	**Report Page:** (Page 4 of 7)
	Date Prepared: 2023-05-12T15:27:21-04:00

I. LIGHTING POWER ALLOWANCE (per 140.7 / 170.2(e))

This table includes areas using allowance calculations per 140.7 / 170.2(e). General Hardscape Allowance is per Table 140.7-A/Table 170.2-R while "Use it or lose it" Allowances are per Table 140.7-B /Table 170.2-S. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance. Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

	01				
	"Use it or lose it" Allowance (select all that apply) (select all that apply)				
	☒ General Hardscape Allowance Table I (below)	☒ Per Application Table J	☐ Sales Frontage Table K	☐ Ornamental Table L	☐ Per Specific Area Table M

Calculated General Hardscape Lighting Power Allowance per Table 140.7-A for Nonresidential & Hotel/Motel

02	03	04	05	06	07	08	09
Area Description	Area Wattage Allowance (AWA)			Linear Wattage Allowance (LWA)			Total General AWA + LWA (Watts)
	Illuminated Area (ft²)	Allowed Density (W/ft²)	Area Allowance (Watts)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (Watts)	
Entrance/Exit	400	0.021	8.4	40	0.2	8	16.39
Initial Wattage Allowance for Entire Site (Watts):							250
Instances of Initial Wattage Allowance (LZ 0 only)[1]							
Total General Hardscape Allowance (Watts):							266.39

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
Project Name: Corona Transportation	**Report Page:** (Page 5 of 7)
	Date Prepared: 2023-05-12T15:27:21-04:00

J. LIGHTING ALLOWANCE: PER APPLICATION

This table includes areas using the wattage allowance per application from Table 140.7-B / Table 170.2-S.

01	02	03	04	05	06	07	08	09	10
		CALCULATED ALLOWANCE (Watts)			DESIGN WATTS				
Area Description	Application per Table 140.7-B[1]	# of Locations	Allowance per Location[2]	Extra Allowance (Watts)	Luminaire Name or Item Tag	Watts per Luminaire	# of Luminaires	Design Watts	Additional Allowance (Watts)
Egress	Building Entrance/Exit	4	19	76	W	18	4	72	72
						Total Design Watts for this Area:		72	
						Total Allowance (Watts) All Areas:		72	

[1] *FOOTNOTES: Primary entrance applications are only available for senior care facilities, healthcare facilities, police stations, hospitals, fire stations, and emergency vehicle facilities.*
[2] *The Allowance per Location for ATMs is 100W for the first ATM and 35W for each additional per Table 140.7-B /Table 170.2-S.*
[3] *For luminaires indicated in Table F as linear, wattage in column 07 is W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 08 instead of number of luminaires.*

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
Project Name: Corona Transportation	**Report Page:** (Page 6 of 7)
	Date Prepared: 2023-05-12T15:27:21-04:00

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-LTO-E - Must be submitted for all buildings

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

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Form/Title	Systems/Spaces To Be Field Verified
NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
Project Name: Corona Transportation	**Report Page:** (Page 7 of 7)
Project Address: 2820 Clark Ave. Norco CA. 92860	**Date Prepared:** 2023-05-12T15:27:21-04:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Nicole Oropeza	Documentation Author Signature: Nicole Oropeza
Company: LEAF Engineers	Signature Date: 05-12-2023
Address: 8163 Rochester Ave.	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Rancho Cucamonga CA. 91730	Phone: (909) 987-0909

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Ronald Dela Cruz	Responsible Designer Signature:
Company: LEAF Engineers	Date Signed: 05-12-2023
Address: 8163 Rochester Ave.	License: E 23576
City/State/Zip: Rancho Cucamonga CA. 91730	Phone: (909) 987-0909

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

ARCHITECT PBK Architects, Inc. PBK.com
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Rancho Cucamonga
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P 909-987-0909

CONSULTANT LEAF Engineers
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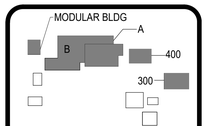
leafengineers.com

CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9



Consultant

REGISTERED PROFESSIONAL ENGINEER
RONALD C DELA CRUZ
No. E 23576
Exp. 09-30-2025
ELECTRICAL
STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT
Yong Yoo
No. C-31162
REN. 10-31-2023
STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date
	DSA Submittal	

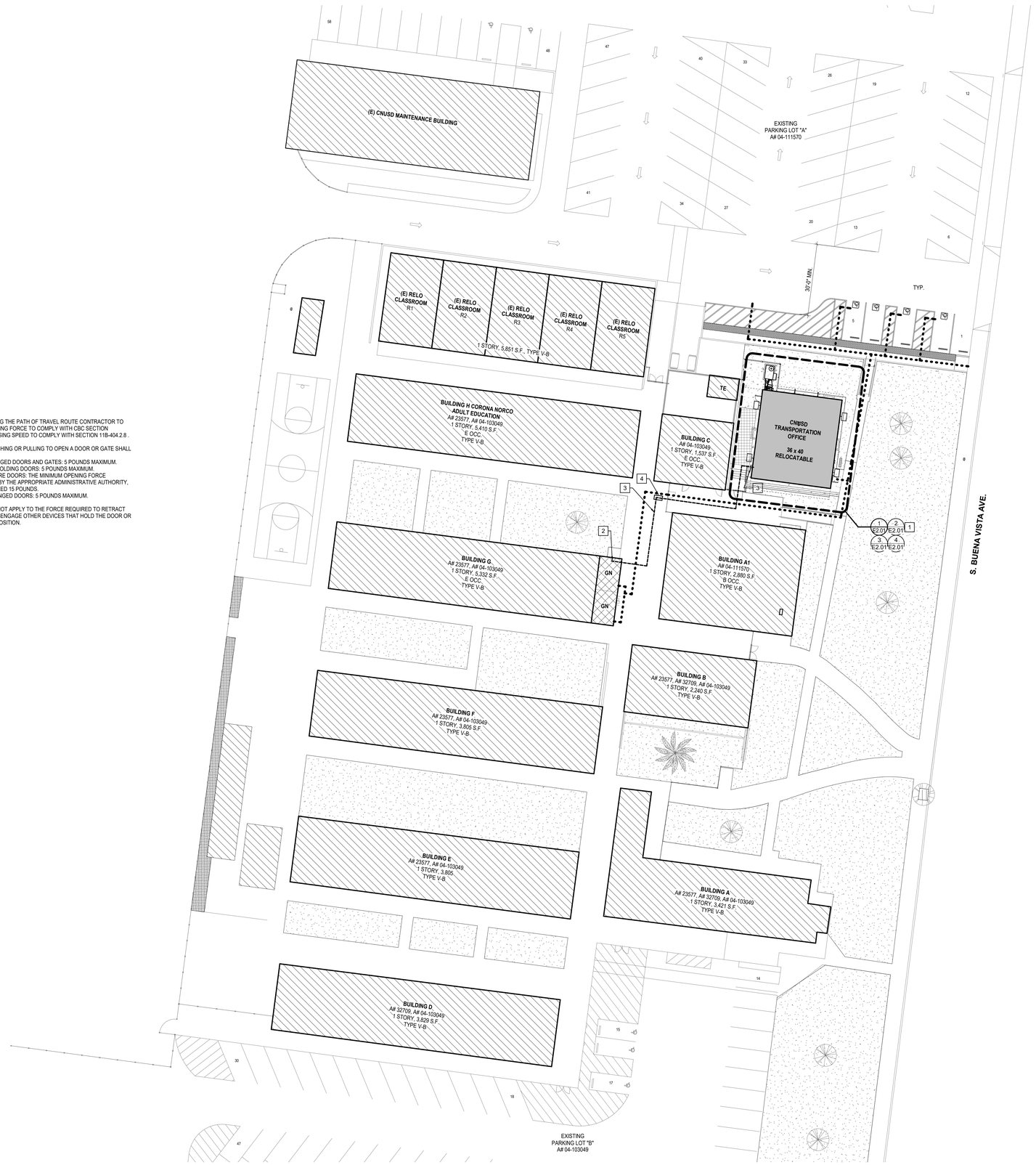
ELECTRICAL TITLE 24

E0.02

E1.01 - ELECTRICAL SITE PLAN

0" 1"

25
G0.05



NOTE:

FOR (E) GATES ALONG THE PATH OF TRAVEL ROUTE CONTRACTOR TO ADJUST DOOR OPENING FORCE TO COMPLY WITH CBC SECTION 11B-404.2.9 AND CLOSING SPEED TO COMPLY WITH SECTION 11B-404.2.8 .

THE FORCE FOR PUSHING OR PULLING TO OPEN A DOOR OR GATE SHALL BE AS FOLLOWS:

1. INTERIOR HINGED DOORS AND GATES: 5 POUNDS MAXIMUM.
2. SLIDING OR FOLDING DOORS: 5 POUNDS MAXIMUM.
3. REQUIRED FIRE DOORS: THE MINIMUM OPENING FORCE ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY, NOT TO EXCEED 15 POUNDS.
4. EXTERIOR HINGED DOORS: 5 POUNDS MAXIMUM.

THESE FORCES DO NOT APPLY TO THE FORCE REQUIRED TO RETRACT LATCH BOLTS OR DISENGAGE OTHER DEVICES THAT HOLD THE DOOR OR GATE IN A CLOSED POSITION.

GENERAL NOTES

1. COORDINATE ROUTING FOR ALL UNDERGROUND ELECTRICAL BRANCH CIRCUITS AND FEEDERS WITH OTHER DISCIPLINES PRIOR TO TRENCHING.
2. UNLESS NOTED OTHERWISE ALL UNDERGROUND CONDUIT SHOWN ON THIS PLAN TO BE MINIMUM 1" IN SIZE.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES CAUSED BY INSTALLATION OF NEW WORK. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION PRIOR TO EXECUTION OF WORK.

KEY NOTES

1. SCOPE OF WORK
2. APPROXIMATE LOCATION OF EXISTING PANEL DB4A. PROVIDE NEW CIRCUIT BREAKER AND FEEDER FROM THIS PANEL TO SERVE THE NEW TRANSPORTATION BUILDING OFFICE. SEE SINGLE LINE DIAGRAM ON SHEET E7.01 FOR ADDITIONAL INFORMATION.
3. PROVIDE NEW UNDERGROUND FEEDER FROM (E) PANEL. STUB-UP CONDUIT ON EXTERIOR OF BUILDING AND PROVIDE NEW 12"X12"X6" NEMA-3R PULLBOX AT PANEL HEIGHT LEVEL. STUB-THRU BUILDING AND CONNECT TO (E) PANEL IN BUILDING.
4. PROVIDE 17"X30"XDEPTH REQUIRED IN-GROUND PULLBOX WITH TRAFFIC RATED COVER.

1 SITE PLAN
1" = 20'-0"

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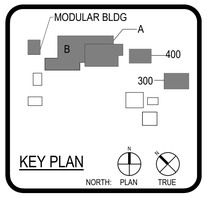
DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



KEY PLAN
NORTH: PLAN TRUE

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REN. 10-31-2023
STATE OF CALIFORNIA

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CORONA-NORCO USD

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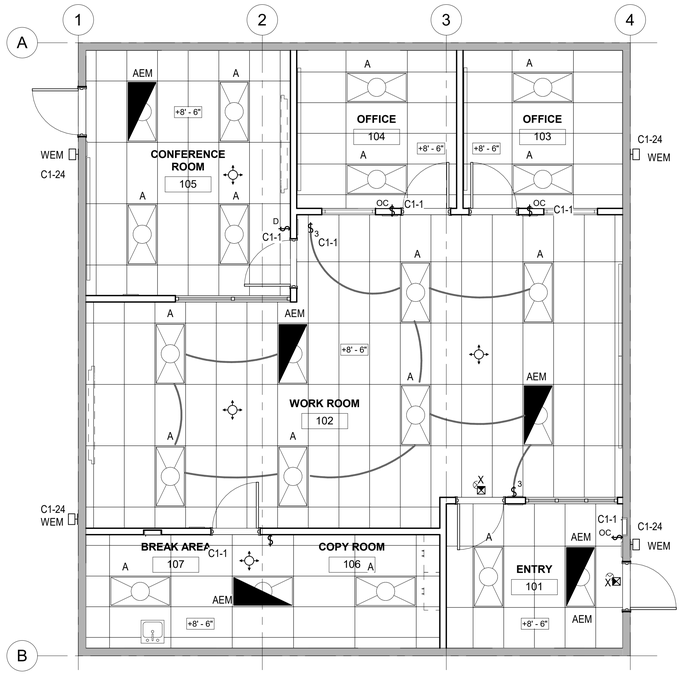
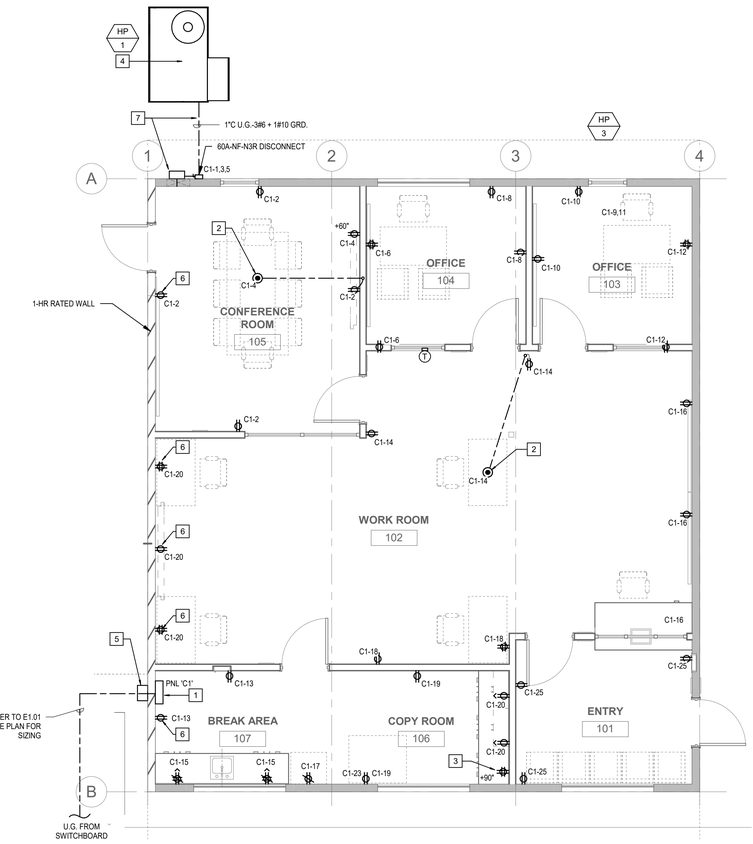
ELECTRICAL SITE PLAN

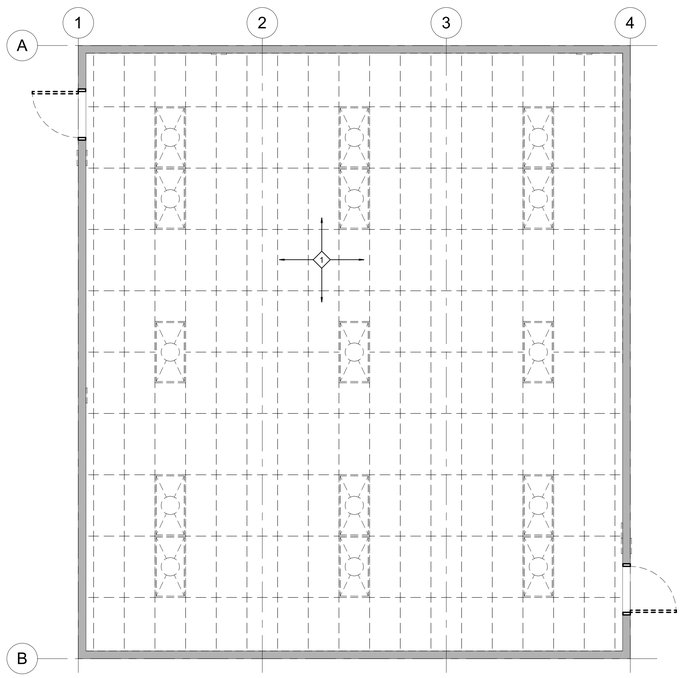
E1.01



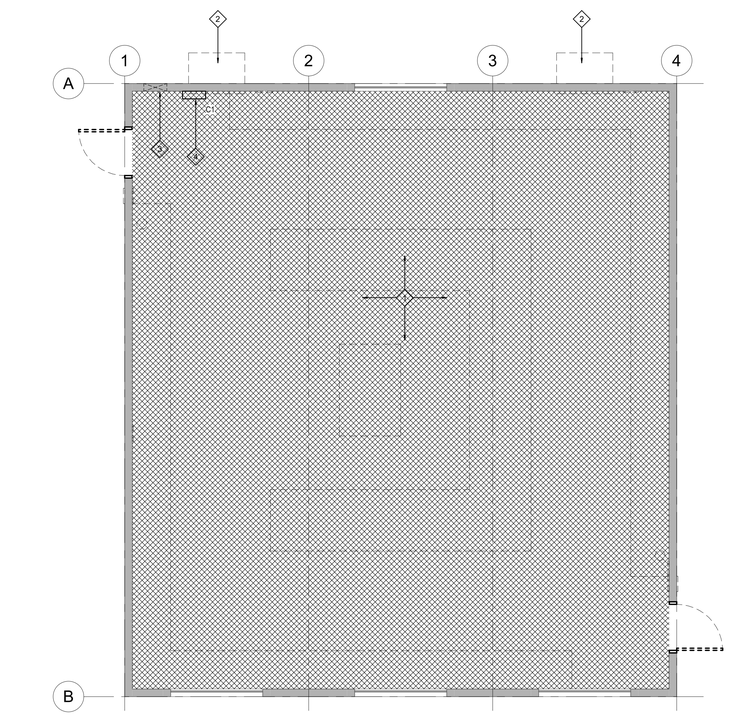
4 PROPOSED LIGHTING PLAN
1/4" = 1'-0"



2 PROPOSED FLOOR PLAN
1/4" = 1'-0"



3 DEMOLITION LIGHTING PLAN
1/4" = 1'-0"



1 DEMOLITION FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES

1. UNLESS NOTED OTHERWISE, ALL 2X4'S ARE TYPE 'A', ALL EXIT SIGNS ARE TYPE 'X', AND ALL WALLPACKS ARE TYPE 'W'.
2. "EM" INDICATES FIXTURES ARE DESIGNATED TO BE ON EMERGENCY AND SHALL RECEIVE INTEGRAL BATTERY PACKS. PROVIDE UNSWITCHED HOT TO NEUTRAL SUCH THAT FIXTURES MAY BE SWITCHED ON/OFF WITHOUT DRAINING BATTERY.
3. PROVIDE DEDICATED AND UNSWITCHED CIRCUIT TO ALL EXIT SIGNS IN THE BUILDING. REFER TO PANEL SCHEDULE.
4. PROVIDE TITLE-24 COMPLIANT LIGHTING CONTROL, INCLUDING BUT NOT LIMITED TO SENSORS, DIMMERS, POWERPACKS, AND ALL LOW VOLTAGE AND LINE VOLTAGE WIRING FOR A COMPLETE AND OPERATIONAL SYSTEM. BASIS OF DESIGN IS NLIGHT ACUITY CONTROLS.

KEY NOTES

1. RELOCATED PANEL 'C1'. SEE DETAIL 2/E6.01 FOR MOUNTING. ALL CIRCUITS MUST ORIGINATE FROM THIS PANEL.
2. PROVIDE 4-GANG FLOORBOX WITH (2) DUPLEX RECEPTACLE, AND (2) GANG FOR DATA. COORDINATE DATA DROP REQUIREMENTS WITH TECHNOLOGY DRAWINGS. ROUTE (1) 3/4" CONDUIT FOR POWER AND (1) 2" CONDUIT FOR DATA, TO NEAREST FULL HEIGHT WALL AND UP TO ACCESSIBLE PLENUM SPACE.
3. PROVIDE POWER TO NEW IDF RACK. COORDINATE EXACT LOCATION AND MOUNTING WITH LOW VOLTAGE CONTRACTOR INSTALLING THIS SYSTEM.
4. PROVIDE 208/3-PH POWER TO NEW HEAT PUMP UNIT. ROUTE NEW 1" CONDUIT WITH 3#6, # 10GRD, FROM PANEL 'C1'. PROVIDE NEW CIRCUIT BREAKER AS SHOWN ON PANEL SCHEDULE. SHEET E5.01.
5. INSTALL WALL MOUNTED PULLBOX, NEMA 3R, 12"x12"X8". SEE DETAIL 4/E6.01 FOR MOUNTING ELEVATION, AND DETAIL 8/E6.01 FOR CONDUIT PENETRATION FIRE STOP DETAIL. CONTRACTOR SHALL VERIFY EXACT MOUNTING HEIGHT AND LOCATION IN FIELD.
6. RECEPTACLES RECESSED IN 1-HR RATED WALL. ELECTRICAL BOXES SHALL BE LISTED AND TESTED FOR USE IN A 1-HR FIRE RATED ASSEMBLY AND SHALL COMPLY WITH CBC 714.4.2. REFER TO 7/E6.01 FOR ADDITIONAL DETAIL.
7. INSTALL WALL MOUNTED PULLBOX AT ABOVE CEILING LEVEL, NEMA 3R, 12"x12"X8" WITH WEATHERTIGHT FITTINGS. ROUTE 1"CONDUIT FROM (E) PANEL ABOVE CEILINGS THRU WALL TO THE PULLBOX, FROM PULLBOX DOWN TO A NEW LOCAL DISCONNECT AT 42" AFF TO CENTER, CONTINUE UNDERGROUND TOTHE HVAC UNIT AS SHOWN.

DEMOLITION KEY NOTES

1. EXISTING LIGHT FIXTURES, SWITCHES, CONTROLS, RECEPTACLES, AND ASSOCIATED BRANCH CIRCUIT WIRING AND CONDUITS IN WALLS OR CEILINGS TO BE DEMOLISHED BACK TO THE SOURCE PANEL.
2. EXISTING BARD UNITS AND ASSOCIATED BRANCH CIRCUIT WIRING TO BE DEMOLISHED BACK TO SOURCE PANEL.
3. EXISTING RECESSED MOUNTED PANEL AND ASSOCIATED FEEDER AND BRANCH CIRCUIT WIRING AND CONDUITS TO BE DEMOLISHED IN ITS ENTIRETY.
4. EXISTING PANEL 'C1' TO BE SALVAGED. DISCONNECT AND REMOVE ASSOCIATED FEEDER AND BRANCH CIRCUIT WIRING. PANEL TO BE RELOCATED AT NEW LOCATION AS SHOWN ON 2/E2.01.

FLOOR PLAN LEGEND

EXISTING WOOD STUD WALL TO REMAIN. EXTERIOR PLYWOOD & SIDING TO BE REMOVED AND REPLACED, PROVIDE 7/8" STUCCO EXTERIOR FINISH - PER ARCHITECT

EXISTING WOOD STUD WALL TO REMAIN. EXTERIOR PLYWOOD & SIDING TO BE REMOVED AND REPLACED, PROVIDE 7/8" STUCCO EXTERIOR FINISH **1-HR WALL CONSTRUCTION** - PER ARCHITECT

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DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

MODULAR BLDG
A
B
400
300
KEY PLAN
NORTH: PLAN TRUE

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ELECTRICAL FLOOR & LIGHTING PLANS

E2.01

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LIGHT FIXTURE SCHEDULE					
TYPE	**DESCRIPTION**	**VOLTAGE**	**MOUNTING**	**MANUFACTURER & NO.**	**REMARKS**
A	2X4 TROFFER	MVOLT	RECESSED	LITHONIA STAKP 2X4 80CRI 4000LM 80CRI 40K COL MIN10 ZR MVOLT	
AEM	2X4 TROFFER	MVOLT	RECESSED	LITHONIA LIGHTING SAME AS TYPE 'A' EXCEPT BATTERY BACKUP	PROVIDE WITH E10WLCP EM BATTERY PACK
WEM	WALLPACK	MVOLT	SURFACE	LITHONIA LIGHTING WDGE2 LED P2 40K 80CRI TFTM MVOLT SRM PIR1FC3V	PROVIDE WITH E14WC EM BATTERY PACK FINISH BY ARCHITECT
XEM	EXIT SIGN	MVOLT	SURFACE	LITHONIA LE S W 3 R MVOLT EL N SD	FINISH BY ARCHITECT

1 LIGHT FIXTURE SCHEDULE
NOT TO SCALE

Job:CNUSD Transporation Office — Job No.230010

Mounting:**SURFACE** — Voltage: **208Y/120V-3PH 4W** — AIC Rating:**10000**

Main Type:**MCB (100A)** — Main Size: **250 AMPS** — Ground:**Equipment Ground**

Neutral:**100%** — Lugs:**SINGLE**

PANEL: **C1**

									ALL LOADS IN VA																	
Ltg.	Recept	Motor	Heat	Cool	Other	Kitchen	S/S	Description	Amp/P	Wire	Cir. No.	Ph	Cir. No.	Wire	Amp/P	Description	Ltg.	Recept	Motor	Heat	Cool	Other	Kitchen	S/S
		3718						HP-1**	**50/3**	6	**1**	**A**	**2**	12	20/1	Conf. Rm 105 Rec.		720						
		3718						-----	**--/3**	6	**3**	**B**	**4**	12	20/1	Conf. Rm 105 Rec.		540						
		3718						-----	**--/3**	6	**5**	**C**	**6**	12	20/1	Office 104 Rec.		540						
20								EXIT SIGNS	20/1	12	**7**	**A**	**8**	12	20/1	Office 104 Rec.		360						
								SPARE	20/1		**9**	**B**	**10**	12	20/1	Office 103 Rec.		360						
								SPARE	20/1		**11**	**C**	**12**	12	20/1	Office 103 Rec.		540						
	360							Break Rm 107 Rec.	20/1	12	**13**	**A**	**14**	12	20/1	WorkRoom 102 Rec.		720						
	720							Break Rm 107 Rec.	20/1	12	**15**	**B**	**16**	12	20/1	WorkRoom 102 Rec.		720						
	800							Break Rm 107 Refrig.	20/1	12	**17**	**C**	**18**	12	20/1	WorkRoom 102 Rec.		540						
	360							Copy Rm 106 Rec.	20/1	12	**19**	**A**	**20**	12	20/1	WorkRoom 102 Rec.		900						
	360							Copy Rm 106 Rec.	20/1	12	**21**	**B**	**22**	12	20/1	Lighting	697							
					1500			IDF Rack	20/1	12	**23**	**C**	**24**	12	20/1	Ext. Lighting	72							
	540							Entry Rec.	20/1	12	**25**	**A**	**26**			Space								
								Space	20/1		**27**	**B**	**28**			Space								
								Space	20/1		**29**	**C**	**30**			Space								
20	3140	11154	0	0	1500	0	0.00	**TOTALS**								**TOTALS**	769	5940	0	0	0	0	0	0.00

LOAD SUMMARY

Ltg.	Recept	Motor	Heat	Cool	Other	Kitchen	S/S	Description
0.8	9.1	11.2	0.0	0.0	1.5	0.0	0.0	Connected KVA
1.25	**	1.00	1.00	1.00	1.00	0.65	0.50	*Design Factors
1.0	9.1	11.2	0.0	0.0	1.5	0.0	0.0	Design KVA

*Input div. factor per descriptions as required for calculations.
**100% of 1st 10 KVA, 50% of remaining.

Phase Load

Ph	KVA
A	7.7
B	7.1
C	7.7

Panel Remarks:

EXISTING PANEL
All breakers are (E) to remain U.N.O.
** PROVIDE NEW BREAKER FOR HP-1

	Con. KVA	Con. Amps		Des. KVA	Des. Amps
TOTAL	22.5	62.5		22.7	63.1

PANEL: **C1**

Date: 5/17/2023 — By: N.OROPEZA

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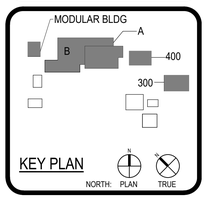

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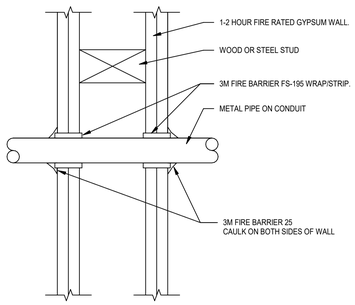
ELECTRICAL PANEL SCHEDULES

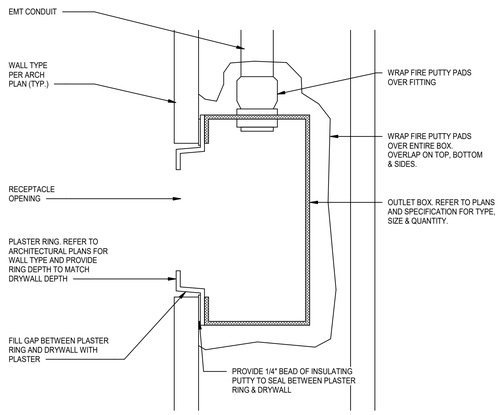
E5.01

0" 1"



SYSTEM NO. W-L-2003

8 CONDUIT PENETRATION FIRE STOP "1-2 HOUR" GYP WALL DETAIL
NOT TO SCALE

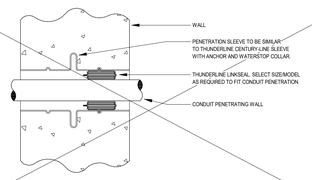


SPECIAL NOTE:
FIRE PUTTY IS NOT REQUIRED IF ONLY ONE BOX IS INSTALLED ON EITHER SIDE OF 100 SF OF WALL.

NOTE:
REFER TO GENERAL NOTE 25 ON SHEET E0.00 AND ALSO ON UTILITY PENETRATION NOTES ON SHEET E0.00 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

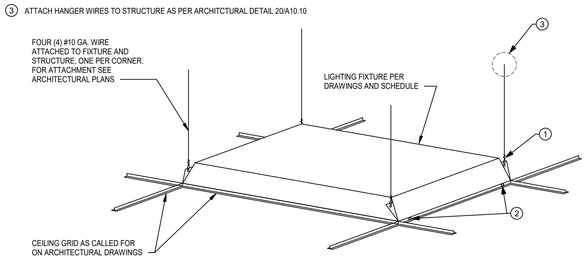
7 FIRE RATED PARTITION INSTALLATION DETAIL
NOT TO SCALE

NOT USED

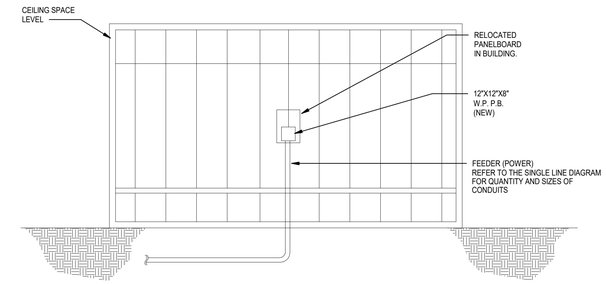


6 CONDUIT PENETRATION DETAIL - EXTERIOR WALL
NOT TO SCALE

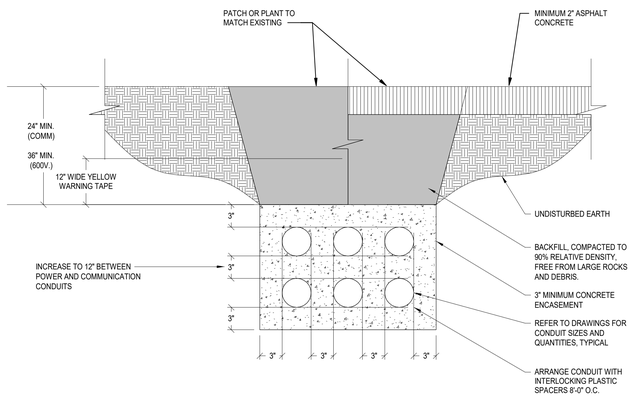
KEY NOTES:
1. ATTACH WIRE TO FIXTURE (3 TIGHT TURNS MIN. IN 1½" MAX.)
2. MIN #8 "TEK" SCREW GRID TO FIXTURE @ EACH CORNER.
3. ATTACH HANGER WIRES TO STRUCTURE AS PER ARCHITCTURAL DETAIL 20/A10.10



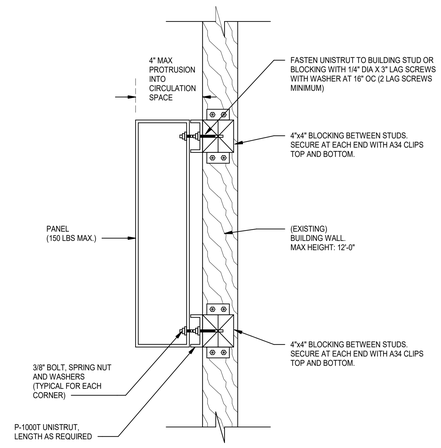
5 RECESSED FIXTURE IN LAY-IN GRID DETAIL
NOT TO SCALE



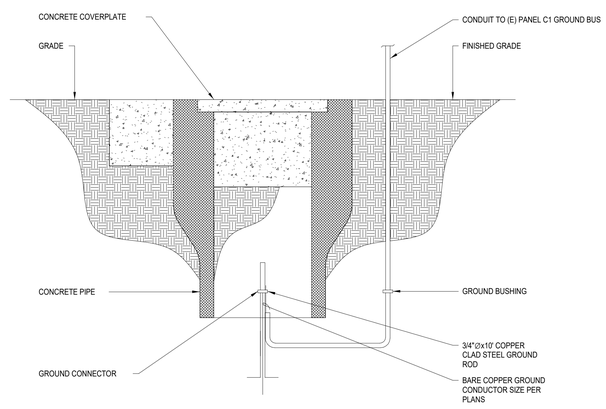
4 PORTABLE BUILDING POWER CONNECTION DETAIL
NOT TO SCALE



3 TYPICAL MULTI-CONDUIT PLACEMENT DETAIL
NOT TO SCALE



2 SURFACE MOUNTED PANEL/CABINET AT WOOD FRAMING DETAIL
NOT TO SCALE



1 GROUND ROD DETAIL
NOT TO SCALE

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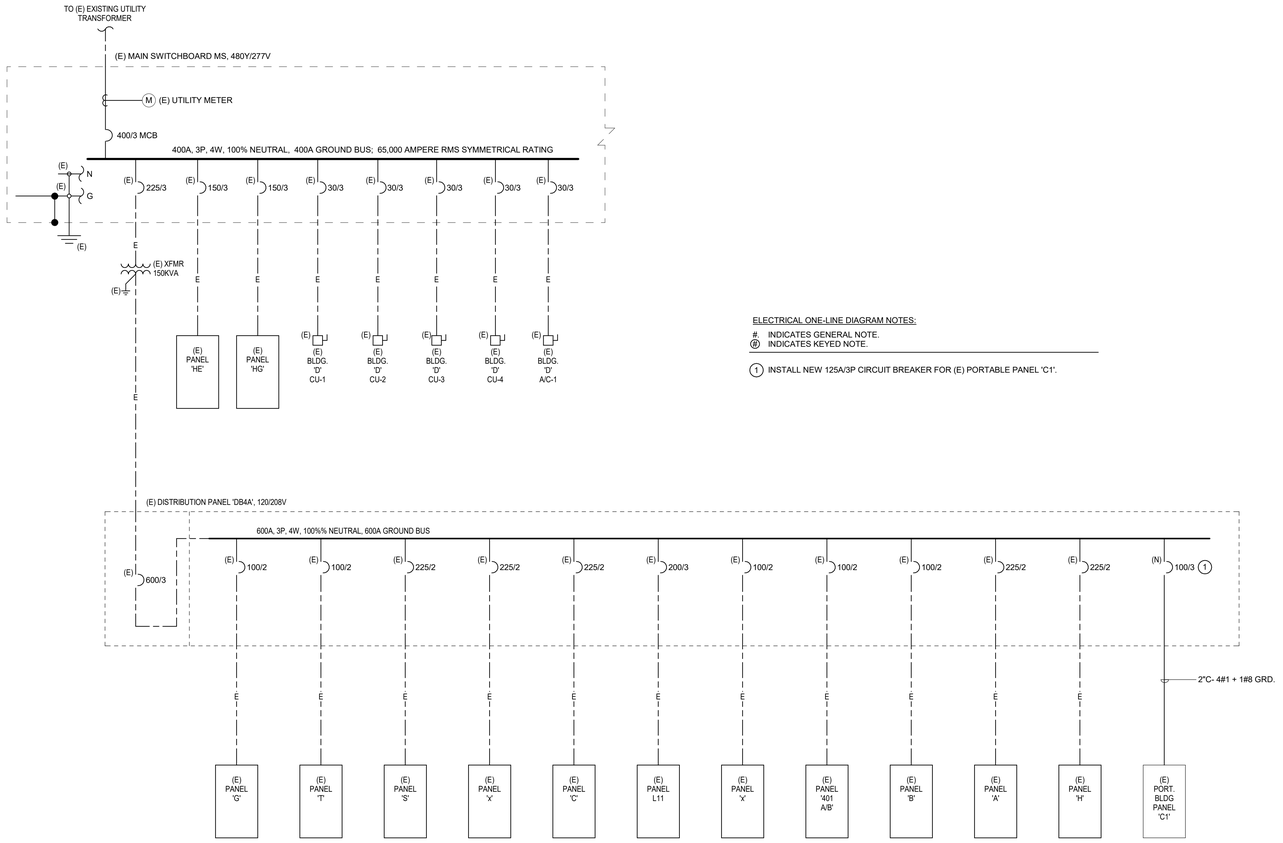
ELECTRICAL DETAILS

E6.01

E7.01 - ELECTRICAL SINGLE LINE DIAGRAM

0" 1"



ELECTRICAL ONE-LINE DIAGRAM NOTES:

#. INDICATES GENERAL NOTE.
(#) INDICATES KEYED NOTE.

1 INSTALL NEW 125A/3P CIRCUIT BREAKER FOR (E) PORTABLE PANEL 'C1'.

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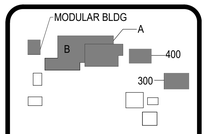

KEY PLAN
NORTH: PLAN TRUE

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ELECTRICAL SINGLE LINE DIAGRAM

E7.01

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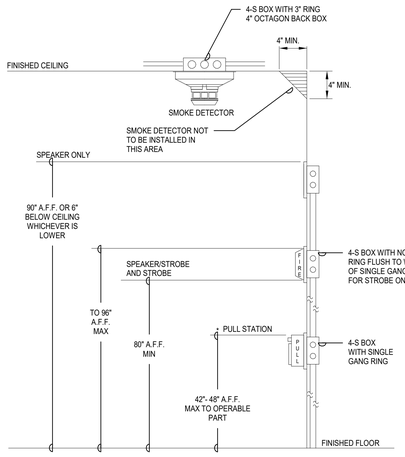

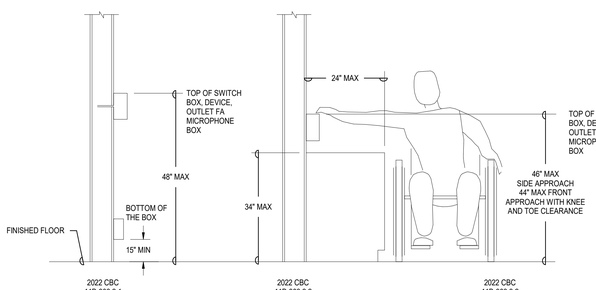

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DEVICE SCHEDULE

SYMBOL	DESCRIPTION	MODEL	MANUFACTURER	BACKBOX	MOUNTING HEIGHT	C.S.F.M. NUMBER
FACP	EXISTING FIRE ALARM CONTROL PANEL	NFS2-3030	NOTIFIER	PROVIDED		---
EVAX	VOICE EVACUATION SYSTEM	EVAX-50	EVAX BY POTTER	N/A		6912-1446:0100
S P	ADDRESSABLE AREA SMOKE DETECTOR (PHOTOELECTRIC)	FSP-851 B210LP	NOTIFIER	4S DEEP BOX W/ 3-0 RING	CEILING	7272-0028:0206 7300-1653:0109
! A	ADDRESSABLE AREA HEAT DETECTOR	FST-851H B210LP	NOTIFIER	4S DEEP BOX W/ 3-0 RING	ATTIC/ CEILING	7270-0028:0196 7300-1653:0109
WP	FIRE ALARM EXTERIOR WEATHERPROOF SPEAKER	SPRK	SYSTEM SENSOR	4S DEEP BOX W/ 4S EXTENSION		7320-1653:0201
	FIRE ALARM CEILING MOUNTED SPEAKER/STROBE	SPSCRL	SYSTEM SENSOR	4S DEEP BOX W/ 4S EXTENSION		7320-1653:0505
	FIRE ALARM CEILING MOUNTED STROBE	SCW	SYSTEM SENSOR	4S DEEP BOX W/ 4S EXTENSION		7125-1653:0186
JB	FIRE ALARM JUNCTION BOX	N/A	BY ELECTRICAL CONTRACTOR	N/A		N/A
EOL	END OF LINE RESISTOR	N/A	N/A	N/A		N/A

NOTE:
1. UNLESS NOTED AS EXISTING, ALL THE DEVICES SHOWING ON THE DRAWINGS ARE NEW.

LEGENDS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A OR AMP	AMPERES	NIC	NOT IN CONTRACT
AFF	ABOVE FINISHED FLOOR	NO.	NUMBER
AIC	AMPERES INTERRUPTING CAPACITY	PH. OR Ø	PHASE
ARCH.	ARCHITECT; ARCHITECTURAL	PNL	PANEL
AWG	AMERICAN WIRE GAUGE	PWR	POWER
C	CONDUIT	REC/RECEPT	RECEPTACLE
CKT	CIRCUIT	REQ'D	REQUIRED
CL.	CEILING MOUNTED DEVICE	RM	ROOM
C.O.	CONDUIT ONLY WITH PULL WIRE	SF	SQUARE FEET
CU	COPPER	SHT	SHEET
DWG	DRAWING	SP	SINGLE POLE
ER	EXISTING DEVICE TO BE REMOVED	SPECS	SPECIFICATIONS
EMT	ELECTRICAL METALLIC TUBING	SW	SWITCH
EQUIP	EQUIPMENT	TYP	TYPICAL
EXIST / (E)	EXISTING	UG	UNDERGROUND
FIN.	FINISH	U.O.N.	UNLESS OTHERWISE NOTED
FLR	FLOOR	V	VOLTS
FT	FEET	V-A	VOLT-AMPERES
GFI	GROUND FAULT INTERRUPTER	W	WATTS
GND	GROUND	W/	WITH
LTG.	LIGHTING	W/O	WITHOUT
MTG	MOUNTING	WP	WEATHERPROOF
N	NEW	CEC	CALIFORNIA ELECTRICAL CODE
FS	FLOW SWITCH		
JB	JUNCTION BOX		
PIV	POST INDICATOR VALVE		
TS	TEMPER SWITCH		
▭	PULL BOX (WEATHERPROOF)		
##	RISER UP AND DOWN		

APPLICABLE CODES

PARTIAL LIST OF APPLICABLE CODES AS OF JANUARY 1, 2022
2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

PARTIAL LIST OF APPLICABLE STANDARDS
NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE (CA AMENDED): 2022 EDITION
NFPA 720 STANDARD FOR THE INSTALLATION OF CARBON MONOXIDE DETECTION AND WARNING EQUIPMENT; 2015 EDITION
NFPA 80 STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2016 EDITION
UL 464 AUDIBLE SIGNALING DEVICES FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES; 2003 EDITION
UL 521 STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS; 1999 EDITION
UL 1971 STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED; 2002 EDITION (R2010)
ICC 300 STANDARD FOR BLEACHERS, FOLDING AND TELESCOPING SEATING AND GRANDSTANDS; 2017 EDITION

FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS REFER TO 2022 CBC (SFM) CHAPTER 35 AND CALIFORNIA FIRE CODE CHAPTER 80.

SEE CALIFORNIA BUILDING CODE, CHAPTER 35, FOR STATE OF CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS.

DRAWING INDEX

SHEET	DESCRIPTION
FA0.00	FIRE ALARM SYMBOLS, LEGENDS & GENERAL NOTES
FA1.01	FIRE ALARM SITE PLAN
FA2.01	FIRE ALARM FLOOR PLANS, DETAILS, RISER DIAGRAM AND CALC.
FA5.01	FIRE ALARM RISER DIAGRAM

FIRE WATCH NOTE

A FIRE WATCH SHALL BE ESTABLISHED AND THE FIRE DEPARTMENT & FIRE CODE OFFICIAL SHALL BE NOTIFIED IMMEDIATELY WHENEVER THE FIRE PROTECTION / ALARM SYSTEM IS RENDERED OUT OF SERVICE. A FIRE WATCH SHALL BE STAGED WHENEVER THE BUILDING IS OCCUPIED (PARTIAL OR WHOLE) PER DSA IR F-2 AND CFC 901.7.

SCOPE OF WORK

PROVIDE COMPLETE FULL AUTOMATIC ADDRESSABLE FIRE ALARM SYSTEM WITHIN THE AREA OF WORK. PROVIDE FIRE ALARM SYSTEM DEVICES AS SHOWN IN EQUIPMENT LEGEND, FLOOR PLANS, AND SPECIFICATIONS IN THIS CONSTRUCTION DOCUMENT SET. USE EXISTING FIRE ALARM CONTROL PANEL TO CONNECT NEW FIRE ALARM SYSTEM DEVICES SHOWN PER DRAWING AND SPECIFICATION DOCUMENT. UPON COMPLETION, A COMPLETE PRE TEST SHALL BE PERFORMED TO VERIFY FUNCTIONALITY, IF FUNCTIONALITY IS COMPLETE THEN THE PROPER DOCUMENTATION SHALL BE SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PRIOR TO SCHEDULING A FINAL INSPECTION.

ELEVATION MOUNTING DETAIL

NOTES:

THE ENTIRE LENS OF STROBE LIGHTS MUST BE BETWEEN 80" AND 96" ABOVE FLOOR FINISH (AFF)

IF CEILING HEIGHTS EXCEED 30 FEET, STROBE LIGHTS MUST BE SUSPENDED AT OR BELOW 30 FEET

MANUAL FIRE ALARM BOXES SHALL BE INSTALLED IN ACCORDANCE WITH SECTIONS 907.3.1 THROUGH 907.3.5

MANUAL FIRE ALARM BOXES SHALL BE LOCATED NOT MORE THAN 5 FEET FROM THE ENTRANCE TO EACH EXIT. ADDITIONAL MANUAL FIRE ALARM BOXES SHALL BE LOCATED SO THAT THE TRAVEL DISTANCE TO THE NEAREST BOX DOES NOT EXCEED 200 FEET.

THE HEIGHT OF THE MANUAL FIRE ALARM BOXES SHALL BE A MINIMUM OF 42 INCHES AND A MAXIMUM OF 48 INCHES, MEASURED VERTICALLY, FROM THE FLOOR LEVEL TO THE HIGHEST POINT OF THE ACTIVATING HANDLE OR LEVER OF THE BOX. MANUAL FIRE ALARM BOXES SHALL ALSO COMPLY WITH 2019 CBC SECTION 11B-309.4.

PER NFPA 72 CHAPTER A.17.7.4.1 DETECTORS SHOULD NOT BE LOCATED IN ADIRECT AIRFLOW OR CLOSER THAN 36 IN. (910 MM) FROM AN AIR SUPPLY DIFFUSER OR RETURN AIR OPENING. SUPPLY OR RETURN SOURCES LARGER THAN THOSE COMMONLY FOUND IN RESIDENTIAL AND SMALL COMMERCIAL ESTABLISHMENT CAN REQUIRE GREATER CLEARANCE TO SMOKE DETECTORS. SIMILARLY, SMOKE DETECTORS SHOULD BE LOCATED FARTHER AWAY FROM HIGH VELOCITY AIR SUPPLIES.

SEQUENCE OF OPERATIONS

ACTION \ DEVICE	AREA SMOKE DETECTOR	HEAT DETECTOR	120VAC POWER FAILURE	SHORT CIRCUIT	GROUND FAULT	BATTERY FAILURE
SOUND ALARM AT "FACP"	**YES**	**YES**	NO	NO	NO	NO
SOUND TROUBLE BUZZER AT "FACP"	NO	NO	**YES**	**YES**	**YES**	**YES**
ANNUNCIATE AT "FACP" AND THE REMOTE ANNUNCIATOR (ALARM OR TROUBLE)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
ACTIVATE AUDIBLE / VISUAL ALARM SIGNAL THROUGHOUT BUILDING	**YES**	**YES**	NO	NO	NO	NO
ACTIVATE SIGNAL FOR OFF-SITE MONITORING	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
MUTE AUTONOMOUS LOCAL SOUND SYSTEM	**YES**	**YES**	NO	NO	NO	NO

ANCHORAGE AND BRACING NOTES

ALL WORK SHALL BE IN CONFORMANCE WITH TITLE 24, 2022 CALIFORNIA CODE OF REGULATIONS (CCR), 2022 CALIFORNIA BUILDING CODE, PART 2, TITLE 24 CCR, 2022 CALIFORNIA ELECTRICAL CODE, PART 3, TITLE 24 CCR

CUTTING, BORING, SAWCUTTING OR DRILLING THROUGH THE NEW OR EXISTING STRUCTURAL ELEMENTS TO BE DONE ONLY WHEN SO DETAILED IN THE DRAWINGS OR ACCEPTED BY THE ARCHITECT AND STRUCTURAL ENGINEER WITH THE APPROVAL OF DSA REPRESENTATIVE.

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS.

THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26 AND 30:
1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. “PERMANENTLY ATTACHED” SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:
A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2019 CBC SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., OSHPD OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICALPIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP [ ] MD [ ] PP [ ] E [X] OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.
MP [ ] MD [ ] PP [ ] E [ ] OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVAL (OPM #) #_____.

GENERAL NOTES

1. APPLICABLE STANDARD 2022, NFPA 72, AS ADOPTED AND AMENDED IN CBC CHAPTER 35
2. INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL DETAILED DESIGN DOCUMENTS AND SPECIFICATION, INCLUDING STATE FIRE MARSHAL LISTING NUMBERS FOR EACH COMPONENT OF THE SYSTEM, HAS BEEN APPROVED BY DSA.
3. UPON COMPLETION OF SYSTEM INSTALLATION, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF A DSA PROJECT INSPECTOR.
4. A STAMPED SET OF APPROVED FIRE ALARM DESIGN DOCUMENTS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION.
5. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF DSA AND THE ARCHITECT/ENGINEER OF THE PROJECT.
6. DSA, ARCHITECT/ENGINEER AND OWNER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE FINAL INSPECTION AND /OR TESTING.
7. ALL PENETRATIONS THROUGH RATED ASSEMBLIES REQUIRING OPENING PROTECTION SHALL BE PROVIDED WITH A PENETRATION FIRE STOP SYSTEM AS IDENTIFIED IN CBC CHAPTER 7, UL OR OTHER APPROVED LAB TESTING CRITERIA. APPROVED TYPES OF MATERIALS SHALL BE IDENTIFIED WITHIN THE PROJECT SPECIFICATIONS WITHIN THE FIRE ALARM SECTION.
8. WALL MOUNTED VISIBLE NOTIFICATION DEVICES SHALL HAVE THEIR BOTTOMS MOUNTED AT 80" MINIMUM AND 96" MAXIMUM FROM FINISHED FLOOR.
9. WALL MOUNTED AUDIBLE NOTIFICATION DEVICES SHALL HAVE THEIR TOPS MOUNTED AT 90" MINIMUM AND 100" MAXIMUM FROM FINISHED FLOOR AND NO CLOSER THEN 6" TO A HORIZONTAL STRUCTURE.
10. AUDIBLE DEVICES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DECIBELS (DBA) ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR FIVE DBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIABLE SPACE WITHIN THE BUILDING.
11. AUDIBLE DEVICES SHALL BE SYNCHRONIZED TEMPORAL CODE 3 PATTERN.
12. THE CONTRACTOR SHALL ADJUST/INSTALL ALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMIZE FALSE ALARMS.
13. VISIBLE DEVICES SHOULD NOT EXCEED TWO FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN ONE FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELLA. VISIBLE DEVICES WITHIN 55' FROM EACH OTHER SHALL BE SYNCHRONIZED.
14. UNDERGROUND AND EXTERIOR CONDUITS TO HAVE WATER TIGHT FITTINGS AND WIRE TO BE APPROVED FOR WET LOCATIONS.
15. ALL FIRE ALARM WIRING SHALL BE FPLOR FPLP (FIRE POWER LIMITED OR FIRE POWER LIMITED PLENUM) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE TYPE THHN OR THWN.
16. PER CEC STANDARDS, ALL WIRING IS TO BE PULLED THROUGH EACH JUNCTION BOX AND CONNECTED DIRECTLY TO EACH FIRE DEVICE. DO NOT SPLICE THE WIRE. ALL BOXES TO BE SIZED PER CEC.
17. SMOKE DETECTORS SHALL NOT BE ANY CLOSER THAN 1' FROM FIRE SPRINKLERS OR 3' FROM ANY SUPPLY DIFFUSER. IN AREA OF CONSTRUCTION OR POSSIBLE DAMAGE/CONTAMINATION ON NEWLY INSTALLED FIRE ALARM, DEVICES SHALL BE COVERED UNTIL THAT AREA IS READY TO BE TURNED OVER TO THE OWNER.
18. ALL FIRE ALARM CIRCUITS SHALL BE IN CONDUIT, SURFACE RACEWAY OR OPEN RUN ABOVE CEILINGS, UNDER FLOORS AND IN WALLS IN A NEAT AND PROTECTED MANOR AS INDICATED ON DESIGN DOCUMENTS.
19. EXPOSED CIRCUITS ARE ONLY PERMITTED WHEN NOTED AS EXPOSED ON DESIGN DOCUMENTS.
20. FIRE ALARM PANEL, REMOTES, AND COMPONENTS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURERS SPECIFICATIONS. NO SINGLE DEVICE SHALL EXCEED 20 LBS. WITHOUT SPECIAL MOUNTING DETAILS.
21. A DEDICATED BRANCH CIRCUIT SHALL BE PROVIDED FOR FIRE ALARM EQUIPMENT. THIS CIRCUIT SHALL BE ENERGIZED FROM THE COMMON USE AREA PANEL AND SHALL HAVE NO OTHER OUTLETS. THE BREAKER SHALL HAVE A RED LOCKING DEVICE TO BLOCK THE HANDLE IN THE "ON" POSITION. THE CIRCUIT BREAKER SHALL BE LABELED "FIRE ALARM CIRCUIT CONTROL." CIRCUIT ID TO BE LABELED AT FIRE PANEL/EXTENDERS.
22. THE INSTALLING CONTRACTOR SHALL PROVIDE A COMPLETED "SYSTEM RECORD OF COMPLETION" PER NFPA 72, FIGURE 7.8.2.
23. FIRE ALARM CONTROL PANELS AND REMOTE ANNUNCIATORS SHALL BE INSTALLED WITH THEIR BOTTOMS MOUNTED AT 48" ABOVE THE FINISHED FLOOR.
24. MICROPHONES ASSOCIATED WITH EMERGENCY VOICE ALARM COMMUNICATION SYSTEMS (EVAC) SHALL BE ACCESSIBLE FOR USE, INSTALLED IN COMPLIANCE WITH CBC SECTIONS 11B-305 AND 11B-308.
25. THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CBC SECTION 901.6.2.
26. SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SENDING CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST.
27. OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING A FIRE SYSTEM MONITORING CONTRACT OR PROVISIONS.
28. ELECTRICAL CONTRACTOR SHALL FURNISH ACCESS PANELS TO AREAS THAT REQUIRE ACCESS FOR ATTIC HEAT DETECTOR, SERVICING, TROUBLESHOOTING, ETC.
31. DO NOT DEVIATE FROM CONDUIT RUNS AS SHOWN ON FLOOR PLANS WITHOUT PRIOR APPROVAL FROM SYSTEM SUPPLIER. FACTORS SUCH AS EXCESSIVE VOLTAGE DROP, ADDITIONAL PARTS, ENGINEERING, ETC., THAT ARE A RESULT OF CONDUIT RUN DEVIATIONS SHALL BE THE SOLE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
32. ALL 120VAC POWER REQUIREMENTS FOR THE FIRE ALARM SYSTEM SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR AND SHALL MEET ALL REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
35. ALL FIRE ALARM DEVICE BACKBOXES, FIRE ALARM TERMINAL CABINETS, GUTTERS, JUNCTION BOXES, AND ASSOCIATED CONDUITS SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED. REFER TO FIRE ALARM SYMBOL LIST AND/OR MOUNTING DETAILS FOR ADDITIONAL INFORMATION. SYSTEM SUPPLIER PROVIDED BACKBOXES SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
36. SMOKE DETECTOR TESTING SHALL BE ACCOMPLISHED PER THE MANUFACTURER'S INSTRUCTIONS.
37. ALL WIRING, INITIATING DEVICES AND ANNUNCIATOR PANEL SHALL BE SUPERVISED TO THE PRINCIPAL POINT OF ANNUNCIATION. THE FIRE ALARM CONTROL PANEL TO SUPERVISE THE ANNUNCIATOR PANEL, ALL INITIATING AND INDICATING DEVICE CIRCUITS.
38. ALL WIRING SHALL BE CUT FOR IN AND OUT. WIRING SHALL NOT BE LOOPED THROUGH DEVICES.
39. POINT, COMMON ANNUNCIATION, AND T-TAPPING ARE PROHIBITED.
40. PROVIDE 3/4" CONDUIT FROM FIRE ALARM CONTROL PANEL TO TELEPHONE BACKBOARD FOR OWNER PROVIDED CENTRAL STATION MONITORING.
41. ALL CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED.
42. ALL FLOW SWITCHES SHALL BE 2 WIRE WITH NON-ELECTRONIC RETARD TYPE SIMILAR TO THE SYSTEM SENSOR MODEL "WFD SERIES" ONLY.
43. ALL DEVICES IN THE ALARM SYSTEM SHALL BE COMPATIBLE AND INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
44. FIRE ALARM SYSTEM SHALL BE UL LISTED (UUJS).
45. CBC 907.6.5.3 (SFM AMENDMENT) REQUIRES FIRE ALARM TO... "TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISORY STATION IN ACCORDANCE WITH NFPA 72. THE SUPERVISORY STATION SHALL BE LISTED AS EITHER UUFX (CENTRAL STATION) OR UUJS (REMOTE AND PROPRIETARY) BY THE UNDERWRITERS LABORATORY INC. (UL) OR OTHER APPROVED LISTING AND TESTING LABORATORY OR SHALL COMPLY WITH THE REQUIREMENTS OF STANDARD, FM 3011)."
46. SUBSTITUTION OF SYSTEM COMPONENTS OR MANUFACTURER WILL REQUIRE THE CONTRACTOR TO SEPARATELY OBTAIN APPROVAL WITH THE DSA AT CONTRACTOR'S EXPENSE AND SHALL MEET ALL REQUIREMENTS OF THE SYSTEM AS DESIGNED AND PRE-APPROVED. ALL PROPOSED SUBSTITUTIONS SHALL BE LISTED WITH THE CALIFORNIA STATE FIRE MARSHAL.
47. FINAL ACCEPTANCE TEST TO INCLUDE TESTING THE CONNECTION BETWEEN THE FIRE ALARM PANEL AND THE SUPERVISING STATION.
48. COORDINATE WITH THE ENGINEER FOR USE OF EXISTING CONDUIT ON A CASE BY CASE BASIS.
49. PRIOR TO DEMOLITION, CONTRACTOR SHALL TEST THE INTERCOM SYSTEM TO ENSURE FULL FUNCTIONALITY. GENERATE A LIST OF FAULTY EQUIPMENT AND PROVIDE TO THE OWNER AND THE ARCHITECT. PROVIDE PRICING FOR ANY REQUIRED EQUIPMENT REPAIRS OR REPLACEMENT.
50. CONTRACTOR SHALL DISCONNECT EXISTING FIRE ALARM SYSTEM FROM THE EXISTING INTERCOM SYSTEM. ENSURE THE INTERCOM SYSTEM IS COMPLETELY FUNCTIONAL AFTER DISCONNECTION.
51. CONTRACTOR SHALL CLEARLY MARK THE ABANDON SECTION OF PUBLIC ADDRESS SYSTEM.
52. PROVIDE A FIRE ALARM DOCUMENTATION CABINET PER NFPA72,7.7.
53. FIRE SAFETY DURING DEMOLITION AND CONSTRUCTION SHALL COMPLY WITH CBC CHAPTER 33 AND CFC CHAPTER 33.
54. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE DSA APRROVED DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATION CHANGE DOCUMENT, OR A SEPERATE SET OF PLANS AND SPECIFICATIONS,DETAILING AND SPECIFYING THE REQUIRED REPAIR WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE REPAIR WORK (CAC 4-317(C)).
55. CHANGES TO THE DIVISION OF THE STATE ARCHITECT APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENTS FOR CHANGES TO THE STRUCTURAL, ACCESSIBILITY OR FIRE -SAFETY PORTIONS OF THE PROJECT. CHANGES SHALL BE SUBMITTED TO AND APPROVED BY DSA PRIOR TO COMMENCEMENT OF THE WORK SHOWN THEREON CAC 4-338(C)).
56. PROJECT INSPECTOR TO APPROVE SYSTEM VOICE-EVACUATION INTELLIGIBILITY DURING TESTING PHASE.
57. CONTRACTOR SHALL PROVIDE ALL CABLING, RELAYS, MOUNTING HARDWARE AND ANY OTHER DEVICES (FIRE ALARM SYSTEM DEVICES) TO PROVIDE A FULLY FUNCTIONING FIRE ALARM OVERRIDE SYSTEM. WHEN FIRE ALARM CEASES, EACH LOCAL SOUND SYSTEM SHALL AUTOMATICALLY REVERT TO NORMAL OPERATION. FIRE ALARM MODULES AND CABLING BY FIRE ALARM CONTRACTOR.
58. FOR ALL HEAT DETECTORS THAT ARE LOCATED ABOVE CEILING/ATTIC SPACES, CONTRACTOR SHALL PROVIDE STICKER AND LABEL "HD" AT THE REFLECTED CEILING DIRECTLY BELOW THE DEVICE TO INDICATE LOCATION.
59. NOTIFICATION APPLIANCES USED FOR SIGNALING OTHER THAN FIRE SHALL NOT HAVE THE WORD "FIRE" OR ANY FIRE SYMBOL, IN ANY FORM (I.E., STAMPED, IMPRINTED, ETC.) ON THE APPLIANCE VISIBLE TO THE PUBLIC. NOTIFICATION APPLIANCES WITH MULTIPLE VISIBLE ELEMENTS SHALL BE PERMITTED TO HAVE FIRE MARKING ONLY ON THOSE VISIBLE ELEMENTS USED FOR FIRE SIGNALING. PER NFPA 72, 18.3.3.2/ NFPA 720, 6.3.3.2/ IR 9-2, 5.4.4 & 5.4.5.
60. AUTOMATIC FIRE ALARM SYSTEMS SHALL BE MONITORED AND SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION IN ACCORDANCE WITH NFPA 72. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UUFX (CENTRAL STATION) OR UUJS (REMOTE & PROPRIETARY) BY THE UNDERWRITERS LABORATORY INC. (UL) OR OTHER APPROVED LISTING AND TESTING LABORATORY OR SHALL COMPLY WITH THE REQUIREMENTS OF FM 3011. TERMINATION OF MONITORING SERVICES SHALL BE IN ACCORDANCE WITH SECTION 907.6.6.2.
61. THE NEW PROJECT SUBMITTAL TO INCLUDE DIRECTION THAT FIRE ALARM SYSTEM RECORD OF COMPLETION AND FIRE ALARM SYSTEM RECORD OF INSPECTION AND TESTING FORM THESE TWO DOCUMENTS FROM NFPA 72 ARE TO BE COMPLETED AND SUBMITTED PRIOR TO CLOSE OUT OF THE PROJECT. A COPY OF COMPLETED AND SIGNED FORM SHALL BE GIVEN TO THE ARCHITECT OR ENGINEER OF RECORD, THE PROJECT INSPECTOR, THE OWNER (SCHOOL DISTRICT) AND LOCAL FIRE AUTHORITY.

MOUNTING OVER OBSTRUCTION DETAIL

NOTES:
1. THIS DETAIL APPLIES TO MOUNTING OF ANY MECHANICAL AND ELECTRICAL DEVICE WHICH CONTAINS AN OPERABLE PART THAT IS ADJUSTABLE BY THE OCCUPANT. THIS DOES NOT APPLY TO SENSORS OR CONTROLS THAT ARE ONLY ADJUSTABLE THROUGH THE BUILDING AUTOMATION SYSTEM (IE: TEMPERATURE AND HUMIDITY SENSORS).
2. FORWARD OR FRONT APPROACH FOR DEVICES MOUNTED ABOVE COUNTERS ASSUMES THAT BELOW THE DEVICE, THE COUNTER HAS A 30"MIN. WIDTH x27" HIGH x19" MIN. DEEP CLEAR OPENING. CBC SECTIONS 11B-306 & 11B-308.

WIRE SCHEDULE

WIRE DESIGNATION	WIRE IN CONDUIT	WIRE IN CONDUIT UNDERGROUND/WET LOC.	UNDERGROUND/WET WIRE DESIGNATION
INIT. LOOP Z	2 CONDUCTOR #16 FPL TWISTED/ SHIELDED WEST PENN #D991	2 CONDUCTOR #16 FPLP SHIELDED WEST PENN #AQ-294	INIT. LOOP Z
SBUS B	4 CONDUCTOR #18 TWISTED SHIELDED PAIR CABLE	4 CONDUCTOR #18 TWISTED SHIELDED PAIR CABLE	SBUS B
VBUS C	2 CONDUCTOR #18 TWISTED SHIELDED PAIR CABLE	2 CONDUCTOR #18 TWISTED SHIELDED PAIR CABLE	VBUS C
SPEAKER CKT. S	2 CONDUCTOR #14 THHN/THWN STRANDED	2 CONDUCTOR #14 THHN/THWN STRANDED	SPEAKER CKT. S
VISUAL CKT. V	2 CONDUCTOR #12 THHN/THWN STRANDED	2 CONDUCTOR #12 THHN/THWN STRANDED	VISUAL CKT. V
POWER CKT. P	2 CONDUCTOR #12 THHN/THWN STRANDED	2 CONDUCTOR #12 THHN/THWN STRANDED	POWER CKT. P

NOTE:
ALL WIRE MODEL NUMBERS ARE WEST PENN.
EQUIVALENT BY OTHER MANUFACTURER IS ACCEPTABLE.

FIRE ALARM REQUIREMENTS

THE CONTRACTOR SHALL PROVIDE AND SUBMIT THE FIRE ALARM SHOP DRAWINGS TO THE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION OF THE FIRE ALARM SYSTEM. THE SUBMITTAL SHALL CONTAIN THE FOLLOWING:

A. SHOP DRAWINGS: COMPLETE 1/8" SCALE FLOOR PLANS SHOWING ALL DEVICES, COMPONENTS, CONDUIT AND WIRING INDICATING A COMPLETE AND OPERABLE SYSTEM AS DESIGNED AND SPECIFIED. REPRODUCED COPIES OF BID SET FIRE ALARM PLANS ARE NOT ACCEPTABLE AS SHOP DRAWINGS. SHOP DRAWINGS MUST ALSO INDICATE DEVICE MOUNTING HEIGHTS, ROOM NAMES AND NUMBERS AND THE LOCATION OF ALL FIRE RATED WALLS.
B. ELECTRICAL CONTRACTOR'S AND FIRE ALARM SYSTEM INSTALLER'S NAME, ADDRESS, PHONE NUMBER AND C-10 LICENSE NUMBER.
C. LIST OF SYSTEM COMPONENTS, EQUIPMENT AND DEVICES, INCLUDING MANUFACTURERS' MODEL NUMBER(S) AND CALIFORNIA STATE FIRE MARSHALL LISTING NUMBERS.
D. ORIGINAL COPIERS OF MANUFACTURERS' SPECIFICATION SHEETS FOR ALL EQUIPMENT AND DEVICES INDICATED.
E. VOLTAGE DROP CALCULATIONS -- INCLUDE THE FOLLOWING INFORMATION FOR THE WORST CASE:
  1. POINT-TO-POINT OR OHMS LAW CALCULATIONS.
  2. IDENTIFICATION OF ZONE USED IN CALCULATIONS.
  3. VOLTAGE DROP PERCENT (NOT TO EXCEED MANUFACTURERS' REQUIREMENTS).
    a. NOTE: IF VOLTAGE DROP EXCEEDS 10%, INDICATE MANUFACTURERS' LISTED OPERATING RANGE(S) OR EQUIPMENT AND DEVICES.
  4. NOTE CIRCUIT NUMBER FOR WORST CASE CALCULATION.
F. BATTERY TYPE(S), AMPS HOURS AND LOAD CALCULATIONS -- INCLUDE THE FOLLOWING INFORMATION:
  1. NORMAL OPERATION: 100% OF APPLICABLE DEVICES FOR 24 HOURS = CONTROL PANEL AMPS PLUS LIST OF AMPS PER DEVICE WHICH DRAW POWER FROM THE PANEL DURING STANDBY POWER -- I.E.:
    a. ZONE MODULES
    b. DETECTORS
    c. OTHER DEVICES (IDENTIFY)
  2. ALARM CONDITION: 100% OF APPLICABLE DEVICES FOR 15 MINUTES = CONTROL PANEL AMPS PLUS LIST OF AMPS PER DEVICE WHICH DRAW POWER FROM THE PANEL DURING STANDBY POWER -- I.E.:
    a. ZONE MODULES
    b. SIGNAL MODULES
    c. DETECTORS
    d. SIGNAL DEVICES
    e. ANNUNCIATOR
    f. OTHER DEVICES (IDENTIFY)
  3. NORMAL OPERATION + ALARM OPERATION
    a. TOTAL AMP HOURS REQUIRED.
    b. TOTAL AMP HOURS PROVIDED.

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DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

KEY PLAN

Consultant
No. E 23576
Exp. 09-30-2025

Architect
Yong Yoo
No. C-31162

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date

DSA Submittal

FIRE ALARM SYMBOLS, LEGENDS & GENERAL NOTES

FA0.00

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FA1.01 - FIRE ALARM SITE PLAN

0" 1"

1 SITE PLAN
1" = 20'-0"

GENERAL NOTES

1. RUN FIRE ALARM CABLES IN CONDUIT CONCEALED IN WALLS AND CEILING WHEN POSSIBLE. EXPOSED CONDUITS ARE NOT ACCEPTABLE.

2. SMOKE ALARMS AND SMOKE DETECTORS SHALL NOT BE INSTALLED WITHIN 36 IN. (910 MM) HORIZONTAL PATH FROM THE SUPPLY REGISTERS OF A FORCED AIR HEATING OR COOLING SYSTEM AND SHALL BE INSTALLED OUTSIDE OF THE DIRECT AIRFLOW FROM THOSE REGISTERS PER CBC 907.2.11.8.

3. DEMOLISH AND REMOVE ALL THE EXISTING FIRE ALARM DEVICES WHETHER SHOWN ON THE PLAN OR NOT AND REPLACE WITH BLANK COVER PLATES IF NECESSARY. DISCONNECT AND REMOVE ALL THE EXISTING CABLES BACK TO CONTROL PANEL.

4. EXISTING FIRE ALARM SYSTEM SHALL BE OPERATIONAL UNTIL NEW SYSTEMS ARE FULLY FUNCTIONAL.

5. FOR ALL HEAT DETECTORS THAT ARE LOCATED ABOVE CEILING/ATTIC SPACES, CONTRACTOR SHALL PROVIDE STICKER AND LABEL "HD" AT THE REFLECTED CEILING DIRECTLY BELOW THE DEVICE TO INDICATE LOCATION.

6. ELECTRICAL CONTRACTOR SHALL FURNISH ACCESS PANELS TO AREAS THAT REQUIRE ACCESS FOR ATTIC HEAT DETECTOR, SERVICING, TROUBLESHOOTING, ETC.

KEY NOTES

1. AREA OF WORK.
2. PROVIDE NEW (1) 2" UNDERGROUND CONDUIT (PVC, SCHEDULE 40, 24" BELOW GRADE), FIRE ALARM CABLE AS INDICATED. BACK FILL TO MATCH EXISTING SURFACES. RUN CONDUIT IN DIRT/PLANNER AREA AS MUCH AS POSSIBLE.
3. PROVIDE NEMA 3R WEATHERPROOF PULLBOX 18"x18"X6" FOR FIRE-ALARM (TYP).
4. PROVIDE WEATHERPROOF WALL MOUNTED SPEAKER AS SHOWN.
5. EXISTING FIRE ALARM CONTROL PANEL (A#04-111570) AS SHOWN. PROVIDE NEW VOICE EVACUATION SYSTEM AND PROVIDE CONNECTION WITH EXISTING FACP PANEL. FIELD VERIFY THE EXACT LOCATION.

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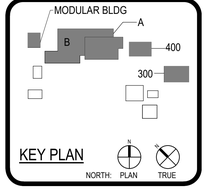

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FIRE ALARM SITE PLAN

FA1.01

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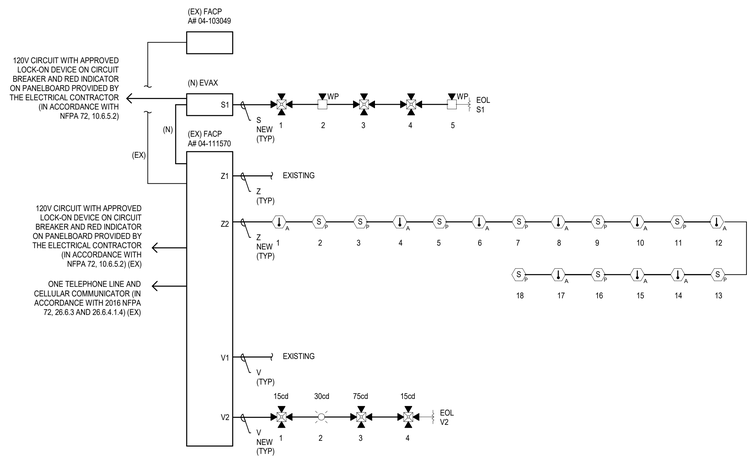
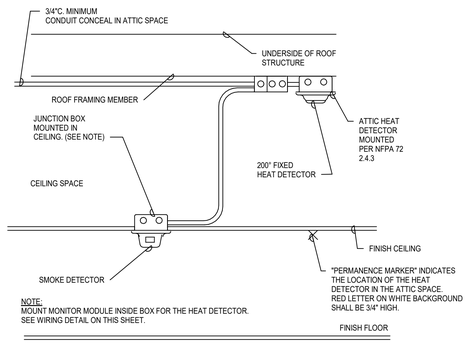
FA2.01 - FIRE ALARM FLOOR PLANS, DETAILS, RISER DIAGRAM AND CALC.

0" 1"

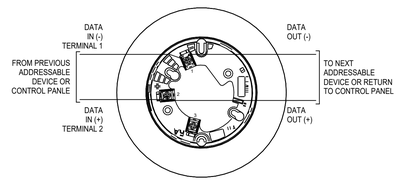
4 FIRE ALARM PARTIAL RISER DIAGRAM
12" = 1'-0"



3 DROP CEILING DEVICE INSTALLATION DETAIL
12" = 1'-0"



2 SMOKE/HEAT DETECTOR DETAIL
12" = 1'-0"



FACP BATTERY CALCULATION SHEET

FACP (EX)
LOCATION: ADULT BUILDING ADMIN BLDG

QUANTITY			UNIT ALARM CURRENT(A)	TOTAL ALARM CURRENT(A)
EX	1	FACP	1.2500	1.2500
N	9	SMOKE DETECTOR	0.0020	0.0180
N	9	HEAT DETECTOR	0.0020	0.0180
N	1	30cd ceiling strobes	0.0960	0.0960
N	2	15cd ceiling speaker/strobe	0.0710	0.1420
N	1	75cd ceiling speaker/strobe	0.1530	0.1530
		SUB TOTAL		3.710
		STANDBY CURRENT x 24 Hrs. (AH)	32.030	AH
		ALARM CURRENT x 15 MINUTES (AH)	0.928	AH
		TOTAL (AH)	32.957	AH
		25% DERATING	8.239	AH
		TOTAL DEMAND (AH)	41.197	AH

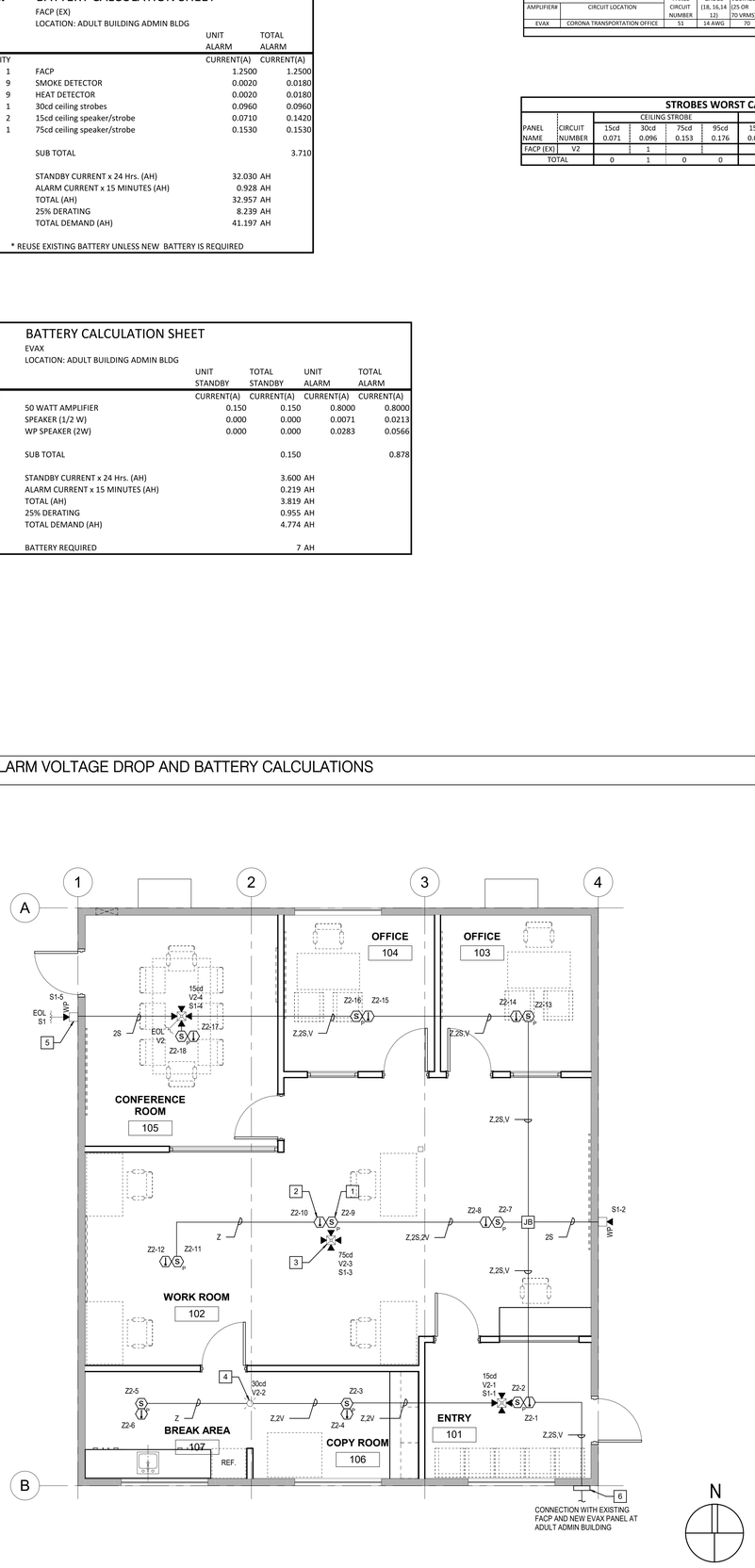
* REUSE EXISTING BATTERY UNLESS NEW BATTERY IS REQUIRED

BATTERY CALCULATION SHEET

EVAX
LOCATION: ADULT BUILDING ADMIN BLDG

QUANTITY		UNIT STANDBY CURRENT(A)	TOTAL STANDBY CURRENT(A)	UNIT ALARM CURRENT(A)	TOTAL ALARM CURRENT(A)
1	50 WATT AMPLIFIER	0.150	0.150	0.8000	0.8000
3	SPEAKER (1/2 W)	0.000	0.000	0.0071	0.0213
2	WP SPEAKER (2W)	0.000	0.000	0.0283	0.0566
	SUB TOTAL		0.150		0.878
	STANDBY CURRENT x 24 Hrs. (AH)		3.600	AH	
	ALARM CURRENT x 15 MINUTES (AH)		0.219	AH	
	TOTAL (AH)		3.819	AH	
	25% DERATING		0.955	AH	
	TOTAL DEMAND (AH)		4.774	AH	
	BATTERY REQUIRED		7	AH	

5 FIRE ALARM VOLTAGE DROP AND BATTERY CALCULATIONS
12" = 1'-0"



1 PROPOSED FLOOR PLAN
1/4" = 1'-0"

SPEAKER CIRCUIT LOAD CALCULATION

SPEAKER CIRCUIT DESCRIPTION		PANEL CIRCUIT NUMBER	WIRE GAUGE (18, 16,14 12)	CIRCUIT VOLTAGE (25 OR 70 VRMS)	APPLIANCES QUANTITIES / TAP VALUES				TOTAL CIRCUIT LOAD (WATT)	ESTIMATED CIRCUIT LENGTH (FEET)	MFG. REC. MAXIMUM LOSS IS: -0.5dB		
AMPLIFIER#	CIRCUIT LOCATION				SPEAKER TAPPED AT 0.25 WATTS	SPEAKER TAPPED AT 0.5 WATTS	SPEAKER TAPPED AT 1 WATTS	SPEAKER TAPPED AT 2 WATTS			ACTUAL WIRE/LOSS (dB)	MAXIMUM ALLOWABLE CKT., LENGTH (FEET)	TOTAL CIRCUIT RESISTANCE (OHMS)
EVAX	CORONA TRANSPORTATION OFFICE	S1	14 AWG	70		3		2	5.50	250	-0.01	9,500	1.29
								TOTAL	5.50				

STROBES WORST CASE VOLTAGE DROP

		CEILING STROBE				CEILING SPEAKER/STROBE				TOTAL	TOTAL	TOTAL	TOTAL
PANEL NAME	CIRCUIT NUMBER	15cd 0.071	30cd 0.096	75cd 0.153	95cd 0.176	15cd 0.071	30cd 0.096	75cd 0.153	95cd 0.176	CURRENT (AMPS)	DISTANCE (FEET)	VOLTAGE DROP (%)	DEVICES
FACP (EX)	V2		1			2		1		0.391	220	1.19%	4
TOTAL		0	1	0	0	2	0	1	0				

GENERAL NOTES

1. RUN FIRE ALARM CABLES IN CONDUIT CONCEALED IN WALLS AND CEILING WHEN POSSIBLE. EXPOSED CONDUITS ARE NOT ACCEPTABLE.

2. SMOKE ALARMS AND SMOKE DETECTORS SHALL NOT BE INSTALLED WITHIN 36 IN. (910 MM) HORIZONTAL PATH FROM THE SUPPLY REGISTERS OF A FORCED AIR HEATING OR COOLING SYSTEM AND SHALL BE INSTALLED OUTSIDE OF THE DIRECT AIRFLOW FROM THOSE REGISTERS PER CBC 907.2.11.8.

3. DEMOLISH AND REMOVE ALL THE EXISTING FIRE ALARM DEVICES WHETHER SHOWN ON THE PLAN OR NOT AND DISCONNECT, REMOVE ALL THE EXISTING CABLES BACK TO CONTROL PANEL.

5. FOR ALL HEAT DETECTORS THAT ARE LOCATED ABOVE CEILING/ATTIC SPACES, CONTRACTOR SHALL PROVIDE STICKER AND LABEL "HD" AT THE REFLECTED CEILING DIRECTLY BELOW THE DEVICE TO INDICATE LOCATION.

KEY NOTES

1. PROVIDE FIRE ALARM ADDRESSABLE SMOKE DETECTOR AS SHOWN (TYP).
2. PROVIDE FIRE ALARM ADDRESSABLE ATTIC HEAT DETECTOR AS SHOWN (TYP).
3. PROVIDE FIRE ALARM CEILING MOUNTED SPEAKER/STROBE DEVICE AS SHOWN (TYP).
4. PROVIDE FIRE ALARM CEILING MOUNTED STROBE DEVICE AS SHOWN (TYP).
5. PROVIDE FIRE ALARM WALL MOUNTED WEATHERPROOF SPEAKER DEVICE AS SHOWN (TYP).
6. PROVIDE NEMA 3R WEATHERPROOF PULLBOX 18"x18"X6" FOR FIRE-ALARM.

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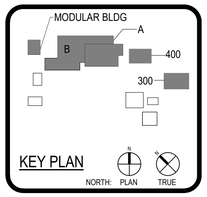

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Architect

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REVISIONS

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FIRE ALARM FLOOR PLANS, DETAILS, RISER DIAGRAM AND CALC.

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P0.00 - PLUMBING SYMBOLS, LEGENDS & GENERAL NOTES

0" 1"

PLUMBING LEGEND

NOTE: NOT ALL SYMBOLS TABULATED BELOW ARE NECESSARILY USED ON THE DRAWINGS.

SYMBOL	ITEM	ABBR.
S / 1	FIXTURE DESIGNATION UNIT ABBREVIATION NUMBER	
01 / P-1	DETAIL DESIGNATION DETAIL NUMBER SHEET NO. WHERE SHOWN	
	DOMESTIC COLD WATER	CW
	DOMESTIC HOT WATER	HW
	DOMESTIC HW RETURN	HWR
	EXISTING PIPING	
X	POINT OF CONNECTION	POC
C	CONDENSATE DRAIN	
SOV	SHUT-OFF VALVE IN BOX	SOV
	PIPING RISE	
	PIPING DROP	
S / W	SOIL OR WASTE	S OR W
V	VENT	V
	VENT THRU ROOF	VTR
FCO	FLOOR CLEANOUT	FCO
COTG	CLEANOUT TO GRADE	COTG
	WALL CLEANOUT	WCO
	HOSE BIBB	HB
RD	ROOF DRAIN	RD
OD	OVERFLOW DRAIN	OD
	DOWN SPOUT	DS
	UNDERGROUND	UG
TP	TRAP PRIMER	TP
SD	STORM DRAIN	SD
(E)	EXISTING	EXIST.
(N)	NEW	NEW
	UNDERFLOOR	UF
	OVERHEAD	OH
R	RELIEF	
D	DRAIN	
	CONDENSATE DRAIN CLEAN OUT	CO
SC	SECONDARY CONDENSATE DRAIN	
FC	FURNACE CONDENSATE	
GSOV	GAS SHUT OFF VALVE	GSOV
	CONDENSATE DRAIN TRAP	CDT
LPG	LIQUIFIED PETROLEUM GAS	LPG
G	NATURAL GAS	G
	FIRE SPRINKLER RISER	FSR
FSL	FIRE SPRINKLER LINE	FSL
	FIRE DEPARTMENT CONNECTION	FDC
	FINISHED FLOOR	FF
	FLOW LINE	FL
▲	FIRE RATED PENETRATION	
	POINT OF DISCONNECTION	POD
	POINT OF CONNECTION	POC

CALIFORNIA GREEN BUILDING STANDARDS

THE FOLLOWING SHALL BE REQUIRED WHETHER OR NOT SPECIFICALLY SHOWN OR MENTIONED IN DRAWINGS AND/OR SPECIFICATIONS:

5.303.1 METERS: SEPARATE SUBMETERS OR METERING DEVICES SHALL BE INSTALLED FOR USES DESCRIBED IN SECTIONS 5.303.1.1 AND 5.303.1.2.

5.303.1.1 NEW BUILDINGS OR ADDITIONS IN EXCESS OF 50,000 SQUARE FEET:

1. FOR EACH INDIVIDUAL LEASED, RENTED, OR OTHER TENANT SPACE WITHIN THE BUILDING PROJECTEED TO CONSUME MORE THAN 100 GAL/DAY, INCLUDING, BUT NOT LIMITED TO, SPACES USED FOR LAUNDRY OR CLEANERS, RESTAURANT OR FOOD SERVICE, MEDICAL OR DENTAL OFFICE, LABORATORY, OR BEAUTY SALON OR BARBER SHOP.
2. WHERE SEPARATE SUBMETERS FOR INDIVIDUAL BUILDING TENANTS ARE UNFEASIBLE, FOR WATER SUPPLIED TO THE FOLLOWING SUBSYSTEMS:
   a. MAKE-UP WATER FOR COOLING TOWERS WHERE FLOW THROUGH IS GREATER THAN 500 GPM.
   b. MAKE-UP WATER FOR EVAPORATIVE COOLERS GREATER THAN 6 GPM.
   c. STEAM AND HOT-WATER BOILERS WITH ENERGY INPUT MORE THAN 500,000 BTUH/H.

5.303.1.2 EXCESS CONSUMPTION: A SEPARATE SUBMETER OR BE PROVIDED FOR ANY TENANT WITHIN A NEW BUILDING OR WITHIN AN ADDITION THAT IS PROJECTED TO CONSUME MORE THAN 1,000 GAL/DAY.

5.303.2 RESERVED

5.303.3 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS: PLUMBING FIXTURES (WATER CLOSETS AND URINALS) AND FITTINGS (FAUCETS AND SHOWERHEADS) SHALL COMPLY WITH THE FOLLOWING:

5.303.3.1 WATER CLOSETS: THE EFFECTIVE FLUSH VOLUME OF ALL WATER CLOSETS SHALL NOT EXCEED 1.28 GALLONS PER FLUSH. TANK-TYPE WATER CLOSETS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATION FOR TANK-TYPE TOILETS. NOTE: THE EFFECTIVE FLUSH VOLUME OF DUAL FLUSH TOILETS IS DEFINED AS THE COMPOSITE, AVERAGE FLUSH VOLUME OF TWO REDUCED FLUSHES AND ONE FULL FLUSH.

5.303.3.2 URINALS:

5.303.3.2.1 WALL-MOUNTED URINALS: THE EFFECTIVE FLUSH VOLUME OF WALL-MOUNTED URINALS SHALL NOT EXCEED 0.125 GALLONS PER FLUSH.

5.303.3.2.2 FLOOR-MOUNTED URINALS: THE EFFECTIVE FLUSH VOLUME OF FLOOR-MOUNTED URINALS SHALL NOT EXCEED 0.5 GALLONS PER FLUSH.

5.303.3.2.1 WALL-MOUNTED URINALS: THE EFFECTIVE FLUSH VOLUME OF WALL-MOUNTED URINALS SHALL NOT EXCEED 0.125 GALLONS PER FLUSH.

5.303.3.2.2 FLOOR-MOUNTED URINALS: THE EFFECTIVE FLUSH VOLUME OF FLOOR-MOUNTED URINALS SHALL NOT EXCEED 0.5 GALLONS PER FLUSH.

5.303.3.3 SHOWERHEADS:

5.303.3.3.1 SINGLE SHOWERHEAD: SHOWERHEADS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 2.0 GALLONS PER MINUTE AT 80 PSI. SHOWERHEADS SHALL BE CERTIFIED TO THE PERFORMANCE CRITERIA OF THE U.S. EPA WATERSENSE SPECIFICATION FOR SHOWERHEADS.

5.303.3.3.2 MULTIPLE SHOWERHEADS SERVING ONE SHOWER: WHEN A SHOWER IS SERVED BY MORE THAN ONE SHOWERHEAD, THE COMBINED FLOW RATE OF ALL SHOWERHEADS AND/OR SHOWER OUTLETS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 2.0 GALLONS PER MINUTE AT 80 PSI, OR THE SHOWER SHALL BE DESIGNED TO ALLOW ONLY ONE SHOWER OUTLET TO BE IN OPERATION AT A TIME. NOTE: A HAND-HELD SHOWER SHALL BE CONSIDERED A SHOWERHEAD.

5.303.3.4 FAUCETS AND FOUNTAINS:

5.303.3.4.1 NONRESIDENTIAL LAVATORY FAUCETS: LAVATORY FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 0.5 GALLONS PER MINUTE AT 60 PSI.

5.303.3.4.2 KITCHEN FAUCETS: KITCHEN FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS PER MINUTE AT 60 PSI. KITCHEN FAUCETS MAY TEMPORARILY INCREASE FLOW ABOVE THE MAXIMUM RATE, BUT NOT TO EXCEED 2.2 GALLONS PER MINUTE AT 60 PSI, AND MUST DEFAULT TO A MAXIMUM FLOW RATE OF 1.8 GALLONS PER MINUTE AT 60 PSI.

5.303.3.4.3 WASH FOUNTAINS: WASH FOUNTAINS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 1.8 GALLONS PER MINUTE/20 [RIM SPACE (INCHES) AT 60 PSI].

5.303.3.4.4 METERING FAUCETS: METERING FAUCETS SHALL NOT DELIVER MORE THAN 0.20 GALLONS PER CYCLE.

5.303.3.4.5 METERING FAUCETS FOR WASH FOUNTAINS: METERING FAUCETS FOR WASH FOUNTAINS SHALL HAVE A MAXIMUM FLOW RATE OF NOT MORE THAN 0.20 GALLONS PER CYCLE/20 [RIM SPACE (INCHES) AT 60 PSI]. NOTE: WHERE COMPLYING FAUCETS ARE UNAVAILABLE, AERATORS OR OTHER MEANS MAY BE USED TO ACHIEVE REDUCTION.

PLUMBING TESTING

1. ALL EQUIPMENT AND/OR SYSTEMS NOTED ON THE DRAWINGS "TO REMAIN" SHALL BE INSPECTED AND TESTED ON SITE TO CERTIFY WORKING CONDITION. A WRITTEN REPORT ON THE CONDITION OF ALL EQUIPMENT TO REMAIN, INCLUDING A COPY OF THE TEST RESULTS AND RECOMMENDED REMEDIAL ACTIONS AND COSTS SHALL BE MADE BY THIS CONTRACTOR TO THE ARCHITECT/ENGINEER FOR REVIEW.

2. PIPE COVER AND BACKFILLING:
   A. AFTER HYDROSTATIC TEST, EVENLY BACKFILL ENTIRE TRENCH WIDTH BY HAND PLACING BACKFILL MATERIAL AND HAND TAMPING IN FOUR (4) ICHES COMPACTED LAYERS TO 12 INCHES MINIMUM COVER OVER TOP OF JACKET. COMPACT TO 95 PERCENT MAXIMUM DENSITY.
   B. EVENLY AND CONTINUOUSLY BACKFILL REMAINING TRENCH DEPTH IN
   C. UNIFORM LAYERS WITH BACKFILL MATERIAL
   D. DO NOT USE WHEELED OR TRACKED VEHICLES FOR TAMPING.

3. PRESSURE TEST ALL DOMESTIC WATER PIPING. AFTER INSTALLATION AND PRIOR TO BACKFILL OR COVER-UP, RINSE PIPING SYSTEM OF PARTICULATE CONTAMINANTS, CAP AND SUBJECT TO STATIC WATER PRESSURE OF 125 PSIG FOR FOUR (4) HOURS. REPAIR LEAKS AND DEFECTS AND RE-TEST ANY PORTION OF PIPING SYSTEM THAT FAILS. PROVIDE WRITTEN TEST REPORT INCLUDING DATE AND TIME OF TEST, PASS OR FAIL INDICATION, SUMMARY OF REMEDIAL WORK REQUIRED AND DATE AND TIME OF EACH RE-TEST.

4. PRIOR TO COVER UP, WATER PIPE, SANITARY PIPE, AND GAS PIPING SHALL BE PRESSURE TESTED. TESTS SHALL BE WITNESSED BY CONSULTANT AND OWNER. NOTIFY OWNER 48 HOURS PRIOR TO TEST. TEST SHALL BEWITNESSED BY CLIENT PLUMBING TECHNICIAN.

5. UPON COMPLETION OF THE SANITARY PIPING SYSTEM, THE CONTRACTOR SHALL NOTIFY ENGINEER AND OWNER TO OBSERVE A SMOKE TEST OF THE SYSTEM. SMOKE TESTING SHALL BE PERFORMED ON SANITARY PIPING SYSTEM TWICE DURING CONSTRUCTION.

6. PRESSURE TEST NATURAL GAS PIPING IN ACCORDANCE WITH NFPA 54. CA PLUMBING CODE SECTION 1213

GENERAL PLUMBING NOTES

1. ALL BRACING OF PIPING SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA GUIDELINES, HAZARD LEVEL 'A'.
2. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT, MECHANICAL ENGINEER AND FIELD INSPECTOR.
3. SUPPORT AND BRACING OF ALL PIPING SHALL BE IN ACCORDANCE WITH THE SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF PLUMBING PIPING SYSTEMS", OR THE "SUPERSTRUT SEISMIC RESTRAINT SYSTEM" FOR PIPING ONLY.
4. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING WITH INSTALLATION. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY EXISTING CONDITIONS WHICH CONFLICT WITH INFORMATION PROVIDED IN CONSTRUCTION DOCUMENTS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL PIPE ROUTING WITH WORK OF OTHER TRADES AND MAKE ANY OFFSETS AS REQUIRED TO AVOID CONFLICT WITH DUCTWORK, LIGHT FIXTURES, SKYLIGHTS, ETC.
6. PLUMBING CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR FOR ALL CONDENSATE DRAIN CONNECTIONS TO MECHANICAL EQUIPMENT.
7. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PLUMBING CONDITIONS PRIOR TO PROCEEDING WITH INSTALLATION. CONTRACTOR SHALL NOTIFY ARCHITECT/ ENGINEER OF ANY EXISTING CONDITIONS WHICH CONFLICT WITH INFORMATION PROVIDED IN CONSTRUCTION DOCUMENTS.
8. FOR PLUMBING FIXTURE MOUNTING HEIGHTS AND LOCATIONS, REFER TO THE ARCHITECTURAL DRAWINGS.
9. ALL PLUMBING CONVEYING OR DISPENSING WATER FOR HUMAN CONSUMPTION SHALL COMPLY WITH AB 1953 FOR LEAD CONTENT.
10. REFER TO ARCHITECTURAL DRAWING FOR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. DO NOT SCALE FROM PLUMBING DRAWINGS.
11. ALL WALL CLEAN-OUTS SHALL BE ACCESSIBLE BY AN ACCESS PANEL.
12. PROVIDE A DOUBLE EXTERIOR CLEAN-OUT (DFCO) ON ALL SANITARY LINES EXITING THE BUILDING.
13. ALL FLOOR DRAINS AND FLOOR SINKS SHALL BE PROVIDED WITH A TRAP PRIMER.
14. FIXTURES DESIGNATED AS ADA ACCESSIBLE BY ARCHITECT SHALL BE INSTALLED AT ADA ACCESSIBLE HEIGHT PER ARCHITECTURAL DETAILS.
15. ALL DOMESTIC COLD AND HOT WATER TAKE-OFFS SHALL HAVE AN ISOLATION SHUT-OFF VALVE.
16. CONTRACTOR SHALL DEWATER ANY AREA AT OR BELOW GRADE PRIOR TO SETTING EQUIPMENT.
17. ANY AND ALL WATER PIPING EXPOSED TO OUTSIDE ELEMENTS SHALL BE INSULATED TO PREVENT FREEZING.
18. ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED BY THE INSPECTION AUTHORITY. NOTHING IN THESE PLANS IS TO BE CONSTUED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHER APPLICABLE PROJECT SPECIFICATIONS:

   LIST OF APPLICABLE CODES
   2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
   2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
   2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
   2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
   2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
   2022 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CCR
   2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
   2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
   2022 CALIFORNIA GREEN BUILDING STANDARD CODE (CALGREEN), PART 11, TITLE 24 CCR
   2022 CALIFORNIA REFERENCE STANDARDS CODE (CBC), PART 12, TITLE 24 CCR
   TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

   APPLICABLE STANDARDS
   FOR A LIST OF APPLICABLE STANDARDS, INCLUDING CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80.

19. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE FACILITY, UTILITIES AND APPURTENANCE CAUSED BY THE WORK IN THEIR SCOPE. CONTRACTOR SHALL RESTORE AND REPAIR ANY DAMAGE AT NO ADDITIONAL COST TO THE OWNERS BY INSTALLATION THE FACILITY OF NEW WORK.

MEP COMPONENT ANCHORAGE NOTES:

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC, SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTER 13, 26 AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRIC, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

1. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
2. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUND PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTION 1617A.1.24, 1617A.1.25, AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO START OF AND DURING THE HANGING AND BRACING OF DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☐ MD☐ PP☒ E☐ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES & DETAILS.

MP☐ MD☐ PP☐ E☐ OPTION 2: SHALL COMPLY WITH THE APPLICABLE HCAI PRE-APPROVAL (OPM #) #_____.

DRAWING INDEX

ABBREVIATIONS

NOTE: 1. ALL ABBREVIATIONS MAY NOT BE USED ON THESE DRAWINGS.

AAP	AREA ALARM PANEL	MH	MANHOLE
AAV	AUTOMATIC AIR VENT	MS	MOP SINK
A.F.F.	ABOVE FINISHED FLOOR	N.C.	NORMALLY CLOSED
AP	ACCESS PANEL	NIC	NOT IN CONTRACT
B.F.F.	BELOW FINISHED FLOOR	N.O.	NORMALLY OPEN
BFP	BACKFLOW PREVENTER	O.F./C.I.	OWNER FURNISHED/CONTRACTOR INSTALLED
BOB	BOTTOM OF BEAM	O.F./O.I.	OWNER FURNISHED/OWNER INSTALLED
BOP	BOTTOM OF PIPE	OFD	OVERFLOW DRAIN
BTUH	BRITISH THERMAL UNITS PER HOUR	PH	PHASE
CA	COMPRESSED AIR	PIV	POST INDICATOR VALVE
C/C	CUT AND CAP	PRV	PRESSURE REDUCING VALVE
CFH	CUBIC FEET PER HOUR	RD	ROOF DRAIN
CFS	CUBIC FEET PER SECOND	RE:	REFER TO
CI	CAST IRON	R.I.C.	ROUGH-IN AND CONNECT
CLG	CEILING	RO	REVERSE OSMOSIS
CO	CLEANOUT	RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER
CONN	CONNECTION	RPM	REVOLUTIONS PER MINUTE
CONT.	CONTINUATION	RVB	REFRIGERATOR VALVE BOX
DF	DRINKING FOUNTAIN	SD	STORM DRAIN
DPV	DRY PIPE VALVE	S.F.	SQUARE FEET
DWG.	DRAWING	SIA.	SIAMESE
EA	EACH	SK	SINK
EL.	ELEVATION	T.O.P.	TOP OF PIPE
EDF	ELECTRIC DRINKING FOUNTAIN	TP	TRAP PRIMER
FCO	FLOOR CLEANOUT	TYP	TYPICAL
FD	FLOOR DRAIN	U	URINAL
FDV	FIRE DEPARTMENT VALVE	U/F	UNDERFLOOR
F.F.	FINISHED FLOOR	U/S	UNDERSLAB
FHC	FIRE HOSE CABINET	VAC. BRKR.	VACUUM BREAKER
F.L.	FLOW LINE	VIF	VERIFY IN FIELD
FS	FLOOR SINK	VTR	VENT THRU ROOF
FT	FEET	WC	WATER CLOSET
FU	FIXTURE UNITS	WCO	WALL CLEANOUT
GC	GENERAL CONTRACTOR	WH	WALL HYDRANT
GPH	GALLONS PER HOUR	WMB	WASHING MACHINE BOX
GPM	GALLONS PER MINUTE	YH	YARD HYDRANT
HB	HOSE BIBB	ZV	ZONE VALVE
HP	HORSEPOWER	(A)	ITEM NOTED TO BE ABANDONED
I.E.	INVERT ELEVATION	(D)	ITEM NOTED TO BE DEMOLISHED
KW	KILOWATTS	(E)	EXISTING ITEM
LAV	LAVATORY	(N)	NEW ITEM
MAP	MASTER ALARM PANEL	(R)	ZFITEM NOTED TO RELOCATED
MECH	MECHANICAL		

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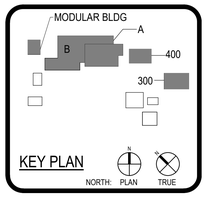
DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



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05-19-03	230010

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PLUMBING SYMBOLS, LEGENDS & GENERAL NOTES

P0.00

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P1.01 - PLUMBING SITE PLAN

0" 1"

1 SITE PLAN
1" = 20'-0"

GENERAL NOTES

1. RELOCATED AND REFURBISH 36'X40' MODULAR RELOCATABLE BUILDING TO AN EXISTING CAMPUS FOR THE CORONA-NORCO UNIFIED SCHOOL DISTRICT.
2. SITE IMPROVEMENTS INCLUDE BRINGING WATER AND SANITARY SEWER TO THE MODULAR RELOCATABLE.
3. PLUMBING SCOPE OF WORK INCLUDES PROVISION OF BREAK ROOM SINK WITH GARBAGE DISPOSER AND INSTA-HOT.
4. PROVIDE CONDENSATE DRAINAGE TO HVAC UNIT. EXACT SIZE, ORIENTATION AND LOCATION OF UNIT SHALL BE IN ACCORDANCE TO MECHANICAL PLANS.
5. REFER TO ARCHITECTURAL PLANS FOR DETAILED SCOPE OF WORK AT THE SITE.

KEY NOTES

1. 3/4" COLD WATER; I.E. = -2' 0"; PROVIDE SHUT-OFF VALVE IN CONCRETE YARD BOX, SEE DETAIL #2/P5.01.
2. 2" SEWER; I.E. - 2' 6"; PROVIDE CLEANOUT TO GRADE IN CONCRETE YARD BOX, SEE DETAIL #1/P5.01.
3. EXTEND AND CONNECT 3/4" CONDENSATE DRAIN FROM HVAC UNIT; RUN BELOW GRADE AND SLOPE 1% TO DRYWELL. SEE DETAIL #4/P5.01.

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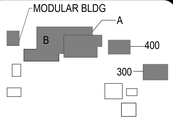

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PLUMBING SITE PLAN

P1.01

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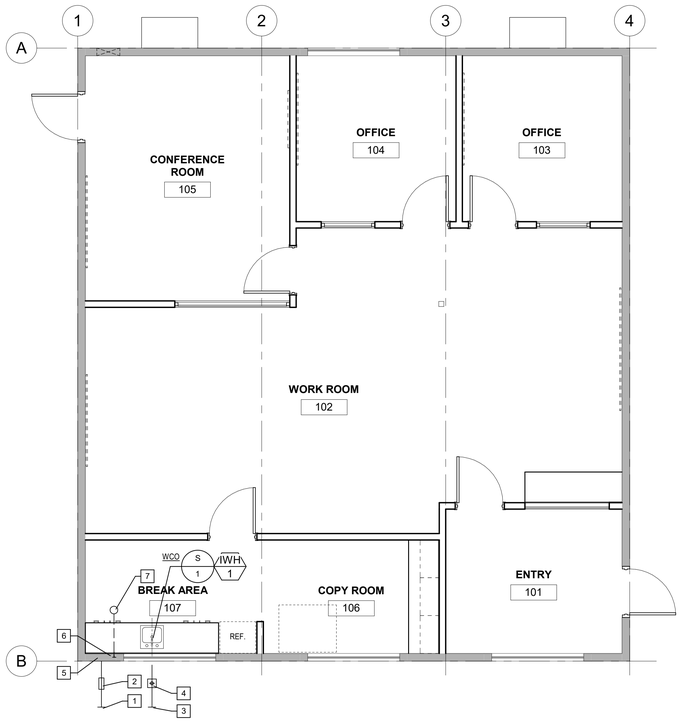
0" 1"



2 PROPOSED FLOOR PLAN

1/4" = 1'-0"

GENERAL NOTES

1. RELOCATED AND REFURBISH 36'X40' MODULAR RELOCATABLE BUILDING TO AN EXISTING CAMPUS FOR THE CORONA-NORCO UNIFIED SCHOOL DISTRICT.
2. SITE IMPROVEMENTS INCLUDE BRINGING WATER AND SANITARY SEWER TO THE MODULAR RELOCATABLE.
3. PLUMBING SCOPE OF WORK INCLUDES PROVISION OF BREAK ROOM SINK WITH GARBAGE DISPOSER AND INSTA-HOT.
4. PROVIDE CONDENSATE DRAINAGE TO HVAC UNIT. EXACT SIZE, ORIENTATION AND LOCATION OF UNIT SHALL BE IN ACCORDANCE TO MECHANICAL PLANS.
5. REFER TO ARCHITECTURAL PLANS FOR DETAILED SCOPE OF WORK AT THE SITE.

KEY NOTES

1. 3/4" COLD WATER (2 FU); FOR CONTINUATION, SEE SITE PLAN.
2. SHUT-OFF VALVE IN CONCRETE YARD BOX; SEE DETAIL #2/P5.01.
3. 2" SANITARY SEWER (3 DFU), I.E. = -2.5'. FOR CONTUINUATION, SEE SITE PLAN.
4. CLEANOUT IN CONCRETE YARD BOX; SEE DETAIL #1/P5.01.
5. 3/4" COLD WATER UP IN WALL; OFF SET AND RUN BELOW WINDOW TO SINK.
6. 1-1/2" VENT UP FROM SINK RUN BELOW WINDOW FROM SINK.
7. 1-1/2" VENT UP THRU ROOF (3 DFU).
8. WALL CLEANOUT BELOW COUNTER; SEE DETAIL #3/P5.01.

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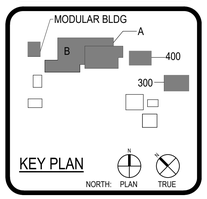

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PLUMBING FLOOR PLANS

P2.01

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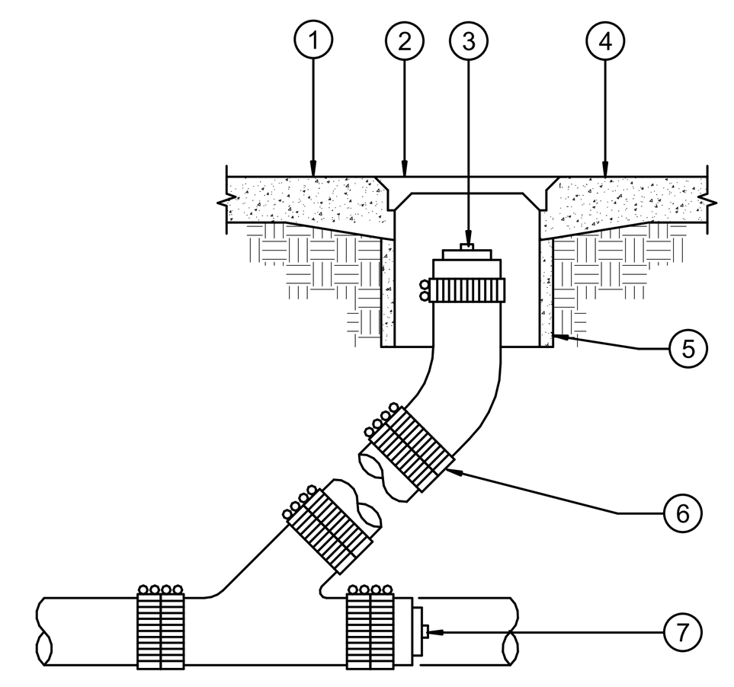
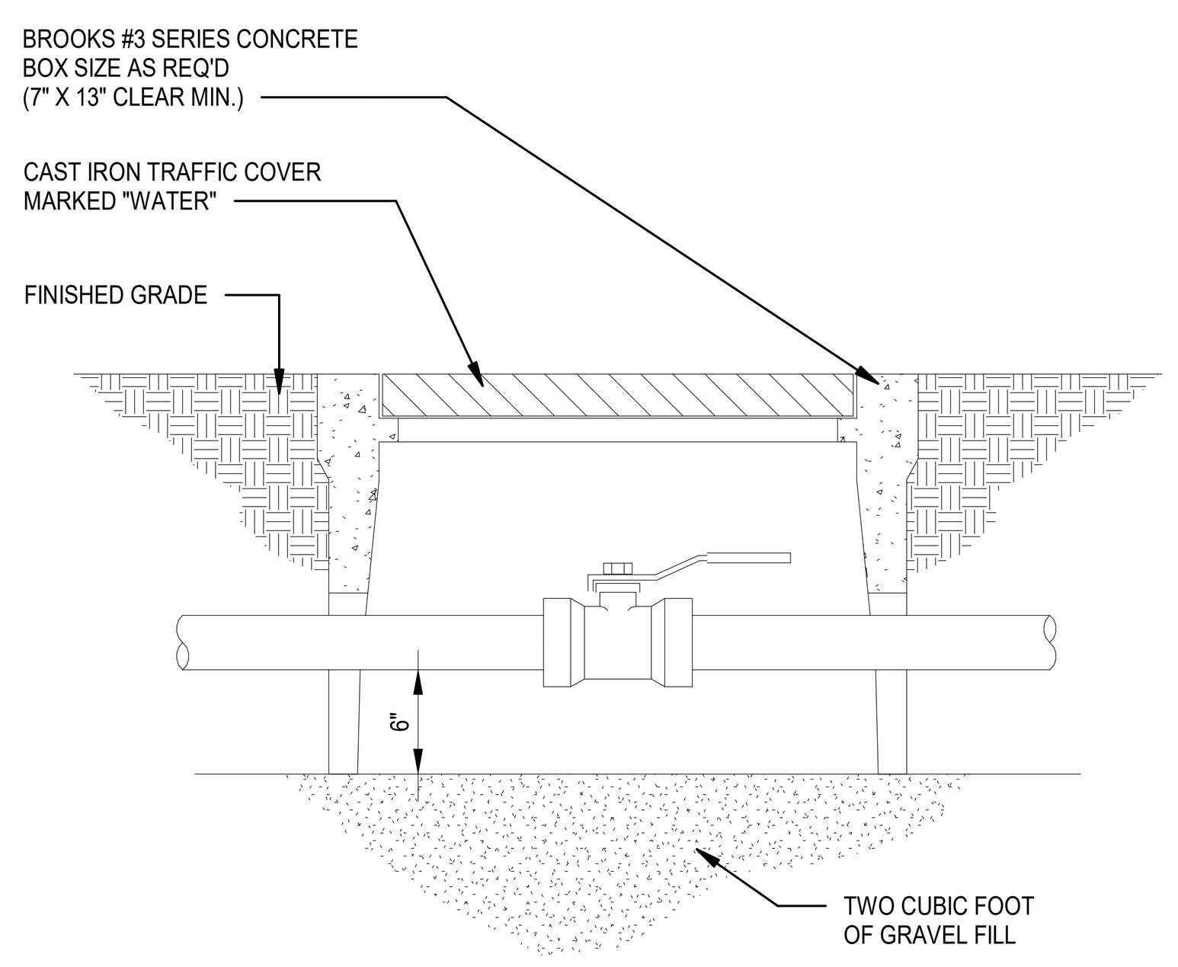


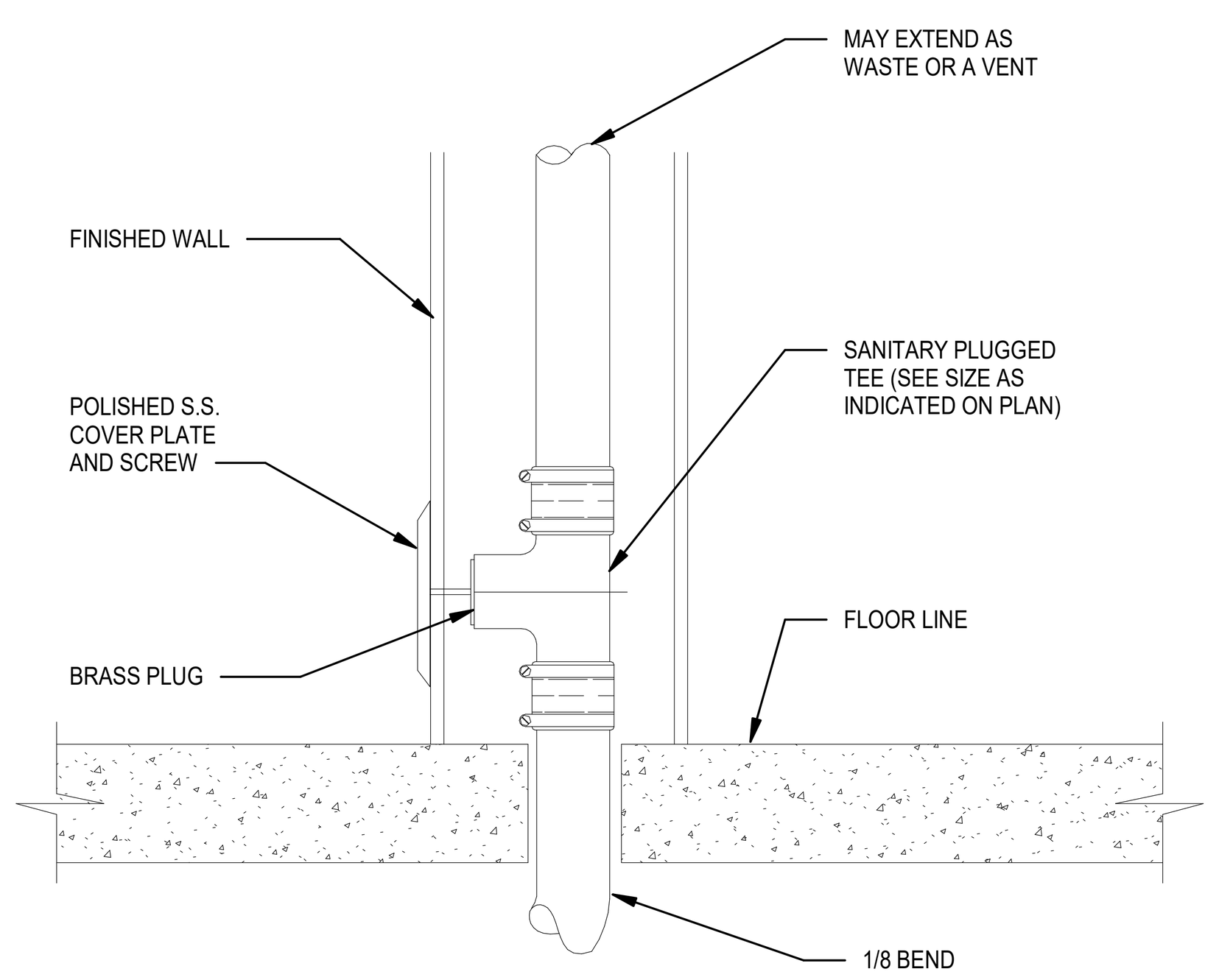
NOTES:

1. 24" X 24" X 6" DEEP CASTCONCRETE IN UNPAVED AREA.
2. LABEL COVER "SEWER".
3. CLEANOUT PLUG. CAST IRON FERRULE & BRASS PLUG.
4. 1/2" SLOPE.
5. PRE-CAST CONCRETE BOX WITH CAST IRON COVER.
6. NO-HUB COUPLING WITH STAINLESS STEEL SHIELD (TYP).
7. PLUGGED WYE AT END OF RUNS.

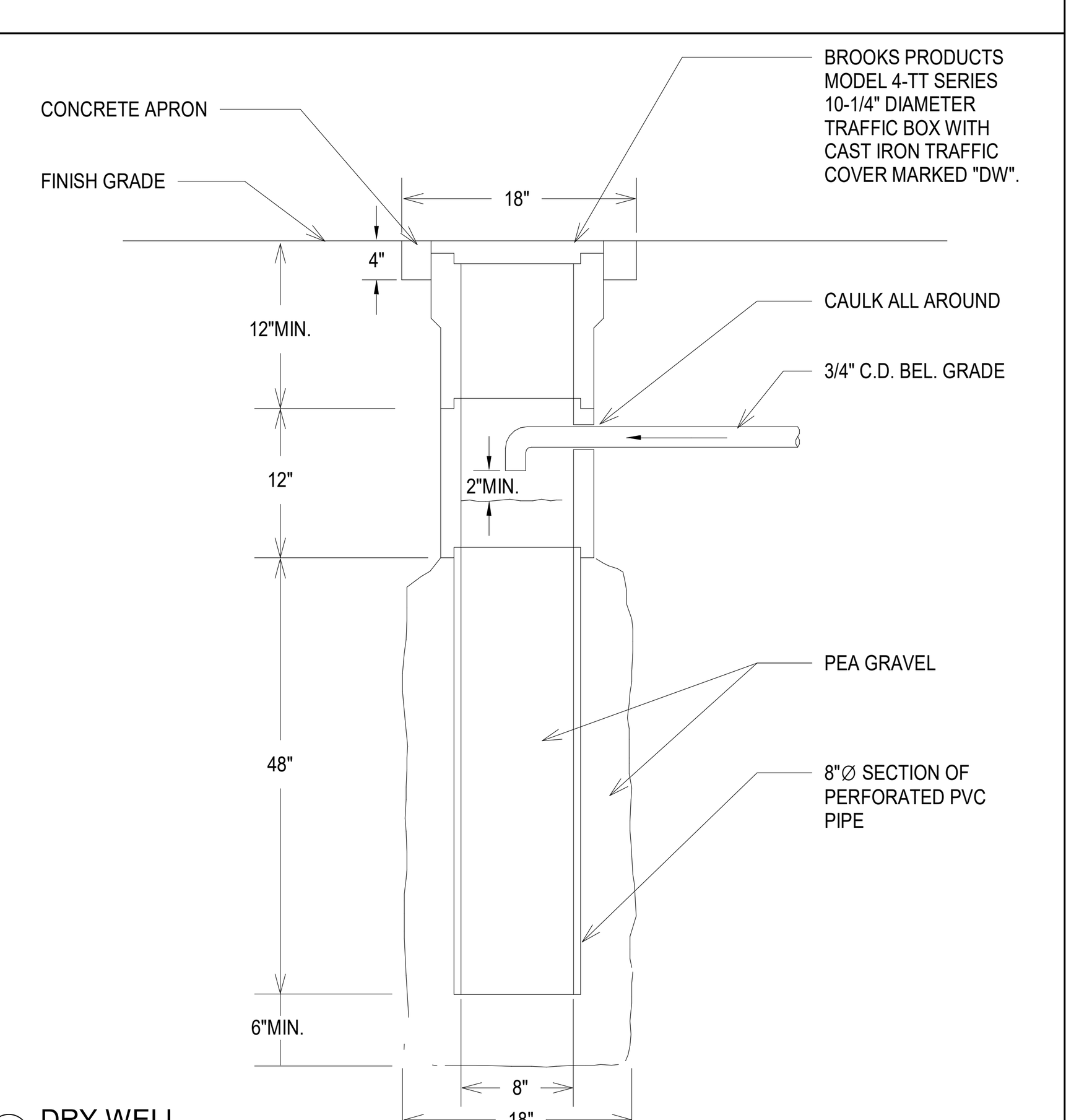
(1) SURFACE CLEANOUT DETAIL (COTG)
12" = 1'-0"



(2) SOV IN YARD BOX DETAIL
12" = 1'-0"



(3) WALL CLEANOUT - 1
N.T.S



(4) DRY WELL
12" = 1'-0"

INSTANTANEOUS WATER HEATER SCHEDULE

NO.	SERVICE	LOCATION	MANUFACTURER MODEL	TANK CAPACITY	ELEC. VOLT	WATTS	AMPS	TEMP. RISE (F)	OPER. WT (LBS)	DIMENSIONS	REMARKS
IWH 1	INSTANTANEOUS WATER HEATER	BREAK AREA #107	CHRONOMITE #M40L / 208	N/A	208V	8	40	57	15	6.25" HT X 9.6" W X 2.75" DEPTH	ELECTRICAL CONTRACTOR TO PROVIDE COORDINATED & REQUIRED POWER AS SHOWN. UNIT FOR BREAK ROOM SINK USE.

PLUMBING FIXTURE ROUGH IN SCHEDULE

MARK	FIXTURE	ROUGH-IN-SIZE					FIXTURE UNIT		DESCRIPTION/REMARKS
		TRAP	S/W	V	CW	HW	WASTE	WATER	
S-1	SINK	2"	2"	1 1/2"	3/4"	3/4"	2	2	BY OTHERS; PROVIDE ROUGH-IN'S ONLY. REFER TO MODULAR BUILDING PLAN.

PIPE MATERIAL SCHEDULE

NOTE:
ANY (T) PIPING SYSTEM SHALL BE SAME AS (N) OR EQUAL.

SERVICE		MATERIAL	PEX PIPE AND FIFITTING ASTM F 877-2005	ABS DWV - SCH 40	COPPER TYPE L 95/5 SOLDER	COPPER TYPE K (UNDERGROUND) 95/5 SOLDER	COPPER TYPE L SILVER SOLDER	CAST IRON SOIL PIPE & FITTING	BLACK STL SCH 40 VICTAULIC COUPLING	GALV. STL. SCH. 40 W/C.I. THREADED DWV FITTING	GALV. STL SCH 40 THREADED FITTINGS	SCH. 40 PVC W/PROFERATED HOLES	COPPER TYPE "L" O2 CLEAN TO ASTM B-819, NFPA 99, CGA G 4.1, SILVER SOLDER DOUBLE WALL BEL. GRADE	DUCTILE IRON THRUST BLOCKS	COPPER TYPE ACR "L" TO ASTM B-88, B-280 SILVER SOLDER	REMARKS
WATER	(CW) (HW) (HWR)	INTERIOR			○											5 PSI/100 FT. @ 8PSI MAX. VELOCITY
		EXTERIOR				○										
WASTE & VENT	(W) (V) (GW)	INTERIOR						○								GRAVITY @ 2% SLOPE
		EXTERIOR						○								
STORM DRAIN	(SD) (OD)	INTERIOR						○								(SIZED FOR 2" RAINFALL PER 1HR) SLOPE @ 1/4" 1FT SLOPE
		EXTERIOR						○								
DRAIN	(DR)	INTERIOR			○											
		EXTERIOR			○											

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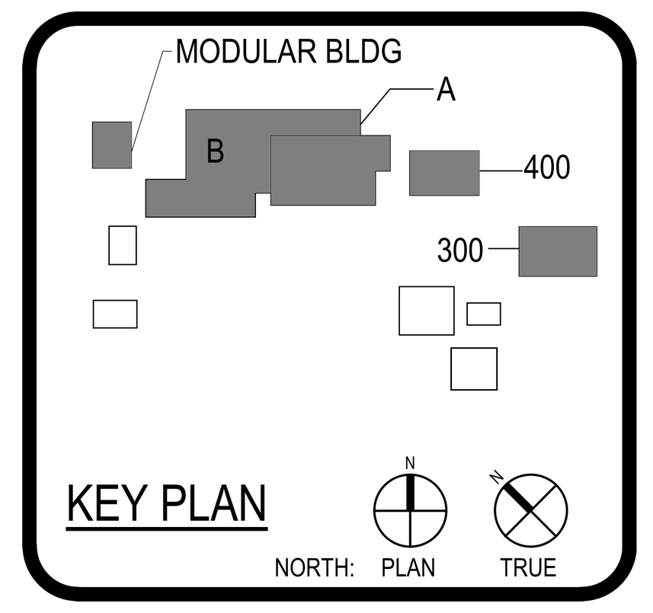

KEY PLAN
NORTH PLAN TRUE

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PLUMBING SCHEDULES & DETAILS

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TECHNOLOGY GENERAL NOTES

1. THE SEISMIC BRACING AND ANCHORAGE OF ELECTRICAL CONDUITS, BUS DUCT, WIREWAY, AND CABLE TRAY SHALL BE IN ACCORDANCE WITH THE UNIFORM BUILDING CODE, CHAPTER 23 AND "GUIDELINE FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS," PUBLISHED BY SMACNA AND PPIC, OR THE SUPER STRUT-SEISMIC RESTRAINT SYSTEM, OR THE KIN- LINE SEISMIC RESTRAINT SYSTEM.

2. ALL ELECTRICAL PREFABRICATED EQUIPMENT SHALL BE DESIGNED AND CONSTRUCTED IN SUCH A MANNER THAT ALL PORTIONS, ELEMENTS, SUB-ASSEMBLIES AND/OR PARTS OF SAID EQUIPMENT, AND THE EQUIPMENT AS A WHOLE INCLUDING ITS ATTACHMENTS WILL RESIST A LOAD WHICH EXCEEDS THE FORCE LEVEL USED TO RESTRAIN AND ANCHOR THE EQUIPMENT TO THE SUPPORTING STRUCTURE.

3. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL) OR OTHER APPROVED TESTING AUTHORITY AND BEAR THEIR LABEL OR LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING.

4. AUTHORITY WHERE UL DOES NOT HAVE A LISTING. CUSTOM MADE EQUIPMENT SHALL HAVE COMPLETE TEST DATA SUBMITTED BY THE MANUFACTURER ATTESTING TO ITS SAFETY. IN ADDITION, THE MATERIALS, EQUIPMENT, AND INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING AS APPLICABLE:

   AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)

   INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)

   NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

   AMERICAN STANDARD ASSOCIATION (ASA)

   NATIONAL FIRE PROTECTION AGENCY (NFPA)

   AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)

   INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

5. ALL LOCAL CODES HAVING JURISDICTION. WHERE THE CODES HAVE DIFFERENT LEVELS OF REQUIREMENT, THE MOST STRINGENT RULE SHALL APPLY AS DETERMINED BY ENGINEER.

6. ALL ITEMS SUCH AS SERVICE CONDUIT, CONDUCTORS, DUCTS, CONCRETE PADS, TRANSFORMERS, RISERS, MANHOLES, PULL BOXES, AND PROTECTIVE COVERING FROM SERVICE LOCATION SHALL BE PROVIDED AND SHALL BE VERIFIED WIT THE SERVING UTILITY COMPANY. THE CONTRACTOR SHALL PROVIDE THE SERVICE IN COMPLIANCE WITH THE SERVING UTILITY AGENCY. CJV SHALL PAY ALL CHARGES LEVIED BY THE SERVING UTILITY AGENCY FOR SERVICE EXCEPT THE FIRST BILLING DEPOSIT

7. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION AND CONFIGURATION OF THEIR RESPECTIVE EQUIPMENT. SUPPLY POWER AND MAKE CONNECT TO MOTORS AND EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AS INDICATED ON THE SINGLE LINE DIAGRAM, ELECTRICAL DRAWINGS, AND DRAWINGS OF OTHER TRADES. REVIEW THE DRAWINGS OF OTHER TRADES FOR CONTROL DIAGRAMS, SIZE AND LOCATION OF EQUIPMENT. DISCONNECT SWITCHES, STARTERS, WIRING, CONTROLS, CONDUIT FOR MECHANICAL, MISC. 120V POWER REQUIREMENTS AND PLUMBING OPERATIONS SHALL BE PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGHING IN ALL CONDUIT TO THIS EQUIPMENT.

8. EXACT METHOD AND LOCATION OF CONDUIT PENETRATION AND OPENINGS IN CONCRETE OR MASONRY WALLS, GRADE BEAMS, FLOORS OR STRUCTURAL STEEL MEMBERS SHALL BE AS DIRECTED BY THE STRUCTURAL ENGINEER. PERFORM CORING, SAWCUTTING, PATCHING, AND REFINISHING OF WALLS AND SURFACES WHEREVER IT IS NECESSARY TO PENETRATE. OPENINGS SHALL BE SEALED IN AN APPROVED METHOD TO MEET THE FIRE RATING OF THE PARTICULAR WALL, FLOOR OR CEILING. EXACT METHOD AND LOCATIONS OF CONDUIT PENETRATIONS AND OPENINGS IN CONCRETE WALLS OR FLOORS SHALL BE FOR UL APPROVED SYSTEMS.

9. CONNECTIONS TO VIBRATING EQUIPMENT, MECHANICAL, AND PLUMBING EQUIPMENT AND SEISMIC SEPARATIONS: LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN ALL LOCATIONS MAXIMUM LENGTH OF FLEXIBLE CONDUIT RUNS SHALL BE 6'-0" UNLESS OTHERWISE NOTED. TRAIN CONTROL CONDUIT, 2" AND BIGGER ARE SHOWN IN MSF-02 AND MSF-03 E-900 SERIES. SMALLER CONDUIT RUN SHALL BE SHOWN IN ELECTRICAL CONTRACTOR'S SHOP DRAWINGS.

10. STRAIGHT FEEDER, BRANCH CIRCUIT, AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES AS REQUIRED BY CODE. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

11. UTILITY PENETRATIONS OF ANY KIND IN FIRE AND SMOKE PARTITIONS AND CEILING ASSEMBLIES SHALL BE FIRESTOPPED AND SEALED WITH AN APPROVED MATERIAL. SECURELY INSTALLED STEEL ELECTRICAL OUTLET BOXES WHICH DO NOT EXCEED 16 SQUARE INCHES IN AREA, NEED NOT BE PROTECTED IN ONE HOUR OR TWO-HOUR FIRE RATED WALLS, PARTITIONS, CEILINGS, OR AREA SEPARATION UNLESS THEY:

12. OCCUR ON OPPOSITE SIDES OF THE WALL WITHIN 24 INCH HORIZONTAL DISTANCE OF ONE ANOTHER. IN THIS CASE, ONLY ONE OUTLET BOX NEED TO PROTECTED BY AN APPROVED FIRESTOP MATERIAL OR DETAIL TO CORRECT THIS CONDITION.

13. OCCUR IN COMBINATION WITH OUTLET BOXES OF ANY SIZE SUCH THAT THE AGGREGATE AREA OF UNPROTECTED OUTLET BOXES EXCEEDS 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL AREA. IN THIS CASE, ONLY A SUFFICIENT NUMBER OF OUTLET BOXES NEED TO BE PROTECTED BY AN APPROVED MATERIAL OR DETAIL TO DECREASE THE AGGREGATE AREA OF UNPROTECTED UTILITY BOXES TO LESS THAN 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL.

14. STEEL ELECTRICAL OUTLET BOXES, WHICH EXCEED 16 SQUARE INCHES IN AREA, AND ALL OTHER STEEL UTILITY OUTLET BOXES REGARDLESS OF SIZE, SHALL BE PROTECTED BY AN APPROVED FIRESTOP MATERIAL AS LISTED.

15. UTILITY AND ELECTRICAL OUTLETS OR BOXES SHALL BE SECURELY FASTENED TO THE STUD OF FRAMING OF THE WALL, PARTITION OR CEILING ASSEMBLY. THE OPENING IN THE GYPSUM BOARD FACING SHALL BE CUT SO THAT THE CLEARANCE BETWEEN THE BOX, AND THE GYPSUM BOARD DOES NOT EXCEED 1/8 INCH IN SMOKE WALLS OR PARTITIONS, THE 1/8 INCH CLEARANCE SHALL BE FILLED WITH AN APPROVED FIRE-RATED SEALANT.

16. MAXIMUM NUMBER OF CONDUCTORS IN OUTLET OR JUNCTION BOXES SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE, ARTICLE 314-16, BUT IN NO CASE SHALL CONTAIN MORE THAN THE FOLLOWING NUMBER OF #12 AWG CONDUCTORS FOR THE SIZE OF BOX INDICATED. THE MINIMUM SIZE OUTLET OR JUNCTION BOX PERMITTED IN A WALL IS FOUR INCHES SQUARE BY 1 1/2 INCHES DEEP.

   4" SQUARE BY 1 1/2" D=9 CONDUCTORS
   4" SQUARE BY 2 1/8" D=13 CONDUCTORS
   4 11/16" SQUARE BY 1 1/2" D=11 CONDUCTORS
   4 11/16" SQUARE BY 2 1/8" D=18 CONDUCTORS
   ALL OUTLET BOXES CONTAINING MORE THAN ONE DEVICE SHALL BE GANGED.
   TWO DEVICES DOUBLE GANGED, MINIMUM.

17. WHERE MULTI-HOMERUNS ARE INDICATED ON DRAWINGS INDICATING THE SAME PANELBOARD CIRCUIT NUMBER, PROVIDE JUNCTION BOX ABOVE ACCESSIBLE CEILING AND ROUTE ONE SET OF WIRED TO CIRCUIT BREAKERS.

18. DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT SHOW SPECIAL CONDUIT ROUTING OR LENGTHS REQUIRED FOR A COMPLETE INSTALLATION. ROUTING OF RACEWAYS SHALL BE COORDINATED IN THE FIELD WITH OTHER TRADES BUT SHALL BE IN STRICT COMPLIANCE WITH STRUCTURAL REQUIREMENTS AND SPECIFICATIONS, UNLESS OTHERWISE NOTED AND SHALL BE COORDINATED WITH OTHER TRADES. NO CONDUIT SHALL BE ROUTED HORIZONTALLY IN MASONRY WALLS IN EXCESS OF 48". DO NOT SCALE THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL OR MECHANICAL ITEMS OR FEATURES, REFER TO ARCHITECTURAL AND STRUCTURAL DIMENSIONAL DRAWINGS.

19. THE EQUIPMENT GROUNDING CONDUCTOR, ALTHOUGH NOT SHOWN ON CONDUIT RUNS, SHALL BE INSTALLED AND RUN CONTINUOUS FROM PANEL TO THE LAST OUTLET. THIS WIRE SHALL BE PIGTAILED IN EACH OUTLET FOR CONNECTION TO BOX AND DEVICE SO THAT IF DEVICE IS REMOVED, GROUND WILL NOT BE INTERRUPTED. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSULATED GREEN CONDUCTORS, ALTERNATE METHODS OF IDENTIFICATION SHALL NOT BE USED.

20. JUNCTION AND PULL BOXES: FOR INTERIOR DRY LOCATIONS, BOXES SHALL BE GALVANIZED ONE-PIECE, DRAWN STEEL, KNOCKOUT TYPE WITH REMOVABLE MACHINE SCREW SECURED COVERS. FOR OUTSIDE, DAMP, OR PROVIDE NEMA 4X WHERE REQUIRED. BOXES SHALL BE LABELED TO INDICATE PANEL AND CIRCUIT NUMBER, OR TYPE OF SIGNAL OR COMMUNICATIONS SYSTEM.

21. WHEN CONFLICTS OCCUR ON DRAWINGS, THE MOST STRINGENT APPLICATION SHALL APPLY.

22. IT IS THE INTENT OF THE DRAWINGS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION BE PROVIDED FOR THE EQUIPMENT DESCRIBED OR SHOWN AS BEING IN THIS CONTRACT. FURNISH ALL LABOR AND TOOLS NECESSARY AND FURNISH AND INSTALL ALL APPARATUS, MATERIALS AND EQUIPMENT IN A FASHION COMPLYING WITH ALL APPLICABLE CODES, INCLUDING ITEMS REQUIRED BUT NOT NORMALLY SHOWN, SUCH AS LAMPS, HANGERS, BRACKETS, CLAMPS, COUPLINGS, BOXES, CONNECTORS, AND HARDWARE REFER ALSO TO WRITTEN SPECIFICATIONS FOR GENERAL, MECHANICAL AND ELECTRICAL SECTIONS.

23. NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO TECHNOLOGY EQUIPMENT SHALL BE PERMITTED TO BE LOCATED WITHIN DEDICATED SPACE ABOVE THE TECHNOLOGY EQUIPMENT.
24. ALL GROUNDING ELECTRODES THAT ARE PRESENT AT EACH BUILDING OR STRUCTURE SHALL BE BONDED TOGETHER.

25. REFER TO SPECIFICATION SECTION 26 05 33 FOR TYPE OF CONDUITS USED.

26. FUTURE EQUIPMENT SUBMITTALS TO SHOW THE EXACT LOCATIONS FOR ALL FUTURE PANELS SHOWN ON THE DRAWINGS.

27. RACEWAY AND BOXES FOR TECHNOLOGY SYSTEMS

   CONDUIT

   A. ALL CONDUITS, CABLES, AND WIRING SHALL BE CONCEALED FROM PUBLIC VIEW. UNLESS APPROVED BY OWNER.

   B. DRY LOCATIONS EXPOSED AND CONCEALED: PROVIDE ELECTRICAL METALLIC TUBING CONDUIT, BASED FP 11.3.16.67 (A) THAT USE OF EMT IS SUBJECT TO OWNER APPROVAL. GALVANIZED RIGID STEEL (RGS) CONDUIT SHALL BE USED IN AREAS SUBJECT TO PHYSICAL DAMAGE INCLUDING ALL TUG ROUTES OR TUG AREAS. PROVIDE SHEET-METAL BOXES PROVIDE FLUSH MOUNTING OUTLET BOX IN FINISHED AREAS.

   C. ANY SPACE CONDUITS SHALL BE PROVIDED WITH PULL LINES.

   D. THE MINIMUM CONDUIT SIZE SHALL BE 3/4 INCH FOR POWER.

   E. ROMEX AND ALUMINUM FLEX CONDUITS ARE NOT ALLOWED.

   ENCLOSURES

   A. METAL CLAD TYPE MC CABLE IS ALLOWED FOR TEMPORARY INSTALLATIONS.

   PULL BOXES

   A. INDOOR DRY ENCLOSURES SHALL BE NEMA TYPE 1.

   B. OUTDOOR ENCLOSURES SHALL BE NEMA TYPE 4X STAINLESS STELL.

   C. ENCLOSURES EXPOSED TO DUST OR MOISTURE SHALL BE NEMA TYPE 12 OR TYPE 3R/12.

28. IDENTIFICATION FOR SYSTEMS

   NAMEPLATES ON EQUIPMENT

   A. ENGRAVED PLASTIC NAMEPLATES AND SIGNS: ENGRAVING STOCK, MELAMINE PLASTIC LAMINATE, MINIMUM 1/16 INCH (1.6 MM) THICK FOR SIGNS UP TO 20 SQ. IN. (129 SQ. CM) AND 1/8 INCH (3.2 MM) THICK FOR LARGER SIZES. ENGRAVED LEGEND WITH WHITE LETTERS ON BLACKFACE FOR NORMAL POWER, WHITE LETTERS ON RED FACE FOR EMERGENCY POWER. PUNCHED OR DRILLED FOR MECHANICAL FASTENERS. TEXT IS AT 1/2-INCH (13 MM) HIGH LETTERING.

   B. NAMEPLATES SHALL ADEQUATELY DESCRIBE THE FUNCTION OF THE PARTICULAR EQUIPMENT INVOLVED. WHERE NAMEPLATES ARE DETAILED ON THE DRAWINGS, INSCRIPTION, AND SIZE OF LETTERS SHALL BE AS SHOWN, AND SHOP DRAWING SUBMITTED FOR APPROVAL. NAMEPLATES FOR PANELBOARDS AND SWITCHBOARDS SHALL INCLUDE THE PANEL DESIGNATION, VOLTAGE, PHASE AND WIRE, THE NEXT ITEM SHALL BE EITHER OWNER, CONCESSIONS, OR AIRLINE PANEL, DEPENDING ON LOADS SERVED. IN ADDITION, DESCRIBED WHERE THE PANEL IS FED FROM. FOR EXAMPLE:

   PANEL 1LA, 120/208V, 3PH, 4W FED
   OWNER PANEL
   FED FROM MS

   C. NAMEPLATES SHALL BE SECURED TO EQUIPMENT FRONT USING STAINLESS STEEL SCREWS OR RIVETS.

   D. CUSTOM METAL MASTER NAMEPLATES SHALL BE FURNISHED AND INSTALLED BY THE MANUFACTURER ON EACH DISTRIBUTION SECTION, SWITCHBOARD SECTION AND MOTOR CONTROL CENTER INDICATING THE MANUFACTURER'S NAME, AMPERE RATING, SHORT-CIRCUIT RATING (BUS BRACING) AND DATE. PAPER STICKERS ARE NOT ACCEPTABLE. FOR EXAMPLE:

   ABC SWITCHBOARD CO.
   AMPERE RATING: 5000A
   SHORT CIRCUIT RATING: 100KAIC
   DATE: 01/01/2011
   PANELBOARD DIRECTORIES

29. PERMANENT MARKING

   A. ALL CONDUITS, BUSWAYS, CABLE TRAYS, AND PULL BOXES SHALL BE IDENTIFIED WITH PERMANENT BLACK LETTERS AND NUMBERS WHICH INDICATE THE SOURCE PANEL (FEEDER SUPPLY SOURCE), CIRCUIT NUMBERS, AND DESIGNATED PANEL OR LOAD, FOR EXAMPLE, "PA-1.3.5 TO MG" FOR CONDUITS. THE LETTER HEIGHT SHALL BE ONE-THIRD (1/3) THE CONDUIT SIZE WITH ¼ INCH MINIMUM HEIGHT. FOR PULL BOXES AND BUSWAYS, THE LETTER HEIGHT SHALL BE ½ INCH MINIMUM HEIGHT AND NOT LARGER THAN ¾ INCH HEIGHT OR PER DEVELOPER CMMS REQUIREMENTS.

   B. THE IDENTIFICATIONS FOR CONDUITS, BUSWAYS, AND CABLE TRAYS SHALL BE PLACED AT BEGINNING AND END INTERVALS AND WITHING 10 FEET OF WALL AND FLOOR PENETRATIONS, PULL BOXES PANELS, DISTRIBUTION BOARDS, SWITCHBOARDS, AND ELECTRICAL EQUIPMENT.

   C. SPARE CONDUITS, PULL BOXES, BUSWAYS, AND ABANDONED RACEWAYS (THAT ARE TO REMAIN AS SHOWN ON THE DRAWINGS) SHALL BE IDENTIFIED AS DESCRIBED ABOVE (A, B).

   D. THE PERMANENT MARKING IDENTIFICATIONS ON THE RACEWAYS AND PULL BOXES SHALL BE VISIBLE AFTER THE INSTALLATIONS ARE MADE.

   E. ALL RECEPTACLE AND SWITCH FACEPLATES SHALL BE LABELED WITH THE SOURCE PANEL AND CIRCUIT NUMBER, THE LABEL SHALL BE BLACK ARIAL FONT ON WHITE OR CLEAR TAPE, PRODUCED BU A P-TOUCH OR OTHER LABEL MACHINE.

30. UNDERGROUND WARNING TAPE

   A. DESCRIPTION: PERMANENT, DETECTABLE, RED COLORED, CONTINUOUS PRINTED, POLYETHYLENE TAPE WITH SUITABLE WARNING LEGEND DESCRIBING BURIED ELECTRICAL LINES. TAPE SHALL BE MINIMUM 6 INCHES WIDE BY 4 MILS THICK. OTHER COLOR CODES INCLUDE:

SAFETY RED	ELECTRICAL AND LIGHTING CONDUIT AND CABLES
SAFETY YELLOW	GAS, OIL STEAM, PETROLEUM, OR GASEOUS MATERIALS
SAFETY ORANGE	TELEPHONE, ALARM, OR SIGNAL CABLES AND CONDUIT
SAFETY BLUE	POTABLE WATER OR IRRIGATION
SAFETY GREEN	SEWER OR DRAIN LINES

31. MANHOLE AND UNDERGROUND PULL BOXES COVER LABEL

   A. ALL MANHOLE AND UNDERGROUND PULL BOXES COVERS SHALL HAVE THE FOLLOWING CAST-IN OR BEAD WELDED AND GALVANIZED IDENTIFICATION LABEL PERMANENTLY AFFIXED TO THE EXTERIOR:

   "ELEC-LV" FOR ELECTRICAL POWER CIRCUITS 600 VOLTS OR LESS
   "ELEC-HV" FOR ELECTRICAL POWER CIRCUITS OVER 600 VOLTS
   "COMM" FOR COMMUNICATIONS CIRCUITS

   B. A CUSTOM 3-DIGIT NUMBER SHALL BE ADDED TO THE COVER. CONTACT THE ENGINEER FOR NUMBER ASSIGNMENT.

   C. THE MINIMUM LETTER HEIGHT SHALL BE ONE (1) INCH.

32. ALL EQUIPMENT MOUNTED ON ROOF FOR CONNECTION OF HVAC EQUIPMENT SHALL BE MOUNTED ON UNISTRUT STANDS UTILIZING APPROVED PITCH POCKETS, FLASHING, ETC.

33. EQUIPMENT OUTLETS, LIGHTING FIXTURES, CONDUIT, WIRE, AND CONNECTION METHODS IN HVAC AIR PLENUMS SHALL BE APPROVED FOR USE IN PLENUMS AND SHALL OFNROM TO THE "CEC."

34. THE EXACT LOCATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL ELEVATIONS, DETAILS, OR SECTIONS PRIOR TO INSTALLATION. ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE RECESSED IN WALLS UNLESS OTHERWISE NOTED. OUTLETS NOT INDICATED ON ARCHITECTURAL ELEVATIONS SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ROUGH-IN. UNLESS OTHERWISE NOTED, MOUNT ELECTRICAL DEVICES AT THE FOLLOWING HEIGHTS:

WAL SWITCH	+4'-0" MAX TO TOP OF BOX, SET VERTICALLY +1'-6" SET VERTICALLY (15" MIN. TO BOTTOM OF BOX)
CONVENIENCE RECEPTACLE	+1'-6" SET VERTICALLY (15" MIN. TO BOTTOM OF BOX)
TELEPHONE/DATA OUTLETS	+46" MAX TO TOP OF BOX OR
OUTLETS AT COUNTERS	+6" ABOVE COUNTERS WITHOUT SPLASHES OR CENTERED IN SPLASH SET HORIZONTALLY

35. REVIEW ARCHITECTURAL ELEVATIONS OF CASEWORK. OUTLETS MOUNTED ABOVE OR BELOW, OR ADJACENT TO CASEWORK SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS, PRIOR TO FINAL ROUGH-IN. ELECTRICAL DRAWINGS SHALL GOVERN NUMBER AND TYPE OF OUTLETS. HOWEVER, LOCATIONS SHALL BE AS INDICATED ON ARCHITECTURAL ELEVATIONS. PROVIDE CONDUIT, WIRES, AND OUTLETS FOR WORK REQUIRED IN CASEWORK INSTALLATIONS. REFERENCE ARCHITECTURAL DETAILS FOR METHOD OF ROUTING CONDUIT WITHIN CASEWORK CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CUT-OUTS IN TILE OR COUNTER SPLASHES WHERE RECEPTACLES, OUTLETS, ETC., OCCUR. PROVIDE BOX EXTENSIONS THROUGH ALL CASEWORK. FINISH FLUSH WITH FACE OF SPLASH, CABINET, ETC.

36. MOUNTING HEIGHTS OF ALL DEVICES AND EQUIPMENT ARE FROM FINISHED FLOOR TO TOP OF DEVICES AND EQUIPMENT UNLESS OTHERWISE NOTED. BOXES INSTALLED IN LOCATIONS NOT APPROVED BY THE ARCHITECT SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

37. REVIEW STRUCTURAL DRAWINGS FOR LOCATIONS AND SIZES OF FOOTINGS AND GRADE BEAMS. SEE ELECTRICAL DETAILS/PLANS FOR REQUIREMENTS FOR INSTALLATION OF CONDUIT THROUGH GRADE BEAMS.

38. WHERE OUTLETS OCCUR AT TACKABLE WALL PANELS OR OTHER WALL FINISHES, PROVIDE EXTENSION RINGS AS REQUIRED SO THAT NO SPACE WILL EXIST BETWEEN DEVICE PLATE AND BACKBOX, PER NEC 270.20, TYPICAL. SEE ARCHITECTURAL ELEVATIONS FOR WALL FINISHES AND LOCATIONS.

39. FOR CONNECTIONS TO EXHAUST FANS, PUMPS, COMPRESSORS, SPACE HEATERS, WATER HEATERS, AQUASTATS, SOLENOID VALVES, AND OTHER MECHANICAL EQUIPMENT AND FOR CONDUITS AND WIRE REQUIRED BUT NOT NECESSARILY SHOWN ON THESE DRAWINGS REFER TO MECHANICAL PLANS AND DETERMINE EXACT LOCATIONS UNDER DIRECTION OF HEATING AND VENTILATING CONTRACTOR.

40. ALL LINE VOLTAGE WIRING SHALL BE MINIMUM #12 AWG COPPER WITH THWN/THHN INSULATION AND IN ¾" DIAMETER CONDUIT MINIMUM. IN EACH CONDUIT WITHOUT CONDUCTORS, PROVIDE STRING OR PULL CORD WITH TAG IDENTIFYING LOCATION OF OPPOSITE END.

41. ROUTE EXPOSED CONDUIT AND CONDUIT ABOVE ACCESSIBLE CEILING SPACES PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.

42. CONDUCTORS SHALL BE BASED ON THE TERMINALS NOT TO EXCEED 60°C (140°F) FOR CONDUCTOR SIZE 14 THROUGH 1AWG OR 75°C (167°F) FOR CONDUCTOR SIZES OVER 1AWG.

43. ALL EXTERIOR TECHNOLOGY EQUIPMENT SHALL BE WEATHERPROOF.

44. ALL RACEWAYS SHALL BE CONCEALED FROM PUBLIC VIEW, UNLESS APPROVED BY ENGINEERS/ARCHITECT AND OWNER.

45. ALL IN-SERVICE CIRCUIT INCLUDING, BUT NOT LIMITED TO FIRE ALARM, SECURITY, AND TELEPHONE THAT MAYBE INTERRUPTED AS PART OF THIS WORK SHALL BE COORDINATED WITH THE OWNER PER SERVICE INTERRUPTION PROTOCOL DETAILED IN THE "SPECIFICATIONS."

46. ALL EQUIPMENT FASTENED IN PLACE OR CONNECTED BY PERMANENT WIRING METHOD SHALL BE GROUNDED.

47. PORTIONS OF RACEWAYS AND CABLE SLEEVES THAT ARE EXPOSED TO WIDELY DIFFERENT TEMPERATURES, SUCH AS COOLERS, FREEZERS OR SERVICE ENTRANCE CONDUCTORS, SHALL BE SEALED TO PREVENT CIRCULATION OF AIR AND/OR MOISTURE.

48. PROVIDE CABLE SUPPORTS ON VERTICAL RUNS PER CEC 300.19.

49. TECHNOLOGY SYSTEMS INSTALLATION.
   A. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN. REFER TO THE ADA GUIDELINES FOR ALL CONFIGURATION DETAILS ON THIS PAGE FOR ADDITIONAL INFORMATION.
   B. CONCEAL ALL CONDUIT IN WALLS, PARTITIONS, ABOVE CEILING, IN FLOOR SLAB, ETC. UNLESS OTHERWISE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS. CONDUIT IN MECHANICAL ROOMS AND STORAGE ROOMS WITHOUT CEILINGS MAY BE EXPOSED ON BUILDING STRUCTURE.
   C. BOXES LOCATED ON OPPOSITE SIDES OF NON-RATED WALLS SHALL BE OFFSET A MINIMUM OF 6" HORIZONTALLY. BOXES ON OPPOSITE SIDES OF FIRE RATED WALLS SHALL BE OFFSET A MINIMUM OF 24" HORIZONTALLY. "THRU-THE-WALL" BOXES SHALL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
   D. VERIFY ALL FURNITURE, MODULAR FURNITURE, AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL PLANS, ELEVATIONS, AND REVIEWED SHOP DRAWINGS. PRIOR TO MAKING THE ACTUAL TELECOMMUNICATIONS INSTALLATION, ADJUST OUTLETS OR CONNECTION LOCATIONS TO ACCOMMODATE FURNITURE AND/OR EQUIPMENT.
   E. TELECOMMUNICATIONS EQUIPMENT SHALL BE MOUNTED TO ALLOW ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT. ALL MOUNTING OF TELECOMMUNICATION DEVICES ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
   F. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
   G. ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
   H. REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED FOR THE EXECUTION OF TELECOMMUNICATIONS WORK THAT IS OUTSIDE THE CONTRACT LIMITS OF CONSTRUCTION. REPLACE CEILING TILES WITH IDENTICAL MATERIAL WHERE DAMAGED BY THIS CONTRACTOR.
   I. FLUSH MOUNT ALL TELECOMMUNICATION OUTLETS AT +18" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. OUTLETS MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED.

50. TECHNOLOGY OUTSIDE PLANT.
   A. THE LOCATION OF THE CONDUIT, HAND HOLES AND/OR MAINTENANCE HOLES SHOWN ARE APPROXIMATE LOCATIONS. FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIVATE AND/OR PUBLIC PRIOR TO THE INSTALLATION OF THE COMPONENT. FIELD COORDINATE THE FINAL LOCATION WITH THE OWNER AND ENGINEER PRIOR TO INSTALLATION.
   B. POTHOLING TO LOCATE EXISTING UNDERGROUND UTILITIES, IF APPLICABLE, SHALL BE INCLUDED WITHIN THE CONTRACTORS BID. CONTRACTOR IS RESPONSIBLE FOR FINAL PLACEMENT OF HAND HOLES AND/OR MAINTENANCE HOLES AND SHALL NOTIFY THE ENGINEER OF FINAL LOCATIONS PRIOR TO INSTALLATION.
   C. HAND HOLES AND/OR MAINTENANCE HOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE FRAME WILL BE FLUSH WITH THE GROUND LINE.
   D. REMOVAL AND REPLACEMENT OF THE EXISTING UNDERGROUND UTILITIES THAT ARE REQUIRED TO COMPLETE THE INSTALLATION SHALL BE INCLUDED WITHIN THE CONTRACTORS BID.
   E. CONTRACTOR SHALL INCLUDE WITHIN THEIR BID ANY REMOVAL AND REPLACEMENT OF EXISTING SIDEWALK, PAVEMENT, GRASS, SHRUBS, TREES, ETC. THAT WILL BE IMPACTED BY THE INSTALLATION OF THE NEW CONDUITS SHOWN ON THE DRAWINGS. IF TREES ARE REQUIRED TO BE REMOVED THE CONTRACTOR SHALL CONTACT THE OWNER AND DISCUSS OPTIONS PRIOR TO CUTTING DOWN ANY TREE OR SHRUB OVER 5' IN HEIGHT.
   F. NO ADDITIONAL COST SHALL BE APPROVED FOR PLACING CONDUITS DEEPER THAN REQUIRED MINIMUM DEPTH TO AVOID EXISTING UNDERGROUND UTILITIES.
   G. PROVIDE A MINIMUM OF 25'-0" SLACK LOOP WITHIN EACH HAND HAND HOLES AND/OR MAINTENANCE HOLES . SLACK LOOP SHALL BE SECURE SO COPPER OR FIBER IS NOT RESTING ON EARTH AFTER FINAL INSTALLATION.

TECHNOLOGY SYMBOL LIST

SYMBOL:	DESCRIPTION:	NOTE:
# # ▼	COMBINATION DATA/TELEPHONE OUTLETS	1.
AV ▽	AUDIO VIDEO OUTLETS	2.,5.,9.
#-TV ▽	COMBINATION DATA/TV OUTLETS	1.,2.,5.
WAP	WIRELESS ACCESS POINT DEVICE/ENCLOSURE (CEILING)	.
# ▽	INFORMATION OUTLET (WALL)	1.,2.,5.
W ▽	WALL PHONE	1.,2.,5.
AV#	ELECTRICAL FLOOR BOX WITH AV	1., 3.
CR1	CREDENTIAL READER - TYPE 1	4.
##-##	VIDEO SURVEILLANCE CAMERA 180° FIELD OF VIEW (WALL)	6.
##-##	VIDEO SURVEILLANCE CAMERA 270° FIELD OF VIEW (WALL)	6.
##-##	VIDEO SURVEILLANCE CAMERA 360° FIELD OF VIEW (CEILING)	6.
##-##	VIDEO SURVEILLANCE CAMERA DUAL SENSOR (CEILING)	6.
##-##	VIDEO SURVEILLANCE CAMERA SINGLE SENSOR (CEILING)	6.
UPB1	UNDERGROUND PULL BOX TYPE1	7.
UPB2	UNDERGROUND PULL BOX TYPE2	8.
———	CONDUIT (CONCEALED IN OR ABOVE CEILING/HORIZONTAL SURFACE)	.
- - - -	UNDERGROUND/FLOOR CONDUIT	.
○——	CONDUIT UP	.
●——	CONDUIT DOWN	.
∫——	CONDUIT WITH CONTINUATION	.
[——]	CONDUIT SLEEVE	.
▭	FIRE RATED PATHWAY SLEEVE SYSTEM	.

GENERAL NOTES:

1. ALL SYMBOLS LISTED ABOVE ARE FOR REFERENCE ONLY. REFER TO PLANS AND LINE TYPE KEY FOR NEW, EXISTING TO REMAIN AND TO BE REMOVED ITEMS FOR ADDITIONAL INFORMATION. REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR FULL.
2. DESCRIPTIONS AND MANUFACTURERS OF ALL DEVICES.

TECHNOLOGY SYMBOL LIST NOTES:

1. "#" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION.
2. SYMBOL SUBSCRIPT INDICATES DEVICE TYPE.
3. INFORMATION OUTLET INSTALLED IN E.C. PROVIDED FLOOR BOX. "#" INDICATES DATA OUTLET FACEPLATE CONFIGURATION. REFER TO THE ELECTRICAL FLOOR PLANS FOR ADDITIONAL INFORMATION.
4. PROVIDE ROUGH-IN ONLY FOR CARD READERS.
5. EQUIPMENT/DEVICE HEIGHT AS INDICATED ON PLANS.
6. "##-##" ON FLOOR PLANS INDICATES SECURITY CAMERA NUMBER AND CAMERA TYPE AS IT IS ASSOCIATED WITH THE SECURITY CAMERA REQUIREMENTS SCHEDULE. REFER TO SHEET T0.01 FOR SECURITY CAMERA REQUIREMENTS SCHEDULE.
7. REFER TO SPECIFICATION SECTION 27 05 43 - EXTERIOR COMMUNICATION PATHWAYS AND DETAIL 3/T5.01 FOR UNDERGROUND COMMUNICATIONS PULL BOX.
8. REFER TO SPECIFICATION SECTION 27 05 43 - EXTERIOR COMMUNICATION PATHWAYS FOR UNDERGROUND COMMUNICATIONS HANDHOLE.
9. PROVIDE AV OUTLET WITH (2) HDMI CONNECTORS AND CABLES. REFER TO FLOOR PLAN FOR DETAILS.

TECHNOLOGY ABBREVIATION KEY

ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
BFC	BELOW FINISHED CEILING
C	CONDUIT
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
G.C.	GENERAL CONTRACTOR
J-BOX	JUNCTION BOX
MPOE	MIMIMUM POINT OF ENTRY
MC	MAIN CROSS-CONNECT
S.C.	SECURITY CONTRACTOR
SIM	SIMILAR
T.C.	TECHNOLOGY CONTRACTOR
TR-#	TELECOMMUNICATIONS ROOM
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
+#	MOUNTING HEIGHT ABOVE FINISHED FLOOR

NOTES:

1. THIS DETAIL APPLIES TO MOUNTING OF ANY MECHANICAL AND ELECTRICAL DEVICE WHICH CONTAINS AN OPERABLE PART THAT IS ADJUSTABLE BY THE OCCUPANT. THIS DOES NOT APPLY TO SENSORS OR CONTROLS THAT ARE ONLY ADJUSTABLE THROUGH THE BUILDING AUTOMATION SYSTEM (IE: TEMPERATURE AND HUMIDITY SENSORS).

2. FORWARD OR FRONT APPROACH FOR DEVICES MOUNTED ABOVE COUNTERS ASSUMES THAT DIRECTLY BELOW THE DEVICE, THE COUNTER HAS A 30"MIN. WIDTH x27" HIGH x19" MIN. DEEP CLEAR OPENING. CBC SECTIONS 11B-306 & 11B-308.

DRAWING INDEX

SHEET	DESCRIPTION
T0.00	TECHNOLOGY SYMBOLS, LEGENDS & GENERAL NOTES
T1.01	TECHNOLOGY SITE PLAN
T1.02	TECHNOLOGY RISER DIAGRAM
T2.01	TECHNOLOGY FLOOR PLANS
T4.00	TECHNOLOGY ENLARGMENT PLAN
T6.01	TECHNOLOGY DETAILS
T6.02	TECHNOLOGY DETAILS

TECHNOLOGY SCOPE OF WORK

1. PROVIDE COMPLETE TECHNOLOGY SYSTEMS EQUIPMENT WITH INSTALLATION AS REQUIRED FOR A COMPLETE WORKING SYSTEM PER DESIGN DRAWINGS AND SPECIFICATIONS FOR COMMUNICATIONS ROOM 109, AND OTHER SPACES REQUIRED TECHNOLOGY CONNECTIONS IN FBO BUILDING AND SITE PER THE DESIGN DRAWINGS.

2. PROVIDE NEW CONDUITS, J-HOOKS ABOVE ACCESSIBLE CEILING SPACES TO SUPPORT NEW TECHNOLOGY WIRING AS REQUIRED BETWEEN END DEVICES AND TECHNOLOGY HEADEND EQUIPMENT. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL WIRING WITH TERMINATION AND TESTING AS REQUIRED FOR A COMPLETE WORKING SYSTEM.

3. PROVIDE NEW EMPTY UNDERGROUND CONDUITS CAP IN-PLACE FOR FUTURE USE BETWEEN THE NEW COMMUNICATION ROOM 109 IN FBO BUILDING TO FUTURE TERMINAL EXPANSION, AND HANGAR. REFER TO SITE PLAN T1.01 FOR NUMBER AND SIZE OF UNDERGROUND CONDUITS.

4. PROVIDE COMPLETE INFRASTRUCTURE INCLUDING WIRING TO ALL SECURITY DEVICES PER PLANS.

5. THE CONTRACTOR SHALL PROVIDE CONDUITS, UNDERGROUND PULL BOXES, AND WIRING AS REQUIRED FOR CONNECTIONS TO ALL SITE DEVICES.

6. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TECHNOLOGY EQUIPMENT/DEVICES MOUNTING AS NOTED PER THE DESIGN DRAWINGS.

7. THE CONTRACTOR SHALL PROVIDE NEW UNDERGROUND CONDUITS FOR NEW UTILITY SERVICE PROVIDER CONNECTION, AND COORDINATE WITH UTILITY SERVICE PROVIDER COMPANY FOR FINAL POINT OF CONNECTION PRIOR TO INSTALLATION.

8. PROVIDE ACCESS CONTROL SYSTEM TO INCLUDE ACCESS CONTROL PANEL, POWER SUPPLY AND CARD READERS PER SPECIFICATIONS.

9. PROVIDE VIDEO SURVEILLANCE SYSTEM AND SECURITY CAMERAS WITH REQUIRED LICENSING FOR A COMPLETE WORKING SYSTEM INCLUDING INTEGRATION WITH ACCESS CONTROL SYSTEM.

APPLICABLE CODES

PARTIAL LIST OF APPLICABLE CODES AS OF JANUARY 1, 2022
2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

PARTIAL LIST OF APPLICABLE STANDARDS
NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE (CA AMENDED): 2016 EDITION
NFPA 720 STANDARD FOR THE INSTALLATION OF CARBON MONOXIDE DETECTION AND WARNING EQUIPMENT; 2016 EDITION
NFPA 80 STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2016 EDITION
UL 464 AUDIBLE SIGNALING DEVICES FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES; 2003 EDITION
UL 521 STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS; 1999 EDITION
UL 1971 STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED; 2002 EDITION (R2010)
ICC 300 STANDARD FOR BLEACHERS, FOLDING AND TELESCOPING SEATING AND GRANDSTANDS; 2017 EDITION

FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS REFER TO 2022 CBC (SFM) CHAPTER 35 AND CALIFORNIA FIRE CODE CHAPTER 80.

SEE CALIFORNIA BUILDING CODE, CHAPTER 35, FOR STATE OF CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS.

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DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

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TECHNOLOGY SYMBOLS, LEGENDS & GENERAL NOTES

T0.00

T1.01 - TECHNOLOGY SITE PLAN

0" 1"

1 SITE PLAN
1" = 20'-0"

KEY NOTES

1 AREA OF WORK

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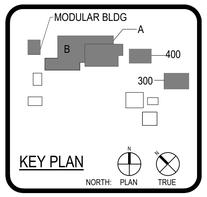

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TECHNOLOGY SITE PLAN

T1.01

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T1.02 - TECHNOLOGY RISER DIAGRAM

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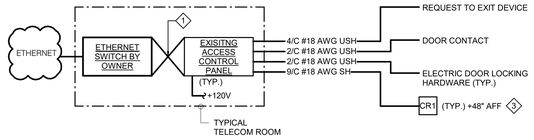


NOTES:

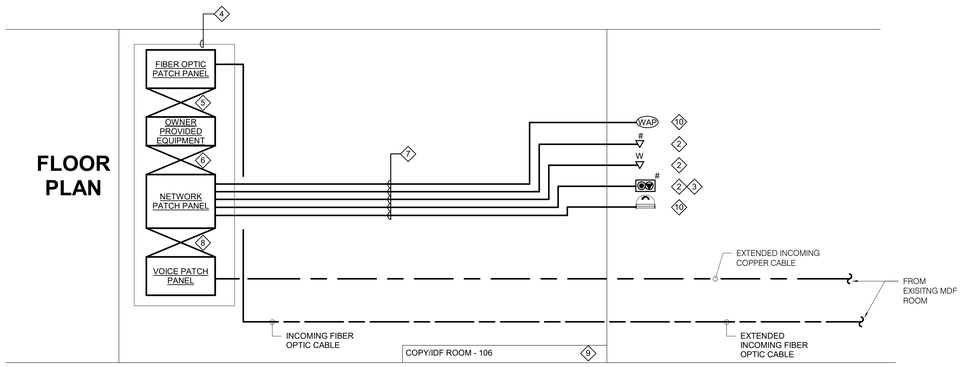
1. THIS DIAGRAM IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL DEVICE QUANTITIES OR LOCATIONS. ALL DEVICES SHOWN ARE TYPICAL AND MAY NOT REFLECT EVERY WIRE OR CONNECTION THAT MUST BE MADE. WIRING SHOWN ON THIS DIAGRAM REFLECTS THE REQUIREMENTS FOR THE BASIS OF DESIGN MANUFACTURER. ANY CHANGES REQUIRED DUE TO THE T.C.'S SELECTION OF AN ALTERNATE MANUFACTURER, INCLUDING ANY POWER REQUIRED FOR FIELD LOCATED SECURITY CONTROLLERS, SHALL BE INCLUDED IN THE T.C.'S BID.
2. ALL WORKSTATIONS AND SERVERS REQUIRE A KEYBOARD AND MOUSE.

KEYNOTES:

1. CATEGORY 6 RJ-45 TO RJ-45 PATCH CABLE.
2. REFER TO FLOOR PLANS FOR LOCATIONS AND LAYOUT OF CARD READER TO BE PROVIDED BY S.C.

1 ACCESS CONTROL RISER DIAGRAM

12" = 1'-0"



NOTES:

1. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS SHOWN. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION(S), LOCATIONS AND CABLE TYPE. ALL INFORMATION OUTLETS ARE TYPICAL OF THE OUTLETS IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO FLOOR PLANS FOR QUANTITY OF CABLES AND JACKS TO BE INSTALLED AT EACH INFORMATION OUTLET.

KEYNOTES:

1. CROSS-CONNECT BACKBONE RISER CABLE TO THE INCOMING SERVICE PROVIDER CABLE.
2. # INDICATES VOICE/DATA FACEPLATE CONFIGURATION. REFER TO TECHNOLOGY FLOOR PLANS FOR ADDITIONAL INFORMATION.
3. DATA OUTLET INSTALLED IN E.C. PROVIDED AND INSTALLED FLOOR BOX.
4. WALL MOUNTED CABINET CHATSWORTH PRODUCTS AS DEFINED ON THE COPY ROOM LAYOUT.
5. REFER TO SPECIFICATIONS FOR FIBER PATCH CORD REQUIREMENTS.
6. RJ-45 TO RJ45 CATEGORY **6** UTP PATCH CORDS, REFER TO SPECIFIATIONS.
7. **23** GAUGE 4-PAIR, CATEGORY **6**, UNSHIELDED TWISTED PAIR CABLE, REFER TO SPECIFICATIONS.
8. REFER TO FLOOR PLANS FOR TELECOMMUNICATIONS ROOM LOCATIONS.
9. PROVIDE 2-PORT PLENUM RATED SURFACE MOUNT BOX ABOVE ACCESSIBLE CEILING.

2 FIBER AND COPPER RISER DIAGRAM

12" = 1'-0"

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DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

KEY PLAN NORTH: PLAN TRUE

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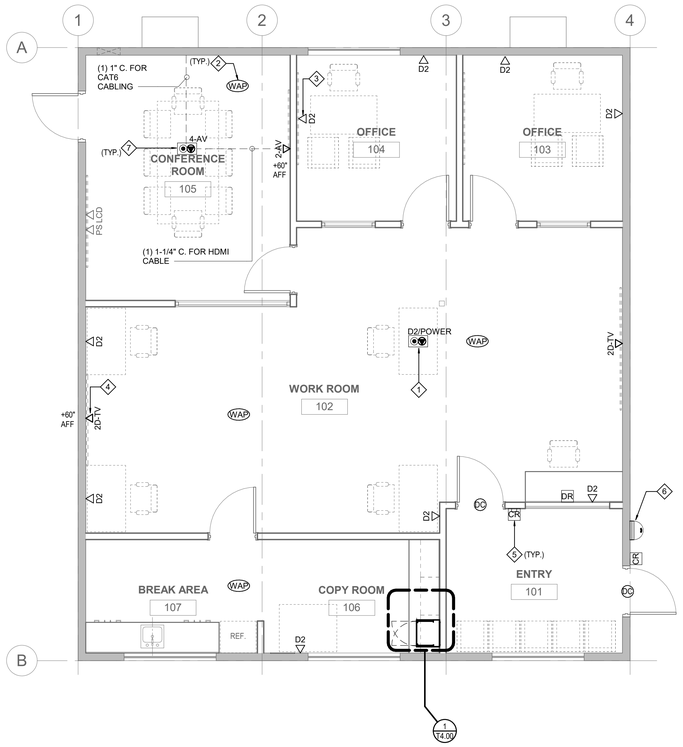
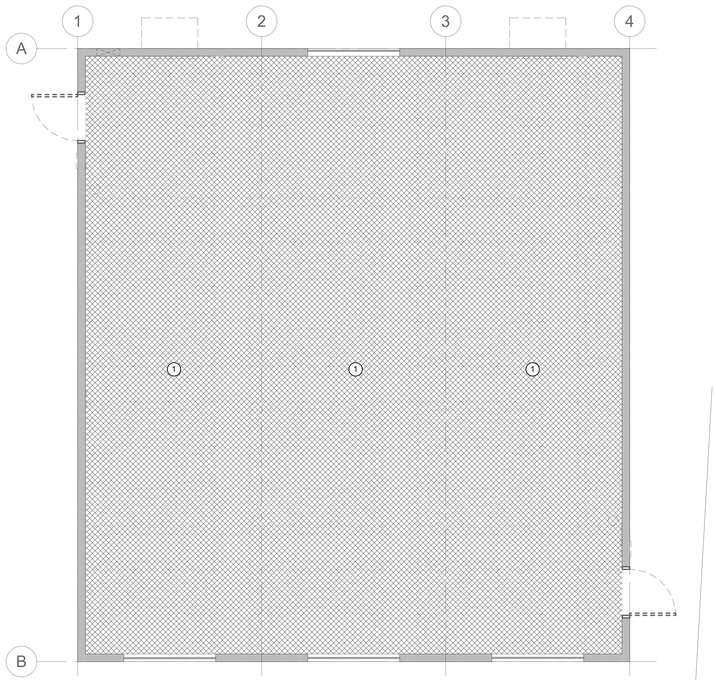
TECHNOLOGY RISER DIAGRAM

T1.02

0" 1"



2 PROPOSED FLOOR PLAN
1/4" = 1'-0"



1 DEMOLITION FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES

1- REFER TO DETAIL #1/T4.00 FOR TECHNOLOGY ENLARGED PLAN FOR COPY/IDF ROOM 106.

KEY NOTES

1. COMBINATION FLOOR BOX POWER/DATA. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS. PROVIDE (1) 1" C. WITH CAT6 CABLES FROM FLOOR BOX TO THE NEAREST WALL THEN STUB CONDUIT UP TO CEILING SPACE, USE J-HOOKS TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE TO THE IDF CABINET SERVING THIS AREA.TERMINATE ALL CABLES AS REQUIRED FOR A COMPLETE WORKING SYSTEM.
2. WIRELESS ACCESS POINT, CEILING MOUNT, OWNER FURNISHED AND CONTRACTOR INSTALLED "OFOI". CONTRACTOR TO PROVIDE DATA OUTLET FOR WIRELESS ACCESS POINT, (2) CAT6A CABLE, 2-PORT PLENUM RATED SURFACE MOUNT BOX ABOVE ACCESSIBLE CEILING AS INDICATED ON DRAWINGS. USE J-HOOKS TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE, FOR INACCESSIBLE CEILINGS SPACES NEW CONDUITS SHALL BE PROVIDED ABOVE CEILING TO THE IDF CABINET SERVING THIS AREA.
3. PROVIDE A NEW WALL-MOUNTED DATA OUTLET. PROVIDE AND INSTALL DATA OUTLET IN A 4" SQUARE BACKBOX WITH A SINGLE-GANG PLASTER RING. INSTALL A (1) 1" EMT CONDUIT FROM BACKBOX UP TO ACCESSIBLE CEILING SPACE WITH (2) CAT6 CABLES (U.O.N.), THEN RUN CAT6 CABLES IN ACCESSIBLE CEILING SPACE USING J-HOOKS TO IDF CABINET SERVING THIS AREA. PROVIDE 4-PORT FACEPLATES AND RJ45 JACKS. PROVIDE REMOVABLE BLANK INSERTS FOR UNUSED PORTS (PANDUIT OR APPROVED EQUAL). THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL TERMINATION FOR A COMPLETE WORKING SYSTEM.REFER TO DETAILS#4/T6.01 FOR MORE INFORMATION
4. PROVIDE A NEW WALL-MOUNTED TV/DATA OUTLET BEHIND WALL MOUNTED TV. PROVIDE AND INSTALL OUTLET IN A 4" SQUARE BACKBOX WITH A SINGLE-GANG PLASTER RING. INSTALL A (1) 1" EMT CONDUIT FROM BACKBOX UP TO ACCESSIBLE CEILING SPACE FOR CAT6 CABLES, THEN RUN CABLES IN ACCESSIBLE CEILING SPACE USING J-HOOKS TO IDF CABINET SERVING THIS AREA. (PANDUIT OR APPROVED EQUAL). THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL TERMINATION FOR A COMPLETE WORKING SYSTEM.
5. PROVIDE NEW CARD READER. ROUTING TO (E) CONTROL PANEL . REFER TO DETAILS# 2/T6.01 FOR MORE INFORMATION.
6. PROVIDE OUTDOOR SECURITY CAMERA MOUNTED ON WALL AT 12' AFF.REFER TO DETAILS# 6/T6.01 FOR MORE INFORMATION.
7. COMBINATION FLOOR BOX POWER/DATA/AV, REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS. PROVIDE (1) 1" C. WITH CAT6 CABLES FROM FLOOR BOX TO THE NEAREST WALL THEN STUB CONDUIT UP TO CEILING SPACE, USE J-HOOKS TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE TO THE IDF CABINET SERVING THIS AREA. PROVIDE (1) 1-1/4" C. FOR HDMI CABLE FROM FLOOR BOX TO AV OUTLET MOUNTED BEHIND TV, REFER TO KEYNOTE 1/T6.02 FOR DETAILS. TERMINATE ALL CABLES AS REQUIRED FOR A COMPLETE WORKING SYSTEM.REFER TO DETAILS#1/T6.02 FOR MORE INFORMATION.

DEMOLITION KEY NOTES

1. ALL EQUIPMENT AND DEVICES TO BE DISCONNECTED AND REMOVED AND ALL CABLES TO BE BACK TO SOURCE.

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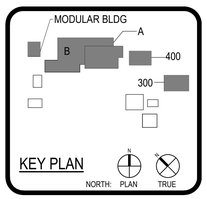
DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



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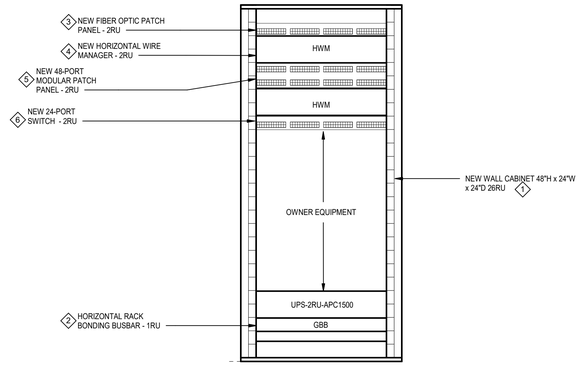
TECHNOLOGY FLOOR PLANS

T2.01

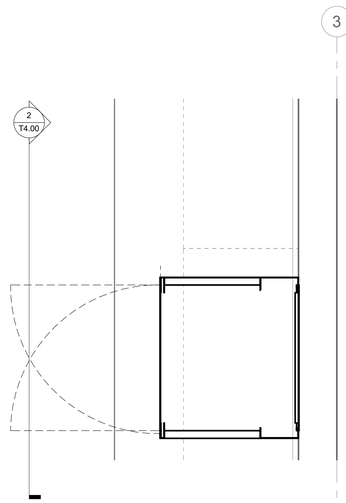
0" 1"

KEYED NOTES

1. PROVIDE WALL MOUNTED IDF CABINET CUBE-IT Wall-Mount Cabinet , (48"H x 24"W x 24"D) 26 RACK UNITS. LOCKABLE FRONT VENTED DOOR, LOCKABLE REAR VENTED DOOR, CHATSWORTH PRODUCTS PART NUMBER "11900-748" OR APPROVED EQUAL.
2. PROVIDE RACK-MOUNT GROUND BAR. WITH FLAT WASHER AND GROUND BAR LUG.
CHATSWORTH PRODUCTS "10610-019" OR APPROVED EQUAL.
3. PROVIDE OPTICAL FIBER DISTRIBUTION PATCH PANEL, RACK MOUNT. 24 FIBER MAXIMUM CAPACITY, FRONT LOCKING DOOR, SLIDE OUT RAILS TO FACILITATE FRONT ACCESS, JUMPER TROUGHS IN CONNECTOR PANELS TO REDUCE MOUNTING SPACE.
PROVIDE WITH CLAMP AND GROUNDING KIT, COUPLING PANEL(S), JUMPERS, AND REAR MOUNTED CLOSET HOUSING PANEL(S). REFER TO SPECIFICATIONS PANDUIT PRODUCTS "FLEXQUPN06" OR APPROVED EQUAL.
4. PROVIDE HORIZONTAL WIRE MANAGEMENT, DUAL SIDED MANAGER 2 RACK UNITES, SHALL BE INSTALLED ABOVE AND BELOW EACH PATCH PANEL. LIGHTWEIGHT PLASTIC CONSTRUCTION. PANDUIT PRODUCTS "WMP1E" OR APPROVED EQUAL.
5. PROVIDE COPPER PATCH PANEL, 48 MODULAR RJ-45 TERMINATIONS, MOUNTS DIRECTLY TO MDF/IDF CABINET, PORT IDENTIFICATION NUMBERS AND LABELS, U.L. LISTED. PANDUIT PRODUCTS "DP48688TGY" OR APPROVED EQUAL.
6. NETWORK SWITCHES BY OWNER "OFCI". THE EXACT LOCATION AND FINAL RACK ELEVATION SHALL BE COORDINATED AND APPROVED BY THE OWNER IT DEPARTMENT PRIOR TO INSTALLATION.



2 COPY/IDF ROOM #106 - RACK ELEVATION
1 1/2" = 1'-0"



1 COPY/IDF ROOM #106 - ROOM EQUIPMENT
1 1/2" = 1'-0"

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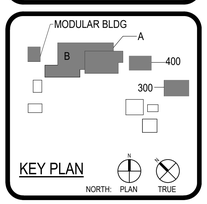

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TECHNOLOGY ENLARGMENT PLAN

T4.00

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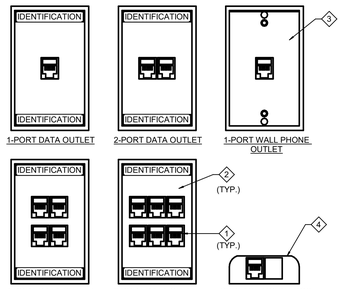
0" 1"



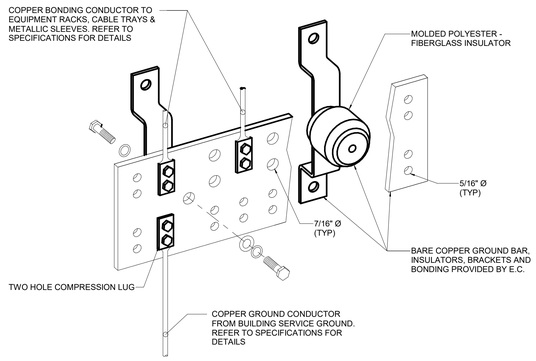
NOTES:

1. REFER TO SPECIFICATION SECTION 27 10 00 - HORIZONTAL CABLING REQUIREMENTS FOR CATEGORY CABLE PERFORMANCE REQUIREMENTS.
2. REFER TO SPECIFICATION SECTION 27 05 53 - IDENTIFICATION FOR DATA OUTLET PORT IDENTIFICATION.
3. DATA OUTLET SHALL BE INSTALL IN A 4" SQUARE BACKBOX WITH A SINGLE GANG PLASTER RING. REFER TO DETAIL 1/T5.01 TECHNOLOGY ROUGH-IN MOUNTING DETAILS FOR CONDUIT SIZE.
4. PROVIDE REMOVABLE BLANK INSERTS FOR UNUSED PORTS.
5. USE T568B WIRING SCHEME TO TERMINATE THE TWISTED-PAIR CABLE ONTO THE CONNECTOR INTERFACE.
6. WHERE APPLIES PER PLANS, PROVIDE AV OUTLET WITH HDMI CONNECTION PER BELOW.
   - PANDUIT COVER PLATE: CBEIWY OR APPROVED EQUAL
   - PANDUIT JACK:(HDMI 2.0) CMHDMIW OR APPROVED EQUAL
   - PANDUIT MODULAR INSERT: CHF2IW-X OR APPROVED EQUAL

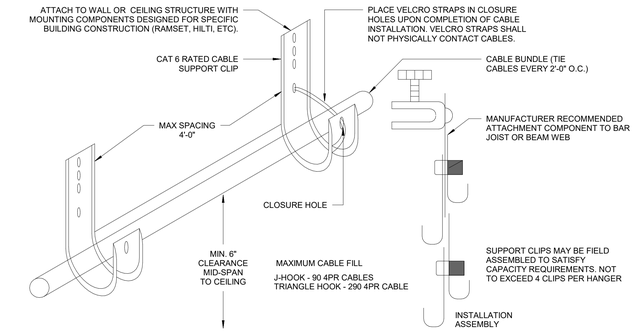
KEYNOTE NOTES:

1. PROVIDE CAT6 RJ-45 JACKS, 8-POSITION, 8-CONTACT (8P8C), COLOR BLUE FOR DATA, WHITE FOR VOICE, RED FOR SECURITY.
   - PANDUIT PRODUCTS "CJ688TGBU", COMMSCOPE "MGS400-318" OR APPROVED EQUAL
2. PROVIDE 1,2,4,6-PORT FACEPLATE AS INDICATED ON DRAWINGS.
   - 1-PORT: PANDUIT PRODUCTS "CFPE1WHY", COMMSCOPE OR APPROVED EQUAL.
   - 2-PORT: PANDUIT PRODUCTS "CFPE2WHY", COMMSCOPE OR APPROVED EQUAL.
   - 4-PORT: PANDUIT PRODUCTS "CFPE4WHY", COMMSCOPE OR APPROVED EQUAL.
   - 6-PORT: PANDUIT PRODUCTS "CFPE6WHY", COMMSCOPE OR APPROVED EQUAL.
3. PROVIDE STAINLESS STEEL 1-PORT FACEPLATE FOR OUTLETS INDICATED WITH "W" ON DRAWINGS. "W" INDICATES WALL PHONE MOUNTED AT +48" AFF FOR WALL HUNG PHONE.
   - 1-PORT: WALL PHONE "W" PANDUIT PRODUCTS "KWP6PY", COMMSCOPE OR APPROVED EQUAL.
4. PROVIDE SURFACE MOUNT BOX, PLENUM RATED, MOUNTED ABOVE CEILING FOR CONNECTIONS TO WIRELESS ACCESS POINTS.
   - 2-PORT: PANDUIT PRODUCTS "CBX2WH-AY", COMMSCOPE OR APPROVED EQUAL.

5 DATA OUTLETS CONFIGURATION DETAIL
12" = 1'-0"



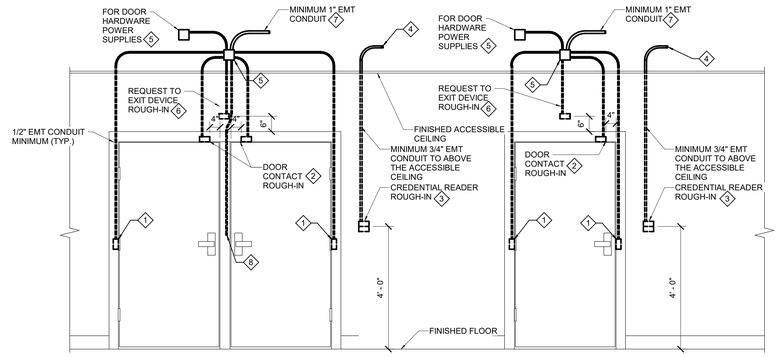
3 BONDING BUS BAR DETAIL
12" = 1'-0"



NOTES:

1. SUPPORT CLIPS MUST SPECIFICALLY BE DESIGNED AND RATED FOR USE IN CATEGORY 6 CABLE INSTALLATION.
2. INSTALL APPROPRIATE SIZE AND QUANTITY SUPPORT CLIPS FOR CABLES TO BE SUPPORTED + 30% EXPANSION.
3. USE MANUFACTURERS RECOMMENDED MOUNTING HARDWARE, APPROPRIATE FOR ATTACHING TO WALL OR CEILING STRUCTURES.
4. CEILING TILE TEE GRID, DROP WIRES AND HVAC EQUIPMENT SHALL NOT BE USED AS MOUNTING POINTS.
5. SECURE CABLE IN SUPPORT CLIPS AS PER MANUFACTURERS RECOMMENDATION FOR CAT-6 CABLE. DO NOT EXCEED INDICATED FILL RATIOS.
6. CABLE SUPPORT CLIPS SHALL BE SPACED A MAXIMUM OF 4' APART.
7. INSTALL TRIANGULAR METAL BRACKETS (NOT SHOWN) FOR HIGH STATION CABLE CAPACITY REQUIREMENTS.
8. THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT REPRESENT ALL CONDITIONS OF J-HOOK INSTALLATION REQUIREMENTS (APPLY THIS DETAIL WHERE OCCURS). REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.

1 TECHNOLOGY J-HOOK PATHWAY DETAIL
12" = 1'-0"

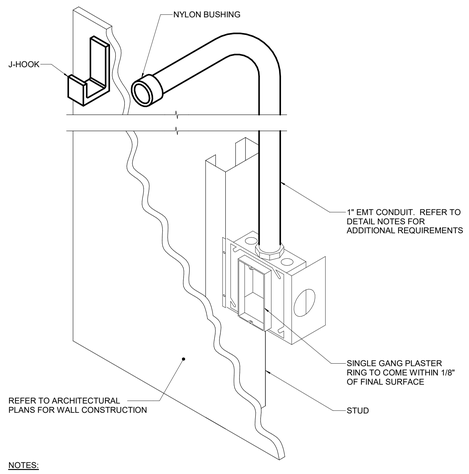


NOTES:

1. CONFIGURATIONS SHOWN IN THE DETAIL ABOVE ARE DIAGRAMMATIC, INTENDED TO DESCRIBE THE CONTROLLED SECURITY SCHEME ROUGH-IN REQUIREMENTS OF THE DOORS. DETAILS ABOVE MAY NOT ACCURATELY REPRESENT DOOR SIZE, DOOR SWING, DOOR HARDWARE, OR DOOR FUNCTIONALITY. REFER TO ARCHITECTURAL DOOR HARDWARE SCHEDULE, DOOR HARDWARE GROUPS AND DOOR HARDWARE SPECIFICATIONS FOR COMPLETE INFORMATION. MIRROR THE DETAIL AS REQUIRED.
2. ROUGH IN SHOWN IN THE DETAIL ABOVE REPRESENTS THE MINIMUM REQUIREMENTS FOR ALL CONTROLLED SECURITY SYSTEM DEVICES AND CABLING UNLESS OTHERWISE NOTED. COORDINATE EXACT REQUIREMENTS WITH SELECTED DOOR MATERIALS, DOOR HARDWARE, AND CONTROLLED SECURITY DEVICES AND CABLING PRIOR TO INSTALLATION.
3. ALL CABLING IN WALLS AND WHERE EXPOSED ON VERTICAL SURFACES SHALL BE INSTALLED IN EMT CONDUIT OR SURFACE MOUNT RACEWAY. CABLING ROUTED HORIZONTALLY ABOVE THE ACCESSIBLE CEILING MAY BE INSTALLED FREE-AIR CABLING PROPERLY RATED FOR THE CEILING ENVIRONMENT.
4. THE ELECTRICAL OR SECURITY CONTRACTOR SHALL NOT MODIFY ANY FIRE RATED DOOR AND/OR DOOR FRAME. REFER TO THE ARCHITECTURAL DOOR SCHEDULE, DOOR HARDWARE SCHEDULE, AND DOOR HARDWARE SPECIFICATION FOR ADDITIONAL INFORMATION. MODIFICATION TO ANY FIRE RATED DOOR AND/OR FRAME WILL REQUIRE A RE-CERTIFICATION OF THE DOOR AND FRAME WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
5. INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR ALL CONTROLLED SECURITY DEVICES ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
6. REFER TO THE ACCESS CONTROL WIRING DIAGRAM ON 1/T0.01 FOR CABLING REQUIREMENTS.
7. INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC.

KEYNOTES:

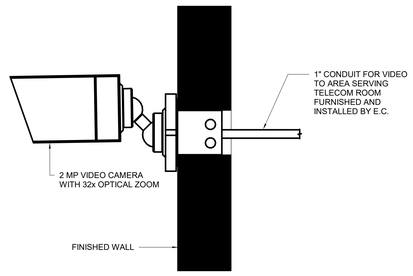
1. PROVIDE JUNCTION BOXES IN THE DOOR FRAME WHERE SHOWN ON THIS DETAIL. ROUGH-IN SHALL BE PROVIDED WHETHER THE CURRENT CONTROLLED SECURITY DEVICES UTILIZES THEM OR NOT. ALL CONDUITS SHALL BE EMT CONDUIT UNLESS OTHERWISE NOTED. FLEXIBLE CONDUIT OF ANY TYPE WILL NOT BE ACCEPTED. COORDINATE INSTALLATION WITH ON-SITE DOOR FRAME INSTALLATION CONTRACTOR.
2. ALL DOOR POSITION SWITCHES ARE REQUIRED TO BE RECESSED UNLESS OTHERWISE NOTED. ELECTRIC HINGE MONITORS ARE NOT AN ACCEPTABLE REPLACEMENT FOR THE RECESSED DOOR POSITION SWITCH.
3. DOUBLE GANG BACKBOX WITH SINGLE GANG PLASTER RING. REFER TO FLOOR PLAN(S) FOR ACTUAL CREDENTIAL READER TYPE AND ROUGH-IN LOCATIONS.
4. CONDUIT SHALL ROUTE FROM THE CREDENTIAL READER TO THE SECURE SIDE OF THE DOOR. CONDUIT SHALL ROUTE A MINIMUM OF 12" FROM THE JUNCTION BOX. PROVIDE A NYLON BUSHING ON CONDUIT END.
5. MOUNT A MINIMUM 4" SQUARE 2-1/8" DEEP JUNCTION BOX WITH BLANK COVER PLATE ON THE SECURE SIDE OF THE DOOR ABOVE ACCESSIBLE CEILING. INSTALLING CONTRACTOR SHALL SIZE THE JUNCTION BOXES PER SYSTEM INSTALLATION REQUIREMENTS AND APPLICABLE CODES. MAINTAIN ACCESS TO THE JUNCTION BOX.
6. PROVIDE A HORIZONTALLY MOUNTED SINGLE GANG BACKBOX FOR THE REQUEST TO EXIT SENSOR.
7. CONDUIT SHALL ROUTE A MINIMUM OF 12" FROM THE JUNCTION BOX.PROVIDE A NYLON BUSHING ON CONDUIT END.
8. CONDUIT INSTALLED IN PERMANENT MULLIONS ONLY. REFER TO THE ARCHITECTURAL DOOR SCHEDULE AND DOOR HARDWARE GROUPS FOR LOCATIONS THAT REQUIRE THIS ROUGH-IN. PROVIDE A NYLON BUSHING ON THE CONDUIT END.



NOTES:

1. 1" EMT CONDUIT SHALL STUB UP TO NEAREST ACCESSIBLE CEILING AND TERMINATE ORIENTED HORIZONTALLY AT THE HEIGHT OF THE ASSOCIATED J-HOOK ROUTE. CONDUIT RUN SHALL NOT CONTAIN MORE THAN 180 DEGREES OF BEND BETWEEN ACCESSIBLE JUNCTION BOXES OR BETWEEN JUNCTION BOX AND END OF CONDUIT.
2. WHERE CONDUIT STUB IS LOCATED IN A ROOM WITH AN ACCESSIBLE CEILING AND IS NOT REQUIRED TO RUN TO CABLE ROUTE LOCATED OUTSIDE THE ROOM, STUB MUST TERMINATE ABOVE THE ACCESSIBLE CEILING WITH A 90-DEGREE BEND AT THE TOP ORIENTED IN TO THE ROOM AT THE HEIGHT OF THE ASSOCIATED J-HOOK ROUTE IN THE ROOM.
3. ALL STUBS MUST BE FITTED WITH A NYLON BUSHING ON EACH END OF THE CONDUIT.
4. INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR TECHNOLOGY ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR FIRESTOP REQUIREMENTS.

4 TECHNOLOGY ROUGH-IN MOUNTING DETAIL
12" = 1'-0"



NOTES:

1. SECURE WALL MOUNT BASE PLATE TO CMU WITH MINIMUM 1/4" MASONRY FASTENERS. DO NOT ANCHOR TO FACE BRICK.
2. SEAL WALL MOUNT BASE PLATE TO FACE BRICK TO PREVENT WATER INFILTRATION.
3. REFER TO MANUFACTURER SPECIFICATIONS FOR INSTALLATION INFORMATION.

6 EXTERIOR CAMERA - WALL MOUNT
N.T.S.

2 CONTROLLED SECURITY SCHEME DOOR ROUGH-IN DETAIL
1/2" = 1'-0"

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

ARCHITECT PBK Architects, Inc.
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CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

MODULAR BLDG
A
B
400
300

KEY PLAN
NORTH: PLAN TRUE

Consultant
REGISTERED PROFESSIONAL ENGINEER RONALD C DE LA CRUZ No. E 23576 Exp. 09-30-2023 ELECTRICAL STATE OF CALIFORNIA

Architect
LICENSED ARCHITECT Yong Yoo No. C-31162 REN. 10-31-2023 STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date

DSA Submittal

TECHNOLOGY DETAILS

T6.01

FILE PATH: Z:\Projects\...
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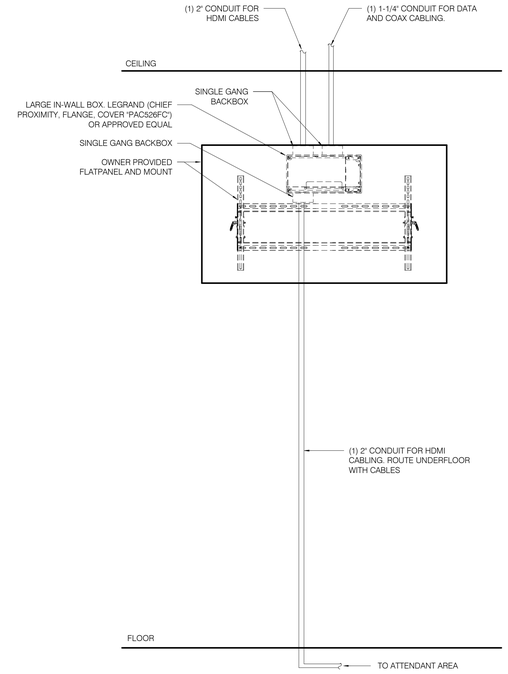
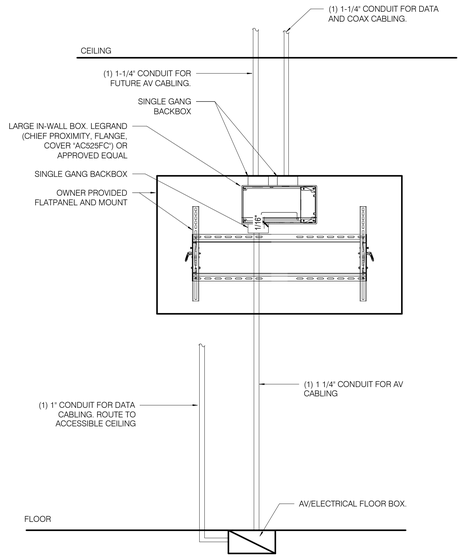
0" 1"



NOTES:

1. CONFIGURATIONS SHOWN IN THE DETAIL ABOVE ARE DIAGRAMMATIC, INTENDED TO DESCRIBE THE ROUGH-IN REQUIREMENTS OF A TYPICAL FLAT PANEL DISPLAY. DETAILS ABOVE MAY NOT ACCURATELY REPRESENT DISPLAY SIZE, MOUNTING HEIGHT, OR PHYSICAL RELATIONSHIP. REFER TO ARCHITECTURAL ELEVATIONS FOR COMPLETE INFORMATION AND MIRROR THE DETAIL AS REQUIRED.
2. ROUGH-IN SHOWN IN THE DETAIL ABOVE REPRESENTS THE MINIMUM REQUIREMENTS FOR THE DISPLAY UNLESS OTHERWISE NOTED. COORDINATE EXACT REQUIREMENTS OF THE SELECTED DEVICES AND CABLING PRIOR TO INSTALLATION.
3. ALL CABLING IN WALLS SHALL BE INSTALLED IN EMT CONDUIT. CABLING ROUTED HORIZONTALLY ABOVE THE ACCESSIBLE CEILING MAY BE INSTALLED FREE-AIR WITH CABLING PROPERLY RATED FOR THE CEILING ENVIRONMENT.
4. INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC.

2 WALL DISPLAYS ROUGH-IN REQUIREMENT DETAIL
1" = 1'-0"



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2. ROUGH-IN SHOWN IN THE DETAIL ABOVE REPRESENTS THE MINIMUM REQUIREMENTS FOR THE DISPLAY UNLESS OTHERWISE NOTED. COORDINATE EXACT REQUIREMENTS OF THE SELECTED DEVICES AND CABLING PRIOR TO INSTALLATION.
3. ALL CABLING IN WALLS SHALL BE INSTALLED IN EMT CONDUIT. CABLING ROUTED HORIZONTALLY ABOVE THE ACCESSIBLE CEILING MAY BE INSTALLED FREE-AIR WITH CABLING PROPERLY RATED FOR THE CEILING ENVIRONMENT.
4. INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC.

1 TYPICAL AV CONFERENCE ROOM DETAIL
1" = 1'-0"

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

PBK

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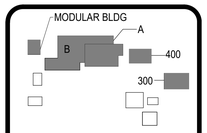
CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



Consultant

REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA

Architect

LICENSED ARCHITECT
Yong Yoo
No. C-31162
REN. 10-31-2022
STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date

DSA Submittal

TECHNOLOGY DETAILS

T6.02

AURORA

MODULAR INDUSTRIES

PC 04-104816

~~24'x40'~~,36x40',~~48'x40'~~ BUILDINGS

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

DSA - PC
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 - 104816
AC ✓ FLS ✓ SS ✓
DATE 7/30/03

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DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 105264

BLDG. DATA

OCCUPANCY	E-1
TYPE OF CONSTRUCTION	V - NON RATED
WIND LOAD	70 m.p.h. EXPOSURE 'C' AS SHOWN
~~WIND LOAD~~	~~80 m.p.h. EXPOSURE 'C' AS NOTED~~
FLOOR LIVE LOAD	See Floor Framing Plan
ROOF LIVE LOAD	20 lbs/sq. ft.
SEISMIC ZONE	4, Na-1.1 Ca. = 0.44 Na. SOIL PROFILE = Sd

SYSTEM: RIGID FRAME

~~MODULES: TWO 12'x 40'~~

MODULES: THREE 12'x 40'

~~MODULES: FOUR 12'x 40'~~

FOUNDATION: WOOD

~~FOUNDATION: CONCRETE~~

~~FOUNDATION: FLUSH W/ GRADE CONCRETE~~

~~BUILDING DATA 960 sq. ft. (24'x40')~~

BUILDING DATA 1440 sq. ft. (36'x40')

~~BUILDING DATA 1920 sq. ft. (48'x40')~~

THIS PC IS DESIGNS STRUCTURALLY TO SUPPORT THE WEIGHT OF A FIRE SPRINKLER SYSTEM.

APPLICABLE CODES

2001 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.

2001 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.; (1997 UNIFORM BUILDING CODE VOLUMES 1,2,3 WITH 2001 CALIFORNIA AMENDMENTS)

2001 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R. (1996 NATIONAL ELECTRICAL CODE WITH 2001 CALIFORNIA AMENDMENTS)

2001 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.; (1997 IAPMO UNIFORM MECHANICAL CODE WITH 2001 CALIFORNIA AMENDMENTS)

2001 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.; (1997 IAPMO UNIFORM PLUMBING CODE WITH 2001 CALIFORNIA AMENDMENTS)

2001 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R.;

2001 CALIFORNIA REFERENCE STANDARDS CODE. PART 12, TITLE 24 C.C.R.

1990 TITLE 19, C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

2001 CALIFORNIA ENERGY CODE (PART 6, TITLE 24, CCR)

2001 CALIFORNIA ELEVATOR SAFETY CONST. CODE (PART 7, TITLE 24, CCR)

SYMBOLS LIST

- KEYNOTES
- WALL FRAMING No.
- DOOR No. / HARDWARE TYPE
- ROOM NAME / ROOM No.
- WINDOW TYPE
- PLUMBING FIX. REF.
- REFERENCE GRID
- DETAIL No. / SHEET No.
- ELEVATION REF. / SHEET No.
- CONCRETE PAD REF.
- WHEELCHAIR'S ACCESSIBLE FLR. SPACE FOR MANEUVERING
- WHEELCHAIR'S CLEAR FLR. SPACE TO ACCESSIBLE FIXTURE

ABBREVIATIONS

ACOUS.	ACOUSTICAL	M.B.	MACHINE BOLT
A.B.	ANCHOR BOLT	MFR.	MANUFACTURER
ADJ.	ADJACENT	MIN.	MINIMUM
ALUM.	ALUMINUM	MIR.	MIRROR
APPROX.	APPROXIMATE	MAX.	MAXIMUM
A.P.	ACCESS PANEL	MTD.	MOUNTED
ARCH.	ARCHITECT	MTG.	MOUNTING
ASPH.	ASPHALT	MTL.	METAL
BD.	BOARD	NO.	NUMBER
BLDG.	BUILDING	N.I.C.	NOT IN CONTRACT
BLKG.	BLOCKING	N.T.S.	NOT TO SCALE
BM.	BEAM	O.C.	ON CENTER
BOT./BTM.	BOTTOM	O/O	OUT TO OUT
CONC.	CONCRETE	O.D.	OUTSIDE DIMENSION
CLG.	CEILING	OPNG.	OPENING
C.I.	CAST IRON	OPP.	OPPOSITE
CLR.	CLEAR	PL.	PLATE
C.J.	CONTROL JOINT	P.LAM.	PLASTIC LAMINATE
CONN.	CONNECTION	PLAS.	PLASTER
CONSTR.	CONSTRUCTION	PLYWD.	PLYWOOD
CONT.	CONTINUOUS	PTN.	PARTITION
CONTR.	CONTRACTOR	PR.	PAIR
CTSK.	COUNTERSUNK	PT.	POINT
D.F.	DOUGLAS FIR	RAD.	RADIUS
DET.	DETAIL	REF.	REFERENCE
DIA.	DIAMETER	REQ.	REQUIRED
DIM.	DIMENSION	R.	RISER
DISP.	DISPENSER	R.D.	ROOF DRAIN
DN.	DOWN	RM.	ROOM
DR.	DOOR	S.C.	SOLID CORE
D.S.	DOWN SPOUT	SCHED.	SCHEDULE
DWG.	DRAWING	S.D.	SOAP DISPENSER
EA.	EACH	SECT.	SECTION
E.J.	EXPANSION JOINT	SHT.	SHEET
EL.	ELEVATION	SIM.	SIMILAR
ELEC.	ELECTRICAL	SPEC.	SPECIFICATION
EQ.	EQUAL	SQ.	SQUARE
E.W.C.	ELECTRIC WATER COOLER	SST.	STAINLESS STEEL
E.W.H.	ELECTRIC WATER HEATER	STD.	STANDARD
EXIST.	EXISTING	STL.	STEEL
EQPT.	EQUIPMENT	STRUC.	STRUCTURAL
EXT.	EXTERIOR	SUSP.	SUSPENDED
F.B.	FLAT BAR	TRD.	TREAD
F.L.	FLOW LINE	THK.	THICK
FDN.	FOUNDATION	T.O.W.	TOP OF WALL
F.F.	FINISH FLOOR	TYP.	TYPICAL
FIN.	FINISH	T.O.C.	TOP OF CONCRETE
F.G.	FINISH GRADE	T.O.S.	TOP OF SLAB
FLR.	FLOOR	TEXT.	TEXTURE
FLASH.	FLASHING	U.N.	UNLESS NOTED
FLUOR.	FLOURESCENT	U.O.N.	UNLESS OTHERWISE NOTED
F.M.	FIRE MARSHAL	VERT.	VERTICAL
F.O.C.	FACE OF CONCRETE	VEST.	VESTIBULE
F.O.F.	FACE OF FINISH	W/	WITH
F.O.W.	FACE OF WALL	WD.	WOOD
F.O.M.	FACE OF MASONRY	W.D.	WOOD DOOR
F.O.S.	FACE OF STUDS	W.H.	WATER HEATER
FT.	FOOT, FEET	W/O	WITHOUT
FTG.	FOOTING	WSCT.	WAINSCOT
F.H.M.S.	FLAT HEAD MACHINE SCREW	WT.	WEIGHT
F.H.S.M.S.	FLAT HEAD SHEET METAL SCREW	&	AND
F.H.W.S.	FLAT HEAD WOOD SCREW	∠	ANGLE
GA.	GAGE, GAUGE	℄	CENTER LINE
GALV.	GALVANIZED	M	MODULE LINE
G.I.	GALVANIZED IRON	⌀	DIAMETER
G.B.	GRAB BAR	#	NUMBER
GND.	GROUND	[E]	EXISTING
GYP.	GYPSUM		
GYP. BD.	GYPSUM BOARD		
H.B.	HOSE BIB		
HCP.	HANDICAP		
HT.	HEIGHT		
H.M.F.	HOLLOW METAL FRAME		
H.M.	HOLLOW METAL		
H.M.D.	HOLLOW METAL DOOR		
INSUL.	INSULATION		
INT.	INTERIOR		
JT.	JOINT		
LT.	LIGHT		

SHEET INDEX

☒ WHEN APPLICABLE

Discipline	Applicable	Sheet	Title
ARCHITECTURAL	X	0.0	COVER SHEET, SHEET INDEX, & BUILDING DATA
		A0.1	GENERAL NOTES AND SPECIFICATIONS
		A1.0	FLOOR PLANS (24'x40')
	X	A1.1	FLOOR PLANS (36'x40')
		A1.2	FLOOR PLAN (48'x40')
		A2.0	EXTERIOR ELEVATIONS - MONO AND GABLE ROOF (24'x40')
		A2.1	EXTERIOR ELEVATIONS - MONO AND GABLE ROOF (36'x40')
		A2.2	EXTERIOR ELEVATIONS - MONO ROOF (48'x40')
		A2.3	EXTERIOR ELEVATIONS - GABLE ROOF (48'x40')
		A2.4	EXTERIOR ELEVATIONS - MONO AND GABLE ROOF (24'x40') - STUCCO EXTERIOR
		A2.5	EXTERIOR ELEVATIONS - MONO AND GABLE ROOF (36'x40') - STUCCO EXTERIOR
		A2.6	EXTERIOR ELEVATIONS MONO ROOF (48'x40') - STUCCO EXTERIOR
		A2.7	EXTERIOR ELEVATIONS - GABLE ROOF (48'x40') - STUCCO EXTERIOR
		A3.0	INTERIOR ELEVATIONS (24'x40')
		A3.1	INTERIOR ELEVATIONS (36'x40')
		A3.2	INTERIOR ELEVATIONS (48'x40')
		A4.0	GABLE ROOF PLANS (24'x40', 36'x40' & 48'x40')
	X	A4.1	MONO SLOPE ROOF PLANS (24'x40', 36'x40' & 48'x40')
		A5.0	REFLECTED CEILING PLAN AND DETAILS (24'x40')
		A5.1	REFLECTED CEILING PLAN AND DETAILS (36x40)
		A5.2	REFLECTED CEILING PLAN AND DETAILS (48x40)
		A6.0	EXTERIOR, INTERIOR FINISH SCHEDULES AND DOOR HARDWARE
		A7.0	TYPICAL ARCHITECTURAL DETAILS AND SIGNAGE
ELECT.		E1.0	ELECTRICAL POWER & LIGHTING PLAN, AND PANEL SCHEDULE (24'x40')
		E1.1	ELECTRICAL POWER & LIGHTING PLAN, AND PANEL SCHEDULE (36'x40')
		E1.2	ELECTRICAL POWER & LIGHTING PLAN, AND PANEL SCHEDULE (48'x40')
FOUNDATION		F1.0	FOUNDATION PLANS (WOOD 50 LBS. LIVE LOAD)
	X	F1.1	FOUNDATION PLANS (WOOD 50 LB. L. L. + 20 LBS. PARTITIONS)
		F1.2	FOUNDATION PLANS (WOOD 125 LBS. LIVE LOAD)
		F1.3	WOOD FOUNDATION PLAN DETAILS
		F2.0	FOUNDATION PLANS (CONCRETE 50, 50+20 AND 125 PSF FLR L.L. ABOVE GRADE)
		F2.1	FOUNDATION PLANS (CONCRETE 50, 50+20 AND 125 PSF FLR L.L. FLUSH WITH GRADE)
	X	F2.2	CONCRETE FOUNDATION DETAILS (WOOD FLOOR) FLUSH / ABOVE GRADE FOUND.
	X	F2.3	CONCRETE FOUNDATION DETAILS (CONCRETE FLOOR) FLUSH / ABOVE GRADE FOUND.
MECHANICAL		M1.0	MECHANICAL PLANS (24'x40') WALL HUNG UNIT
		M2.0	MECHANICAL PLANS (36'x40') WALL HUNG UNIT
		M3.0	MECHANICAL PLANS (48'x40') WALL HUNG UNIT
		M4.0	MECHANICAL PLANS (24'x40') ROOF MOUNTED UNITS
		M5.0	MECHANICAL PLAN (36'x40') ROOF MOUNTED UNITS
		M6.0	MECHANICAL PLAN (48'x40') ROOF MOUNTED UNITS
PLMB.		P1.0	RESTROOM PLUMBING PLAN AND DETAILS
RAMPS		R1.0	RAMP PLAN AND DETAILS (SINGLE HANDRAIL METAL DECKING)
		R1.1	RAMP PLAN AND DETAILS (SINGLE HANDRAIL WOOD DECKING)
		R1.2	RAMP PLAN AND DETAILS (DBL. HANDRAIL METAL DECKING)
		R1.3	RAMP PLAN AND DETAILS (DBL. HANDRAIL WOOD DECKING)
		L1.0	LANDING PLAN & DETAILS (WOOD DECK)
		L1.1	LANDING PLAN & DETAILS (METAL DECK)
STRUCTURAL	X	S1.0	WALL FRAMING (WOOD STUDS)
		S2.0	WALL FRAMING (METAL STUDS)
	X	S3.0	TYPICAL DETAILS - PLYWOOD EXTERIOR (WOOD STUDS)
		S3.1	TYPICAL DETAILS - PLYWOOD EXTERIOR (METAL STUDS)
		S3.2	TYPICAL DETAILS - PLYWOOD EXTERIOR (I HR. WOOD STUDS) OPTIONAL
		S3.3	TYPICAL DETAILS - PLYWOOD EXTERIOR (I HR. METAL STUDS) OPTIONAL
		S3.4	TYPICAL DETAILS - STUCCO EXTERIOR (WOOD STUDS) OPTIONAL
		S3.5	TYPICAL DETAILS - STUCCO EXTERIOR (METAL STUDS) OPTIONAL
		S4.0	STRUCTURAL FLOOR FRAMING (50 LBS LL)
		S4.1	STRUCTURAL FLOOR FRAMING (50 + 20 LBS LL)
	X	S4.2	STRUCTURAL FLOOR FRAMING (125 LBS LL)
		S4.3	CONCRETE FLOOR FRAMING AND DETAILS (50, 50+20 AND 125 LBS LL)
	X	S4.4	STRUCTURAL ROOF FRAMING - GABLE/MONO SLOPE BUILT-UP ROOFING
		S4.5	STRUCTURAL ROOF FRAMING - GABLE/ MONO SLOPE 22 GA ROOFING
	X	S4.6	STRUCTURAL SECTIONS - GABLE & MONO SLOPE ROOF
		S5.0	STEEL TRUSS SECTION AND DETAILS (GABLE SLOPE ROOF)
		S5.1	STEEL TRUSS SECTION AND DETAILS (MONO SLOPE ROOF)
	X	S5.2	STRUCTURAL DETAILS AND NOTES - PLYWOOD ROOFING (WOOD STUDS)
		S5.3	STRUCTURAL DETAILS AND NOTES - 22 GA. ROOFING (WOOD STUDS)
		S5.4	STRUCTURAL DETAILS AND NOTES - PLYWOOD ROOFING (STEEL STUDS)
		S5.5	STRUCTURAL DETAILS AND NOTES - 22 GA. ROOFING (STEEL STUDS)
		S6.0	STRUCTURAL DETAILS - BUILT-UP ROOFING (WOOD STUDS)
		S6.1	STRUCTURAL DETAILS - 22 GA. ROOFING (WOOD STUDS)
		S6.2	STRUCTURAL DETAILS - PLYWOOD ROOFING (METAL STUDS)
		S6.3	STRUCTURAL DETAILS - 22 GA. ROOFING (METAL STUDS)
	X	S6.4	TPO ROOFING SPECIFICATIONS
		S6.5	TPO ROOFING DETAILS
		S7.0	PARAPET FRAMING DETAILS
		S8.0	PARAPET FRAMING DETAILS
		S9.0	HVAC SCREEN LAYOUT AND DETAILS

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
JAMES T. SIMPSON
No. 2002
STRUCTURAL
STATE OF CALIFORNIA
LICENSE EXPIRES 6-30-2004

17300 Perris Blvd.
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www.aurora-modular.com

AURORA MODULAR INDUSTRIES

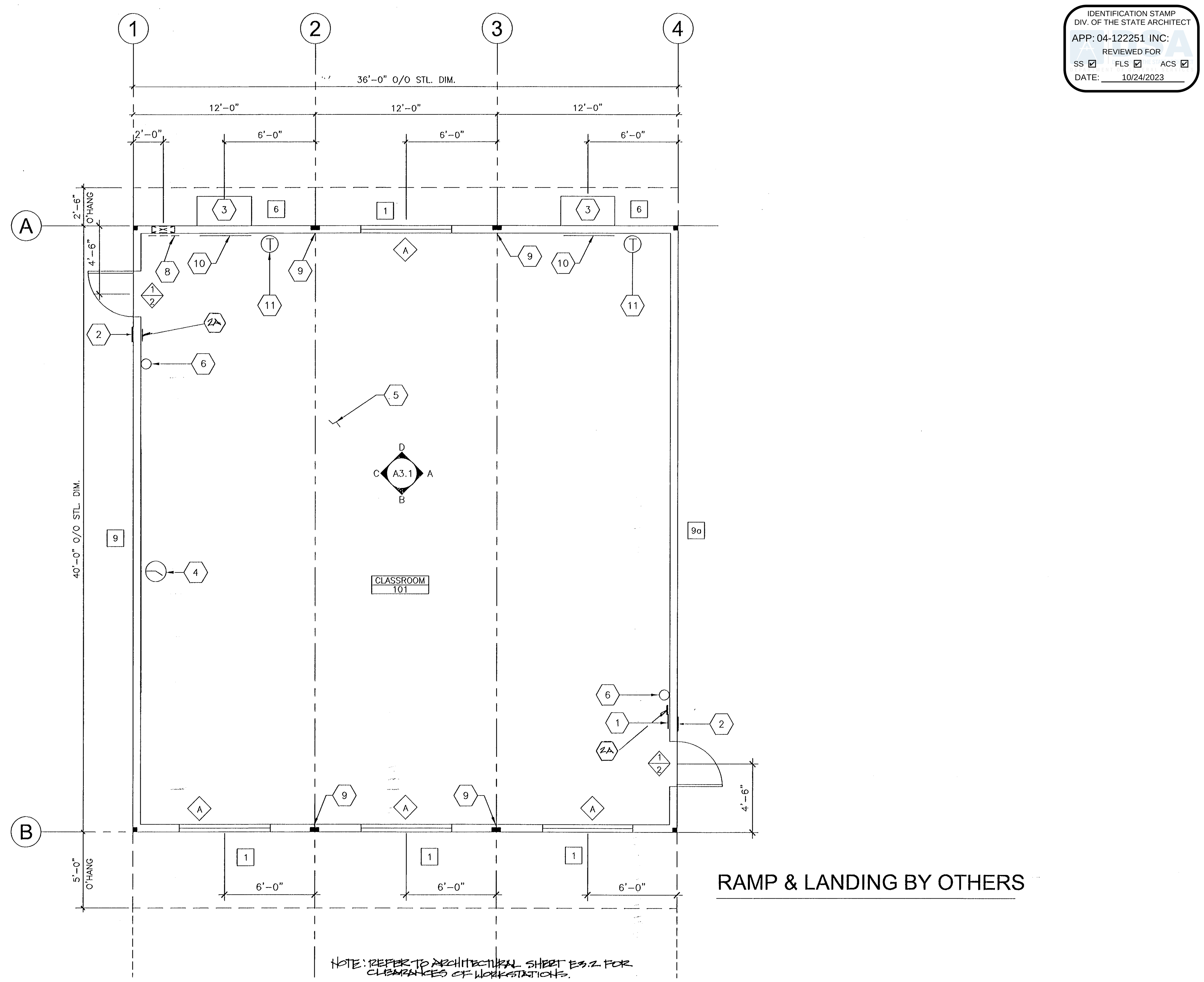
RELOCATABLE BUILDING FOR:
CORONA-NORCO UNIFIED
AUBURNDALE INTERMEDIATE

COVER SHEET, SHEET INDEX, BUILDING DATA

BY	PAVH	DATE	7-2-03
CHECKED		AMI#	5152

0.0

SHEET



FLOOR PLAN (36'x40')

SCALE: 1/4" = 1'-0"

KEYNOTES

1. PROVIDE ROOM CAPACITY SIGN, AND SHALL BE POSTED IN A CONSPICUOUS PLACE NEAR THE MAIN EXIT. (SIGN SHALL TO BE SUPPLIED BY DISTRICT) TYP. SEE DET. 3/A7.0
2. ACCESS SIGN (SEE DETAIL 2 SHEET A7.0) FOR REF. (NOT BY MODULAR MANUFACTURE)
2A. TACTILE EXIT SIGN, REFER TO 2A/A7.0
3. WALL MOUNTED ELECTRIC HEAT PUMP, SEE MECHANICAL SHEET FOR REF. (TYP.)
4. WALL CLOCK, SEE ELECTRICAL SHEET
5. FINISH FLOORING- SEE SHEET A6.0
6. FIRE EXTINGUISHER- 5 lb. DRY CHEMECAL WITH 2A-10B-C UL RATING. F.E. HANDLE @ 48" A.F.F. (TYP.)
7. ~~MARKERBOARD - SEE SHEET A6.0~~
8. ELECTRICAL PANEL 'A'- SEE ELECTRICAL SHEET
9. VINYL WRAPPED CLOSE-OFF BATT. WITH A FLAME SPREAD OF 0-25, SMOKE 50
10. HVAC RETURN, SEE SHEET MECHANICAL SHEET
11. THERMOSTAT, SEE SHEET MECHANICAL SHEET
12. PROVIDE A 5'-0"x6'-0" LEVEL SURFACE AT FLUSH END OF RAMP (BY OTHERS)
13. PROVIDE RAMPS AND LANDINGS IF REQUIRED

JUL 29 2003

LEGEND

- KEYNOTES
- WALL FRAMING No.
- DOOR No. / HARDWARE TYPE
- ROOM NAME / ROOM No.
- WINDOW TYPE
- PLUMBING FIX. REF.
- REFERENCE GRID
- DETAIL No. / SHEET No.
- ELEVATION REF. / SHEET No.

NOTE:

PROVIDE RAMPS AS NEEDED ACCORDING TO SITE CONDITIONS. STANDARD RAMP DESIGN SHOWN FOR REFERENCE ONLY

SEE, RAMP SHEETS FOR ALTERNATE RAMP DESIGN

DSA - PC

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 105264

REVISIONS

AURORA MODULAR INDUSTRIES

17300 Perris Blvd.
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www.aurora-modular.com

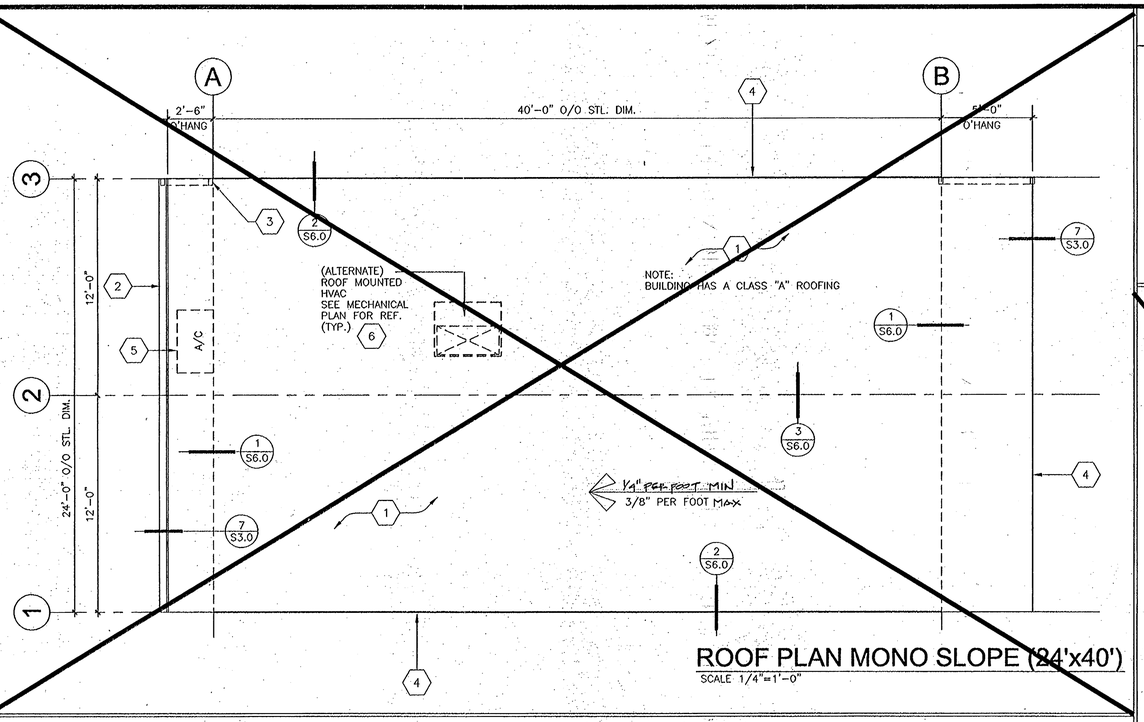
RELOCATABLE BUILDING FOR:
CORONA-NORCO UNIFIED
AUBURNDALE INTERMEDIATE

FLOOR PLAN (36'x40')

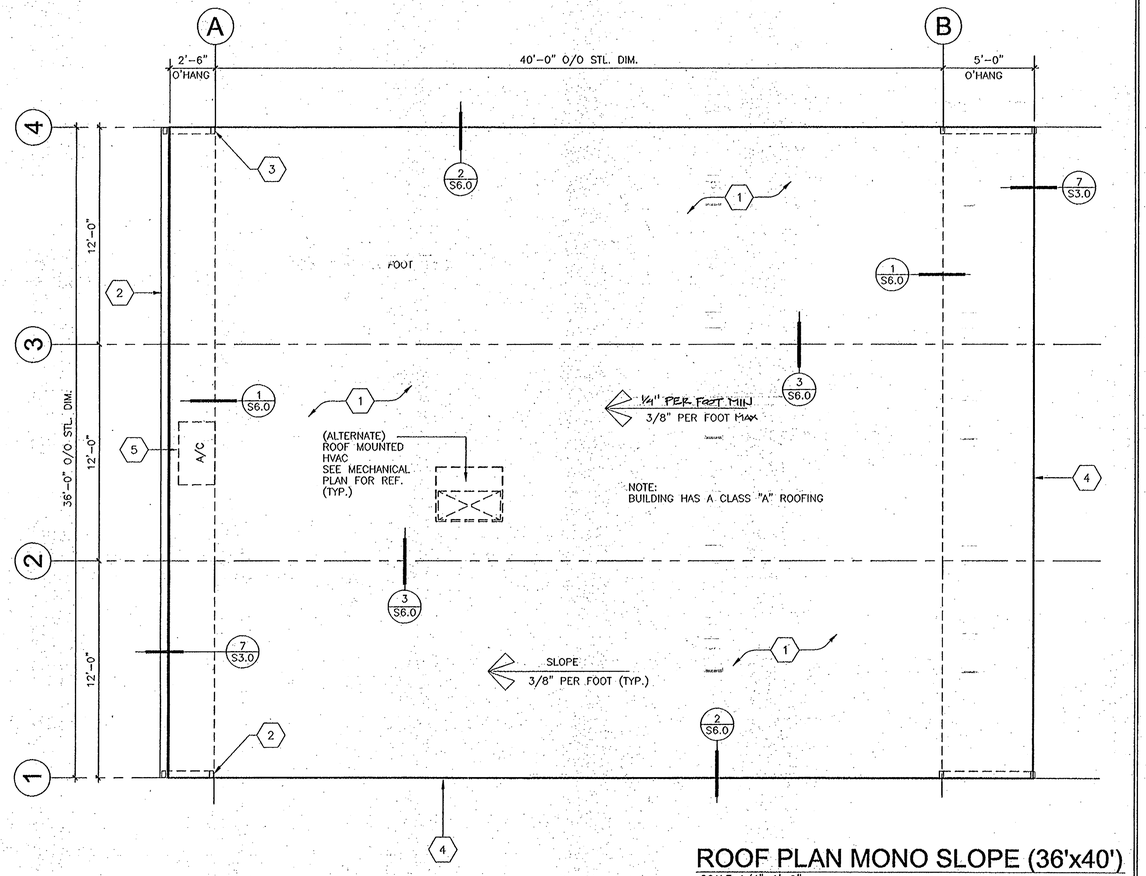
BY PAVH DATE 7-2-03
CHECKED AMI# 5152

A1.1

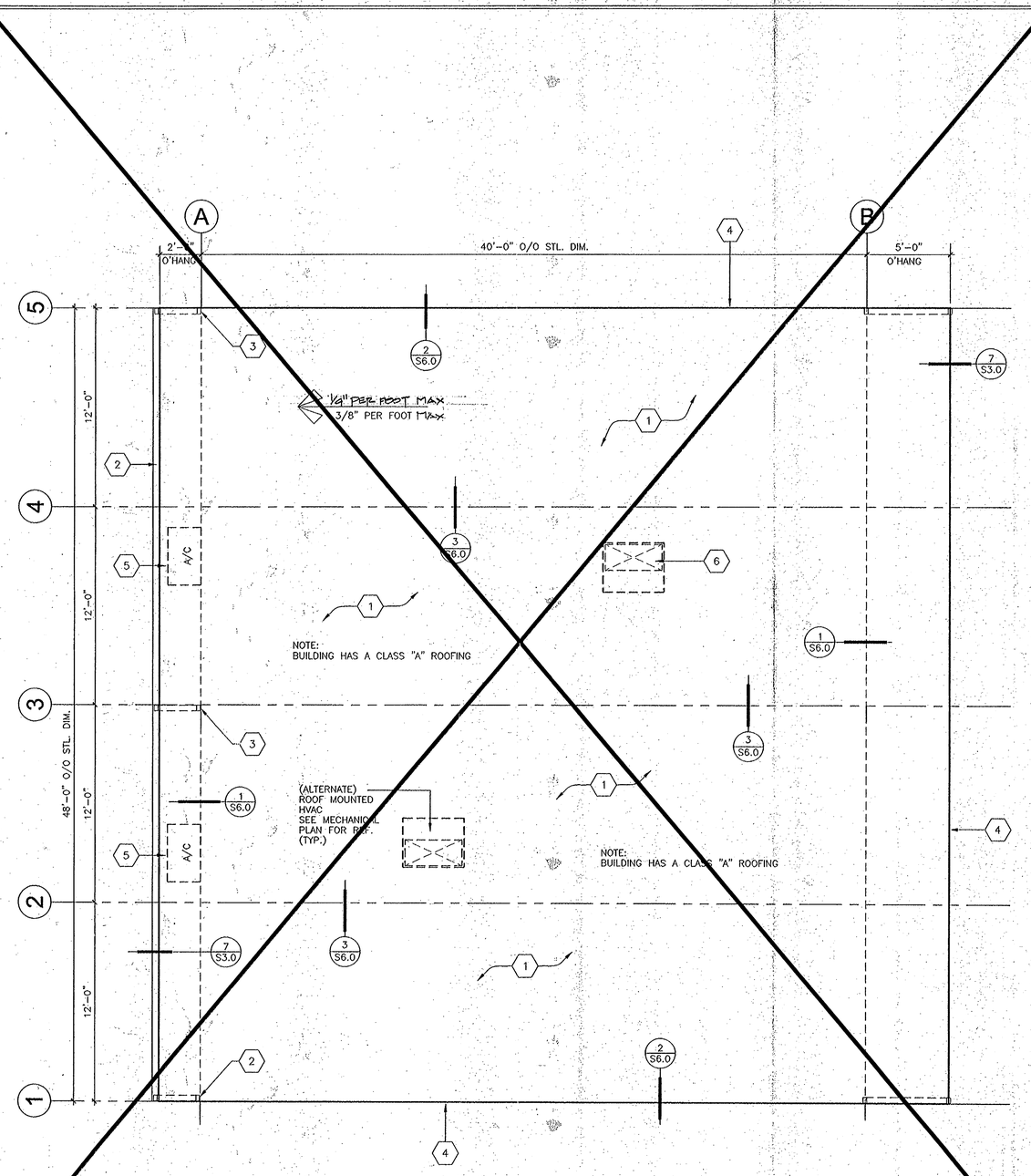
SHEET



ROOF PLAN MONO SLOPE (24'x40')
SCALE 1/4"=1'-0"



ROOF PLAN MONO SLOPE (36'x40')
SCALE 1/4"=1'-0"



ROOF PLAN MONO SLOPE (48'x40')
SCALE 1/4"=1'-0"

KEYNOTES

1. ROOFING, SEE SHEET A0.1
2. 26 GA. GALV. GUTTER
3. 26 GA. GALV. DOWNSPOUT
4. 26 GA. GALV. SHEET METAL DRIP EDGE
5. STANDARD LOCATION FOR A/C UNITS (WALL MOUNTS) SEE MECHANICAL SHEETS FOR SPECIFICATIONS.
6. ~~ALTERNATE LOCATION FOR A/C UNITS (IF SHOWN, ROOF MOUNTED) SEE MECHANICAL ROOF PLANS SHEET~~ SEE MECHANICAL SHEETS FOR SPECIFICATIONS.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

JUL 29 2003

DSA - PC

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 - 104816
FLS SS ACS
DATE 5/30/03

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 105264
FLS SS ACS
DATE 5/30/03

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
JAMES T. SIMPSON
No. 5602
STRUCTURAL
STATE OF CALIFORNIA
LICENSE EXPIRES 6-30-2004

AURORA
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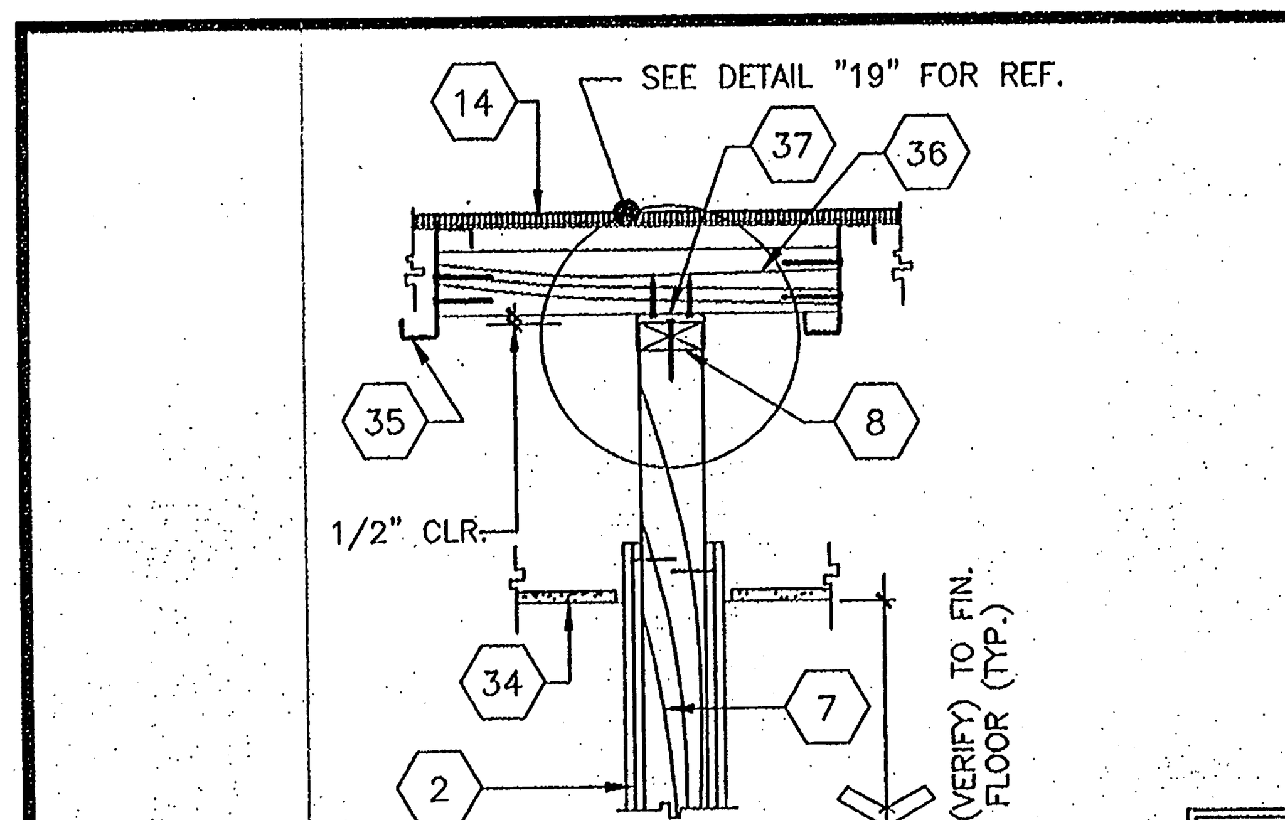
RELOCATABLE BUILDING FOR:
CORONA-NORCO UNIFIED
AUBURNDALE INTERMEDIATE

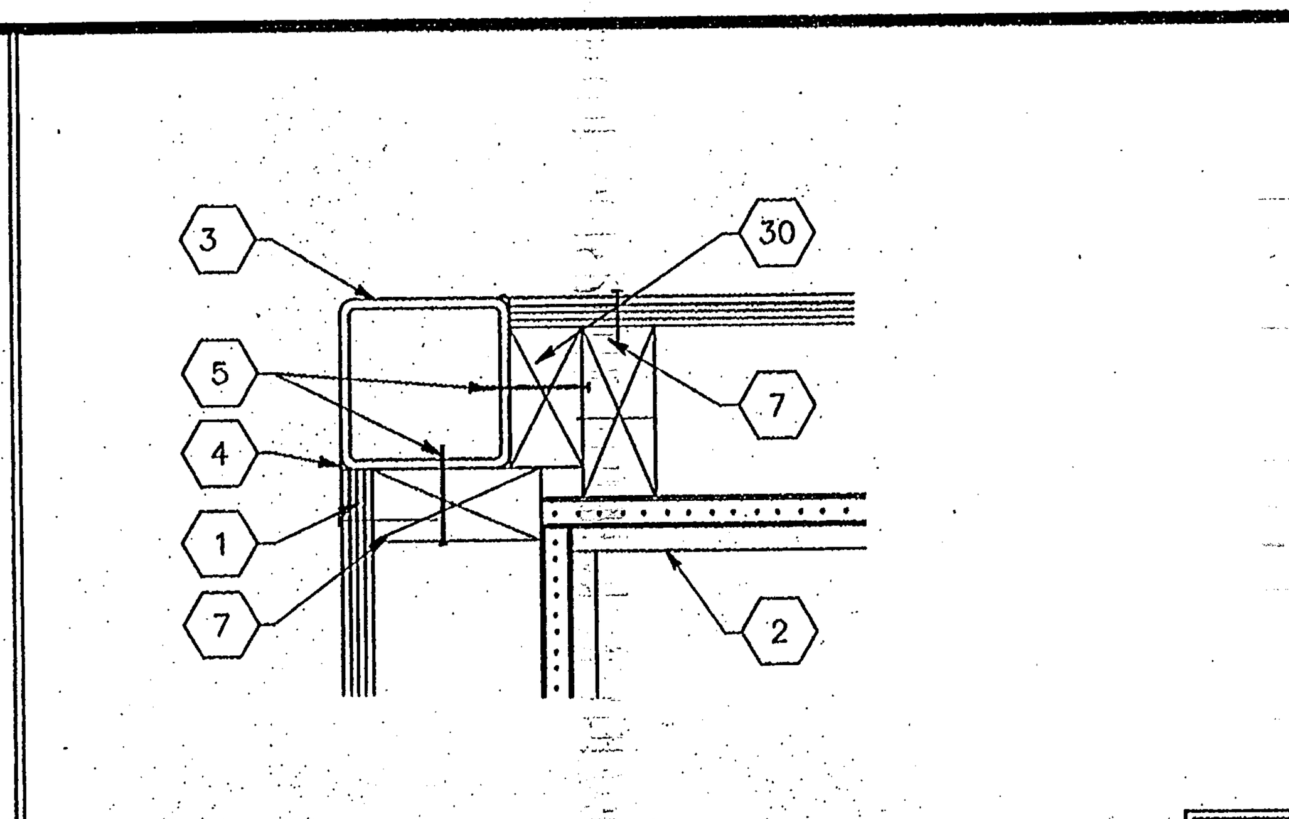
ROOF PLAN (MONO ROOF)

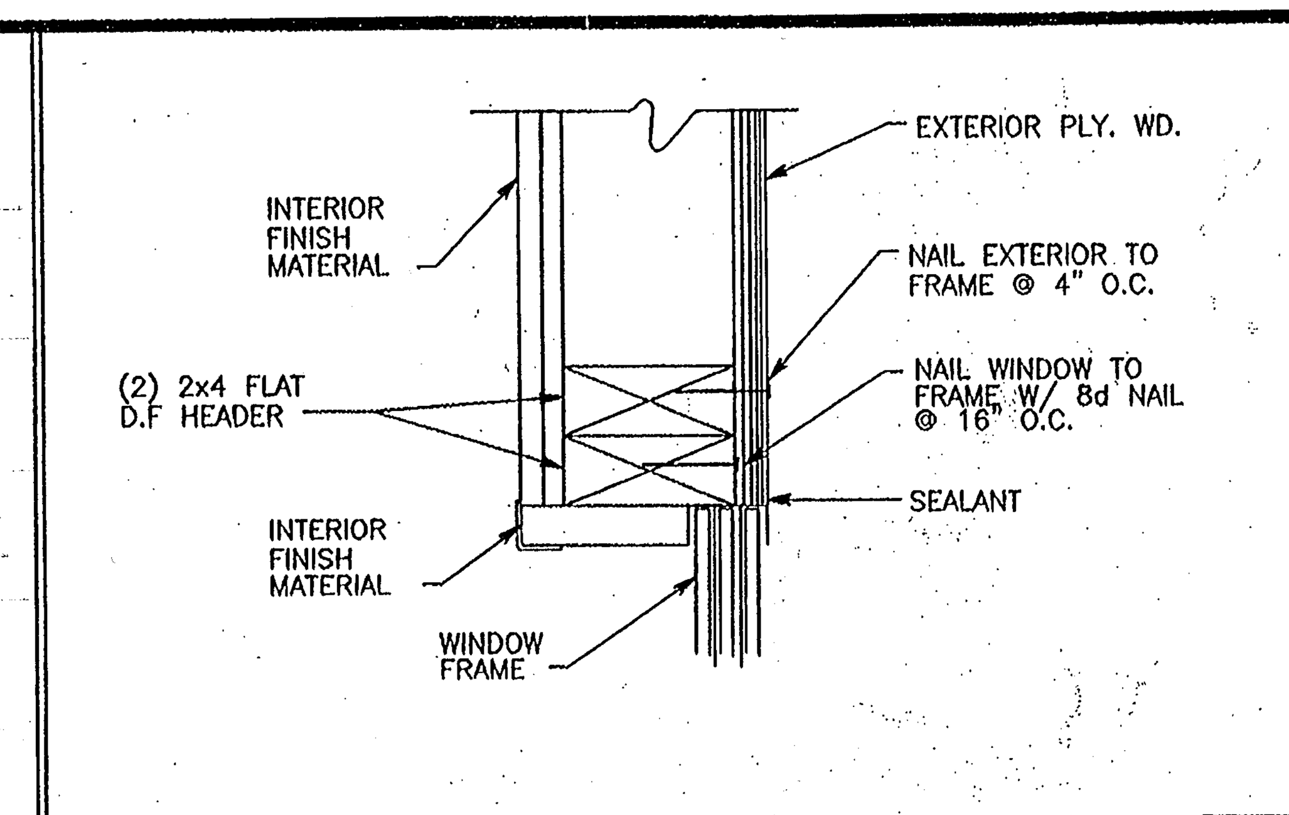
BY	HAVH	DATE	7-2-03
CHECKED		AM#	5152

A4.1
SHEET

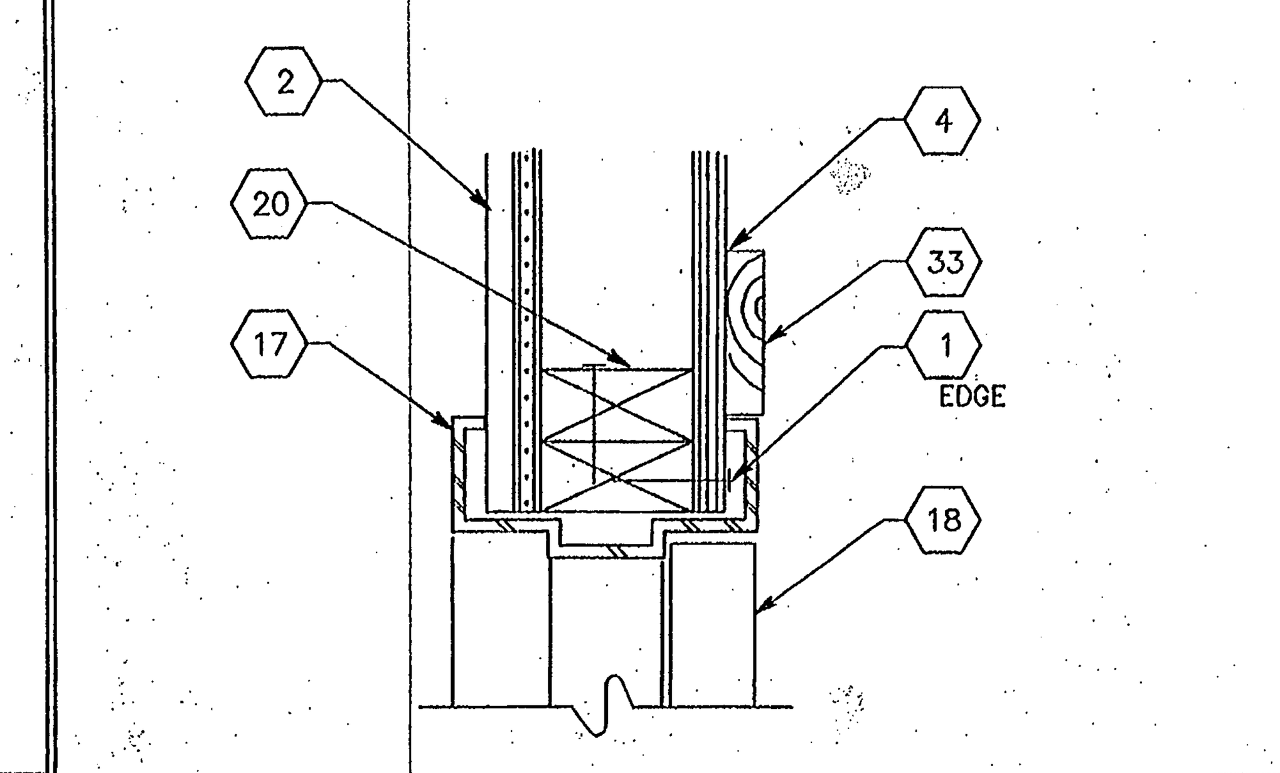


SLIP-JOINT AT TOP PLATE 16

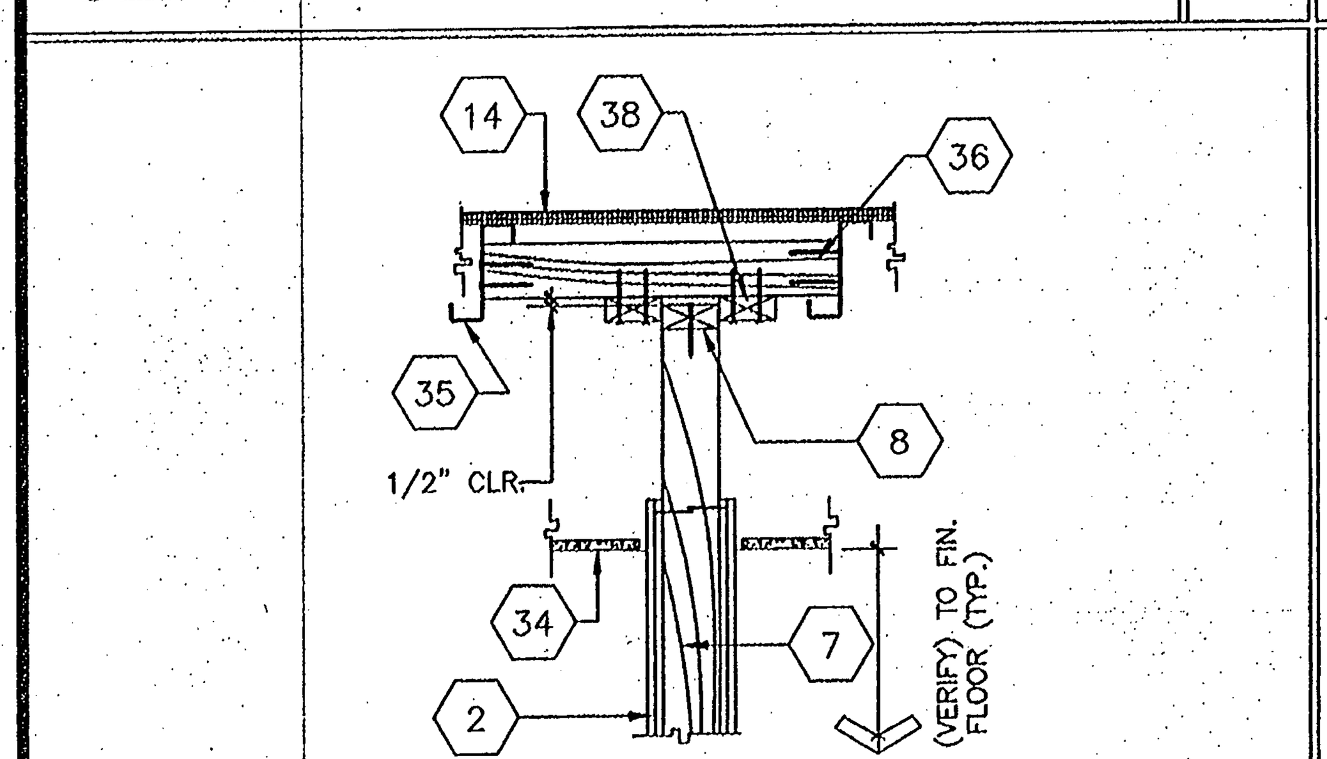

COLUMN AT CORNER 11



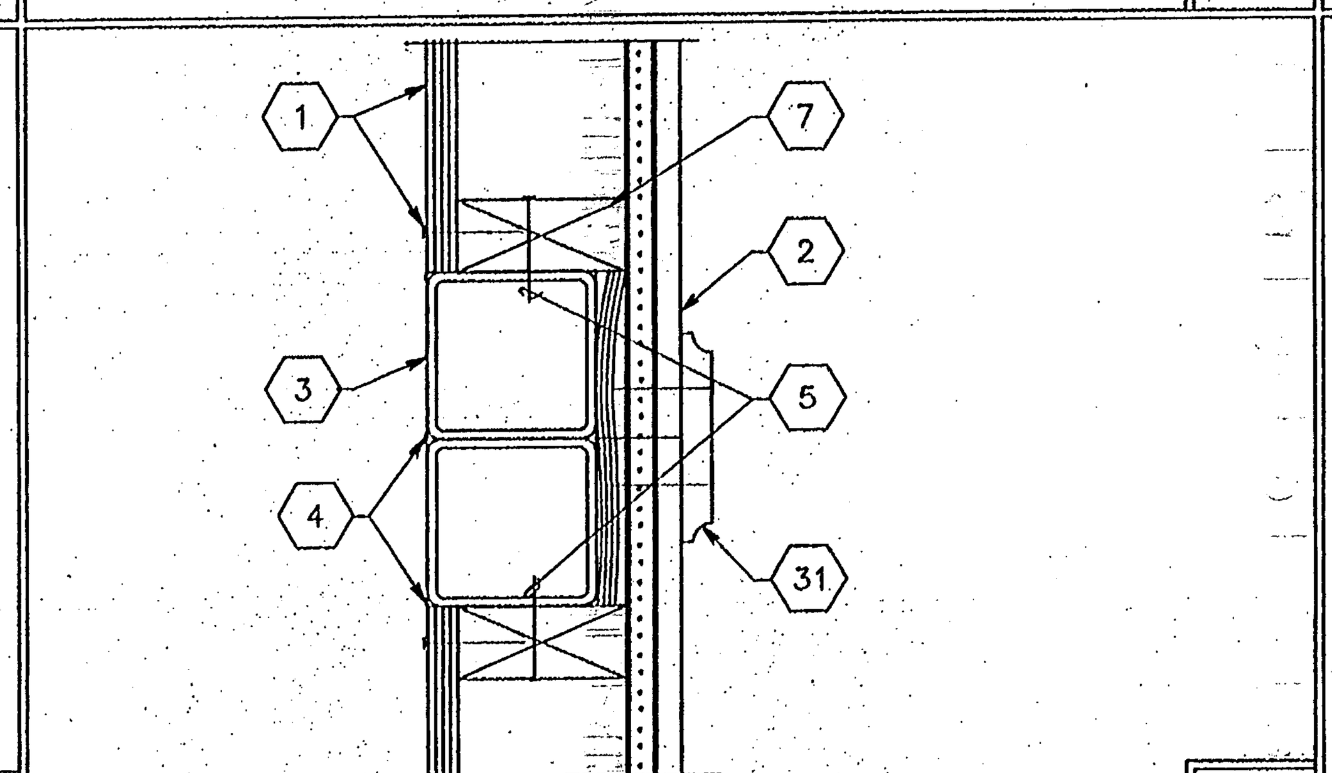
WINDOW HEADER 6

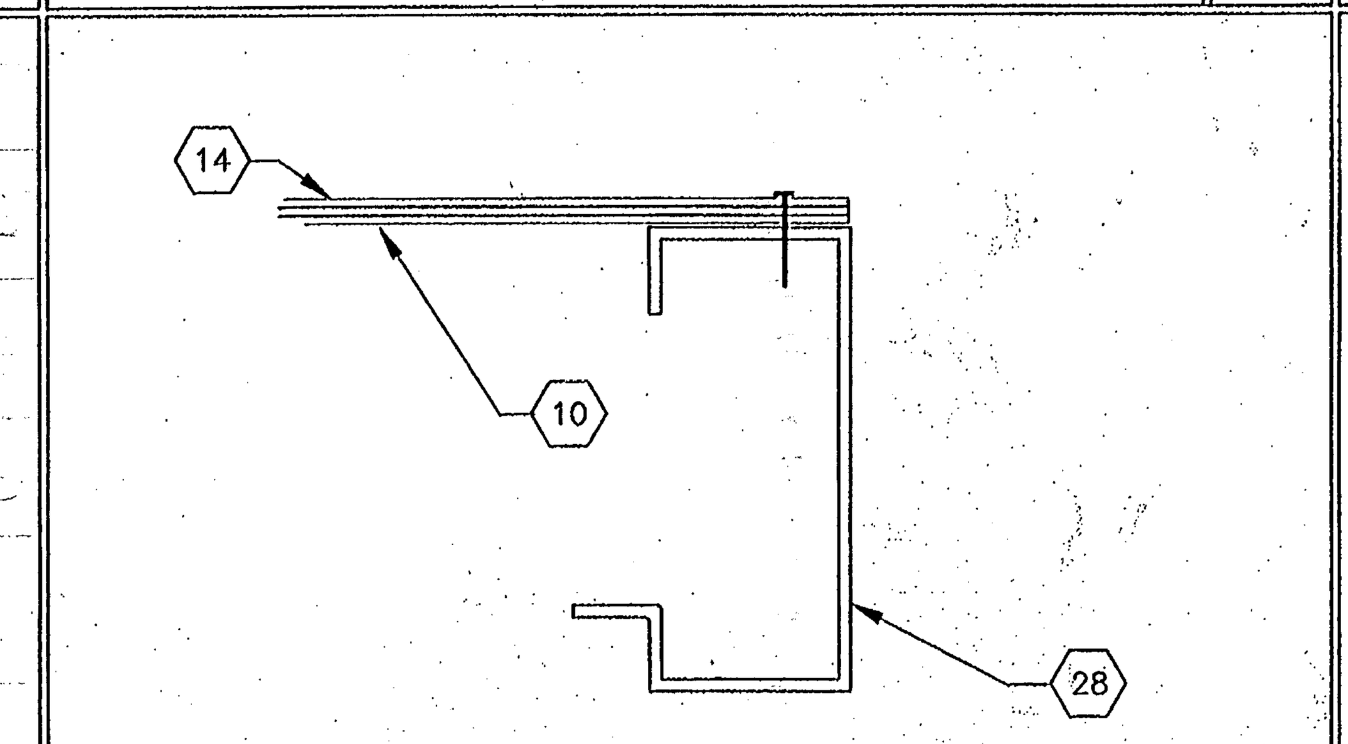


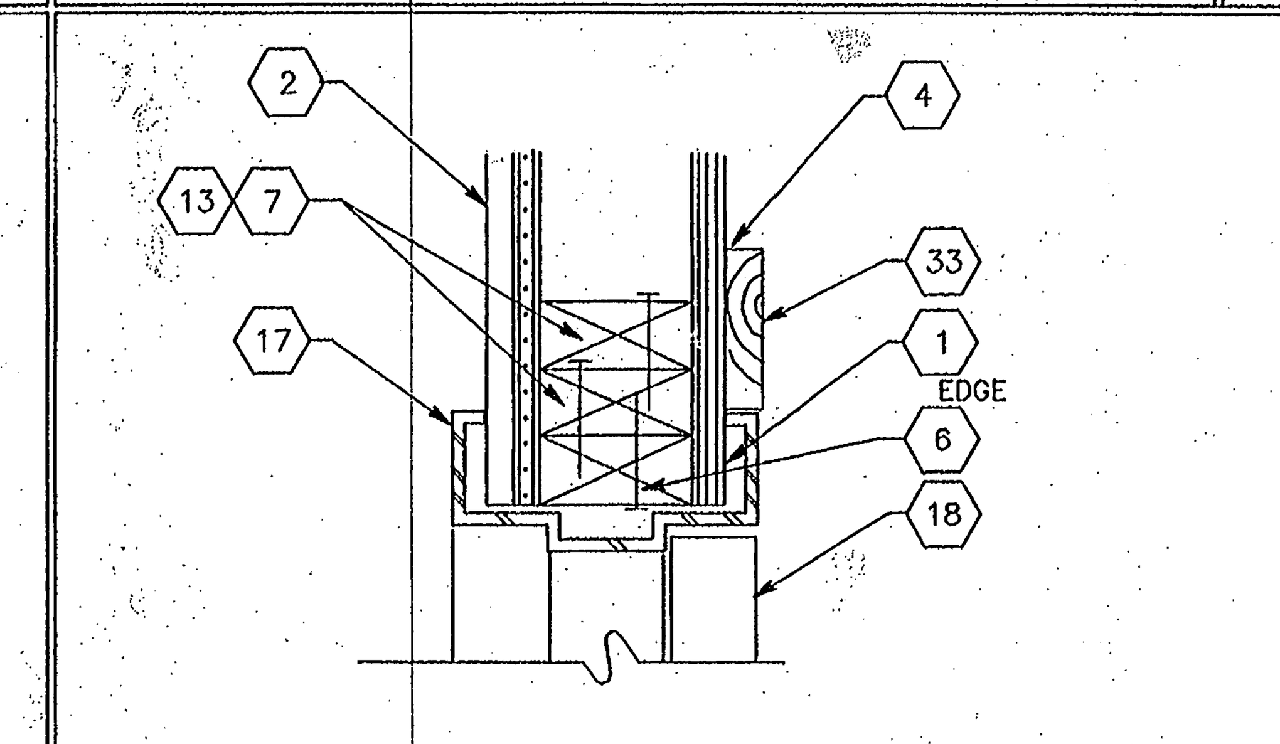
DOOR HEAD 1



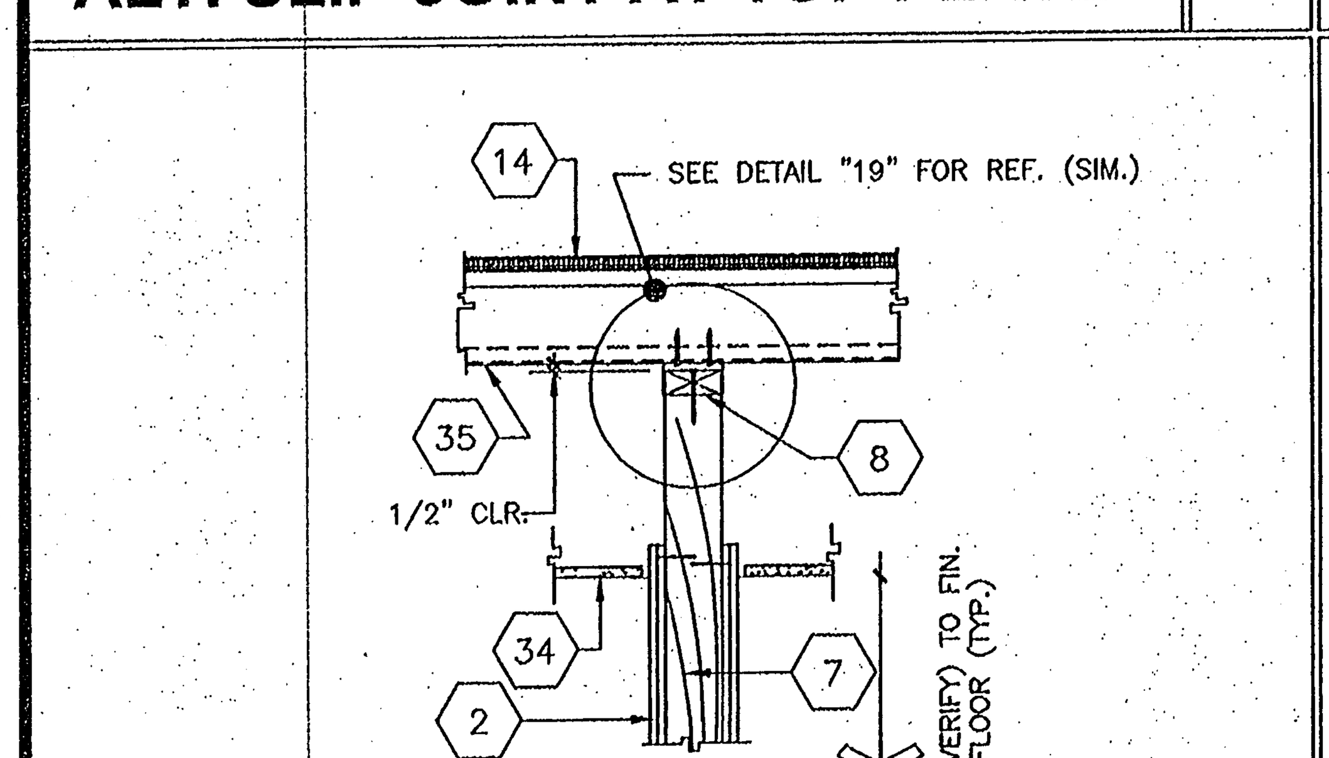
ALT. SLIP-JOINT AT TOP PLATE 17


COLUMN AT MODLINE 12

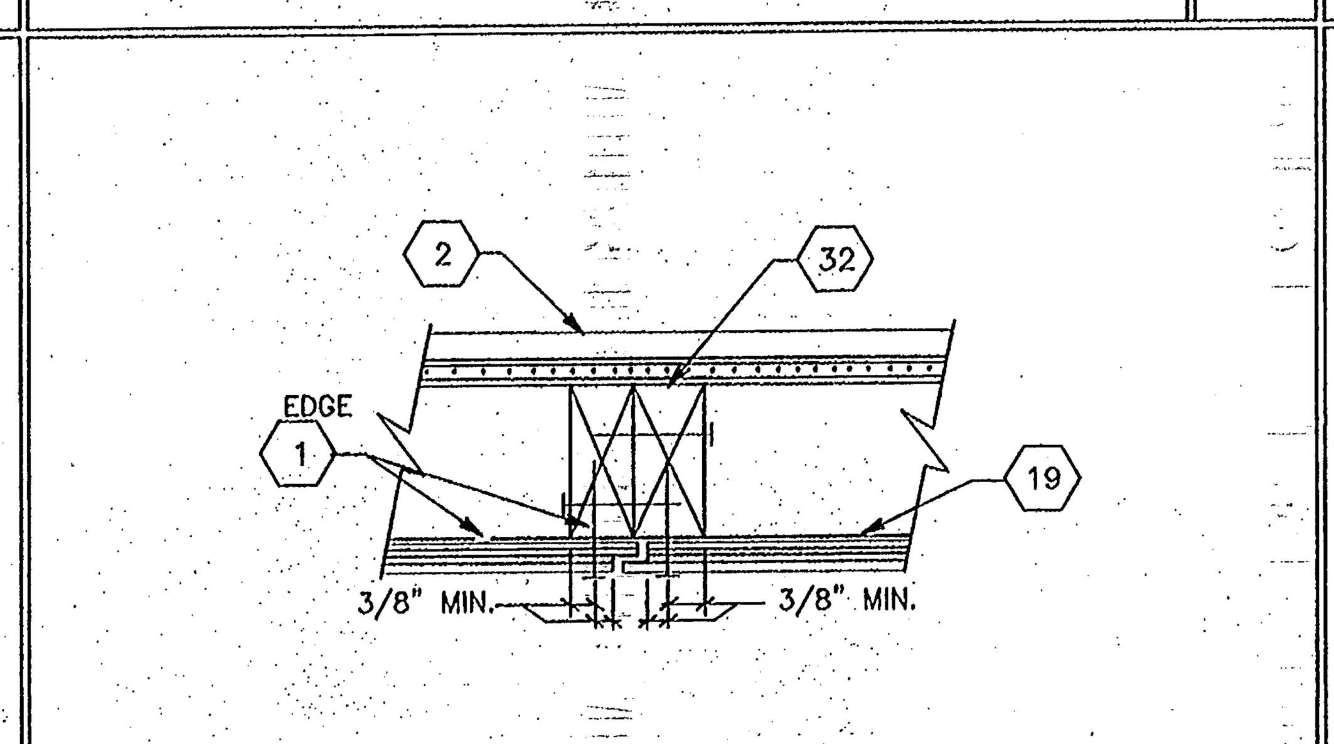

FASCIA 7



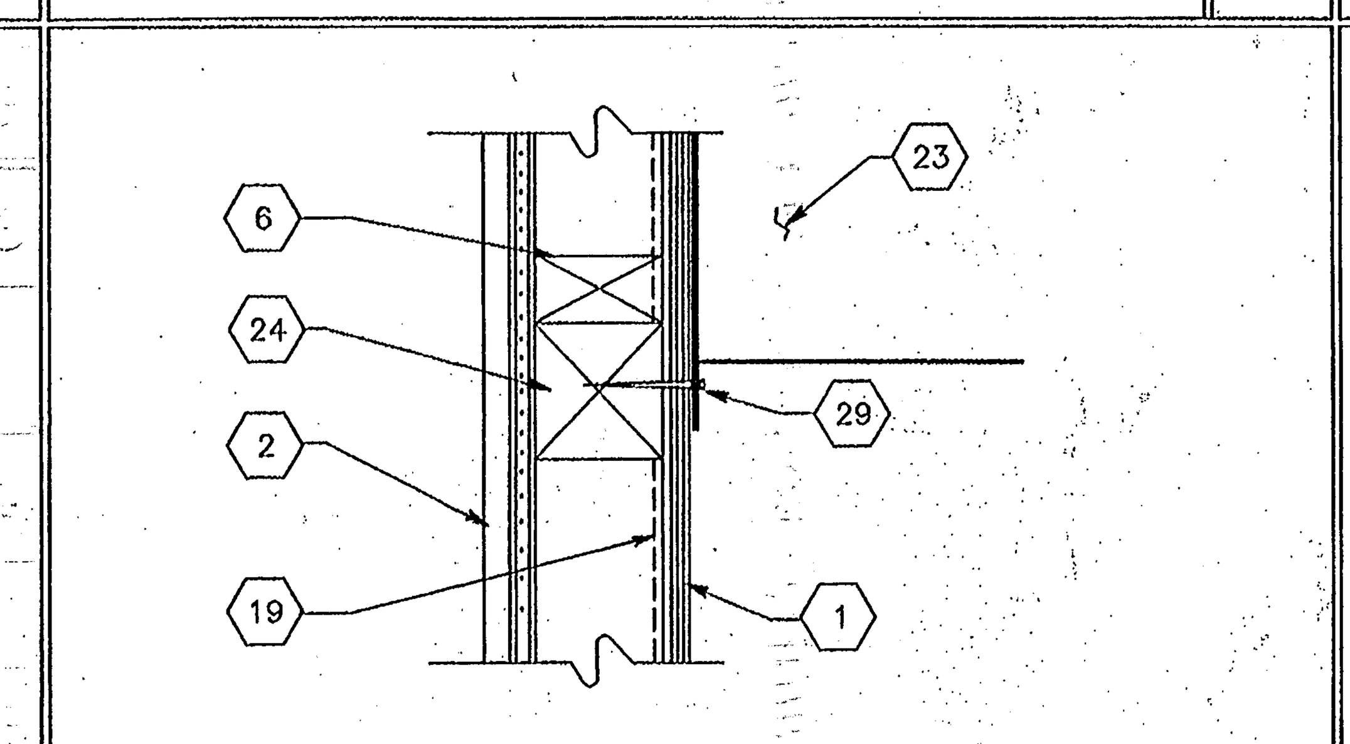
DOOR JAMB 2

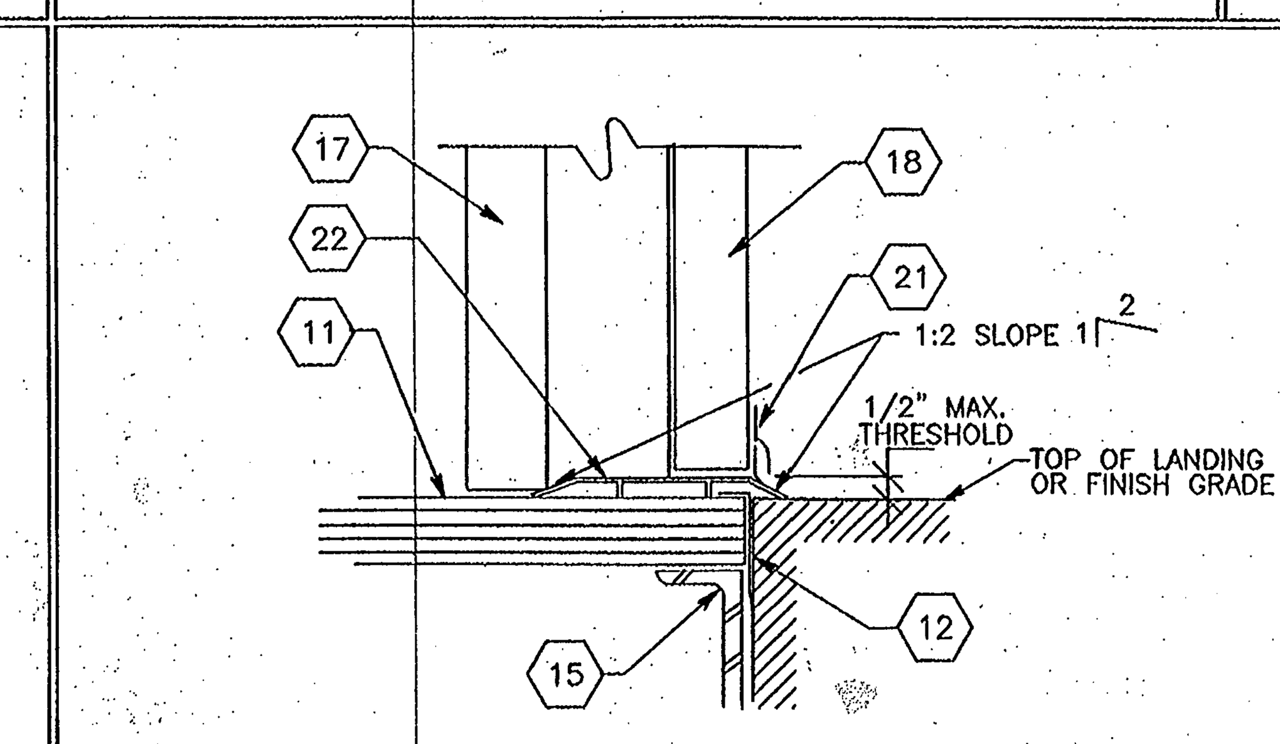


SLIP-JOINT 18

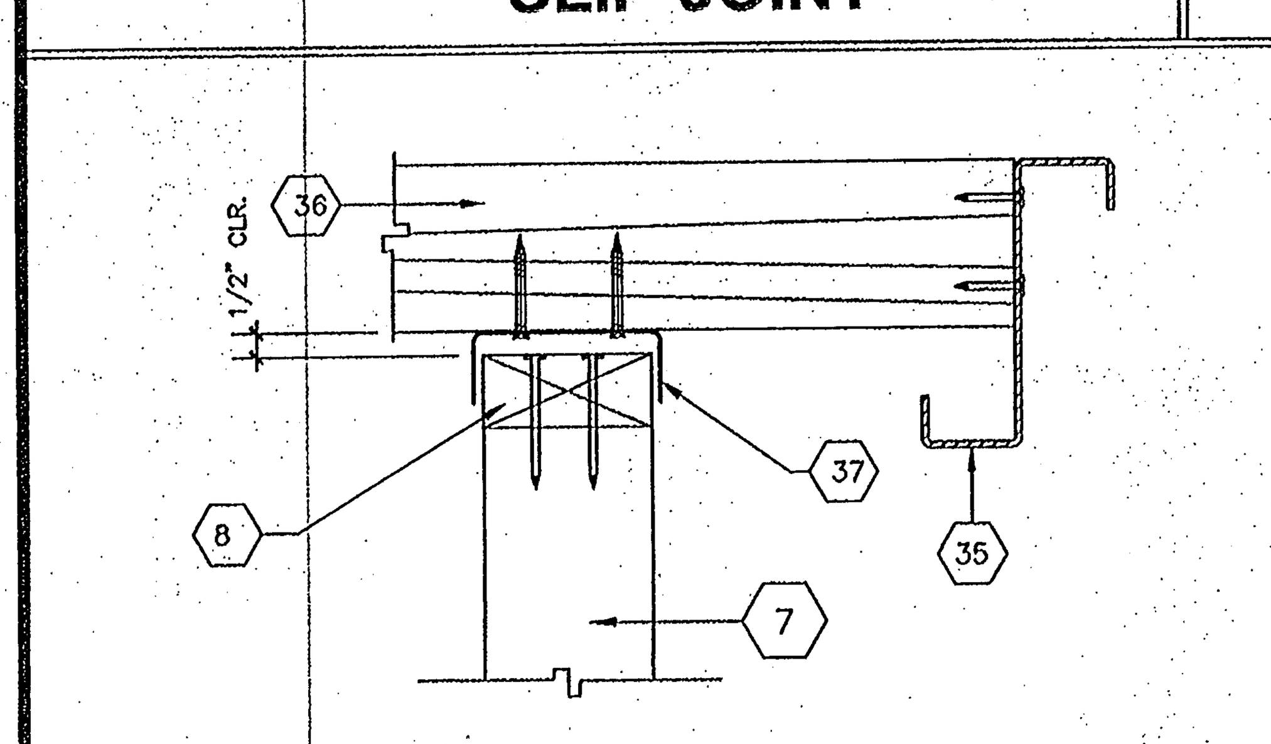


PANEL JOINT 13

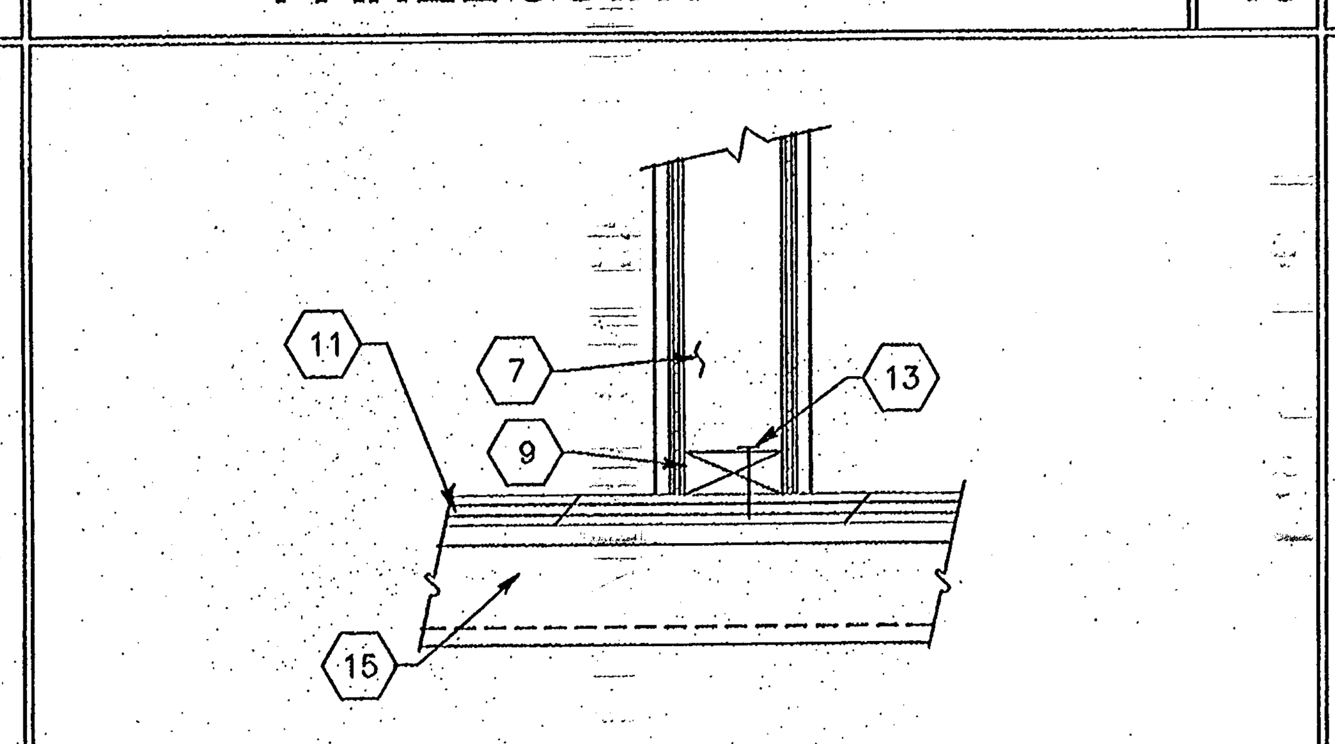

A/C AT SIDE 8

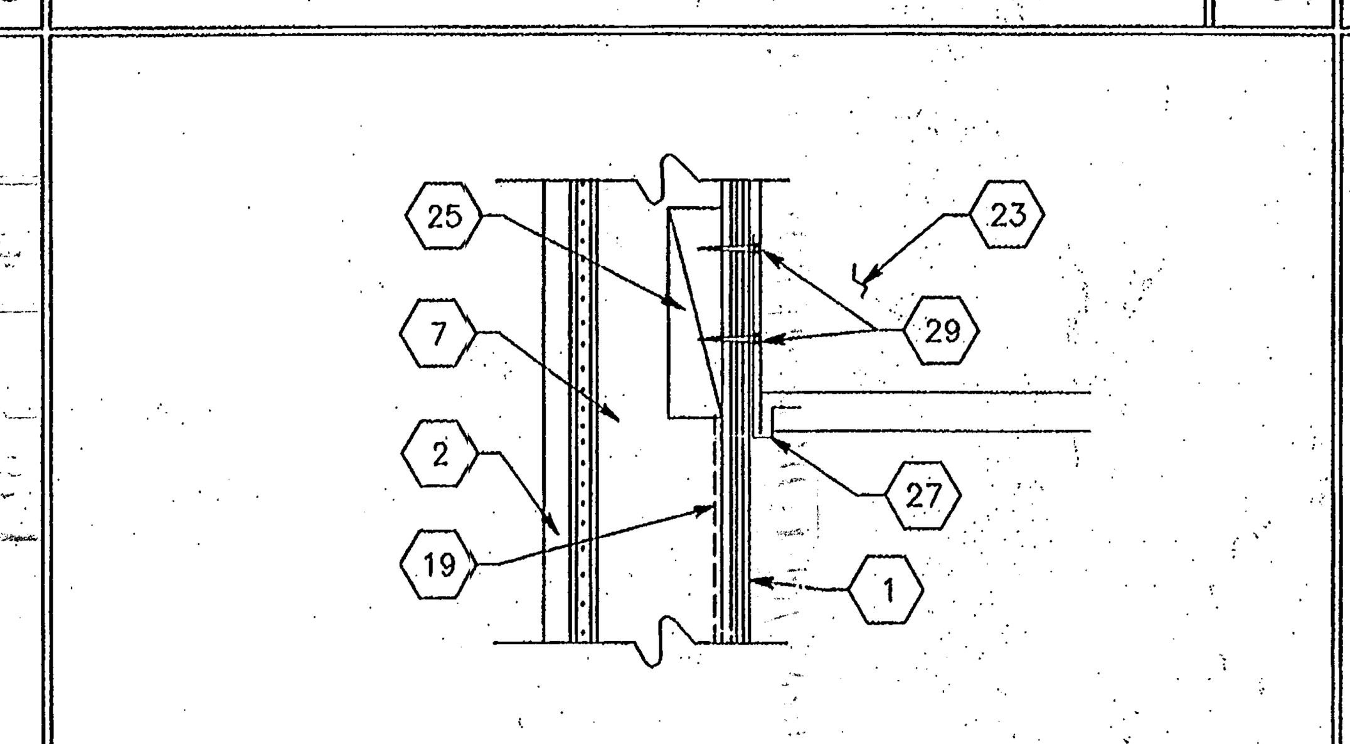


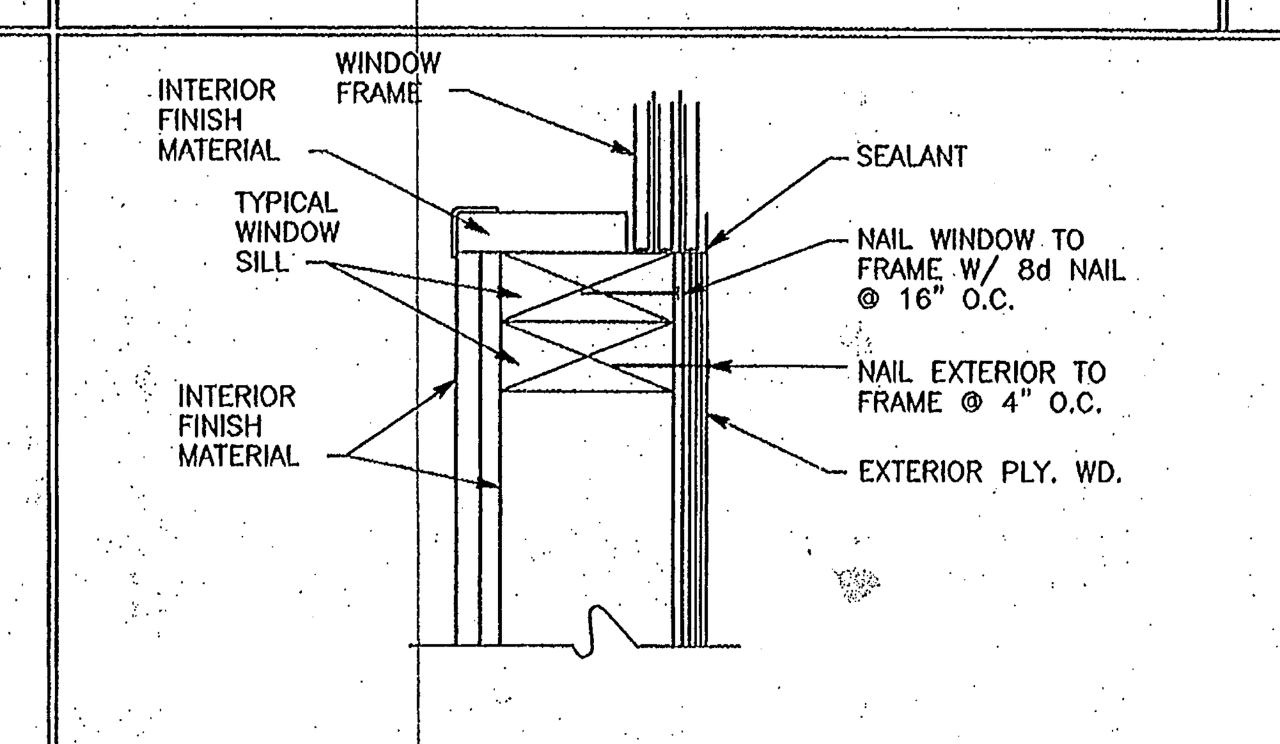
THRESHOLD 3



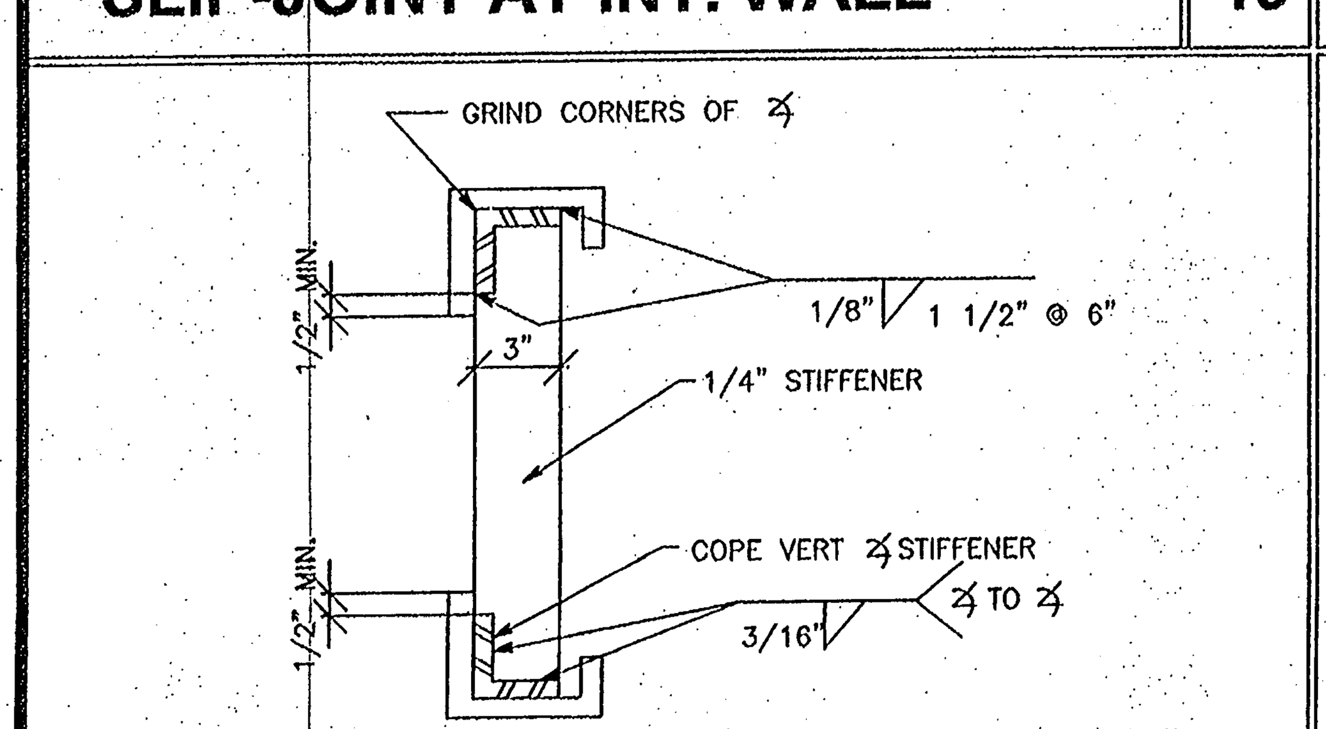
SLIP-JOINT AT INT. WALL 19


INT. WALL BTM. PLATE 14

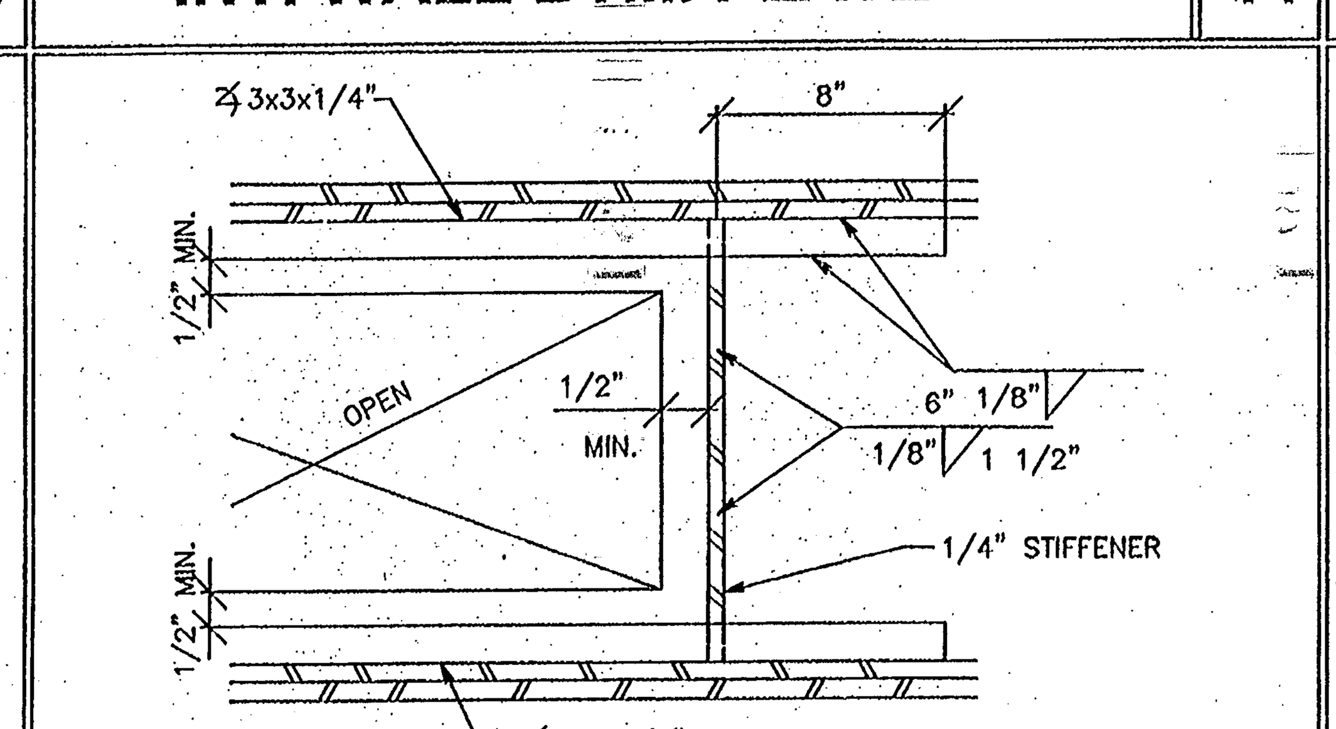

A/C AT BOTTOM 9



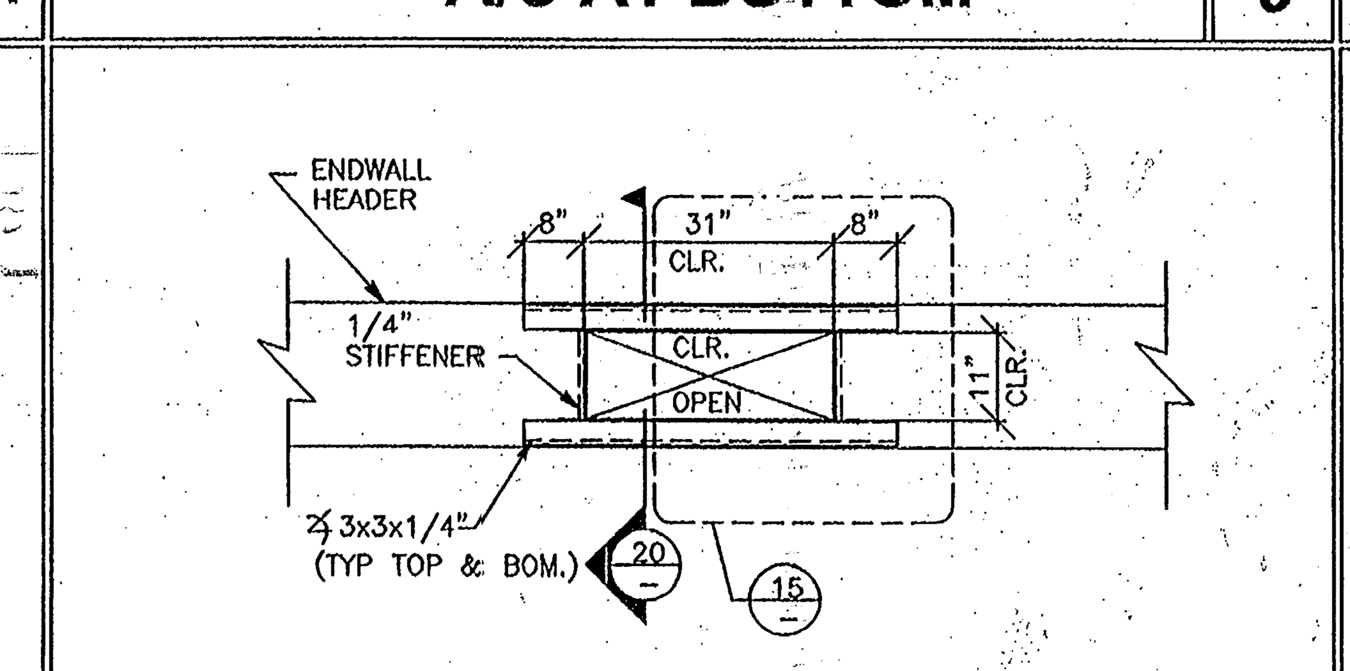
WINDOW SILL 4



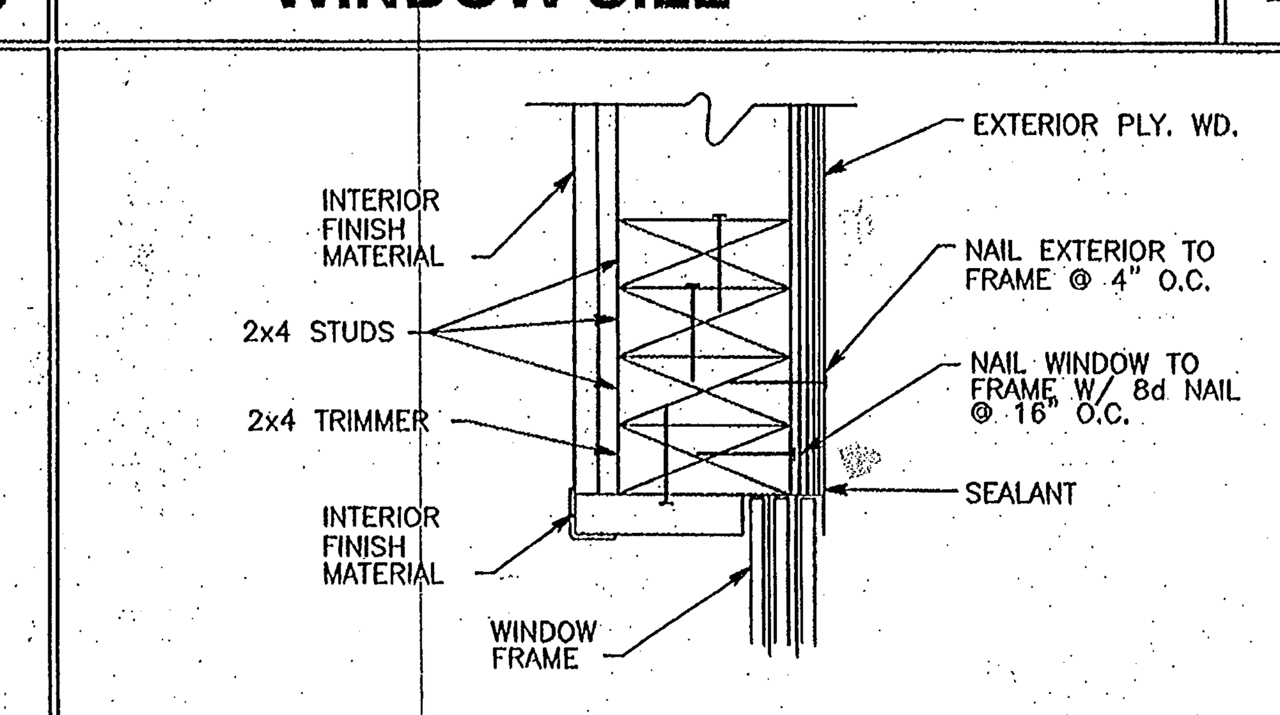
A/C OPENING IN HEADER 20



A/C OPENING IN HEADER 15



A/C OPENING IN HEADER 10



WINDOW JAMB 5

KEYNOTES

1. EXTERIOR PLYWOOD SIDING/SHEATHING – NAIL W/ CORROSION RESISTANT 8d BOX NAILS @ 6" O.C. BOUNDARY & EDGES, AND 12" O.C. FIELD. WITH MOISTURE BARRIER SEE SHEET 9.0 FOR MATERIAL.
2. TYPICAL INTERIOR FINISH – SEE SHEET A6.0 FOR MATERIAL
3. STEEL TUBE COLUMN
4. SEALANT
5. 'HILTI' DN57-P8 OR 'RAMSET' 1514 SD @ 24" O.C.
6. 2x4 TRIMMER
7. 2x4 FULL HEIGHT STUDS
8. 2x4 TOP PLATE
9. 2x4 BOTTOM PLATE
10. ROOF SHEATHING
11. FLOOR SHEATHING
12. GALVANIZED METAL FLASHING
13. 16d BOX NAILS @ 16" O.C.
14. ROOFING-SEE SHEET A6.0
15. STEEL FLOOR CHANNEL
16. STEEL JOIST
17. HOLLOW METAL DOOR FRAME
18. METAL DOOR
19. MOISTURE BARRIER
20. HEADER – (2) 2x4 D.F. STUD GRD. FLAT
21. DOOR BOTTOM WITH WEATHER STRIP
22. ALUMINUM THRESHOLD
23. WALL MOUNTED A/C
24. 4x4 D.F. & BETTER POST
25. 2x6 BLOCK BETWEEN STUDS. ATTACH TO STUDS W/ (2) 16d BOX NAILS EACH END OF BLOCKS INTO STUD
26. 26 Ga GUTTER – SEE ROOF PLAN FOR LOCATION
27. 11 Ga x 24" LONG STEEL BOTTOM BRACKET
28. 10"x10 Ga. HEADER @ PERIM. OF OVERHANG.
29. 3/8" DIA. x 2-1/2" LAG BOLTS, QNTY AS INDICATED BY PRE DRILLED HOLES ON UNIT.
30. 3/4" x SPACER
31. VINYL WRAPPED CLOSE OFF BATT. ATTACH W/ 8d FINISH NAILS @ 10" O.C. (2) @ TOP. & BTM.
32. (2) 2x4 FULL HEIGHT STUDS @ SIDING VERTICAL SPLICE.
33. 1x4 TRIM
34. T-BAR CEILING
35. ROOF FRAMING JOIST, SEE STRUCT. DWG'S FOR REF.
36. 2"x4" BLOCKING @ 48" O/C W/ (2) #10x1 1/2" LG. SELF-TAP SCREWS EA. END OF JOIST. (NOTCH AS REQ'D. (TYP.)
37. CONT. 3-1/2"x2"x20 GA. TOP C-TRACK, SECURED TO MEMBERS W/ (2) # 10 S.T.S. OR S. PINS (TYP.)
38. CONT. 2"x4" BLOCKING @ EA. SIDE OF TOP PLATE WITH (2) '16 d NAILS @ EACH BLOCKING @ 4'-0" O/C (TYP.)

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

DATE SIGNED JUL 29 2003

~~SPECIAL NOTE: WHEN BUILDING WIND LOAD IS 80 MPH USE D.F. #2 WOOD MEMBERS~~

DSA - PC

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT OFFICE OF REGULATION SERVICES
04 - 104816
AC ___ FLS ___ SS ___
DATE 4/30/03

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT OFFICE OF REGULATION SERVICES
04 105264
MAR 0 2 2004

REVISIONS

REGISTERED PROFESSIONAL ENGINEER JAMES T. SIMPSON No. 3602 STRUCTURAL STATE OF CALIFORNIA
LICENSE EXPIRES 6-30-2004

AURORA MODULAR INDUSTRIES
17300 Perris Blvd. Moreno Valley, Ca. 92551
Phone (909) 571-2200
www.aurora-modular.com

RELOCATABLE BUILDING FOR:
CORONA-NORCO UNIFIED
AUBURNDALE INTERMEDIATE

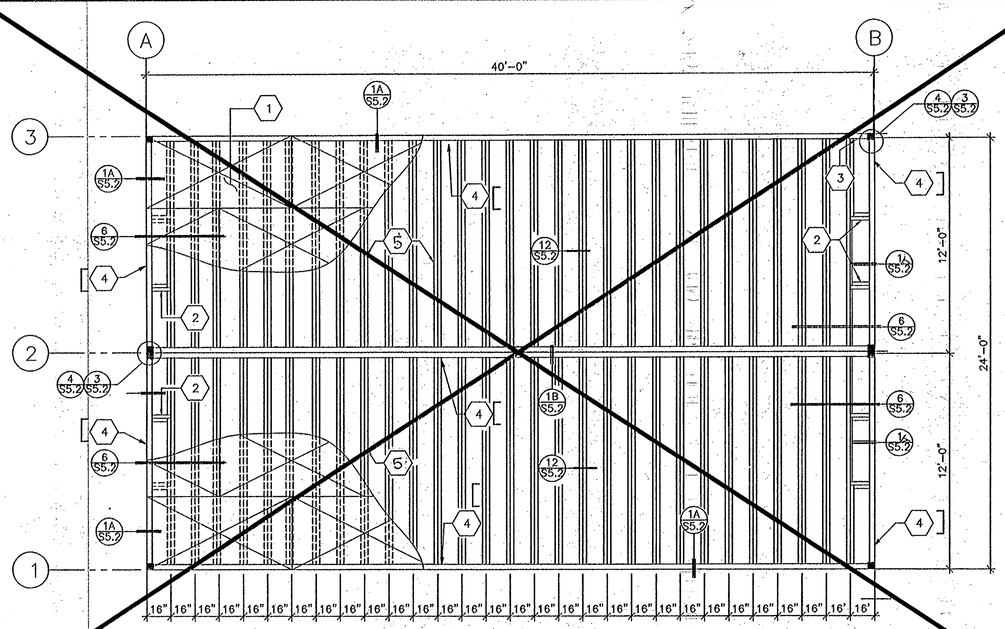
TYPICAL DETAILS
PLY'WD EXTERIOR
(WOOD STUDS)

BY PAVH DATE 7-2-03
CHECKED ___ AM# 5152

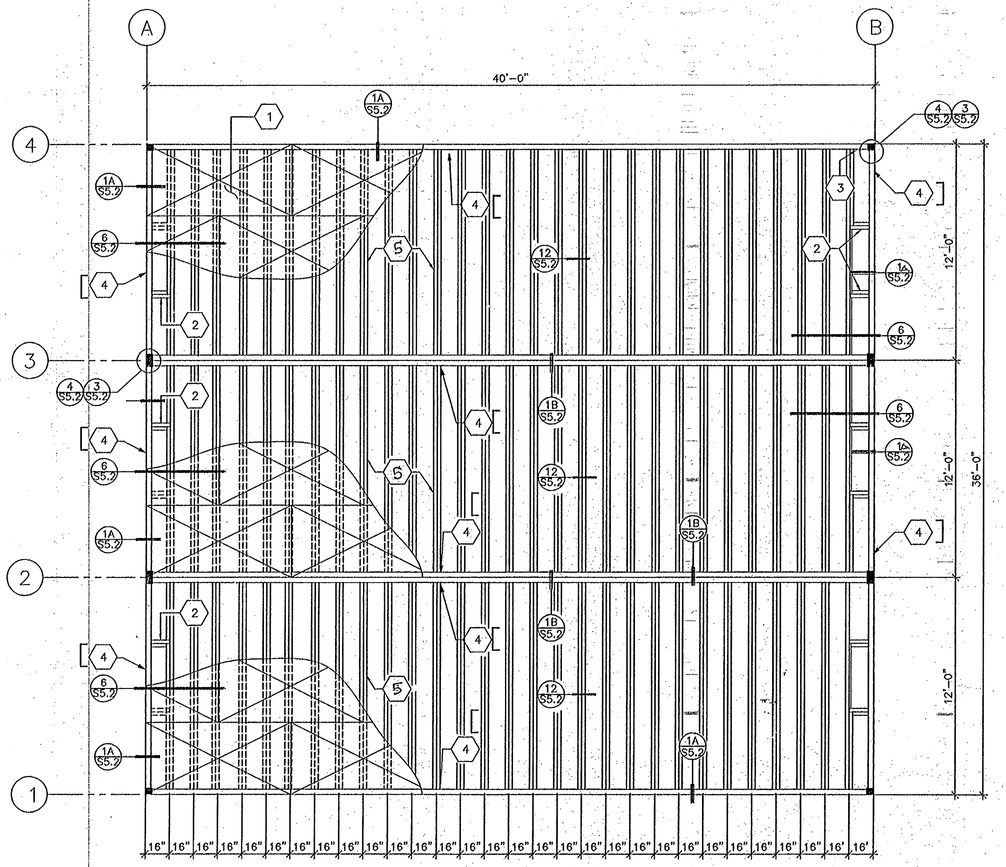
S3.0
SHEET

KEYNOTES

1. PLYWOOD FLOOR SHEATHING – 1 1/8" A.P.A. STURD–I–FLOOR, T & G, P.S. 1–83.
2. 7"x 14 Ga. STEEL BLOCK @ 48" O.C.
3. STEEL COLUMN – 3–1/2" X 3–1/2" X 3/16" TUBE @ 70 'C' MPH ~~STEEL COLUMN – 6 1/2" X 6 1/2" X 1/4" TUBE @ 85 'C' MPH~~
4. C 7"x 9.8 LB PERIMETER FLOOR FRAME.
5. L7"x 14 Ga. STEEL FLOOR JOIST @ SEE FRAMING PLAN FOR FLOOR JOIST SPACING.
6. 4"x4"x1/4" ALT. TUBE STEEL AT BUILDING WITH PARAPET AND/OR HVAC SCREEN OPTION.

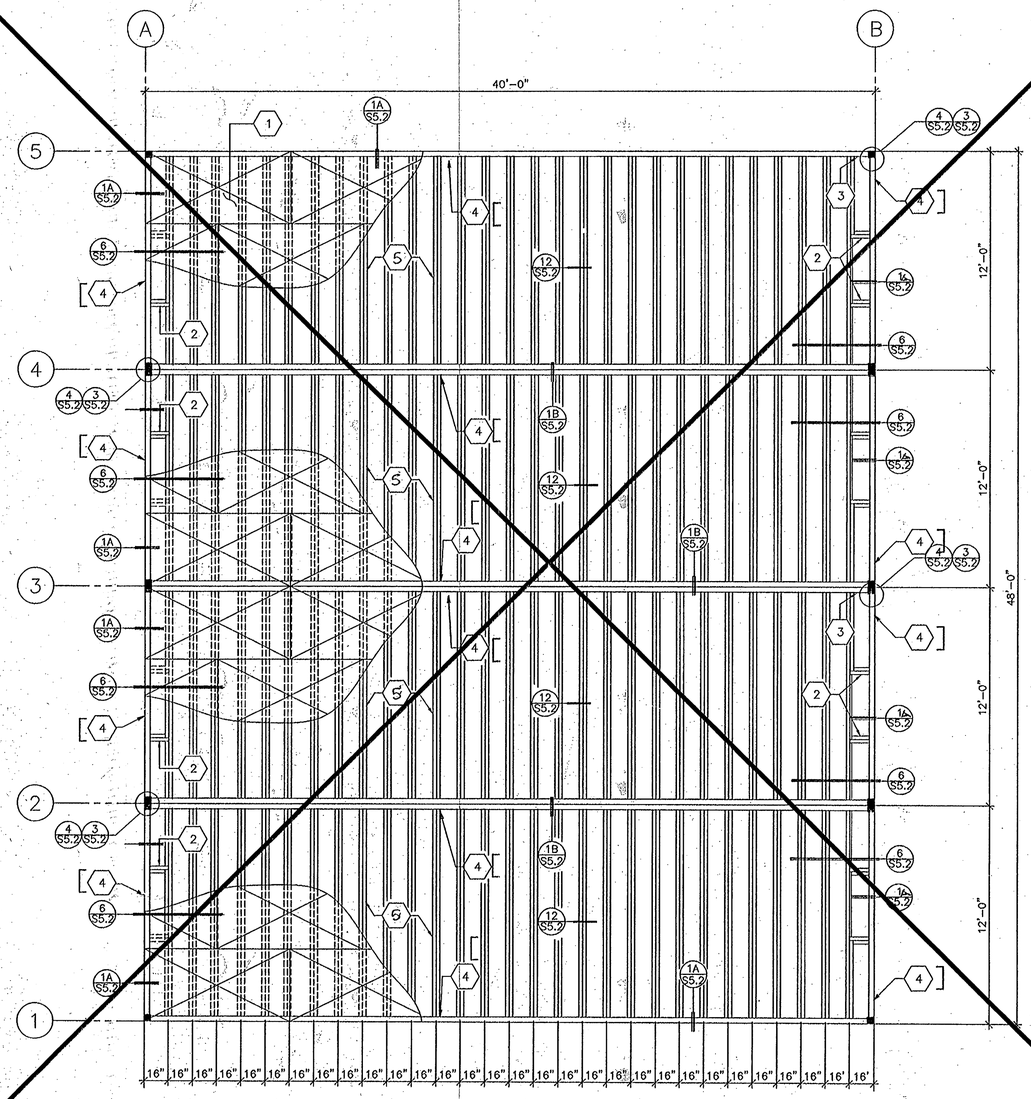


125# FLOOR LIVE LOAD (24x40)
SCALE 1/4"=1'–0"



~~125# FLOOR LIVE LOAD (36x40)~~
SCALE 1/4"=1'–0"

50+20# STIFFENED FLOOR LIVE LOAD (36x40)



125# FLOOR LIVE LOAD (48x40)
SCALE 1/4"=1'–0"

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DIV. OF THE STATE ARCHITECT
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SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

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JUL 29 2003

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04 - 104816
AC FLS BS
DATE 7/30/03

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 10 52 64
FLS
MAR 0 4 2004

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
CHARLES T. SIMPSON
No. 36081
STRUCTURAL
STATE OF CALIFORNIA
LICENSE EXPIRES 6-30-2004

17300 Perris Blvd.
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www.aurora–modular.com

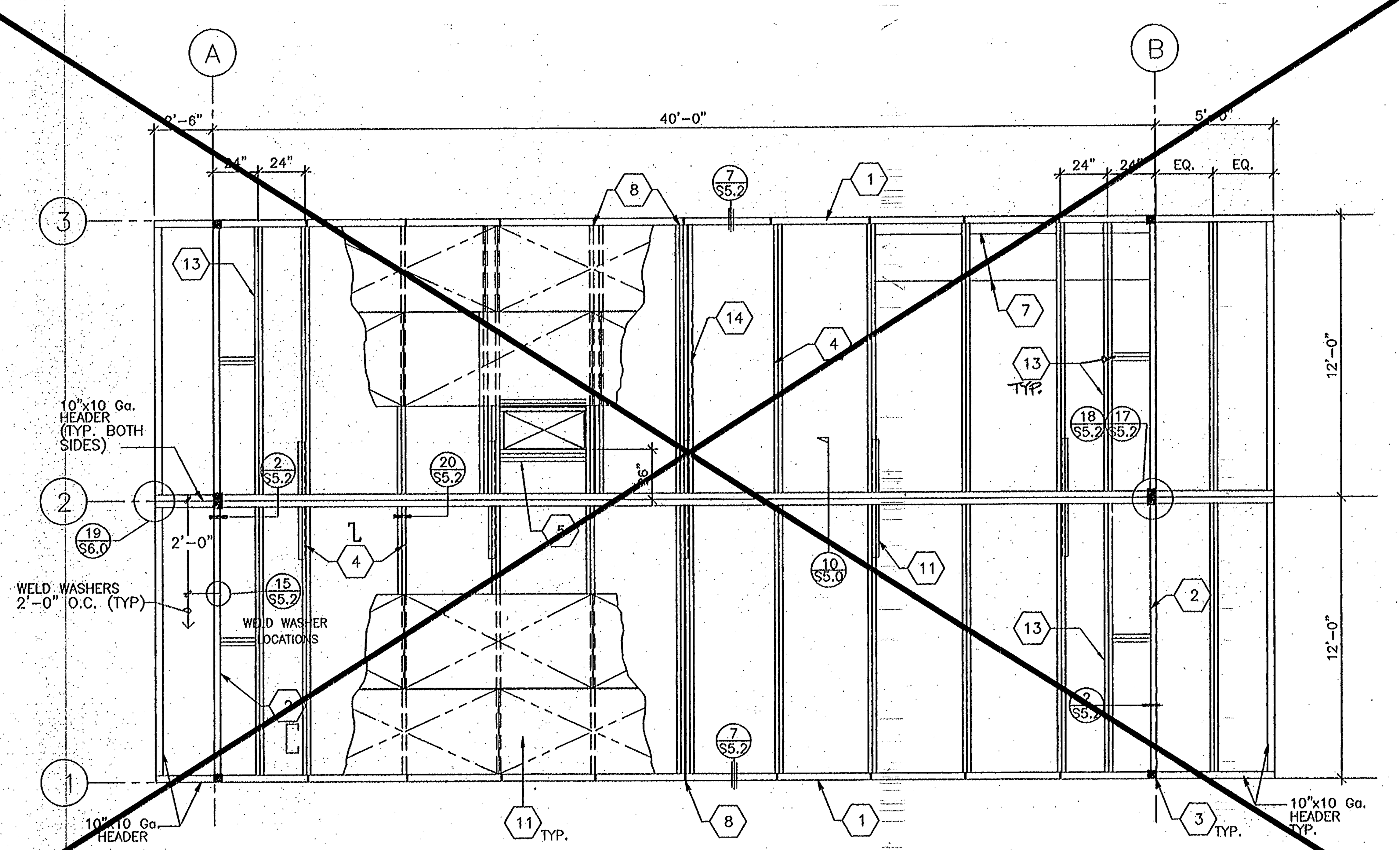
AURORA
MODULAR INDUSTRIES

RELOCATABLE BUILDING FOR:
CORONA-NORCO UNIFIED
AUBURNDALE INTERMEDIATE

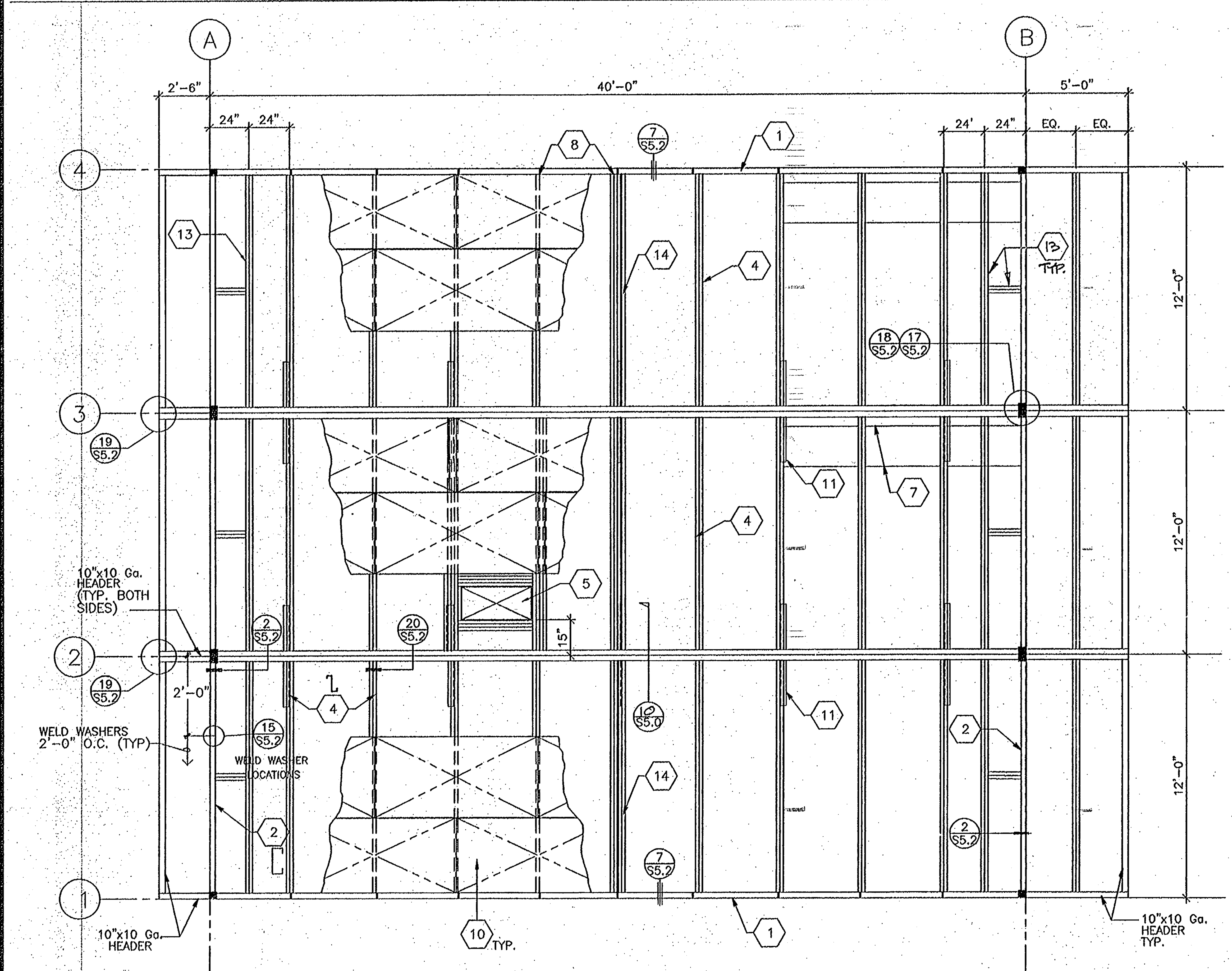
STRUCTURAL FLOOR FRAMING (PLYWOOD) (125 LBS. LL)

BY	PAVH	DATE	7–2–03
CHECKED		AMI#	5152

S4.2
SHEET



ROOF FRAMIMG PLYWOOD (24x40)
SCALE 1/4"=1'-0"



ROOF FRAMIMG PLYWOOD (36x40)
SCALE 1/4"=1'-0"

KEYNOTES

1. [18/25.5/18x3 1/2"x10 GA. AT SIDEWALL GABLE SLOPE
   18/33/18x3 1/2"x10 GA. AT SIDEWALL MONO SLOPE
2. [18"x3-1/2x10 Ga. RFC STEEL ROOF ENDWALL HEADER.
   18/33x3-1/2x10 Ga. RFC STEEL ROOF ENDWALL HEADER.
3. STEEL COLUMN - 3-1/2" X 3-1/2" X 3/16" TUBE @ 70 EXP. 'C' MPH
   ~~STEEL COLUMN - 3-1/2" X 3-1/2" X 1/4" TUBE @ 90 EXP. 'C' MPH~~
4. ↿ 6"x 14 Ga. STEEL ROOF JOIST @ 48" O.C.
5. DOUBLE PURLINS WITH 6"x14 Ga. PURLIN BLOCK @ ROOF MOUNTED HVAC-SEE MECHANICAL PLANS FOR EXACT SIZE LOCATION.
6. WELD WASHER FOR CEILING GRID - TYP. BOTH SIDES
7. STRAP TACKED TO UNDERSIDE OF JOIST @ 24" O.C. FOR INSULATION SUPPORT.
8. 3/16" FULL HEIGHT STIFFENER AT @ 48" O.C. AT SIDEWALL HEADER. ALIGN WITH PURLIN
9. 2"x 20 Ga. STRAPS W/ 3" MIN. 1/8" FILLET WELD EACH END TO ROOF BEAM/HEADER TYP.
10. PLYWOOD ROOF SHEATHING 3/4" C-D INT WITH EXT. GLUE 48/24 INDEX, P.S. 1-74 SQUARE EDGE WITH PLYWOOD CLIPS @ 16" O.C. LONG EDGES.
11. ∠1 1/2"x1 1/2"x3/16" DIA. BRACE
12. ~~1"x1"x1/4" ALT. TUBE STEEL AT BUILDING WITH PARAPET AND/OR HVAC SCREEN OPTION.~~
13. ~~PROVIDE 6"x14 GA. PURLIN AT 90 M.P.H. ONLY, U.N.O.~~ [illegible]
14. ~~GABLE SLOPE ROOF PROVIDE (2) 6"x14 GA. AT RIDGE.~~
    TWO ROOF PURLINS NOT REQUIRED FOR MONO SLOPE ROOF

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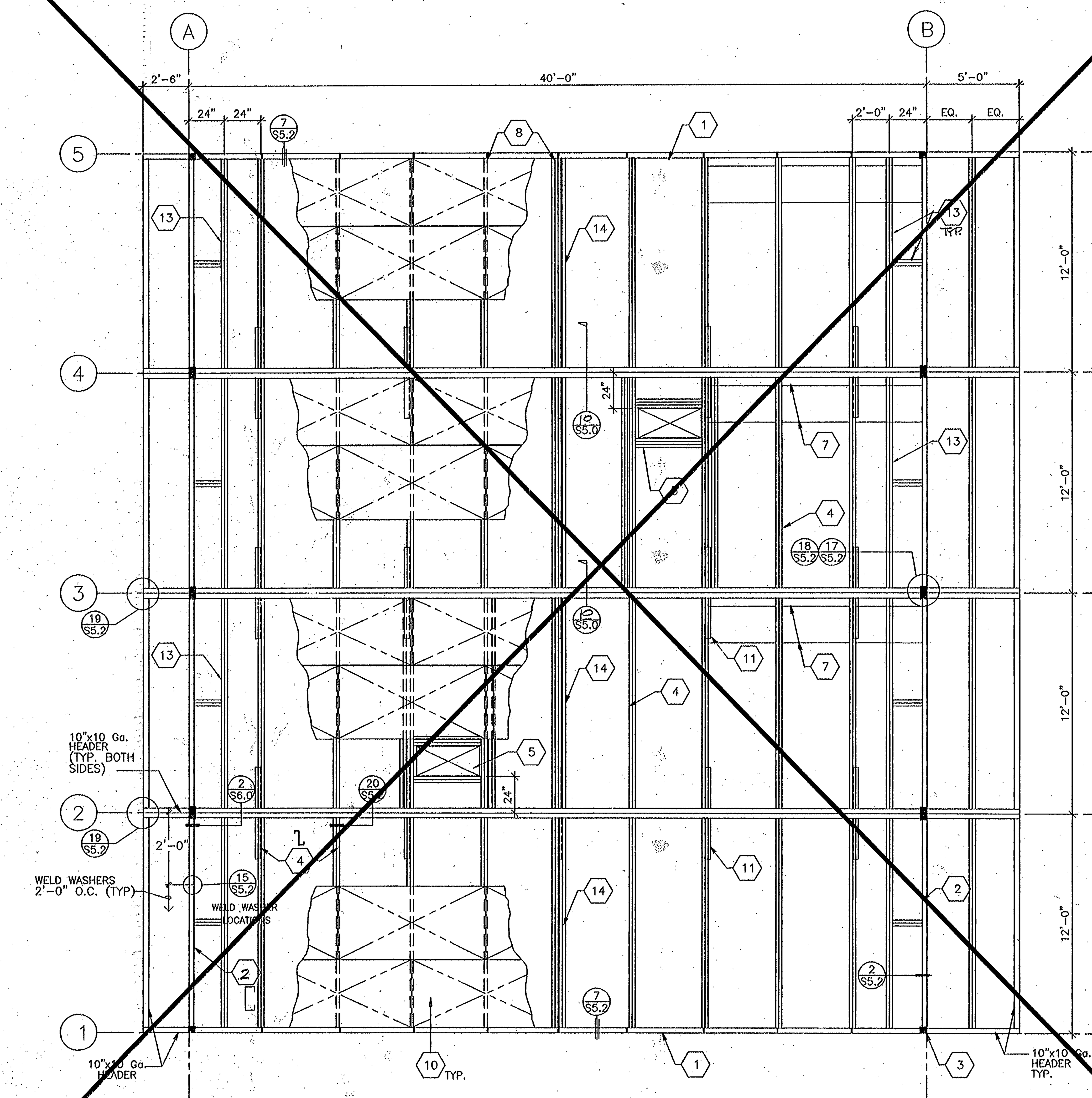

ROOF FRAMIMG PLYWOOD (48x40)
SCALE 1/4"=1'-0"

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DATE 4/30/03

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DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 105264
FLS
MAR 03 2004

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
JAMES T. SIMPSON
No. 3602
STRUCTURAL
STATE OF CALIFORNIA
LICENSE EXPIRES: 6-30-2004

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Moreno Valley, Ca. 92551
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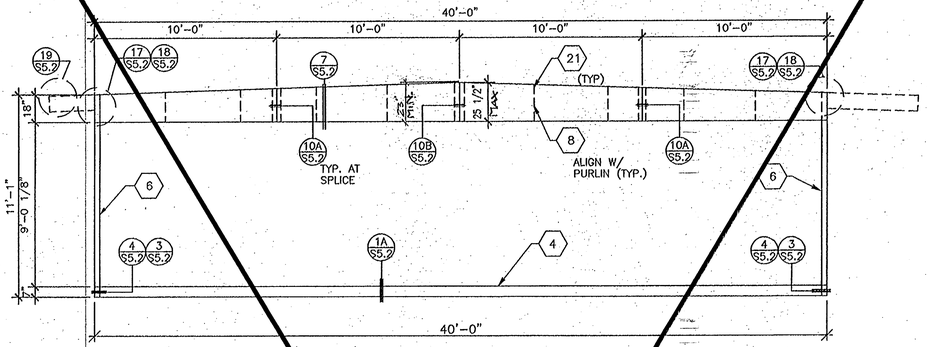
RELOCATABLE BUILDING FOR:
CORONA-NORCO UNIFIED
AUBURNDALE INTERMEDIATE

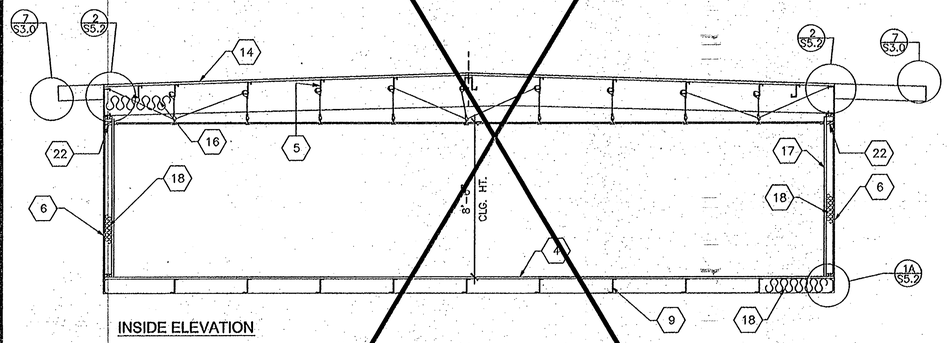
STRUCTURAL ROOF FRAMING, GABLE/MONO SLOPE PLYWOOD DECK

BY	PAVH	DATE	7-2-03
CHECKED		AMI#	5152

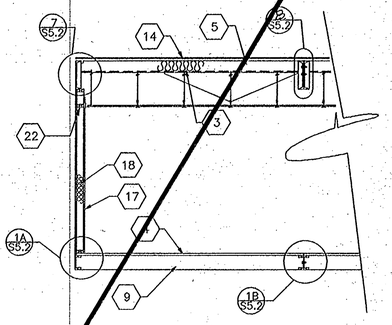
S4.4
SHEET



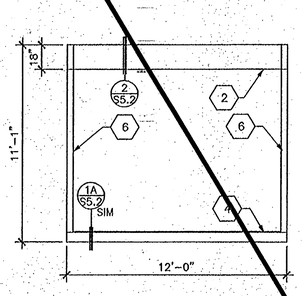
OUTSIDE SIDEWALL



INSIDE ELEVATION



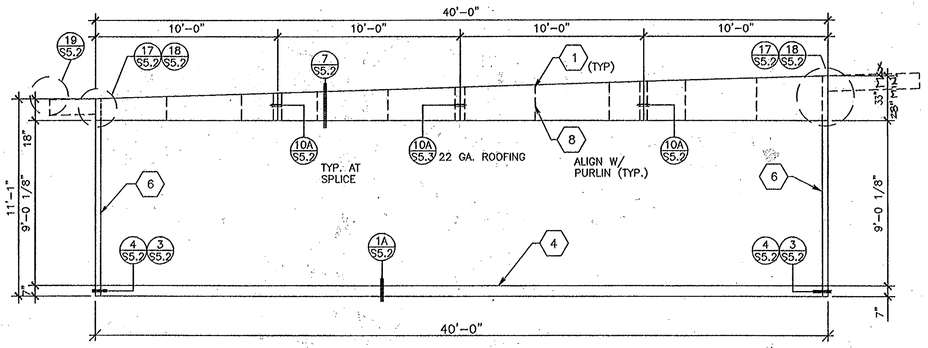
INSIDE ENDWALL



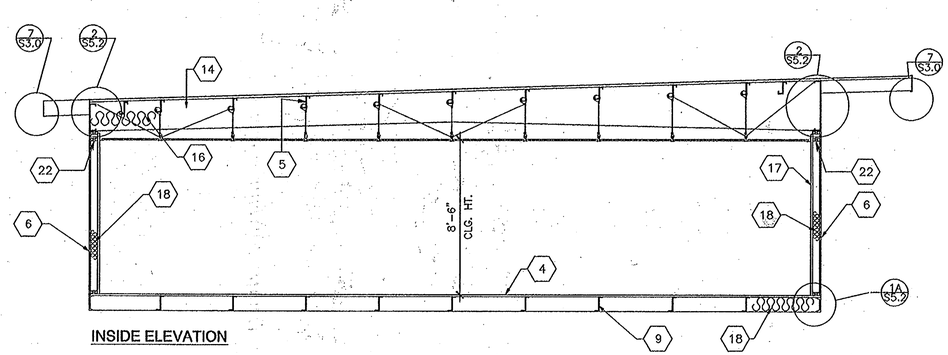
OUTSIDE ENDWALL

BUILDING SECTIONS (GABLE SLOPE)

SCALE: 1/4" = 1'-0"



OUTSIDE SIDEWALL



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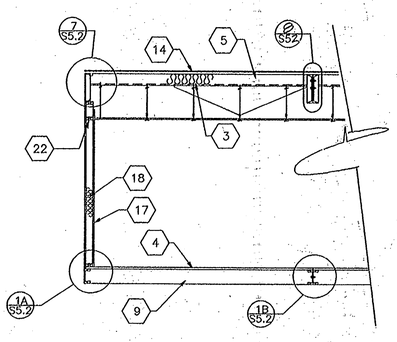
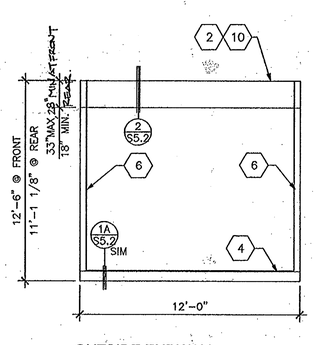


INSIDE ENDWALL



OUTSIDE ENDWALL

BUILDING SECTIONS (MONO SLOPE)

SCALE 1/4" = 1'-0"

KEYNOTES

1 C 18/33x3 1/2"x10 GA.
2 C 18"x3 1/2x10 Ga. RFC STEEL ROOF HEADER.
3 L 7"x 11 Ga. STEEL BLOCK @ 48" O.C.
4 C 7"x 9.8 LB PERIMETER FLOOR FRAME.
5 L 6"x 14 Ga. STEEL ROOF JOIST @ 48" O.C.
6 STEEL COLUMN – 3-1/2" X 3-1/2" X 3/16" TUBE @ 70 M.P.H. EXP. 'C'
~~STEEL COLUMN – 3-1/2" X 3-1/2" X 1/4" TUBE @ 80 M.P.H. EXP. 'C'~~
7 6"x 14 Ga. PURLIN BLOCK
8 3/16" FULL HEIGHT STIFFENER AT PURLIN LOCATIONS.
9 L 7"x 11 Ga. STEEL FLOOR JOIST @ SEE FRAMING PLAN FOR FLOOR JOIST SPACING
10 C 33"x3 1/2x10 Ga. RFC STEEL ROOF HEADER.
11 L 7"x 14 Ga. STEEL FLOOR JOIST @ 16" O.C.
12 L 7"x 14 Ga. STEEL BLOCK @ 48" O.C.
13 1 1/2"x1 1/2"x3/16" BRACE
14 ROOF SHEATHING– SEE FINISH SCHEDULE
15 STEEL ROOF JOIST
16 R-19 FIBERGLASS ROOF INSULATION ON METAL STRAPS (FOR 22 GA. ROOFING ONLY)
17 TYPICAL INTERIOR FINISH
18 R-11 FIBERGLASS WALL/FLOOR INSULATION.
19 PLYWOOD FLOOR SHEATHING
20 STEEL FLOOR JOINT
21 C 18/25.5/18x3 1/2"x10 GA.
22 FIRE BLOCK

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OFFICE OF REGULATION SERVICES
04 - 104816
AC FLS SS
DATE 4/30/03

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DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
OA 105264

REVISIONS

JAMES A. SIMPSON
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RELOCATABLE BUILDING FOR:
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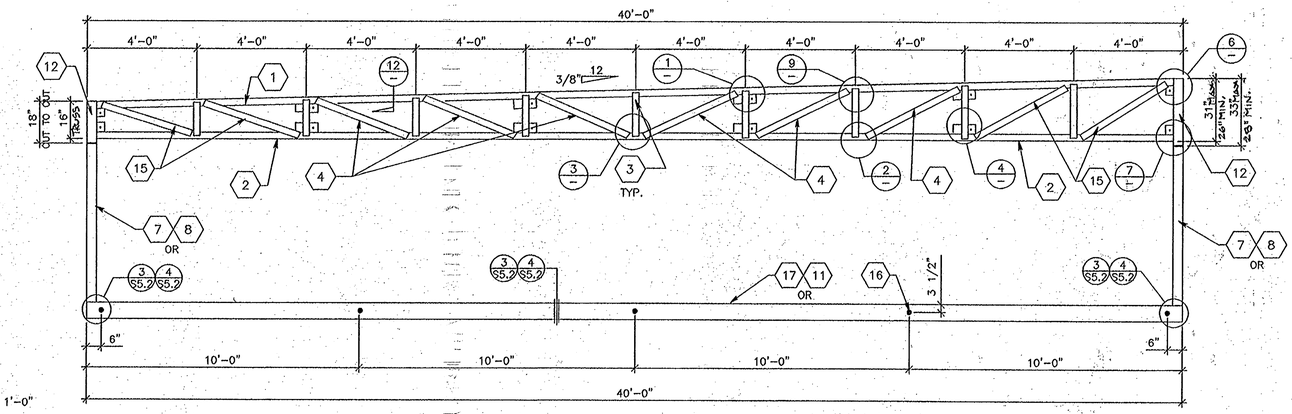
AUBURNDALE INTERMEDIATE

GABLE SLOPE/ MONO SLOPE STRUCTURAL SECTIONS

BY	PAVH	DATE	7-2-03
CHECKED		AM#	5152

S4.6
SHEET



TRUSS ELEVATION

SCALE 3/8" = 1'-0"

A

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KEYNOTES

1. 3"x3"x3/8" TOP CHORD.
2. 3"x3"x3/8" 1/2" CHAMBER AT MIDPOINT
3. 1 1/2"x1 1/2"x3/16" VERTICAL MEMBER
4. 1 1/2"x 1 1/2"x 3/16" DIAGONAL W/ MIN. 3" OF 3/16" FILLET WELD EA. END
5. CAP PLATE 1/4"
6. 10 GA. ENDWALL HEADER
7. TS 3 1/2" x 3 1/2" x 3/16" STEEL TUBE @ 70 MPH "C" ~~TS 3 1/2" x 3 1/2" x 1/4" STEEL TUBE @ 80 MPH "C"~~
8. TS 4" X 4" X 1/4" ALTERNATE TUBE SEEL. USE WITH PARAPET AND HVAC SCREEN OPTIONS.
9. 3/8"x3"x5 1/2" PLATE WITH 1 1/16" HOLE FOE 5/8" M. B. LOCATE PLATES @ 8'-0" O.C. FOR MODULE CONNECTION. SEE DETAIL 8.
10. 5/8" MACHINE BOLT FOR MODULE CONNECTION
11. 10"x15.5 Lb. FOR CONCRETE FLOORS
12. STEEL STUB COLUMN. SEE BELOW FOR SIZES:
    3 1/2 "x 3 1/2 "x 3/16" x 18" LONG T.S. @ 70 MPH "C" @ REAR
    ~~3 1/2" x 3 1/2" x 1/4" x 18" LONG T.S. @ 80 MPH "C" @ REAR~~
    3 1/2 "x 3 1/2 "x 3/16" x 28" LONG T.S. @ 70 MPH "C" @ FRONT
    ~~3 1/2" x 3 1/2" x 1/4" x 28" LONG T.S. @ 80 MPH "C" @ FRONT~~
13. ROOF JOIST– SEE ROOF FRAMING
14. 1 1/2"x1 1/2"x3/16" BRACE @ 8'-0" O.C.
15. 2"x 2"x 1/4" END DIAGONAL W/ MIN. 4" OF 3/16" FILLET WELD EACH END
16. 5/8" MACHINE BOLT @ MOD. CONNECTION SEE DETAIL 1B SHEET S5.2 AND S5.3
17. 7"x 9.8 LB PERIMETER FLOOR FRAME.

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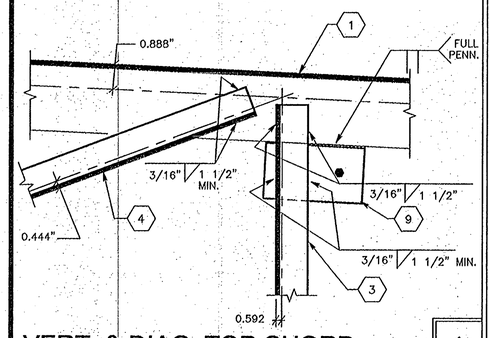
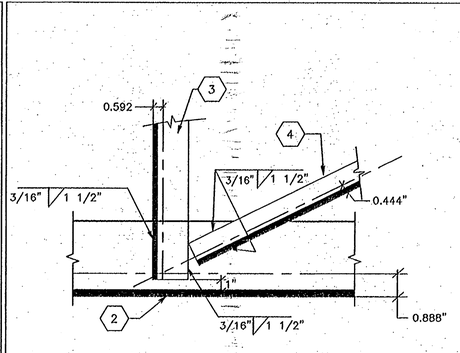
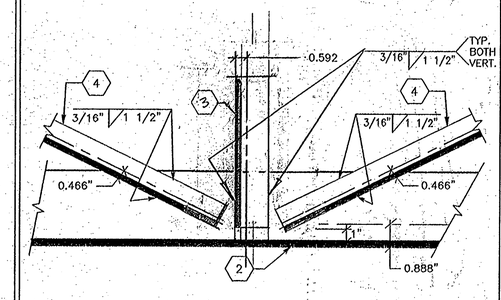


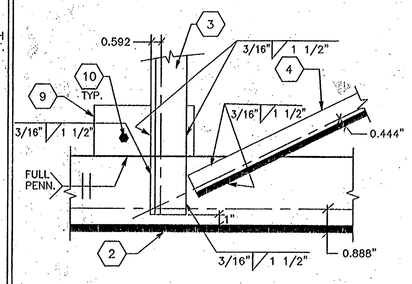
VERT. & DIAG. TOP CHORD 1



VERT & DIAG TO BOTTOM CHORD 2

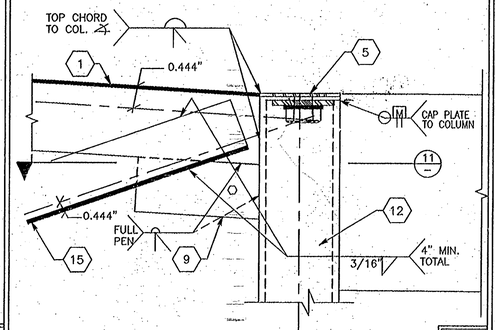


BOTTOM CHORD AT MIDSPAN 3

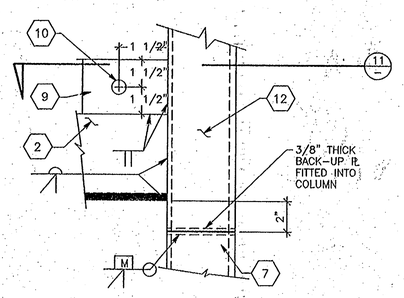


VERT & DIAG TO BOTTOM CHORD 4

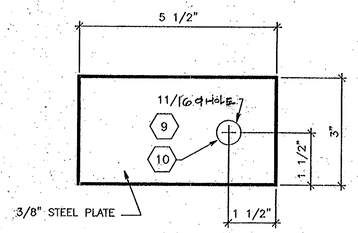
5



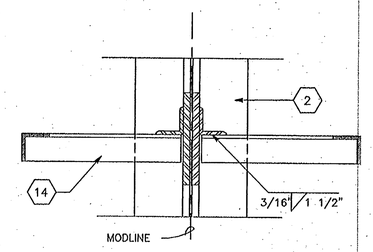
POST CONN TO TRUSS 6



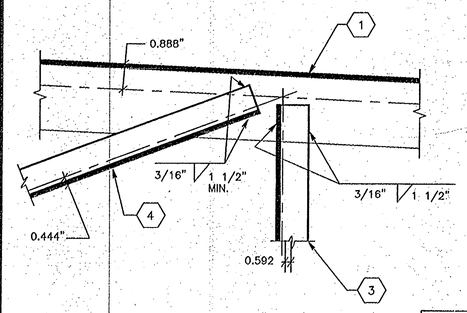
POST CONN TO TRUSS 7



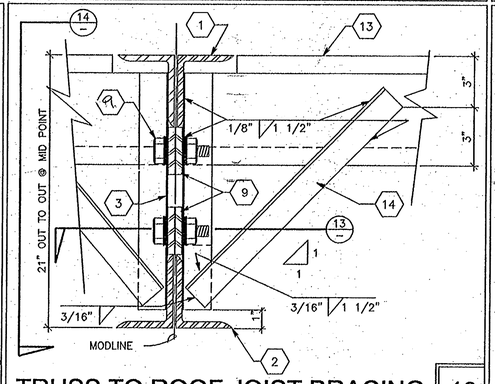
TIE PLATES 8



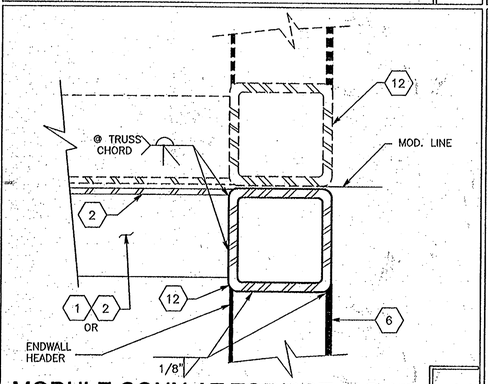
SECTION @ VERT MEMBER 13



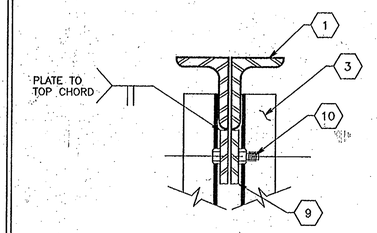
VERT. & DIAG. TOP CHORD 9



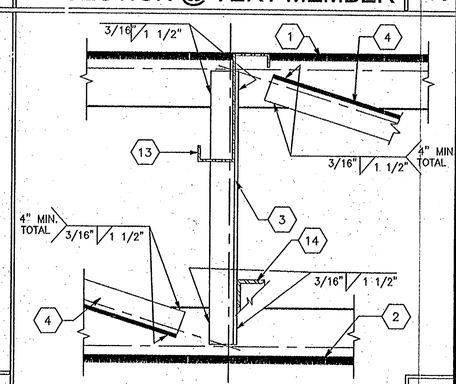
TRUSS TO ROOF JOIST BRACING 10



MODULE CONN AT TOP/BOT. CORD 11



MODULE CONNECTION 12



CONN. TO VERTICAL MEMBER 14

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OFFICE OF REGULATION SERVICES
04 - 105268
FLS ☑ SS ☐
DATE 6-1-2004

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
JAMES T. SIMPSON
No. 24602
PROFESSIONAL STRUCTURAL ENGINEER
STATE OF CALIFORNIA
LICENSE EXPIRES 6-30-2004

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Phone (909) 571-2200
www.aurora-modular.com

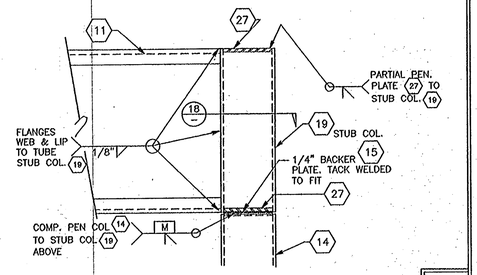
RELOCATABLE BUILDING FOR:
CORONA-NORCO UNIFIED
AUBURNDALE INTERMEDIATE

MONO SLOPE STEEL TRUSS SECTION AND DETAILS

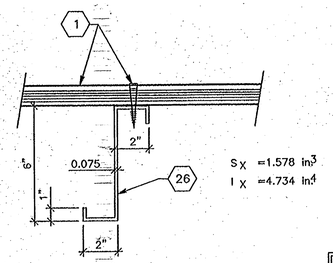
BY	PAVH	DATE	7-2-03
CHECKED		JOB #	5152

S5.1

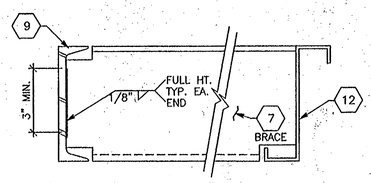
SHEET



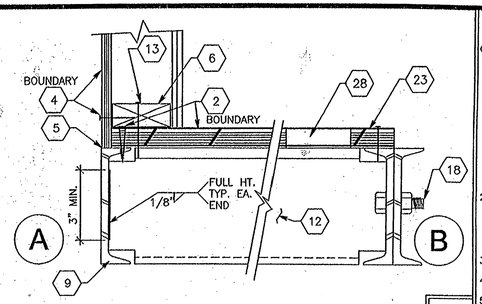
POST CONN. AT ROOF 16



ROOF JOIST 11



BRACE AT FLOOR 6



PERIMETER FLOOR 1

KEYNOTES

1. PLYWOOD ROOF SHEATING–3/4"CD INT. WITH EXT. GLUE 48/24 INDEX.P.S. 1–74 SQUARE EDGE W/ PLYWOOD CLIPS AT 16" O.C. LONG EDGE. ATTACH PLYWOOD WITH #10x1½" SELF TAP SCREWS AT 6" O.C. EDGES AND 12" O.C. FIELD. ALTERNATE ATTACHMENT PLYWOOD TO STEEL PURLIN WITH PNEUMATIC FASTENERS .144"x1 ¾" LONG 12" O.C. FIELD AND 6" O.C. EDGES (TO BE APPLIED TO PURLINS AND OVERHANGS ONLY, USE #10x1½" S.T.S. ALONG MODLINE ANGLE)
2. PLYWOOD FLOOR SHEATHING – 1 1/8" STURD–I–FLOOR T&G P.S. 1–83. ATTACH PLYWOOD W/ #10 – 24 x 1–3/4" SELF TAP SCREWS @ 6 O.C. BOUNDARY & EDGES AND 6" O.C. FIELD. W/ FLOOR JOIST @ 48" O.C. (JOIST SPACE UNDER 48" O.C. = 10" O.C. FIELD)
3. TYPICAL INTERIOR FINISH – SEE SHEET A6.0
4. TYPICAL EXTERIOR FINISH – SEE SHEET A6.0
5. SEALANT
6. 2 x 4 TOP PLATE OR BOTTOM PLATE
7. 7"x 11 Ga. STEEL BRACE WELDED TO PERIMETER FRAME AND FLOOR JOIST.
8. 18/25.5/18x3 1/2"x10 Ga. CHANNEL @ GABLE ROOF & 18/33x3 1/2"x10 Ga. CHANNEL @ MONO SLOPE.
9. 7"x 9.8 lb PERIMETER FRAME.
10. 4"x 4"x 1/2" STIFFENER
11. GABLE ROOF: 18x3 1/2"x10 Ga. CHANNEL ROOF HDR. EA. END
    MONO SLOPE: 28x3 1/2"x10 Ga. CHANNEL ROOF HDR. @ FRONT AND 18x3 1/2"x10 Ga. CHANNEL ROOF HDR. @ REAR.
12. 7"x 11 Ga. FLOOR JOIST.
13. 16d NAIL @ 8" O.C.
14. STEEL COLUMN:
    3–1/2"X 3–1/2"X 3/16" TUBE AT 70 MPH "C"
    3–1/2"X 3–1/2"X 1/4" TUBE AT 80 MPH "C"
15. 1/4" CAP PLATE.
16. 3/16" FULL HEIGHT STIFFENER @ 4'–0" O.C. ALIGN WITH PURLIN
17. 7"x 14 Ga. ALT. FLOOR JOIST AT 16" O.C. ONLY
18. 5/8" MACHINE BOLT @ MODULE CONNECTION – SEE SHEET S5.0 OR S 5.1 "STRUCTURAL SIDE" FOR ELEVATIONS.
19. STEEL TUBE STUB COLUMN:
    3 1/2"x 3 1/2"x 3/16"x 7" LONG TUBE AT FLOOR @ 70 "C".
    3 1/2"x 3 1/2"x 3/16"x 18" LONG TUBE AT GABLE ROOF @ 70 "C".
    3 1/2"x 3 1/2"x 3/16"x 18"/35" LONG TUBE AT GABLE ROOF @ 70 "C".
    ~~3 1/2"x 3 1/2"x 1/4"x 7" LONG TUBE AT FLOOR @ 80 "C".~~
    ~~3 1/2"x 3 1/2"x 1/4"x 18" LONG TUBE AT GABLE ROOF @ 80 "C".~~
    ~~3 1/2"x 3 1/2"x 1/4"x 18"/35" LONG TUBE AT ROOF @ 80 "C".~~
20. 1/2" MACHINE BOLT W/ WASHER @ 24" O.C.
21. 1/2" MACHINE BOLT @ 24" O.C.
22. CHANNEL FRAME – GRIND WELDS ON EXPOSED FACES SMOOTH.
23. AT MODULE JOINT TAKE PLYWOOD TO EDGE OF CHANNEL. AT PERIMETER, HOLD PLYWOOD BACK AS INDICATED.
24. WELD WASHER – 1–3/8"x 3/32" WITH 9/16" HOLE. WELD TO UPPER CHANNEL FLANGE.
25. NOT USED
26. 6"x 14 Ga. ROOF JOIST
27. 1/4" PLATE FITTED INSIDE TUBE COLUMN AND WELDED IN PLACE.
28. 5" DIA. HOLE AT BOLT LOCATION.
29. [10"x10 Ga. HDR. @ PERIM. OF ROOF OVERHANG.
30. NOT USED.
31. CONTINUOUS WOOD CANT STRIP. EXTEND ROOFING TO TOP OF CANT STRIP.
32. GALVANIZED METAL FLASHING.
33. ROOFING MATERIAL

DATE SIGNED JUL 29 2003

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

NOTE: USE 4" X 4" X 1/4" TUBE STEEL WHEN PARAPET OR ~~SCREEN~~ OPTION

DSA - PC

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 - 104816
AC FLS BSC
DATE 7/20/05

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 105264
FLS
DATE 8/4/05

REVISIONS

REGISTERED PROFESSIONAL ENGINEER JAMES T. SIMPSON No. 36081 STRUCTURAL STATE OF CALIFORNIA
LICENSE EXPIRES 6-30-2004

17300 Perris Blvd.
Moreno Valley, Ca. 92551
Phone (909) 571–2200
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RELOCATABLE BUILDING FOR:
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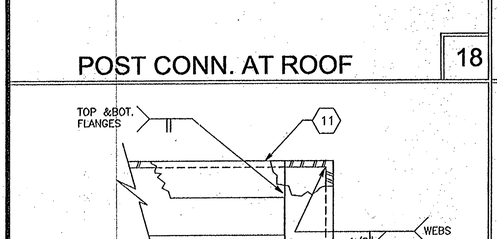
AUBURNDALE INTERMEDIATE

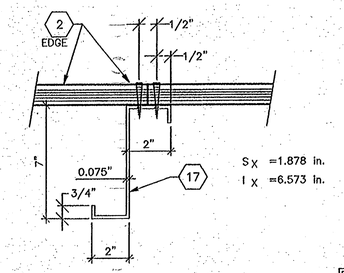
STRUCTURAL DETAILS AND NOTES (WOOD STUDS) (PLYWOOD ROOF)

BY	PAVH	DATE	7–2–03
CHECKED		JOB #	5152

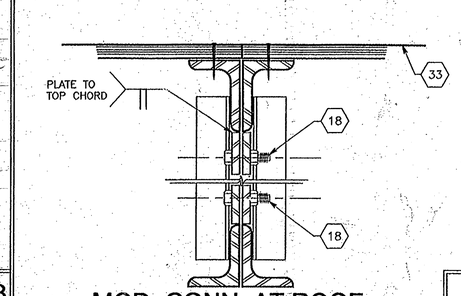
S5.2
SHEET



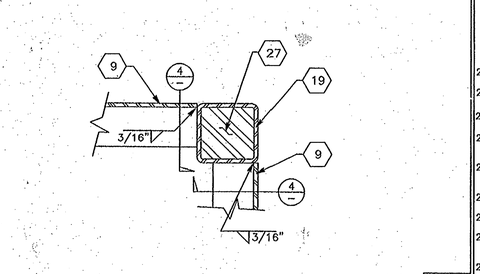
POST CONN. AT ROOF 18



(ALT.) FLOOR JOIST 13

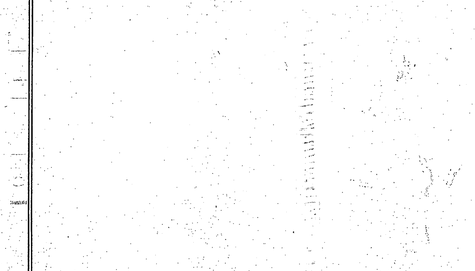


MOD. CONN. AT ROOF 8

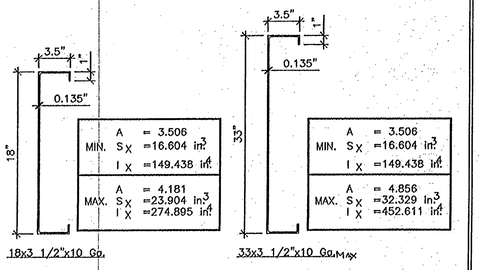


CORNER CONN. AT FLOOR 3

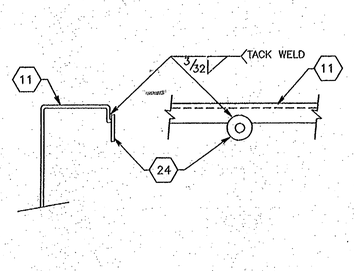
HEADER TO BEAM CONN. 19



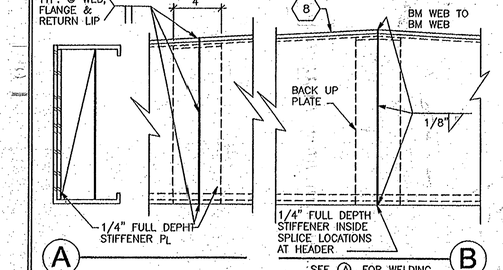
POST CONN. AT FLOOR 4



SECTION PROPERTIES 20



WELD WASHER SUSPENDED CEILING HANGER WIRE 15



TYPICAL BEAM SPLICE 10

FULLY ADHERED THERMOPLASTIC POLYOLEFIN (TPO) ROOFING SYSTEM

PART 1 GENERAL

1.01 GENERAL NOTES

A. Preceding job start up, contractor shall decide to his satisfaction that all specifications contained herein are workable.
B. Contractor will perform all work by competent, trained, and properly equipped personnel in strict accordance with good roofing practices and applicable industry standards.
C. Contractor will observe all published safety prevention policies and practices relating to application of roofing system and related work. All federal, state, and local codes shall be followed.
D. Contractor will follow application, safety, etc. information as published in the most current edition of the Firestone ULTRAPLY TPO Roofing System Technical Specification.

1.02 WORK INCLUDED

A. Work under this section covers the installation of a new Fully Adhered TPO roofing system on this project. In addition, contractor shall include all related items of work as noted herein or indicated on the drawings or otherwise required to complete the specified elements of work and provide the necessary warranties for this work.
B. Contractor will dispose of all materials properly. Any asbestos removal shall comply with state and local codes and requirements and shall be disposed of in a legal manner.
C. Contractor shall remove the existing roof down to the roof deck including all existing composition base flashings. Contractor will dispose of all materials properly. Any asbestos removal shall comply with state and local codes and requirements and shall be disposed of in a legal manner.

1.03 SECTION INCLUDES

A. Substrate preparation.
B. Wood nailer installation.
C. Membrane installation.
D. Membrane flashing installation.

1.04 RELATED SECTIONS

A. Section 02500 – Selective Demolition
B. Section 06100 – Rough Carpentry
C. Section 07220 – Roof Insulation.
D. Section 07600 – Sheet Metal, Flashing and Trim.
E. Section 07700 – Roofing Specialties and Accessories.
F. Section 07800 – Skylights.
G. Section 07900 – Joint Sealers.
H. Section 15400 – Plumbing Specialties.

1.05 DEFINITIONS

A. Firestone: Firestone Building Products Co., Headquarters, 525 Congressional Blvd., Carmel, IN 46032-5607.
B. American Society for Testing and Materials (ASTM): 1916 Race St., Philadelphia, PA 19103.

1.06 SYSTEM DESCRIPTION

A. Reinforced THERMOPLASTIC POLYOLEFIN sheet roofing that is adhered to acceptable substrate with UltraPly TPO bonding adhesive.

1.07 SUBMITTALS

A. Product Data:
1. Submit copies of Firestone Technical Information Sheets (TIS) for all products used on this project.
B. Samples:
1. Submit samples of roof membrane, fasteners, and walkway pads
C. Application Information:
1. Submit copy of Firestone application specification.
2. Submit copy of job related Firestone details including flashings, base tie-ins, roof edges, terminations, expansion joints, penetrations, drains, and any other relevant details.
D. Letter attesting that Firestone currently licenses roofing contractor.
E. Warranty: Submit warranty sample.
F. Pre Installation Notice:
1. Submit copy of Firestone Pre Installation Notice (PIN) that has been accepted and approved by Firestone.

1.08 QUALIFICATIONS

A. Manufacturer:
1. Company providing a no dollar limit, single source roof system warranty that is backed by corporate assets in excess of one billion dollars.
2. System supplier must have ISO 9002 certification
3. Manufacturer must be able to provide the project with the membrane and Isocyanurate insulation that is produced in their facilities.
B. Applicator:
1. Shall be a Firestone Red Shield Licensed Contractor.
2. Shall have at least five years experience in installing heat welded system.

1.09 REGULATORY REQUIREMENTS

A. Conform to applicable local building code requirements.
B. Underwriters Laboratories, Inc. (UL): Class A Fire Hazard Classification.
C. Factory Mutual Corporation (FM): Roof Assembly Classification, FM Construction Bulletin 1-28, meeting minimum requirements of FM-60

1.10 QUALITY INSPECTION/OBSERVATION

A. Inspection by Manufacturer: Provide a final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer.
1. Technical Representative shall not perform any sales functions.
2. Contractor shall complete any necessary repairs required for issuance of warranty.

1.11 PRE-INSTALLATION CONFERENCE

A. Before start of roofing work, attend a conference to discuss the proper installation of materials. Attendees shall include all parties directly affecting work of this Section.

1.12 DELIVERY, STORAGE AND HANDLING

A. Deliver products in manufacturer's original containers dry, undamaged, seals and labels intact and legible.
B. Store all materials clear of ground and moisture with weather protective covering.
C. Keep all combustible materials away from ALL ignition sources.

1.13 ENVIRONMENTAL REQUIREMENTS

A. Install roofing membrane only when surfaces are clean, dry, smooth and free of snow or ice.
B. Do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application. Consult Firestone Technical Specifications on cold weather application.

1.14 WARRANTY

A. Type/Term:
1. Provide 10-year Firestone Red Shield Roofing System Limited Warranty (Red Shield Warranty). Warranty shall include membrane, roof insulation, membrane accessories, and metal edging.
B. Coverage:
1. Red Shield Warranty:
a. Limit of liability: No Dollar Limitation
b. Scope of coverage:
Repair any leak in the Firestone TPO Roofing System caused by the ordinary wear and tear of the elements, manufacturing defect in Firestone brand materials, and the workmanship used to install these materials.

PART 2 PRODUCTS

2.01 NAILERS FOR FLANGES AND ROOF ACCESSORIES

A. Description: Structural Grade No. 2 or better Southern Pine, Douglas Fir, or Exterior Grade plywood. All wood shall be pressure treated for rot resistance.
1. Nailer width: Minimum 3-½ in. (nominal) wide or as wide as the nailing flange of each roof accessory.
2. Nailer thickness: Thickness of roof insulation.
B. Reference Standards:
1. Southern Pines: PS 20; SPIB Grading Rules.
2. Western Woods: PS 20; WWPA Grading Rules.
3. Plywood: PS 1; APA Grade Stamps.
4. Pressure preservative treatment: AWPB LP2.

2.02 MANUFACTURERS – MEMBRANE MATERIALS

A. Firestone Adhered single-ply membrane system:
Reinforced Ultra Ply TPO sheet roofing that is adhered to acceptable substrate with UltraPly TPO bonding adhesive.

2.03 ULTRAPLY TPO SHEET ROOFING AND FLASHING MEMBRANE

A. Description: Reinforced, UltraPly TPO synthetic single-ply membrane composed of Thermoplastic Polyolefin polymer, and Ethylene Propylene Rubber.
1. Membrane Type: .045 Reinforced TPO

Testing Minimum Values Typical values (SI Units)
Thickness, min, mm (in.)
Sheet-overall 1.0 (0.039)0.045± 10
Coating over scrim 0.25 (0.010)0.018± %0
Tensile strength, min, MPa (psi)NA
Breaking strength, min, kN (lbf)1.0 (225)225
Elongation, ultimate, min,%NA
Elongation at break, min,%15A15
Tensile set, max,%NA
Tear strength, min, kN/m (lbf/in.)NA
Tearing strength, min, N (lbf)245 (55)55
Brittleness point, max, °C (°F)-30 (-22)-40
Ozone resistance, no cracks Pass
Properties after heat aging: (retained values)
Tensile strength, % min NA
Breaking strength, % min90%90 %
Elongation, ultimate, % min NA
Elongation at break,% min90%A90 %
Tear strength % min NA
Tearing strength, % min90%90 %
Weight Change (Mass), max %±4B±4B
Linear dimensional change, max, %±2±2
Water absorption, max, mass%±4B±4B
Factory seam strength, min, kN/m (lbf/in.)75of Sheet strength75% of Sheet strength
Weather resistance:
Visual inspection Pass
Tensile strength, % min NA
Breaking strength, % min90%90 %
Elongation, Ultimate, % min NA
Elongation at break, min,%90 %A90 %A
PRFSE, min, %N/A

B. Reference Standards:
D 412 Test Methods for Vulcanized Rubber and Thermo-plastic Rubbers and Thermoplastic Elastomers--Tension
D 471 Test Method for Rubber Property--Effect of Liquids
D 573 Test Method for Rubber--Deterioration in an Air Oven
D 624 Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
D 751 Test Methods for Coated Fabrics
D 1149 Test Method for Rubber Deterioration--Surface Ozone Cracking in a Chamber
D 1204 Test Method for Linear Dimensional Changes of Non-rigid Thermoplastic Sheeting or Film at Elevated Temperature
D 1822 Test Method for Tensile-Impact Energy To Break Plastics and Electrical Insulating Materials
D 2137 Test Methods for Rubber Property--Brittleness Point of Flexible Polymers and Coated Fabrics
D5538 Practice for Thermoplastic Elastomers- Terminology and Abbreviations
G 155 Practice for Operating Light-Exposure Apparatus (Xenon-arc Type) With and Without Water for Exposure of Non- metallic Materials
G 154 Practice for Operating Light- and Water-Exposure Apparatus (Fluorescent UV - Condensation Type) for Exposure of Nonmetallic Materials

2.04 ROOF INSULATION COMPONENTS

A. SLIP SHEET

A. Description: A fire resistant coated glass-fiber mat.
B. Product/Producer:
1. FR10 by Atlas Roofing Corporation.

B. TOP LAYER

POLYISOCYANURATE ROOF INSULATION

A. Description: Roof insulation consisting of closed cell polyisocyanurate foam core and a perforated black glass reinforced mat laminated to the face.
1. Thickness: 3.1"
2. Nominal Size: 48 in. x 48 in.
B. Reference Standards:
1. FS HH-I-1972/Gen.
2. FS HH-I-1973/3.
3. ASTM C 209 – Water Absorption.
4. ASTM E 96 – Water Vapor Transmission of Materials.
5. ASTM D 1621 – Compressive Strength.
6. ASTM D 1622 – Density.
7. ASTM D 2126 – Dimensional Stability.
8. ASTM E 84 – Flame Spread.
C. Product/Producer: ISO 95+ Polyisocyanurate Insulation by Firestone.

TOP LAYER INSULATION FASTENERS

A. Insulation fastener
1. Description: Standard duty threaded fastener with fluorocarbon polymer coating and drill point tip capable of penetrating 20-gauge steel. Length shall be sufficient to penetrate deck a minimum of ?" for steel and 1" for wood.
2. Reference Standard: SAE 1022, Heat Treated
3. Product/Producer:
All Purpose (AP) fasteners by Firestone.

2.05 ULTRAPLY TPO SHEET ROOFING SYSTEM COMPONENTS

A. Roof Flashing:
1. Description: .045 ULTRAPLY TPO membrane
B. ULTRAPLY TPO Flashing:
1. Description: Non-reinforced, TPO, single-ply flashing composed of Thermoplastic Polyolefin polymer, and Ethylene Propylene Rubber.
a. Nominal Thickness: .045 inch
C. Bonding Adhesive:
1. Description: SBR-based, formulated for compatibility with the ULTRAPLY TPO membrane & a wide variety of substrate materials, including masonry, wood, and insulation facings.
2. Product/Producer:
a. ULTRAPLY TPO Bonding Adhesive by Firestone.
D. Pourable Sealer:
1. Description: 2-Part urethane, 2-color for reliable mixing.
E. Seam Plates:
1. Description: Steel with barbs and a Galvalume coating.
2. Reference Standard: Corrosion-resistant to meet FM-4470 criteria.
F. Termination Bar:
1. Description: 1.3" X 0.10" thick aluminum bar with integral caulk ledge.
2. Product/Producer:
a. Firestone Termination Bar by Firestone
G. Membrane Fasteners:
1. Description: Standard duty threaded fastener with fluorocarbon polymer coating and drill point tip capable of penetrating 20-gauge steel. Length shall be sufficient to penetrate deck a minimum of ?" for steel and 1" for wood.
2. Reference Standard: SAE 1022, Heat Treated
3. Product/Producer:
a. All Purpose (AP) fasteners by Firestone.
H. UltraPly TPO Cut Edge Sealant:
1. Polymeric sealant for use where exposed reinforcement is encountered.
2. Product/Producer;
a. Firestone UltraPly TPO Cut Edge Sealant by Firestone.
I. Firestone UltraPly TPO General Purpose Sealant:
1. Polymeric one part general purpose sealant
2. Product/Producer,
a. Firestone UltraPly TPO General Purpose Sealant by Firestone
J. Firestone UltraPly TPO Coated Metal:
1. Galvanized Steel with Manufacturers bonded TPO Coating.
2. Product/Producer,
a. Firestone UltraPly TPO Coated Metal by Firestone
K. Firestone UltraPly TPO Molded Flashing Accessories:
1. Unreinforced UltraPly TPO membrane Pre-Molded for a variety of flashing details (i.e. Pipe Boots, Inside-Outside corners, etc.)
2. Product/Producer,
a. Firestone UltraPly TPO Pre-molded Flashing Accessories by Firestone

2.06 METAL FLASHING

A. Edge Metal and/or Coping
1. Description: Provide prefabricated24-gauge Steel with Kynar finish in manufacturers standard colors to be selected by specifier.
2. Product/Producer:Firestone Edgegard

2.07 MISCELLANEOUS

A. Roof Walkway Pads:
1. Description: Reinforced ULTRAPLY TPO Walkway Pads, .130" X 30" X 50' with Patterned traffic bearing surface.
B. ULTRAPLY TPO molded inside corners.
C. ULTRAPLY TPO molded outside corners.
ULTRAPLY TPO molded pipe boots.

PART 3 INSTALLATION

3.01 EXAMINATION

A. Examine roof deck to determine that it is sufficiently rigid to support roofers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck.
B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.
C. Examine roof substrate to verify that it is properly sloped to drains.
D. Start work with sealants and adhesives at 60' – 80' F.
E. Fumes from adhesive solvents may be drawn into the building during installation through rooftop intakes. Appropriate measures must be taken to assure that fumes from adhesive solvents are not drawn into the building through air intakes.
F. For reroofing applications only: remove existing roof system components as specified
G. The surface must be clean, dry, smooth, free of sharp edges, fins, loose or foreign materials, oil, grease and other materials that may damage the membrane. All roughened surfaces that could cause damage shall be properly repaired before proceeding.
H. All surface voids of the immediate substrate greater than 1/4" wide must be properly filled with an acceptable insulation or suitable fill material.

3.02 PROTECTION OF OTHER WORK

A. Protect metal, glass, plastic, and painted surfaces from adhesives and sealants.
B. Protect neighboring work, property, cars, and persons from spills and overspray from adhesives, sealants and coatings and from damage related to roofing work.
C. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.

3.03 MATERIAL STORAGE AND HANDLING

A. Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition.
B. Consult container labels and Material Safety Data Sheets (MSDS) for specific safety instructions.
C. Deliver materials to job site in their original containers as labeled by the manufacturer.

3.04 WOOD NAILER LOCATION AND INSTALLATION

A. Total wood nailer height shall match the total thickness of insulation being used and shall be installed with a 1/8" gap between each length and at each change of direction.
B. Wood nailers shall be firmly fastened to the deck. Mechanically fasten wood nailers to resist a force of 200 lbs. per lineal foot.

3.05 VAPOR RETARDER

None

3.06 ROOF INSULATION APPLICATION: GENERAL

A. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather.
B. Seal deck joints, where needed, to prevent bitumen drippage.
C. Lay roof insulation in courses parallel to roof edges.
D. Neatly fit insulation to all penetrations, projections, and nailers. Insulation shall be fit tightly, with gaps not greater than ¼". All gaps greater that ¼" shall be filled with acceptable insulation. Under no circumstances shall the roofing membrane be left unsupported over a space greater than ¼". Tapered insulation shall be installed around roof drains so as to provide proper slope for drainage. Miter roof insulation edges at ridge, valley and other similar non-planar conditions.
E. When installing multiple layers of insulation, all joints between layers shall be staggered at least 6 in.

3.07 INSULATION ATTACHMENT

A. Slip Sheet: Atlas FR10 Slip Sheet.
1. Slip Sheet Attachment:Loose Laid
B. Top Layer: Firestone ISO 95+ GL 3.1"
1. Top Layer Attachment:Mechanically Attached

3.08 INSULATION APPLICATION

A. SLIP SHEET:

1. Install Atlas Slip-Sheet by "Loose-Laying" ovthe prepared surface . No mechanical securement of slip-sheet will be used.

B. TOP LAYER:

1. Using the FirestoneAll Purpose and Firestone Insulation plate engage fastener through insulation into theWood Deck at the depth and rate specified in the Firestone Technical Information Manual.

3.09 MEMBRANE INSTALLATION

A. Place membrane panel, over the substrate in it's final position.
B. After making sure the sheet is placed in its final position allowing for a 3" lap, fold it back evenly onto itself so as to expose the underside.
a. Where UltraPly TPO Membrane has been cut to expose reinforcing membrane, Firestone's UltraPly TPO Cut Edge Sealant or UltraPly TPO General Purpose Sealant must be used to encapsulate exposed edge.
C. Sweep the mating surface of the membrane with a stiff broom to remove any dirt that may have accumulated.
D. Apply UltraPly TPO bonding adhesive at about the same time to both the exposed underside of the sheet and the substrate to which it will be adhered so as to allow approximately the same drying time.
E. Do not apply bonding adhesive over an area that is to be later heat welded to another sheet or flashing.
F. Allow bonding adhesive to flash off until tacky. Touch the bonding adhesive surface with a clean, dry finger to be certain that the adhesive film is dry to the touch and there is no wet adhesive beneath the top adhesive film. If either motion exposes wet or stringy adhesive when the finger is lifted, then it is not ready for mating. Flash off time will vary depending on ambient air conditions.
G. Starting at the fold, roll the previously coated portion of the sheet into the coated substrate slowly and evenly so as to minimize wrinkles.
H. To ensure proper contact, compress the bonded half of the sheet to the substrate with a stiff push broom.
I. Fold the unadhered half of the membrane sheet back onto itself, and repeat the procedure to complete the bonding of the sheet.

3.10 MEMBRANE LAP SPLICING

A. Lap splice areas that have been contaminated must be wiped down with a dry or damp (water only) clean cloth prior to heat welding and allow to completely dry.
B. All field and flashing splices on the horizontal surface shall be completed using an automatic heat welder that has been designed for hot air welding of thermoplastic membranes.
C. Hand held welders are only to be used on vertical welds or where an automatic welder is not practical or cannot be used.
D. Seams made with the automatic welder shall be a minimum of 1-1/2" wide. Seams made with hand welders shall be a minimum of 2" wide. Use 2" wide silicone or silicone coated steel hand rollers to assure proper mating of surfaces as hand heat welding proceeds.
E. Probe all completed welds using a slotted screwdriver or cotter pin puller type tool to verify seam integrity. Do not probe welds until they have had time to cool to ambient conditions. Any welds found to be insufficiently welded need to be repaired on a daily basis.

3.11 MEMBRANE SECUREMENT

A. Secure membrane at all locations where the membrane terminates or goes through an angle change greater than 1" in 12" except for round pipe
B. Penetrations less than 18" in diameter and square penetrations less than 4" square.

3.12 FLASHING – PENETRATIONS

A. General:
1. If project is a Retrofit or Tear-Off remove all existing flashings (i.e. lead, asphalt, mastic, etc.).
2. Flash all penetrations passing through the membrane.
3. The flashing seal must be made directly to the penetration.
B. Pipes, Round Supports, etc.:
1. Flash with Firestone Pre-Molded UltraPly Pipe Flashings where practical.
2. Flash using UltraPly membrane when Pre-Molded Flashing is not practical.
C. Structural Steel Tubing:
1. Use a field fabricated pipe-flashing detail provided that the minimum corner radius is greater than 1/4" and the longest side of the tube does not exceed 12". When the tube exceeds 12" use a standard curb detail.
D. Roof Drains:
1. If project is a Retrofit or Tear-Off remove all existing flashings, drain leads, roofing materials and cement from the existing drain in preparation for membrane and Water Block Seal.
2. Provide a clean even finish on the mating surfaces between the clamping ring and the drain bowl.
3. Taper insulation around the drain to provide a smooth transition from the roof surface to the drain. Use pre-manufactured tapered insulation with facer or suitable bonding surface to achieve slope. Slope shall not exceed Firestone recommendations.
4. Position the UltraPly TPO membrane, then cut a hole for the roof drain to allow 1/2" -3/4" of membrane extending inside the clamping ring past the drain bolts.
5. Make round holes in the UltraPly TPO membrane to align with clamping bolts. Do not cut the membrane back to the bolt holes.
6. Place Water Block Seal on top of drain bowl where the clamping ring seats below the membrane
7. Install the roof drain clamping ring and clamping bolts. Tighten the clamping bolts to achieve constant compression.
E. Pipe Clusters and Unusual Shaped Penetrations:
1. Fabricate penetration pockets to allow a minimum clearance of 1" between the penetration and all sides.
2. Secure penetration pockets per Firestone Details
3. Fill penetration pockets with Pourable Sealer, so as to shed water. Pourable Sealer shall be a minimum of 2" deep.
F. Hot Pipes:
1. Protect the UltraPly TPO components from direct contact with steam or heat sources when the in-service temperature is in excess of 140° F. In all such cases flash to an intermediate insulated "cool" sleeve per Firestone details.
G. Flexible Penetrations:
1. Provide a weathertight gooseneck set in Water Block Seal and secured to the deck.
2. Flash in accordance with Firestone Details
H. Scuppers:
1. Remove existing scupper and provide a new welded watertight scupper or clean the existing scupper for reuse.
2. Set welded watertight scupper in Water Block Seal and secure to the structure.
3. Flash in accordance with Firestone Details.
I. Expansion Joints:
1. Install as shown on roof drawings in accordance with Firestone details.

3.13 FLASHING – WALLS, PARAPETS, MECHANICAL EQUIPMENT CURBS, SKYLIGHTS, etc.

A. General:
Using the longest pieces practical, flash all walls, parapets, curbs, etc., a minimum of 8" high per Firestone Details.
B. Evaluate Substrate:
Evaluate the substrate and overlay per Firestone specifications as necessary.
C. If project is a Retrofit or Tear-Off remove all flashings.
D. Remove excessive asphalt to provide a smooth, sound surface for new flashings.
E. Apply UltraPly TPO Bonding Adhesive at about the same time to both the membrane flashing and the surface to which it is being bonded so as to allow approximately the same drying time. Apply TPO Bonding Adhesive by rolling the adhesive on to the mating surfaces evenly, avoiding globs or puddles.
F. Allow TPO Bonding Adhesive to flash off until tacky. Touch the TPO Bonding Adhesive surface with a clean, dry finger to be certain that the adhesive does not stick or string. As you are touching the adhesive, pushing straight down to check for stringing, also push forward on the adhesive at an angle to ensure that the adhesive is ready throughout its thickness. If either motion exposes wet or stringy adhesive when the finger is lifted, then it is not ready for mating. Flash off time will vary depending on ambient air conditions.
G. Roll the flashing into the adhesive evenly and carefully so as to minimize wrinkles.
H. To ensure proper contact, compress the flashing to the substrate with a stiff push broom.
I. Complete the splice between membrane flashing and the main roof sheet by hot air welding. Provide lap splices in accordance with Firestone details.
J. Provide termination directly to the vertical substrate as shown in Firestone Details.
K. Install TPO-Joint covers at field and flashing splice intersections as required by Firestone.
L. Install intermediate flashing attachment as required by Firestone Specifications and Details

3.14 FLASHING – GRAVEL STOPS OR ROOF EDGE METALS

A. Flash all gravel stops or roof edges using as outlined in Firestone Details.

3.15 TEMPORARY CLOSURE (NOT WARRANTED BY FIRESTONE)

Temporary closures that ensure that moisture does not damage any completed section of the new roofing system are the responsibility of the roofing contractor. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.

1.16 ROOF WALKWAYS

A. Walkways may consist of Firestone UltraPly TPO Walkway material. Heat-weld the perimeters of the walkway material to the UltraPly TPO membrane per Firestone specifications.

3.17 SHEET METAL WORK

A. Install Firestone supplied sheet metal as shown on roof drawings.
B. Follow current industry guidelines for installation or Firestone requirements, whichever is more stringent.

3.18 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed as required by the manufacturer
B. Correct identified defects or irregularities.

3.19 CLEAN-UP

A. Clean all contaminants from building and surrounding areas.
B. Remove trash, debris, equipment from project site and surrounding areas.
C. Repair or replace damaged building components or surrounding areas to the satisfaction of the building owner.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 10/24/2023

DATE SIGNED
JUL 29 2003

LICENSE EXPIRES 6-30-2004

DSA - PC

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 - 104816
AC — FLS — SS
DATE 7/30/03

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 105264
FLS SS
MAR 0 ? 2004

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
JAMES T. SIMPSON
No. S602
STRUCTURAL
STATE OF CALIFORNIA
LICENSE EXPIRES 6-30-2004

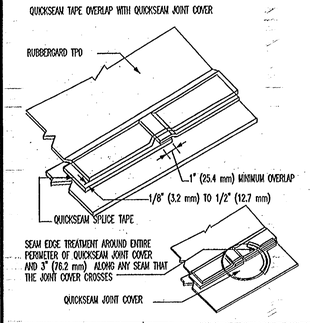
AURORA MODULAR INDUSTRIES
17300 Perris Blvd.
Moreno Valley, Ca. 92551
Phone (909) 571-2200
www.aurora-modular.com

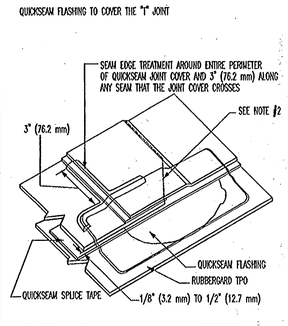
RELOCATABLE BUILDING FOR:
CORONA-NORCO UNIFIED
AUBURNDALE INTERMEDIATE

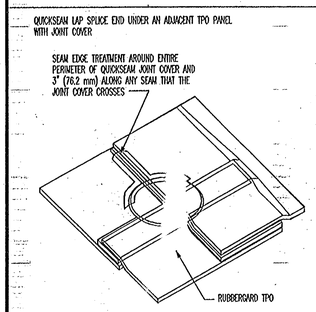
TPO SPECIFICATIONS

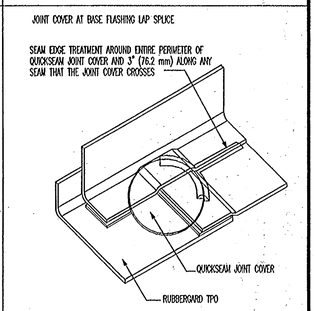
BY PAVH	DATE 7-2-03
CHECKED	AMI# 5152

S6.4
SHEET



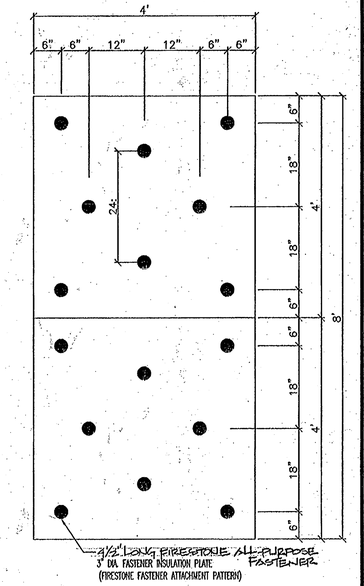






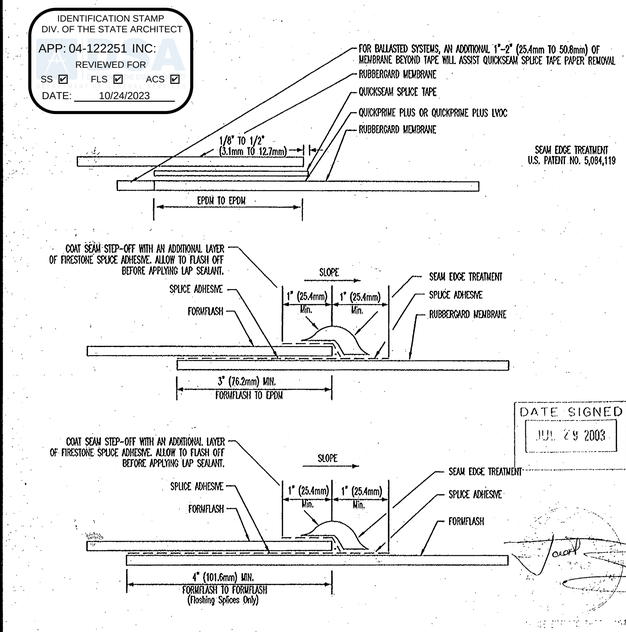
NOTES:
1. MEMBRANE BEING SPLICED WITH QUICKSEAM TAPE MUST BE CLEANED WITH FIRESTONE QUICKPRIME PLUS OR QUICKPRIME PLUS LVOC. FOR BALLASTED SYSTEMS, AN ADDITIONAL 1" (25.4 mm) – 2" (50.8 mm) OF MEMBRANE BEYOND TAPE ON THE TRAILING EDGE OF THE SEAM WILL ASSIST
2. QUICKSEAM TAPE RELEASE PAPER REMOVAL. HOWEVER, EXCESS MEMBRANE MUST BE TPO mmED BACK TO TAPE EDGE ON SEAM ENDS THAT ARE SPLICED ONTO ADJACENT SHEETS IN ORDER TO FACILITATE PROPER SEALING OF THE "T" JOINTS. (SEE DETAIL B).
3. EXTRA CLEANING IS REQUIRED AT FACTORY SPLICE AREAS AND OTHER AREAS WHERE EXCESS DUSTING AGENT MAY HAVE ACCUMULATED.
4. REINFORCED EPDM MEMBRANE WITH EXPOSED SCRIM (IE. AT FIELD SHEET END LAPS, ETC.) MUST HAVE EDGE TREATMENT APPLIED TO ALL EXPOSED SCRIM AREAS.

4 | 3



INSULATION ATTACHMENT

2

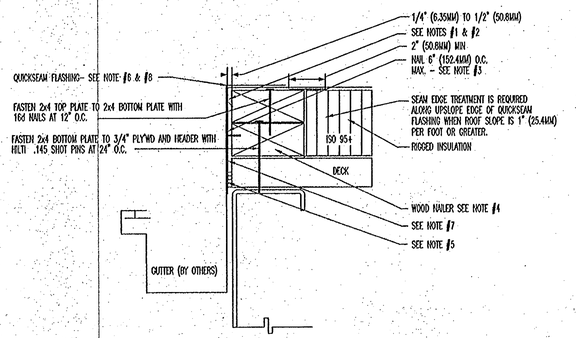


NOTE:
1. CLEAN ALL RUBBERGARD MEMBRANE SURFACES AS REQUIRED BY FIRESTONE SPECIFICATIONS.
2. TAKE EXTRA CARE TO CLEAN FACTORY SPLICES AND OTHER AREAS WHERE EXCESS DUSTING AGENT MAY HAVE ACCUMULATED.
3. IF .090 MEMBRANE IS USED, ADDITIONAL SEAMING REQUIREMENTS ARE NECESSARY. CONTACT FIRESTONE TECHNICAL SERVICES.

SPLICE CROSS SECTION @ MOD JOINT
NTS

TPO SPLICE

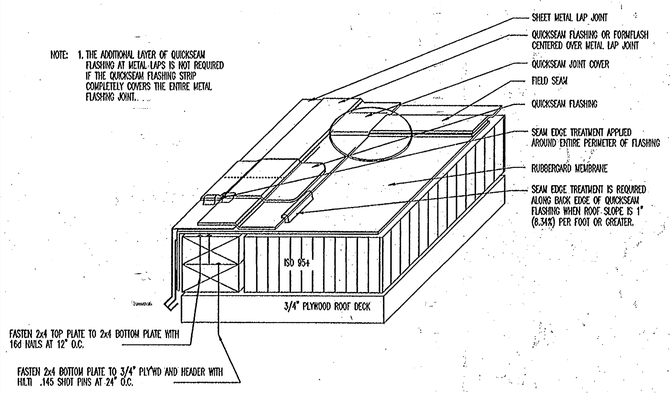
1



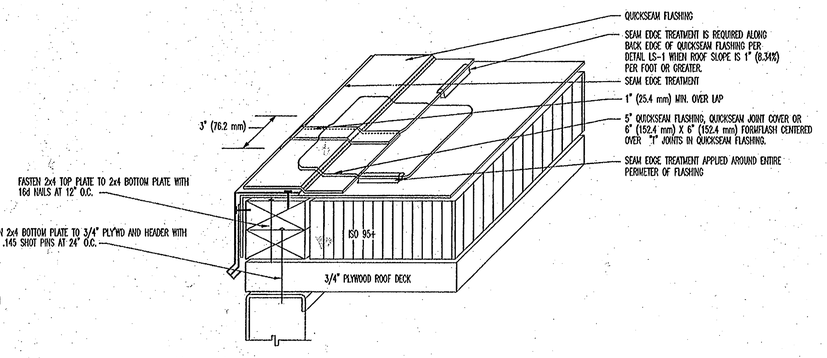
NOTES:
1. ON BALLASTED ROOFS, GRAVEL STOP HEIGHT MUST MEET OR EXCEED BALLAST OR PAVER HEIGHT (2" (50.8MM) MIN.).
2. IF THE ROOF EDGE INCLUDES A GRAVEL STOP, AND SEALANT IS NOT APPLIED BETWEEN THE LAPS IN THE METAL EDGING, AN ADDITIONAL PIECE OF QUICKSEAM FLASHING SHALL BE APPLIED OVER THE METAL LAP AFTER THE INITIAL APPLICATION OF QUICKSEAM FLASHING. LAP EDGE TREATMENT SHALL BE APPLIED AT THE INTERSECTIONS OF THE TWO FLASHING SECTIONS.
3. NOT USED
4. WOOD NAILER MUST EXTEND BEYOND METAL FLANGE IN ALL DIRECTIONS.
5. APPLY WATER BLOCK, CENTRAL PURPOSE SEALANT OR FULLY ADHERE MEMBRANE TO THE WOOD NAILER FOR MECHANICALLY ATTACHED SYSTEMS.
6. IF THE METAL EDGE FLANGE IS NOT COMPLETELY COVERED WITH QUICKSEAM FLASHING, THEN ALL JOINTS IN METAL SHALL BE COVERED WITH QUICKSEAM FLASHING – SEE DETAIL RE-9
7. GUTTER STRAPS MUST BE ATTACHED TO BUILDING FACE NOT TO ROOF SURFACE.

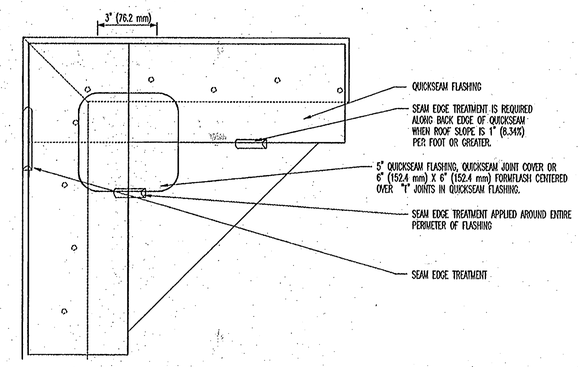
TPO ATTACHMENT WITH GUTTER

6



NOTE: 1. THE ADDITIONAL LAYER OF QUICKSEAM FLASHING AT METAL LAPS IS NOT REQUIRED IF THE QUICKSEAM FLASHING STRIP COMPLETELY COVERS THE ENTIRE METAL FLASHING JOINT.





TPO ATTACHMENT AT SIDEWALL

5

AURORA MODULAR INDUSTRIES
17300 Perris Blvd.
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RELOCATABLE BUILDING FOR:
CORONA-NORCO UNIFIED
AUBURNDALE INTERMEDIATE

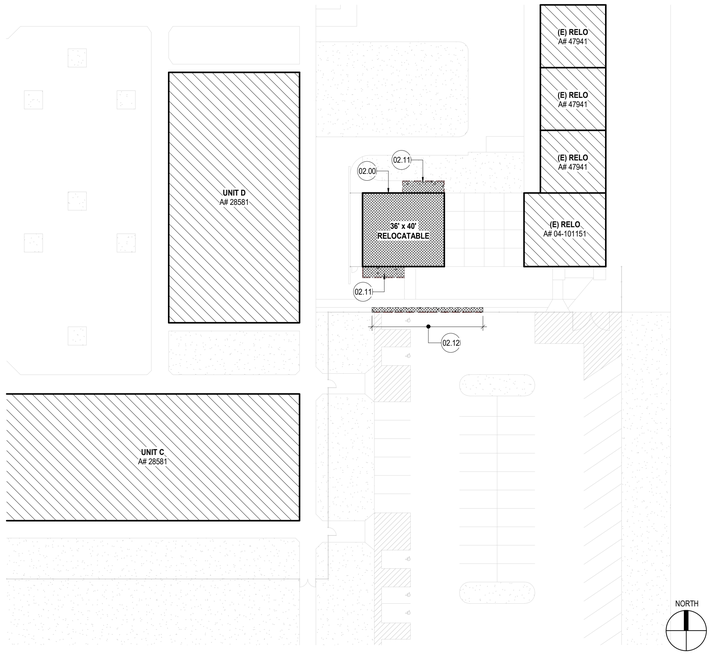
TPO ROOFING DETAILS

BY PAVH | DATE 7-2-03
CHECKED | AMI# 5152

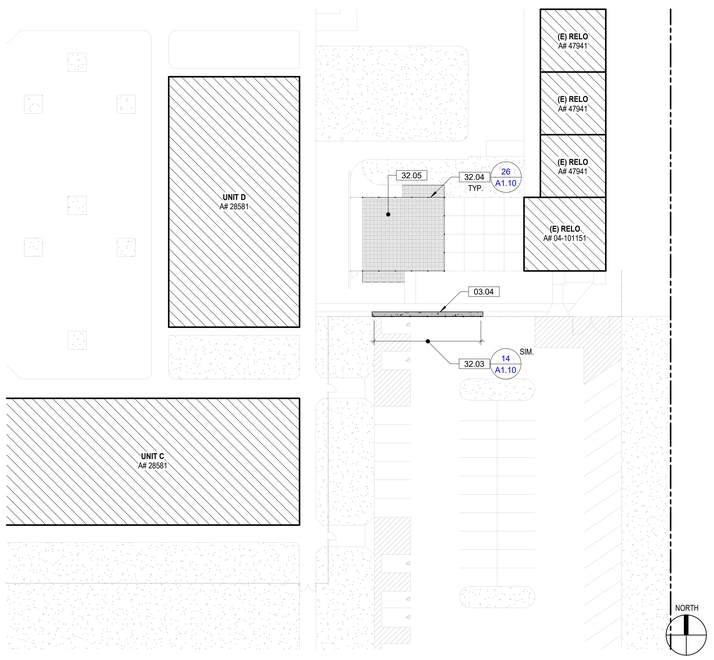
S6.5
SHEET

REVISIONS

0" 1"



15 AUBURNDALE - DEMOLITION SITE PLAN
1" = 30'-0"



3 AUBURNDALE - REMODEL SITE PLAN
1" = 30'-0"

DEMOLITION KEYED NOTES

#	Description
02.00	EXISTING 36' X 40' RELOCATABLE CLASSROOM BUILDING TO BE RELOCATED AND REFURBISHED TO ORANGE GROVE HIGH SCHOOL 300 S BUENA VISTA AVE, CORONA, CA 92882. EXISTING ELECTRICAL WIRING TO BE DEMOLISHED; DISCONNECT AND REMOVE EXISTING WIRING, CONDUITS AND CONDUCTORS BACK TO NEAREST JUNCTION BOX TO REMAIN, CAP AND PROVIDE COVER PLATE. - SEE: ELECTRICAL
02.11	EXISTING CONCRETE RAMP AND HANDRAILS TO BE DEMOLISHED
02.12	+/- 50'-0" OF 8'-0" HIGH GALVANIZED ORNAMENTAL FENCING TO BE REMOVED AND REINSTALLED IN ITS ENTIRETY TO ALLOW RELOCATION OF THE EXISTING RELOCATABLE BUILDING. MAINTAIN 6" OF FENCE POST FROM F.S. FOR REINSTALLATION OF FENCING. PROTECT CONCRETE PAVING ALONG THE AREAS WHERE FENCING IS TO BE REMOVED, IF DAMAGE OCCURS REPAIR ALL DAMAGED AREAS OR REPLACE WITH NEW (HATCHED AREA DOES NOT DEPICT THE MAXIMUM EXTENT OF THIS AREA)

DEMOLITION SITE PLAN LEGEND

- (E) BUILDING(S) NOT IN SCOPE
- PROPOSED 36' X 40' RELOCATABLE BUILDING TO BE RELOCATED TO ORANGE GROVE HIGH SCHOOL 300 S. BUENA VISTA AVE, CORONA, CA 92882.
- (E) CONCRETE CONSTRUCTION TO BE REMOVED, U.N.O.

CONSTRUCTION KEYED NOTES

#	Description
03.04	CONCRETE PAVING TO BE PATCHED AND REPAIRED IF NECESSARY. HATCHED AREA DOES NOT DEPICT THE MAXIMUM EXTENT OF CONCRETE PAVING TO BE PATCHED AND REPAIRED OR REPLACED IF NECESSARY. FOR REPLACEMENT SEE 11/A1.10
32.03	8'-0" HIGH HOT DIPPED GALVANIZED ORNAMENTAL FENCING TO BE PROVIDED
32.04	6'-0" HIGH CHAINLINK FENCING TO BE PROVIDED AROUND AREA WHERE RELOCATABLE BUILDING WAS LOCATED
32.05	REMOVE ALL DEBRIS FROM DEMOLITION AREA, COMPACT GRADE

REMODEL SITE PLAN LEGEND

- (E) BUILDING(S) NOT IN SCOPE
- PROPOSED 36' X 40' RELOCATABLE BUILDING TO BE RELOCATED TO ORANGE GROVE HIGH SCHOOL 300 S. BUENA VISTA AVE, CORONA, CA 92882.
- (E) CONCRETE PAVING TO BE PATCHED AND REPAIRED OR REPLACED IF NECESSARY.
- REMOVE ALL DEBRIS FROM DEMOLITION AREA, COMPACT GRADE

PBK

ARCHITECT PBK Architects, Inc.
PBK.com
RANCHO CUCAMONGA
8163 Rochester Avenue, Suite 100
Rancho Cucamonga
California 91730
P 909-987-0909

CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE

H
G
F
E
D
A1
B
A

KEY PLAN

NORTH: PLAN TRUE

Consultant

Architect

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

REVISIONS

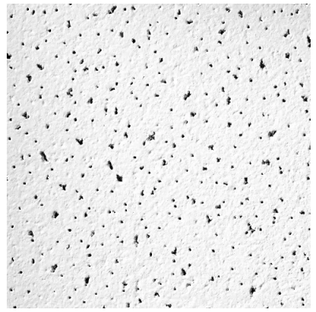
No.	Description	Date

100% CONSTRUCTION DOCUMENTS

AUBURNDALE INTERMEDIATE DEMO AND REMODEL SITE PLANS

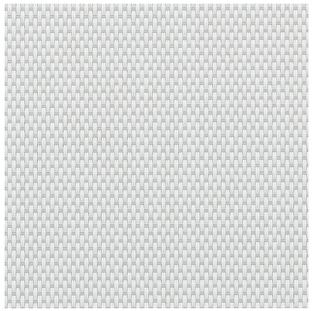
AX2.00

CEILING



ACOUSTIC CEILING
Armstrong - School Zone FF
White - 2’ x 4’

SHADES

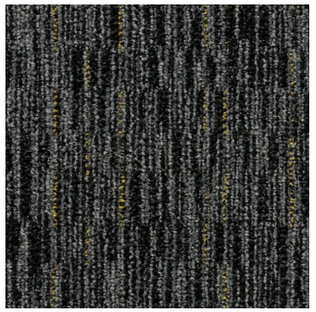


ROLLER SHADE
Mecho - EcoVeil Screens
1369 Silver Birch

FLOORING

WALL BASE
Mohawk - Rubber Base
073 Aircraft Carrier

LVT FLOORING
ALTRO - LVT
Alabaster - LAV16033



CARPET
Mohawk - Interplay Stripe
Yellow Jacket

WALK-OFF TILE
Mohawk - Tuff Stuff II
First Step II - GT315

WALL

EXT FIELD COLOR:
Dunn Edwards
DE6359 - Silver Setting

EXT ACCENT TRIM:
Dunn Edwards
DE5852 - Rainy Lake

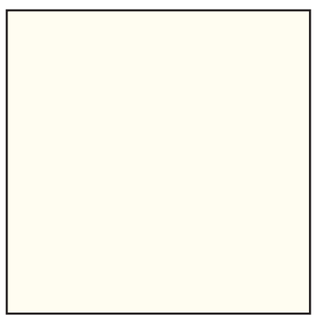
INT FIELD COLOR
Dunn Edwards
DE6226 - Foggy Day

INT DOOR
Dunn Edwards
DEA002 - Black

TACKABLE SURFACE
Koroseal Interloom
Coconut NM21-02

TACKABLE SURFACE
Koroseal Interloom
Haze NM21-05

CASEWORK



COUNTER TOP
Wilsonart
D427-60 - Linen

CABINETS
Wilsonart
7966K-12 5th Ave Elm

WORK ROOM

WORK ROOM

CONFERENCE ROOM

OFFICE

ENTRY

ENTRY

BREAK AREA / COPY ROOM

DSA **140**

APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT

This application is for submittal of documents, after the initial approval of the project (post-approval documents), that require Division of the State Architect (DSA) review and approval.This form shall be completed by the Design Professional in General Responsible Charge of the project, in accordance with California Code of Regulations, Title 24, Part 1, Sections 4-317, 4-323 and 4-338 and in compliance with DSA IR A-6: Construction Change Document Submittal and Approval Process.

DSA documents referenced within this form are available on the DSA Forms or DSA Publications webpages.

1. SUBMITTAL TYPE: (Is this a resubmittal? Yes ☑ No ☐)

Deferred Submittal ☐	Addendum Number: 01	Revision Number: 01	CCD Number: Category A ☐ or B ☐

2. PROJECT INFORMATION:

School District/Owner: Corona-Norco Unified School District	DSA File Number: 33 H4
Project Name/School: Orange Grove High School	DSA Application Number 04 122251

3. APPLICANT INFORMATION:

Date Submitted: 12/18/23	Attached Pages? No ☐ Yes ☑ Number of pages? 73		
Firm Name: PBK Architects	Contact Name: Oliver Nicolas		
Work Email: oliver.nicolas@pbk-wlc.com	Work Phone: (909) 937-9200		
Firm Address: 8163 Rochester Ave #100	City: Rancho Cucamonga	State: CA	Zip Code: 91730

4. REASON FOR SUBMITTAL: (Check applicable boxes)

☑ For revision or addendum prior to construction. ☐ For a project currently under construction.

☐ For a project that has a form *DSA 301-N: Notification of Requirement for Certification*, *DSA 301-P: Posted Notification of Requirement for Certification* or a 90-Day Letter issued.

☐ To obtain DSA approval of an existing uncertified building or buildings.

☐ For Category B CCD this is: ☐ a voluntary submittal, ☐ a DSA required submittal (attach DSA notice requiring submission).

5. DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE:

Name of the Design Professional In General Responsible Charge: Yong Yoo

Professional License Number: C-31162 Discipline: Architecture

Design Professional in General Responsible Charge Statement: The attached post-approval documents have been examined by me for design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications. They are acceptable for incorporation into the construction of the project.

Signature: _____

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

6. CONFIRMATION, DESCRIPTION AND LISTING OF DOCUMENTS:

For addenda, revisions, or CCDs: CHECK THIS BOX ☐ to confirm that *all* post-approval documents have been stamped and signed by the Responsible Design Professional listed on form *DSA 1: Application for Approval of Plans and Specifications* for this project. (For *Deferred Submittals*, refer to *IR A-18: Use of Construction Documents Prepared by Other Professionals,* and *IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents*, when applicable, for signature and seal requirements.)

Provide a brief description of construction scope for this post-approval document (attach additional sheets if needed):

Revisions to accessible parking grading, finishes and miscellaneous items per attached Addendum 01 Narrative.

List of DSA-approved drawings affected by this post-approval document:

See Addendum 01 Narrative for list of affected drawings.

DSA USE ONLY

SSS_____ Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

FLS_____ Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

ACS_____ Date_____ ☐Approved ☐Disapproved ☐Not Required

Comments:_____

Returned	DSA STAMP
Date:	
By:	

Addendum No:	01	**Issue Date:**	12/18/2023
Project:	CNUSD Transportation Office at Orange Grove HS Corona-Norco Unified School District	**To Drawings + Specifications dated**	10/24/2023

Prepared By: PBK Architects, Inc.
8163 Rochester Ave#100
Rancho Cucamonga, CA 91730

PBK Project No: 230010

NOTICE TO BIDDERS

A. Receipt of this Addendum shall be acknowledged on the Proposal Form.

B. This Addendum forms part of the Contract documents for the above referenced project and shall beincorporated integrally therewith.

C. Each bidder shall make necessary adjustments and submit his proposal with full knowledge of all modifications, clarifications, and supplemental data included therein. Where provisions of the followingsupplemental data differ from those of the original Contract Documents, this Addendum shall govern.

SPECIFICATIONS

Item No. 01.01: **Section 00 00 00 – Project Manual Cover and Seals**

Item No. 01.02: **Section 01 35 46 – Indoor Air Quality Procedures:** Revise sub paragraph 1.2, B “Related Sections”.

Item No. 01.03: **Section 02 41 19 – Selective Demolition:** Revise sub paragraph 1.6, F “Hazardous Materials”.

Item No. 01.04: **Section 23 00 00 – General Mechanical Provisions:** Revise sub paragraph 1.08, A “Operation and Maintenance Instructions”.

Item No. 01.05: **Section 23 00 00 – General Mechanical Provisions:** Omit sub paragraph 3.02, D.

Item No. 01.06: **Section 23 00 01 – Heating Ventilating and Air Conditioning:** Revise sub paragraph 2.05, B, 1. “General”.

Item No. 01.07: **Section 23 00 01 – Heating Ventilating and Air Conditioning:** Revise sub paragraph 2.05, B, 12, b. “Modulating Economizer Sequence of Operation”.

Item No. 01.08: **Section 23 00 01 – Heating Ventilating and Air Conditioning:** Omit sub paragraph 3.02, C “Gym”.

Item No. 01.09: **Section 26 05 33 – Raceway and Boxes for Electrical Systems:** Revise paragraph 2.7 “Putty Pads”.

Item No. 01.10: **Section 26 50 00 – Lighting:** Add section.

Item No. 01.11: **Section 22 21 00 – Data Communications System:** Revise sub paragraph 2.3, A “High Schools”

Item No. 01.12: **Section 27 41 16 – Integrated Audio-Video Systems and Equipment:** Add section.

DRAWINGS

Item No. 01.13: **Sheet C1.1:** Revised and added “Parking Striping Removal” under the “Demolition Plan Legend & Abbreviation”.

Item No. 01.14: **Sheet C1.1:** Added “Demolition Items” #7 with the verbiage reading “Remove existing parking striping by sand blasting or approved method”.

Item No. 01.15: **Sheet C1.1:** Revised “Quantities” for “Demolition Items” #1 & #2.

Item No. 01.16: **Sheet C1.1:** Revised “Demolition Site Plan”, demolition limits reduced in existing parking lot.

Item No. 01.17: **Sheet C2.1:** Revised “Quantities” for “Construction Items” #1, #2 & #14.

Item No. 01.18: **Sheet C2.1:** Revised “Grading Plan”, the following items where revised:

i. Construction limits reduced for proposed parking lot.
ii. Fixed parking stall designation, only 1 space is designated as “VAN”.
iii. Minor elevation revisions at the top landing of the existing ramp that leads to the parking lot.
iv. Concrete along westerly face of proposed modular building widened.

Item No. 01.19: **Sheet C2.2:** Revised “Utility Plan”, construction limits reduced for proposed parking lot and fixed parking stall designation, only 1 space is designated as “VAN”.

Item No. 01.20: **Sheet C3.1:** Revised “Section A-A”, updated to show widening of concrete adjacent to proposed modular building.

Item No. 01.21: **Sheet C4.1:** Revised “Erosion Control Plan”, construction limits reduced for proposed parking lot and fixed parking stall designation, only 1 space is designated as “VAN”.

Item No. 01.22: **Sheet A9.01:** Revised and added “Tackable Surface (TS-2) under the “Finish Floor Legend”.

Item No. 01.23: **Sheet A9.01:** Revised Detail 27 “Finish Schedule”

i. Work Room 102 South wall was revised to “TS-1 / TS-2”
ii. Office 103 & 104 East walls were revised to “TS-2”
iii. Conference Room 105 North wall was revised to “TS-2”

Item No. 01.24: **Sheet A9.01:** Revised Detail 15 “Material Schedule”

i. “CPT-1” revised to Mohawk, Interplay Stripe, 951 Yellow Jacket, 18” x 35.5”
ii. “LVT-1” revised to Altro Floors, LVT, Alabaster – LAV 16033, 12” x 12”
iii. “PL-1” revised to Wilsonart, HPL, 7966K – 12 5th Ave Elm, @ Cabinets
iv. “TS-1” revised to Koroseal / Chatfield Clarke, Interloom, Coconut NM21-02
v. “TS-2” added and reads: Koroseal / Chatfield Clarke, Interloom, Haze NM21-05

Item No. 01.25: **Sheet A9.01:** Revised Detail 3 “Proposed Floor Plan”, delineated “TS-2” wall finish areas for the Work Room, Conference Room and Office spaces.

Item No. 01.26: **Sheet M6.01:** Revised Detail 9 “Heat Pump Ducting Detail, added annotation reading “Paint exterior duct as per field ext. paint”.

Item No. 01.27: **Sheet T0.00:** Revised “Technology Symbol List”, removed credential reader and all video surveillance camera items.

Item No. 01.28: **Sheet T0.00:** Revised “Technology Scope of Work”, scope of work updated and any access control or camera system scope has been removed.

Item No. 01.29: **Sheet T1.02:** Removed Detail 1 “Access Control Riser Diagram”.

Item No. 01.30: **Sheet T1.02:** Replaced Detail 2 “Fiber and Copper Riser Diagram” in its entirety.

Item No. 01.31: **Sheet T2.01:** Revised “Key Notes”, all keynotes associated with card reader and entrance camera scope of work have been removed.

Item No. 01.32: **Sheet T2.01:** Revised Detail 2 “Proposed Floor Plan”, WAPS location have been adjusted and data outlet locations have been updated. All card reader scope of work and entrance camera has been removed.

Item No. 01.33: **Sheet T4.00:** Revised “Keyed Notes” #1.

Item No. 01.34: **Sheet T6.01:** Removed Detail 2 “Controlled Security Scheme Foor Rough-In Detail” and Detail 6 “Exterior Camera – Wall Mount”.

Item No. 01.35: **Sheet T6.02:** Added Detail 3 “Wall Cabinet Mounting Details”.

End of Addendum

Project Manual

For

Orange Grove High School
Transportation Office

300 Buena Vista Ave.
Corona, Ca 92882

Bidding and Contract Requirements
And
Specifications

for the

Corona Norco Unified School District
2820 Clark Ave.
Norco, Ca. 92860

Date: **12/18/23**

PBK Project No.: 230010

SECTION 01 35 46 INDOOR AIR QUALITY PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Construction procedures to promote adequate indoor air quality after construction.
   2. Testing indoor air quality after completion of construction.

B. Related Sections:
   1. Section 23 00 01: Heating, Ventilation, and Air Conditioning 1

C. Reference Standards:
   1. ASHRAE Std 52.2 – Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size.
   2. ASHRAE Std 62.1 – Ventilation For Acceptable Indoor Air Quality.
   3. ASHRAE Std 129 – Measuring Air-Change Effectiveness.
   4. ASTM E779 – Standard Test Method for Determining Air Leakage Rate by Fan Pressurization.
   5. SMACNA (OCC) – IAQ Guideline for Occupied Buildings Under Construction.

D. Project Goals:
   1. Dust and airborne particulates:
      a. Prevent deposition of dust and other particulates in HVAC ducts and equipment:
         1) Establish condition of existing ducts and equipment prior to start of alterations.
         2) Contractor shall bear the cost of cleaning required due to failure to protect ducts and equipment from construction dust.
   2. Airborne contaminants:
      a. Procedures and products have been specified to minimize indoor air pollutants:
         1) Furnish products meeting the Specifications.
         2) Avoid construction practices that could result in contamination of installed products leading to indoor air pollution.

E. Verification: HVAC system has been designed to achieve the minimum requirements for ventilation specified in ASHRAE 62.1, with verification provided by MEP Engineer of Record.

1.3 DEFINITIONS

A. Adsorptive Materials: Gypsum board, acoustical ceiling tile and panels, carpet and carpet tile, fabrics fibrous insulation, and other similar products.

B. Contaminants: Gases, vapors, regulated pollutants, airborne mold and mildew, and the like, as specified.

C. Particulates: Dust, dirt, and other airborne solid matter.

D. Wet Work: Concrete, plaster, coatings, and other products that emit water vapor or volatile organic compounds during installation, drying, or curing.

1.4 SUBMITTALS

A. See Section 01 33 00: Submittal Procedures.

B. Submittals provided by Owner and/or the Commissioning Agent: To be reviewed by Contractor and submitted to Architect for processing.

C. Indoor Air Quality Management Plan:
1. Describe in detail measures to be taken to promote adequate indoor air quality upon completion; use SMACNA IAQ Guidelines for Occupied Buildings Under Construction as a guide (submit prior to pre-construction meeting):
   a. Submit not less than 60 days before enclosure of building.
   b. Identify potential sources of odor and dust.
   c. Identify construction activities likely to produce odor or dust.
   d. Identify areas of Project potentially affected, especially occupied areas.
   e. Evaluate potential problems by severity and describe methods of control.
   f. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent HVAC systems, types of filters, and schedule for replacement of filters.
   g. Describe cleaning and dust control procedures.
   h. Describe measures to be taken for protection of absorptive materials.
   i. Outline requirement for filtration for air handling equipment used during construction to use media with a minimum of MERV 8 at each return grill if permanently installed air handlers are used during construction.

D. Interior Finishes Installation Schedule: Identify each interior finish that either generates odors, moisture, or vapors, or is susceptible to adsorption of odors and vapors, and indicate air handling zone, sequence of application, and curing times.

E. Duct and Terminal Unit Inspection Report.

F. Air Contaminant Test Plan:
1. Identify:
   a. Testing agency qualifications.
   b. Locations and scheduling of air sampling.
   c. Test procedures, in detail.
   d. Test instruments and apparatus.
   e. Sampling methods.

G. Air Contaminant Test Reports:
1. Show:
   a. Location where each sample was taken, and time.
   b. Test values for each air sample; average the values of each set of three (3).
   c. HVAC operating conditions.
   d. Certification of test equipment calibration.
   e. Other conditions or discrepancies that might have influenced results.

H. Ventilation Effectiveness Test Plan:
1. Identify:
   a. Testing agency qualifications.
   b. Description of test spaces, including locations or air sampling.
   c. Test procedures, in detail; state whether tracer gas decay or step-up will be used.

d. Test instruments and apparatus; identify tracer gas to be used.
e. Sampling methods.

I. Ventilation Effectiveness Test Reports:
1. Include preliminary tests of instruments, apparatus, and test spaces.
2. Calculation of ventilation effectiveness, E.
3. Location where each sample was taken, and time.
4. Test values for each air sample.
5. HVAC operating conditions.
6. Other information specified in ASHRAE 129.
7. Other conditions or discrepancies that might have influenced results.

PART 2 PRODUCTS

2.1 MATERIALS

A. Low VOC Materials: See other Sections for specific requirements for materials with low VOC content.

B. Auxiliary Air Filters: MERV of 8, minimum, when tested in accordance with ASHRAE 52.2.

PART 3 EXECUTION

3.1 CONSTRUCTION PROCEDURES

A. Prevent the absorption of moisture and humidity by adsorptive materials:
1. Sequence the delivery of such materials so that they are not present in the building until wet work is completed and dry.
2. Deliver and store such materials in fully sealed moisture-impermeable packaging.
3. Provide sufficient ventilation for drying within reasonable time frame.

B. Begin construction ventilation when building is substantially enclosed.

C. If extremely dusty or dirty, work must be conducted inside the building:
1. Shut down HVAC systems for the duration.
2. Remove dust and dirt completely before restarting systems.

D. HVAC equipment and supply air ductwork may be used for ventilation during construction:
1. Operate HVAC system on 100 percent outside air, with 1.5 air changes per hour, minimum.
2. Ensure that air filters are correctly installed prior to starting use:
a. Replace filters when they lose efficiency (for corridor HVAC only).
3. Do not use return air ductwork for ventilation.
4. Seal return air inlets or otherwise positively isolate return air system to prevent recirculation of air:
a. Provide alternate return air pathways (for corridor HVAC only).

E. Do not store construction materials or waste in mechanical or electrical rooms.

F. Prior to use of return air ductwork without intake filters, clean up and remove dust and debris generated by construction activities:
1. Inspect duct intakes, return air grilles, and terminal units for dust.
2. Clean plenum spaces, including top sides of lay-in ceilings, outsides of ducts, tops of pipes, and conduit.

3. Clean tops of doors and frames.
4. Clean mechanical and electrical rooms, including tops of pipes, ducts, and conduit, equipment, and supports.
5. Clean return plenums of air handling units.
6. Remove intake filters last after cleaning is complete.

G. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.

H. Use other relevant recommendations of SMACNA IAQ Guideline for Occupied Buildings Under Construction for avoiding unnecessary contamination due to construction procedures.

END OF SECTION 01 35 46

SECTION 02 41 19 SELECTIVE DEMOLITION

PART 1 - GENERAL

A. Removal of designated building equipment and fixtures.
B. Removal of designated construction.
C. Disposal of materials.
D. Storage of salvaged materials.
E. Cap and identify utilities.
F. Temporary partitions to allow building occupancy.
G. Temporary fire protection.
H. Schedule of materials and equipment.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged.

B. Disposal: Removal off-site of demolition waste and subsequently deposit in landfill acceptable to authorities having jurisdiction.

C. Existing to Remain: Items of construction that are not to be removed and that are not indicated to be removed.

1.3 MATERIALS OWNERSHIP

A. Historic items, relics, cornerstones, commemorative plaques, tablets and similar objects encountered during demolition are to remain the Owner's property.

B. Carefully remove each item in a manner to prevent damage and deliver to Owner.

1.4 SUBMITTALS

A. Predemolition Photographs: Show conditions of exiting adjacent construction and site improvements that might be misconstrued as damaged by demolition operations. Submit before work begins.

B. Record Documents: Submit under provisions of Section 01 77 00. Accurately record locations of utilities and subsurface obstructions.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable codes for demolition work, safety of structure, electrical disconnection and reconnection dust control and disposal of materials.

B. Comply with California Fire Code (CFC), California Code of Regulations, (CCR) Title 24, Part 9, Chapter 14 - Fire Safety During Construction and Demolition.

C. Obtain required permits from authorities.

D. Notify affected utility companies before starting work and comply with their requirements.

E. Do not close or obstruct egress width to exits.

F. Do not disable or disrupt building fire or life safety systems without 3 day prior written notice to the Owner.

1.6 PROJECT CONDITIONS

A. Areas of buildings to be demolished will be evacuated and their use discontinued before start of work.

B. Owner will occupy building(s) adjacent to demolition area. Conduct demolition so owner's operation will not be disrupted.

C. Provide at least 72 hour notice to Owner of activities that will affect Owner's

operation.

D. Maintain access to existing walkways, exits and other adjacent occupied

facilities.

E. Owner assumes no responsibility for areas of buildings to be demolished.

F. Hazardous Materials:

1. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.

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1.7 SEQUENCING

A. Sequence work under the provisions of Section 01 11 00.

B. Owner will conduct salvage operations before demolition begins to remove materials and equipment that the Owner chooses to retain.

D. Notify Owner in writing 5 days in advance of any required work to be performed on a

weekend or holiday.

E. Coordinate utility and building service interruptions with Owner.

F. Schedule tie-ins to existing systems to minimize disruption.

G. Coordinate Work to ensure fire sprinklers, fire alarms, smoke detectors, emergency lighting, exit signs and other life safety systems remain in full operation in occupied areas.

1.9 PROJECT CONDITIONS

A. Conduct demolition to minimize interference with adjacent and occupied building areas.

B. Cease operations immediately if structure appears to be in danger and notify Architect. Do not resume operations until directed.

3. PART 3 - EXECUTION

3.1 EXAMINATION

A. Correlate existing conditions with requirements indicated.

B. Inventory and record condition of items to be removed and salvaged. Execute predemolition photographs.

D. Verify that hazardous waste remediation is complete.

3.2 PREPARATION

A. Existing Utilities: Locate, identify, disconnect and seal or cap off indicated utilities serving areas to be demolished.

B. Salvaged Items: Clean, pack and identify items for delivery to Owner.

C. Protect existing items which are not indicated to be salvaged, removed, or altered.

D. Erect and maintain weatherproof closures for exterior openings.

E. Erect and maintain temporary partitions to prevent spread of dust, fumes, noise, and smoke to provide for Owner occupancy as specified in Section 01 11 00.

3.3 DEMOLITION

A. Conduct demolition to minimize interference with adjacent [and occupied] building areas.

B. Cease operations immediately if structure appears to be in danger. Notify Architect. Do not resume operations until directed.

C. Maintain protected egress and access to the Work.

D. Maintain fire safety during demolition in accordance with CFC, Chapter 14.

E. Demolish in an orderly and careful manner. Protect existing supporting structural members.

3.4 SALVAGING OF DEMOLITION

MATERIALS

A. Clean salvaged items.

B. Pack or crate items after cleaning. Identify contents.

C. Store items in secure area until delivery to Owner.

D. Protect items from damage.

E. Install salvaged items to comply with requirements for new materials and equipment.

3.5 RECYCLING OF DEMOLITION MATERIALS

A. Separate recycled demolition materials from other demolished materials.

B. Stockpile processed materials on-site without intermixing with other materials.

C. Do not store materials within drip line of trees

D. Transport recyclable materials that are not indicated to be reused off Owner's property to recycling receiver or processor.

E. Recycled incentives received for building demolition materials shall be equally shared between Contractor and Owner.

F. Wood Materials: Sort and stack members according to size, type and length. Separate dimensional and engineered lumber, panel products, and treated wood materials.

G. Metals: Separate by metal type. Remove nuts, bolts and rough hardware. Sort structural steel by type and size.

H. Roofing: Separate organic and fiberglass shingles and felts. Remove nails, staples and accessories.

I. Doors and Hardware: Brace open end of door frames. Leave hardware attached to doors.

J. Carpet and Pad: Store clean dry carpet and pad in a closed container or trailer.

K. Gypsum Board: Stack large clean pieces on pallets. Remove edge trim and sort with metals. Remove and dispose of fasteners.

L. Acoustical Ceiling Materials: Stack panels and tiles on pallets. Separate suspension system and sort with metals.

M. Equipment: Drain tanks, piping and fixtures. Seal openings with caps or plugs.

N. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves and other components.

O. Lighting Fixtures: Remove lamps and separate by type.

P. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

Q. Conduit: Reduce conduit to straight lengths and store by type and size.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Except for items to be salvaged, reinstalled, or otherwise indicated to remain, remove demolished materials from Project site and legally dispose of them in an EPA – approved landfill.

B. Do not burn or bury materials on site.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition.

B. Remove temporary construction.

C. Return adjacent areas to condition existing before demolition operations began.

D. Leave site in a clean condition.

END OF SECTION 02 41 19

SECTION 23 00 00

GENERAL MECHANICAL PROVISIONS

PART 1 - GENERAL

1.01 GENERAL CONDITIONS:

A. The foregoing General and Special Conditions shall form a part of this Division with the same force and effect as though repeated herein. The provisions of this Section shall apply to all the Sections of Division 23.

1.02 CODES AND REGULATIONS:

A. All work and materials shall be in full accordance with current rules and regulations of applicable codes. Nothing in these drawings or specifications is to be construed to permit work not conforming to these codes. Should the drawings or specifications call for material or methods of construction of a higher quality or standard than required by these codes, the specifications shall govern. Applicable codes and regulations are:

1. California Code of Regulations – CCR:
   a. Title 8, Industrial Relations.
   b. Title 24, Building Standards.
2. California Building Code – CBC.
3. California Mechanical Code – CMC.
4. California Plumbing Code – CPC.
5. California Green Building Code.
6. Air Diffusion Council – ADC.
7. American Gas Association – AGA.
8. Air Moving and Conditioning Association – AMCA.
9. American National Standards Institute – ANSI.
10. Air Conditioning and Refrigeration Institute – ARI.
11. American Society of Heating, Refrigerating and Air Conditioning Engineers – ASHRAE.
12. American Society of Mechanical Engineers – ASME.
13. American Society for Testing and Materials – ASTM.
14. American Water Works Association – AWWA.
15. California Electrical Code – CEC.
16. National Electrical Manufacturers Association – NEMA.
17. National Fire Protection Association – NFPA.
18. Sheet Metal and Air Conditioning Contractors National Association – SMACNA.
19. Underwriters' Laboratory – UL.
20. Occupational Safety and Health Act - OSHA.

1.03 PERMITS AND FEES:

A. The Contractor shall take out all permits and arrange for all tests in connection with his work as required by local ordinances. All charges are to be included in the work. Permits for equipment connected to a particular system are to be considered as a part of the work included under each system; for example, permits for electric motor connection are part of electrical work, permits for domestic water or gas connections are part of plumbing work. All charges for service connections, meters, etc. by utility companies or districts shall be included in the work.

1.04 COORDINATION OF WORK:

A. Layout of materials, equipment and systems is generally diagrammatic unless specifically dimensioned. The actual locations of all materials, piping, ductwork, equipment, supports, etc. shall be carefully planned, prior to installation of any work, to avoid all interference's with each other, or with structural, electrical or architectural elements. Verify the proper voltage and phase of all equipment with the electrical plans. All conflicts shall be called to the attention of the Engineer prior to the installation of any work or the ordering of any equipment.

1.05 GUARANTEE:

A. Guarantee shall be in accordance with the General Conditions. These specifications may extend the period of the guarantee for certain items. Where such extensions are called for, or where items are normally provided with guarantee periods in excess of that called for in the General Conditions, the Certificate of Guarantee shall be furnished to the Owner through the Engineer.

1.06 EXAMINATION OF SITE:

A. The Contractor shall examine the site, compare it with plans and specifications, and shall have satisfied himself as to the conditions under which the work is to be performed. No allowance shall subsequently be made in his behalf for any extra expense to which he may be put due to failure or neglect on his part to make such an examination.

1.07 SUBMITTALS:

A. Submit shop drawings in accordance with Division 01.

B. Shop Drawings: Within 30 days of contract award, the Contractor shall submit six copies of shop drawings for all materials, equipment, etc. proposed for use on this project. Material and equipment shall not be ordered or installed until written review is processed by the Engineer. Any item omitted from the submittal shall be provided as specified without substitution. All shop drawings must comply with the following:

1. Shop drawings are required for all material and equipment items and shall include manufacturer's name and catalog numbers, dimensions, capacities, performance curves, and all other characteristics and accessories as listed in the specifications or on the drawings. Descriptive literature shall be current factory brochures and submittal sheets. Capacities shall be certified by the factory.
2. All shop drawings shall be submitted at one time in a neat and orderly fashion in a suitable binder with title sheet including Project, Engineer, and Contractor; Table of Contents; and indexed tabs dividing each group of materials or item of equipment. All items shall be marked with the specification paragraph number for which they are proposed. All equipment shall also be identified by the mark number as indicated on the drawings.
3. All capacities, characteristics, and accessories called for in the specifications or on the drawings shall be highlighted, circled or underlined on the shop drawings. Calculations and other detailed data indicating how the item was selected shall be included for items that are not scheduled. Data must be complete enough to permit detailed comparison of every significant characteristic which is specified, scheduled, or detailed.

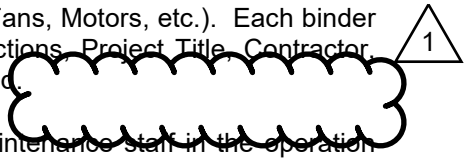
C. Substitutions: Manufacturers and model numbers listed in the specifications or on the drawings represent the standard of quality and the features desired. Unless otherwise noted, alternate manufacturers may be submitted for review by the Engineer. Calculations and other detailed data indicating how the item was selected shall be included. The Contractor shall assume full responsibility that substituted items or procedures will meet the specifications and job

requirements and shall be responsible for the cost of redesign and modifications to the work caused by these items.

D. Review: Submittals will be reviewed for general conformance with the design concept, but this review does not guarantee quantity shown, nor does it supersede the responsibility of the Contractor to provide all materials, equipment and installation in accordance with the drawings and specifications. The Contractor shall agree that shop drawing submittals processed by the Engineer are not Change Orders; that the purpose of shop drawing submittals by the Contractor is to demonstrate to the Engineer that the Contractor understands the design concept; that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use. The Contractor shall agree that if deviations, discrepancies or conflicts between shop drawings and design drawings and specifications are discovered either prior to or after shop drawing submittals are processed by the Engineer, the design drawings and specifications shall control and shall be followed.

1.08 OPERATION AND MAINTENANCE INSTRUCTIONS:

A. Submit one electronic pdf copy for review and after approved submit three hard copies of the Operation and Maintenance Instructions and Wiring Diagrams for all equipment and parts lists for all equipment, etc. shall be submitted to the Engineer. All instructions shall be clearly identified by marking them with the same designation as the equipment item to which they apply (e.g. AC-1). All wiring diagrams shall agree with revised shop drawings and indicate the exact field installation. All instructions shall be submitted at the same time and shall be bound in a suitable binder with tabs dividing each type of equipment (e.g. Fans, Motors, etc.). Each binder shall be labeled indicating "Operating and Maintenance Instructions, Project Title, Contractor, Date" and shall have a Table of Contents listing all items included.



B. Verbal: The Contractor shall verbally instruct the Owner's maintenance staff in the operation and maintenance of all equipment and systems. The controls contractor shall present that portion of the instruction that applies to the control system. The Engineer's office shall be notified 96 hours prior to this meeting.

C. Posted: The Contractor shall prepare operation instructions for all systems which shall be typewritten, reviewed by the Engineer, and mounted under glass adjacent to the appropriate temperature control panel. These instructions shall include applicable temperature control diagrams.

D. Acknowledgment: The Contractor shall prepare a letter indicating that all operation and maintenance instructions (printed, verbal and posted) have been given to the Owner, to the Owner's satisfaction. This letter shall be acknowledged (signed) by the Owner and submitted to the Engineer.

1.09 RECORD DRAWINGS:

A. The Contractor shall maintain a set of prints for the project as a record of all construction changes made. As the Work progresses, the Contractor shall maintain a record of all deviations in the Work from that indicated on the drawings. Final location of all underground work shall be recorded by depth from finished grade and by offset distance from permanent surface structures, i.e. buildings, curbs and walks. In addition, the water, gas, under-floor ducts, etc. within the building shall be recorded by offset distances from building walls. The original drawings will be made available to the Contractor from which he shall have a set of reproducible drawings made. The Contractor shall then transfer the changes, notations, etc. from the marked-up prints to the reproducible drawings. The record drawings (marked-up prints and

reproducibles) shall be submitted to the Engineer for review (as an alternative, the marked-up prints may be photocopied full size on reproducible stock).

PART 2 - PRODUCTS

2.01 PROTECTIVE COATING FOR UNDERGROUND PIPING:

A. All ferrous pipe below grade (except cast iron) shall have a factory applied protective coating of extruded high density polyethylene, 35 to 70 mils total thickness, X-Tru Coat, Scotchkote. All fittings and areas of damaged coating shall be covered with two layer double wrap of 10 mil polyvinyl tape to total thickness of 40 mils. Manville Corporation. Protective coating shall be extended 6" above surrounding grade.

2.02 CONCRETE ANCHORS:

A. Concrete Anchors shall comply with CBC 1901A.3. Steel stud with expansion anchor requiring a drilled hole; powder driven anchors are not acceptable. Minimum concrete embedment shall be 4-1/2 diameters. Minimum spacing shall be 10 diameters center-to-center and 5 diameters from center to edge of concrete. Maximum allowable stresses for tension and shear shall be 80% of the test report values "with special inspection". Anchors shall be Hilti, Philips - or Approved equal.

2.03 SEISMIC RESTRAINTS:

A. All mechanical systems (all equipment, piping, etc.) shall be provided with seismic restraints in accordance with "Guidelines for Seismic Restraint of Mechanical Systems” dated 2006 by SMACNA.

2.04 SYSTEM IDENTIFICATION:

A. Above Grade Piping: Provide markers on piping which is either exposed or concealed in accessible spaces. For piping systems, other than drain and vent lines, indicate the fluid conveyed or its abbreviation, either by preprinted markers or stenciled marking, and include arrows to show the direction of flow. Comply with ANSI A13.1 for colors. Locate markers at ends of lines, near major branches and other interruptions including equipment in the line, where lines pass through floor, walls or ceilings or otherwise pass into inaccessible spaces, and at 50' maximum intervals along exposed portion of lines. Marking of short branches and repetitive branches for equipment connections is not required.

B. Equipment: All equipment shall be identified with a plastic laminated, engraved nameplate which bears the unit mark number as indicated on the drawings (e.g. AC-1). Provide 1/2" high lettering, white on black background. Nameplates shall be permanently secured to the unit.

C. Valves: Provide valve tags on all valves of each piping system, excluding check valves, valves within equipment, shut-off valves at equipment and other repetitive terminal units. Provide brass tags or plastic laminate tags. Prepare and submit a tagged valve schedule, listing each valve by tag number, location and piping service. Mount in glazed frame where directed.

D. Controls: Label all panels, thermostats and by-pass timers with plastic laminated, engraved nameplate which bears the unit mark number as indicated on the drawings (e.g. AC-1). Provide 1/4" high lettering, white on black background. Nameplates shall be permanently secured to the unit.

2.05 EQUIPMENT SUPPORT FRAMES:

A. Unless specifically noted otherwise, it shall be the responsibility of Mechanical Contractor to furnish and install all support frames for its equipment.

PART 3 - EXECUTION

3.01 SCHEDULING OF WORK:

A. All work shall be scheduled subject to the approval of the Engineer and Owner. No work shall interfere with the operation of the existing facilities on or adjacent to the site.

3.02 CONDUCT OF WORK:

A. The Contractor shall have at all times, as conditions permit, a sufficient force of workmen and quantity of materials to install the work contracted for as rapidly as possible consistent with good work, and shall cause no delay to other Divisions engaged upon this project or to the Owner.

B. Mechanical Contractor shall arrange for all cutting necessary for the proper installation of its work, providing all sleeves and chases necessary. Cutting shall not be done in such a manner to impair the strength of the structure. Any damage resulting from work shall be repaired by the Contractor at his expense to the satisfaction of the Engineer.

C. Progressively, daily at the completion of each day's work, and at completion of the job, the Contractor shall thoroughly clean all of his work, removing all debris, stain and marks resulting from his work.

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3.03 EXCAVATION AND BACKFILL:

A. Excavation: Trenches are to be excavated to grade and depth established by drawings. Unless otherwise noted, minimum earth cover above top of pipe shall be 24", not including base and paving in paved areas. Width of trenches at top of pipe shall be a minimum of 16" plus the outside diameter of the pipe. Provide all shoring required by site conditions. Barrel of pipe shall have uniform support on trench bottom, hand excavate additional depth at bells, hubs and fittings. Where over-excavation occurs, provide compacted selected backfill to pipe bottom. Where ground water is encountered, remove to keep excavation dry, using well points and pumps as required.

B. Backfill:

1. Around Pipe and to One Foot Above Pipe: Material shall be river run sand or native granular free flowing material, free of clay lumps, silt or vegetable matter and shall have 100% passing through the No. 4 sieve and a maximum of 3% passing through the No. 200 sieve. Place carefully around and on top of pipe, taking care not to disturb piping. Consolidate with vibrator.
2. One Foot Above Pipe to Grade: Material to be sandy or silty loam, free of lumps, laid in 6" layers, uniformly mixed, to proper moisture and compacted to required density. If backfill is determined to be suitable and required compaction is demonstrated by laboratory test, water compaction in 6" layers may be used, subject to approval by the Engineer.
3. Remove all water sensitive settlement from trench backfill regardless of location and compaction requirements.

C. Compaction: Compact to a density of 95% within building and 90% outside building. Demonstrate proper compaction by testing at one-half of the trench depth. Perform three tests per 100' of trench.

3.04 OPENINGS, CUTTING AND PATCHING:

A. The locations and dimensions for openings through walls, floors, ceilings, foundations, footings, etc. required to accomplish the work under this Specification Division shall be provided under this Division. The actual openings and the required cutting and patching shall be provided. Coring through existing concrete or masonry walls, floors, ceilings, foundations, footings, etc., and saw cutting of concrete floors or asphaltic concrete required to accomplish the work under this Specification Division shall be provided under this Division. Patching of these surfaces shall also be provided. Cutting and coring shall not impair the strength of the structure. Any damage resulting from this work shall be repaired at the Contractor's expense to the satisfaction of the Engineer.

3.05 MANUFACTURER'S RECOMMENDATIONS:

A. All material, equipment, devices, etc., shall be installed in accordance with the recommendations of the manufacturer of a particular item. The Contractor shall be responsible for all installations contrary to the manufacturer's recommendations. The Contractor shall make all necessary changes and revisions to achieve such compliance. Manufacturer's installation instructions shall be delivered to and maintained at the job site through the construction of the project.

3.06 QUIETNESS:

A. Piping, ductwork and equipment shall be arranged and supported so that vibration is a minimum and is not carried to the building structure or spaces.

3.07 DAMAGES BY LEAKS:

A. The Contractor shall be responsible for damages to other work caused by leaks in the temporary or permanent piping systems prior to completion of work and during the period of the guarantee, and for damages to other work caused by disconnected pipes or fittings, and the overflow of equipment prior to completion of the work.

3.08 CLEANING:

A. Progressively and at completion of the job, the Contractor shall thoroughly clean all of his work, removing all debris, stain and marks resulting from his work.

*** END OF SECTION ***

SECTION 23 00 01

HEATING, VENTILATING AND AIR CONDITIONING

PART 1 - GENERAL

1.01 GENERAL CONDITIONS:

A. The foregoing Section 23 00 00, General Mechanical Provisions shall form a part of this specification.

1.02 SCOPE:

A. Included: Perform all work necessary and required to complete construction as indicated. Such work includes the furnishings of all labor, materials and services necessary for a complete, lawful and operating air conditioning, heating, ventilating system with all equipment as shown or noted on the drawings or as specified herein. The work includes, but is not necessarily limited to, the following:

1. Heating, ventilating and air conditioning equipment.
2. Air distribution system (Ductwork, Air Terminals, etc.).
3. System insulation.
4. Controls and control wiring and conduit for control wiring.

B. Work Specified Elsewhere:

1. Line voltage power wiring (60 volts or greater), motor starters in motor control centers, and disconnect switches are included in the electrical section.
2. Connection of condensate drains to equipment.
3. Access doors.

PART 2 - MATERIALS

2.01 DUCTWORK MATERIALS:

A. General: All ductwork materials shall have fire and smoke hazard ratings as tested under ASTM E-84 and UL-181 not exceeding a flame spread of 25 and smoke developed of 50. All ductwork shall be per Chapter 6 of the CMC.

B. Low Velocity Metal Ductwork: Metal ductwork shall be galvanized sheet steel, ASTM A527.

C. Low Velocity Flexible Ductwork: Insulated flexible ductwork. Continuous internal liner bonded to galvanized steel wire helix. One pound per cubic foot glass fiber insulation, R-8. Thermal conductivity shall not exceed 0.13 Btu/hr sq. ft.- degrees F at a mean temperature of 75°F. Seamless vapor barrier jacket. Each length shall have a factory installed metal sleeve at each end. Duct shall be capable of continuous operation at 1.5" of water static pressure and 4000 ft./ min. air velocity. Maximum length 5 ft., single piece at runouts to air terminals. Genflex, Lamborn or equal.

D. Spiral Duct: Ductwork shall be galvanized steel with uni-seal spiral seamlock and uni-seal fittings, ASTM A653. United McGill Corp or equal. All exposed spiral duct shall be painted, color selected by Owner.

E. Exterior Duct shall be single wall galvanized sheet steel, ASTM A527 with external insulation.

F. Bonding Adhesive: Durodyne WBG, Scotchgrip Adhesive 4230 or equal.

G. Duct Mastic: Minnesota Mining and Manufacturing Duct Sealer 800, Tuff-Bond No. 12, Glencoat Seal-Flex or equal.

H. Duct Joints:

1. As an option to joints and seams designated by SMACNA or shown on Drawings, the following systems may be used:
   a. Ducts with sides 24 inches to 48 inches, transverse duct joint system by Ductmate Jr., Nexus or equal (SMACNA "E" Type connection).
   b. Ducts 48 inches and larger, Ductmate Regular, Nexus (SMACNA "J" Type connection) or equal.

I. Fiber Tape: Mineral impregnated fiber tape and plastic activator-adhesive. Hardcast Inc., United McGill Uni-Cast or equal.

2.02 AIR TERMINALS AND DUCT FITTINGS:

A. Grilles: (Grilles, Registers and Diffusers)

1. Information on Drawings: Refer to the Air Distribution Schedule on the drawings for the list of grilles. Manufacturer's model numbers are listed to complete the description. Equivalent models of T & B, Krueger, Anemostat, Price, Titus or equal. Refer to the floor plans for neck size, CFM, air diffusion pattern, and fire damper, if required.
2. Performance: If, according to the certified data of the manufacturer of the proposed units, the sizes indicated on the drawings will not perform satisfactorily, the units shall be re-selected by the Contractor for the proper diffusion, spread, drop and throw.
3. Frame and Accessories: All supply, return, and exhaust grilles shall be provided with cushion heads and attachments to structure, unless otherwise noted. All surface mounted grilles shall have a perimeter gasket and flanged edge. All grilles shall have frames suitable for mounting in the surfaces designated by the architectural drawing, coordinate prior to ordering.
4. Finish: All ceilings and wall grilles shall have a paintable white finish unless otherwise noted. Interior components shall be flat black.
5. Gyms: Provide 12 Ga. wire safety cables for all overhead grilles in Gym.

B. Turning Vanes: Double wall, hollow metal, air-foil shape. Spacing in accordance with manufacturer's recommendations. Aero Dyne, HEP or equal.

C. Flexible Connection: UL listed neoprene coated 30-ounce fiberglass cloth. 3" metal, 6" fabric, 3" metal. Ventglas or equal.

D. Branch Duct Volume Damper: Volume control damper (VCD) in rectangular ducts shall be as follows: Opposed blade, 6” maximum blade width, 16-gage blade, 48” maximum length, nylon or oil impregnated bronze bearings, ½” diameter pin shaft, 16-gage channel frame, actuating rod and linkage out of air stream. VCD in round duct shall be as follows: Damper blade full height of branch and 1” less than branch width. All branch dampers shall have regulator with stamped steel handle, spring loaded shaft nut, cast body and serrated self-locking die cast core. Regulator for horizontal ducts overhead shall be mounted on sides or bottom of ducts. Secure a 12” length of brightly colored plastic ribbon to handle for ease of location. Where rectangular or round ductwork is insulated, slit insulation to allow handle to protrude. Ventlok 641 (with 607 end bearing for round ducts).

E. Fire/ Smoke Damper: Multi-blade construction in accordance with CBC & CMC. UL 555 and UL 555S labels. Blades shall have metal-to-metal seals and not rely on actuator torque to maintain leakage rating. Prefco, Air Balance, Ruskin, Greenheck 5020-1 with 5800MB2 power open/spring close operator, or equal.

F. Displacement Ventilation Diffusers: The perforated face diffusers shall be constructed with equalization baffles behind the operative diffuser faces for uniform, low velocity, distribution of supply air. Both the equalization baffles and faces shall be securely retained in the diffuser frames with no visible fasteners on the front or side panels. The diffuser frames shall be constructed of high strength aluminum extrusion. The operative faces shall be constructed of painted high-gauge steel. The paint shall be powder coated polyester, color selected by Architect. The diffuser shall be provided with concealed mounting brackets. Diffuser manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE Standard 70-1991. Provide and install 22 gauge solid steel face duct cover with extruded aluminum frame from top of diffuser to ceiling for all exposed diffuser/ duct installations, see plans.

G. Fire Damper: Dynamic rated fire dampers, U.L. 555 label. Prefco, Air Balance, Ruskin, Greenheck or equal.

H. Louvers: Refer to the Air Distribution Schedule on the drawings. Manufacturer's model numbers are listed to complete the description. Equivalent models of Ruskin, Greenheck, Dayton or approved equal. Contractor shall fabricate and provide 16 GA. galvanized perforated panel (50% Free Area) over exterior of all louvers and have field painted to match exterior wall. Refer to the floor plans for all sizes.

2.03 DUCTWORK INSULATION MATERIALS:

A. General: All ductwork insulation materials shall have fire and smoke hazard ratings as tested under ASTM E-84 and UL-181 not exceeding a flame spread of 25 and smoke developed of 50.

B. Fiber Glass Blanket for interior ducts shall be foil faced, 0.13 Btu/ hr – sq. ft. – degrees F conductivity at a mean temperature of 75 degrees F, R-8. CSG Insulation Corp., Schuller, Owens-Corning, Knauf or equal. Bonding Adhesive: Benjamin Foster 85-15 or equal.

C. Exterior duct shall be insulated with R-8 fiber glass banket, composed of glass fibers bonded together with a thermosetting resin and with a foil scrim kraft (FSK) or vinyl vapor-retardant facing or foil faced, R-8 and wrapped with all-service jacket facings (ASJ)

D. Alternate method of duct exterior protection can be application of Polyguard Alumaguard® self-adhering peel and stick flexible, zero-perm, weatherproof claddings over the duct insulation wrap.

2.04 PIPING MATERIALS:

A. Condensate Piping

1 Condensate piping shall be minimum ¾ inch PVC piping with a minimum of 1/8 inch slope per foot. Terminate condensate piping in an approved manner to tie into exisating sewer line as shown in plumbing drawings.

E. Miscellaneous Piping Items:

1. Pipe Support:
   a. Pipe Hanger: Adjustable split ring, swivel hanger and rod. Black malleable iron. Size and maximum loads per manufacturer's recommendation. Felt Lined, Kin-Line 450 F.
   b. Construction Channel: 12 gage 1-5/8" x 1-5/8" steel channel. Single or multiple sections. Self-locking nuts and fittings. Kin-Line, Unistrut.
2. Pipe Sleeves: 24 gage galvanized steel. Adjus-to-Crete #10 with #99 thimble for floors. #100 for walls.

2.05 EQUIPMENT:

A. General Requirements:

1. Capacity: Capacities shall be in accordance with schedules shown on drawings. Capacities are to be considered minimum.
2. Dimensions: Equipment must conform to space requirements and limitations as indicated on drawings and as required for operation and maintenance. Where Architectural screening is indicated, equipment shall not extend above or beyond screening. Equipment will not be accepted that does not readily conform to space conditions. Prepare and submit layout drawings for all proposed equipment (different than scheduled units) showing actual job conditions, required clearances for proper operation, maintenance, etc.
3. Ratings:
   a. Electrical: Electrical equipment shall be in accordance with NEMA Standards and UL or ETL listed where applicable standards have been established.
4. Electrical:
   a. General: Each item or assembly of items shall be furnished completely wired to individual terminal blocks for connection to single branch electrical circuit. All electrical accessories and controls required by equipment shall be furnished. Provide terminal blocks for controls and interlocks not included in equipment package. Manual and magnetic starters shall have ambient compensating running overcurrent protection in all ungrounded conductors. Magnetic starters shall be manual reset, shall have H-O-A switches and auxiliary contacts. Controllers and other devices shall be in NEMA 1 or 3R enclosures as applicable.
   b. Wiring: Conductors, conduit, and wiring shall be in accordance with Electrical Specifications. Individual items within assembly shall be separately protected with dead front, fused disconnect, fuse block, or circuit breaker for each ungrounded conductor, all accessible on operating side of equipment. Switches, contacts and other devices shall be in ungrounded conductors.
   c. Motors: Shall be rated, constructed and applied in accordance with NEMA and ANSI Standards without using service factor. Single-phase motor shall be of type to suit application. Three-phase motors shall be open drip proof, NEMA B design on pumps and fans, NEMA C on reciprocating equipment, sealed ball bearing, three-phase induction unless otherwise noted. Design shall limit starting inrush current and running current to values shown on drawings. Motors 1 horsepower and larger shall be the premium efficiency type, tested according to IEEE Standard 112, Method B. Motors exposed to weather shall be TEFC. Motors in a fan air stream shall be TEFC or TEAO. Vertical motors outdoors shall be ODP or TEFC and shall have rain caps.
   d. Starters: Motor starters shall be furnished for all equipment except where starter is in a motor control center as designated on the electrical drawings. Deliver starter to Electrical Contractor for installation and wiring.
   e. Control Voltage: Equipment connected to greater than 240 volts shall be provided with 120 volt control circuit from integral protected transformer if separate source is not indicated on plans. 240 volt control is acceptable if confined within control panel.
   f. Submittals: Included in shop drawings shall be internal wiring diagrams and manufacturer's recommend external wiring.
6. Fan Selection:
   a. Fan Curves: Performance curves shall be submitted for all units of 3000 CFM or greater. Operating point for forward curved fans shall be from point of maximum efficiency towards increased CFM limited by horsepower scheduled. Operating point for backward inclined fans shall be selected near point of maximum efficiency. Curves shall plot CFM verses static pressure with constant brake horsepower, RPM and efficiency lines.
   b. Static Pressure: Unless otherwise noted, pressure scheduled as external static pressure (ESP) includes all ductwork and accessory losses external to the unit housing. Unless otherwise noted, pressure scheduled as total static pressure includes

all ductwork, filter, coil, cabinet, damper and other accessory losses. Unless otherwise noted, pressure scheduled as duct static pressure includes all supply and return ductwork and accessory losses external to the unit housing and plenum (as applicable). The allowance for filter losses is 0.3" WC, unless otherwise noted. Submit itemized static pressure losses for all components.

7. Filters:
   a. General: Tested and rated in accordance with ASHRAE Standard 52.2 and Title 24, C.C.R. Furnish and install one complete change of all filters after air balance in completed and prior to acceptance. Provide pressure differential gage across all filter banks.
   b. Filter Media: 2" media. MERV-13. Clean filter resistance 0.25" water at 500 fpm. Throw-away frame. Class 2. Camfil Farr AP-Eleven.
   c. Pressure Differential Gage: Diaphragm actuated. 4" dial. Zero adjustment. Accuracy +/ - 2% of full scale. Range as required. Provide static pressure sensors, tubing and mounting brackets. Dwyer Series 2000. Mark gage to indicate filter replacement pressure, coordinate point with filter and equipment manufacturers.
8. Mixing Dampers: Opposed blade, 16-gage. Six-inch maximum blade width, 48" maximum length. Nylon or oil impregnated bronze bearings. One-half inch diameter pin shaft. 16-gage channel frame. One percent maximum leakage at 4" WC in accordance with AMCA 500 for outside air dampers. Actuating rod out of air stream. Arrow.
9. Sound Ratings: Shall be in accordance with ASHRAE 36-72. Sound ratings shall not exceed scheduled values.
10. Drives: Unless noted as direct connected, drives shall be V-belt, rated at 150% of motor horsepower. Multiple drive belts shall be matched set. Drive sheaves shall be dynamically balanced, adjustable, range +/ - 10%, selected at mid range. Adjustable relative movement shall be lockable to shaft. Belts shall be aligned within 1-1/2 degrees at all times. Open drives shall be provided with OSHA approved open mesh belt guards. Belt guards exposed to weather shall be weatherproof enclosure with louvered face for adequate ventilation. Driving motor shall be mounted on adjustable rails. T.B. Woods, Browning. Submit RPM range of driven machine with drive selection.

B. Packaged Heat Pump Unit:

1. General: Self-contained heating/cooling unit designed for outdoor installation. Factory assembled and tested. Provide all starters and relays required for operation. 24 volt control circuit from integral transformer. Weatherproof cabinet, galvanized steel with enamel finish. Drain pan. Multivane, centrifugal supply fan. ARI certified. Gas equipment AGA certified. Carrier. Unit shall use (R-410A) refrigerant. Unit shall be installed in accordance with the manufacturer's instructions. Unit must be selected and installed in compliance with local, state, and federal codes.

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2. Quality Assurance:

   Unit meets ASHRAE 90.1 minimum efficiency requirements. Unit shall be rated in accordance with AHRI Standards 210/240 (04-06 sizes) or 340/360 (07 size). Unit shall be designed to conform to ASHRAE 15. Unit shall be UL-tested and certified in accordance with ANSI Z21.47 Standards and UL-listed and certified under Canadian standards as a total package for safety requirements. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

   Unit shall be designed in accordance with ISO 9001, and shall be manufactured in a facility registered by ISO 9001:2015. Roof curb shall be designed to conform to NRCA Standards.

   Unit shall be subjected to a completely automated run test on the assembly line. The data for each unit will be stored at the factory, and must be available upon request. Unit shall be designed in accordance with UL Standard 1995, including tested to withstand rain. Unit shall be constructed to prevent intrusion of snow and tested to prevent snow intrusion into the control box up to 40 mph. Unit shake tested to assurance level 1, ASTM D4169 to ensure shipping reliability.

3 Delivery, Storage, and Handling:

Unit shall be stored and handled per manufacturer's recommendations. Lifted by crane requires either shipping top panel or spreader bars. Unit shall only be stored or positioned in the upright position.

4 Operating Characteristics:

Unit shall be capable of starting and running at 115°F (46°C) ambient outdoor temperature, meeting maximum load criteria of AHRI Standard 210/240 or 340/360 at ±10% voltage. Compressor with standard controls shall be capable of operation down to 40°F (4°C), ambient outdoor temperatures. Accessory winter start kit is necessary if mechanically cooling at ambient temperatures down to 25°F (–4°C). Unit shall discharge supply air vertically or horizontally as shown on contract drawings.

5 Unit Cabinet:

Unit cabinet shall be constructed of galvanized steel, and shall be bonderized and coated with a prepainted baked enamel finish on all externally exposed surfaces. Unit cabinet exterior paint shall be: film thickness, (dry) 0.003-in. minimum, gloss (per ASTM D523, 60°F/16°C): 60, Hardness: H-2H Pencil hardness.

Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 210/240 and or 340/360 minimum exterior sweat criteria. Interior surfaces shall be insulated with a minimum $^{1}/_{2}$-in. thick, 1 lb density, flexible fiberglass insulation, neoprene coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the heat compartment.

Base of unit shall have a minimum of four locations for thru-the-base gas and electrical connections (factory-installed or field-installed), standard.

Unit shall have base rails on a minimum of 2 sides. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging. Holes shall be provided in the base rail for moving the rooftop by fork truck. Base rail shall be a minimum of 16 gage thickness.

Condensate pan and connections shall be a sloped condensate drain pan made of a corrosion resistant material and comply with ASHRAE Standard 62. Use a $^{3}/_{4}$-in. 14 NPT drain connection, possible either through the bottom or side of the drain pan. Connection shall be made per manufacturer's recommendations. All unit power wiring shall enter unit cabinet at a single, factory prepared, knockout location. Standard unit shall have a thru-the-base electrical location(s) using a raised, embossed portion of the unit basepan.

Cabinet panels shall be easily removable for servicing. Unit shall have one factory installed, tool-less, removable, filter access panel. Panels covering control box, indoor fan, indoor fan motor, gas components (where applicable), and compressors shall have molded composite handles. Handles shall be UV modified, composite. They shall be permanently attached, and recessed into the panel. Screws on the vertical portion of all removable access panel shall engage into heat resistant, molded composite collars. Collars shall be removable and easily replaceable using manufacturer recommended parts.

6 Coils:

Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1775 psig. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig.

7 Refrigerant Components:

Refrigerant circuit shall include the following control, safety, and maintenance features:

Fixed cooling orifice metering system shall include a multiple feed distribution system that optimizes coil performance. Fixed heating orifice metering system shall include a multiple feed distribution system that optimizes coil performance.

Refrigerant filter drier shall be of solid core design. Service gage connections on suction and discharge lines. Pressure gage access through a specially designed access port in the top panel of the unit. Suction line accumulator to provide protection in all operating modes from cooling, heating and reverse cycle switching.

Compressors:

Unit shall use fully hermetic, heat pump duty scroll compressor on single circuit independent refrigeration circuit. Compressor motors shall be cooled by refrigerant gas passing through motor windings. Compressors shall be internally protected from high discharge temperature conditions. Compressors shall be protected from an over-temperature and over-amperage conditions by an internal, motor overload device. Compressor shall be factory mounted on rubber grommets. Compressor motors shall have internal line break thermal, current overload and high pressure differential protection. Crankcase heaters shall not be required for normal operating range, unless required by compressor manufacturer due to refrigerant charge limits. Compressor shall be of a single stage cooling capacity design.

8 Filter Section:

Filters shall be held in place by a pivoting filter tray, facilitating easy removal and installation. Shall consist of factory installed, low velocity, throw-away 2-in. thick fiberglass filters. Filters shall be standard, commercially available sizes. Only one size filter per unit is allowed.

9 Evaporator Fan and Motor

Direct Drive Evaporator fan motor shall be a ECM motor design with permanently lubricated bearings and thermal overload protection. Shall have slow ramp up to speed capabilities. Shall require no fan/motor belts for operation, adjustments and or initial fan speed set up. Shall be internally protected from electrical phase reversal and loss.

Evaporator Fan shall be single speed snd easily set with dedicated selection switch and adjustment pot on unit control board. Blower fan shall be a Vane Axial fan design with 75% less moving parts than a conventional belt drive system. Fan shall be constructed of a cast aluminum stator and high impact composite material on rotor and air inlet casing. It shall be constructed with a corrosion resistant material and dynamically balanced. It shall have slow ramp up to speed capabilities to help reduce sound and comfort issues typically associated with single speed belt drive systems. Unit shall be a slide out design with two screw removal.

Shall include an easily accessible unit Control Board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, DDC control options, and low and high pressure switches. Controller shall also provide an intuitive means to adjust the indoor fan speed through a simple switch and pot adjustment design.

10 Condenser Fans and Motors:

Condenser fan motors shall be a totally enclosed motor, use permanently lubricated bearings and have inherent thermal overload protection with an automatic reset feature. Shall be a direct-driven propeller type fan constructed of high impact composite mate-rial. Shall have high impact composite blades completely formed into one piece without blade fasteners or connectors and shall be dynamically balanced.

11 Automatic Shutoff: For units or zones providing air in excess of 2000 cfm, provide smoke detectors in supply air stream to automatically shut off all power to air moving equipment and alert fire alarm system when smoke is detected in accordance with CMC Section 608.

12 Economizer with Power Exhaust: Economizer shall be a modulating power exhaust type where the unit will exhaust at the minimum outside air setpoint and exhaust 100% during economizer mode. Economizer with power exhaust is shipped separately and shall be field installed and wired under this section.

a. Provide plastic air sampling tube to sense pressure in room for control of power exhaust. Tube shall be placed thru ceiling with escutcheon plate in room that unit serves.

b. Modulating Economizer Sequence of Operation:
The economizer system initially responds to a signal from the cooling thermostat and functions as a true first stage for cooling, while providing maximum fuel economy. The economizer is automatically locked out during the heating mode and holds the outdoor air damper at the minimum position settings.

During the occupied period, the discharge sensor provides a signal to the actuator during free cooling or economizer mode. The signal opens the economizer damper until the discharge temperature drops below 50 degrees F. At this time the signal causes the motor to drive the damper back to minimum position. As the discharge temperature climbs to 60 degrees F the motor will drive back open. During the occupied period, the actuator will not close past the minimum position.

If the fully open actuator cannot satisfy the space demand, mechanical cooling is sequenced on.

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During the unoccupied period, the actuator will override minimum position setting and drive fully closed. On a loss of power, the actuator will spring return fully closed.

When in heating operation, or when outdoor air temperature or enthalpy conditions are high, economizer operation is locked out, and actuator is held at minimum position.

The staging relay is used when the first stage compressors must provide mechanical cooling when assisting the economizer.

The staging relay can be omitted when the second stage compressors can be used to assist the economizer with mechanical cooling.

c. CO2 Sensor Economizer Integration:
When a CO2 sensor is used in conjunction with an economizer, the minimum position jumper between P and P1 on the logic is removed, and the sensor connected. When the CO2 sensor gets a reading higher than the setpoint, the sensor will signal the logic to modulate the o/a dampers open. The HVAC unit functions as if there is no economizer during the CO2 call for fresh air.

When the CO2 level falls below the setpoint, the damper modulates back to the minimum position.

d. Modulating Power Exhaust Sequence of Operation:
When the outside air damper on an economizer starts to open, extra air is introduced the system. As this happens, a mercury switch mounted on the economizer closes. This causes a switch to close on the variable speed controller, allowing high voltage power to be sent to an exhaust motor and blower.

The mercury switch is adjusted to close at the 1% outside air damper position.

The power exhaust is a centrifugal blower power exhaust. The power exhaust uses an adjustable transducer (0-10 VDC) to accurately compare the space pressure to atmospheric pressure, and adjust the amount of exhaust air accordingly. The exhaust volume adjustment is accomplished using a variable frequency drive with a built-in PID control to maintain a field adjustable pressure set point.

OR

Economizer shall be a modulating gear driven type where the outside air will modulate from closed to minimum outside air setpoint and 100% during economizer mode. Economizer is shipped separately and shall be field installed and wired under this section.

13 Guarantee: Provide 5 year extended parts warranty on the condenser coil and compressor. Provide Herosite coating on condenser coils.

PART 3 – EXECUTION

3.01 DUCTWORK INSTALLATION:

A. General:

1. Standards: Unless otherwise noted, all ductwork shall be constructed and installed in accordance with current SMACNA "HVAC Duct Construction Standards". Ductwork and accessories shall be installed in a manner to prevent vibration and rattling.
2. Seismic bracing: All ducts shall be braced and supported per SMACNA Guidelines for “Seismic Restraints Manual for Mechanical Systems” dated 1998, including Appendix E.
3. Duct Access Doors: Provide access doors as required to adjust equipment and dampers.
4. Flexible Connections: Connections of ductwork to all equipment shall be with 6" (min.) flexible connection. Install with ample slack and uniform gap after deflection of vibration isolators. There shall be no metal to metal contact across flexible connection. Protect outdoor connections with weatherproof metal shroud on top and sides, no metal-to-metal contact. Provide at all seismic joints.
5. Ducted Returns: All air handling that is not directly located in the space that it serves shall have ducted returns.
6. Open ends of ductwork shall be covered during construction to keep inside clean.

B. Low Velocity-Low Pressure (up to 2000 ft/ min; up to 2.0 in. water):

1. Sheet Metal Ductwork:
   a. Ells: Ells with less than standard radius and square ells shall be fitted with turning vanes.
   b. Tees: Tees shall be straight tap-in with extractor or 45 degree takeoff, as shown on drawings.
   c. Duct Joints: Seal duct joints airtight with fiber tape and adhesive per manufacturer's printed instruction. Ducts in weather shall be sealed air and water tight with duct mastic before closing and taping.
      i. Where Ductmate type joints are used, the manufacturer's designated procedure shall be followed. Ductmate joints on roof shall have continuous cleat on top duct flange to prevent water from collecting on gasket.
   d. Dampers: Install volume control damper and damper regulator in all branch ducts.
   e. Duct dimensions shown on drawings for lined ducts, are clear net openings inside of lining.
   f. Top of ducts exposed to weather shall be cross broken and sloped slightly to each side to allow rain water to run off. Ducts that do not drain off top will be rejected and need to be replaced at contractors’ expense.
2. Flexible Glass Fiber Ductwork: Hangers shall be 2" wide metal straps spaced to prevent sagging, 3 feet spacing maximum. Insert 6" wide fiberglass pad between duct and hanging strap. All joints and fittings shall be sheet metal and shall be installed with metal bands or 3 (min) self-tapping screws and fiber tape. Maximum length of flexible duct shall be 5 ft. Single piece minimum length shall be 3 ft. Minimum turn radius shall be in accordance with

SMACNA Standards (turn radius to duct centerline not less than 1.5 times the duct diameter).

3.02 AIR TERMINALS AND DUCT FITTINGS INSTALLATION:

A. General: Unless otherwise noted, all air terminals and duct fittings shall be installed in accordance with current SMACNA "HVAC Duct Construction Standards", details on drawings and manufacturers instructions. Terminals and fittings shall be installed in a manner to prevent vibration and rattling.

B. Fire Smoke Damper: Fire smoke dampers shall be installed in accordance with their State Fire Marshal approval and the manufacturer's recommendations.

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3.03 DUCTWORK INSULATION INSTALLATION:

A. General: All supply and return sheet metal ductwork shall be insulated.

B. Concealed Ductwork: Wrap ductwork with fiberglass blanket lapped 2" minimum. Secure with foil tape at all joints for a complete vapor barrier.

C. Acoustic Lining: All ductwork in equipment rooms, where exposed to weather, and elsewhere as indicated on drawings, shall have acoustic lining. Increase each sheet metal dimension to accommodate lining and maintain clear inside duct dimensions shown on drawings. Apply lining with bonding adhesive in accordance with manufacturer's recommendations and also secure with mechanical fasteners in accordance with SMACNA Standards. Seal exposed edges of lining with bonding adhesive.

3.06 EQUIPMENT INSTALLATION:

A. General: It shall be the responsibility of the contractor to insure that no work done under other specification sections shall in any way block, or otherwise hinder access panels or diminish the effectiveness of equipment vibration isolation.

B. Connections to Equipment: Where size reductions are required for connections to equipment, they shall be made immediately adjacent to the equipment and, if possible, inside the equipment cabinet. Connections made to equipment mounted on vibration isolators shall be with flexible connectors, installed adjacent to equipment.

C. Start Up: Engage manufacturer or factory-authorized service representative to perform start up supervision. Manufacturer shall provide on-site start up and commissioning assistance through job completion. Complete installation and start up checks according to manufacturer’s written instructions.

3.07 TEMPERATURE CONTROL SYSTEM:

A. Thermostats shall have the capability of terminating all heating at a temperature of no more than 70 degrees F, or terminating all cooling at a temperature of no less than 78 degrees F, and to provide a temperature range of up to 10 degrees F between full heating and full cooling. Thermostats shall be 7 day programmable, Carrier, Robertshaw or equal with sub-base capable of battery back up or capacitor to retain program in the event of a power outage. All control wiring, regardless of voltage, shall be installed in conduit.

3.09 SYSTEM AIR BALANCE:

A. Scope: Provide services necessary to initially deliver the air quantities shown on the plans and finally to balance for uniform temperature in the spaces served. Adjust all elements in grilles and diffusers for proper air distribution and to minimize drafts. Submit final Air Balance Report for approval before final completion of the construction contract. Comply with SMACNA manual for the balancing and adjustment of air distribution systems.

B. As a minimum, the balance report shall include CFM and neck size at each supply, return and exhaust grille, total CFM and external static pressure for all air moving equipment, and name plate and actual motor amps for indoor air fans.

C. As a part of the work of this contract, THIS DIVISION shall make any changes in the pulleys, belts, and dampers or the addition of dampers required for correct balance as recommended by air balance agency, at no additional cost to Owner.

OR

A. Scope: Provide the services of a qualified independent test and balance agency certified by the Associated Air Balance Council (AABC) or The National Environmental Balancing Bureau (NEBB) to test, adjust and balance, retest, and record performance of the system to obtain design quantities as specified. Balancing contractor must also be TABB certified and have a C-20 license.

B. Qualifications: Prior to commencing work, the agency shall be approved by the Owner's Representative.

C. Instruments: All instruments shall be accurately calibrated; calibration histories shall be available for examination. Application of instrumentation shall be in accordance with AABC standards.

D. Procedure: General: Balanced quantities shall be plus 10%, minus 10% of design quantities. All name-plate data, manufacturer, model, and serial numbers shall be recorded for each item tested.

E. Extended Warranty: The test and balance agency shall include an extended warranty of 90 days after completion of test and balance work, during which time the Owner's Representative at his discretion may request a recheck or resetting of any item or items in test report. The agency shall provide technicians to assist the Owner's Representative in making any tests he may require during this period of time.

F. Air Balance Procedure (for each Air Handling System):

1. All air filters shall be clean when air balance is performed.
2. Provide a sketch of the equipment showing exactly where all pressure readings were taken.
3. Adjust blower RPM to design requirements.
4. Record motor full load amperes.
5. Make pitot tube traverse of main supply and return ducts and obtain design CFM at fans.
6. Record system static pressures, inlet and discharge.
7. Record filter quantity, size(s) and pressure drop across filter(s) at each filter bank.
8. Adjust system for design CFM recirculated air.
9. Adjust system for design CFM outside air.
10. Record entering air temperatures. (DB heating, DB and WB cooling.)
11. Record leaving air temperatures. (DB heating, DB and WB cooling.)
12. Adjust all main supply and return air ducts to design CFM.
13. Adjust all zones to design CFM, supply and return.
14. Adjust all diffusers, grilles and registers to plus 10%, minus 10% of design requirements.

15. Adjust CFM at all exhaust fans, make-up units, etc. (high and low speed, where applicable). Record applicable data from items 1 through 11 above.
16. Each grille, diffuser and register shall be identified as to location.
17. Verify proper diffusion pattern for all ceiling grilles and that all sidewall grilles are set for 5 degrees downward deflection unless otherwise noted. Make a notation of any that are not set properly.
18. Size, type and manufacturer of diffusers, grilles, registers and all tested items shall be identified and listed. Manufacturer's ratings shall be used to make required calculations on all items.
19. Readings and tests of diffusers, grilles, and registers shall include required FPM velocity and test resultant velocity, required CFM and test resultant CFM after adjustments.
20. In cooperation with the control manufacturer's representative, set adjustments of automatically operated dampers to operate as specified. Testing agency shall check all controls for proper calibrations and list all controls requiring adjustment by control installers.
21. All diffusers, grilles and registers shall be adjusted for required air patterns and to minimize drafts.
22. As a part of the work of this contract, THE AIR CONDITIONING CONTRACTOR shall make any changes in pulleys, belts, dampers or the addition of dampers cleaning of insect screens and replacement of filters required for correct balance as recommended by air balance agency, at no additional cost to Owner.
23. Set, test and adjust packaged heating/ cooling unit economizer operation in cooperation with controls contractor. Record minimum and maximum outside and exhaust airflows.

G.

I. Acoustic Performance Testing: Provide acoustic performance testing in accordance with the requirements of EQ3.0 of the "California Criteria for High Performance Schools, Best Practices Manual, 2009 Edition".
    1. Maximum Background Noise Level: Unoccupied classrooms must have a maximum background noise level of no more than 45 dBA LAeq. The standard anticipates two primary noise sources, steady HVAC equipment noise and the usually unsteady exterior environmental noise. Where the measured ambient noises due to sources other than HVAC are within 5 dB of the measured overall noise (HVAC and exterior intrusive noise) a measurement of at least ½ hour duration shall be made in at least two classrooms in each building in the worse case (noisiest) locations on the school site during normal school days and hours.
        a. To evaluate the significance of intrusive exterior noise, a 30-minute Equivalent Sound Level (LAeq30, in general conformance with ANSI S12.60-2002, Annex E3) measurement shall be made in the classroom that is subjectively assessed to represent the worse case exposure to exterior noise, with the HVAC system not in operation. This Leq30 measurement shall be repeated with the HVAC in operation. If the second "HVAC-on" sound level is more than 5 dB greater than the initial "HVAC-off" measurement, exterior noise intrusion shall be deemed "not significant".
        b. Where intrusive exterior noise has been deemed "not significant" short-term (15 second) A-weighted sound level measurements shall be made in each classroom with the HVAC systems in operation. Where exterior intrusive noise has been deemed "significant" (per the evaluation method noted above), LAeq30 sound level measurements shall be made in each classroom with the HVAC system in operation. In either case, where classrooms are served by variable-air-volume systems, the systems shall be operated at maximum nominal flow (typically by means of varying the thermostat set point).
        c. Where exposure to exterior noise varies significantly between groups of classrooms (e.g. one side of a classroom wing adjacent to a street, the other side facing away), separate evaluations of exterior noise significance can be conducted to limit the need for LAeq30 measurements.
    2. Maximum Reverberation: Classrooms less than 10,000 cubic feet must have a 0.6-second maximum (unoccupied) reverberation time and classrooms with volumes between 10,000 cubic feet and 20,000 cubic feet must have a 0.7-second maximum (unoccupied, furnished,

and fitted-out) reverberation time. (ANSI Standard S12.60-2002). The reverberation times shall be measured in each classroom in three octave bands with center frequencies of 500, 1000, and 2000 Hz. The arithmetic average of the three measured values shall be compared to the standard.

*** END OF SECTION ***

SECTION 26 05 33 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of this Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Conduit and fittings.
2. Outlet boxes.
3. Weatherproof outlet boxes.
4. Junction and pull boxes.
5. Floor boxes.
6. Cabinets, termination cabinets.
7. Gutters.

B. Related Work:
1. Installation of all wire, cable, conductor, boxes/gutters, pull ropes, fiber optic cable raceway, conduit, innerduct, cable sleeve and duct as described on the plans and/or as specified here-in. This scope shall include pathways to be installed underground onsite and offsite, underslab, above grade, both concealed and exposed, overhead concealed and exposed as appropriately applied. Raceways/boxes shall be installed in accordance with their intended and allowed uses and as specified here-in whichever is more restrictive. Size and capacity of all raceway/boxes shall be as specified here-in or as depicted on the drawings, but shall not be less than that required by code. Larger raceway sizes may be specified than code would permit. The specifications shall govern.
2. Listed products for termination, coupling, extending, benching supports of raceways shall be used.
3. Raceways/boxes described by this section shall include, but not be limited to, power for site utilities and lighting, site and building communications, controls, fire alarm, data system, power distribution, lighting, lighting controls, video, intercom, and other building low voltage/communications systems controls as may be required.
4. Protection of and cleanliness of pathways and raceways must be assured during the construction process in order to eliminate the possibility of debris entering the conduit, duct, pathway resulting in decreased wire capacity and potential damage to installed conductors and cables.
5. Pathways are shown in a diagrammatic way and are generally accurate as to routing, however, it is the Contractor’s responsibility as a means and methods process to coordinate with all other trades that require space within a building. The Contractor shall obtain approval for installation of raceways routing through structural footings, retaining walls, columns, beams, purlins, grade beams, etc.
6. It is the Contractor’s responsibility to insure that all raceway and boxes systems penetrate fire assemblies and sound rated assemblies in an approved manner using the appropriate and listed products for the purpose.
7. Minimum conduit size shall be 3/4" except if plan shows or code requires larger size. Exception: Use minimum 1" for underslab and below grade applications outside of building exterior walls.
8. All electrical systems shall be installed in an approved conduit system. This shall include but not be limited to all systems described in Section B.3 above.
9. All line voltage wiring above-grade within the building shall be installed in metallic

conduit.

10. Empty or future conduits shall be properly plugged with plastic caps or inserts with a 3/8” polyethylene pull rope. Plastic or "duct" tape will not be acceptable.
11. All low voltage systems including data, voice, intercom, fire alarm, public address, etc. shall be in raceways separated from line voltage cabling. Voice / Data and Direct Digital Control (DDC) systems for HVAC cabling shall be routed as specified in Section 27 41 16 and 23 09 23 respectively, and as recommended by EIA/TIA standards. It shall be the contractor’s responsibility to provide raceway down walls to outlet boxes and to provide sleeves across inaccessible ceiling spaces.
12. Underground conduits entering building shall have the open end of conduit within building above the elevation of the conduit outside the building such that water cannot enter building through conduit. If such a condition exists, a pull box outside of building footprint shall be installed in conduit route before conduit enters building whereby top of pull box is below finish floor of building and moisture may exit box before entering building.
13. No single conduit run of any type shall exceed 300 degrees of radius bend from termination box to termination box.
14. Separate Raceway System - Provide a separate raceway system for each of the following systems installed. Do not combine different systems into a raceway or cable tray system, unless otherwise noted or allowed. Mechanical controls and raceway shall be provided by others in separate raceway from the below systems:
    a. Fire Alarm.
    b. Line Voltage.
    c. All other low voltage systems provided by electrical contractor.
15. Spare, Future Conduits: Conduits labeled conduit only, spare, or for future use, shall be provided with a pullrope, capped at each end, labeled as spare with destination marked, and turned over to the Owner in an unused state. Contractor shall not utilize these conduits for the installation of cabling or conductors as part of this scope of work. Contractor to verify and install at no additional cost to the Owner, additional conduits as required for the installation of the systems being installed.
16. Outlet System: Provide electrical boxes and fittings as required for a complete installation. Including but not limited to outlet boxes, junction boxes, pull boxes, bushings, locknuts, covers and all other necessary components.
17. Code Compliance: Comply with CEC as applicable to construction and installation of electrical boxes and fittings and size boxes according to CEC 312, 314 and 366 except as noted otherwise.
18. Outlets to be flush mounted: Maintain integrity of insulation and vapor barrier. Unless otherwise noted, flush mount all outlet boxes.
19. Provide putty pads of proper type around outlet boxes and/or as detailed on plan to meet sound transmission restrictions and fire ratings of walls.

1.3 SUBMITTALS

A. Provide Product Data for the Following Equipment:
1. Conduit and fittings.
2. Outlet boxes.
3. Weatherproof outlet boxes.
4. Junction and pull boxes.
5. Floor boxes.
6. Cabinets, termination cabinets.
7. Gutters.
8. Putty pads.
9. Raceways

1.4 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Conform to requirements of the CEC, latest adopted version with amendments by local AHJs.
   2. Furnish products listed by UL or other independent and nationally recognized testing firm.

PART 2 PRODUCTS

2.1 MATERIALS

A. Heavy wall Rigid Non-Metallic Conduit, shall be PVC schedule 40 manufactured in accordance with NEMA Standard TC-2, UL-651 and WC 1094A specifications.

B. Extra heavy wall non-metallic conduit, shall be PVC schedule 80 manufactured in accordance with NEMA Standard TC-2, UL-651 and WC 1094A specifications.

C. Galvanized Rigid Steel (GRS) conduit shall be hot dipped galvanized, zinc coated and shall comply with Underwriters Laboratories UL-6, ANSI Specification C-80.1 and Federal Specification WW-C-581E.

D. Electrical Metallic Tubing (EMT) shall be zinc coated, with a protective coating applied to the inside surface and shall comply with Underwriter Laboratories UL-797 ANSI Specification C-80.3 and Federal Specification WW-C-563A.

E. Electrical Non-Metallic Tubing (ENT), shall be listed to requirements of U.L. 1653, in accordance with CEC Article 362, and meet requirements of BI National Standard CAN/CSA- C22.2 No. 227.1-U.L. 1653. ENT shall be rated for 90 degrees C conductors and shall be recognized for use in 2-hour fire resistance non-load bearing and load bearing wall assemblies. ENT shall be recognized for through-penetration firestop systems as classified to meet U.L. and ICC building codes. ENT shall only be allowed for data cabling systems and will not be permitted for Fire Alarm or line-voltage systems.

F. Flexible Metal Conduit (FMC) shall be continuous wound reduced wall galvanized steel produced to UL standards.

G. Liquid tight flexible metal conduit shall have a thermoplastic cover over a galvanized steel core containing an integral copper ground in sizes to 1 1/4" and shall be in compliance with UL standards and CEC Article 350.

H. Wire basket tray shall be 12” wide with 4” side rails minimum unless otherwise noted. It shall be U.L. listed and use listed connectors, elbows, tees, etc. and be cut and installed using listed equipment. Material shall be zinc electroplated steel.

I. Cable runway tray shall be 12” wide with 4” side rails minimum unless otherwise noted. It shall be U.L. listed and use listed connectors, elbows, tees, etc. Material shall be hollow steel with gray painted finish.

J. Manufacturers:
   1. Outlet Boxes: Bowers, Raco, Orbit, Steel City or equal.
   2. Weatherproof Outlet Boxes: Bell, Red Dot, Carlon or equal.
   3. Floor Boxes: Wiremold/Walker, Hubbell, Steel City, or equal.
   4. Junction and Pull Boxes: Circle AW, Hoffman, Wireguard or equal.
   5. Box Extension Adapter: Bell, Red Dot, Carlon or equal.
   6. Conduit Fittings: O-Z Gedney, Thomas & Betts, Raco, Crouse Hinds, or equal.
   7. Putty pads: 3M, Hilti, or equal.

8. Heavy wall rigid non-metallic conduit, Carlon, Certainteed, R&G Sloane or equal.
9. Extra heavy wall non-metallic conduit, Carlon, Certainteed, R&G Sloane or equal.
10. Galvanized Rigid Steel (GRS) conduit shall be hot dipped galvanized, zinc coated and shall comply with Underwriters Laboratories UL-6, ANSI Specification C-80.1 and Federal Specification WW-C-581E.
11. Electrical Metallic Tubing (EMT) shall be zinc coated, with a protective coating applied to the inside surface and shall comply with Underwriter Laboratories UL-797 ANSI Specification C-80.3 and Federal Specification WW-C-563A.
12. Electrical Non-Metallic Tubing (ENT), shall be listed to requirements of U.L. 1653, in accordance with CEC Article 362, and meet requirements of BI National Standard CAN/CSA-C22.2 No. 227.1-U.L. 1653. ENT shall be rated for 90 degrees C conductors and shall be recognized for use in 2-hour fire resistance non-load bearing and load bearing wall assemblies. ENT shall be recognized for through-penetration firestop systems as classified to meet U.L. and CBC building codes.
13. Flexible Metal Conduit (FMC), Alflex, American Flexible Conduit or equal.
14. Liquid tight flexible metal conduit, Anacanda (type UA), Electri-flex Liquatite or equal.
15. Floor Boxes, Single Gang, Walker/Wiremold 880 CS Series or approved equal.
16. Floor Boxes, Multiple Gang, Walker/Wiremold RFB Series or Walker Omnibox multi-service floor box with carpet plates, and/or water resistant device covers.
17. Masonry Boxes, outlets in concrete, Raco Series 690 or equal.
18. Wire basket tray, B-line, GS Metals, Cablofil, Chatsworth, FlexTray or equal.
19. Cable runway tray, B-line, CPI, Homaco, Chatsworth, FlexTray or equal.

2.2 OUTLET BOXES

A. NEMA 1 gutter, junction and pull boxes shall be fabricated from code gage steel finished in grey enamel with screw cover fronts and concentric knockouts in all sides.

B. NEMA 3R gutter, junction and pull boxes shall be fabricated from code gage galvanized steel with screw cover fronts and concentric knockouts in the bottom only. Any penetrations to the side, top or back shall be weatherproofed in an approved manner such as “MYERS” gasketed type hub or equal.

C. Steel outlet boxes and plaster rings shall be galvanized rigid assemblies, either one piece pressed or factory welded construction containing the size and number of knockouts required. Steel outlet boxes shall be manufactured, sized and installed in accordance with CEC Article 314. Device Outlet: Installation of one or two devices at common location, minimum 4” square, minimum 1 1/2" deep. Single or 2 gang flush device plaster ring. Raco or equal.

D. Luminaire Outlet: minimum 4” square with correct plaster ring depth, minimum 1 1/2” deep with 3/8” luminaire stud if required. Provide proper depth plaster ring on bracket outlets and on ceiling outlets.

E. Construction: Provide galvanized steel interior outlet wiring boxes, of the type, shape and size, including depth of box, to suit each respective location and installation; constructed with stamped knockouts in back and sides, and with threaded holes with screws for securing box covers or wiring devices. Boxes shall be properly secured to the structure such that they are flush with the finish surface. Boxes shall be made structurally secure by means of the proper fastening devices.

F. Accessories: Provide outlet box accessories as required for each installation, including mounting brackets, wallboard hangers, extension rings, plaster rings, luminaire studs, cable clamps and metal straps for supporting outlet boxes, compatible with outlet boxes being used and meeting requirements of individual wiring situations.

2.3 JUNCTION AND PULL BOXES

A. Construction: Provide galvanized sheet steel junction and pull boxes, with screw-on covers; of the type shape and size, to suit each respective location and installation; with welded seams and equipped with steel nuts, bolts, screws and washers.

B. Location:
1. Install junction boxes above accessible ceilings for drops into walls for receptacle outlets from overhead.
2. Install junction boxes and pull boxes as required to facilitate the installation of conductors and limiting the accumulated angular sum of bends between boxes, cabinets and appliances to 300 degrees.
3. Locations: Junction boxes shall be located only where necessary and only in equipment rooms, closets, and accessible attic and underfloor spaces. A horizontal distance of 24” shall separate outlet boxes on opposite sides of occupancy separation walls, fire-rated walls or partitions.
4. Labeling: Junction box covers shall be marked with indelible ink indicated the circuit numbers passing through the box.

2.4 CONDUIT FITTINGS

A. Requirements: Provide corrosion-resistant punched-steel box knockout closures, conduit locknuts and plastic conduit bushings of the type and size to suit each respective use and installation.

B. Steel boxes may allow for field knock-out modifications, but shall in all other ways conform to code requirements.

2.5 FLOOR BOXES - SINGLE GANG

A. Construction: Deep cast iron fully adjustable before and after concrete pour with all required components for complete activation. Verify required components for application of service fittings, covers, monuments, and the like, attached to floor boxes.

B. Activations:
1. Flush: Provide brass duplex or single signal cover, hinged with set screw lock. Carpet or tile finish ring.
2. Monuments: Provide stainless steel monuments with power receptacle or data grommet as noted.
3. Coordinate specific application of systems as noted on Drawings.

2.6 FLOOR BOXES - MULTIPLE GANG

A. Construction: Deep cast iron, fully adjustable before and after pour. Equal to Walker/Wiremold RFB Series or Walker Omnibox multi-service floor box with carpet plates, and/or water resistant device covers. Verify color. Partition for different power or signal applications. Provide required power receptacle devices and signal grommets or receptacles as noted. Flange typeshall be compatible with floor covering for either carpet or vinyl as required and shall be brass type not polycarbonate.

B. Floor mounted boxes shall be water tight and cast iron when installed in grade level concrete slab floor, fully adjustable with interior and exterior leveling screws. Receptacle flange shall be brass with a duplex lift lid. Flange type shall be compatible with floor type. Before installation, coordinate exact location with Architect.

2.7 PUTTY PADS

A. Intumescent moldable firestop putty designed to protect electrical outlet boxes. 3M Fire Barrier Moldable Putty Pads MPP+, firestop tested up to 4 hours in accordance with ASTM E814 (UL 1489).

PART 3 EXECUTION

1
Addendum 1

3.1 INSTALLATION

A. Conduit systems listed below are for use in installations where they are permitted to be used by CEC and/or other occupancy restrictions. The below installation methods do not intend to suggest that these materials be installed in conflict with any applicable code. Special attention to applications shall be made in building types such as wet location, hazardous locations, assembly occupancy and multi-story, but not limited to these. Requirements which are more restrictive than the CEC may be called for by the drawings and / or these specifications. These requirements must be adhered to. The Electrical Contractor shall be responsible to use the proper conduit system for the application. Exposed conduit is not allowed below ceilings or above slab of floor, without prior approval from Electrical Engineer. All conduits shall be concealed except in electrical and telecommunication rooms or where shown to be surface mounted. Exposed conduit (where allowed) shall be run square and plumb with building lines in an approved manner. Support roofmount conduits, where allowed, with minimum 12” wide approved rooftop supports (B-Line Durablok, or approved equal) unless otherwise detailed in roof requirements or as specified in roofing specification. Strap conduits to blocks with proper sized conduit straps. Spacing of support shall be a minimum as provided for in the CEC. All exposed conduit mounted below 8’ above finished grade shall be strapped at a minimum of 5’ spacing.

B. Electrical Non-Metallic Tubing (ENT) shall be installed in accordance with its listed application. Only listed cement shall be used for connectors, coupling, fittings requiring cement. Unless otherwise noted, ENT systems shall be color coded: Blue for branch and/or feeder power wiring, yellow for communications systems, and red for fire alarm and emergency power systems. Use only approved and listed accessories:
   1. Electrical Nonmetallic Tubing (ENT) is designed to replace EMT, flexible metal conduit or other raceway or cable systems, for installation in accordance with Article 362 of the National Electrical Code, Section 12-1500 of the CEC, other applicable sections of the Code, and local codes.
   2. Any ENT used shall be listed to the requirements of UL Standard UL 1653 in accordance with Article 362 of the NEC and Section 12-1500 of the CEC.
   3. Any ENT used shall meet the requirements of BI National Standard CAN/CSA-C22.2 No. 227.1-UL1653 and shall be Listed/Certified in accordance to the Electrical Codes.
   4. Carlon’s ENT shall be installed per the technical assessment prepared by fire cause analysis for use in 1hour and 2-hour rated construction.
   5. Penetration of fire rated walls, floors or ceilings shall use Classified Through-Penetration Firestop Systems described in the current Underwriters Laboratories Fire Resistance Directory.
   6. Fittings and outlet boxes shall be designed for use with ENT shall be listed. All fittings, boxes and accessories shall be from one manufacturer.
   7. Only Carlon ENT Blue cement recommended specifically for use with ENT and rigid nonmetallic fittings shall be used.
   8. Unless indicated differently on drawings, ENT systems shall be color coded: BLUE for branch and feeder circuit wiring, YELLOW for communications, and RED for fire alarm and emergency systems, or colors can designate different voltages.
   9. ENT, fittings, and accessories shall be manufactured by Carlon.
   10. ENT shall not be used or allowed in any application where not allowed by CEC Article

362.

C. Non-Metallic Rigid Conduit shall be used in concrete slabs, below concrete slabs on grade, or underground outside of a building slab or foundation. Maintain minimum depth requirements and cover with appropriate fill material. Conduit shall be heavy wall Schedule 40 or 80, rigid PVC only. Rigid utility P&C duct shall not be used in any application. Properly sized grounding conductors shall be installed per CEC article 250, in all non-metallic conduit branch circuit and feeder runs. PVC conduit shall be formed or field bent only with the use of properly approved bending tools such as to not decrease the internal bore of the conduit. All conduits shall be cut square and reamed of burrs. Approved and compatible glue shall be used on all PVC fittings to attain watertight joints.

D. Galvanized Rigid Steel (GRS) conduit shall be used where exposed less than 8'–0" above finished grade to 18" below finished grade and where subject to physical damage. Conduits shall be cut square and reamed to remove burrs and sharp edges. Strap conduit below 8' above grade at 5' intervals. Unless otherwise noted, threadless setscrew and threadless weathertight fittings may be used in lieu of threaded fittings. All threaded ends entering a junction box of any type shall require one locknut on the inside and one on the outside of the enclosure and be provided with a plastic bushing or grounding bushing where necessary for proper grounding. Where exposed to moisture, a watertight hub or other approved method shall be required. All conduits shall be stubbed up straight and uniform into junction boxes, panels, cabinets, etc., and shall be (GRS) properly supported and strapped. All GRS conduit located below grade, shall be tape wrapped.

E. Electrical Metallic Tubing (EMT) shall be used as allowed by code and as permitted by this specification. It shall not be in contact with soil or the concrete slab on the ground floor of any structure. Connectors and couplings shall be steel insulated set screw type where installed in indoor dry locations not subject to moisture. Where the potential for moisture is present, compression type weathertight fittings are required. One hole conduit straps are permitted from 1/2" to 1" and two hole conduit straps are required for size 1 1/4" and larger. EMT shall not be allowed in areas subject to severe physical damage. Install copper ground wire sized per CEC 250-122 in all EMT conduits.

F. Flexible conduit may be used where concealed in building construction or above dropped ceilings, but shall meet the following criteria: No individual circuit path from distribution panel to last device shall exceed a cumulative length of 6' of flexible conduit from start to end. Flexible conduit shall not exceed a total directional change of 270 bending degrees in any one run between conduit terminations. Squeeze type or Jake type steel flex fittings of a grounding type are required. Flexible conduit must be supported in accordance with CEC. Where exposed to the weather, moisture, or spray down flexible conduit shall be of the liquidtight type. Fittings shall be manufactured for use with liquidtight flexible conduit. All motor connections shall be made with liquidtight flex. Flexible conduit may not be used where exposed except for last 2' of equipment connection and unless otherwise noted or approved. A copper ground wire sized per CEC 250-122 shall be installed in all flexible conduit runs. Flexible conduit may not be used exposed. Weatherproof liquid tight conduit shall not be used at roof level for equipment connections with lengths exceeding 24" nor shall it be used to circumvent a rigid conduit systemin a horizontal direction. Connect recessed lighting fixtures to conduit runs with a maximum of 6' of flexible metal conduit extending from junction box to fixture.

G. Underground conduits and transition to above grade/slab shall be as follows:
   1. PVC elbows 2" and smaller are allowed, or if top of elbow is minimum 18" BFG or below top of slab, otherwise GRS elbows are required.
   2. GRS risers are required from elbow below grade to equipment (device, outlet, panel, cabinet, etc.) above grade.
   3. GRS elbows/risers to be PVC coated or 10 MIL tape wrapped (1/2" lapped) to 3" above

finish grade or top of slab.

H. Conduit Supports: Conduit runs may be supported by one-hole and two-hole straps or supports as manufactured by Unistrut, Minerallac, Caddy or equals. Supports may be fastened by means of anchors, shields, beam clamps, toggle bolts, or other approved methods appropriate for the application and size of conduit. Pipe nailers (J-hooks) may only be used for 1” conduit and smaller and only in wood frame construction. Conduit support methods are subject to review by the engineer and authority having jurisdiction for adequacy. Installations deemed inadequate shall be corrected by the contractor at no cost to the Owner.

I. Bends and offsets shall be made with approved tools for the type of conduit being utilized. Bends shall be made without kinking or destroying the smooth bore of the conduit. Parallel conduits shall be run straight and true with bends uniform and symmetrical. Minimum radii shall be per CEC 344-24.

J. Conduit Stub-outs below grade shall be capped with plastic cap, and identified by placing a pull box marked with correctly identified utility such as “Elec”, “Tel”, etc. Dimension for exact location on field record drawings. Provide lids for proper field application (i.e. traffic, incidental, pedestrian).

K. Conduit Seals - Where below grade conduits enter structure through slab or retaining wall of building or basement, seal the inside of each conduit as follows:
1. Provide damming material around conductors 3” into conduit. Polywater or equal.
2. Fill 3” of conduit with 3M #2123 sealing compound.
3. Wrap conductors where they exit the conduit with 3M #2229 "Scotch Seal" mastic tape. Lap tape to approximate diameter of the raceway and wrap outside of conduit opening with (minimum) one turn.
4. Use conduit sealing bushings type CSB (O-Z/Gedney) or equal.
5. Empty conduits shall be sealed with standard non-hardening duct seal compound and then capped to prevent entrance of moisture and gases and to meet fire resistance requirements.
6. Provide cable drip loop minimum 12” high.

L. Marker tape: Place marker tape at 12” below finish grade along and above buried conduits. Label tape "CAUTION: ELECTRICAL LINES BELOW" or similar wording.

M. Electrical and communications systems raceways routed underground shall not occupy the same trench as plumbing utilities such as sewer, water, storm drain, gas or other wet or dry gaseous utility system. A minimum of 12” of undisturbed earth is required. Where utilities must cross in closer proximity to each other due to physical constraints, 6” minimum crossing distances are allowed.

N. Conduits, routed below footings, slabs, grade beams, columns, and other structural elements shall be installed in strict compliance with structural details and criteria shown on structural plans. Clearances below structural elements and sleeves through structural elements must be carefully planned to avoid conflict and must be approved by the structural engineer if conflict arises.

O. All conduit or raceways passing through fire rated walls, floors, or ceilings shall be installed with a listed penetration method which protects the opening to the same rating as the assembly and is non hardening.

P. Cable runway shall be used in equipment rooms where shown on the plans. Ladder tray installations shall conform to the requirements of CEC Article 318. The contractor shall

provide all mounting hardware, connectors and bracing as required and as recommended by the manufacturer for a complete system installation.

Q. Wire basket tray shall be used in all concealed spaces (above ceiling spaces, under buildings in access tunnels, below raised floors, etc.) unless otherwise noted. Wire basket tray installations shall conform to the requirements of CEC Article 318. The contractor shall provide all mounting hardware, connectors and bracing as required and as recommended by the manufacturer for a complete system installation. All cutting and bending of wire basket tray shall be per the manufacturer's recommendation using tools designed for that purpose. Cable loading shall not exceed the listing of the system and its support.

R. Location: Locate boxes and conduit bodies so as to ensure accessibility of electrical wiring.

S. Anchoring: Secure boxes rigidly to the substrate upon which they are being mounted, or solidly embed boxes in concrete or masonry.

T. Special Application: Provide weatherproof outlets for locations exposed to weather or moisture.

U. Knockout Closures: Provide knockout closures to cap unused knockout holes where blanks have been removed.

V. Mount outlet boxes, unless otherwise required by ADA, or noted on drawings, the following distances above the finished floor:
1. Receptacles, Telephone, TV & Data outlets. (measured to bottom of outlet box): +15".
2. Outlet above counter (measured to top of outlet box): +46".
3. Control (light) Switches. (measured to top of outlet box): +48".
4. Fire Alarm Manual Pull Stations, T-stats. (measured to top of outlet box): +48".
5. Fire Alarm Visuals: the lower of +80" to bottom of lens, or 6" below ceiling.
6. Other Outlets: As indicated in other sections of specifications or as detailed on drawings.

W. Coordinate all electrical device locations with the architectural floor plan and interior and exterior elevations to prevent mounting devices within elements that they may conflict such as cabinetry, mirrors, planters, etc.

X. Size outlet and junction boxes to minimum wire fill space requirements. Upsize box as required to allow ease of wire installation and device installation.

Y. Outlet and junction boxes in fire rated walls shall be gauged and spaced so as not to exceed the maximum penetration allowed by the assembly without compromising the fire rating. If a conflict arises relative to a specific condition, the contractor shall follow the requirements of the fire authority and ask for guidance from the design team. At no time should a larger box be installed prior to resolution of conflict.

END OF SECTION 26 05 33

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SECTION 26 50 00 - LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes interior luminaires, lamps, ballasts, and accessories. Provide all luminaries complete with all new lamps, completely wired, controlled, and securely attached to supports.

1.3 SUBMITTALS

A. Product Data: Submit dimensions, ratings, and performance data.

B. Photometric data for each luminaire, lamp and ballast. Include indications of all options and accessories as well as finish color.

C. Specification Review: A complete item by item, line by line specification review.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements:
1. Provide luminaires listed by U.L.
2. Luminaires installed in outdoor areas unprotected from weather to be U.L. Listed for wet locations.
3. Insulated ceilings: Luminaires installed into insulated ceilings shall be U.L. Listed Type IC.

B. Certification: Certify that fixtures submittal have trim compatible with ceilings being installed.

C. Concrete for outdoor lighting poles foundations shall be provided per Section 03 30 00 - Concrete.

1.5 EXTRA MATERIALS

A. Provide extra materials for Owners use. All parts shall packaged in suitable carton.

B. Provide two (2) spare drivers for each fixture type. Deliver to Owner in original packaging.

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PART 2 - PRODUCTS

2.1 LUMINAIRES

A. Product Description: Complete luminaire assemblies, with features, options, and accessories as scheduled.

B. All luminares shall be new and of specification grade.

C. Manufacturer nomenclature in fixture schedule or otherwise described on the Drawings is given only to show the general fixture series. Contractor shall provide fixture with all required accessories and mounting frame type.

D. Wire guard at fixtures in mechanical, electrical, and high abuse areas.

E. Acceptable Manufacturers:
1. Lightolier
2. Acuity
3. Metalux
4. Day-Brite
5. Columbia
6. HE Williams

2.2 LED LUMINAIRES

A. Quality Assurance
1. DOE Lighting Facts certified.

B. LED Specifications
1. Lumen maintenance of the LEDs has been tested in accordance with IESNA LM-80-08 reporting methodology.
2. CRI:>82 minimum (general); >90 healthcare and retail.
3. SDCM: <2.5 in linear pendants and linear recessed; <3.5 in discrete recessed.
4. R9: .0 (general office/school environments); >50 in healthcare and retail environments.
5. Outdoor luminaires to be rated at a minimum of 40^0 C.

C. Lumen Maintenance
1. Minimum L70 at 50K hours based on TM-21 Addendum A Lifetime report at an ambient temperature of 25^0 C, outdoors at an ambient temperature of 40^0 C.

D. Thermal Testing
1. ISTM testing in accordance to UL 1598-2008.

E. Driver
1. 0-10V enabled.
2. Output Class 2 rated.
3. Dimming range: 5-100%.
4. Constant current.
5. THD @ max load: <20%.
6. Power factor: >0.95
7. Environment protection rating: UL Damp and dry.
8. Approbations: certified to UL8750, UL1310, UL935, CSA-C22.2 No. 250.13-12, CSA 22.2 No. 223.

9. ROHS Compliant

F. Fixture photometry
1. Conducted by a NVLAP accredited testing lab with IESNA LM 79-08.
2. System flux measured in delivered lumens.

G. Warranty
1. 5 year total system warranty.

2.3 EMERGENCY BATTERY PACKS

A. Provide Emergi-Lite FPSIU series, or approved equal, battery pack for fluorescent fixtures designated to have emergency battery back-up.

B. Fixture shall include lighted push button test switch installed in visible, accessible location adjacent to fixture.

C. Provide unswitched alternating current power source per manufacturer's instructions.

D. Provide connection to local switch where indicated on drawings, connect such that fixture can be controlled on/off from local switch without discharge of battery.

E. For fixtures designated to have emergency battery pack and be on a contactor controlled circuit, provide unswitched alternating current source ahead of contactor and wiring as required to allow automatic on/off control from the contactor without discharge of battery and local on/off switching where indicated.

F. Battery pack shall provide 1100 lumen output for 90 minutes per 2'x4' light fixture.

G. Provide integral battery pack for all exit signs where emergency generator power is not available. Battery pack shall provide minimum of 90 minutes output.

2.4 DOWNLIGHT FIXTURES

A. Provide recessed light fixtures with trim rings compatible with the ceiling material where fixture is to be installed.

2.5 EXIT SIGNS

A. Exit signs shall meet visibility requirements and be listed per UL 924 "Emergency Lighting and Power Equipment". Also shall meet Federal, State and Local Codes.

B. Chevron Directional Indicator: Provide Chevron per NFPA 101 Section 5-10.4.1.2.

C. Product Description:
1. LED Exit Sign:
a. Provide exit sign with Light Emitting Diodes (LED) illuminance source. Cover LED with diffuser.

D. Housing: Diecast aluminum with stencil face and matte white paint finish.

E. Input Voltage: 120/277 volt, dual input voltage.

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F. EPA Energy Star Label.

G. Wire Guards: Install wire guard on all exit signs installed in gyms, lockers rooms, and athletic wing.

PART 3 - EXECUTION

3.1 EXISTING WORK

A. Disconnect and remove abandoned luminaires, lamps, poles and accessories.

B. Extend existing luminaire installation using materials and methods compatible with existing installation, or as specified.

C. Clean and repair existing luminaires to remain or to be reinstalled.

3.2 INSTALLATION

A. General: All luminaires shall have proper supports.

B. Install suspended luminaires using pendants supported from swivel hangers.

C. Locate recessed ceiling luminaires as indicated on Drawings.

D. Install surface mounted ceiling luminaires plumb and adjust to align with building lines and with each other. Secure to prevent movement.

E. Chain Hung: Unless otherwise indicated all fluorescent fixtures in Mechanical, Electrical and Elevator Equipment Rooms shall be chain hung. Verify exact mounting height with Architect before installing fixtures. Provide pendant hangers when equipment room has fire-resistive ceiling.

F. Suspended Ceilings:
1. Provide means of support for luminaires per CEC 410-36. T-bar clips shall be installed on the luminaire and shall be field secured to the inverted ceiling tees so that the luminaire is securely fastened to the ceiling system framing members.
2. Ceiling tiles shall not bear the weight of luminaires. Surface mount luminaires, recessed downlights, light track, exit signs, etc. shall be supported by proper frames or other attachment to main ceiling system grid or building structure above ceiling.
3. Luminaires shall be centered in ceiling tile.
4. Luminaire shall have flange or trim ring for closure of ceiling cutout or opening.
5. Fire-rated Ceiling Assembly: For Luminaires to be flush-mounted into a fire-rated ceiling or surface mounted to a fire-rated ceiling, install with independent, secure support. Raceway, cable assemblies, boxes and fittings located above a fire-rated floor/ceiling or roof ceiling assembly shall not be secured to, or supported by, the ceiling assembly including the ceiling support wires. Provide an independent means of secure support. Independent support wires shall be distinguishable by color, tagging, or other effective means from those that are part of the fire-rated design.

G. Verify weights and recommended mounting methods of all luminaires with manufacturers. Furnish and install supports. Luminaires weighing more than 30 pounds shall be supported independently of the outlet box.

3.3 LOCATIONS

A. Luminaires shown on the Electrical Drawings represent general arrangements only. Refer to Architectural Drawings and to Architect on jobsite for more exact locations. Coordinate location with all other trades before installation. Coordinate all light fixtures in Mechanical Rooms with the final installed piping and ductwork layouts. Adjust fixture mounting height and location if required so that light output is not obstructed by piping and ductwork.

3.4 FIRE INTEGRITY OF CEILING PENETRATIONS

A. Where ceiling is part of a fire-rated assembly, maintain integrity of that assembly with methods given in Section Electrical Hangers and Supports. Obtain ceiling system UL Fire Resistance Directory Design Number from Architectural Drawings.

3.5 AIMING AND ADJUSTMENT

A. General: All adjustable lighting units shall be aimed, focused, and locked by the Contractor under the supervision of the Architect/Owner. All aiming and adjusting shall be carried out after the entire installation is complete.

3.6 LAMPS

A. Clean all lamps after installation.

3.7 CLEANING

A. Lens: Clean lenses of all luminaires after space is finished and prior to project acceptance.

END OF SECTION 26 50 00

SECTION 27 21 00 – DATA COMMUNICATIONS SYSTEM

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Work included in this section shall be the provision of core and edge network electronics, wireless access points, IP phones, and UPS devices.

1.2 DESCRIPTION

A. The Contractor shall be responsible to furnish, install and configure an extension to an existing district wide IP based Ethernet and VOIP network which shall include, but not be limited to a new core switches, new distributed access switches and additional in MDF / IDF racks as shown on drawings, as well as a powered Ethernet system for support of a new centrally-hosted wireless access point system which shall span the new complex and interface with other existing facilities.

B. Contractor shall provide any and all SFP modules, fiber optic patch cables, stacking cables, DAC cables, other hardware, etc., to provide complete connectivity of all network devices.

C. The Owner shall configure all Contractor provided network devices.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Division 1 – General Requirements

B. 27 00 00 - BASIC MATERIALS AND METHODS

C. 27 10 00 – CATEGORY 6A STRUCTURED CABLING SYSTEM

1.4 GENERAL SYSTEM REQUIREMENTS

A. The Technology Contractor shall provide all equipment, devices, cabling and related hardware to create an autonomous network. The Contractor shall provide a complete and functioning system, based on the designs as set forth in the Construction Documents. Any and all equipment, either implied or intentionally omitted from these documents, but generally accepted as being required for the completion of the installation, as represented in these Construction Documents, shall be provided by the Contractor at no additional cost to the Owner.

B. The Technology Contractor shall verify any and all power requirements.

1.5 CONTRACTORS REQUIREMENTS

A. The Contractor shall be certified by the manufacturer of the equipment being provided for the installation and maintenance of same.

B. The Contractor shall maintain a local shop within 75 miles of the project location which is staffed by certified personnel, specifically stationed at that location for the purpose of servicing the local clientele.

PART 2 - PRODUCTS

2.1 GENERAL

A. The equipment and devices provided by the Technology Contractor shall be as indicated on the Drawings and in these Specifications.

B. The Technology Contractor shall provide all cabling and related hardware as recommended by the Manufacturer and/or as indicated on the Drawings and in these Specifications.

C. All devices, cabling and hardware shall be new, and UL listed as required.

D. All equipment shall compliant, as applicable, to:

1. FCC Part 15 (CFR 47) Class A
2. EN55022 and EN55024
3. CISPR 22
4. CE marking
5. AS/NZS 3548

2.2 NETWORK SWITCHES

A. Campus Core Distribution:

1. Dell N2248PX-ON at high schools.
2. Core switches shall be equipped with dual power supplies.
3. Provide 5 Year Advantage DNA Licensing.
4. Provide 5 Year Smartnet support.
5. Core switches shall be stacked with 100G-AOC1M for SVL Links and 10G-CU1M DAD Links.
6. All down links shall use single mode SFP-10G-LR modules.

B. Campus Access Switches:

1. Access switch stacks shall be created for each rack with an uplink module in the first and last switch of the stack. Uplink modules shall be Aruba 6300M.
2. The top switch of each stack should be equipped with a secondary power supply.
3. A 10G-LR shall be installed in port 1 of each module and connected in a port-channel to the core.
4. Each rack of equipment shall be physically stacked and power stacked.

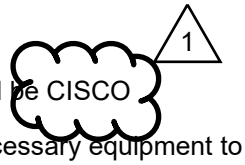
C. Quantity as shown on drawings.

D. All extra devices shall be turned over to the Owner for Attic Stock.

E. Coordinate with Owner.

2.3 WIRELESS ACCESS POINTS

A. High Schools



   a. Wireless access points shall be CISCO

   b. Contractor to provide all necessary equipment to install access point.

   c. COntraactor to provide protective cover in gyms.

   d. Contractor to provide Aruba weatherproof wireless access points for exterior locations.

2.4 IP Telephones

A. Every site shall receive 1 qty. Yealink SIP-T23G to be used for the site receptionist.

B. Provide 1 qty. SIP-T23G in administrative offices.

C. Provide 1 qty. SIP-T23G in each classroom.

D. Provide 1 qty. SIP-T23G in each conference room.

2.5 UPS

A. Provide a minimum of 1 UPS per IDF / MDF rack.

   1. Eaton 5P3000RT with a network card, 2-post rack mount, and CAT6 orange slim cable. for all floor mounted racks and cabinets.

   2. Eaton 5P1500R with a network card, rack shelf, and CAT6 orange slim cable for all wall racks and cabinets with 2 network devices (switches, routers, etc) or less.

   3. If a wall rack or cabinet has more than 2 network devices in it, provide 5P3000 UPS.

   4. Environmental Monitoring Probe shall be provided for each MDF/IDF/Cabinet.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Provide all configurations for all switches.

B. Coordinate configuration requirements with the Owner's Security/IT personnel.

C. The Contractor shall verify all connectivity from the Core to all end devices.

D. The Contractor shall provide all programming, interfaces, hardware and components to interface the existing District switches with the new core switch

E. Coordinate with the District’s IT Department new switch integration with existing file server.

F. Install new data network Ethernet switches and validate connectivity throughout. Verify all VLANs, QoS, IP Routing and IP Subnets. Coordinate with District’s IT Department.

G. Coordinate network installation and integration with other systems connected to the network with the District’s and applicable DA-site’s technical and operational requirements.

H. Install and set up UPS units and establish power down procedures.

I. Connect system to DA-site WAN links and configure per CA-site requirements.

3.2 WORK COMPLETION

A. All products and system configurations will be fully tested and operational prior to final payment.

B. The Contractor shall provide a copy of all testing documentation to the Owner at the time of system commissioning and training. Final payment shall be held until such time that final commissioning and training is completed to the satisfaction of the Owner.

C. System Commissioning, including testing and certifications, shall be completed by a factory representative prior to final payment. All system operation or installation deficiencies shall be documented and submitted to the Owner at time of commissioning, and shall be resolved prior to final training and final payment.

D. Test all network connectivity end to end and document the proper operation of the network. Submit written report to Owner/Engineer.

3.3 TRAINING

A. Provide a minimum of forty (40) hours of training to the District's personnel. Plan for multiple training trips to the site. Training sessions shall cover the following topics at a minimum:

   a. System equipment connectivity

   b. Device configurations

   c. Operation, maintenance and upgrade procedures

B. Training to be arranged with District personnel. 40 hours should be spread out over the length of the warranty (example: 8 hours at project turnover/completion, 8 hours at 3 months, 8 hours at 6 months, 8 hours at 1 year, 4 hours at 2 years, 4 hours at 3 years).

C. Training to occur in maximum of 4 hour increments per personnel or groups of personnel.

D. Consider requirement Contractor to provide manufacturer training vouches for a portion of the training, which are valid during the warranty period.

E. Training shall be performed by a certified manufacturer instructor.

F. Training schedule shall be coordinated with District personnel and their needs.

G. Training plan, time line, and agenda shall be provided to District IT personnel and signed off by District and Contractor. Provide with close-out documentation.

H. Warranty certificate and agreement shall be provided in the close-out documentation and to District IT personnel at initial training session.

I. Provide two (2) digital video copies, 720p resolution minimum, of the training sessions in DVD format.

3.4 LABELING AND MARKING

A. Provide a printed, typed schedule of all data ports according to each related room jack designation for each IDF and equipment racks in accordance with the District's requirements.

3.5 TESTING

A. Contractor shall provide a complete wireless survey before placing the Wireless Access Points.

B. Verify and demonstrate proper operation of all switches, wireless access points, VLANs, routing, WAN connectivity and possible ATM Connectivity with the District and DA-site representative.

3.6 WARRANTY

A. The Local Area Network Electronics and software shall be fully warranted for three (3) years from date of substantial completion by the contractor and manufacturer. If any defects are found within this warranty period, the defective system component shall be replaced at no extra cost to the Owner for parts or labor. Provide a statement of this warranty with the O&M manuals and the I.T. director. Make available a service contract offering continuing factory authorized service of this system after the initial warranty period.

END OF SECTION

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SECTION 27 41 16 - INTEGRATED AUDIO-VIDEO SYSTEMS AND EQUIPMENT

CONDITIONS OF THE CONTRACT AND DIVISION 1, as applicable, apply to this Section.

PART 1 - GENERAL

1.1 RELATED WORK

A. All Division 26 at it relates to this scope of work.
B. Section 27 00 00
C. Section 27 10 00

1.2 DESCRIPTION

A. Summary of Work:
   1. Provide a complete and tested classroom video presentation system. The video presentation system shall include, but not be limited to the following:
      a. At all interactive board and LCD monitor locations; the current project construction contractor shall provide and install all audiovisual faceplates, transmission media infrastructure, and a patch cables required to connect each presentation display device to the associate input device.
      b. At all interactive locations, the project construction contractor shall provide and install all audiovisual faceplates, transmission media infrastructure, and a patch cables required to connect each presentation display device to the associate input device
      c. Proposing contractor must coordinate with project construction schedule and existing technology system contractor to provide complete turn-key solution to owner.
   2. The installation shall comply with all applicable codes and standards in effect at the job site and as indicated in the Drawings and Specifications.
   3. Reference project drawings for locations, quantities, and coordination with other trades.
   4. Contractor shall provide a mock up system integrated with two quantity video displays for video switching for demonstration to the District upon award of this contract. Coordinate with the Architect and District to schedule date, time and location for system demonstration.

1.3 QUALITY ASSURANCE

A. Contractors who do not currently possess the necessary qualifications, trained and experienced personnel, financial capacity, and meet the other requirements herein describe will be disqualified.

B. The Contractor, as a business entity, shall be an authorized distributor and designated representative of the equipment manufacturer, with full warranty privileges. The proposed contractor shall have been actively engaged in the business of selling, installing, and servicing commercial building commercial communication systems for a period of at least 5 years.

C. Recently formed companies are acceptable only if specific pre-approval is requested, and granted by the Architect/Engineer, based on experience of key personnel, current and completed projects, and all licensing requirements are met 10 working days prior to the contract proposal date.

D. The Contractor shall have an office within 150-miles of the job site, staffed with trained technicians who are qualified and licensed to supervise the installation, to be responsible that the system is installed as submitted, to conduct system start up and perform a 100 percent

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operational audit of all installed devices, to instruct the Owners representatives in the proper operation of the system, and to provide service throughout the warranty period. The contractor shall be capable of dispatching technicians to repair a system within six hours of a service request.

E. The Contractor shall be fully experienced in the design and installation of the type of system herein specified, and shall furnish with the contract proposal an itemized list of the installations of the type specified herein. The list shall include the name of the project, date of completion, the amount of the contract, the name, and telephone number of a qualified person to contact for reference. This list must contain at least two (2) projects within a 150- mile radius of the school district to allow school administration officials to visit the job site for review of the system installation and service. Each reference project listed must utilize equipment by the same manufacturer as the proposed system.

F. The Contractor shall employ factory-trained technicians capable of supporting the maintenance of the system. No contract employees are allowed unless they have been to the factory service school within the last 18 months. A certificate of this training shall be provided with the contractors' submittal.

G. The Contractor shall not have any grievances or complaints of record regarding workmanship, code compliance, or service response. A Proposed Contractor that has any prior finding(s) of a code violation or has any litigation in process concerning the installation of a communication system is unacceptable.

H. Any discrepancy in quantity or part numbers between the drawings and the bid specifications shall be brought to the attention of the Consultant for clarification during the bidding period. No allowance shall be made to the Contractor by reason of failure to have brought said discrepancies to the attention of the Consultant prior to award of contract.

I. The Contractor shall provide all necessary patch cables, riser/plenum cabling and connectors interconnecting all equipment and all required A/V and network equipment to provide for fully functional systems. In addition, all cabling raceway, support systems, sleeves and any other materials required to properly install and support cabling systems.

J. The ability of the Contractor to obtain plans and provide a performance bond shall not be regarded as the sole qualification of the Contractors' competency and responsibility to meet the requirements and obligations of the contract.

K. The Builder shall be satisfied that a proposed Contractor meets all the requirements expressed herein before including the Contractor's proposal in the project.

L. The Owner may investigate, as they deem necessary to determine the ability of the proposed Contractor to perform the work. The proposed Contractor shall furnish to the Owner with any information or data requested for this purpose.

M. The Owner reserves the right to reject any contract proposal if the evidence submitted, or their investigation, fails to indicate that the Contractor is qualified to fulfill of any part of the contract or to complete the work contemplated therein.

N. The Owner reserves the right to reject the proposal of any Contractor who has previously failed to perform properly, or complete on time, contracts of a similar nature.

O. Pre-Construction Meeting:

1. The successful Contractor shall attend mandatory pre-construction meetings with individuals deemed necessary by the Owner's representative prior to the start of

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the work.

2. The contractor shall provide a mock-up of the complete classroom projector system to include all products listed in part 2 of this specification.
3. All proposing contractors must have ability to demonstrate a/v system being proposed and provide owner with completely installed system to evaluate performance and operation.

P. Acceptance:

1. The Owner's representative reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.

1.4 REGULATORY REQUIREMENTS

A. Standards: All work shall be performed in accordance with the latest revisions of the following standards and codes:
1. Latest Local Codes and Amendments
2. 2022 California Electrical Code

B. Other References:
1. TIA/EIA-568-A Commercial Building Telecommunications Wiring Standard
2. EIA/TIA-569 Commercial Building Standard for Telecommunication Pathways and Spaces.
3. TIA/EIA-606 The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
4. TIA/EIA-607 Commercial Building Grounding and Bonding Requirements for Telecommunications.
5. EIA/TIA 455-A Standard Test Procedure for Fiber Optic Fibers, Cables, Transducers, Sensors, Connecting and Terminating Devices and Other Fiber Optic Components.
6. TIA/EIA TSB 67 Transmission Performance Specification for Field Testing of Unshielded Twisted-Pair Cabling Systems.
7. TIA/EIA TSB 72 Centralized Optical Fiber Cabling Guidelines
8. ISO/IEC 1180 Generic Cabling Standard
9. EN 50173 Generic Cabling Standards for Customer Premises
10. ANSI/EIA/TIA 526-14 Optical Power Loss Measurements of Installed Multimode Fiber Cable Plan.

C. Governing Codes and Conflicts:
1. If the requirements of these specifications or the Project Drawings exceed those of the governing codes and regulations, then the requirements of these specifications and the Drawings shall govern. However, nothing in the Drawings or Specifications shall be construed to permit work not conforming to all governing codes and regulations.

1.5 ABBREVIATIONS

A. The following abbreviations are used in this document:

WMP	Wall Mounted Projector
PS	Presentation Station
ILCD	Interactive Flat panel screen/monitor

1.6 SUBMITTALS

A. Project Initiation:
1. Within fourteen (14) days of Notice to Proceed, the data network system installer

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shall furnish the following in a single consolidated submittal:

a. Permits: The Contractor shall obtain all required permits and provide copies to the Owner/Architect/Engineer.

b. Product Literature: Complete manufacturer's product literature for all cable, patch panels, cross-connect blocks, cable supports, cable labels, outlet devices, and other products to be used in the installation. In addition, whenever substitutions for recommended products are made, samples (when requested by the Owner/Designer) and the manufacturer's supporting documentation demonstrating compatibility with other related products shall be included. The submittal shall have some type of distinguishing marker or pointer to indicated what specific product is to be provided

c. Construction Schedule: A time-scaled Construction Schedule, using PERT/CPM, indicating general project deadlines and specific dates relating to the installation of the cable distribution system.

d. Specification Compliance: A letter shall be provided stating, by section and subsection, that the Audio-Video installer complies with the ENTIRE specification section. If the installer intends to deviate from any portion of the specifications, a detailed explanation of reason in which the installer would like to deviate shall be provided in addition to the specification compliance letter. NO DEVIATIONS SHALL BE ACCEPTABLE UNTIL THEY HAVE BEEN ACCEPTED BY THE PROJECT'S TECHNOLOGY CONSULTANT.

e. Certifications: The contractor shall submit all of the following certifications and the certifications must contain dates which are valid from the date of proposal and not expirer any sooner than 12 months after substantial completion of the project.

1) Installer Certification: This certification shall show successful completion of system training and must be held by at least 25% of the, on-site, staff and be made available at the site if requested by the owner, architect, and/or project's technology consultant.

B. Shop Drawings:

1. Submit the following items, for Owner review and approval, within twenty-eight (28) days of notice to proceed:

a. Proposed circuit routing and circuit grouping plan prepared by a qualified system designer. The credentials of the designer must be accepted the project's technology consultant prior to submitting a system design.

b. In addition to the cable routing, the submitted drawings shall indicate the following, even if the following is expected to be provided by the project's electrical or general contractor:

1) Location of wall penetrations (all penetrations shall be sleeved and contain protective bushings at both ends)
2) Location of sleeved wall pass-thru
3) Size of sleeve at each location installed
4) Quantity of cable passing through each sleeve
5) Location of devices, input plates, and control plates in each room
6) Conduit routing, size, quantity, and stub-up locations for all floor mounted outlets.

c. Drawing Compliance: A letter shall be provided stating that the Audio-Video installer complies with the ENTIRE project drawing, including all general, keyed, and notes to contractor. If the installer intends to deviate from any portion of the specifications, a detailed explanation of reason in which the installer would like to deviate shall be provided in addition to

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the specification compliance letter. NO DEVIATIONS SHALL BE ACCEPTABLE UNTIL THEY HAVE BEEN ACCEPTED BY THE OWNER.

C. Close-out Procedures:

1. Two (2) copies of the following documents shall be delivered to the building owner's representative at the time of system acceptance. The close out submittals shall include:
   a. Inspection and Test Reports: During the course of the Project, the Contractor shall maintain an adequate inspection system to ensure that the materials supplied and the work performed, conform to contract requirements. The Contractor shall provide written documentation that indicates that materials acceptance testing was conducted as specified. The Contractor shall also provide documentation, which indicates that all cable termination testing was completed and that all irregularities were corrected prior to job completion.
   b. Provide complete test reports for all cabling and devices that comprise system as outlined in this document.
   c. Include the Name, address and telephone of the authorized factory representative with a 24-hour emergency service number.
   d. The manual shall also include Manufacturer’s data sheets and installation manuals/instructions for all equipment installed, a list of recommended spare parts.
   e. Generic or typical owner’s instruction and operation manual shall not be acceptable to fulfill this requirement.
   f. An up-to-date record (“as-built”) set of approved shop drawing prints that have been revised to show each and every change made to the structure cabling system from the original approved shop drawings. Drawings shall consist of a scaled plan of each building showing the placement of each individual item of the Audio-Video system equipment as well as raceway size and routing, junction boxes, and conductor size, quantity, and color in each raceway.
   g. As-built Drawings shall include cable pathways, and device locations with correct labeling. The as-built drawings shall be prepared using AutoCAD 2013 or later. Provide the Owner with electronic versions of the as-builts on 2 quantity 8GB thumb drive media.
   h. All drawings must reflect point to point wiring, device address and programmed characteristics as verified in the presence of the engineer and/or the end user unless device addressing is electronically generated, and automatically graphically self-documented by the system.
   i. A copy of the manufacturer’s warranty on the installed system.
   j. 5 sets of keys to cabinets and/or equipment and special maintenance tools required to repair, maintain, or service the system.
   k. Operating and Maintenance Instructions for all devices within the system. These instructions shall reflect any changes made during the course of construction, and shall be provided to the Owner, for their use, in a three-ring binder labeled with the project name and description. (4 copies)
   l. Quick-start Guide for each system written with the assumption that the intended reader is technically inexperienced and unfamiliar with the facility. Quick-start Guide shall be provided in hard-copy format and in pdf format on an 8GB thumbdrive with the close-out documentation.
   m. Upon completion of the work and at a time designated by the Architect or owner, provide formal training sessions for the Owner’s operating personnel to include location, operation, and maintenance of all included systems and equipment. Minimum amount of training time shall be at least 8 hours in four 2 hour sessions.

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n. Contractor shall video record training sessions and include videos in close-out documentation in DVD format.

PART 2 - PRODUCTS

2.1 GENERAL

ALL PRODUCTS LISTED IN THIS SECTION SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR.

A. Installation: The cabling shall be installed per requirements of the manufacturer and the Project Documents utilizing materials meeting all applicable EIA/BICSI standards. The Contractor is responsible for providing all incidental and/or miscellaneous hardware not explicitly specified below as required for a complete and operational system.

B. Materials: Materials shall be as listed or shall be approved equivalent products of other manufacturers meeting the intent and quality level of the EIA/BICSI specifications. All approved equivalent products will be published by addendum ten days prior to proposal for Architect/Engineer to review.

C. Testing: All installed cabling shall be tested 100% good after installation by the Contractor.

D. Ratings: All products shall be new and brought to the job site in the original manufacturer's packaging. Electrical components (including innerduct) shall bear the Underwriter's Laboratories label. All communications cable shall bear flammability testing ratings as follows:
CM Communications Cable
CMP Plenum Rated Communications Cable
CMR Riser-Rated Communications Cable

E. Initial Cable Inspection: The Contractor shall inspect all cable prior to installation to verify that it is identified properly on the reel identification label, that it is of the proper gauge, containing the correct number of pairs, etc. Note any buckling of the jacket that would indicate possible problems. Damaged cable or any other components failing to meet specifications shall not be used in the installation.

F. Cable Lubricants: Lubricants specifically designed for installing communications cable may be used to reduce pulling tension as necessary when pulling cable into conduit.
1. Approved Products
a. Twisted-pair cable: Dyna-Blue
American Polywater

G. Fire Wall Sealant: Any penetration through firewalls (including those in sleeves) will be resealed with an Underwriter Laboratories (UL) approved sealant.
1. Approved Products
i. Wiremold Flamestopper - #FS4R-RED
ii. Precut 4" conduit - #FSPCC4758

2.2 INTEGRATED FLAT PANEL MONITOR (indicated as 'ILCD' on drawings)

A. All Displays and mounts on this project shall be Owner Furnished Owner Installed (OFOI)
B. Provide and install 1 qty. Balance Box 400 height adjustable mount for each display.
C. Quantity as shown on drawings.

1

2.3 ADDITIONAL PARTS

A. Provide all materials listed in this specification section to furnish the media infrastructure from input component to output component, to furnish all classroom presentation system locations identified in drawings. Any change orders issued during the course of this project shall pull materials from this additional stock until the stock is depleted. In the event that that such stock is remaining upon the completion of the project, the contractor shall deliver the excess to the owner for attic stock.

2.4 CABLE ROUTING/PATHWAY

A. Cable Support System: All audio-video cabling shall be installed and supported using a Caddy Cable Cat or Arlington Loop cable support system at 4'-0" intervals unless installed in conduit. Do not exceed manufacture recommendation for the quantity of cables supported in an individual support.

B. All cable bundles shall be grouped together using plenum rated Velcro for the entire run above and below the ceilings.

PART 3 - EXECUTION

3.1 GENERAL

A. Contractor is required to properly mount Interactive display and connect each display to each HDMI in the room.

B. Contractor is required to thoroughly test and verify operation of all display inputs and video modes prior to project completion.

C. Contractor shall provide owner with written verification test process and results once all projectors have been installed, tested, and placed in final condition.

D. Damage:

1. The Contractor shall replace or rework cables showing evidence of improper handling including stretches, kinks, short radius bends, over-tightened bindings, loosely twisted and over-twisted pairs at terminals and cable sheath removed too far (over 1/4 inches).

E. The Contractor shall replace any damaged ceiling tiles that are broken during cable installation.

F. Clean Up:

1. All clean up activity related to work performed will be the responsibility of the Contractor and must be completed daily before leaving the facility.

3.2 DOCUMENTATION

A. Contractor shall provide owner with detailed serial number listing and associated graphical room number designation equipment was installed. Contractor shall use actual graphical package room numbers not architectural plan numbers from construction set.

3.3 STATION WIRING INSTALLATION

A. General:

1

1. All cable must be handled with care during installation so as not to change performance specifications. Factory twists of each individual pair must be maintained up to the connection points at both ends of the cable. There shall never be more than one and one-half inches of unsheathed enhanced Category 6 UTP cable at either the wiring closet or the workstation termination locations.

B. Exposed Cable:
1. All cabling shall be installed inside walls or ceiling spaces whenever possible. Exposed station cable will only be run where indicated on the Drawings.
Additional exposed cable runs will require Owner approval, and will only be allowed when no other options exist.

C. Placement: All cabling and associated hardware shall be placed so as to make efficient use of available space. All cabling and associated hardware shall be placed so as not to impair the Owner's efficient use of their full capacity.

D. Cable Routes:
1. All cabling placed in ceiling areas must be in conduit, cable tray or Caddy Cable Cat or Arlington Loop cable support. Cable supports shall be permanently anchored to building structure or substrates. Provide attachment hardware and anchors designed for the structure to which attached and that are suitably sized to carry the weight of the cables to be supported. Do not route cable through webbing of structural steel. Cabling must be supported in dedicated supports intended to support cabling as described in this section. Contractor shall adhere to the manufacturer's suggested fill ratio for each size cable support installed.

2. Attaching cable to pipes or other mechanical items is not permitted. Communications cable shall be rerouted so as to provide a minimum of 18 inches spacing from light fixtures, sources of heat, power feeder conduits and EMI sources. Cabling shall not be attached to ceiling. Grid support wires. Cable runs shall be routed down the corridors; parallel or perpendicular to building structure. Multiple cables to be bundled together at and between each cable support installed.

3. Contractor shall be responsible for coordinating with other trades on the project so that the installed cable pathway does not interfere with the installation of other systems to insure that mechanical ducts, pipes, conduits, or any other above ceiling systems are not putting unnecessary stress on any portion of the install audio-video cabling.

3.4 STATION HARDWARE

A. Flush Mount Jacks: Flush mount jacks shall be mounted in a faceplate with back box.

B. Placement: As shown on drawings.

3.5 TESTING, CERTIFICATION, WARRANTY, SERVICE

A. A factory trained service technician shall supervise the final connections and testing of the system and it shall be subject to the final acceptance of the Architect, Engineer, and local authorities. Testing shall ensure the following:
1. Before energizing the cables and wires, check for correct connections and test for short-circuits, ground faults, continuity, and insulation.
2. Complete and functional system.
3. Installed in accordance with manufacturer's instructions.
4. Upon completion of the testing, the manufacturer or his representative shall issue to the

1

Owner a letter of certification attesting to the fact that he has tested and adjusted the system, that all components are properly installed and free of defects, and that the system is in compliance with this specification.

B. The contractor shall provide a warranty for the installed system. The warranty shall be against defects in material or workmanship for a period of one (1) year from the date of substantial completion. Any equipment or wiring shown to be defective shall be replaced, repaired, or adjusted free of charge. All labor and materials shall be provided at no expense to the Owner. All equipment will carry a one year warranty or manufacturer's warranty whichever is greater.

C. The system manufacturer shall maintain engineering and service departments capable of rendering advice regarding installation and final adjustment of the system.

3.6 DRAWINGS, MANUALS AND TRAINING

A. In addition, the contractor shall furnish complete operating and maintenance manuals listing the manufacturer's name(s), including technical data sheets. Manuals shall include wiring diagrams to indicate internal wiring for each device and the interconnections between the items of equipment. Provide a clear and concise description of operation that gives, in detail, the information required to properly operate the equipment and system. Provide a parts list with manufacturer and model number for commonly replaced parts. Include complete instructions for the inspection, testing, and maintenance of the system. Include copies of all programming sheets used to configure the system.

B. The Contractor shall conduct formal on-site training sessions. Provide documented general instruction as follows:
   1. Provide instruction to District personnel to include the location, inspection, maintenance, testing, and operation of all system components. Provide a minimum of four (8) hours -- four 2-hour sessions separated by a minimum of two weeks.
   2. Provide instruction to designated personnel on the functions and operation of the intercom and master clock system including emergency and service request procedures. Provide a minimum of four (4) hours--two 2-hour sessions separated by a minimum of two weeks.

END OF SECTION

DEMOLITION PLAN LEGEND & ABBREVIATIONS

- PCC DEMOLITION
- CLEAR ANG GRUB DEMOLITION
- SAWCUT
- CURB REMOVAL
- PARKING STRIPING REMOVAL ⚠1

BLDG	BUILDING
℄	CENTERLINE
CB	CATCH BASIN
EA	EACH
ELEC	ELECTRICAL
L/A	LANDSCAPING
LF	LINEAR FEET
PCC	PORTLAND CEMENT CONCRETE
SCO	SEWER CLEANOUT
SD	STORM DRAIN
SF	SQUARE FEET
SWR	SEWER
UDG	UNDERGROUND
UTIL	UTILITY

DEMOLITION ITEMS / QUANITITES

1	SAWCUT PAVEMENT TO A CLEAN, STRAIGHT EDGE	225 LF
2	REMOVE PCC PAVEMENT AND DISPOSE	2,330 SF ⚠1
3	CLEAR AND GRUB, DISPOSE	3,535 SF
4	REMOVE TREE AND DISPOSE	2 EA
5	CONTRACTOR TO POTHOLE AND VERIFY UNKNOWN UTILITY TYPE, SIZE, DEPTH AND LOCATION PRIOR TO CONSTRUCTION OF PROPOSED BUILDING	140 LF
6	REMOVE PCC CURB AND DISPOSE	6 LF
7	REMOVE EXISTING PARKING STRIPING BY SAND BLASTING OR APPROVED METHOD ⚠1	--
99	PROTECT IN PLACE, ITEM PER PLAN	

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

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DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE

KEY PLAN

NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER JEFFREY D. MAY No. 64696 CIVIL STATE OF CALIFORNIA

Architect

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
12-14-23	230010

REVISIONS

No.	Description	Date
1	CONC., PARKING & HANDRAILS	12/14/23

DSA Submittal

DEMOLITION PLAN

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C1.1

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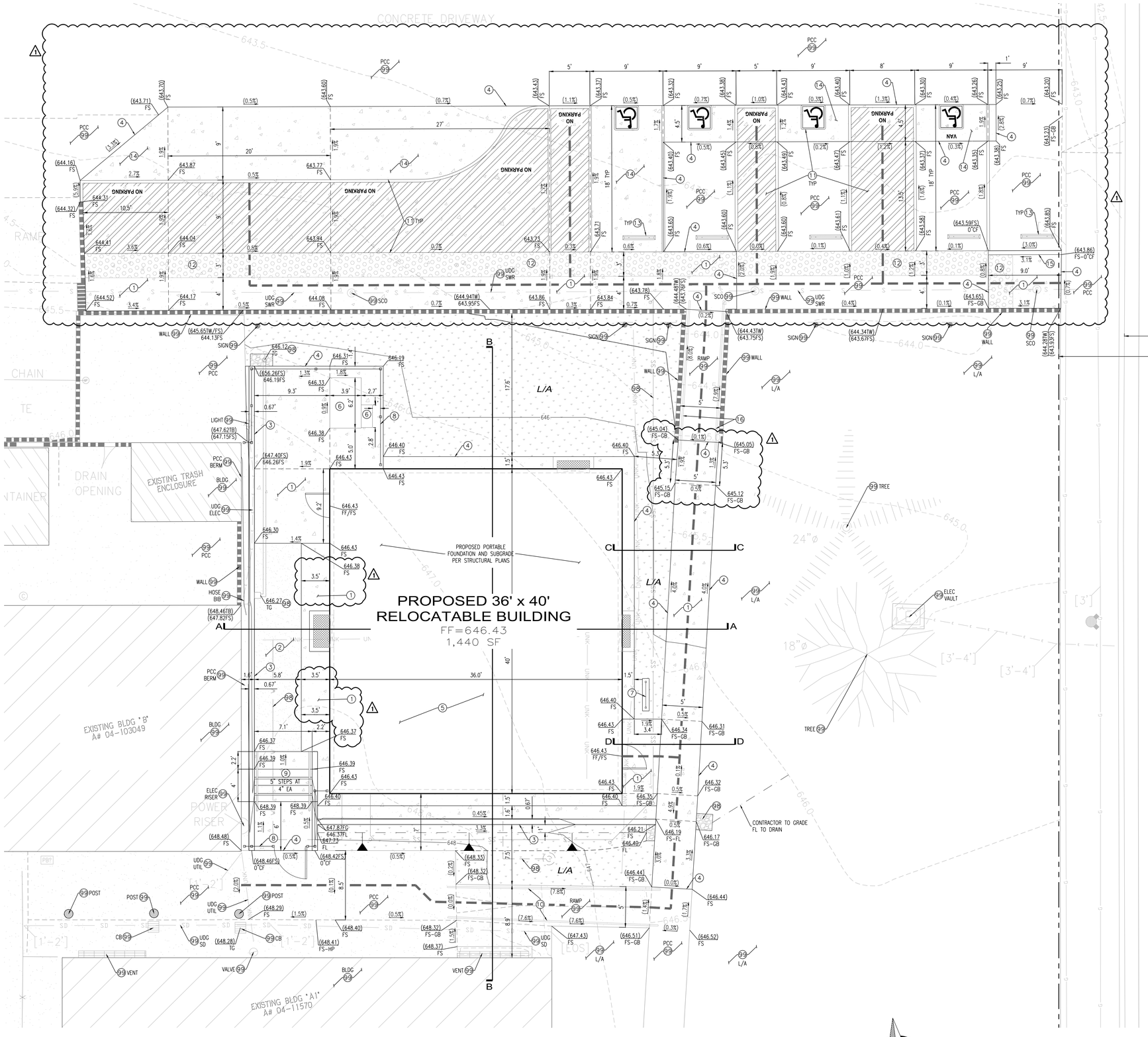

GRADING PLAN LEGEND & ABBREVIATIONS

- PROPOSED PCC PAVEMENT
- PROPOSED DECOMPOSED GRANITE
- PROPOSED LANDSCAPING
- ADA PATH OF TRAVEL

BLDG	BUILDING
℄	CENTERLINE
CB	CATCH BASIN
EA	EACH
ELEC	ELECTRICAL
FF	FINISH FLOOR
FS	FINISH SURFACE
GB	GRADE BREAK
HP	HIGH POINT
L/A	LANDSCAPING
LF	LINEAR FEET
PCC	PORTLAND CEMENT CONCRETE
SCO	SEWER CLEANOUT
SD	STORM DRAIN
SF	SQUARE FEET
SWR	SEWER
TB	TOP OF BERM
TC	TOP OF CURB
TW	TOP OF WALL
UDG	UNDERGROUND
UTIL	UTILITY

CONSTRUCTION ITEMS

		QUANTITIES
1	CONSTRUCT 4" PCC PAVEMENT OVER COMPACTED NATIVE SOIL	1,515 SF
2	CONSTRUCT DECOMPOSED GRANITE SURFACE	150 SF (1)
3	CONSTRUCT RETAINING CURB PER DETAIL (A/C5.1)	108 LF
4	CONSTRUCT PAVEMENT JOINT JUNCTURE PER DETAIL (B/C5.1)	325 LF
5	FURNISH AND INSTALL RELOCATABLE BUILDING PER ARCHITECTURAL PLANS	--
6	CONSTRUCT PCC MECHANICAL PAD PER ARCHITECTURAL PLANS	--
7	CONSTRUCT SIGN PER ARCHITECTURAL PLANS	--
8	FURNISH AND INSTALL CHAIN LINK FENCE AND GATES PER ARCHITECTURAL PLANS	--
9	CONSTRUCT STEPS WITH HAND RAILING PER ARCHITECTURAL PLANS	--
10	EXISTING HAND RAILING AND RAMP PER PLANS A# 04-111570	--
11	INSTALL STRIPING PER ARCHITECTURAL PLANS	--
12	INSTALL ADA TRUNCATED DOMES PER ARCHITECTURAL PLANS	--
13	INSTALL PARKING WHEEL STOP PER ARCHITECTURAL PLANS	--
14	CONSTRUCT 7" PCC PAVEMENT OVER 4" COMPACTED AGGREGATE BASE OVER COMPACTIVE NATIVE SOIL	1,425 SF (1)
15	CONSTRUCT 6" CURB (TYPE 6A) PER CITY OF CORONA STD. PLAN NO. 137	9 LF
16	EXISTING HAND RAILING AT RAMP	--
98	SEE SHEET C2.2 FOR STORM DRAIN AND UTILITY ITEMS	
99	PROTECT IN PLACE, ITEM PER PLAN	

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

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DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE

KEY PLAN

NORTH: PLAN TRUE

Consultant

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CORONA-NORCO USD

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12-14-23	230010

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1	CONC., PARKING & HANDRAILS	12/14/23

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GRADING PLAN

C2.1

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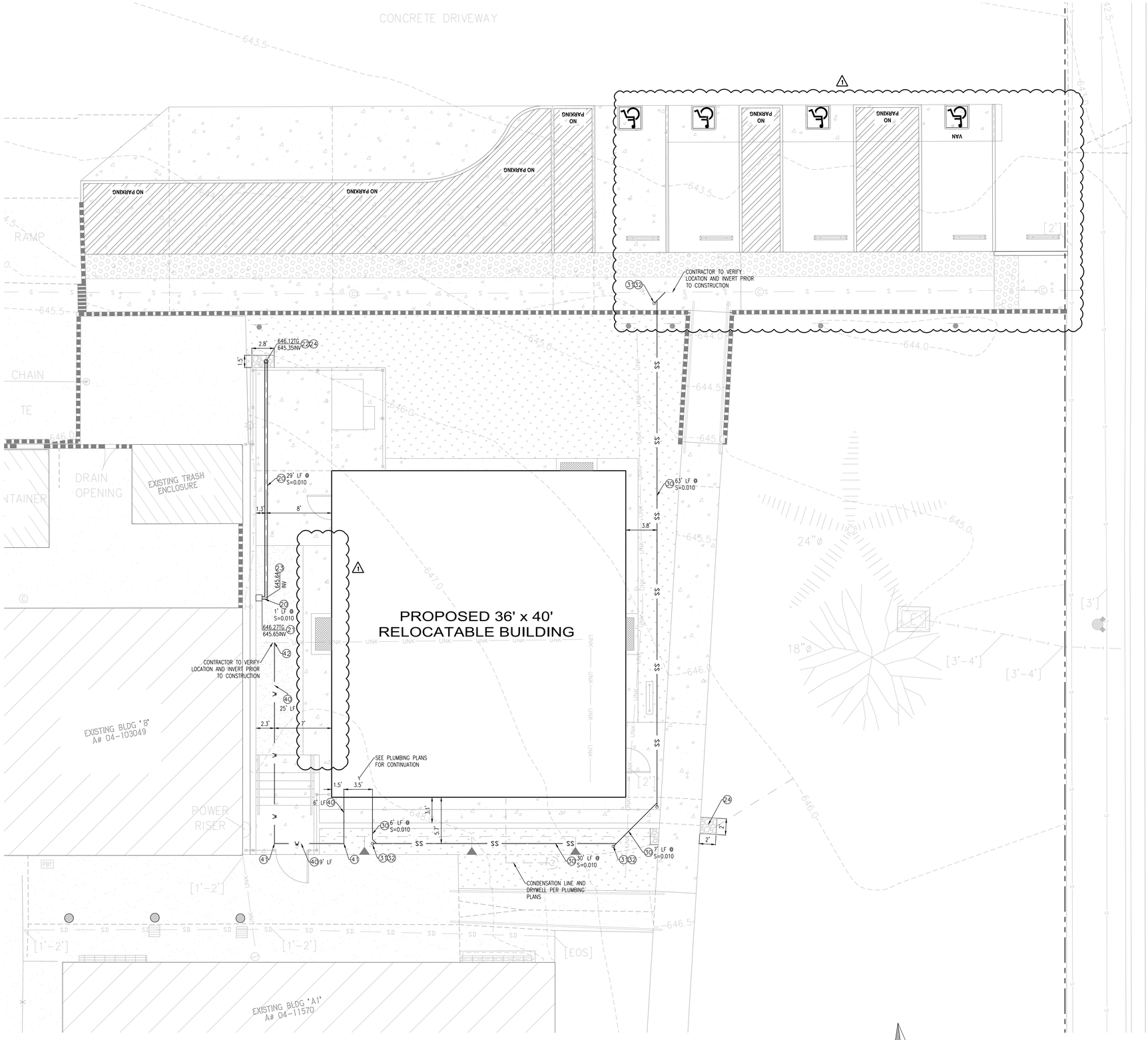

STORM DRAIN ITEMS

		QUANTITIES
20	FURNISH AND INSTALL 4" PVC, SCHEDULE 40 STORM DRAIN PIPE PER MANUFACTURERS SPECIFICATIONS	30 LF
21	FURNISH AND INSTALL 9"x9" CATCH BASIN BY NDSPRO WITH D.I GRATE (OR APPROVED EQUAL) PER DETAIL C/C5.1	1 EA
22	FURNISH AND INSTALL 4" POP-UP DRAINAGE EMITTER BY NDSPRO (OR APPROVED EQUAL) PER DETAIL E/C5.1	1 EA
23	FURNISH AND INSTALL 4" PVC 90° BEND	1 EA
24	CONSTRUCT RIP-RAP SPLASH PAD WITH 6" ROCK, SIZE PER PLAN	3 EA

SEWER ITEMS

		QUANTITIES
30	FURNISH AND INSTALL 2" PVC, SCHEDULE 40 SEWER LINE PER MANUFACTURERS SPECIFICATIONS	106 LF
31	FURNISH AND INSTALL 2" PVC WYE	4 EA
32	FURNISH AND INSTALL SEWER CLEANOUT PER CITY OF CORONA STD. 307 PER DETAIL F/C5.1	4 EA

WATER ITEMS

		QUANTITIES
40	FURNISH AND INSTALL 3/4" PVC, SCHEDULE 80 DOMESTIC WATER PER MANUFACTURERS SPECIFICATIONS	40 LF
41	FURNISH AND INSTALL 3/4" PVC 90° BEND	2 EA
42	CONNECT TO EXIST DOMESTIC WATER	1 EA

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

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CNUSD TRANSPORTATION OFFICE

KEY PLAN

NORTH: PLAN TRUE

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CORONA-NORCO USD

DATE	PROJECT NUMBER
12-14-23	230010

REVISIONS

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1	CONC., PARKING & HANDRAILS	12/14/23

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UTILITY PLAN

C2.2

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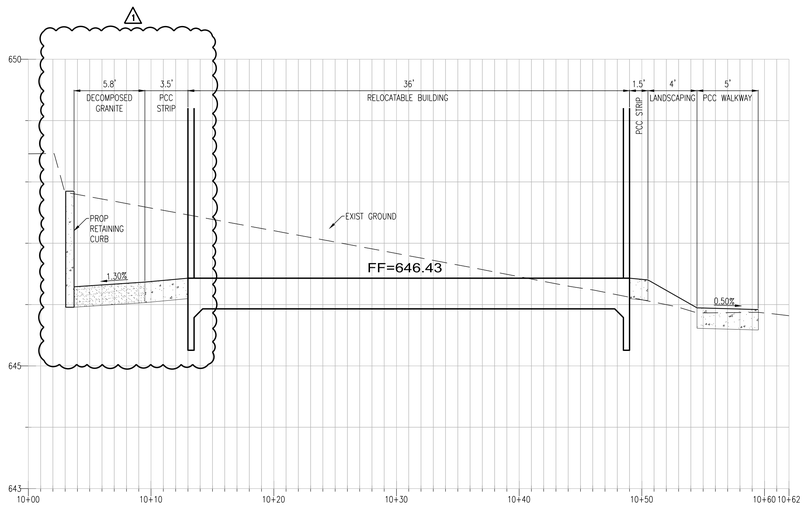
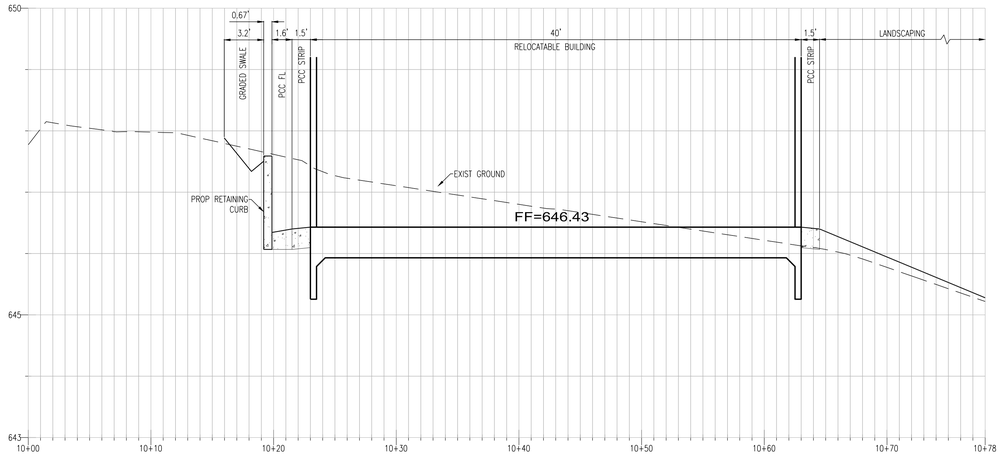


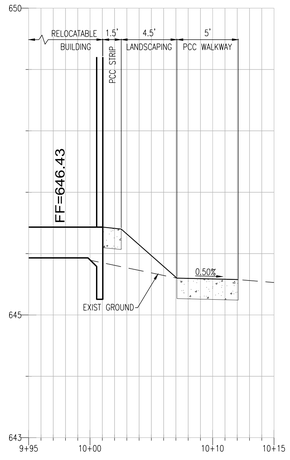
SECTION A-A

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'



SECTION B-B

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'



SECTION C-C

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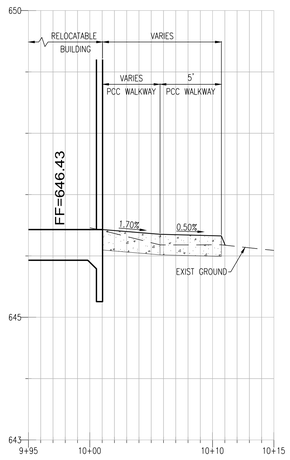
VERT SCALE: 1"=1'



SECTION D-D

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'

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DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE

H
G
F
E
D
A1
B
A

KEY PLAN

NORTH: PLAN TRUE

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STATE OF CALIFORNIA

Architect

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CORONA-NORCO USD

DATE	PROJECT NUMBER
12-14-23	230010

REVISIONS

No.	Description	Date
1	CONC. PARKING & HANDRAILS	12/14/23

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SECTIONS

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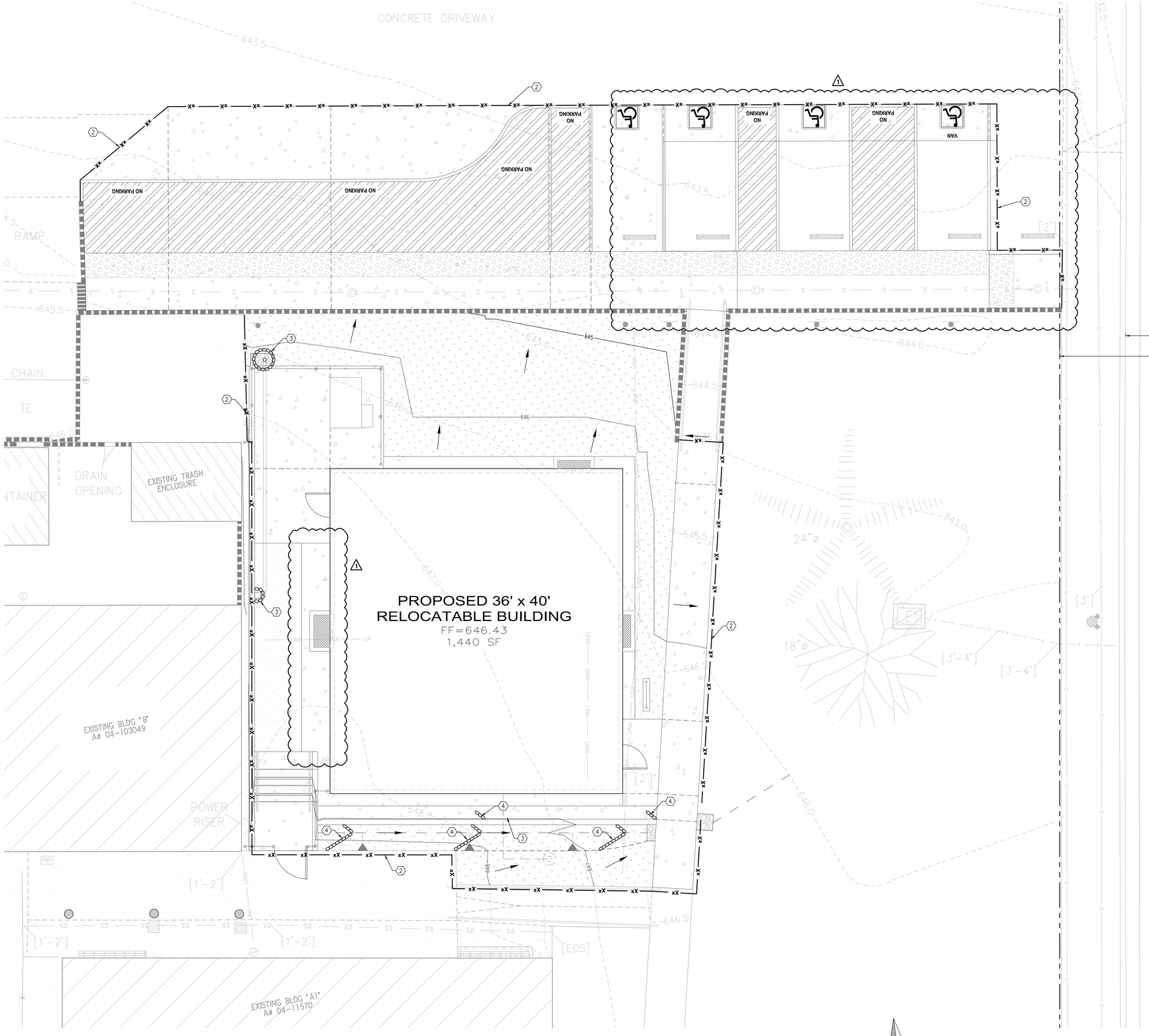
C3.1



EROSION CONTROL AND BMP ITEMS

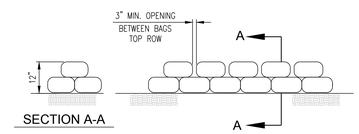
1. CONTRACTOR TO PREPARE AND IMPLEMENT A CONSTRUCTION SCHEDULE PER BMP (CASQA BMP HANDBOOK) EC-1
2. INSTALL SILT FENCE PER BMP (CASQA BMP HANDBOOK) SE-1
3. PLACE INLET PROTECTION PER BMP (CASQA BMP HANDBOOK) SE-10
4. PLACE GRAVEL BAGS 2 COURSE HIGH PER BMP (CASQA BMP HANDBOOK) SE-6 AND PER DETAIL ON THIS SHEET

OTHER NON-STORMWATER "BMPS"

NS-1	WATER CONSERVATION PRACTICES
NS-3	PAVING & GRIND OPERATIONS
NS-6	ILLICIT CONNECTION/DISCHARGE
NS-12	CONCRETE CURING
NS-13	CONCRETE FINISHING
WM-1	MATERIAL DELIVERY & STORAGE
WM-2	MATERIAL USE
WM-3	STOCKPILE MANAGEMENT
WM-4	SPILL PREVENTION & CONTROL
WM-5	SOLID WASTE MANAGEMENT
WM-6	HAZARDOUS WASTE MANAGEMENT
WM-8	CONCRETE WASTE MANAGEMENT
WM-9	SANITARY/SEPTIC WASTE MANAGEMENT
WM-10	LIQUID WASTE MANAGEMENT

LEGEND

- xx — SILT FENCE PER SE-1
- GRAVEL BAGS PER SE-6
- INLET PROTECTION PER SE-10
- FLOW DIRECTION



SECTION A-A

4 GRAVEL BAGS
NOT TO SCALE

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

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DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE

KEY PLAN

NORTH: PLAN TRUE

Consultant

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EROSION CONTROL PLAN

C4.1

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0" 1"

A9.01 - FINISH FLOOR PLAN AND SCHEDULE

FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALL FINISH				CEILING FINISH	CEILING HEIGHT	COMMENTS
				NORTH WALL	EAST WALL	SOUTH WALL	WEST WALL			
101	ENTRY	CPT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
102	WORK ROOM	CPT-1	RB-1	TS-1	TS-2	TS-1	TS-1	ACT-1	8'-6"	
103	OFFICE	CPT-1	RB-1	TS-1	TS-2	TS-1	TS-1	ACT-1	8'-6"	
104	OFFICE	CPT-1	RB-1	TS-1	TS-2	TS-1	TS-1	ACT-1	8'-6"	
105	CONFERENCE ROOM	CPT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
106	COPY ROOM	LVT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
107	BREAK AREA	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	8'-6"	

FINISH FLOOR LEGEND

- LUXURY VINYL TILE FLOORING (LVT-1)
- CARPET (CPT-1)
- ENTRY MAT (EM-1) — 21 / G0.05
- INTERIOR FIELD PAINT COLOR (P-1)
- TACKABLE SURFACE (TS-1)
- TACKABLE SURFACE (TS-2) — 1
- DOOR PAINT COLOR (P-4 @ INTERIOR DOORS & P-5 AT EXTERIOR DOORS) - PROVIDE SPLIT FACE PAINT AT EXTERIOR DOORS
- EXTERIOR PAINT COLOR (P-2) - ACCENT PAINT COLOR (P-3)

27 FINISH SCHEDULE

FINISH ABBREVIATIONS

ACT	ACOUSTICAL CEILING PANEL
CPT	CARPET
EM	ENTRY MAT
LVT	LUXURY VINYL TILE
MB	MARKERBOARD
P	PAINT
PL	PLASTIC LAMINATE
RB	RUBBER BASE
TS	TACKABLE SURFACE
WSC	WINDOW SHADE CLOTH

NOTES:
1. ALL FINISH MATERIALS MUST MEET THE FLAME SPREAD RATINGS PER 2016 CBC, CHAPT 8.
2. REFER TO INTERIOR ELEVATIONS FOR SPECIFIC MATERIAL LOCATIONS.
3. NON-CONFIRMED ITEMS IN THE DESIGN MUST BE CONFIRMED WITH THE CLIENT AND THE ARCHITECT.
4. ANY CHANGES TO FLOOR PLAN LAYOUT DURING THE PROJECT MIGHT CHANGE FINISHES. FINISHES MUST BE CONFIRMED WITH PBK PRIOR TO INSTALLATION.
5. FOR MANUFACTURERS AND COLORS, SEE FINISH SCHEDULE. ALL FINISHES TO BE INSTALLED IN ACCORADANCE WITH MANUFACTURER'S SPECIFICATIONS.
6. PAINT ALL EXPOSED DUCTWORK, CONDUIT, ELECTRICAL EQUIPMENT, ETC TO MATCH ADJACENT SURFACES, UNO.
7. PAINT ALL NON-FACTORY FINISHED EXPOSED METAL.
8. REFER TO TYPICAL FLOORING TRANSITION DETAILS FOR ALL FLOORING MATERIALS.
9. FLOORING TRANSITIONS AT DOORS SHOULD BE LOCATED UNDER, AND CONCELED BY THE DOOR IN THE CLOSED POSITION, UNO.
10. CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING FINISHED FLOORING SURFACES FROM DAMAGE DURING ALL CONSTRUCTION PHASES.
11. REFER TO REFLECTED CEILING PLANS FOR CEILING HEIGHTS.
12. ALL ELECTRICAL DEVICE COVERS ARE TO BE WHITE, UNO.
13. CARPET PATTERNS TO RUN PARALLEL TO CORRIDOR AND/OR PARALLEL TO THE LONG DIMENSION OF A ROOM OR SPACE, UNO.
14. ALL HOLLOW METAL DOOR FRAMES TO BE PAINTED TO MATCH ADJACENT WALL COLOR.
15. FOR PLASTIC LAMINATE LOCATIONS SEE CABINETRY DEATAIL DRAWINGS.
16. SUBCONTRACTORS TO SUBMIT FINISH SAMPLES (PLASTIC LAMINATE, PAINT, FLOORING, ETC.) TO PBK FOR APPROVAL PRIOR TO INSTALLATION. ALLOW SUFFICIENT TIME TO REORDER IF MATERIAL IS DEFECTIVE OR UNACCEPTABLE.

MATERIAL SCHEDULE

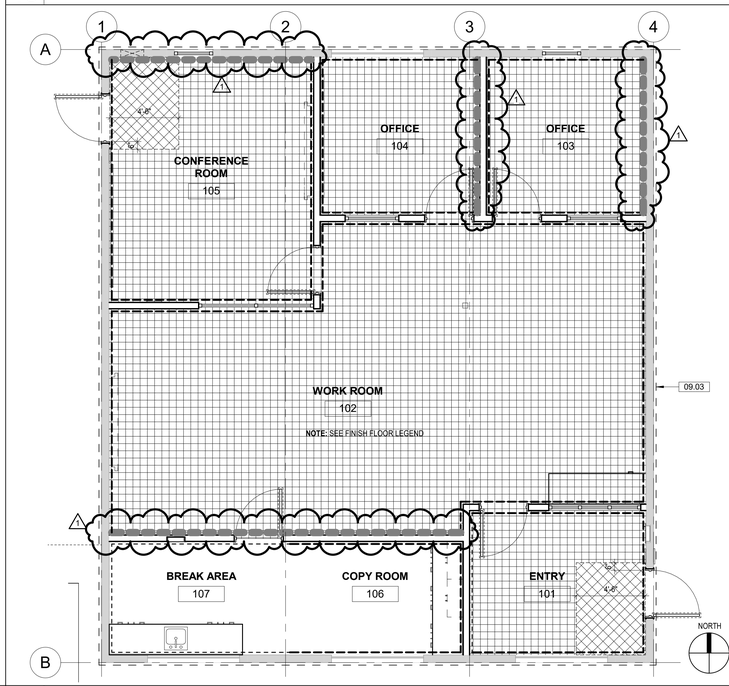
ITEM	MANUFACTURER	DESCRIPTION	COLOR	SIZE	LOCATION	NOTES
CARPET						
CPT-1	MOHAWK	INTERPLAY STRIPE	951 YELLOW JACKET	18" x 35.5"	SEE FINISH PLAN	
ENTRY MAT						
EM-1	MOHAWK	TUFF STUFF II	FIRST STEP II - GT315	SEE FINISH PLAN	SEE FINISH PLAN	
LUXURY VINYL TILE						
LVT-1	ALTRO FLOORS	LVT	ALABASTER - LAVI16033	12" x 24"	SEE FINISH PLAN	
PLASTIC LAMINATE						
PL-1	WILSONART	HPL	7966K-12 5th AVE ELM	N/A	@ CABINETS	REFER TO MILLWORK DRAWINGS
PL-2	WILSONART	HPL	0427-58 LINEN	N/A	@ COUNTER-TOPS	REFER TO MILLWORK DRAWINGS
INTERIOR PAINT						
P-1	DUNN EDWARDS	PAINT	DE6226 - FOGGY DAY	N/A	INT. FIELD COLOR	LOW SHEEN FINISH
P-2	DUNN EDWARDS	PAINT	DE6359 - SILVER SETTING	N/A	EXT. FIELD COLOR	
P-3	DUNN EDWARDS	PAINT	DE5852 - RAINY LAKE	N/A	EXT. ACCENT COLOR	
P-4	DUNN EDWARDS	PAINT	DEA002 - BLACK	N/A	INT. DOOR COLOR	
P-5	DUNN EDWARDS	PAINT	DE5852 - RAINY LAKE	N/A	EXT. DOOR COLOR	
RESILIENT BASE						
RB1	MOHAWK	DURACOVE 4" RUBBER BASE	073 AIRCRAFT CARRIER	4" H	@NEW FLOORING	
WINDOW SHADE CLOTH						
WSC-1	MECHOSHADE	ECOVEIL SYSTEM	1369 SILVER BIRCH	N/A	WINDOWS	5% OPENESS
MARKERBOARD						
MB-1	POLYVISION	TBD	BRILLIANT WHITE	SEE INTERIOR ELEV.	SEE INTERIOR ELEV.	MAGNETIC CERAMIC COATED STEEL
TACKABLE SURFACE						
TS-1	KOROSEAL / CHATFIELD CLARKE	INTERLOOM	COCONUT NM21-02	N/A	SEE FINISH PLAN - FIELD	
TS-2	KOROSEAL / CHATFIELD CLARKE	INTERLOOM	HAZE NM21-05	N/A	SEE FINISH PLAN - ACCENT	
ACOUSTIC CEILING PANEL						
ACT1	ARMSTRONG	SCHOOL ZONE FINE FISSURED	WHITE	2' x 4' TILES	CEILING	

*REFER TO INTERIOR ELEVATION FOR SPECIFIC PATTERN

15 MATERIAL SCHEDULE

CONSTRUCTION KEYED NOTES

#	Description
09.03	EXTERIOR PLASTER WITH PAINT FINISH TO BE PROVIDED, TYP. - SEE FINISH FLOOR LEGEND



3 PROPOSED FLOOR PLAN

1/4" = 1'-0"

ARCHITECT PBK Architects, Inc.
RANCHO CUCAMONGA PBK.com
8163 Rochestser Avenue, Suite 100
Rancho Cucamonga
California 91730
P 909-987-0909

CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
300 S. BUENA VISTA AVE.
NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE

H
G
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D
A1
B
A

KEY PLAN

NORTH: PLAN TRUE

Consultant

Architect

LICENSED ARCHITECT Yong Yoo No. C-31162 REN. 10-31-2025 STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

REVISIONS

No.	Description	Date
1	Addendum No. 01	11/30/23

100% CONSTRUCTION DOCUMENTS

FINISH FLOOR PLAN AND SCHEDULE

A9.01

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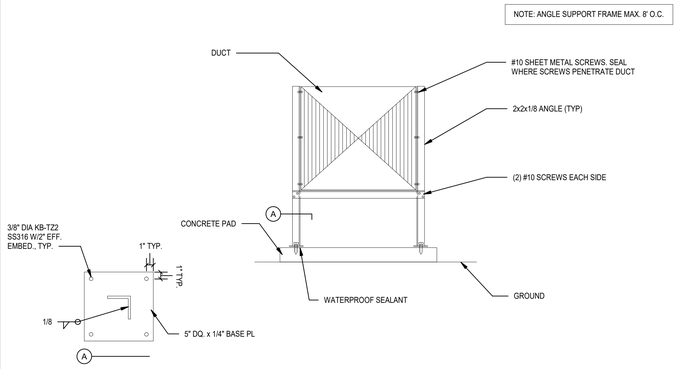
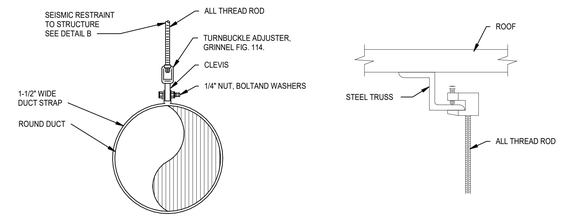


11 DUCT SUPPORT DETAIL
NOT TO SCALE

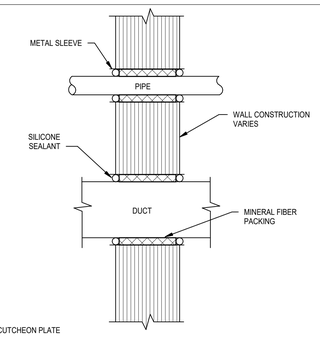


NOTES:

1. CONNECT VERTICAL HANGERS, DIAGONAL AND HORIZONTAL BRACES TO SUPPORTING STRUCTURE. REFER TO SPECIFICATION SECTION 233113.
2. REFER TO SMACNA RESTRAINT GUIDELINES, LATEST EDITION FOR ADDITIONAL ACCEPTABLE SEISMIC RESTRAINT OPTIONS.

DETAIL B

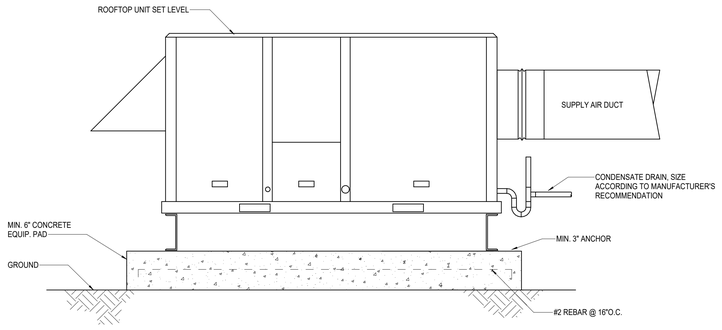
8 ROUND DUCT SUPPORT DETAIL
NOT TO SCALE



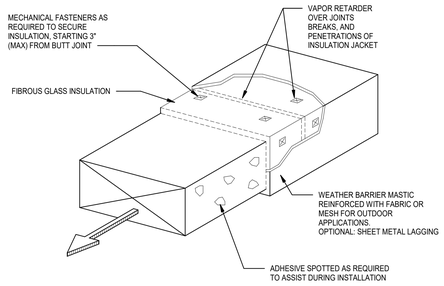
NOTE:

1. REFER TO SPECIFICATIONS FOR ESCUTCHEON PLATE REQUIREMENTS.
2. SUPPORT PIPES & DUCTS ON EITHER SIDE OF WALL. DO NOT LET THEM LOAD ONTO THE WALL.

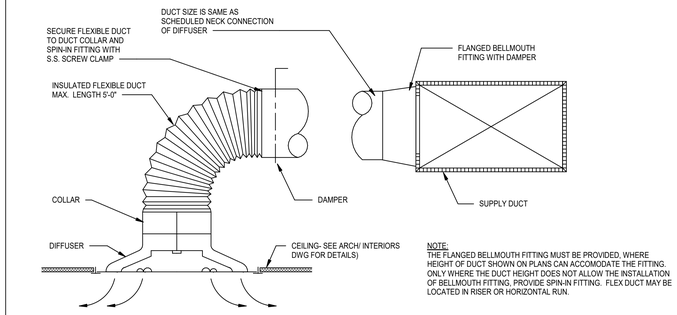
4 DUCT OR PIPE THRU NON RATED WALL DETAIL
NOT TO SCALE



10 HEAT PUMP ON GROUND DETAIL
NOT TO SCALE

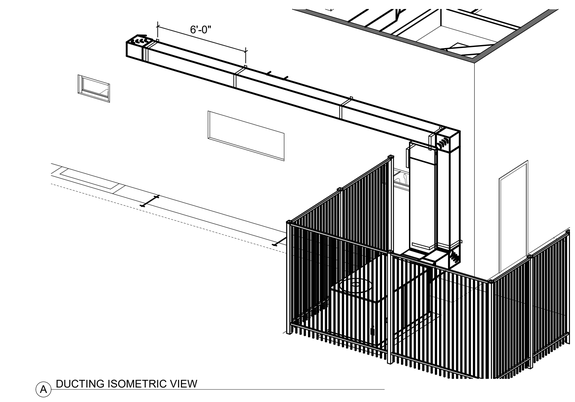


7 EXTERIOR DUCT DETAIL
NOT TO SCALE

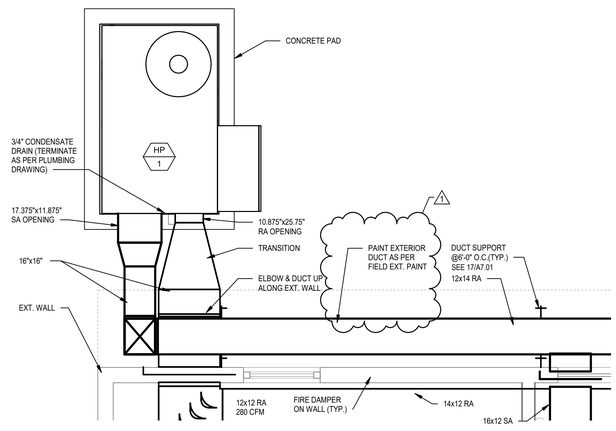


NOTE:
THE FLANGED BELLMOUTH FITTING MUST BE PROVIDED, WHERE HEIGHT OF DUCT SHOWN ON PLANS CAN ACCOMODATE THE FITTING. ONLY WHERE THE DUCT HEIGHT DOES NOT ALLOW THE INSTALLATION OF BELLMOUTH FITTING, PROVIDE SPIN-IN FITTING. FLEX DUCT MAY BE LOCATED IN RISER OR HORIZONTAL RUN.

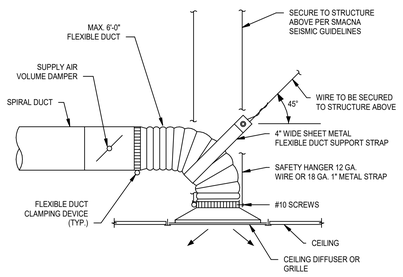
3 CEILING DIFFUSER CONNECTION DETAIL
NOT TO SCALE



A DUCTING ISOMETRIC VIEW



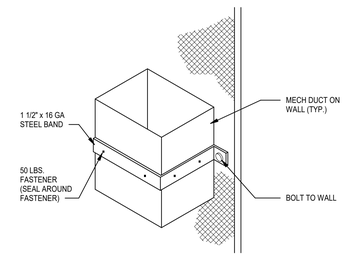
9 HEAT PUMP DUCTING DETAIL
NOT TO SCALE



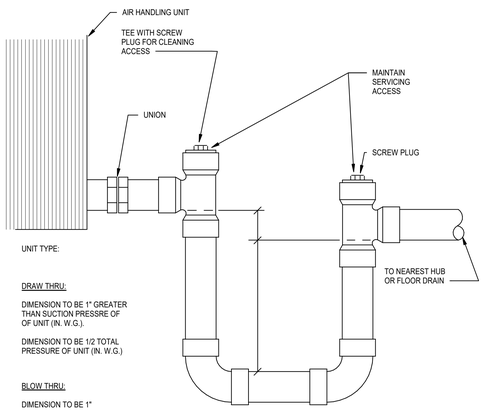
NOTES:

1. REFER TO DETAIL X SHEET M-XXX FOR FLEXIBLE DUCTWORK DETAIL.
2. LOCATE VOLUME DAMPER AS FAR AWAY FROM DIFFUSER OR GRILLE AS POSSIBLE.

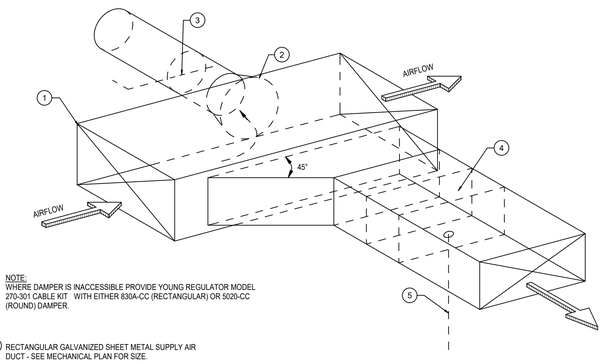
6 LAY IN DIFFUSER CONNECTION DETAIL
NOT TO SCALE



2 DUCT SUPPORT ON WALL DETAIL
NOT TO SCALE



5 CONDENSATE TRAP PIPING DETAIL
NOT TO SCALE



NOTE:
WHERE DAMPER IS INACCESSIBLE PROVIDE YOUNG REGULATOR MODEL 270-301 CABLE KIT WITH EITHER 830A-CC (RECTANGULAR) OR 5020-CC (ROUND) DAMPER.

1. RECTANGULAR GALVANIZED SHEET METAL SUPPLY AIR DUCT - SEE MECHANICAL PLAN FOR SIZE.
2. CUT OPENING ACCURATELY FOR SPIN IN (FLARED) FITTING - WHERE POSSIBLE.
3. BUTTERFLY DAMPER W/ LOCKING QUAD. (TYP)
4. VOLUME CONTROL DAMPER WITH LOCKING QUADRANT.
5. DAMPER REGULATOR

1 BRANCH DUCT TAKE-OFF & DMP. DETAIL
NOT TO SCALE

PBK
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PBK.com
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P 909-987-0909

CONSULTANT LEAF Engineers
LEAF ENGINEERS
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CORONA TRANSPORTATION

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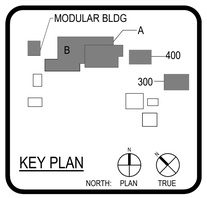
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



Consultant

Architect

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date
1	Addendum #01	11/29/23

DSA Submittal

MECHANICAL DETAILS

M6.01

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TECHNOLOGY GENERAL NOTES

1. THE SEISMIC BRACING AND ANCHORAGE OF ELECTRICAL CONDUITS, BUS DUCT, WIREWAY, AND CABLE TRAY SHALL BE IN ACCORDANCE WITH THE UNIFORM BUILDING CODE, CHAPTER 23 AND "GUIDELINE FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS," PUBLISHED BY SMACNA AND PPIC, OR THE SUPER STRUT-SEISMIC RESTRAINT SYSTEM, OR THE KIN- LINE SEISMIC RESTRAINT SYSTEM.

2. ALL ELECTRICAL PREFABRICATED EQUIPMENT SHALL BE DESIGNED AND CONSTRUCTED IN SUCH A MANNER THAT ALL PORTIONS, ELEMENTS, SUB-ASSEMBLIES AND/OR PARTS OF SAID EQUIPMENT, AND THE EQUIPMENT AS A WHOLE INCLUDING ITS ATTACHMENTS WILL RESIST A LOAD WHICH EXCEEDS THE FORCE LEVEL USED TO RESTRAIN AND ANCHOR THE EQUIPMENT TO THE SUPPORTING STRUCTURE.

3. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL) OR OTHER APPROVED TESTING AUTHORITY AND BEAR THEIR LABEL OR LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING.

4. AUTHORITY WHERE UL DOES NOT HAVE A LISTING. CUSTOM MADE EQUIPMENT SHALL HAVE COMPLETE TEST DATA SUBMITTED BY THE MANUFACTURER ATTESTING TO ITS SAFETY. IN ADDITION, THE MATERIALS, EQUIPMENT, AND INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING AS APPLICABLE:

AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)

INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

AMERICAN STANDARD ASSOCIATION (ASA)

NATIONAL FIRE PROTECTION AGENCY (NFPA)

AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

5. ALL LOCAL CODES HAVING JURISDICTION. WHERE THE CODES HAVE DIFFERENT LEVELS OF REQUIREMENT, THE MOST STRINGENT RULE SHALL APPLY AS DETERMINED BY ENGINEER.

6. ALL ITEMS SUCH AS SERVICE CONDUIT, CONDUCTORS, DUCTS, CONCRETE PADS, TRANSFORMERS, RISERS, MANHOLES, PULL BOXES, AND PROTECTIVE COVERING FROM SERVICE LOCATION SHALL BE PROVIDED AND SHALL BE VERIFIED WIT THE SERVING UTILITY COMPANY. THE CONTRACTOR SHALL PROVIDE THE SERVICE IN COMPLIANCE WITH THE SERVING UTILITY AGENCY. CJV SHALL PAY ALL CHARGES LEVIED BY THE SERVING UTILITY AGENCY FOR SERVICE EXCEPT THE FIRST BILLING DEPOSIT

7. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION AND CONFIGURATION OF THEIR RESPECTIVE EQUIPMENT. SUPPLY POWER AND MAKE CONNECT TO MOTORS AND EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AS INDICATED ON THE SINGLE LINE DIAGRAM, ELECTRICAL DRAWINGS, AND DRAWINGS OF OTHER TRADES. REVIEW THE DRAWINGS OF OTHER TRADES FOR CONTROL DIAGRAMS, SIZE AND LOCATION OF EQUIPMENT. DISCONNECT SWITCHES, STARTERS, WIRING, CONTROLS, CONDUIT FOR MECHANICAL, MISC. 120V POWER REQUIREMENTS AND PLUMBING OPERATIONS SHALL BE PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGHING IN ALL CONDUIT TO THIS EQUIPMENT.

8. EXACT METHOD AND LOCATION OF CONDUIT PENETRATION AND OPENINGS IN CONCRETE OR MASONRY WALLS, GRADE BEAMS, FLOORS OR STRUCTURAL STEEL MEMBERS SHALL BE AS DIRECTED BY THE STRUCTURAL ENGINEER. PERFORM CORING, SAWCUTTING, PATCHING, AND REFINISHING OF WALLS AND SURFACES WHEREVER IT IS NECESSARY TO PENETRATE. OPENINGS SHALL BE SEALED IN AN APPROVED METHOD TO MEET THE FIRE RATING OF THE PARTICULAR WALL, FLOOR OR CEILING. EXACT METHOD AND LOCATIONS OF CONDUIT PENETRATIONS AND OPENINGS IN CONCRETE WALLS OR FLOORS SHALL BE FOR UL APPROVED SYSTEMS.

9. CONNECTIONS TO VIBRATING EQUIPMENT, MECHANICAL, AND PLUMBING EQUIPMENT AND SEISMIC SEPARATIONS: LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN ALL LOCATIONS MAXIMUM LENGTH OF FLEXIBLE CONDUIT RUNS SHALL BE 6'-0" UNLESS OTHERWISE NOTED. TRAIN CONTROL CONDUIT, 2" AND BIGGER ARE SHOWN IN MSF-02 AND MSF-03 E-900 SERIES. SMALLER CONDUIT RUN SHALL BE SHOWN IN ELECTRICAL CONTRACTOR'S SHOP DRAWINGS.

10. STRAIGHT FEEDER, BRANCH CIRCUIT, AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES AS REQUIRED BY CODE. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

11. UTILITY PENETRATIONS OF ANY KIND IN FIRE AND SMOKE PARTITIONS AND CEILING ASSEMBLIES SHALL BE FIRESTOPPED AND SEALED WITH AN APPROVED MATERIAL. SECURELY INSTALLED STEEL ELECTRICAL OUTLET BOXES WHICH DO NOT EXCEED 16 SQUARE INCHES IN AREA, NEED NOT BE PROTECTED IN ONE HOUR OR TWO-HOUR FIRE RATED WALLS, PARTITIONS, CEILINGS, OR AREA SEPARATION UNLESS THEY:

12. OCCUR ON OPPOSITE SIDES OF THE WALL WITHIN 24 INCH HORIZONTAL DISTANCE OF ONE ANOTHER. IN THIS CASE, ONLY ONE OUTLET BOX NEED TO PROTECTED BY AN APPROVED FIRESTOP MATERIAL OR DETAIL TO CORRECT THIS CONDITION.

13. OCCUR IN COMBINATION WITH OUTLET BOXES OF ANY SIZE SUCH THAT THE AGGREGATE AREA OF UNPROTECTED OUTLET BOXES EXCEEDS 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL AREA. IN THIS CASE, ONLY A SUFFICIENT NUMBER OF OUTLET BOXES NEED TO BE PROTECTED BY AN APPROVED MATERIAL OR DETAIL TO DECREASE THE AGGREGATE AREA OF UNPROTECTED UTILITY BOXES TO LESS THAN 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL.

14. STEEL ELECTRICAL OUTLET BOXES, WHICH EXCEED 16 SQUARE INCHES IN AREA, AND ALL OTHER STEEL UTILITY OUTLET BOXES REGARDLESS OF SIZE, SHALL BE PROTECTED BY AN APPROVED FIRESTOP MATERIAL AS LISTED.

15. UTILITY AND ELECTRICAL OUTLETS OR BOXES SHALL BE SECURELY FASTENED TO THE STUD OF FRAMING OF THE WALL, PARTITION OR CEILING ASSEMBLY. THE OPENING IN THE GYPSUM BOARD FACING SHALL BE CUT SO THAT THE CLEARANCE BETWEEN THE BOX, AND THE GYPSUM BOARD DOES NOT EXCEED 1/8 INCH IN SMOKE WALLS OR PARTITIONS, THE 1/8 INCH CLEARANCE SHALL BE FILLED WITH AN APPROVED FIRE-RATED SEALANT.

16. MAXIMUM NUMBER OF CONDUCTORS IN OUTLET OR JUNCTION BOXES SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE, ARTICLE 314-16, BUT IN NO CASE SHALL CONTAIN MORE THAN THE FOLLOWING NUMBER OF #12 AWG CONDUCTORS FOR THE SIZE OF BOX INDICATED. THE MINIMUM SIZE OUTLET OR JUNCTION BOX PERMITTED IN A WALL IS FOUR INCHES SQUARE BY 1 1/2 INCHES DEEP.

4" SQUARE BY 1 1/2" D=9 CONDUCTORS
4" SQUARE BY 2 1/8" D=13 CONDUCTORS
4 11/16" SQUARE BY 1 1/2" D=11 CONDUCTORS
4 11/16" SQUARE BY 2 1/8" D=18 CONDUCTORS
ALL OUTLET BOXES CONTAINING MORE THAN ONE DEVICE SHALL BE GANGED.
TWO DEVICES DOUBLE GANGED, MINIMUM.

17. WHERE MULTI-HOMERUNS ARE INDICATED ON DRAWINGS INDICATING THE SAME PANELBOARD CIRCUIT NUMBER, PROVIDE JUNCTION BOX ABOVE ACCESSIBLE CEILING AND ROUTE ONE SET OF WIRED TO CIRCUIT BREAKERS.

18. DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT SHOW SPECIAL CONDUIT ROUTING OR LENGTHS REQUIRED FOR A COMPLETE INSTALLATION. ROUTING OF RACEWAYS SHALL BE COORDINATED IN THE FIELD WITH OTHER TRADES BUT SHALL BE IN STRICT COMPLIANCE WITH STRUCTURAL REQUIREMENTS AND SPECIFICATIONS, UNLESS OTHERWISE NOTED AND SHALL BE COORDINATED WITH OTHER TRADES. NO CONDUIT SHALL BE ROUTED HORIZONTALLY IN MASONRY WALLS IN EXCESS OF 48". DO NOT SCALE THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL OR MECHANICAL ITEMS OR FEATURES, REFER TO ARCHITECTURAL AND STRUCTURAL DIMENSIONAL DRAWINGS.

19. THE EQUIPMENT GROUNDING CONDUCTOR, ALTHOUGH NOT SHOWN ON CONDUIT RUNS, SHALL BE INSTALLED AND RUN CONTINUOUS FROM PANEL TO THE LAST OUTLET. THIS WIRE SHALL BE PIGTAILED IN EACH OUTLET FOR CONNECTION TO BOX AND DEVICE SO THAT IF DEVICE IS REMOVED, GROUND WILL NOT BE INTERRUPTED. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSULATED GREEN CONDUCTORS, ALTERNATE METHODS OF IDENTIFICATION SHALL NOT BE USED.

20. JUNCTION AND PULL BOXES: FOR INTERIOR DRY LOCATIONS, BOXES SHALL BE GALVANIZED ONE-PIECE, DRAWN STEEL, KNOCKOUT TYPE WITH REMOVABLE MACHINE SCREW SECURED COVERS. FOR OUTSIDE, DAMP, OR PROVIDE NEMA 4X WHERE REQUIRED. BOXES SHALL BE LABELED TO INDICATE PANEL AND CIRCUIT NUMBER, OR TYPE OF SIGNAL OR COMMUNICATIONS SYSTEM.

21. WHEN CONFLICTS OCCUR ON DRAWINGS, THE MOST STRINGENT APPLICATION SHALL APPLY.

22. IT IS THE INTENT OF THE DRAWINGS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION BE PROVIDED FOR THE EQUIPMENT DESCRIBED OR SHOWN AS BEING IN THIS CONTRACT. FURNISH ALL LABOR AND TOOLS NECESSARY AND FURNISH AND INSTALL ALL APPARATUS, MATERIALS AND EQUIPMENT IN A FASHION COMPLYING WITH ALL APPLICABLE CODES, INCLUDING ITEMS REQUIRED BUT NOT NORMALLY SHOWN, SUCH AS LAMPS, HANGERS, BRACKETS, CLAMPS, COUPLINGS, BOXES, CONNECTORS, AND HARDWARE REFER ALSO TO WRITTEN SPECIFICATIONS FOR GENERAL, MECHANICAL AND ELECTRICAL SECTIONS.

23. NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO TECHNOLOGY EQUIPMENT SHALL BE PERMITTED TO BE LOCATED WITHIN DEDICATED SPACE ABOVE THE TECHNOLOGY EQUIPMENT.

24. ALL GROUNDING ELECTRODES THAT ARE PRESENT AT EACH BUILDING OR STRUCTURE SHALL BE BONDED TOGETHER.

25. REFER TO SPECIFICATION SECTION 26 05 33 FOR TYPE OF CONDUITS USED.

26. FUTURE EQUIPMENT SUBMITTALS TO SHOW THE EXACT LOCATIONS FOR ALL FUTURE PANELS SHOWN ON THE DRAWINGS.

27. RACEWAY AND BOXES FOR TECHNOLOGY SYSTEMS

CONDUIT

A. ALL CONDUITS, CABLES, AND WIRING SHALL BE CONCEALED FROM PUBLIC VIEW. UNLESS APPROVED BY OWNER.

B. DRY LOCATIONS EXPOSED AND CONCEALED: PROVIDE ELECTRICAL METALLIC TUBING CONDUIT, BASED FP 11.3.16.67 (A) THAT USE OF EMT IS SUBJECT TO OWNER APPROVAL. GALVANIZED RIGID STEEL (RGS) CONDUIT SHALL BE USED IN AREAS SUBJECT TO PHYSICAL DAMAGE INCLUDING ALL TUG ROUTES OR TUG AREAS. PROVIDE SHEET-METAL BOXES PROVIDE FLUSH MOUNTING OUTLET BOX IN FINISHED AREAS.

C. ANY SPACE CONDUITS SHALL BE PROVIDED WITH PULL LINES.

D. THE MINIMUM CONDUIT SIZE SHALL BE 3/4 INCH FOR POWER.

E. ROMEX AND ALUMINUM FLEX CONDUITS ARE NOT ALLOWED.

ENCLOSURES

A. METAL CLAD TYPE MC CABLE IS ALLOWED FOR TEMPORARY INSTALLATIONS.

PULL BOXES

A. INDOOR DRY ENCLOSURES SHALL BE NEMA TYPE 1.

B. OUTDOOR ENCLOSURES SHALL BE NEMA TYPE 4X STAINLESS STELL.

C. ENCLOSURES EXPOSED TO DUST OR MOISTURE SHALL BE NEMA TYPE 12 OR TYPE 3R/12.

28. IDENTIFICATION FOR SYSTEMS

NAMEPLATES ON EQUIPMENT

A. ENGRAVED PLASTIC NAMEPLATES AND SIGNS: ENGRAVING STOCK, MELAMINE PLASTIC LAMINATE, MINIMUM 1/16 INCH (1.6 MM) THICK FOR SIGNS UP TO 20 SQ. IN. (129 SQ. CM) AND 1/8 INCH (3.2 MM) THICK FOR LARGER SIZES. ENGRAVED LEGEND WITH WHITE LETTERS ON BLACKFACE FOR NORMAL POWER, WHITE LETTERS ON RED FACE FOR EMERGENCY POWER. PUNCHED OR DRILLED FOR MECHANICAL FASTENERS. TEXT IS AT 1/2-INCH (13 MM) HIGH LETTERING.

B. NAMEPLATES SHALL ADEQUATELY DESCRIBE THE FUNCTION OF THE PARTICULAR EQUIPMENT INVOLVED. WHERE NAMEPLATES ARE DETAILED ON THE DRAWINGS, INSCRIPTION, AND SIZE OF LETTERS SHALL BE AS SHOWN, AND SHOP DRAWING SUBMITTED FOR APPROVAL. NAMEPLATES FOR PANELBOARDS AND SWITCHBOARDS SHALL INCLUDE THE PANEL DESIGNATION, VOLTAGE, PHASE AND WIRE, THE NEXT ITEM SHALL BE EITHER OWNER, CONCESSIONS, OR AIRLINE PANEL, DEPENDING ON LOADS SERVED. IN ADDITION, DESCRIBED WHERE THE PANEL IS FED FROM. FOR EXAMPLE:

PANEL 1LA, 120/208V, 3PH, 4W FED
OWNER PANEL
FED FROM MS

C. NAMEPLATES SHALL BE SECURED TO EQUIPMENT FRONT USING STAINLESS STEEL SCREWS OR RIVETS.

D. CUSTOM METAL MASTER NAMEPLATES SHALL BE FURNISHED AND INSTALLED BY THE MANUFACTURER ON EACH DISTRIBUTION SECTION, SWITCHBOARD SECTION AND MOTOR CONTROL CENTER INDICATING THE MANUFACTURER'S NAME, AMPERE RATING, SHORT-CIRCUIT RATING (BUS BRACING) AND DATE. PAPER STICKERS ARE NOT ACCEPTABLE. FOR EXAMPLE:

ABC SWITCHBOARD CO.
AMPERE RATING: 5000A
SHORT CIRCUIT RATING: 100KAIC
DATE: 01/01/2011
PANELBOARD DIRECTORIES

29. PERMANENT MARKING

A. ALL CONDUITS, BUSWAYS, CABLE TRAYS, AND PULL BOXES SHALL BE IDENTIFIED WITH PERMANENT BLACK LETTERS AND NUMBERS WHICH INDICATE THE SOURCE PANEL (FEEDER SUPPLY SOURCE), CIRCUIT NUMBERS, AND DESIGNATED PANEL OR LOAD, FOR EXAMPLE, "PA-1.3.5 TO MG" FOR CONDUITS. THE LETTER HEIGHT SHALL BE ONE-THIRD (1/3) THE CONDUIT SIZE WITH ¼ INCH MINIMUM HEIGHT. FOR PULL BOXES AND BUSWAYS, THE LETTER HEIGHT SHALL BE ½ INCH MINIMUM HEIGHT AND NOT LARGER THAN ¾ INCH HEIGHT OR PER DEVELOPER CMMS REQUIREMENTS.

B. THE IDENTIFICATIONS FOR CONDUITS, BUSWAYS, AND CABLE TRAYS SHALL BE PLACED AT BEGINNING AND END INTERVALS AND WITHING 10 FEET OF WALL AND FLOOR PENETRATIONS, PULL BOXES PANELS, DISTRIBUTION BOARDS, SWITCHBOARDS, AND ELECTRICAL EQUIPMENT.

C. SPARE CONDUITS, PULL BOXES, BUSWAYS, AND ABANDONED RACEWAYS (THAT ARE TO REMAIN AS SHOWN ON THE DRAWINGS) SHALL BE IDENTIFIED AS DESCRIBED ABOVE (A, B).

D. THE PERMANENT MARKING IDENTIFICATIONS ON THE RACEWAYS AND PULL BOXES SHALL BE VISIBLE AFTER THE INSTALLATIONS ARE MADE.

E. ALL RECEPTACLE AND SWITCH FACEPLATES SHALL BE LABELED WITH THE SOURCE PANEL AND CIRCUIT NUMBER, THE LABEL SHALL BE BLACK ARIAL FONT ON WHITE OR CLEAR TAPE, PRODUCED BU A P-TOUCH OR OTHER LABEL MACHINE.

30. UNDERGROUND WARNING TAPE

A. DESCRIPTION: PERMANENT, DETECTABLE, RED COLORED, CONTINUOUS PRINTED, POLYETHYLENE TAPE WITH SUITABLE WARNING LEGEND DESCRIBING BURIED ELECTRICAL LINES. TAPE SHALL BE MINIMUM 6 INCHES WIDE BY 4 MILS THICK. OTHER COLOR CODES INCLUDE:

SAFETY RED	ELECTRICAL AND LIGHTING CONDUIT AND CABLES
SAFETY YELLOW	GAS, OIL STEAM, PETROLEUM, OR GASEOUS MATERIALS
SAFETY ORANGE	TELEPHONE, ALARM, OR SIGNAL CABLES AND CONDUIT
SAFETY BLUE	POTABLE WATER OR IRRIGATION
SAFETY GREEN	SEWER OR DRAIN LINES

31. MANHOLE AND UNDERGROUND PULL BOXES COVER LABEL

A. ALL MANHOLE AND UNDERGROUND PULL BOXES COVERS SHALL HAVE THE FOLLOWING CAST-IN OR BEAD WELDED AND GALVANIZED IDENTIFICATION LABEL PERMANENTLY AFFIXED TO THE EXTERIOR:

"ELEC-LV" FOR ELECTRICAL POWER CIRCUITS 600 VOLTS OR LESS
"ELEC-HV" FOR ELECTRICAL POWER CIRCUITS OVER 600 VOLTS
"COMM" FOR COMMUNICATIONS CIRCUITS

B. A CUSTOM 3-DIGIT NUMBER SHALL BE ADDED TO THE COVER. CONTACT THE ENGINEER FOR NUMBER ASSIGNMENT.

C. THE MINIMUM LETTER HEIGHT SHALL BE ONE (1) INCH.

32. ALL EQUIPMENT MOUNTED ON ROOF FOR CONNECTION OF HVAC EQUIPMENT SHALL BE MOUNTED ON UNISTRUT STANDS UTILIZING APPROVED PITCH POCKETS, FLASHING, ETC.

33. EQUIPMENT OUTLETS, LIGHTING FIXTURES, CONDUIT, WIRE, AND CONNECTION METHODS IN HVAC AIR PLENUMS SHALL BE APPROVED FOR USE IN PLENUMS AND SHALL OFNROM TO THE "CEC."

34. THE EXACT LOCATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL ELEVATIONS, DETAILS, OR SECTIONS PRIOR TO INSTALLATION. ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE RECESSED IN WALLS UNLESS OTHERWISE NOTED. OUTLETS NOT INDICATED ON ARCHITECTURAL ELEVATIONS SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ROUGH-IN. UNLESS OTHERWISE NOTED, MOUNT ELECTRICAL DEVICES AT THE FOLLOWING HEIGHTS:

WAL SWITCH	+4'-0" MAX TO TOP OF BOX, SET VERTICALLY +1'-6" SET VERTICALLY (15" MIN. TO BOTTOM OF BOX)
CONVENIENCE RECEPTACLE	+1'-6" SET VERTICALLY (15" MIN. TO BOTTOM OF BOX)
TELEPHONE/DATA OUTLETS	+46" MAX TO TOP OF BOX OR
OUTLETS AT COUNTERS	+6" ABOVE COUNTERS WITHOUT SPLASHES OR CENTERED IN SPLASH SET HORIZONTALLY

35. REVIEW ARCHITECTURAL ELEVATIONS OF CASEWORK. OUTLETS MOUNTED ABOVE OR BELOW, OR ADJACENT TO CASEWORK SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS, PRIOR TO FINAL ROUGH-IN. ELECTRICAL DRAWINGS SHALL GOVERN NUMBER AND TYPE OF OUTLETS. HOWEVER, LOCATIONS SHALL BE AS INDICATED ON ARCHITECTURAL ELEVATIONS. PROVIDE CONDUIT, WIRES, AND OUTLETS FOR WORK REQUIRED IN CASEWORK INSTALLATIONS. REFERENCE ARCHITECTURAL DETAILS FOR METHOD OF ROUTING CONDUIT WITHIN CASEWORK CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CUT-OUTS IN TILE OR COUNTER SPLASHES WHERE RECEPTACLES, OUTLETS, ETC., OCCUR. PROVIDE BOX EXTENSIONS THROUGH ALL CASEWORK. FINISH FLUSH WITH FACE OF SPLASH, CABINET, ETC.

36. MOUNTING HEIGHTS OF ALL DEVICES AND EQUIPMENT ARE FROM FINISHED FLOOR TO TOP OF DEVICES AND EQUIPMENT UNLESS OTHERWISE NOTED. BOXES INSTALLED IN LOCATIONS NOT APPROVED BY THE ARCHITECT SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

37. REVIEW STRUCTURAL DRAWINGS FOR LOCATIONS AND SIZES OF FOOTINGS AND GRADE BEAMS. SEE ELECTRICAL DETAILS/PLANS FOR REQUIREMENTS FOR INSTALLATION OF CONDUIT THROUGH GRADE BEAMS.

38. WHERE OUTLETS OCCUR AT TACKABLE WALL PANELS OR OTHER WALL FINISHES, PROVIDE EXTENSION RINGS AS REQUIRED SO THAT NO SPACE WILL EXIST BETWEEN DEVICE PLATE AND BACKBOX, PER NEC 270.20, TYPICAL. SEE ARCHITECTURAL ELEVATIONS FOR WALL FINISHES AND LOCATIONS.

39. FOR CONNECTIONS TO EXHAUST FANS, PUMPS, COMPRESSORS, SPACE HEATERS, WATER HEATERS, AQUASTATS, SOLENOID VALVES, AND OTHER MECHANICAL EQUIPMENT AND FOR CONDUITS AND WIRE REQUIRED BUT NOT NECESSARILY SHOWN ON THESE DRAWINGS REFER TO MECHANICAL PLANS AND DETERMINE EXACT LOCATIONS UNDER DIRECTION OF HEATING AND VENTILATING CONTRACTOR.

40. ALL LINE VOLTAGE WIRING SHALL BE MINIMUM #12 AWG COPPER WITH THWN/THHN INSULATION AND IN ¾" DIAMETER CONDUIT MINIMUM. IN EACH CONDUIT WITHOUT CONDUCTORS, PROVIDE STRING OR PULL CORD WITH TAG IDENTIFYING LOCATION OF OPPOSITE END.

41. ROUTE EXPOSED CONDUIT AND CONDUIT ABOVE ACCESSIBLE CEILING SPACES PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.

42. CONDUCTORS SHALL BE BASED ON THE TERMINALS NOT TO EXCEED 60°C (140°F) FOR CONDUCTOR SIZE 14 THROUGH 1AWG OR 75°C (167°F) FOR CONDUCTOR SIZES OVER 1AWG.

43. ALL EXTERIOR TECHNOLOGY EQUIPMENT SHALL BE WEATHERPROOF.

44. ALL RACEWAYS SHALL BE CONCEALED FROM PUBLIC VIEW, UNLESS APPROVED BY ENGINEERS/ARCHITECT AND OWNER.

45. ALL IN-SERVICE CIRCUIT INCLUDING, BUT NOT LIMITED TO FIRE ALARM, SECURITY, AND TELEPHONE THAT MAYBE INTERRUPTED AS PART OF THIS WORK SHALL BE COORDINATED WITH THE OWNER PER SERVICE INTERRUPTION PROTOCOL DETAILED IN THE "SPECIFICATIONS."

46. ALL EQUIPMENT FASTENED IN PLACE OR CONNECTED BY PERMANENT WIRING METHOD SHALL BE GROUNDED.

47. PORTIONS OF RACEWAYS AND CABLE SLEEVES THAT ARE EXPOSED TO WIDELY DIFFERENT TEMPERATURES, SUCH AS COOLERS, FREEZERS OR SERVICE ENTRANCE CONDUCTORS, SHALL BE SEALED TO PREVENT CIRCULATION OF AIR AND/OR MOISTURE.

48. PROVIDE CABLE SUPPORTS ON VERTICAL RUNS PER CEC 300.19.

49. TECHNOLOGY SYSTEMS INSTALLATION.
   A. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN. REFER TO THE ADA GUIDELINES FOR ALL CONFIGURATION DETAILS ON THIS PAGE FOR ADDITIONAL INFORMATION.
   B. CONCEAL ALL CONDUIT IN WALLS, PARTITIONS, ABOVE CEILING, IN FLOOR SLAB, ETC. UNLESS OTHERWISE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS. CONDUIT IN MECHANICAL ROOMS AND STORAGE ROOMS WITHOUT CEILINGS MAY BE EXPOSED ON BUILDING STRUCTURE.
   C. BOXES LOCATED ON OPPOSITE SIDES OF NON-RATED WALLS SHALL BE OFFSET A MINIMUM OF 6" HORIZONTALLY. BOXES ON OPPOSITE SIDES OF FIRE RATED WALLS SHALL BE OFFSET A MINIMUM OF 24" HORIZONTALLY. "THRU-THE-WALL" BOXES SHALL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
   D. VERIFY ALL FURNITURE, MODULAR FURNITURE, AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL PLANS, ELEVATIONS, AND REVIEWED SHOP DRAWINGS. PRIOR TO MAKING THE ACTUAL TELECOMMUNICATIONS INSTALLATION, ADJUST OUTLETS OR CONNECTION LOCATIONS TO ACCOMMODATE FURNITURE AND/OR EQUIPMENT.
   E. TELECOMMUNICATIONS EQUIPMENT SHALL BE MOUNTED TO ALLOW ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT. ALL MOUNTING OF TELECOMMUNICATION DEVICES ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
   F. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
   G. ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
   H. REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED FOR THE EXECUTION OF TELECOMMUNICATIONS WORK THAT IS OUTSIDE THE CONTRACT LIMITS OF CONSTRUCTION. REPLACE CEILING TILES WITH IDENTICAL MATERIAL WHERE DAMAGED BY THIS CONTRACTOR.
   I. FLUSH MOUNT ALL TELECOMMUNICATION OUTLETS AT +18" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. OUTLETS MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED.

50. TECHNOLOGY OUTSIDE PLANT.
   A. THE LOCATION OF THE CONDUIT, HAND HOLES AND/OR MAINTENANCE HOLES SHOWN ARE APPROXIMATE LOCATIONS. FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIVATE AND/OR PUBLIC PRIOR TO THE INSTALLATION OF THE COMPONENT. FIELD COORDINATE THE FINAL LOCATION WITH THE OWNER AND ENGINEER PRIOR TO INSTALLATION.
   B. POTHOLING TO LOCATE EXISTING UNDERGROUND UTILITIES, IF APPLICABLE, SHALL BE INCLUDED WITHIN THE CONTRACTORS BID. CONTRACTOR IS RESPONSIBLE FOR FINAL PLACEMENT OF HAND HOLES AND/OR MAINTENANCE HOLES AND SHALL NOTIFY THE ENGINEER OF FINAL LOCATIONS PRIOR TO INSTALLATION.
   C. HAND HOLES AND/OR MAINTENANCE HOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE FRAME WILL BE FLUSH WITH THE GROUND LINE.
   D. REMOVAL AND REPLACEMENT OF THE EXISTING UNDERGROUND UTILITIES THAT ARE REQUIRED TO COMPLETE THE INSTALLATION SHALL BE INCLUDED WITHIN THE CONTRACTORS BID.
   E. CONTRACTOR SHALL INCLUDE WITHIN THEIR BID ANY REMOVAL AND REPLACEMENT OF EXISTING SIDEWALK, PAVEMENT, GRASS, SHRUBS, TREES, ETC. THAT WILL BE IMPACTED BY THE INSTALLATION OF THE NEW CONDUITS SHOWN ON THE DRAWINGS. IF TREES ARE REQUIRED TO BE REMOVED THE CONTRACTOR SHALL CONTACT THE OWNER AND DISCUSS OPTIONS PRIOR TO CUTTING DOWN ANY TREE OR SHRUB OVER 5' IN HEIGHT.
   F. NO ADDITIONAL COST SHALL BE APPROVED FOR PLACING CONDUITS DEEPER THAN REQUIRED MINIMUM DEPTH TO AVOID EXISTING UNDERGROUND UTILITIES.
   G. PROVIDE A MINIMUM OF 25'-0" SLACK LOOP WITHIN EACH HAND HAND HOLES AND/OR MAINTENANCE HOLES . SLACK LOOP SHALL BE SECURE SO COPPER OR FIBER IS NOT RESTING ON EARTH AFTER FINAL INSTALLATION.

TECHNOLOGY SYMBOL LIST

SYMBOL:	DESCRIPTION:	NOTE:
# # ▼	COMBINATION DATA/TELEPHONE OUTLETS	1.
AV ▽	AUDIO VIDEO OUTLETS	2.,5.,9.
#-TV ▽	COMBINATION DATA/TV OUTLETS	1.,2.,5.
WAP	WIRELESS ACCESS POINT DEVICE/ENCLOSURE (CEILING)	.
# ▽	INFORMATION OUTLET (WALL)	1.,2.,5.
W ▽	WALL PHONE	1.,2.,5.
AV# ◉	ELECTRICAL FLOOR BOX WITH AV	1., 3.
UPB1	UNDERGROUND PULL BOX TYPE1	7.
UPB2	UNDERGROUND PULL BOX TYPE2	8.
———	CONDUIT (CONCEALED IN OR ABOVE CEILING/HORIZONTAL SURFACE)	.
- - - - -	UNDERGROUND/FLOOR CONDUIT	.
○——	CONDUIT UP	.
●——	CONDUIT DOWN	.
∫——	CONDUIT WITH CONTINUATION	.
[——]	CONDUIT SLEEVE	.
▭	FIRE RATED PATHWAY SLEEVE SYSTEM	.

GENERAL NOTES:

1. ALL SYMBOLS LISTED ABOVE ARE FOR REFERENCE ONLY. REFER TO PLANS AND LINE TYPE KEY FOR NEW, EXISTING TO REMAIN AND TO BE REMOVED ITEMS FOR ADDITIONAL INFORMATION. REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR FULL.
2. DESCRIPTIONS AND MANUFACTURERS OF ALL DEVICES.

TECHNOLOGY SYMBOL LIST NOTES:

1. "#" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION.
2. SYMBOL SUBSCRIPT INDICATES DEVICE TYPE.
3. INFORMATION OUTLET INSTALLED IN E.C. PROVIDED FLOOR BOX. "#" INDICATES DATA OUTLET FACEPLATE CONFIGURATION. REFER TO THE ELECTRICAL FLOOR PLANS FOR ADDITIONAL INFORMATION.
4. NOT USED.
5. EQUIPMENT/DEVICE HEIGHT AS INDICATED ON PLANS.
6. NOT USED.
7. REFER TO SPECIFICATION - EXTERIOR COMMUNICATION PATHWAYS AND DETAIL 3/T5.01 FOR UNDERGROUND COMMUNICATIONS PULL BOX.
8. REFER TO SPECIFICATION - EXTERIOR COMMUNICATION PATHWAYS FOR UNDERGROUND COMMUNICATIONS HANDHOLE.
9. PROVIDE AV OUTLET WITH (2) HDMI CONNECTORS AND CABLES. REFER TO FLOOR PLAN FOR DETAILS.

TECHNOLOGY ABBREVIATION KEY

ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
BFC	BELOW FINISHED CEILING
C	CONDUIT
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
G.C.	GENERAL CONTRACTOR
J-BOX	JUNCTION BOX
MPOE	MIMIMUM POINT OF ENTRY
MC	MAIN CROSS-CONNECT
S.C.	SECURITY CONTRACTOR
SIM	SIMILAR
T.C.	TECHNOLOGY CONTRACTOR
TR-#	TELECOMMUNICATIONS ROOM
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
+#	MOUNTING HEIGHT ABOVE FINISHED FLOOR

2022 CBC 11B-308.2.1

2022 CBC 11B-308.2.2

2022 CBC 11B-308.3.2

NOTES:

1. THIS DETAIL APPLIES TO MOUNTING OF ANY MECHANICAL AND ELECTRICAL DEVICE WHICH CONTAINS AN OPERABLE PART THAT IS ADJUSTABLE BY THE OCCUPANT. THIS DOES NOT APPLY TO SENSORS OR CONTROLS THAT ARE ONLY ADJUSTABLE THROUGH THE BUILDING AUTOMATION SYSTEM (IE: TEMPERATURE AND HUMIDITY SENSORS).

2. FORWARD OR FRONT APPROACH FOR DEVICES MOUNTED ABOVE COUNTERS ASSUMES THAT DIRECTLY BELOW THE DEVICE, THE COUNTER HAS A 30"MIN. WIDTH x27" HIGH x19" MIN. DEEP CLEAR OPENING. CBC SECTIONS 11B-306 & 11B-308.

DRAWING INDEX

SHEET	DESCRIPTION
T0.00	TECHNOLOGY SYMBOLS, LEGENDS & GENERAL NOTES
T1.01	TECHNOLOGY SITE PLAN
T1.02	TECHNOLOGY RISER DIAGRAM
T2.01	TECHNOLOGY FLOOR PLANS
T4.00	TECHNOLOGY ENLARGMENT PLAN
T6.01	TECHNOLOGY DETAILS
T6.02	TECHNOLOGY DETAILS

TECHNOLOGY SCOPE OF WORK

1. PROVIDE COMPLETE TECHNOLOGY SYSTEMS EQUIPMENT WITH INSTALLATION AS REQUIRED FOR A COMPLETE WORKING SYSTEM.

2. PROVIDE NEW CONDUITS, J-HOOKS ABOVE ACCESSIBLE CEILING SPACES TO SUPPORT NEW TECHNOLOGY WIRING AS REQUIRED BETWEEN END DEVICES AND TECHNOLOGY HEADEND EQUIPMENT. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL WIRING WITH TERMINATION AND TESTING AS REQUIRED FOR A COMPLETE WORKING SYSTEM.

3. THE CONTRACTOR SHALL PROVIDE CONDUITS, UNDERGROUND PULL BOXES, AND WIRING AS REQUIRED FOR CONNECTIONS TO ALL SITE DEVICES.

4. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TECHNOLOGY EQUIPMENT/DEVICES MOUNTING AS NOTED PER THE DESIGN DRAWINGS.

5. THE CONTRACTOR SHALL PROVIDE NEW UNDERGROUND CONDUITS FOR NEW UTILITY SERVICE PROVIDER CONNECTION, AND COORDINATE WITH UTILITY SERVICE PROVIDER COMPANY FOR FINAL POINT OF CONNECTION PRIOR TO INSTALLATION.

APPLICABLE CODES

PARTIAL LIST OF APPLICABLE CODES AS OF JANUARY 1, 2022
2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

PARTIAL LIST OF APPLICABLE STANDARDS
NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE (CA AMENDED): 2016 EDITION
NFPA 720 STANDARD FOR THE INSTALLATION OF CARBON MONOXIDE DETECTION AND WARNING EQUIPMENT; 2016 EDITION
NFPA 80 STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2016 EDITION
UL 464 AUDIBLE SIGNALING DEVICES FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES; 2003 EDITION
UL 521 STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS; 1999 EDITION
UL 1971 STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED; 2002 EDITION (R2010)
ICC 300 STANDARD FOR BLEACHERS, FOLDING AND TELESCOPING SEATING AND GRANDSTANDS; 2017 EDITION

FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS REFER TO 2022 CBC (SFM) CHAPTER 35 AND CALIFORNIA FIRE CODE CHAPTER 80.

SEE CALIFORNIA BUILDING CODE, CHAPTER 35, FOR STATE OF CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS.

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DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

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CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

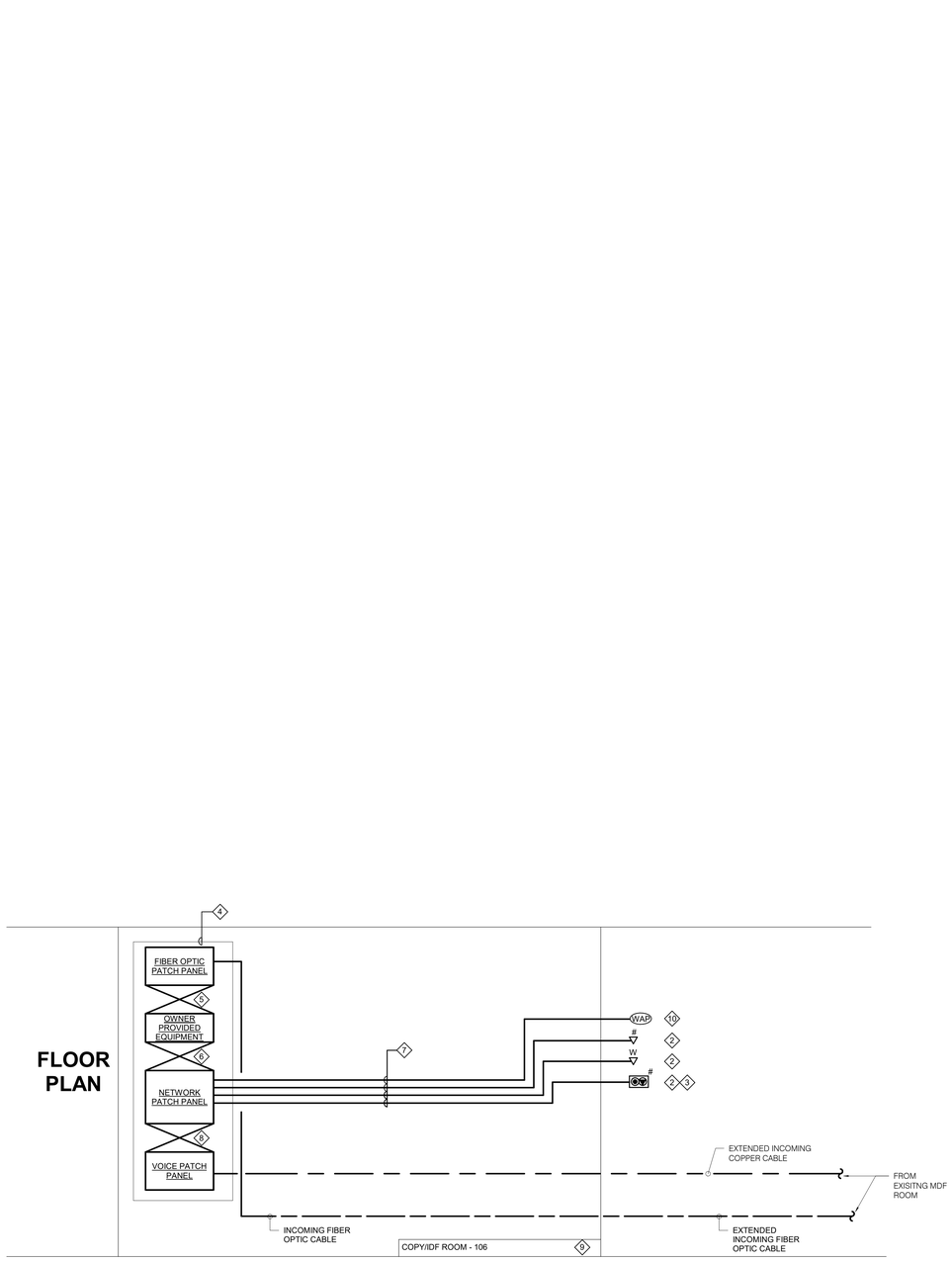
No.	Description	Date
1	Revision 1	Date 1

DSA Submittal

TECHNOLOGY SYMBOLS, LEGENDS & GENERAL NOTES

T0.00

0" 1"



FLOOR PLAN

NOTES:
1. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS SHOWN. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION(S), LOCATIONS AND CABLE TYPE. ALL INFORMATION OUTLETS ARE TYPICAL OF THE OUTLETS IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO FLOOR PLANS FOR QUANTITY OF CABLES AND JACKS TO BE INSTALLED AT EACH INFORMATION OUTLET.

KEYNOTES:
1. CROSS-CONNECT BACKBONE RISER CABLE TO THE INCOMING SERVICE PROVIDER CABLE.
2. # INDICATES VOICE/DATA FACEPLATE CONFIGURATION. REFER TO TECHNOLOGY FLOOR PLANS FOR ADDITIONAL INFORMATION.
3. DATA OUTLET INSTALLED IN E.C. PROVIDED AND INSTALLED FLOOR BOX.
4. WALL MOUNTED CABINET CHATSWORTH PRODUCTS AS DEFINED ON THE COPY ROOM LAYOUT.
5. REFER TO SPECIFICATIONS FOR FIBER PATCH CORD REQUIREMENTS.
6. RJ-45 TO RJ45 CATEGORY **6** UTP PATCH CORDS. REFER TO SPECIFIATIONS.
7. **23** GAUGE 4-PAIR, CATEGORY **6**, UNSHIELDED TWISTED PAIR CABLE, REFER TO SPECIFICATIONS.
8. REFER TO FLOOR PLANS FOR TELECOMMUNICATIONS ROOM LOCATIONS.
9. PROVIDE 2-PORT PLENUM RATED SURFACE MOUNT BOX ABOVE ACCESSIBLE CEILING.

1 FIBER AND COPPER RISER DIAGRAM
12" = 1'-0"

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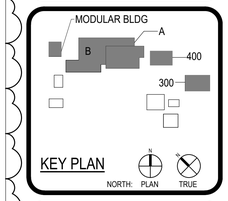
DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



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DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

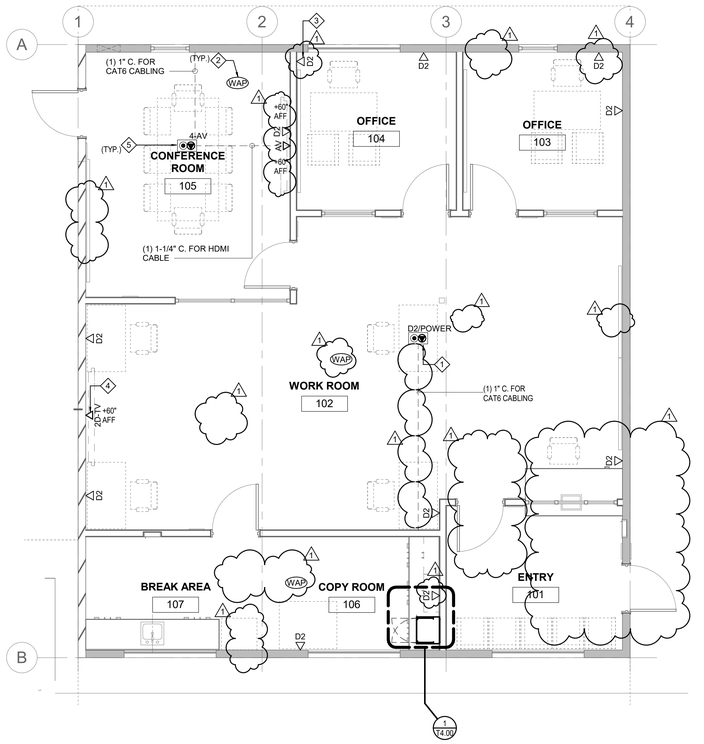
No.	Description	Date
1	Revision 1	Date 1

DSA Submittal

TECHNOLOGY RISER DIAGRAM

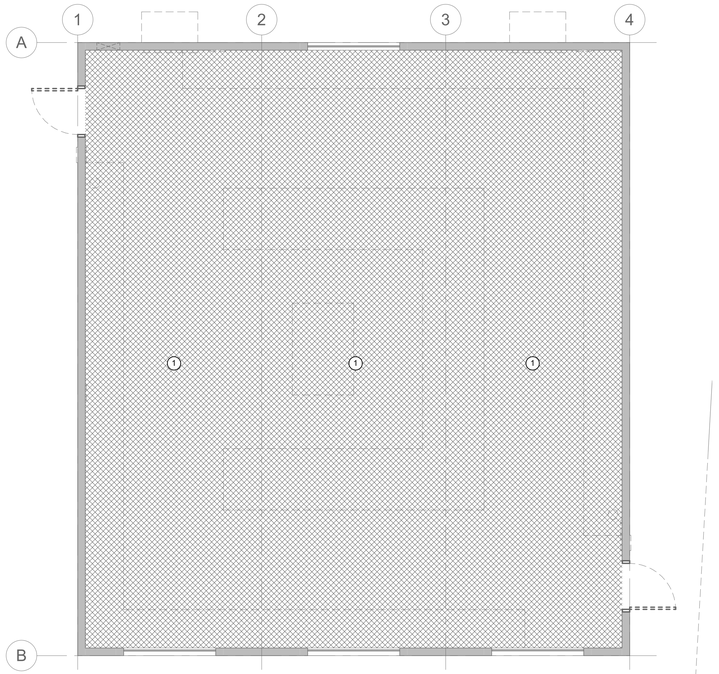
T1.02

0" 1"



2 PROPOSED FLOOR PLAN

1/4" = 1'-0"



1 DEMOLITION FLOOR PLAN

1/4" = 1'-0"

GENERAL NOTES

1- REFER TO DETAIL #1/T4.00 FOR TECHNOLOGY ENLARGED PLAN FOR COPY/IDF ROOM 106.

KEY NOTES

1. COMBINATION FLOOR BOX POWER/DATA. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS. PROVIDE (1) 1" C. WITH CAT6 CABLES FROM FLOOR BOX TO THE NEAREST WALL THEN STUB CONDUIT UP TO CEILING SPACE, USE J-HOOKS TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE TO THE IDF CABINET SERVING THIS AREA.TERMINATE ALL CABLES AS REQUIRED FOR A COMPLETE WORKING SYSTEM.
2. WIRELESS ACCESS POINT, CEILING MOUNT, OWNER FURNISHED AND CONTRACTOR INSTALLED "OFOI". CONTRACTOR TO PROVIDE DATA OUTLET FOR WIRELESS ACCESS POINT, (2) CAT6A CABLE, 2-PORT PLENUM RATED SURFACE MOUNT BOX ABOVE ACCESSIBLE CEILING AS INDICATED ON DRAWINGS. USE J-HOOKS TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE, FOR INACCESSIBLE CEILINGS SPACES NEW CONDUITS SHALL BE PROVIDED ABOVE CEILING TO THE IDF CABINET SERVING THIS AREA.CISCO WAP TO BE PROVIDED AS PER DISTRICT STANDARD.
3. PROVIDE A NEW WALL-MOUNTED DATA OUTLET. PROVIDE AND INSTALL DATA OUTLET IN A 4" SQUARE BACKBOX WITH A SINGLE-GANG PLASTER RING. INSTALL A (1) 1" EMT CONDUIT FROM BACKBOX UP TO ACCESSIBLE CEILING SPACE WITH (2) CAT6 CABLES (U.O.N.), THEN RUN CAT6 CABLES IN ACCESSIBLE CEILING SPACE USING J-HOOKS TO IDF CABINET SERVING THIS AREA. PROVIDE 4-PORT FACEPLATES AND RJ45 JACKS. PROVIDE REMOVABLE BLANK INSERTS FOR UNUSED PORTS (PANDUIT OR APPROVED EQUAL). THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL TERMINATION FOR A COMPLETE WORKING SYSTEM.REFER TO DETAILS#4/T6.01 FOR MORE INFORMATION
4. PROVIDE A NEW WALL-MOUNTED TV/DATA OUTLET BEHIND WALL MOUNTED TV. PROVIDE AND INSTALL OUTLET IN A 4" SQUARE BACKBOX WITH A SINGLE-GANG PLASTER RING. INSTALL A (1) 1" EMT CONDUIT FROM BACKBOX UP TO ACCESSIBLE CEILING SPACE FOR CAT6 CABLES, THEN RUN CABLES IN ACCESSIBLE CEILING SPACE USING J-HOOKS TO IDF CABINET SERVING THIS AREA. (PANDUIT OR APPROVED EQUAL). THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL TERMINATION FOR A COMPLETE WORKING SYSTEM.
5. COMBINATION FLOOR BOX POWER/DATA/AV. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS. PROVIDE (1) 1" C. WITH CAT6 CABLES FROM FLOOR BOX TO THE NEAREST WALL THEN STUB CONDUIT UP TO CEILING SPACE, USE J-HOOKS TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE TO THE IDF CABINET SERVING THIS AREA. PROVIDE (1) 1-1/4" C. FOR HDMI CABLE FROM FLOOR BOX TO AV OUTLET MOUNTED BEHIND TV. REFER TO KEYNOTE 1/T6.02 FOR DETAILS. TERMINATE ALL CABLES AS REQUIRED FOR A COMPLETE WORKING SYSTEM.REFER TO DETAILS#1/T6.02 FOR MORE INFORMATION.

DEMOLITION KEY NOTES

1. ALL EQUIPMENT AND DEVICES TO BE DISCONNECTED AND REMOVED AND ALL CABLES TO BE BACK TO SOURCE.

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CORONA TRANSPORTATION

PROJECT ADDRESS:
2820 CLARK AVE.
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DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

Consultant

REGISTERED PROFESSIONAL ENGINEER
RONALD C DELA CRUZ
No. E 25676
Exp. 09-30-2023
ELECTRICAL
STATE OF CALIFORNIA

Architect

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date
1	Revision 1	Date 1

DSA Submittal

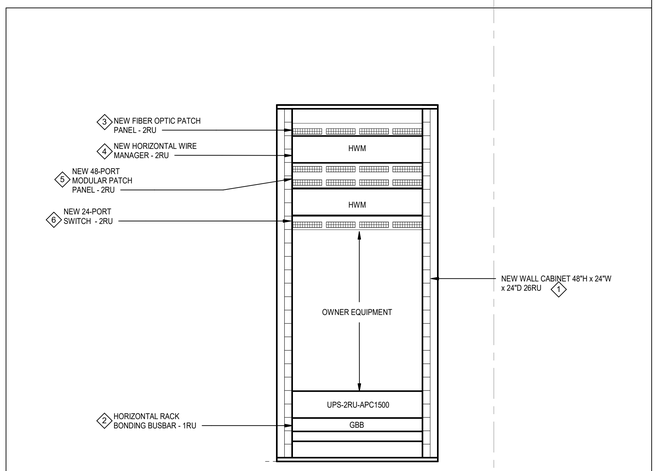
TECHNOLOGY FLOOR PLANS

T2.01

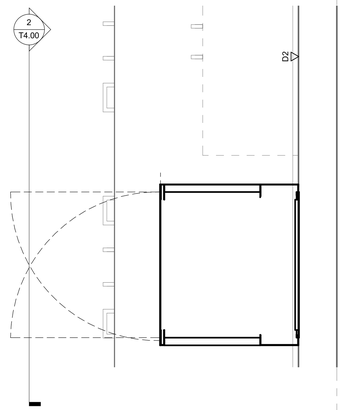
0" 1"

KEYED NOTES

1. PROVIDE WALL MOUNTED IDF CABINET CUBE-iT PART NUMBER 11900-E36 Wall-Mount Cabinet , (36"H x 24"W x 24"D (910 mm x 610 mm x 610 mm); 19U. LOCKABLE FRONT VENTED DOOR, LOCKABLE REAR VENTED DOOR, CHATSWORTH PRODUCTS PART NUMBER "11900-748" OR APPROVED EQUAL.
2. PROVIDE RACK-MOUNT GROUND BAR. WITH FLAT WASHER AND GROUND BAR LUG.
   CHATSWORTH PRODUCTS "10610-019" OR APPROVED EQUAL.
3. PROVIDE OPTICAL FIBER DISTRIBUTION PATCH PANEL, RACK MOUNT. 24 FIBER MAXIMUM CAPACITY, FRONT LOCKING DOOR, SLIDE OUT RAILS TO FACILITATE FRONT ACCESS, JUMPER TROUGHS IN CONNECTOR PANELS TO REDUCE MOUNTING SPACE.
   PROVIDE WITH CLAMP AND GROUNDING KIT, COUPLING PANEL(S), JUMPERS, AND REAR MOUNTED CLOSET HOUSING PANEL(S). REFER TO SPECIFICATIONS PANDUIT PRODUCTS "FLEXQUPN06" OR APPROVED EQUAL.
4. PROVIDE HORIZONTAL WIRE MANAGEMENT, DUAL SIDED MANAGER 2 RACK UNITES, SHALL BE INSTALLED ABOVE AND BELOW EACH PATCH PANEL. LIGHTWEIGHT PLASTIC CONSTRUCTION. PANDUIT PRODUCTS "WMP1E" OR APPROVED EQUAL.
5. PROVIDE COPPER PATCH PANEL, 48 MODULAR RJ-45 TERMINATIONS, MOUNTS DIRECTLY TO MDF/IDF CABINET, PORT IDENTIFICATION NUMBERS AND LABELS, U.L. LISTED. PANDUIT PRODUCTS "DP48688TGY" OR APPROVED EQUAL.
6. NETWORK SWITCHES BY OWNER "OFCI". THE EXACT LOCATION AND FINAL RACK ELEVATION SHALL BE COORDINATED AND APPROVED BY THE OWNER IT DEPARTMENT PRIOR TO INSTALLATION.



2 COPY/IDF ROOM #106 - RACK ELEVATION
1 1/2" = 1'-0"



1 COPY/IDF ROOM #106 - ROOM EQUIPMENT
1 1/2" = 1'-0"

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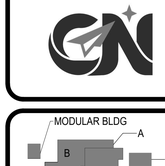

KEY PLAN
NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER
RONALD C DELA CRUZ
No. E 25676
Exp. 09-30-2025
ELECTRICAL
STATE OF CALIFORNIA

Architect

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CORONA-NORCO USD

DATE	PROJECT NUMBER
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REVISIONS

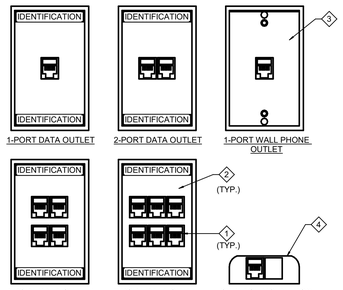
No.	Description	Date
1	Revision 1	Date 1

DSA Submittal

TECHNOLOGY ENLARGMENT PLAN

T4.00

0" 1"



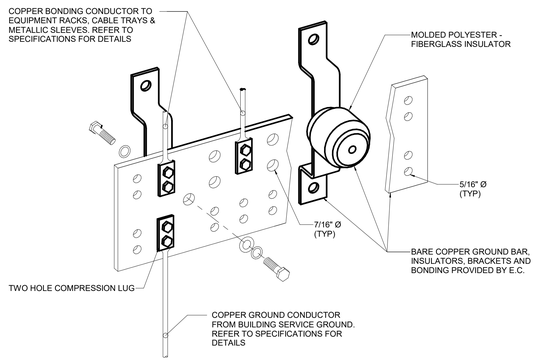
NOTES:

1. REFER TO SPECIFICATION SECTION 27 10 00 - HORIZONTAL CABLING REQUIREMENTS FOR CATEGORY CABLE PERFORMANCE REQUIREMENTS.
2. REFER TO SPECIFICATION SECTION 27 05 53 - IDENTIFICATION FOR DATA OUTLET PORT IDENTIFICATION.
3. DATA OUTLET SHALL BE INSTALL IN A 4" SQUARE BACKBOX WITH A SINGLE GANG PLASTER RING. REFER TO DETAIL 1/T5.01 TECHNOLOGY ROUGH-IN MOUNTING DETAILS FOR CONDUIT SIZE.
4. PROVIDE REMOVABLE BLANK INSERTS FOR UNUSED PORTS.
5. USE T568B WIRING SCHEME TO TERMINATE THE TWISTED-PAIR CABLE ONTO THE CONNECTOR INTERFACE.
6. WHERE APPLIES PER PLANS, PROVIDE AV OUTLET WITH HDMI CONNECTION PER BELOW.
   - PANDUIT COVER PLATE: CBEIWY OR APPROVED EQUAL
   - PANDUIT JACK:(HDMI 2.0) CMHDMIW OR APPROVED EQUAL
   - PANDUIT MODULAR INSERT: CHF2IW-X OR APPROVED EQUAL

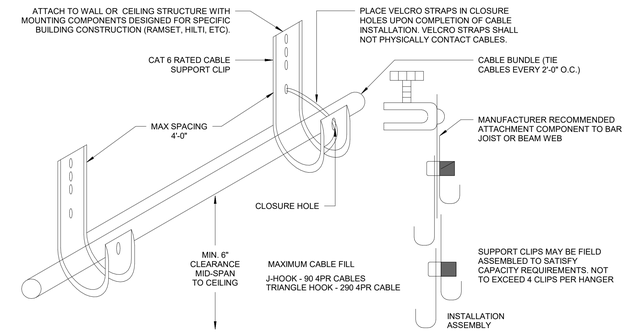
KEYNOTE NOTES:

1. PROVIDE CAT6 RJ-45 JACKS, 8-POSITION, 8-CONTACT (8P8C), COLOR BLUE FOR DATA, WHITE FOR VOICE, RED FOR SECURITY.
   - PANDUIT PRODUCTS "CJ688TGBU", COMMSCOPE "MGS400-318" OR APPROVED EQUAL
2. PROVIDE 1,2,4,6-PORT FACEPLATE AS INDICATED ON DRAWINGS.
   - 1-PORT: PANDUIT PRODUCTS "CFPE1WHY", COMMSCOPE OR APPROVED EQUAL.
   - 2-PORT: PANDUIT PRODUCTS "CFPE2WHY", COMMSCOPE OR APPROVED EQUAL.
   - 4-PORT: PANDUIT PRODUCTS "CFPE4WHY", COMMSCOPE OR APPROVED EQUAL.
   - 6-PORT: PANDUIT PRODUCTS "CFPE6WHY", COMMSCOPE OR APPROVED EQUAL.
3. PROVIDE STAINLESS STEEL 1-PORT FACEPLATE FOR OUTLETS INDICATED WITH "W" ON DRAWINGS. "W" INDICATES WALL PHONE MOUNTED AT +48" AFF FOR WALL HUNG PHONE.
   - 1-PORT: WALL PHONE "W" PANDUIT PRODUCTS "KWP6PY", COMMSCOPE OR APPROVED EQUAL.
4. PROVIDE SURFACE MOUNT BOX, PLENUM RATED, MOUNTED ABOVE CEILING FOR CONNECTIONS TO WIRELESS ACCESS POINTS.
   - 2-PORT: PANDUIT PRODUCTS "CBX2WH-AY", COMMSCOPE OR APPROVED EQUAL.

5 DATA OUTLETS CONFIGURATION DETAIL
12" = 1'-0"



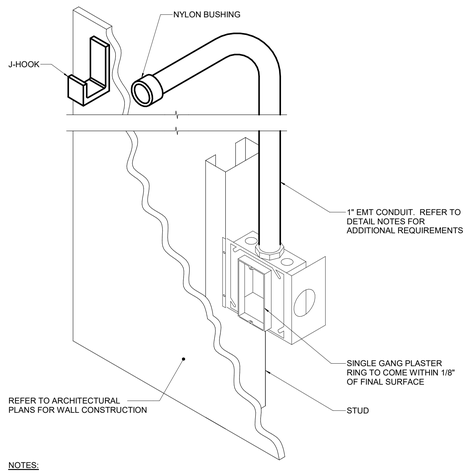
3 BONDING BUS BAR DETAIL
12" = 1'-0"



NOTES:

1. SUPPORT CLIPS MUST SPECIFICALLY BE DESIGNED AND RATED FOR USE IN CATEGORY 6 CABLE INSTALLATION.
2. INSTALL APPROPRIATE SIZE AND QUANTITY SUPPORT CLIPS FOR CABLES TO BE SUPPORTED + 30% EXPANSION.
3. USE MANUFACTURERS RECOMMENDED MOUNTING HARDWARE, APPROPRIATE FOR ATTACHING TO WALL OR CEILING STRUCTURES.
4. CEILING TILE TEE GRID, DROP WIRES AND HVAC EQUIPMENT SHALL NOT BE USED AS MOUNTING POINTS.
5. SECURE CABLE IN SUPPORT CLIPS AS PER MANUFACTURERS RECOMMENDATION FOR CAT-6 CABLE. DO NOT EXCEED INDICATED FILL RATIOS.
6. CABLE SUPPORT CLIPS SHALL BE SPACED A MAXIMUM OF 4' APART.
7. INSTALL TRIANGULAR METAL BRACKETS (NOT SHOWN) FOR HIGH STATION CABLE CAPACITY REQUIREMENTS.
8. THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT REPRESENT ALL CONDITIONS OF J-HOOK INSTALLATION REQUIREMENTS (APPLY THIS DETAIL WHERE OCCURS). REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.

1 TECHNOLOGY J-HOOK PATHWAY DETAIL
12" = 1'-0"



NOTES:

1. 1" EMT CONDUIT SHALL STUB UP TO NEAREST ACCESSIBLE CEILING AND TERMINATE ORIENTED HORIZONTALLY AT THE HEIGHT OF THE ASSOCIATED J-HOOK ROUTE. CONDUIT RUN SHALL NOT CONTAIN MORE THAN 180 DEGREES OF BEND BETWEEN ACCESSIBLE JUNCTION BOXES OR BETWEEN JUNCTION BOX AND END OF CONDUIT.
2. WHERE CONDUIT STUB IS LOCATED IN A ROOM WITH AN ACCESSIBLE CEILING AND IS NOT REQUIRED TO RUN TO CABLE ROUTE LOCATED OUTSIDE THE ROOM, STUB MUST TERMINATE ABOVE THE ACCESSIBLE CEILING WITH A 90-DEGREE BEND AT THE TOP ORIENTED IN TO THE ROOM AT THE HEIGHT OF THE ASSOCIATED J-HOOK ROUTE IN THE ROOM.
3. ALL STUBS MUST BE FITTED WITH A NYLON BUSHING ON EACH END OF THE CONDUIT.
4. INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR TECHNOLOGY ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR FIRESTOP REQUIREMENTS.

4 TECHNOLOGY ROUGH-IN MOUNTING DETAIL
12" = 1'-0"

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NORCO, CA 92860

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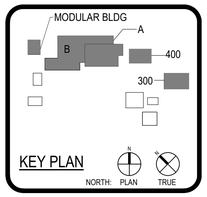
DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



Consultant

REGISTERED PROFESSIONAL ENGINEER RONALD C DELA CRUZ No. E 23576 Exp 06.30.2024 ELECTRICAL STATE OF CALIFORNIA

Architect

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date
1	Revision 1	Date 1

DSA Submittal

TECHNOLOGY DETAILS

T6.01

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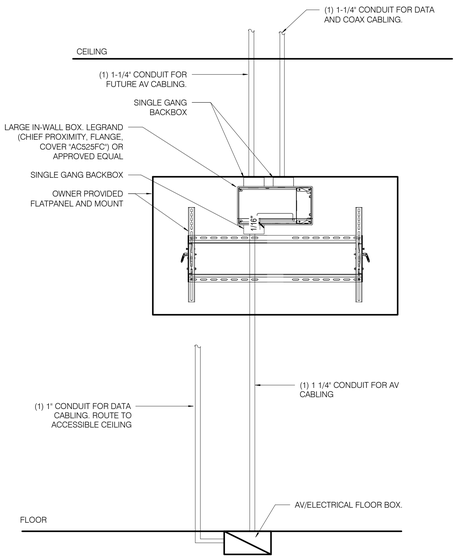
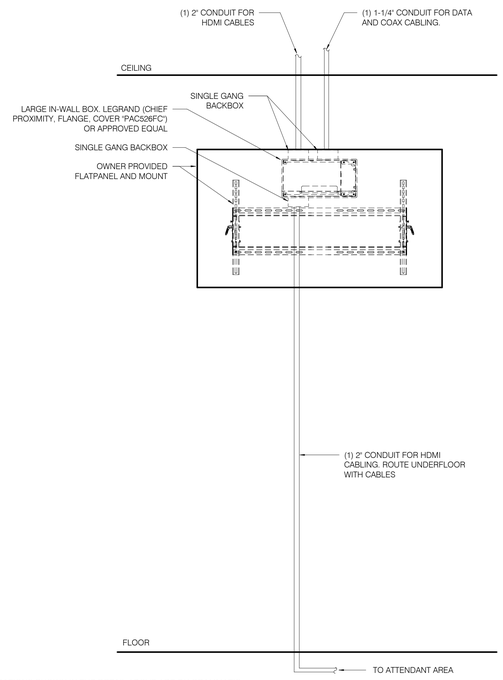


NOTES:

1. CONFIGURATIONS SHOWN IN THE DETAIL ABOVE ARE DIAGRAMMATIC, INTENDED TO DESCRIBE THE ROUGH-IN REQUIREMENTS OF A TYPICAL FLAT PANEL DISPLAY. DETAILS ABOVE MAY NOT ACCURATELY REPRESENT DISPLAY SIZE, MOUNTING HEIGHT, OR PHYSICAL RELATIONSHIP. REFER TO ARCHITECTURAL ELEVATIONS FOR COMPLETE INFORMATION AND MIRROR THE DETAIL AS REQUIRED.
2. ROUGH-IN SHOWN IN THE DETAIL ABOVE REPRESENTS THE MINIMUM REQUIREMENTS FOR THE DISPLAY UNLESS OTHERWISE NOTED. COORDINATE EXACT REQUIREMENTS OF THE SELECTED DEVICES AND CABLING PRIOR TO INSTALLATION.
3. ALL CABLING IN WALLS SHALL BE INSTALLED IN EMT CONDUIT. CABLING ROUTED HORIZONTALLY ABOVE THE ACCESSIBLE CEILING MAY BE INSTALLED FREE-AIR WITH CABLING PROPERLY RATED FOR THE CEILING ENVIRONMENT.
4. INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC.

2 TYPICAL AV CONFERENCE ROOM DETAIL
1" = 1'-0"



NOTES:

1. CONFIGURATIONS SHOWN IN THE DETAIL ABOVE ARE DIAGRAMMATIC, INTENDED TO DESCRIBE THE ROUGH-IN REQUIREMENTS OF A TYPICAL FLAT PANEL DISPLAY. DETAILS ABOVE MAY NOT ACCURATELY REPRESENT DISPLAY SIZE, MOUNTING HEIGHT, OR PHYSICAL RELATIONSHIP. REFER TO ARCHITECTURAL ELEVATIONS FOR COMPLETE INFORMATION AND MIRROR THE DETAIL AS REQUIRED.
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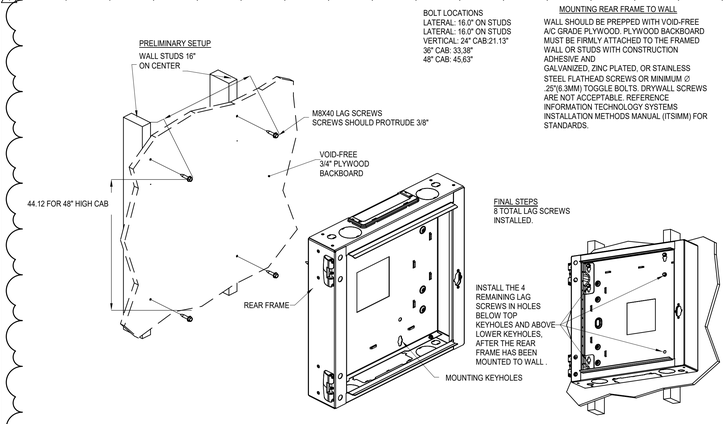
4. INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC.

1 WALL DISPLAYS ROUGH-IN REQUIREMENT DETAIL
1" = 1'-0"



NOTES:

1. THE REAR FRAME MUST BE SECURED TO WALL USING ALL 8 LAG SCREWS PROVIDED. THE SCREWS ARE INTENDED TO GO THROUGH 3/4" PLYWOOD BACK-BOARD AND THEN INTO WOOD WALL STUDS FOR MASONRY SURFACE, THE INSTALLER MUST PROVIDE APPROPRIATE HARDWARE.

STEP 1. INSURE THAT THE WALL OR MOUNTING SURFACE HAS SUFFICIENT STRENGTH TO SUPPORT THE CABINET AND THE EXPECTED CABINET PAYLOAD. THE MOUNTING SURFACE MUST ALSO BE FLAT AND EXTEND BEYOND THE TOP, BOTTOM, LEFT, AND RIGHT EDGES OF THE REAR PANEL.

STEP 2. DRILL 5/32" PILOT HOLES FOR THE FOUR M8X40mm LAG SCREWS TO THE DIMENSIONS SHOWN ON THE DRAWING.
THE SCREWS SHOULD GO DIRECTLY INTO THE WALL STUDS.

STEP 3. INSTALL THE LAG SCREWS INTO THE HOLES. THE SCREW HEAD SHOULD PROTRUDE ABOUT 3/8" FROM THE WALL.

STEP 4. MOUNT THE REAR FRAME TO THE WALL BY HOOKING THE UPPER AND LOWER KEYHOLES OVER THE SCREWS. TIGHTEN THE SCREWS SECURELY.

STEP 5. INSTALL THE REMAINING 4 LAG SCREWS IN THE HOLES BELOW THE TOP TWO KEYHOLES, AND ABOVE LOWER KEYHOLES.

3 WALL CABINET MOUNTING DETAILS
.12" = 1'-0"

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CORONA TRANSPORTATION

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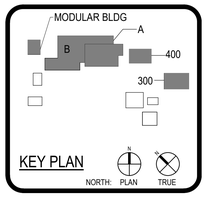
DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



KEY PLAN
NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER
RONALD C DELA CRUZ
No. E 23576
Exp. 09-30-2025
ELECTRICAL
STATE OF CALIFORNIA

Architect

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DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date
1	Revision 1	Date 1

DSA Submittal

TECHNOLOGY DETAILS

T6.02

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DSA **140**

APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT

This application is for submittal of documents, after the initial approval of the project (post-approval documents), that require Division of the State Architect (DSA) review and approval.This form shall be completed by the Design Professional in General Responsible Charge of the project, in accordance with California Code of Regulations, Title 24, Part 1, Sections 4-317, 4-323 and 4-338 and in compliance with DSA IR A-6: Construction Change Document Submittal and Approval Process.

DSA documents referenced within this form are available on the DSA Forms or DSA Publications webpages.

1. SUBMITTAL TYPE: (Is this a resubmittal? Yes ☑ No ☐)

Deferred Submittal ☐	Addendum Number: 01	Revision Number:	CCD Number:	Category A ☐ or B ☐

2. PROJECT INFORMATION:

School District/Owner: Corona-Norco Unified School District	DSA File Number: 33 H4
Project Name/School: Orange Grove High School	DSA Application Number 04 122251

3. APPLICANT INFORMATION:

Date Submitted: 12/18/23	Attached Pages? No ☐ Yes ☑ Number of pages? 73		
Firm Name: PBK Architects	Contact Name: Oliver Nicolas		
Work Email: oliver.nicolas@pbk-wlc.com	Work Phone: (909) 937-9200		
Firm Address: 8163 Rochester Ave #100	City: Rancho Cucamonga	State: CA	Zip Code: 91730

4. REASON FOR SUBMITTAL: (Check applicable boxes)

☑ For revision or addendum prior to construction. ☐ For a project currently under construction.

☐ For a project that has a form *DSA 301-N: Notification of Requirement for Certification*, *DSA 301-P: Posted Notification of Requirement for Certification* or a 90-Day Letter issued.

☐ To obtain DSA approval of an existing uncertified building or buildings.

☐ For Category B CCD this is: ☐ a voluntary submittal, ☐ a DSA required submittal (attach DSA notice requiring submission).

5. DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE:

Name of the Design Professional In General Responsible Charge: Yong Yoo

Professional License Number: C-31162	Discipline: Architecture

Design Professional in General Responsible Charge Statement: The attached post-approval documents have been examined by me for design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications. They are acceptable for incorporation into the construction of the project.

Signature: _____

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

6. CONFIRMATION, DESCRIPTION AND LISTING OF DOCUMENTS:

For addenda, revisions, or CCDs: CHECK THIS BOX ☐ to confirm that *all* post-approval documents have been stamped and signed by the Responsible Design Professional listed on form *DSA 1: Application for Approval of Plans and Specifications* for this project. (For *Deferred Submittals*, refer to *IR A-18: Use of Construction Documents Prepared by Other Professionals,* and *IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents*, when applicable, for signature and seal requirements.)

Provide a brief description of construction scope for this post-approval document (attach additional sheets if needed):

Revisions to accessible parking grading, finishes and miscellaneous items per attached Addendum 01 Narrative.

List of DSA-approved drawings affected by this post-approval document:

See Addendum 01 Narrative for list of affected drawings.

DSA USE ONLY

SSS OI Date 12/21/23 ☒Approved ☐Disapproved ☐Not Required

Comments: _____

FLS -- Date -- ☐Approved ☐Disapproved ☒Not Required

Comments: _____

ACS SP Date 12/20/23 ☒Approved ☐Disapproved ☐Not Required

Comments: _____

Returned
Date: 12/28/23
By: MR

DSA STAMP

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☐ ACS ☑
DATE: 12/21/2023

Addendum No:	01	**Issue Date:**	12/18/2023
Project:	CNUSD Transportation Office at Orange Grove HS Corona-Norco Unified School District	**To Drawings + Specifications dated**	10/24/2023

Prepared By: PBK Architects, Inc.
8163 Rochester Ave#100
Rancho Cucamonga, CA 91730

PBK Project No: 230010

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☐ ACS ☑
DATE: 12/21/2023

LICENSED ARCHITECT
Yong Yoo
No. C-31162
REN. 10-31-2025
STATE OF CALIFORNIA

NOTICE TO BIDDERS

A. Receipt of this Addendum shall be acknowledged on the Proposal Form.

B. This Addendum forms part of the Contract documents for the above referenced project and shall beincorporated integrally therewith.

C. Each bidder shall make necessary adjustments and submit his proposal with full knowledge of all modifications, clarifications, and supplemental data included therein. Where provisions of the followingsupplemental data differ from those of the original Contract Documents, this Addendum shall govern.

SPECIFICATIONS

Item No. 01.01: **Section 00 00 00 – Project Manual Cover and Seals**

Item No. 01.02: **Section 01 35 46 – Indoor Air Quality Procedures:** Revise sub paragraph 1.2, B “Related Sections”.

Item No. 01.03: **Section 02 41 19 – Selective Demolition:** Revise sub paragraph 1.6, F “Hazardous Materials”.

Item No. 01.04: **Section 23 00 00 – General Mechanical Provisions:** Revise sub paragraph 1.08, A “Operation and Maintenance Instructions”.

Item No. 01.05: **Section 23 00 00 – General Mechanical Provisions:** Omit sub paragraph 3.02, D.

Item No. 01.06: **Section 23 00 01 – Heating Ventilating and Air Conditioning:** Revise sub paragraph 2.05, B, 1. “General”.

Item No. 01.07: **Section 23 00 01 – Heating Ventilating and Air Conditioning:** Revise sub paragraph 2.05, B, 12, b. “Modulating Economizer Sequence of Operation”.

Item No. 01.08: **Section 23 00 01 – Heating Ventilating and Air Conditioning:** Omit sub paragraph 3.02, C “Gym”.

Item No. 01.09: **Section 26 05 33 – Raceway and Boxes for Electrical Systems:** Revise paragraph 2.7 “Putty Pads”.

Item No. 01.10: **Section 26 50 00 – Lighting:** Add section.

Item No. 01.11: **Section 22 21 00 – Data Communications System:** Revise sub paragraph 2.3, A “High Schools”

Item No. 01.12: **Section 27 41 16 – Integrated Audio-Video Systems and Equipment:** Add section.

DRAWINGS

Item No. 01.13: **Sheet C1.1:** Revised and added “Parking Striping Removal” under the “Demolition Plan Legend & Abbreviation”.

Item No. 01.14: **Sheet C1.1:** Added “Demolition Items” #7 with the verbiage reading “Remove existing parking striping by sand blasting or approved method”.

Item No. 01.15: **Sheet C1.1:** Revised “Quantities” for “Demolition Items” #1 & #2.

Item No. 01.16: **Sheet C1.1:** Revised “Demolition Site Plan”, demolition limits reduced in existing parking lot.

Item No. 01.17: **Sheet C2.1:** Revised “Quantities” for “Construction Items” #1, #2 & #14.

Item No. 01.18: **Sheet C2.1:** Revised “Grading Plan”, the following items where revised:

i. Construction limits reduced for proposed parking lot.
ii. Fixed parking stall designation, only 1 space is designated as “VAN”.
iii. Minor elevation revisions at the top landing of the existing ramp that leads to the parking lot.
iv. Concrete along westerly face of proposed modular building widened.

Item No. 01.19: **Sheet C2.2:** Revised “Utility Plan”, construction limits reduced for proposed parking lot and fixed parking stall designation, only 1 space is designated as “VAN”.

Item No. 01.20: **Sheet C3.1:** Revised “Section A-A”, updated to show widening of concrete adjacent to proposed modular building.

Item No. 01.21: **Sheet C4.1:** Revised “Erosion Control Plan”, construction limits reduced for proposed parking lot and fixed parking stall designation, only 1 space is designated as “VAN”.

Item No. 01.22: **Sheet A9.01:** Revised and added “Tackable Surface (TS-2) under the “Finish Floor Legend”.

Item No. 01.23: **Sheet A9.01:** Revised Detail 27 “Finish Schedule”

i. Work Room 102 South wall was revised to “TS-1 / TS-2”
ii. Office 103 & 104 East walls were revised to “TS-2”
iii. Conference Room 105 North wall was revised to “TS-2”

Item No. 01.24: **Sheet A9.01:** Revised Detail 15 “Material Schedule”

i. “CPT-1” revised to Mohawk, Interplay Stripe, 951 Yellow Jacket, 18” x 35.5”
ii. “LVT-1” revised to Altro Floors, LVT, Alabaster – LAV 16033, 12” x 12”
iii. “PL-1” revised to Wilsonart, HPL, 7966K – 12 5th Ave Elm, @ Cabinets
iv. “TS-1” revised to Koroseal / Chatfield Clarke, Interloom, Coconut NM21-02
v. “TS-2” added and reads: Koroseal / Chatfield Clarke, Interloom, Haze NM21-05

Item No. 01.25: **Sheet A9.01:** Revised Detail 3 “Proposed Floor Plan”, delineated “TS-2” wall finish areas for the Work Room, Conference Room and Office spaces.

Item No. 01.26: **Sheet M6.01:** Revised Detail 9 “Heat Pump Ducting Detail, added annotation reading “Paint exterior duct as per field ext. paint”.

Item No. 01.27: **Sheet T0.00:** Revised “Technology Symbol List”, removed credential reader and all video surveillance camera items.

Item No. 01.28: **Sheet T0.00:** Revised “Technology Scope of Work”, scope of work updated and any access control or camera system scope has been removed.

Item No. 01.29: **Sheet T1.02:** Removed Detail 1 “Access Control Riser Diagram”.

Item No. 01.30: **Sheet T1.02:** Replaced Detail 2 “Fiber and Copper Riser Diagram” in its entirety.

Item No. 01.31: **Sheet T2.01:** Revised “Key Notes”, all keynotes associated with card reader and entrance camera scope of work have been removed.

Item No. 01.32: **Sheet T2.01:** Revised Detail 2 “Proposed Floor Plan”, WAPS location have been adjusted and data outlet locations have been updated. All card reader scope of work and entrance camera has been removed.

Item No. 01.33: **Sheet T4.00:** Revised “Keyed Notes” #1.

Item No. 01.34: **Sheet T6.01:** Removed Detail 2 “Controlled Security Scheme Foor Rough-In Detail” and Detail 6 “Exterior Camera – Wall Mount”.

Item No. 01.35: **Sheet T6.02:** Added Detail 3 “Wall Cabinet Mounting Details”.

End of Addendum

Project Manual

For

Orange Grove High School
Transportation Office

300 Buena Vista Ave.
Corona, Ca 92882

Bidding and Contract Requirements
And
Specifications

for the

Corona Norco Unified School District
2820 Clark Ave.
Norco, Ca. 92860

Date: **12/18/23**

PBK Project No.: 230010

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☐ ACS ☑
DATE: 12/21/2023

LICENSED ARCHITECT
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SECTION 01 35 46 INDOOR AIR QUALITY PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Construction procedures to promote adequate indoor air quality after construction.
   2. Testing indoor air quality after completion of construction.

B. Related Sections:
   1. Section 23 00 01: Heating, Ventilation, and Air Conditioning 1

C. Reference Standards:
   1. ASHRAE Std 52.2 – Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size.
   2. ASHRAE Std 62.1 – Ventilation For Acceptable Indoor Air Quality.
   3. ASHRAE Std 129 – Measuring Air-Change Effectiveness.
   4. ASTM E779 – Standard Test Method for Determining Air Leakage Rate by Fan Pressurization.
   5. SMACNA (OCC) – IAQ Guideline for Occupied Buildings Under Construction.

D. Project Goals:
   1. Dust and airborne particulates:
      a. Prevent deposition of dust and other particulates in HVAC ducts and equipment:
         1) Establish condition of existing ducts and equipment prior to start of alterations.
         2) Contractor shall bear the cost of cleaning required due to failure to protect ducts and equipment from construction dust.
   2. Airborne contaminants:
      a. Procedures and products have been specified to minimize indoor air pollutants:
         1) Furnish products meeting the Specifications.
         2) Avoid construction practices that could result in contamination of installed products leading to indoor air pollution.

E. Verification: HVAC system has been designed to achieve the minimum requirements for ventilation specified in ASHRAE 62.1, with verification provided by MEP Engineer of Record.

1.3 DEFINITIONS

A. Adsorptive Materials: Gypsum board, acoustical ceiling tile and panels, carpet and carpet tile, fabrics fibrous insulation, and other similar products.

B. Contaminants: Gases, vapors, regulated pollutants, airborne mold and mildew, and the like, as specified.

C. Particulates: Dust, dirt, and other airborne solid matter.

D. Wet Work: Concrete, plaster, coatings, and other products that emit water vapor or volatile organic compounds during installation, drying, or curing.

1.4 SUBMITTALS

A. See Section 01 33 00: Submittal Procedures.

B. Submittals provided by Owner and/or the Commissioning Agent: To be reviewed by Contractor and submitted to Architect for processing.

C. Indoor Air Quality Management Plan:
1. Describe in detail measures to be taken to promote adequate indoor air quality upon completion; use SMACNA IAQ Guidelines for Occupied Buildings Under Construction as a guide (submit prior to pre-construction meeting):
   a. Submit not less than 60 days before enclosure of building.
   b. Identify potential sources of odor and dust.
   c. Identify construction activities likely to produce odor or dust.
   d. Identify areas of Project potentially affected, especially occupied areas.
   e. Evaluate potential problems by severity and describe methods of control.
   f. Describe construction ventilation to be provided, including type and duration of ventilation, use of permanent HVAC systems, types of filters, and schedule for replacement of filters.
   g. Describe cleaning and dust control procedures.
   h. Describe measures to be taken for protection of absorptive materials.
   i. Outline requirement for filtration for air handling equipment used during construction to use media with a minimum of MERV 8 at each return grill if permanently installed air handlers are used during construction.

D. Interior Finishes Installation Schedule: Identify each interior finish that either generates odors, moisture, or vapors, or is susceptible to adsorption of odors and vapors, and indicate air handling zone, sequence of application, and curing times.

E. Duct and Terminal Unit Inspection Report.

F. Air Contaminant Test Plan:
1. Identify:
   a. Testing agency qualifications.
   b. Locations and scheduling of air sampling.
   c. Test procedures, in detail.
   d. Test instruments and apparatus.
   e. Sampling methods.

G. Air Contaminant Test Reports:
1. Show:
   a. Location where each sample was taken, and time.
   b. Test values for each air sample; average the values of each set of three (3).
   c. HVAC operating conditions.
   d. Certification of test equipment calibration.
   e. Other conditions or discrepancies that might have influenced results.

H. Ventilation Effectiveness Test Plan:
1. Identify:
   a. Testing agency qualifications.
   b. Description of test spaces, including locations or air sampling.
   c. Test procedures, in detail; state whether tracer gas decay or step-up will be used.

d. Test instruments and apparatus; identify tracer gas to be used.
e. Sampling methods.

I. Ventilation Effectiveness Test Reports:
1. Include preliminary tests of instruments, apparatus, and test spaces.
2. Calculation of ventilation effectiveness, E.
3. Location where each sample was taken, and time.
4. Test values for each air sample.
5. HVAC operating conditions.
6. Other information specified in ASHRAE 129.
7. Other conditions or discrepancies that might have influenced results.

PART 2 PRODUCTS

2.1 MATERIALS

A. Low VOC Materials: See other Sections for specific requirements for materials with low VOC content.

B. Auxiliary Air Filters: MERV of 8, minimum, when tested in accordance with ASHRAE 52.2.

PART 3 EXECUTION

3.1 CONSTRUCTION PROCEDURES

A. Prevent the absorption of moisture and humidity by adsorptive materials:
1. Sequence the delivery of such materials so that they are not present in the building until wet work is completed and dry.
2. Deliver and store such materials in fully sealed moisture-impermeable packaging.
3. Provide sufficient ventilation for drying within reasonable time frame.

B. Begin construction ventilation when building is substantially enclosed.

C. If extremely dusty or dirty, work must be conducted inside the building:
1. Shut down HVAC systems for the duration.
2. Remove dust and dirt completely before restarting systems.

D. HVAC equipment and supply air ductwork may be used for ventilation during construction:
1. Operate HVAC system on 100 percent outside air, with 1.5 air changes per hour, minimum.
2. Ensure that air filters are correctly installed prior to starting use:
a. Replace filters when they lose efficiency (for corridor HVAC only).
3. Do not use return air ductwork for ventilation.
4. Seal return air inlets or otherwise positively isolate return air system to prevent recirculation of air:
a. Provide alternate return air pathways (for corridor HVAC only).

E. Do not store construction materials or waste in mechanical or electrical rooms.

F. Prior to use of return air ductwork without intake filters, clean up and remove dust and debris generated by construction activities:
1. Inspect duct intakes, return air grilles, and terminal units for dust.
2. Clean plenum spaces, including top sides of lay-in ceilings, outsides of ducts, tops of pipes, and conduit.

3. Clean tops of doors and frames.
4. Clean mechanical and electrical rooms, including tops of pipes, ducts, and conduit, equipment, and supports.
5. Clean return plenums of air handling units.
6. Remove intake filters last after cleaning is complete.

G. Do not perform dusty or dirty work after starting use of return air ducts without intake filters.

H. Use other relevant recommendations of SMACNA IAQ Guideline for Occupied Buildings Under Construction for avoiding unnecessary contamination due to construction procedures.

END OF SECTION 01 35 46

SECTION 02 41 19 SELECTIVE DEMOLITION

PART 1 - GENERAL

A. Removal of designated building equipment and fixtures.
B. Removal of designated construction.
C. Disposal of materials.
D. Storage of salvaged materials.
E. Cap and identify utilities.
F. Temporary partitions to allow building occupancy.
G. Temporary fire protection.
H. Schedule of materials and equipment.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged.

B. Disposal: Removal off-site of demolition waste and subsequently deposit in landfill acceptable to authorities having jurisdiction.

C. Existing to Remain: Items of construction that are not to be removed and that are not indicated to be removed.

1.3 MATERIALS OWNERSHIP

A. Historic items, relics, cornerstones, commemorative plaques, tablets and similar objects encountered during demolition are to remain the Owner's property.

B. Carefully remove each item in a manner to prevent damage and deliver to Owner.

1.4 SUBMITTALS

A. Predemolition Photographs: Show conditions of exiting adjacent construction and site improvements that might be misconstrued as damaged by demolition operations. Submit before work begins.

B. Record Documents: Submit under provisions of Section 01 77 00. Accurately record locations of utilities and subsurface obstructions.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable codes for demolition work, safety of structure, electrical disconnection and reconnection dust control and disposal of materials.

B. Comply with California Fire Code (CFC), California Code of Regulations, (CCR) Title 24, Part 9, Chapter 14 - Fire Safety During Construction and Demolition.

C. Obtain required permits from authorities.

D. Notify affected utility companies before starting work and comply with their requirements.

E. Do not close or obstruct egress width to exits.

F. Do not disable or disrupt building fire or life safety systems without 3 day prior written notice to the Owner.

1.6 PROJECT CONDITIONS

A. Areas of buildings to be demolished will be evacuated and their use discontinued before start of work.

B. Owner will occupy building(s) adjacent to demolition area. Conduct demolition so owner's operation will not be disrupted.

C. Provide at least 72 hour notice to Owner of activities that will affect Owner's

operation.

D. Maintain access to existing walkways, exits and other adjacent occupied

facilities.

E. Owner assumes no responsibility for areas of buildings to be demolished.

F. Hazardous Materials:

1. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.

1

1.7 SEQUENCING

A. Sequence work under the provisions of Section 01 11 00.

B. Owner will conduct salvage operations before demolition begins to remove materials and equipment that the Owner chooses to retain.

D. Notify Owner in writing 5 days in advance of any required work to be performed on a

weekend or holiday.

E. Coordinate utility and building service interruptions with Owner.

F. Schedule tie-ins to existing systems to minimize disruption.

G. Coordinate Work to ensure fire sprinklers, fire alarms, smoke detectors, emergency lighting, exit signs and other life safety systems remain in full operation in occupied areas.

1.9 PROJECT CONDITIONS

A. Conduct demolition to minimize interference with adjacent and occupied building areas.

B. Cease operations immediately if structure appears to be in danger and notify Architect. Do not resume operations until directed.

3. PART 3 - EXECUTION

3.1 EXAMINATION

A. Correlate existing conditions with requirements indicated.

B. Inventory and record condition of items to be removed and salvaged. Execute predemolition photographs.

D. Verify that hazardous waste remediation is complete.

3.2 PREPARATION

A. Existing Utilities: Locate, identify, disconnect and seal or cap off indicated utilities serving areas to be demolished.

B. Salvaged Items: Clean, pack and identify items for delivery to Owner.

C. Protect existing items which are not indicated to be salvaged, removed, or altered.

D. Erect and maintain weatherproof closures for exterior openings.

E. Erect and maintain temporary partitions to prevent spread of dust, fumes, noise, and smoke to provide for Owner occupancy as specified in Section 01 11 00.

3.3 DEMOLITION

A. Conduct demolition to minimize interference with adjacent [and occupied] building areas.

B. Cease operations immediately if structure appears to be in danger. Notify Architect. Do not resume operations until directed.

C. Maintain protected egress and access to the Work.

D. Maintain fire safety during demolition in accordance with CFC, Chapter 14.

E. Demolish in an orderly and careful manner. Protect existing supporting structural members.

3.4 SALVAGING OF DEMOLITION

MATERIALS

A. Clean salvaged items.

B. Pack or crate items after cleaning. Identify contents.

C. Store items in secure area until delivery to Owner.

D. Protect items from damage.

E. Install salvaged items to comply with requirements for new materials and equipment.

3.5 RECYCLING OF DEMOLITION MATERIALS

A. Separate recycled demolition materials from other demolished materials.

B. Stockpile processed materials on-site without intermixing with other materials.

C. Do not store materials within drip line of trees

D. Transport recyclable materials that are not indicated to be reused off Owner's property to recycling receiver or processor.

E. Recycled incentives received for building demolition materials shall be equally shared between Contractor and Owner.

F. Wood Materials: Sort and stack members according to size, type and length. Separate dimensional and engineered lumber, panel products, and treated wood materials.

G. Metals: Separate by metal type. Remove nuts, bolts and rough hardware. Sort structural steel by type and size.

H. Roofing: Separate organic and fiberglass shingles and felts. Remove nails, staples and accessories.

I. Doors and Hardware: Brace open end of door frames. Leave hardware attached to doors.

J. Carpet and Pad: Store clean dry carpet and pad in a closed container or trailer.

K. Gypsum Board: Stack large clean pieces on pallets. Remove edge trim and sort with metals. Remove and dispose of fasteners.

L. Acoustical Ceiling Materials: Stack panels and tiles on pallets. Separate suspension system and sort with metals.

M. Equipment: Drain tanks, piping and fixtures. Seal openings with caps or plugs.

N. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves and other components.

O. Lighting Fixtures: Remove lamps and separate by type.

P. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

Q. Conduit: Reduce conduit to straight lengths and store by type and size.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Except for items to be salvaged, reinstalled, or otherwise indicated to remain, remove demolished materials from Project site and legally dispose of them in an EPA – approved landfill.

B. Do not burn or bury materials on site.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition.

B. Remove temporary construction.

C. Return adjacent areas to condition existing before demolition operations began.

D. Leave site in a clean condition.

END OF SECTION 02 41 19

SECTION 23 00 00

GENERAL MECHANICAL PROVISIONS

PART 1 - GENERAL

1.01 GENERAL CONDITIONS:

A. The foregoing General and Special Conditions shall form a part of this Division with the same force and effect as though repeated herein. The provisions of this Section shall apply to all the Sections of Division 23.

1.02 CODES AND REGULATIONS:

A. All work and materials shall be in full accordance with current rules and regulations of applicable codes. Nothing in these drawings or specifications is to be construed to permit work not conforming to these codes. Should the drawings or specifications call for material or methods of construction of a higher quality or standard than required by these codes, the specifications shall govern. Applicable codes and regulations are:

1. California Code of Regulations – CCR:
   a. Title 8, Industrial Relations.
   b. Title 24, Building Standards.
2. California Building Code – CBC.
3. California Mechanical Code – CMC.
4. California Plumbing Code – CPC.
5. California Green Building Code.
6. Air Diffusion Council – ADC.
7. American Gas Association – AGA.
8. Air Moving and Conditioning Association – AMCA.
9. American National Standards Institute – ANSI.
10. Air Conditioning and Refrigeration Institute – ARI.
11. American Society of Heating, Refrigerating and Air Conditioning Engineers – ASHRAE.
12. American Society of Mechanical Engineers – ASME.
13. American Society for Testing and Materials – ASTM.
14. American Water Works Association – AWWA.
15. California Electrical Code – CEC.
16. National Electrical Manufacturers Association – NEMA.
17. National Fire Protection Association – NFPA.
18. Sheet Metal and Air Conditioning Contractors National Association – SMACNA.
19. Underwriters' Laboratory – UL.
20. Occupational Safety and Health Act - OSHA.

1.03 PERMITS AND FEES:

A. The Contractor shall take out all permits and arrange for all tests in connection with his work as required by local ordinances. All charges are to be included in the work. Permits for equipment connected to a particular system are to be considered as a part of the work included under each system; for example, permits for electric motor connection are part of electrical work, permits for domestic water or gas connections are part of plumbing work. All charges for service connections, meters, etc. by utility companies or districts shall be included in the work.

1.04 COORDINATION OF WORK:

A. Layout of materials, equipment and systems is generally diagrammatic unless specifically dimensioned. The actual locations of all materials, piping, ductwork, equipment, supports, etc. shall be carefully planned, prior to installation of any work, to avoid all interference's with each other, or with structural, electrical or architectural elements. Verify the proper voltage and phase of all equipment with the electrical plans. All conflicts shall be called to the attention of the Engineer prior to the installation of any work or the ordering of any equipment.

1.05 GUARANTEE:

A. Guarantee shall be in accordance with the General Conditions. These specifications may extend the period of the guarantee for certain items. Where such extensions are called for, or where items are normally provided with guarantee periods in excess of that called for in the General Conditions, the Certificate of Guarantee shall be furnished to the Owner through the Engineer.

1.06 EXAMINATION OF SITE:

A. The Contractor shall examine the site, compare it with plans and specifications, and shall have satisfied himself as to the conditions under which the work is to be performed. No allowance shall subsequently be made in his behalf for any extra expense to which he may be put due to failure or neglect on his part to make such an examination.

1.07 SUBMITTALS:

A. Submit shop drawings in accordance with Division 01.

B. Shop Drawings: Within 30 days of contract award, the Contractor shall submit six copies of shop drawings for all materials, equipment, etc. proposed for use on this project. Material and equipment shall not be ordered or installed until written review is processed by the Engineer. Any item omitted from the submittal shall be provided as specified without substitution. All shop drawings must comply with the following:

1. Shop drawings are required for all material and equipment items and shall include manufacturer's name and catalog numbers, dimensions, capacities, performance curves, and all other characteristics and accessories as listed in the specifications or on the drawings. Descriptive literature shall be current factory brochures and submittal sheets. Capacities shall be certified by the factory.
2. All shop drawings shall be submitted at one time in a neat and orderly fashion in a suitable binder with title sheet including Project, Engineer, and Contractor; Table of Contents; and indexed tabs dividing each group of materials or item of equipment. All items shall be marked with the specification paragraph number for which they are proposed. All equipment shall also be identified by the mark number as indicated on the drawings.
3. All capacities, characteristics, and accessories called for in the specifications or on the drawings shall be highlighted, circled or underlined on the shop drawings. Calculations and other detailed data indicating how the item was selected shall be included for items that are not scheduled. Data must be complete enough to permit detailed comparison of every significant characteristic which is specified, scheduled, or detailed.

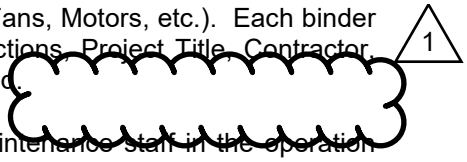
C. Substitutions: Manufacturers and model numbers listed in the specifications or on the drawings represent the standard of quality and the features desired. Unless otherwise noted, alternate manufacturers may be submitted for review by the Engineer. Calculations and other detailed data indicating how the item was selected shall be included. The Contractor shall assume full responsibility that substituted items or procedures will meet the specifications and job

requirements and shall be responsible for the cost of redesign and modifications to the work caused by these items.

D. Review: Submittals will be reviewed for general conformance with the design concept, but this review does not guarantee quantity shown, nor does it supersede the responsibility of the Contractor to provide all materials, equipment and installation in accordance with the drawings and specifications. The Contractor shall agree that shop drawing submittals processed by the Engineer are not Change Orders; that the purpose of shop drawing submittals by the Contractor is to demonstrate to the Engineer that the Contractor understands the design concept; that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use. The Contractor shall agree that if deviations, discrepancies or conflicts between shop drawings and design drawings and specifications are discovered either prior to or after shop drawing submittals are processed by the Engineer, the design drawings and specifications shall control and shall be followed.

1.08 OPERATION AND MAINTENANCE INSTRUCTIONS:

A. Submit one electronic pdf copy for review and after approved submit three hard copies of the Operation and Maintenance Instructions and Wiring Diagrams for all equipment and parts lists for all equipment, etc. shall be submitted to the Engineer. All instructions shall be clearly identified by marking them with the same designation as the equipment item to which they apply (e.g. AC-1). All wiring diagrams shall agree with revised shop drawings and indicate the exact field installation. All instructions shall be submitted at the same time and shall be bound in a suitable binder with tabs dividing each type of equipment (e.g. Fans, Motors, etc.). Each binder shall be labeled indicating "Operating and Maintenance Instructions, Project Title, Contractor, Date" and shall have a Table of Contents listing all items included.



B. Verbal: The Contractor shall verbally instruct the Owner's maintenance staff in the operation and maintenance of all equipment and systems. The controls contractor shall present that portion of the instruction that applies to the control system. The Engineer's office shall be notified 96 hours prior to this meeting.

C. Posted: The Contractor shall prepare operation instructions for all systems which shall be typewritten, reviewed by the Engineer, and mounted under glass adjacent to the appropriate temperature control panel. These instructions shall include applicable temperature control diagrams.

D. Acknowledgment: The Contractor shall prepare a letter indicating that all operation and maintenance instructions (printed, verbal and posted) have been given to the Owner, to the Owner's satisfaction. This letter shall be acknowledged (signed) by the Owner and submitted to the Engineer.

1.09 RECORD DRAWINGS:

A. The Contractor shall maintain a set of prints for the project as a record of all construction changes made. As the Work progresses, the Contractor shall maintain a record of all deviations in the Work from that indicated on the drawings. Final location of all underground work shall be recorded by depth from finished grade and by offset distance from permanent surface structures, i.e. buildings, curbs and walks. In addition, the water, gas, under-floor ducts, etc. within the building shall be recorded by offset distances from building walls. The original drawings will be made available to the Contractor from which he shall have a set of reproducible drawings made. The Contractor shall then transfer the changes, notations, etc. from the marked-up prints to the reproducible drawings. The record drawings (marked-up prints and

reproducibles) shall be submitted to the Engineer for review (as an alternative, the marked-up prints may be photocopied full size on reproducible stock).

PART 2 - PRODUCTS

2.01 PROTECTIVE COATING FOR UNDERGROUND PIPING:

A. All ferrous pipe below grade (except cast iron) shall have a factory applied protective coating of extruded high density polyethylene, 35 to 70 mils total thickness, X-Tru Coat, Scotchkote. All fittings and areas of damaged coating shall be covered with two layer double wrap of 10 mil polyvinyl tape to total thickness of 40 mils. Manville Corporation. Protective coating shall be extended 6" above surrounding grade.

2.02 CONCRETE ANCHORS:

A. Concrete Anchors shall comply with CBC 1901A.3. Steel stud with expansion anchor requiring a drilled hole; powder driven anchors are not acceptable. Minimum concrete embedment shall be 4-1/2 diameters. Minimum spacing shall be 10 diameters center-to-center and 5 diameters from center to edge of concrete. Maximum allowable stresses for tension and shear shall be 80% of the test report values "with special inspection". Anchors shall be Hilti, Philips - or Approved equal.

2.03 SEISMIC RESTRAINTS:

A. All mechanical systems (all equipment, piping, etc.) shall be provided with seismic restraints in accordance with "Guidelines for Seismic Restraint of Mechanical Systems” dated 2006 by SMACNA.

2.04 SYSTEM IDENTIFICATION:

A. Above Grade Piping: Provide markers on piping which is either exposed or concealed in accessible spaces. For piping systems, other than drain and vent lines, indicate the fluid conveyed or its abbreviation, either by preprinted markers or stenciled marking, and include arrows to show the direction of flow. Comply with ANSI A13.1 for colors. Locate markers at ends of lines, near major branches and other interruptions including equipment in the line, where lines pass through floor, walls or ceilings or otherwise pass into inaccessible spaces, and at 50' maximum intervals along exposed portion of lines. Marking of short branches and repetitive branches for equipment connections is not required.

B. Equipment: All equipment shall be identified with a plastic laminated, engraved nameplate which bears the unit mark number as indicated on the drawings (e.g. AC-1). Provide 1/2" high lettering, white on black background. Nameplates shall be permanently secured to the unit.

C. Valves: Provide valve tags on all valves of each piping system, excluding check valves, valves within equipment, shut-off valves at equipment and other repetitive terminal units. Provide brass tags or plastic laminate tags. Prepare and submit a tagged valve schedule, listing each valve by tag number, location and piping service. Mount in glazed frame where directed.

D. Controls: Label all panels, thermostats and by-pass timers with plastic laminated, engraved nameplate which bears the unit mark number as indicated on the drawings (e.g. AC-1). Provide 1/4" high lettering, white on black background. Nameplates shall be permanently secured to the unit.

2.05 EQUIPMENT SUPPORT FRAMES:

A. Unless specifically noted otherwise, it shall be the responsibility of Mechanical Contractor to furnish and install all support frames for its equipment.

PART 3 - EXECUTION

3.01 SCHEDULING OF WORK:

A. All work shall be scheduled subject to the approval of the Engineer and Owner. No work shall interfere with the operation of the existing facilities on or adjacent to the site.

3.02 CONDUCT OF WORK:

A. The Contractor shall have at all times, as conditions permit, a sufficient force of workmen and quantity of materials to install the work contracted for as rapidly as possible consistent with good work, and shall cause no delay to other Divisions engaged upon this project or to the Owner.

B. Mechanical Contractor shall arrange for all cutting necessary for the proper installation of its work, providing all sleeves and chases necessary. Cutting shall not be done in such a manner to impair the strength of the structure. Any damage resulting from work shall be repaired by the Contractor at his expense to the satisfaction of the Engineer.

C. Progressively, daily at the completion of each day's work, and at completion of the job, the Contractor shall thoroughly clean all of his work, removing all debris, stain and marks resulting from his work.

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3.03 EXCAVATION AND BACKFILL:

A. Excavation: Trenches are to be excavated to grade and depth established by drawings. Unless otherwise noted, minimum earth cover above top of pipe shall be 24", not including base and paving in paved areas. Width of trenches at top of pipe shall be a minimum of 16" plus the outside diameter of the pipe. Provide all shoring required by site conditions. Barrel of pipe shall have uniform support on trench bottom, hand excavate additional depth at bells, hubs and fittings. Where over-excavation occurs, provide compacted selected backfill to pipe bottom. Where ground water is encountered, remove to keep excavation dry, using well points and pumps as required.

B. Backfill:

1. Around Pipe and to One Foot Above Pipe: Material shall be river run sand or native granular free flowing material, free of clay lumps, silt or vegetable matter and shall have 100% passing through the No. 4 sieve and a maximum of 3% passing through the No. 200 sieve. Place carefully around and on top of pipe, taking care not to disturb piping. Consolidate with vibrator.
2. One Foot Above Pipe to Grade: Material to be sandy or silty loam, free of lumps, laid in 6" layers, uniformly mixed, to proper moisture and compacted to required density. If backfill is determined to be suitable and required compaction is demonstrated by laboratory test, water compaction in 6" layers may be used, subject to approval by the Engineer.
3. Remove all water sensitive settlement from trench backfill regardless of location and compaction requirements.

C. Compaction: Compact to a density of 95% within building and 90% outside building. Demonstrate proper compaction by testing at one-half of the trench depth. Perform three tests per 100' of trench.

3.04 OPENINGS, CUTTING AND PATCHING:

A. The locations and dimensions for openings through walls, floors, ceilings, foundations, footings, etc. required to accomplish the work under this Specification Division shall be provided under this Division. The actual openings and the required cutting and patching shall be provided. Coring through existing concrete or masonry walls, floors, ceilings, foundations, footings, etc., and saw cutting of concrete floors or asphaltic concrete required to accomplish the work under this Specification Division shall be provided under this Division. Patching of these surfaces shall also be provided. Cutting and coring shall not impair the strength of the structure. Any damage resulting from this work shall be repaired at the Contractor's expense to the satisfaction of the Engineer.

3.05 MANUFACTURER'S RECOMMENDATIONS:

A. All material, equipment, devices, etc., shall be installed in accordance with the recommendations of the manufacturer of a particular item. The Contractor shall be responsible for all installations contrary to the manufacturer's recommendations. The Contractor shall make all necessary changes and revisions to achieve such compliance. Manufacturer's installation instructions shall be delivered to and maintained at the job site through the construction of the project.

3.06 QUIETNESS:

A. Piping, ductwork and equipment shall be arranged and supported so that vibration is a minimum and is not carried to the building structure or spaces.

3.07 DAMAGES BY LEAKS:

A. The Contractor shall be responsible for damages to other work caused by leaks in the temporary or permanent piping systems prior to completion of work and during the period of the guarantee, and for damages to other work caused by disconnected pipes or fittings, and the overflow of equipment prior to completion of the work.

3.08 CLEANING:

A. Progressively and at completion of the job, the Contractor shall thoroughly clean all of his work, removing all debris, stain and marks resulting from his work.

*** END OF SECTION ***

SECTION 23 00 01

HEATING, VENTILATING AND AIR CONDITIONING

PART 1 - GENERAL

1.01 GENERAL CONDITIONS:

A. The foregoing Section 23 00 00, General Mechanical Provisions shall form a part of this specification.

1.02 SCOPE:

A. Included: Perform all work necessary and required to complete construction as indicated. Such work includes the furnishings of all labor, materials and services necessary for a complete, lawful and operating air conditioning, heating, ventilating system with all equipment as shown or noted on the drawings or as specified herein. The work includes, but is not necessarily limited to, the following:

1. Heating, ventilating and air conditioning equipment.
2. Air distribution system (Ductwork, Air Terminals, etc.).
3. System insulation.
4. Controls and control wiring and conduit for control wiring.

B. Work Specified Elsewhere:

1. Line voltage power wiring (60 volts or greater), motor starters in motor control centers, and disconnect switches are included in the electrical section.
2. Connection of condensate drains to equipment.
3. Access doors.

PART 2 - MATERIALS

2.01 DUCTWORK MATERIALS:

A. General: All ductwork materials shall have fire and smoke hazard ratings as tested under ASTM E-84 and UL-181 not exceeding a flame spread of 25 and smoke developed of 50. All ductwork shall be per Chapter 6 of the CMC.

B. Low Velocity Metal Ductwork: Metal ductwork shall be galvanized sheet steel, ASTM A527.

C. Low Velocity Flexible Ductwork: Insulated flexible ductwork. Continuous internal liner bonded to galvanized steel wire helix. One pound per cubic foot glass fiber insulation, R-8. Thermal conductivity shall not exceed 0.13 Btu/hr sq. ft.- degrees F at a mean temperature of 75°F. Seamless vapor barrier jacket. Each length shall have a factory installed metal sleeve at each end. Duct shall be capable of continuous operation at 1.5" of water static pressure and 4000 ft./ min. air velocity. Maximum length 5 ft., single piece at runouts to air terminals. Genflex, Lamborn or equal.

D. Spiral Duct: Ductwork shall be galvanized steel with uni-seal spiral seamlock and uni-seal fittings, ASTM A653. United McGill Corp or equal. All exposed spiral duct shall be painted, color selected by Owner.

E. Exterior Duct shall be single wall galvanized sheet steel, ASTM A527 with external insulation.

F. Bonding Adhesive: Durodyne WBG, Scotchgrip Adhesive 4230 or equal.

G. Duct Mastic: Minnesota Mining and Manufacturing Duct Sealer 800, Tuff-Bond No. 12, Glencoat Seal-Flex or equal.

H. Duct Joints:

1. As an option to joints and seams designated by SMACNA or shown on Drawings, the following systems may be used:
   a. Ducts with sides 24 inches to 48 inches, transverse duct joint system by Ductmate Jr., Nexus or equal (SMACNA "E" Type connection).
   b. Ducts 48 inches and larger, Ductmate Regular, Nexus (SMACNA "J" Type connection) or equal.

I. Fiber Tape: Mineral impregnated fiber tape and plastic activator-adhesive. Hardcast Inc., United McGill Uni-Cast or equal.

2.02 AIR TERMINALS AND DUCT FITTINGS:

A. Grilles: (Grilles, Registers and Diffusers)

1. Information on Drawings: Refer to the Air Distribution Schedule on the drawings for the list of grilles. Manufacturer's model numbers are listed to complete the description. Equivalent models of T & B, Krueger, Anemostat, Price, Titus or equal. Refer to the floor plans for neck size, CFM, air diffusion pattern, and fire damper, if required.
2. Performance: If, according to the certified data of the manufacturer of the proposed units, the sizes indicated on the drawings will not perform satisfactorily, the units shall be re-selected by the Contractor for the proper diffusion, spread, drop and throw.
3. Frame and Accessories: All supply, return, and exhaust grilles shall be provided with cushion heads and attachments to structure, unless otherwise noted. All surface mounted grilles shall have a perimeter gasket and flanged edge. All grilles shall have frames suitable for mounting in the surfaces designated by the architectural drawing, coordinate prior to ordering.
4. Finish: All ceilings and wall grilles shall have a paintable white finish unless otherwise noted. Interior components shall be flat black.
5. Gyms: Provide 12 Ga. wire safety cables for all overhead grilles in Gym.

B. Turning Vanes: Double wall, hollow metal, air-foil shape. Spacing in accordance with manufacturer's recommendations. Aero Dyne, HEP or equal.

C. Flexible Connection: UL listed neoprene coated 30-ounce fiberglass cloth. 3" metal, 6" fabric, 3" metal. Ventglas or equal.

D. Branch Duct Volume Damper: Volume control damper (VCD) in rectangular ducts shall be as follows: Opposed blade, 6” maximum blade width, 16-gage blade, 48” maximum length, nylon or oil impregnated bronze bearings, ½” diameter pin shaft, 16-gage channel frame, actuating rod and linkage out of air stream. VCD in round duct shall be as follows: Damper blade full height of branch and 1” less than branch width. All branch dampers shall have regulator with stamped steel handle, spring loaded shaft nut, cast body and serrated self-locking die cast core. Regulator for horizontal ducts overhead shall be mounted on sides or bottom of ducts. Secure a 12” length of brightly colored plastic ribbon to handle for ease of location. Where rectangular or round ductwork is insulated, slit insulation to allow handle to protrude. Ventlok 641 (with 607 end bearing for round ducts).

E. Fire/ Smoke Damper: Multi-blade construction in accordance with CBC & CMC. UL 555 and UL 555S labels. Blades shall have metal-to-metal seals and not rely on actuator torque to maintain leakage rating. Prefco, Air Balance, Ruskin, Greenheck 5020-1 with 5800MB2 power open/spring close operator, or equal.

F. Displacement Ventilation Diffusers: The perforated face diffusers shall be constructed with equalization baffles behind the operative diffuser faces for uniform, low velocity, distribution of supply air. Both the equalization baffles and faces shall be securely retained in the diffuser frames with no visible fasteners on the front or side panels. The diffuser frames shall be constructed of high strength aluminum extrusion. The operative faces shall be constructed of painted high-gauge steel. The paint shall be powder coated polyester, color selected by Architect. The diffuser shall be provided with concealed mounting brackets. Diffuser manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE Standard 70-1991. Provide and install 22 gauge solid steel face duct cover with extruded aluminum frame from top of diffuser to ceiling for all exposed diffuser/ duct installations, see plans.

G. Fire Damper: Dynamic rated fire dampers, U.L. 555 label. Prefco, Air Balance, Ruskin, Greenheck or equal.

H. Louvers: Refer to the Air Distribution Schedule on the drawings. Manufacturer's model numbers are listed to complete the description. Equivalent models of Ruskin, Greenheck, Dayton or approved equal. Contractor shall fabricate and provide 16 GA. galvanized perforated panel (50% Free Area) over exterior of all louvers and have field painted to match exterior wall. Refer to the floor plans for all sizes.

2.03 DUCTWORK INSULATION MATERIALS:

A. General: All ductwork insulation materials shall have fire and smoke hazard ratings as tested under ASTM E-84 and UL-181 not exceeding a flame spread of 25 and smoke developed of 50.

B. Fiber Glass Blanket for interior ducts shall be foil faced, 0.13 Btu/ hr – sq. ft. – degrees F conductivity at a mean temperature of 75 degrees F, R-8. CSG Insulation Corp., Schuller, Owens-Corning, Knauf or equal. Bonding Adhesive: Benjamin Foster 85-15 or equal.

C. Exterior duct shall be insulated with R-8 fiber glass banket, composed of glass fibers bonded together with a thermosetting resin and with a foil scrim kraft (FSK) or vinyl vapor-retardant facing or foil faced, R-8 and wrapped with all-service jacket facings (ASJ)

D. Alternate method of duct exterior protection can be application of Polyguard Alumaguard® self-adhering peel and stick flexible, zero-perm, weatherproof claddings over the duct insulation wrap.

2.04 PIPING MATERIALS:

A. Condensate Piping

1 Condensate piping shall be minimum ¾ inch PVC piping with a minimum of 1/8 inch slope per foot. Terminate condensate piping in an approved manner to tie into exisating sewer line as shown in plumbing drawings.

E. Miscellaneous Piping Items:

1. Pipe Support:
   a. Pipe Hanger: Adjustable split ring, swivel hanger and rod. Black malleable iron. Size and maximum loads per manufacturer's recommendation. Felt Lined, Kin-Line 450 F.
   b. Construction Channel: 12 gage 1-5/8" x 1-5/8" steel channel. Single or multiple sections. Self-locking nuts and fittings. Kin-Line, Unistrut.
2. Pipe Sleeves: 24 gage galvanized steel. Adjus-to-Crete #10 with #99 thimble for floors. #100 for walls.

2.05 EQUIPMENT:

A. General Requirements:

1. Capacity: Capacities shall be in accordance with schedules shown on drawings. Capacities are to be considered minimum.
2. Dimensions: Equipment must conform to space requirements and limitations as indicated on drawings and as required for operation and maintenance. Where Architectural screening is indicated, equipment shall not extend above or beyond screening. Equipment will not be accepted that does not readily conform to space conditions. Prepare and submit layout drawings for all proposed equipment (different than scheduled units) showing actual job conditions, required clearances for proper operation, maintenance, etc.
3. Ratings:
   a. Electrical: Electrical equipment shall be in accordance with NEMA Standards and UL or ETL listed where applicable standards have been established.
4. Electrical:
   a. General: Each item or assembly of items shall be furnished completely wired to individual terminal blocks for connection to single branch electrical circuit. All electrical accessories and controls required by equipment shall be furnished. Provide terminal blocks for controls and interlocks not included in equipment package. Manual and magnetic starters shall have ambient compensating running overcurrent protection in all ungrounded conductors. Magnetic starters shall be manual reset, shall have H-O-A switches and auxiliary contacts. Controllers and other devices shall be in NEMA 1 or 3R enclosures as applicable.
   b. Wiring: Conductors, conduit, and wiring shall be in accordance with Electrical Specifications. Individual items within assembly shall be separately protected with dead front, fused disconnect, fuse block, or circuit breaker for each ungrounded conductor, all accessible on operating side of equipment. Switches, contacts and other devices shall be in ungrounded conductors.
   c. Motors: Shall be rated, constructed and applied in accordance with NEMA and ANSI Standards without using service factor. Single-phase motor shall be of type to suit application. Three-phase motors shall be open drip proof, NEMA B design on pumps and fans, NEMA C on reciprocating equipment, sealed ball bearing, three-phase induction unless otherwise noted. Design shall limit starting inrush current and running current to values shown on drawings. Motors 1 horsepower and larger shall be the premium efficiency type, tested according to IEEE Standard 112, Method B. Motors exposed to weather shall be TEFC. Motors in a fan air stream shall be TEFC or TEAO. Vertical motors outdoors shall be ODP or TEFC and shall have rain caps.
   d. Starters: Motor starters shall be furnished for all equipment except where starter is in a motor control center as designated on the electrical drawings. Deliver starter to Electrical Contractor for installation and wiring.
   e. Control Voltage: Equipment connected to greater than 240 volts shall be provided with 120 volt control circuit from integral protected transformer if separate source is not indicated on plans. 240 volt control is acceptable if confined within control panel.
   f. Submittals: Included in shop drawings shall be internal wiring diagrams and manufacturer's recommend external wiring.
6. Fan Selection:
   a. Fan Curves: Performance curves shall be submitted for all units of 3000 CFM or greater. Operating point for forward curved fans shall be from point of maximum efficiency towards increased CFM limited by horsepower scheduled. Operating point for backward inclined fans shall be selected near point of maximum efficiency. Curves shall plot CFM verses static pressure with constant brake horsepower, RPM and efficiency lines.
   b. Static Pressure: Unless otherwise noted, pressure scheduled as external static pressure (ESP) includes all ductwork and accessory losses external to the unit housing. Unless otherwise noted, pressure scheduled as total static pressure includes

all ductwork, filter, coil, cabinet, damper and other accessory losses. Unless otherwise noted, pressure scheduled as duct static pressure includes all supply and return ductwork and accessory losses external to the unit housing and plenum (as applicable). The allowance for filter losses is 0.3" WC, unless otherwise noted. Submit itemized static pressure losses for all components.

7. Filters:
   a. General: Tested and rated in accordance with ASHRAE Standard 52.2 and Title 24, C.C.R. Furnish and install one complete change of all filters after air balance in completed and prior to acceptance. Provide pressure differential gage across all filter banks.
   b. Filter Media: 2" media. MERV-13. Clean filter resistance 0.25" water at 500 fpm. Throw-away frame. Class 2. Camfil Farr AP-Eleven.
   c. Pressure Differential Gage: Diaphragm actuated. 4" dial. Zero adjustment. Accuracy +/ - 2% of full scale. Range as required. Provide static pressure sensors, tubing and mounting brackets. Dwyer Series 2000. Mark gage to indicate filter replacement pressure, coordinate point with filter and equipment manufacturers.
8. Mixing Dampers: Opposed blade, 16-gage. Six-inch maximum blade width, 48" maximum length. Nylon or oil impregnated bronze bearings. One-half inch diameter pin shaft. 16-gage channel frame. One percent maximum leakage at 4" WC in accordance with AMCA 500 for outside air dampers. Actuating rod out of air stream. Arrow.
9. Sound Ratings: Shall be in accordance with ASHRAE 36-72. Sound ratings shall not exceed scheduled values.
10. Drives: Unless noted as direct connected, drives shall be V-belt, rated at 150% of motor horsepower. Multiple drive belts shall be matched set. Drive sheaves shall be dynamically balanced, adjustable, range +/ - 10%, selected at mid range. Adjustable relative movement shall be lockable to shaft. Belts shall be aligned within 1-1/2 degrees at all times. Open drives shall be provided with OSHA approved open mesh belt guards. Belt guards exposed to weather shall be weatherproof enclosure with louvered face for adequate ventilation. Driving motor shall be mounted on adjustable rails. T.B. Woods, Browning. Submit RPM range of driven machine with drive selection.

B. Packaged Heat Pump Unit:

1. General: Self-contained heating/cooling unit designed for outdoor installation. Factory assembled and tested. Provide all starters and relays required for operation. 24 volt control circuit from integral transformer. Weatherproof cabinet, galvanized steel with enamel finish. Drain pan. Multivane, centrifugal supply fan. ARI certified. Gas equipment AGA certified. Carrier. Unit shall use (R-410A) refrigerant. Unit shall be installed in accordance with the manufacturer's instructions. Unit must be selected and installed in compliance with local, state, and federal codes.

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2. Quality Assurance:

   Unit meets ASHRAE 90.1 minimum efficiency requirements. Unit shall be rated in accordance with AHRI Standards 210/240 (04-06 sizes) or 340/360 (07 size). Unit shall be designed to conform to ASHRAE 15. Unit shall be UL-tested and certified in accordance with ANSI Z21.47 Standards and UL-listed and certified under Canadian standards as a total package for safety requirements. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

   Unit shall be designed in accordance with ISO 9001, and shall be manufactured in a facility registered by ISO 9001:2015. Roof curb shall be designed to conform to NRCA Standards.

   Unit shall be subjected to a completely automated run test on the assembly line. The data for each unit will be stored at the factory, and must be available upon request. Unit shall be designed in accordance with UL Standard 1995, including tested to withstand rain. Unit shall be constructed to prevent intrusion of snow and tested to prevent snow intrusion into the control box up to 40 mph. Unit shake tested to assurance level 1, ASTM D4169 to ensure shipping reliability.

3 Delivery, Storage, and Handling:

Unit shall be stored and handled per manufacturer's recommendations. Lifted by crane requires either shipping top panel or spreader bars. Unit shall only be stored or positioned in the upright position.

4 Operating Characteristics:

Unit shall be capable of starting and running at 115°F (46°C) ambient outdoor temperature, meeting maximum load criteria of AHRI Standard 210/240 or 340/360 at ±10% voltage. Compressor with standard controls shall be capable of operation down to 40°F (4°C), ambient outdoor temperatures. Accessory winter start kit is necessary if mechanically cooling at ambient temperatures down to 25°F (–4°C). Unit shall discharge supply air vertically or horizontally as shown on contract drawings.

5 Unit Cabinet:

Unit cabinet shall be constructed of galvanized steel, and shall be bonderized and coated with a prepainted baked enamel finish on all externally exposed surfaces. Unit cabinet exterior paint shall be: film thickness, (dry) 0.003-in. minimum, gloss (per ASTM D523, 60°F/16°C): 60, Hardness: H-2H Pencil hardness.

Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 210/240 and or 340/360 minimum exterior sweat criteria. Interior surfaces shall be insulated with a minimum $^{1}/_{2}$-in. thick, 1 lb density, flexible fiberglass insulation, neoprene coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the heat compartment.

Base of unit shall have a minimum of four locations for thru-the-base gas and electrical connections (factory-installed or field-installed), standard.

Unit shall have base rails on a minimum of 2 sides. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging. Holes shall be provided in the base rail for moving the rooftop by fork truck. Base rail shall be a minimum of 16 gage thickness.

Condensate pan and connections shall be a sloped condensate drain pan made of a corrosion resistant material and comply with ASHRAE Standard 62. Use a $^{3}/_{4}$-in. 14 NPT drain connection, possible either through the bottom or side of the drain pan. Connection shall be made per manufacturer's recommendations. All unit power wiring shall enter unit cabinet at a single, factory prepared, knockout location. Standard unit shall have a thru-the-base electrical location(s) using a raised, embossed portion of the unit basepan.

Cabinet panels shall be easily removable for servicing. Unit shall have one factory installed, tool-less, removable, filter access panel. Panels covering control box, indoor fan, indoor fan motor, gas components (where applicable), and compressors shall have molded composite handles. Handles shall be UV modified, composite. They shall be permanently attached, and recessed into the panel. Screws on the vertical portion of all removable access panel shall engage into heat resistant, molded composite collars. Collars shall be removable and easily replaceable using manufacturer recommended parts.

6 Coils:

Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1775 psig. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig.

7 Refrigerant Components:

Refrigerant circuit shall include the following control, safety, and maintenance features:

Fixed cooling orifice metering system shall include a multiple feed distribution system that optimizes coil performance. Fixed heating orifice metering system shall include a multiple feed distribution system that optimizes coil performance.

Refrigerant filter drier shall be of solid core design. Service gage connections on suction and discharge lines. Pressure gage access through a specially designed access port in the top panel of the unit. Suction line accumulator to provide protection in all operating modes from cooling, heating and reverse cycle switching.

Compressors:

Unit shall use fully hermetic, heat pump duty scroll compressor on single circuit independent refrigeration circuit. Compressor motors shall be cooled by refrigerant gas passing through motor windings. Compressors shall be internally protected from high discharge temperature conditions. Compressors shall be protected from an over-temperature and over-amperage conditions by an internal, motor overload device. Compressor shall be factory mounted on rubber grommets. Compressor motors shall have internal line break thermal, current overload and high pressure differential protection. Crankcase heaters shall not be required for normal operating range, unless required by compressor manufacturer due to refrigerant charge limits. Compressor shall be of a single stage cooling capacity design.

8 Filter Section:

Filters shall be held in place by a pivoting filter tray, facilitating easy removal and installation. Shall consist of factory installed, low velocity, throw-away 2-in. thick fiberglass filters. Filters shall be standard, commercially available sizes. Only one size filter per unit is allowed.

9 Evaporator Fan and Motor

Direct Drive Evaporator fan motor shall be a ECM motor design with permanently lubricated bearings and thermal overload protection. Shall have slow ramp up to speed capabilities. Shall require no fan/motor belts for operation, adjustments and or initial fan speed set up. Shall be internally protected from electrical phase reversal and loss.

Evaporator Fan shall be single speed snd easily set with dedicated selection switch and adjustment pot on unit control board. Blower fan shall be a Vane Axial fan design with 75% less moving parts than a conventional belt drive system. Fan shall be constructed of a cast aluminum stator and high impact composite material on rotor and air inlet casing. It shall be constructed with a corrosion resistant material and dynamically balanced. It shall have slow ramp up to speed capabilities to help reduce sound and comfort issues typically associated with single speed belt drive systems. Unit shall be a slide out design with two screw removal.

Shall include an easily accessible unit Control Board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, DDC control options, and low and high pressure switches. Controller shall also provide an intuitive means to adjust the indoor fan speed through a simple switch and pot adjustment design.

10 Condenser Fans and Motors:

Condenser fan motors shall be a totally enclosed motor, use permanently lubricated bearings and have inherent thermal overload protection with an automatic reset feature. Shall be a direct-driven propeller type fan constructed of high impact composite mate-rial. Shall have high impact composite blades completely formed into one piece without blade fasteners or connectors and shall be dynamically balanced.

11 Automatic Shutoff: For units or zones providing air in excess of 2000 cfm, provide smoke detectors in supply air stream to automatically shut off all power to air moving equipment and alert fire alarm system when smoke is detected in accordance with CMC Section 608.

12 Economizer with Power Exhaust: Economizer shall be a modulating power exhaust type where the unit will exhaust at the minimum outside air setpoint and exhaust 100% during economizer mode. Economizer with power exhaust is shipped separately and shall be field installed and wired under this section.

a. Provide plastic air sampling tube to sense pressure in room for control of power exhaust. Tube shall be placed thru ceiling with escutcheon plate in room that unit serves.

b. Modulating Economizer Sequence of Operation:
The economizer system initially responds to a signal from the cooling thermostat and functions as a true first stage for cooling, while providing maximum fuel economy. The economizer is automatically locked out during the heating mode and holds the outdoor air damper at the minimum position settings.

During the occupied period, the discharge sensor provides a signal to the actuator during free cooling or economizer mode. The signal opens the economizer damper until the discharge temperature drops below 50 degrees F. At this time the signal causes the motor to drive the damper back to minimum position. As the discharge temperature climbs to 60 degrees F the motor will drive back open. During the occupied period, the actuator will not close past the minimum position.

If the fully open actuator cannot satisfy the space demand, mechanical cooling is sequenced on.

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During the unoccupied period, the actuator will override minimum position setting and drive fully closed. On a loss of power, the actuator will spring return fully closed.

When in heating operation, or when outdoor air temperature or enthalpy conditions are high, economizer operation is locked out, and actuator is held at minimum position.

The staging relay is used when the first stage compressors must provide mechanical cooling when assisting the economizer.

The staging relay can be omitted when the second stage compressors can be used to assist the economizer with mechanical cooling.

c. CO2 Sensor Economizer Integration:
When a CO2 sensor is used in conjunction with an economizer, the minimum position jumper between P and P1 on the logic is removed, and the sensor connected. When the CO2 sensor gets a reading higher than the setpoint, the sensor will signal the logic to modulate the o/a dampers open. The HVAC unit functions as if there is no economizer during the CO2 call for fresh air.

When the CO2 level falls below the setpoint, the damper modulates back to the minimum position.

d. Modulating Power Exhaust Sequence of Operation:
When the outside air damper on an economizer starts to open, extra air is introduced the system. As this happens, a mercury switch mounted on the economizer closes. This causes a switch to close on the variable speed controller, allowing high voltage power to be sent to an exhaust motor and blower.

The mercury switch is adjusted to close at the 1% outside air damper position.

The power exhaust is a centrifugal blower power exhaust. The power exhaust uses an adjustable transducer (0-10 VDC) to accurately compare the space pressure to atmospheric pressure, and adjust the amount of exhaust air accordingly. The exhaust volume adjustment is accomplished using a variable frequency drive with a built-in PID control to maintain a field adjustable pressure set point.

OR

Economizer shall be a modulating gear driven type where the outside air will modulate from closed to minimum outside air setpoint and 100% during economizer mode. Economizer is shipped separately and shall be field installed and wired under this section.

13 Guarantee: Provide 5 year extended parts warranty on the condenser coil and compressor. Provide Herosite coating on condenser coils.

PART 3 – EXECUTION

3.01 DUCTWORK INSTALLATION:

A. General:

1. Standards: Unless otherwise noted, all ductwork shall be constructed and installed in accordance with current SMACNA "HVAC Duct Construction Standards". Ductwork and accessories shall be installed in a manner to prevent vibration and rattling.
2. Seismic bracing: All ducts shall be braced and supported per SMACNA Guidelines for “Seismic Restraints Manual for Mechanical Systems” dated 1998, including Appendix E.
3. Duct Access Doors: Provide access doors as required to adjust equipment and dampers.
4. Flexible Connections: Connections of ductwork to all equipment shall be with 6" (min.) flexible connection. Install with ample slack and uniform gap after deflection of vibration isolators. There shall be no metal to metal contact across flexible connection. Protect outdoor connections with weatherproof metal shroud on top and sides, no metal-to-metal contact. Provide at all seismic joints.
5. Ducted Returns: All air handling that is not directly located in the space that it serves shall have ducted returns.
6. Open ends of ductwork shall be covered during construction to keep inside clean.

B. Low Velocity-Low Pressure (up to 2000 ft/ min; up to 2.0 in. water):

1. Sheet Metal Ductwork:
   a. Ells: Ells with less than standard radius and square ells shall be fitted with turning vanes.
   b. Tees: Tees shall be straight tap-in with extractor or 45 degree takeoff, as shown on drawings.
   c. Duct Joints: Seal duct joints airtight with fiber tape and adhesive per manufacturer's printed instruction. Ducts in weather shall be sealed air and water tight with duct mastic before closing and taping.
      i. Where Ductmate type joints are used, the manufacturer's designated procedure shall be followed. Ductmate joints on roof shall have continuous cleat on top duct flange to prevent water from collecting on gasket.
   d. Dampers: Install volume control damper and damper regulator in all branch ducts.
   e. Duct dimensions shown on drawings for lined ducts, are clear net openings inside of lining.
   f. Top of ducts exposed to weather shall be cross broken and sloped slightly to each side to allow rain water to run off. Ducts that do not drain off top will be rejected and need to be replaced at contractors’ expense.
2. Flexible Glass Fiber Ductwork: Hangers shall be 2" wide metal straps spaced to prevent sagging, 3 feet spacing maximum. Insert 6" wide fiberglass pad between duct and hanging strap. All joints and fittings shall be sheet metal and shall be installed with metal bands or 3 (min) self-tapping screws and fiber tape. Maximum length of flexible duct shall be 5 ft. Single piece minimum length shall be 3 ft. Minimum turn radius shall be in accordance with

SMACNA Standards (turn radius to duct centerline not less than 1.5 times the duct diameter).

3.02 AIR TERMINALS AND DUCT FITTINGS INSTALLATION:

A. General: Unless otherwise noted, all air terminals and duct fittings shall be installed in accordance with current SMACNA "HVAC Duct Construction Standards", details on drawings and manufacturers instructions. Terminals and fittings shall be installed in a manner to prevent vibration and rattling.

B. Fire Smoke Damper: Fire smoke dampers shall be installed in accordance with their State Fire Marshal approval and the manufacturer's recommendations.

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3.03 DUCTWORK INSULATION INSTALLATION:

A. General: All supply and return sheet metal ductwork shall be insulated.

B. Concealed Ductwork: Wrap ductwork with fiberglass blanket lapped 2" minimum. Secure with foil tape at all joints for a complete vapor barrier.

C. Acoustic Lining: All ductwork in equipment rooms, where exposed to weather, and elsewhere as indicated on drawings, shall have acoustic lining. Increase each sheet metal dimension to accommodate lining and maintain clear inside duct dimensions shown on drawings. Apply lining with bonding adhesive in accordance with manufacturer's recommendations and also secure with mechanical fasteners in accordance with SMACNA Standards. Seal exposed edges of lining with bonding adhesive.

3.06 EQUIPMENT INSTALLATION:

A. General: It shall be the responsibility of the contractor to insure that no work done under other specification sections shall in any way block, or otherwise hinder access panels or diminish the effectiveness of equipment vibration isolation.

B. Connections to Equipment: Where size reductions are required for connections to equipment, they shall be made immediately adjacent to the equipment and, if possible, inside the equipment cabinet. Connections made to equipment mounted on vibration isolators shall be with flexible connectors, installed adjacent to equipment.

C. Start Up: Engage manufacturer or factory-authorized service representative to perform start up supervision. Manufacturer shall provide on-site start up and commissioning assistance through job completion. Complete installation and start up checks according to manufacturer’s written instructions.

3.07 TEMPERATURE CONTROL SYSTEM:

A. Thermostats shall have the capability of terminating all heating at a temperature of no more than 70 degrees F, or terminating all cooling at a temperature of no less than 78 degrees F, and to provide a temperature range of up to 10 degrees F between full heating and full cooling. Thermostats shall be 7 day programmable, Carrier, Robertshaw or equal with sub-base capable of battery back up or capacitor to retain program in the event of a power outage. All control wiring, regardless of voltage, shall be installed in conduit.

3.09 SYSTEM AIR BALANCE:

A. Scope: Provide services necessary to initially deliver the air quantities shown on the plans and finally to balance for uniform temperature in the spaces served. Adjust all elements in grilles and diffusers for proper air distribution and to minimize drafts. Submit final Air Balance Report for approval before final completion of the construction contract. Comply with SMACNA manual for the balancing and adjustment of air distribution systems.

B. As a minimum, the balance report shall include CFM and neck size at each supply, return and exhaust grille, total CFM and external static pressure for all air moving equipment, and name plate and actual motor amps for indoor air fans.

C. As a part of the work of this contract, THIS DIVISION shall make any changes in the pulleys, belts, and dampers or the addition of dampers required for correct balance as recommended by air balance agency, at no additional cost to Owner.

OR

A. Scope: Provide the services of a qualified independent test and balance agency certified by the Associated Air Balance Council (AABC) or The National Environmental Balancing Bureau (NEBB) to test, adjust and balance, retest, and record performance of the system to obtain design quantities as specified. Balancing contractor must also be TABB certified and have a C-20 license.

B. Qualifications: Prior to commencing work, the agency shall be approved by the Owner's Representative.

C. Instruments: All instruments shall be accurately calibrated; calibration histories shall be available for examination. Application of instrumentation shall be in accordance with AABC standards.

D. Procedure: General: Balanced quantities shall be plus 10%, minus 10% of design quantities. All name-plate data, manufacturer, model, and serial numbers shall be recorded for each item tested.

E. Extended Warranty: The test and balance agency shall include an extended warranty of 90 days after completion of test and balance work, during which time the Owner's Representative at his discretion may request a recheck or resetting of any item or items in test report. The agency shall provide technicians to assist the Owner's Representative in making any tests he may require during this period of time.

F. Air Balance Procedure (for each Air Handling System):

1. All air filters shall be clean when air balance is performed.
2. Provide a sketch of the equipment showing exactly where all pressure readings were taken.
3. Adjust blower RPM to design requirements.
4. Record motor full load amperes.
5. Make pitot tube traverse of main supply and return ducts and obtain design CFM at fans.
6. Record system static pressures, inlet and discharge.
7. Record filter quantity, size(s) and pressure drop across filter(s) at each filter bank.
8. Adjust system for design CFM recirculated air.
9. Adjust system for design CFM outside air.
10. Record entering air temperatures. (DB heating, DB and WB cooling.)
11. Record leaving air temperatures. (DB heating, DB and WB cooling.)
12. Adjust all main supply and return air ducts to design CFM.
13. Adjust all zones to design CFM, supply and return.
14. Adjust all diffusers, grilles and registers to plus 10%, minus 10% of design requirements.

15. Adjust CFM at all exhaust fans, make-up units, etc. (high and low speed, where applicable). Record applicable data from items 1 through 11 above.
16. Each grille, diffuser and register shall be identified as to location.
17. Verify proper diffusion pattern for all ceiling grilles and that all sidewall grilles are set for 5 degrees downward deflection unless otherwise noted. Make a notation of any that are not set properly.
18. Size, type and manufacturer of diffusers, grilles, registers and all tested items shall be identified and listed. Manufacturer's ratings shall be used to make required calculations on all items.
19. Readings and tests of diffusers, grilles, and registers shall include required FPM velocity and test resultant velocity, required CFM and test resultant CFM after adjustments.
20. In cooperation with the control manufacturer's representative, set adjustments of automatically operated dampers to operate as specified. Testing agency shall check all controls for proper calibrations and list all controls requiring adjustment by control installers.
21. All diffusers, grilles and registers shall be adjusted for required air patterns and to minimize drafts.
22. As a part of the work of this contract, THE AIR CONDITIONING CONTRACTOR shall make any changes in pulleys, belts, dampers or the addition of dampers cleaning of insect screens and replacement of filters required for correct balance as recommended by air balance agency, at no additional cost to Owner.
23. Set, test and adjust packaged heating/ cooling unit economizer operation in cooperation with controls contractor. Record minimum and maximum outside and exhaust airflows.

G.

I. Acoustic Performance Testing: Provide acoustic performance testing in accordance with the requirements of EQ3.0 of the "California Criteria for High Performance Schools, Best Practices Manual, 2009 Edition".
    1. Maximum Background Noise Level: Unoccupied classrooms must have a maximum background noise level of no more than 45 dBA LAeq. The standard anticipates two primary noise sources, steady HVAC equipment noise and the usually unsteady exterior environmental noise. Where the measured ambient noises due to sources other than HVAC are within 5 dB of the measured overall noise (HVAC and exterior intrusive noise) a measurement of at least ½ hour duration shall be made in at least two classrooms in each building in the worse case (noisiest) locations on the school site during normal school days and hours.
        a. To evaluate the significance of intrusive exterior noise, a 30-minute Equivalent Sound Level (LAeq30, in general conformance with ANSI S12.60-2002, Annex E3) measurement shall be made in the classroom that is subjectively assessed to represent the worse case exposure to exterior noise, with the HVAC system not in operation. This Leq30 measurement shall be repeated with the HVAC in operation. If the second "HVAC-on" sound level is more than 5 dB greater than the initial "HVAC-off" measurement, exterior noise intrusion shall be deemed "not significant".
        b. Where intrusive exterior noise has been deemed "not significant" short-term (15 second) A-weighted sound level measurements shall be made in each classroom with the HVAC systems in operation. Where exterior intrusive noise has been deemed "significant" (per the evaluation method noted above), LAeq30 sound level measurements shall be made in each classroom with the HVAC system in operation. In either case, where classrooms are served by variable-air-volume systems, the systems shall be operated at maximum nominal flow (typically by means of varying the thermostat set point).
        c. Where exposure to exterior noise varies significantly between groups of classrooms (e.g. one side of a classroom wing adjacent to a street, the other side facing away), separate evaluations of exterior noise significance can be conducted to limit the need for LAeq30 measurements.
    2. Maximum Reverberation: Classrooms less than 10,000 cubic feet must have a 0.6-second maximum (unoccupied) reverberation time and classrooms with volumes between 10,000 cubic feet and 20,000 cubic feet must have a 0.7-second maximum (unoccupied, furnished,

and fitted-out) reverberation time. (ANSI Standard S12.60-2002). The reverberation times shall be measured in each classroom in three octave bands with center frequencies of 500, 1000, and 2000 Hz. The arithmetic average of the three measured values shall be compared to the standard.

*** END OF SECTION ***

SECTION 26 05 33 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of this Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Conduit and fittings.
2. Outlet boxes.
3. Weatherproof outlet boxes.
4. Junction and pull boxes.
5. Floor boxes.
6. Cabinets, termination cabinets.
7. Gutters.

B. Related Work:
1. Installation of all wire, cable, conductor, boxes/gutters, pull ropes, fiber optic cable raceway, conduit, innerduct, cable sleeve and duct as described on the plans and/or as specified here-in. This scope shall include pathways to be installed underground onsite and offsite, underslab, above grade, both concealed and exposed, overhead concealed and exposed as appropriately applied. Raceways/boxes shall be installed in accordance with their intended and allowed uses and as specified here-in whichever is more restrictive. Size and capacity of all raceway/boxes shall be as specified here-in or as depicted on the drawings, but shall not be less than that required by code. Larger raceway sizes may be specified than code would permit. The specifications shall govern.
2. Listed products for termination, coupling, extending, benching supports of raceways shall be used.
3. Raceways/boxes described by this section shall include, but not be limited to, power for site utilities and lighting, site and building communications, controls, fire alarm, data system, power distribution, lighting, lighting controls, video, intercom, and other building low voltage/communications systems controls as may be required.
4. Protection of and cleanliness of pathways and raceways must be assured during the construction process in order to eliminate the possibility of debris entering the conduit, duct, pathway resulting in decreased wire capacity and potential damage to installed conductors and cables.
5. Pathways are shown in a diagrammatic way and are generally accurate as to routing, however, it is the Contractor’s responsibility as a means and methods process to coordinate with all other trades that require space within a building. The Contractor shall obtain approval for installation of raceways routing through structural footings, retaining walls, columns, beams, purlins, grade beams, etc.
6. It is the Contractor’s responsibility to insure that all raceway and boxes systems penetrate fire assemblies and sound rated assemblies in an approved manner using the appropriate and listed products for the purpose.
7. Minimum conduit size shall be 3/4" except if plan shows or code requires larger size. Exception: Use minimum 1" for underslab and below grade applications outside of building exterior walls.
8. All electrical systems shall be installed in an approved conduit system. This shall include but not be limited to all systems described in Section B.3 above.
9. All line voltage wiring above-grade within the building shall be installed in metallic

conduit.

10. Empty or future conduits shall be properly plugged with plastic caps or inserts with a 3/8” polyethylene pull rope. Plastic or "duct" tape will not be acceptable.
11. All low voltage systems including data, voice, intercom, fire alarm, public address, etc. shall be in raceways separated from line voltage cabling. Voice / Data and Direct Digital Control (DDC) systems for HVAC cabling shall be routed as specified in Section 27 41 16 and 23 09 23 respectively, and as recommended by EIA/TIA standards. It shall be the contractor’s responsibility to provide raceway down walls to outlet boxes and to provide sleeves across inaccessible ceiling spaces.
12. Underground conduits entering building shall have the open end of conduit within building above the elevation of the conduit outside the building such that water cannot enter building through conduit. If such a condition exists, a pull box outside of building footprint shall be installed in conduit route before conduit enters building whereby top of pull box is below finish floor of building and moisture may exit box before entering building.
13. No single conduit run of any type shall exceed 300 degrees of radius bend from termination box to termination box.
14. Separate Raceway System - Provide a separate raceway system for each of the following systems installed. Do not combine different systems into a raceway or cable tray system, unless otherwise noted or allowed. Mechanical controls and raceway shall be provided by others in separate raceway from the below systems:
    a. Fire Alarm.
    b. Line Voltage.
    c. All other low voltage systems provided by electrical contractor.
15. Spare, Future Conduits: Conduits labeled conduit only, spare, or for future use, shall be provided with a pullrope, capped at each end, labeled as spare with destination marked, and turned over to the Owner in an unused state. Contractor shall not utilize these conduits for the installation of cabling or conductors as part of this scope of work. Contractor to verify and install at no additional cost to the Owner, additional conduits as required for the installation of the systems being installed.
16. Outlet System: Provide electrical boxes and fittings as required for a complete installation. Including but not limited to outlet boxes, junction boxes, pull boxes, bushings, locknuts, covers and all other necessary components.
17. Code Compliance: Comply with CEC as applicable to construction and installation of electrical boxes and fittings and size boxes according to CEC 312, 314 and 366 except as noted otherwise.
18. Outlets to be flush mounted: Maintain integrity of insulation and vapor barrier. Unless otherwise noted, flush mount all outlet boxes.
19. Provide putty pads of proper type around outlet boxes and/or as detailed on plan to meet sound transmission restrictions and fire ratings of walls.

1.3 SUBMITTALS

A. Provide Product Data for the Following Equipment:
1. Conduit and fittings.
2. Outlet boxes.
3. Weatherproof outlet boxes.
4. Junction and pull boxes.
5. Floor boxes.
6. Cabinets, termination cabinets.
7. Gutters.
8. Putty pads.
9. Raceways

1.4 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Conform to requirements of the CEC, latest adopted version with amendments by local AHJs.
   2. Furnish products listed by UL or other independent and nationally recognized testing firm.

PART 2 PRODUCTS

2.1 MATERIALS

A. Heavy wall Rigid Non-Metallic Conduit, shall be PVC schedule 40 manufactured in accordance with NEMA Standard TC-2, UL-651 and WC 1094A specifications.

B. Extra heavy wall non-metallic conduit, shall be PVC schedule 80 manufactured in accordance with NEMA Standard TC-2, UL-651 and WC 1094A specifications.

C. Galvanized Rigid Steel (GRS) conduit shall be hot dipped galvanized, zinc coated and shall comply with Underwriters Laboratories UL-6, ANSI Specification C-80.1 and Federal Specification WW-C-581E.

D. Electrical Metallic Tubing (EMT) shall be zinc coated, with a protective coating applied to the inside surface and shall comply with Underwriter Laboratories UL-797 ANSI Specification C-80.3 and Federal Specification WW-C-563A.

E. Electrical Non-Metallic Tubing (ENT), shall be listed to requirements of U.L. 1653, in accordance with CEC Article 362, and meet requirements of BI National Standard CAN/CSA- C22.2 No. 227.1-U.L. 1653. ENT shall be rated for 90 degrees C conductors and shall be recognized for use in 2-hour fire resistance non-load bearing and load bearing wall assemblies. ENT shall be recognized for through-penetration firestop systems as classified to meet U.L. and ICC building codes. ENT shall only be allowed for data cabling systems and will not be permitted for Fire Alarm or line-voltage systems.

F. Flexible Metal Conduit (FMC) shall be continuous wound reduced wall galvanized steel produced to UL standards.

G. Liquid tight flexible metal conduit shall have a thermoplastic cover over a galvanized steel core containing an integral copper ground in sizes to 1 1/4" and shall be in compliance with UL standards and CEC Article 350.

H. Wire basket tray shall be 12” wide with 4” side rails minimum unless otherwise noted. It shall be U.L. listed and use listed connectors, elbows, tees, etc. and be cut and installed using listed equipment. Material shall be zinc electroplated steel.

I. Cable runway tray shall be 12” wide with 4” side rails minimum unless otherwise noted. It shall be U.L. listed and use listed connectors, elbows, tees, etc. Material shall be hollow steel with gray painted finish.

J. Manufacturers:
   1. Outlet Boxes: Bowers, Raco, Orbit, Steel City or equal.
   2. Weatherproof Outlet Boxes: Bell, Red Dot, Carlon or equal.
   3. Floor Boxes: Wiremold/Walker, Hubbell, Steel City, or equal.
   4. Junction and Pull Boxes: Circle AW, Hoffman, Wireguard or equal.
   5. Box Extension Adapter: Bell, Red Dot, Carlon or equal.
   6. Conduit Fittings: O-Z Gedney, Thomas & Betts, Raco, Crouse Hinds, or equal.
   7. Putty pads: 3M, Hilti, or equal.

8. Heavy wall rigid non-metallic conduit, Carlon, Certainteed, R&G Sloane or equal.
9. Extra heavy wall non-metallic conduit, Carlon, Certainteed, R&G Sloane or equal.
10. Galvanized Rigid Steel (GRS) conduit shall be hot dipped galvanized, zinc coated and shall comply with Underwriters Laboratories UL-6, ANSI Specification C-80.1 and Federal Specification WW-C-581E.
11. Electrical Metallic Tubing (EMT) shall be zinc coated, with a protective coating applied to the inside surface and shall comply with Underwriter Laboratories UL-797 ANSI Specification C-80.3 and Federal Specification WW-C-563A.
12. Electrical Non-Metallic Tubing (ENT), shall be listed to requirements of U.L. 1653, in accordance with CEC Article 362, and meet requirements of BI National Standard CAN/CSA-C22.2 No. 227.1-U.L. 1653. ENT shall be rated for 90 degrees C conductors and shall be recognized for use in 2-hour fire resistance non-load bearing and load bearing wall assemblies. ENT shall be recognized for through-penetration firestop systems as classified to meet U.L. and CBC building codes.
13. Flexible Metal Conduit (FMC), Alflex, American Flexible Conduit or equal.
14. Liquid tight flexible metal conduit, Anacanda (type UA), Electri-flex Liquatite or equal.
15. Floor Boxes, Single Gang, Walker/Wiremold 880 CS Series or approved equal.
16. Floor Boxes, Multiple Gang, Walker/Wiremold RFB Series or Walker Omnibox multi-service floor box with carpet plates, and/or water resistant device covers.
17. Masonry Boxes, outlets in concrete, Raco Series 690 or equal.
18. Wire basket tray, B-line, GS Metals, Cablofil, Chatsworth, FlexTray or equal.
19. Cable runway tray, B-line, CPI, Homaco, Chatsworth, FlexTray or equal.

2.2 OUTLET BOXES

A. NEMA 1 gutter, junction and pull boxes shall be fabricated from code gage steel finished in grey enamel with screw cover fronts and concentric knockouts in all sides.

B. NEMA 3R gutter, junction and pull boxes shall be fabricated from code gage galvanized steel with screw cover fronts and concentric knockouts in the bottom only. Any penetrations to the side, top or back shall be weatherproofed in an approved manner such as “MYERS” gasketed type hub or equal.

C. Steel outlet boxes and plaster rings shall be galvanized rigid assemblies, either one piece pressed or factory welded construction containing the size and number of knockouts required. Steel outlet boxes shall be manufactured, sized and installed in accordance with CEC Article 314. Device Outlet: Installation of one or two devices at common location, minimum 4” square, minimum 1 1/2" deep. Single or 2 gang flush device plaster ring. Raco or equal.

D. Luminaire Outlet: minimum 4” square with correct plaster ring depth, minimum 1 1/2” deep with 3/8” luminaire stud if required. Provide proper depth plaster ring on bracket outlets and on ceiling outlets.

E. Construction: Provide galvanized steel interior outlet wiring boxes, of the type, shape and size, including depth of box, to suit each respective location and installation; constructed with stamped knockouts in back and sides, and with threaded holes with screws for securing box covers or wiring devices. Boxes shall be properly secured to the structure such that they are flush with the finish surface. Boxes shall be made structurally secure by means of the proper fastening devices.

F. Accessories: Provide outlet box accessories as required for each installation, including mounting brackets, wallboard hangers, extension rings, plaster rings, luminaire studs, cable clamps and metal straps for supporting outlet boxes, compatible with outlet boxes being used and meeting requirements of individual wiring situations.

2.3 JUNCTION AND PULL BOXES

A. Construction: Provide galvanized sheet steel junction and pull boxes, with screw-on covers; of the type shape and size, to suit each respective location and installation; with welded seams and equipped with steel nuts, bolts, screws and washers.

B. Location:
1. Install junction boxes above accessible ceilings for drops into walls for receptacle outlets from overhead.
2. Install junction boxes and pull boxes as required to facilitate the installation of conductors and limiting the accumulated angular sum of bends between boxes, cabinets and appliances to 300 degrees.
3. Locations: Junction boxes shall be located only where necessary and only in equipment rooms, closets, and accessible attic and underfloor spaces. A horizontal distance of 24” shall separate outlet boxes on opposite sides of occupancy separation walls, fire-rated walls or partitions.
4. Labeling: Junction box covers shall be marked with indelible ink indicated the circuit numbers passing through the box.

2.4 CONDUIT FITTINGS

A. Requirements: Provide corrosion-resistant punched-steel box knockout closures, conduit locknuts and plastic conduit bushings of the type and size to suit each respective use and installation.

B. Steel boxes may allow for field knock-out modifications, but shall in all other ways conform to code requirements.

2.5 FLOOR BOXES - SINGLE GANG

A. Construction: Deep cast iron fully adjustable before and after concrete pour with all required components for complete activation. Verify required components for application of service fittings, covers, monuments, and the like, attached to floor boxes.

B. Activations:
1. Flush: Provide brass duplex or single signal cover, hinged with set screw lock. Carpet or tile finish ring.
2. Monuments: Provide stainless steel monuments with power receptacle or data grommet as noted.
3. Coordinate specific application of systems as noted on Drawings.

2.6 FLOOR BOXES - MULTIPLE GANG

A. Construction: Deep cast iron, fully adjustable before and after pour. Equal to Walker/Wiremold RFB Series or Walker Omnibox multi-service floor box with carpet plates, and/or water resistant device covers. Verify color. Partition for different power or signal applications. Provide required power receptacle devices and signal grommets or receptacles as noted. Flange typeshall be compatible with floor covering for either carpet or vinyl as required and shall be brass type not polycarbonate.

B. Floor mounted boxes shall be water tight and cast iron when installed in grade level concrete slab floor, fully adjustable with interior and exterior leveling screws. Receptacle flange shall be brass with a duplex lift lid. Flange type shall be compatible with floor type. Before installation, coordinate exact location with Architect.

2.7 PUTTY PADS

A. Intumescent moldable firestop putty designed to protect electrical outlet boxes. 3M Fire Barrier Moldable Putty Pads MPP+, firestop tested up to 4 hours in accordance with ASTM E814 (UL 1489).

PART 3 EXECUTION

1
Addendum 1

3.1 INSTALLATION

A. Conduit systems listed below are for use in installations where they are permitted to be used by CEC and/or other occupancy restrictions. The below installation methods do not intend to suggest that these materials be installed in conflict with any applicable code. Special attention to applications shall be made in building types such as wet location, hazardous locations, assembly occupancy and multi-story, but not limited to these. Requirements which are more restrictive than the CEC may be called for by the drawings and / or these specifications. These requirements must be adhered to. The Electrical Contractor shall be responsible to use the proper conduit system for the application. Exposed conduit is not allowed below ceilings or above slab of floor, without prior approval from Electrical Engineer. All conduits shall be concealed except in electrical and telecommunication rooms or where shown to be surface mounted. Exposed conduit (where allowed) shall be run square and plumb with building lines in an approved manner. Support roofmount conduits, where allowed, with minimum 12” wide approved rooftop supports (B-Line Durablok, or approved equal) unless otherwise detailed in roof requirements or as specified in roofing specification. Strap conduits to blocks with proper sized conduit straps. Spacing of support shall be a minimum as provided for in the CEC. All exposed conduit mounted below 8’ above finished grade shall be strapped at a minimum of 5’ spacing.

B. Electrical Non-Metallic Tubing (ENT) shall be installed in accordance with its listed application. Only listed cement shall be used for connectors, coupling, fittings requiring cement. Unless otherwise noted, ENT systems shall be color coded: Blue for branch and/or feeder power wiring, yellow for communications systems, and red for fire alarm and emergency power systems. Use only approved and listed accessories:
   1. Electrical Nonmetallic Tubing (ENT) is designed to replace EMT, flexible metal conduit or other raceway or cable systems, for installation in accordance with Article 362 of the National Electrical Code, Section 12-1500 of the CEC, other applicable sections of the Code, and local codes.
   2. Any ENT used shall be listed to the requirements of UL Standard UL 1653 in accordance with Article 362 of the NEC and Section 12-1500 of the CEC.
   3. Any ENT used shall meet the requirements of BI National Standard CAN/CSA-C22.2 No. 227.1-UL1653 and shall be Listed/Certified in accordance to the Electrical Codes.
   4. Carlon’s ENT shall be installed per the technical assessment prepared by fire cause analysis for use in 1hour and 2-hour rated construction.
   5. Penetration of fire rated walls, floors or ceilings shall use Classified Through-Penetration Firestop Systems described in the current Underwriters Laboratories Fire Resistance Directory.
   6. Fittings and outlet boxes shall be designed for use with ENT shall be listed. All fittings, boxes and accessories shall be from one manufacturer.
   7. Only Carlon ENT Blue cement recommended specifically for use with ENT and rigid nonmetallic fittings shall be used.
   8. Unless indicated differently on drawings, ENT systems shall be color coded: BLUE for branch and feeder circuit wiring, YELLOW for communications, and RED for fire alarm and emergency systems, or colors can designate different voltages.
   9. ENT, fittings, and accessories shall be manufactured by Carlon.
   10. ENT shall not be used or allowed in any application where not allowed by CEC Article

362.

C. Non-Metallic Rigid Conduit shall be used in concrete slabs, below concrete slabs on grade, or underground outside of a building slab or foundation. Maintain minimum depth requirements and cover with appropriate fill material. Conduit shall be heavy wall Schedule 40 or 80, rigid PVC only. Rigid utility P&C duct shall not be used in any application. Properly sized grounding conductors shall be installed per CEC article 250, in all non-metallic conduit branch circuit and feeder runs. PVC conduit shall be formed or field bent only with the use of properly approved bending tools such as to not decrease the internal bore of the conduit. All conduits shall be cut square and reamed of burrs. Approved and compatible glue shall be used on all PVC fittings to attain watertight joints.

D. Galvanized Rigid Steel (GRS) conduit shall be used where exposed less than 8'–0" above finished grade to 18" below finished grade and where subject to physical damage. Conduits shall be cut square and reamed to remove burrs and sharp edges. Strap conduit below 8' above grade at 5' intervals. Unless otherwise noted, threadless setscrew and threadless weathertight fittings may be used in lieu of threaded fittings. All threaded ends entering a junction box of any type shall require one locknut on the inside and one on the outside of the enclosure and be provided with a plastic bushing or grounding bushing where necessary for proper grounding. Where exposed to moisture, a watertight hub or other approved method shall be required. All conduits shall be stubbed up straight and uniform into junction boxes, panels, cabinets, etc., and shall be (GRS) properly supported and strapped. All GRS conduit located below grade, shall be tape wrapped.

E. Electrical Metallic Tubing (EMT) shall be used as allowed by code and as permitted by this specification. It shall not be in contact with soil or the concrete slab on the ground floor of any structure. Connectors and couplings shall be steel insulated set screw type where installed in indoor dry locations not subject to moisture. Where the potential for moisture is present, compression type weathertight fittings are required. One hole conduit straps are permitted from 1/2" to 1" and two hole conduit straps are required for size 1 1/4" and larger. EMT shall not be allowed in areas subject to severe physical damage. Install copper ground wire sized per CEC 250-122 in all EMT conduits.

F. Flexible conduit may be used where concealed in building construction or above dropped ceilings, but shall meet the following criteria: No individual circuit path from distribution panel to last device shall exceed a cumulative length of 6' of flexible conduit from start to end. Flexible conduit shall not exceed a total directional change of 270 bending degrees in any one run between conduit terminations. Squeeze type or Jake type steel flex fittings of a grounding type are required. Flexible conduit must be supported in accordance with CEC. Where exposed to the weather, moisture, or spray down flexible conduit shall be of the liquidtight type. Fittings shall be manufactured for use with liquidtight flexible conduit. All motor connections shall be made with liquidtight flex. Flexible conduit may not be used where exposed except for last 2' of equipment connection and unless otherwise noted or approved. A copper ground wire sized per CEC 250-122 shall be installed in all flexible conduit runs. Flexible conduit may not be used exposed. Weatherproof liquid tight conduit shall not be used at roof level for equipment connections with lengths exceeding 24" nor shall it be used to circumvent a rigid conduit systemin a horizontal direction. Connect recessed lighting fixtures to conduit runs with a maximum of 6' of flexible metal conduit extending from junction box to fixture.

G. Underground conduits and transition to above grade/slab shall be as follows:
   1. PVC elbows 2" and smaller are allowed, or if top of elbow is minimum 18" BFG or below top of slab, otherwise GRS elbows are required.
   2. GRS risers are required from elbow below grade to equipment (device, outlet, panel, cabinet, etc.) above grade.
   3. GRS elbows/risers to be PVC coated or 10 MIL tape wrapped (1/2" lapped) to 3" above

finish grade or top of slab.

H. Conduit Supports: Conduit runs may be supported by one-hole and two-hole straps or supports as manufactured by Unistrut, Minerallac, Caddy or equals. Supports may be fastened by means of anchors, shields, beam clamps, toggle bolts, or other approved methods appropriate for the application and size of conduit. Pipe nailers (J-hooks) may only be used for 1” conduit and smaller and only in wood frame construction. Conduit support methods are subject to review by the engineer and authority having jurisdiction for adequacy. Installations deemed inadequate shall be corrected by the contractor at no cost to the Owner.

I. Bends and offsets shall be made with approved tools for the type of conduit being utilized. Bends shall be made without kinking or destroying the smooth bore of the conduit. Parallel conduits shall be run straight and true with bends uniform and symmetrical. Minimum radii shall be per CEC 344-24.

J. Conduit Stub-outs below grade shall be capped with plastic cap, and identified by placing a pull box marked with correctly identified utility such as “Elec”, “Tel”, etc. Dimension for exact location on field record drawings. Provide lids for proper field application (i.e. traffic, incidental, pedestrian).

K. Conduit Seals - Where below grade conduits enter structure through slab or retaining wall of building or basement, seal the inside of each conduit as follows:
1. Provide damming material around conductors 3” into conduit. Polywater or equal.
2. Fill 3” of conduit with 3M #2123 sealing compound.
3. Wrap conductors where they exit the conduit with 3M #2229 "Scotch Seal" mastic tape. Lap tape to approximate diameter of the raceway and wrap outside of conduit opening with (minimum) one turn.
4. Use conduit sealing bushings type CSB (O-Z/Gedney) or equal.
5. Empty conduits shall be sealed with standard non-hardening duct seal compound and then capped to prevent entrance of moisture and gases and to meet fire resistance requirements.
6. Provide cable drip loop minimum 12” high.

L. Marker tape: Place marker tape at 12” below finish grade along and above buried conduits. Label tape "CAUTION: ELECTRICAL LINES BELOW" or similar wording.

M. Electrical and communications systems raceways routed underground shall not occupy the same trench as plumbing utilities such as sewer, water, storm drain, gas or other wet or dry gaseous utility system. A minimum of 12” of undisturbed earth is required. Where utilities must cross in closer proximity to each other due to physical constraints, 6” minimum crossing distances are allowed.

N. Conduits, routed below footings, slabs, grade beams, columns, and other structural elements shall be installed in strict compliance with structural details and criteria shown on structural plans. Clearances below structural elements and sleeves through structural elements must be carefully planned to avoid conflict and must be approved by the structural engineer if conflict arises.

O. All conduit or raceways passing through fire rated walls, floors, or ceilings shall be installed with a listed penetration method which protects the opening to the same rating as the assembly and is non hardening.

P. Cable runway shall be used in equipment rooms where shown on the plans. Ladder tray installations shall conform to the requirements of CEC Article 318. The contractor shall

provide all mounting hardware, connectors and bracing as required and as recommended by the manufacturer for a complete system installation.

Q. Wire basket tray shall be used in all concealed spaces (above ceiling spaces, under buildings in access tunnels, below raised floors, etc.) unless otherwise noted. Wire basket tray installations shall conform to the requirements of CEC Article 318. The contractor shall provide all mounting hardware, connectors and bracing as required and as recommended by the manufacturer for a complete system installation. All cutting and bending of wire basket tray shall be per the manufacturer's recommendation using tools designed for that purpose. Cable loading shall not exceed the listing of the system and its support.

R. Location: Locate boxes and conduit bodies so as to ensure accessibility of electrical wiring.

S. Anchoring: Secure boxes rigidly to the substrate upon which they are being mounted, or solidly embed boxes in concrete or masonry.

T. Special Application: Provide weatherproof outlets for locations exposed to weather or moisture.

U. Knockout Closures: Provide knockout closures to cap unused knockout holes where blanks have been removed.

V. Mount outlet boxes, unless otherwise required by ADA, or noted on drawings, the following distances above the finished floor:
1. Receptacles, Telephone, TV & Data outlets. (measured to bottom of outlet box): +15".
2. Outlet above counter (measured to top of outlet box): +46".
3. Control (light) Switches. (measured to top of outlet box): +48".
4. Fire Alarm Manual Pull Stations, T-stats. (measured to top of outlet box): +48".
5. Fire Alarm Visuals: the lower of +80" to bottom of lens, or 6" below ceiling.
6. Other Outlets: As indicated in other sections of specifications or as detailed on drawings.

W. Coordinate all electrical device locations with the architectural floor plan and interior and exterior elevations to prevent mounting devices within elements that they may conflict such as cabinetry, mirrors, planters, etc.

X. Size outlet and junction boxes to minimum wire fill space requirements. Upsize box as required to allow ease of wire installation and device installation.

Y. Outlet and junction boxes in fire rated walls shall be gauged and spaced so as not to exceed the maximum penetration allowed by the assembly without compromising the fire rating. If a conflict arises relative to a specific condition, the contractor shall follow the requirements of the fire authority and ask for guidance from the design team. At no time should a larger box be installed prior to resolution of conflict.

END OF SECTION 26 05 33

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SECTION 26 50 00 - LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes interior luminaires, lamps, ballasts, and accessories. Provide all luminaries complete with all new lamps, completely wired, controlled, and securely attached to supports.

1.3 SUBMITTALS

A. Product Data: Submit dimensions, ratings, and performance data.

B. Photometric data for each luminaire, lamp and ballast. Include indications of all options and accessories as well as finish color.

C. Specification Review: A complete item by item, line by line specification review.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements:
1. Provide luminaires listed by U.L.
2. Luminaires installed in outdoor areas unprotected from weather to be U.L. Listed for wet locations.
3. Insulated ceilings: Luminaires installed into insulated ceilings shall be U.L. Listed Type IC.

B. Certification: Certify that fixtures submittal have trim compatible with ceilings being installed.

C. Concrete for outdoor lighting poles foundations shall be provided per Section 03 30 00 - Concrete.

1.5 EXTRA MATERIALS

A. Provide extra materials for Owners use. All parts shall packaged in suitable carton.

B. Provide two (2) spare drivers for each fixture type. Deliver to Owner in original packaging.

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PART 2 - PRODUCTS

2.1 LUMINAIRES

A. Product Description: Complete luminaire assemblies, with features, options, and accessories as scheduled.

B. All luminares shall be new and of specification grade.

C. Manufacturer nomenclature in fixture schedule or otherwise described on the Drawings is given only to show the general fixture series. Contractor shall provide fixture with all required accessories and mounting frame type.

D. Wire guard at fixtures in mechanical, electrical, and high abuse areas.

E. Acceptable Manufacturers:
1. Lightolier
2. Acuity
3. Metalux
4. Day-Brite
5. Columbia
6. HE Williams

2.2 LED LUMINAIRES

A. Quality Assurance
1. DOE Lighting Facts certified.

B. LED Specifications
1. Lumen maintenance of the LEDs has been tested in accordance with IESNA LM-80-08 reporting methodology.
2. CRI:>82 minimum (general); >90 healthcare and retail.
3. SDCM: <2.5 in linear pendants and linear recessed; <3.5 in discrete recessed.
4. R9: .0 (general office/school environments); >50 in healthcare and retail environments.
5. Outdoor luminaires to be rated at a minimum of 40^0 C.

C. Lumen Maintenance
1. Minimum L70 at 50K hours based on TM-21 Addendum A Lifetime report at an ambient temperature of 25^0 C, outdoors at an ambient temperature of 40^0 C.

D. Thermal Testing
1. ISTM testing in accordance to UL 1598-2008.

E. Driver
1. 0-10V enabled.
2. Output Class 2 rated.
3. Dimming range: 5-100%.
4. Constant current.
5. THD @ max load: <20%.
6. Power factor: >0.95
7. Environment protection rating: UL Damp and dry.
8. Approbations: certified to UL8750, UL1310, UL935, CSA-C22.2 No. 250.13-12, CSA 22.2 No. 223.

9. ROHS Compliant

F. Fixture photometry
1. Conducted by a NVLAP accredited testing lab with IESNA LM 79-08.
2. System flux measured in delivered lumens.

G. Warranty
1. 5 year total system warranty.

2.3 EMERGENCY BATTERY PACKS

A. Provide Emergi-Lite FPSIU series, or approved equal, battery pack for fluorescent fixtures designated to have emergency battery back-up.

B. Fixture shall include lighted push button test switch installed in visible, accessible location adjacent to fixture.

C. Provide unswitched alternating current power source per manufacturer's instructions.

D. Provide connection to local switch where indicated on drawings, connect such that fixture can be controlled on/off from local switch without discharge of battery.

E. For fixtures designated to have emergency battery pack and be on a contactor controlled circuit, provide unswitched alternating current source ahead of contactor and wiring as required to allow automatic on/off control from the contactor without discharge of battery and local on/off switching where indicated.

F. Battery pack shall provide 1100 lumen output for 90 minutes per 2'x4' light fixture.

G. Provide integral battery pack for all exit signs where emergency generator power is not available. Battery pack shall provide minimum of 90 minutes output.

2.4 DOWNLIGHT FIXTURES

A. Provide recessed light fixtures with trim rings compatible with the ceiling material where fixture is to be installed.

2.5 EXIT SIGNS

A. Exit signs shall meet visibility requirements and be listed per UL 924 "Emergency Lighting and Power Equipment". Also shall meet Federal, State and Local Codes.

B. Chevron Directional Indicator: Provide Chevron per NFPA 101 Section 5-10.4.1.2.

C. Product Description:
1. LED Exit Sign:
a. Provide exit sign with Light Emitting Diodes (LED) illuminance source. Cover LED with diffuser.

D. Housing: Diecast aluminum with stencil face and matte white paint finish.

E. Input Voltage: 120/277 volt, dual input voltage.

1

F. EPA Energy Star Label.

G. Wire Guards: Install wire guard on all exit signs installed in gyms, lockers rooms, and athletic wing.

PART 3 - EXECUTION

3.1 EXISTING WORK

A. Disconnect and remove abandoned luminaires, lamps, poles and accessories.

B. Extend existing luminaire installation using materials and methods compatible with existing installation, or as specified.

C. Clean and repair existing luminaires to remain or to be reinstalled.

3.2 INSTALLATION

A. General: All luminaires shall have proper supports.

B. Install suspended luminaires using pendants supported from swivel hangers.

C. Locate recessed ceiling luminaires as indicated on Drawings.

D. Install surface mounted ceiling luminaires plumb and adjust to align with building lines and with each other. Secure to prevent movement.

E. Chain Hung: Unless otherwise indicated all fluorescent fixtures in Mechanical, Electrical and Elevator Equipment Rooms shall be chain hung. Verify exact mounting height with Architect before installing fixtures. Provide pendant hangers when equipment room has fire-resistive ceiling.

F. Suspended Ceilings:
1. Provide means of support for luminaires per CEC 410-36. T-bar clips shall be installed on the luminaire and shall be field secured to the inverted ceiling tees so that the luminaire is securely fastened to the ceiling system framing members.
2. Ceiling tiles shall not bear the weight of luminaires. Surface mount luminaires, recessed downlights, light track, exit signs, etc. shall be supported by proper frames or other attachment to main ceiling system grid or building structure above ceiling.
3. Luminaires shall be centered in ceiling tile.
4. Luminaire shall have flange or trim ring for closure of ceiling cutout or opening.
5. Fire-rated Ceiling Assembly: For Luminaires to be flush-mounted into a fire-rated ceiling or surface mounted to a fire-rated ceiling, install with independent, secure support. Raceway, cable assemblies, boxes and fittings located above a fire-rated floor/ceiling or roof ceiling assembly shall not be secured to, or supported by, the ceiling assembly including the ceiling support wires. Provide an independent means of secure support. Independent support wires shall be distinguishable by color, tagging, or other effective means from those that are part of the fire-rated design.

G. Verify weights and recommended mounting methods of all luminaires with manufacturers. Furnish and install supports. Luminaires weighing more than 30 pounds shall be supported independently of the outlet box.

3.3 LOCATIONS

A. Luminaires shown on the Electrical Drawings represent general arrangements only. Refer to Architectural Drawings and to Architect on jobsite for more exact locations. Coordinate location with all other trades before installation. Coordinate all light fixtures in Mechanical Rooms with the final installed piping and ductwork layouts. Adjust fixture mounting height and location if required so that light output is not obstructed by piping and ductwork.

3.4 FIRE INTEGRITY OF CEILING PENETRATIONS

A. Where ceiling is part of a fire-rated assembly, maintain integrity of that assembly with methods given in Section Electrical Hangers and Supports. Obtain ceiling system UL Fire Resistance Directory Design Number from Architectural Drawings.

3.5 AIMING AND ADJUSTMENT

A. General: All adjustable lighting units shall be aimed, focused, and locked by the Contractor under the supervision of the Architect/Owner. All aiming and adjusting shall be carried out after the entire installation is complete.

3.6 LAMPS

A. Clean all lamps after installation.

3.7 CLEANING

A. Lens: Clean lenses of all luminaires after space is finished and prior to project acceptance.

END OF SECTION 26 50 00

SECTION 27 21 00 – DATA COMMUNICATIONS SYSTEM

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Work included in this section shall be the provision of core and edge network electronics, wireless access points, IP phones, and UPS devices.

1.2 DESCRIPTION

A. The Contractor shall be responsible to furnish, install and configure an extension to an existing district wide IP based Ethernet and VOIP network which shall include, but not be limited to a new core switches, new distributed access switches and additional in MDF / IDF racks as shown on drawings, as well as a powered Ethernet system for support of a new centrally-hosted wireless access point system which shall span the new complex and interface with other existing facilities.

B. Contractor shall provide any and all SFP modules, fiber optic patch cables, stacking cables, DAC cables, other hardware, etc., to provide complete connectivity of all network devices.

C. The Owner shall configure all Contractor provided network devices.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Division 1 – General Requirements

B. 27 00 00 - BASIC MATERIALS AND METHODS

C. 27 10 00 – CATEGORY 6A STRUCTURED CABLING SYSTEM

1.4 GENERAL SYSTEM REQUIREMENTS

A. The Technology Contractor shall provide all equipment, devices, cabling and related hardware to create an autonomous network. The Contractor shall provide a complete and functioning system, based on the designs as set forth in the Construction Documents. Any and all equipment, either implied or intentionally omitted from these documents, but generally accepted as being required for the completion of the installation, as represented in these Construction Documents, shall be provided by the Contractor at no additional cost to the Owner.

B. The Technology Contractor shall verify any and all power requirements.

1.5 CONTRACTORS REQUIREMENTS

A. The Contractor shall be certified by the manufacturer of the equipment being provided for the installation and maintenance of same.

B. The Contractor shall maintain a local shop within 75 miles of the project location which is staffed by certified personnel, specifically stationed at that location for the purpose of servicing the local clientele.

PART 2 - PRODUCTS

2.1 GENERAL

A. The equipment and devices provided by the Technology Contractor shall be as indicated on the Drawings and in these Specifications.

B. The Technology Contractor shall provide all cabling and related hardware as recommended by the Manufacturer and/or as indicated on the Drawings and in these Specifications.

C. All devices, cabling and hardware shall be new, and UL listed as required.

D. All equipment shall compliant, as applicable, to:

1. FCC Part 15 (CFR 47) Class A
2. EN55022 and EN55024
3. CISPR 22
4. CE marking
5. AS/NZS 3548

2.2 NETWORK SWITCHES

A. Campus Core Distribution:

1. Dell N2248PX-ON at high schools.
2. Core switches shall be equipped with dual power supplies.
3. Provide 5 Year Advantage DNA Licensing.
4. Provide 5 Year Smartnet support.
5. Core switches shall be stacked with 100G-AOC1M for SVL Links and 10G-CU1M DAD Links.
6. All down links shall use single mode SFP-10G-LR modules.

B. Campus Access Switches:

1. Access switch stacks shall be created for each rack with an uplink module in the first and last switch of the stack. Uplink modules shall be Aruba 6300M.
2. The top switch of each stack should be equipped with a secondary power supply.
3. A 10G-LR shall be installed in port 1 of each module and connected in a port-channel to the core.
4. Each rack of equipment shall be physically stacked and power stacked.

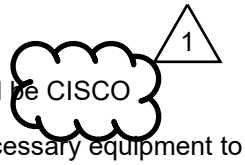
C. Quantity as shown on drawings.

D. All extra devices shall be turned over to the Owner for Attic Stock.

E. Coordinate with Owner.

2.3 WIRELESS ACCESS POINTS

A. High Schools



   a. Wireless access points shall be CISCO

   b. Contractor to provide all necessary equipment to install access point.

   c. COntraactor to provide protective cover in gyms.

   d. Contractor to provide Aruba weatherproof wireless access points for exterior locations.

2.4 IP Telephones

A. Every site shall receive 1 qty. Yealink SIP-T23G to be used for the site receptionist.

B. Provide 1 qty. SIP-T23G in administrative offices.

C. Provide 1 qty. SIP-T23G in each classroom.

D. Provide 1 qty. SIP-T23G in each conference room.

2.5 UPS

A. Provide a minimum of 1 UPS per IDF / MDF rack.

   1. Eaton 5P3000RT with a network card, 2-post rack mount, and CAT6 orange slim cable. for all floor mounted racks and cabinets.

   2. Eaton 5P1500R with a network card, rack shelf, and CAT6 orange slim cable for all wall racks and cabinets with 2 network devices (switches, routers, etc) or less.

   3. If a wall rack or cabinet has more than 2 network devices in it, provide 5P3000 UPS.

   4. Environmental Monitoring Probe shall be provided for each MDF/IDF/Cabinet.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Provide all configurations for all switches.

B. Coordinate configuration requirements with the Owner's Security/IT personnel.

C. The Contractor shall verify all connectivity from the Core to all end devices.

D. The Contractor shall provide all programming, interfaces, hardware and components to interface the existing District switches with the new core switch

E. Coordinate with the District’s IT Department new switch integration with existing file server.

F. Install new data network Ethernet switches and validate connectivity throughout. Verify all VLANs, QoS, IP Routing and IP Subnets. Coordinate with District’s IT Department.

G. Coordinate network installation and integration with other systems connected to the network with the District’s and applicable DA-site’s technical and operational requirements.

H. Install and set up UPS units and establish power down procedures.

I. Connect system to DA-site WAN links and configure per CA-site requirements.

3.2 WORK COMPLETION

A. All products and system configurations will be fully tested and operational prior to final payment.

B. The Contractor shall provide a copy of all testing documentation to the Owner at the time of system commissioning and training. Final payment shall be held until such time that final commissioning and training is completed to the satisfaction of the Owner.

C. System Commissioning, including testing and certifications, shall be completed by a factory representative prior to final payment. All system operation or installation deficiencies shall be documented and submitted to the Owner at time of commissioning, and shall be resolved prior to final training and final payment.

D. Test all network connectivity end to end and document the proper operation of the network. Submit written report to Owner/Engineer.

3.3 TRAINING

A. Provide a minimum of forty (40) hours of training to the District's personnel. Plan for multiple training trips to the site. Training sessions shall cover the following topics at a minimum:

   a. System equipment connectivity

   b. Device configurations

   c. Operation, maintenance and upgrade procedures

B. Training to be arranged with District personnel. 40 hours should be spread out over the length of the warranty (example: 8 hours at project turnover/completion, 8 hours at 3 months, 8 hours at 6 months, 8 hours at 1 year, 4 hours at 2 years, 4 hours at 3 years).

C. Training to occur in maximum of 4 hour increments per personnel or groups of personnel.

D. Consider requirement Contractor to provide manufacturer training vouches for a portion of the training, which are valid during the warranty period.

E. Training shall be performed by a certified manufacturer instructor.

F. Training schedule shall be coordinated with District personnel and their needs.

G. Training plan, time line, and agenda shall be provided to District IT personnel and signed off by District and Contractor. Provide with close-out documentation.

H. Warranty certificate and agreement shall be provided in the close-out documentation and to District IT personnel at initial training session.

I. Provide two (2) digital video copies, 720p resolution minimum, of the training sessions in DVD format.

3.4 LABELING AND MARKING

A. Provide a printed, typed schedule of all data ports according to each related room jack designation for each IDF and equipment racks in accordance with the District's requirements.

3.5 TESTING

A. Contractor shall provide a complete wireless survey before placing the Wireless Access Points.

B. Verify and demonstrate proper operation of all switches, wireless access points, VLANs, routing, WAN connectivity and possible ATM Connectivity with the District and DA-site representative.

3.6 WARRANTY

A. The Local Area Network Electronics and software shall be fully warranted for three (3) years from date of substantial completion by the contractor and manufacturer. If any defects are found within this warranty period, the defective system component shall be replaced at no extra cost to the Owner for parts or labor. Provide a statement of this warranty with the O&M manuals and the I.T. director. Make available a service contract offering continuing factory authorized service of this system after the initial warranty period.

END OF SECTION

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SECTION 27 41 16 - INTEGRATED AUDIO-VIDEO SYSTEMS AND EQUIPMENT

CONDITIONS OF THE CONTRACT AND DIVISION 1, as applicable, apply to this Section.

PART 1 - GENERAL

1.1 RELATED WORK

A. All Division 26 at it relates to this scope of work.
B. Section 27 00 00
C. Section 27 10 00

1.2 DESCRIPTION

A. Summary of Work:
   1. Provide a complete and tested classroom video presentation system. The video presentation system shall include, but not be limited to the following:
      a. At all interactive board and LCD monitor locations; the current project construction contractor shall provide and install all audiovisual faceplates, transmission media infrastructure, and a patch cables required to connect each presentation display device to the associate input device.
      b. At all interactive locations, the project construction contractor shall provide and install all audiovisual faceplates, transmission media infrastructure, and a patch cables required to connect each presentation display device to the associate input device
      c. Proposing contractor must coordinate with project construction schedule and existing technology system contractor to provide complete turn-key solution to owner.
   2. The installation shall comply with all applicable codes and standards in effect at the job site and as indicated in the Drawings and Specifications.
   3. Reference project drawings for locations, quantities, and coordination with other trades.
   4. Contractor shall provide a mock up system integrated with two quantity video displays for video switching for demonstration to the District upon award of this contract. Coordinate with the Architect and District to schedule date, time and location for system demonstration.

1.3 QUALITY ASSURANCE

A. Contractors who do not currently possess the necessary qualifications, trained and experienced personnel, financial capacity, and meet the other requirements herein describe will be disqualified.

B. The Contractor, as a business entity, shall be an authorized distributor and designated representative of the equipment manufacturer, with full warranty privileges. The proposed contractor shall have been actively engaged in the business of selling, installing, and servicing commercial building commercial communication systems for a period of at least 5 years.

C. Recently formed companies are acceptable only if specific pre-approval is requested, and granted by the Architect/Engineer, based on experience of key personnel, current and completed projects, and all licensing requirements are met 10 working days prior to the contract proposal date.

D. The Contractor shall have an office within 150-miles of the job site, staffed with trained technicians who are qualified and licensed to supervise the installation, to be responsible that the system is installed as submitted, to conduct system start up and perform a 100 percent

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operational audit of all installed devices, to instruct the Owners representatives in the proper operation of the system, and to provide service throughout the warranty period. The contractor shall be capable of dispatching technicians to repair a system within six hours of a service request.

E. The Contractor shall be fully experienced in the design and installation of the type of system herein specified, and shall furnish with the contract proposal an itemized list of the installations of the type specified herein. The list shall include the name of the project, date of completion, the amount of the contract, the name, and telephone number of a qualified person to contact for reference. This list must contain at least two (2) projects within a 150- mile radius of the school district to allow school administration officials to visit the job site for review of the system installation and service. Each reference project listed must utilize equipment by the same manufacturer as the proposed system.

F. The Contractor shall employ factory-trained technicians capable of supporting the maintenance of the system. No contract employees are allowed unless they have been to the factory service school within the last 18 months. A certificate of this training shall be provided with the contractors' submittal.

G. The Contractor shall not have any grievances or complaints of record regarding workmanship, code compliance, or service response. A Proposed Contractor that has any prior finding(s) of a code violation or has any litigation in process concerning the installation of a communication system is unacceptable.

H. Any discrepancy in quantity or part numbers between the drawings and the bid specifications shall be brought to the attention of the Consultant for clarification during the bidding period. No allowance shall be made to the Contractor by reason of failure to have brought said discrepancies to the attention of the Consultant prior to award of contract.

I. The Contractor shall provide all necessary patch cables, riser/plenum cabling and connectors interconnecting all equipment and all required A/V and network equipment to provide for fully functional systems. In addition, all cabling raceway, support systems, sleeves and any other materials required to properly install and support cabling systems.

J. The ability of the Contractor to obtain plans and provide a performance bond shall not be regarded as the sole qualification of the Contractors' competency and responsibility to meet the requirements and obligations of the contract.

K. The Builder shall be satisfied that a proposed Contractor meets all the requirements expressed herein before including the Contractor's proposal in the project.

L. The Owner may investigate, as they deem necessary to determine the ability of the proposed Contractor to perform the work. The proposed Contractor shall furnish to the Owner with any information or data requested for this purpose.

M. The Owner reserves the right to reject any contract proposal if the evidence submitted, or their investigation, fails to indicate that the Contractor is qualified to fulfill of any part of the contract or to complete the work contemplated therein.

N. The Owner reserves the right to reject the proposal of any Contractor who has previously failed to perform properly, or complete on time, contracts of a similar nature.

O. Pre-Construction Meeting:

1. The successful Contractor shall attend mandatory pre-construction meetings with individuals deemed necessary by the Owner's representative prior to the start of

1

the work.

2. The contractor shall provide a mock-up of the complete classroom projector system to include all products listed in part 2 of this specification.
3. All proposing contractors must have ability to demonstrate a/v system being proposed and provide owner with completely installed system to evaluate performance and operation.

P. Acceptance:

1. The Owner's representative reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.

1.4 REGULATORY REQUIREMENTS

A. Standards: All work shall be performed in accordance with the latest revisions of the following standards and codes:
1. Latest Local Codes and Amendments
2. 2022 California Electrical Code

B. Other References:
1. TIA/EIA-568-A Commercial Building Telecommunications Wiring Standard
2. EIA/TIA-569 Commercial Building Standard for Telecommunication Pathways and Spaces.
3. TIA/EIA-606 The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
4. TIA/EIA-607 Commercial Building Grounding and Bonding Requirements for Telecommunications.
5. EIA/TIA 455-A Standard Test Procedure for Fiber Optic Fibers, Cables, Transducers, Sensors, Connecting and Terminating Devices and Other Fiber Optic Components.
6. TIA/EIA TSB 67 Transmission Performance Specification for Field Testing of Unshielded Twisted-Pair Cabling Systems.
7. TIA/EIA TSB 72 Centralized Optical Fiber Cabling Guidelines
8. ISO/IEC 1180 Generic Cabling Standard
9. EN 50173 Generic Cabling Standards for Customer Premises
10. ANSI/EIA/TIA 526-14 Optical Power Loss Measurements of Installed Multimode Fiber Cable Plan.

C. Governing Codes and Conflicts:
1. If the requirements of these specifications or the Project Drawings exceed those of the governing codes and regulations, then the requirements of these specifications and the Drawings shall govern. However, nothing in the Drawings or Specifications shall be construed to permit work not conforming to all governing codes and regulations.

1.5 ABBREVIATIONS

A. The following abbreviations are used in this document:

WMP	Wall Mounted Projector
PS	Presentation Station
ILCD	Interactive Flat panel screen/monitor

1.6 SUBMITTALS

A. Project Initiation:
1. Within fourteen (14) days of Notice to Proceed, the data network system installer

1

shall furnish the following in a single consolidated submittal:

a. Permits: The Contractor shall obtain all required permits and provide copies to the Owner/Architect/Engineer.

b. Product Literature: Complete manufacturer's product literature for all cable, patch panels, cross-connect blocks, cable supports, cable labels, outlet devices, and other products to be used in the installation. In addition, whenever substitutions for recommended products are made, samples (when requested by the Owner/Designer) and the manufacturer's supporting documentation demonstrating compatibility with other related products shall be included. The submittal shall have some type of distinguishing marker or pointer to indicated what specific product is to be provided

c. Construction Schedule: A time-scaled Construction Schedule, using PERT/CPM, indicating general project deadlines and specific dates relating to the installation of the cable distribution system.

d. Specification Compliance: A letter shall be provided stating, by section and subsection, that the Audio-Video installer complies with the ENTIRE specification section. If the installer intends to deviate from any portion of the specifications, a detailed explanation of reason in which the installer would like to deviate shall be provided in addition to the specification compliance letter. NO DEVIATIONS SHALL BE ACCEPTABLE UNTIL THEY HAVE BEEN ACCEPTED BY THE PROJECT'S TECHNOLOGY CONSULTANT.

e. Certifications: The contractor shall submit all of the following certifications and the certifications must contain dates which are valid from the date of proposal and not expirer any sooner than 12 months after substantial completion of the project.

1) Installer Certification: This certification shall show successful completion of system training and must be held by at least 25% of the, on-site, staff and be made available at the site if requested by the owner, architect, and/or project's technology consultant.

B. Shop Drawings:

1. Submit the following items, for Owner review and approval, within twenty-eight (28) days of notice to proceed:

a. Proposed circuit routing and circuit grouping plan prepared by a qualified system designer. The credentials of the designer must be accepted the project's technology consultant prior to submitting a system design.

b. In addition to the cable routing, the submitted drawings shall indicate the following, even if the following is expected to be provided by the project's electrical or general contractor:

1) Location of wall penetrations (all penetrations shall be sleeved and contain protective bushings at both ends)
2) Location of sleeved wall pass-thru
3) Size of sleeve at each location installed
4) Quantity of cable passing through each sleeve
5) Location of devices, input plates, and control plates in each room
6) Conduit routing, size, quantity, and stub-up locations for all floor mounted outlets.

c. Drawing Compliance: A letter shall be provided stating that the Audio-Video installer complies with the ENTIRE project drawing, including all general, keyed, and notes to contractor. If the installer intends to deviate from any portion of the specifications, a detailed explanation of reason in which the installer would like to deviate shall be provided in addition to

1

the specification compliance letter. NO DEVIATIONS SHALL BE ACCEPTABLE UNTIL THEY HAVE BEEN ACCEPTED BY THE OWNER.

C. Close-out Procedures:

1. Two (2) copies of the following documents shall be delivered to the building owner's representative at the time of system acceptance. The close out submittals shall include:
   a. Inspection and Test Reports: During the course of the Project, the Contractor shall maintain an adequate inspection system to ensure that the materials supplied and the work performed, conform to contract requirements. The Contractor shall provide written documentation that indicates that materials acceptance testing was conducted as specified. The Contractor shall also provide documentation, which indicates that all cable termination testing was completed and that all irregularities were corrected prior to job completion.
   b. Provide complete test reports for all cabling and devices that comprise system as outlined in this document.
   c. Include the Name, address and telephone of the authorized factory representative with a 24-hour emergency service number.
   d. The manual shall also include Manufacturer’s data sheets and installation manuals/instructions for all equipment installed, a list of recommended spare parts.
   e. Generic or typical owner’s instruction and operation manual shall not be acceptable to fulfill this requirement.
   f. An up-to-date record (“as-built”) set of approved shop drawing prints that have been revised to show each and every change made to the structure cabling system from the original approved shop drawings. Drawings shall consist of a scaled plan of each building showing the placement of each individual item of the Audio-Video system equipment as well as raceway size and routing, junction boxes, and conductor size, quantity, and color in each raceway.
   g. As-built Drawings shall include cable pathways, and device locations with correct labeling. The as-built drawings shall be prepared using AutoCAD 2013 or later. Provide the Owner with electronic versions of the as-builts on 2 quantity 8GB thumb drive media.
   h. All drawings must reflect point to point wiring, device address and programmed characteristics as verified in the presence of the engineer and/or the end user unless device addressing is electronically generated, and automatically graphically self-documented by the system.
   i. A copy of the manufacturer’s warranty on the installed system.
   j. 5 sets of keys to cabinets and/or equipment and special maintenance tools required to repair, maintain, or service the system.
   k. Operating and Maintenance Instructions for all devices within the system. These instructions shall reflect any changes made during the course of construction, and shall be provided to the Owner, for their use, in a three-ring binder labeled with the project name and description. (4 copies)
   l. Quick-start Guide for each system written with the assumption that the intended reader is technically inexperienced and unfamiliar with the facility. Quick-start Guide shall be provided in hard-copy format and in pdf format on an 8GB thumbdrive with the close-out documentation.
   m. Upon completion of the work and at a time designated by the Architect or owner, provide formal training sessions for the Owner’s operating personnel to include location, operation, and maintenance of all included systems and equipment. Minimum amount of training time shall be at least 8 hours in four 2 hour sessions.

1

n. Contractor shall video record training sessions and include videos in close-out documentation in DVD format.

PART 2 - PRODUCTS

2.1 GENERAL

ALL PRODUCTS LISTED IN THIS SECTION SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR.

A. Installation: The cabling shall be installed per requirements of the manufacturer and the Project Documents utilizing materials meeting all applicable EIA/BICSI standards. The Contractor is responsible for providing all incidental and/or miscellaneous hardware not explicitly specified below as required for a complete and operational system.

B. Materials: Materials shall be as listed or shall be approved equivalent products of other manufacturers meeting the intent and quality level of the EIA/BICSI specifications. All approved equivalent products will be published by addendum ten days prior to proposal for Architect/Engineer to review.

C. Testing: All installed cabling shall be tested 100% good after installation by the Contractor.

D. Ratings: All products shall be new and brought to the job site in the original manufacturer's packaging. Electrical components (including innerduct) shall bear the Underwriter's Laboratories label. All communications cable shall bear flammability testing ratings as follows:
CM Communications Cable
CMP Plenum Rated Communications Cable
CMR Riser-Rated Communications Cable

E. Initial Cable Inspection: The Contractor shall inspect all cable prior to installation to verify that it is identified properly on the reel identification label, that it is of the proper gauge, containing the correct number of pairs, etc. Note any buckling of the jacket that would indicate possible problems. Damaged cable or any other components failing to meet specifications shall not be used in the installation.

F. Cable Lubricants: Lubricants specifically designed for installing communications cable may be used to reduce pulling tension as necessary when pulling cable into conduit.
1. Approved Products
a. Twisted-pair cable: Dyna-Blue
American Polywater

G. Fire Wall Sealant: Any penetration through firewalls (including those in sleeves) will be resealed with an Underwriter Laboratories (UL) approved sealant.
1. Approved Products
i. Wiremold Flamestopper - #FS4R-RED
ii. Precut 4" conduit - #FSPCC4758

2.2 INTEGRATED FLAT PANEL MONITOR (indicated as 'ILCD' on drawings)

A. All Displays and mounts on this project shall be Owner Furnished Owner Installed (OFOI)
B. Provide and install 1 qty. Balance Box 400 height adjustable mount for each display.
C. Quantity as shown on drawings.

1

2.3 ADDITIONAL PARTS

A. Provide all materials listed in this specification section to furnish the media infrastructure from input component to output component, to furnish all classroom presentation system locations identified in drawings. Any change orders issued during the course of this project shall pull materials from this additional stock until the stock is depleted. In the event that that such stock is remaining upon the completion of the project, the contractor shall deliver the excess to the owner for attic stock.

2.4 CABLE ROUTING/PATHWAY

A. Cable Support System: All audio-video cabling shall be installed and supported using a Caddy Cable Cat or Arlington Loop cable support system at 4'-0" intervals unless installed in conduit. Do not exceed manufacture recommendation for the quantity of cables supported in an individual support.

B. All cable bundles shall be grouped together using plenum rated Velcro for the entire run above and below the ceilings.

PART 3 - EXECUTION

3.1 GENERAL

A. Contractor is required to properly mount Interactive display and connect each display to each HDMI in the room.

B. Contractor is required to thoroughly test and verify operation of all display inputs and video modes prior to project completion.

C. Contractor shall provide owner with written verification test process and results once all projectors have been installed, tested, and placed in final condition.

D. Damage:

1. The Contractor shall replace or rework cables showing evidence of improper handling including stretches, kinks, short radius bends, over-tightened bindings, loosely twisted and over-twisted pairs at terminals and cable sheath removed too far (over 1/4 inches).

E. The Contractor shall replace any damaged ceiling tiles that are broken during cable installation.

F. Clean Up:

1. All clean up activity related to work performed will be the responsibility of the Contractor and must be completed daily before leaving the facility.

3.2 DOCUMENTATION

A. Contractor shall provide owner with detailed serial number listing and associated graphical room number designation equipment was installed. Contractor shall use actual graphical package room numbers not architectural plan numbers from construction set.

3.3 STATION WIRING INSTALLATION

A. General:

1

1. All cable must be handled with care during installation so as not to change performance specifications. Factory twists of each individual pair must be maintained up to the connection points at both ends of the cable. There shall never be more than one and one-half inches of unsheathed enhanced Category 6 UTP cable at either the wiring closet or the workstation termination locations.

B. Exposed Cable:
1. All cabling shall be installed inside walls or ceiling spaces whenever possible. Exposed station cable will only be run where indicated on the Drawings.
Additional exposed cable runs will require Owner approval, and will only be allowed when no other options exist.

C. Placement: All cabling and associated hardware shall be placed so as to make efficient use of available space. All cabling and associated hardware shall be placed so as not to impair the Owner's efficient use of their full capacity.

D. Cable Routes:
1. All cabling placed in ceiling areas must be in conduit, cable tray or Caddy Cable Cat or Arlington Loop cable support. Cable supports shall be permanently anchored to building structure or substrates. Provide attachment hardware and anchors designed for the structure to which attached and that are suitably sized to carry the weight of the cables to be supported. Do not route cable through webbing of structural steel. Cabling must be supported in dedicated supports intended to support cabling as described in this section. Contractor shall adhere to the manufacturer's suggested fill ratio for each size cable support installed.

2. Attaching cable to pipes or other mechanical items is not permitted. Communications cable shall be rerouted so as to provide a minimum of 18 inches spacing from light fixtures, sources of heat, power feeder conduits and EMI sources. Cabling shall not be attached to ceiling. Grid support wires. Cable runs shall be routed down the corridors; parallel or perpendicular to building structure. Multiple cables to be bundled together at and between each cable support installed.

3. Contractor shall be responsible for coordinating with other trades on the project so that the installed cable pathway does not interfere with the installation of other systems to insure that mechanical ducts, pipes, conduits, or any other above ceiling systems are not putting unnecessary stress on any portion of the install audio-video cabling.

3.4 STATION HARDWARE

A. Flush Mount Jacks: Flush mount jacks shall be mounted in a faceplate with back box.

B. Placement: As shown on drawings.

3.5 TESTING, CERTIFICATION, WARRANTY, SERVICE

A. A factory trained service technician shall supervise the final connections and testing of the system and it shall be subject to the final acceptance of the Architect, Engineer, and local authorities. Testing shall ensure the following:
1. Before energizing the cables and wires, check for correct connections and test for short-circuits, ground faults, continuity, and insulation.
2. Complete and functional system.
3. Installed in accordance with manufacturer's instructions.
4. Upon completion of the testing, the manufacturer or his representative shall issue to the

1

Owner a letter of certification attesting to the fact that he has tested and adjusted the system, that all components are properly installed and free of defects, and that the system is in compliance with this specification.

B. The contractor shall provide a warranty for the installed system. The warranty shall be against defects in material or workmanship for a period of one (1) year from the date of substantial completion. Any equipment or wiring shown to be defective shall be replaced, repaired, or adjusted free of charge. All labor and materials shall be provided at no expense to the Owner. All equipment will carry a one year warranty or manufacturer's warranty whichever is greater.

C. The system manufacturer shall maintain engineering and service departments capable of rendering advice regarding installation and final adjustment of the system.

3.6 DRAWINGS, MANUALS AND TRAINING

A. In addition, the contractor shall furnish complete operating and maintenance manuals listing the manufacturer's name(s), including technical data sheets. Manuals shall include wiring diagrams to indicate internal wiring for each device and the interconnections between the items of equipment. Provide a clear and concise description of operation that gives, in detail, the information required to properly operate the equipment and system. Provide a parts list with manufacturer and model number for commonly replaced parts. Include complete instructions for the inspection, testing, and maintenance of the system. Include copies of all programming sheets used to configure the system.

B. The Contractor shall conduct formal on-site training sessions. Provide documented general instruction as follows:
   1. Provide instruction to District personnel to include the location, inspection, maintenance, testing, and operation of all system components. Provide a minimum of four (8) hours -- four 2-hour sessions separated by a minimum of two weeks.
   2. Provide instruction to designated personnel on the functions and operation of the intercom and master clock system including emergency and service request procedures. Provide a minimum of four (4) hours--two 2-hour sessions separated by a minimum of two weeks.

END OF SECTION

DEMOLITION PLAN LEGEND & ABBREVIATIONS

- PCC DEMOLITION
- CLEAR ANG GRUB DEMOLITION
- SAWCUT
- CURB REMOVAL
- PARKING STRIPING REMOVAL ⚠1

BLDG	BUILDING
℄	CENTERLINE
CB	CATCH BASIN
EA	EACH
ELEC	ELECTRICAL
L/A	LANDSCAPING
LF	LINEAR FEET
PCC	PORTLAND CEMENT CONCRETE
SCO	SEWER CLEANOUT
SD	STORM DRAIN
SF	SQUARE FEET
SWR	SEWER
UDG	UNDERGROUND
UTIL	UTILITY

DEMOLITION ITEMS

		QUANITITES
1	SAWCUT PAVEMENT TO A CLEAN, STRAIGHT EDGE	225 LF
2	REMOVE PCC PAVEMENT AND DISPOSE	2,330 SF ⚠1
3	CLEAR AND GRUB, DISPOSE	3,535 SF
4	REMOVE TREE AND DISPOSE	2 EA
5	CONTRACTOR TO POTHOLE AND VERIFY UNKNOWN UTILITY TYPE, SIZE, DEPTH AND LOCATION PRIOR TO CONSTRUCTION OF PROPOSED BUILDING	140 LF
6	REMOVE PCC CURB AND DISPOSE	6 LF
7	REMOVE EXISTING PARKING STRIPING BY SAND BLASTING OR APPROVED METHOD ⚠1	--
99	PROTECT IN PLACE, ITEM PER PLAN	

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☐ ACS ☑
DATE: 12/21/2023

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CORONA TRANSPORTATION

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DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE

KEY PLAN

NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER JEFFREY D. MARTIN No. 64696 CIVIL STATE OF CALIFORNIA

Architect

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
12-14-23	230010

REVISIONS

No.	Description	Date
1	CONC., PARKING & HANDRAILS	12/14/23

DSA Submittal

DEMOLITION PLAN

C1.1

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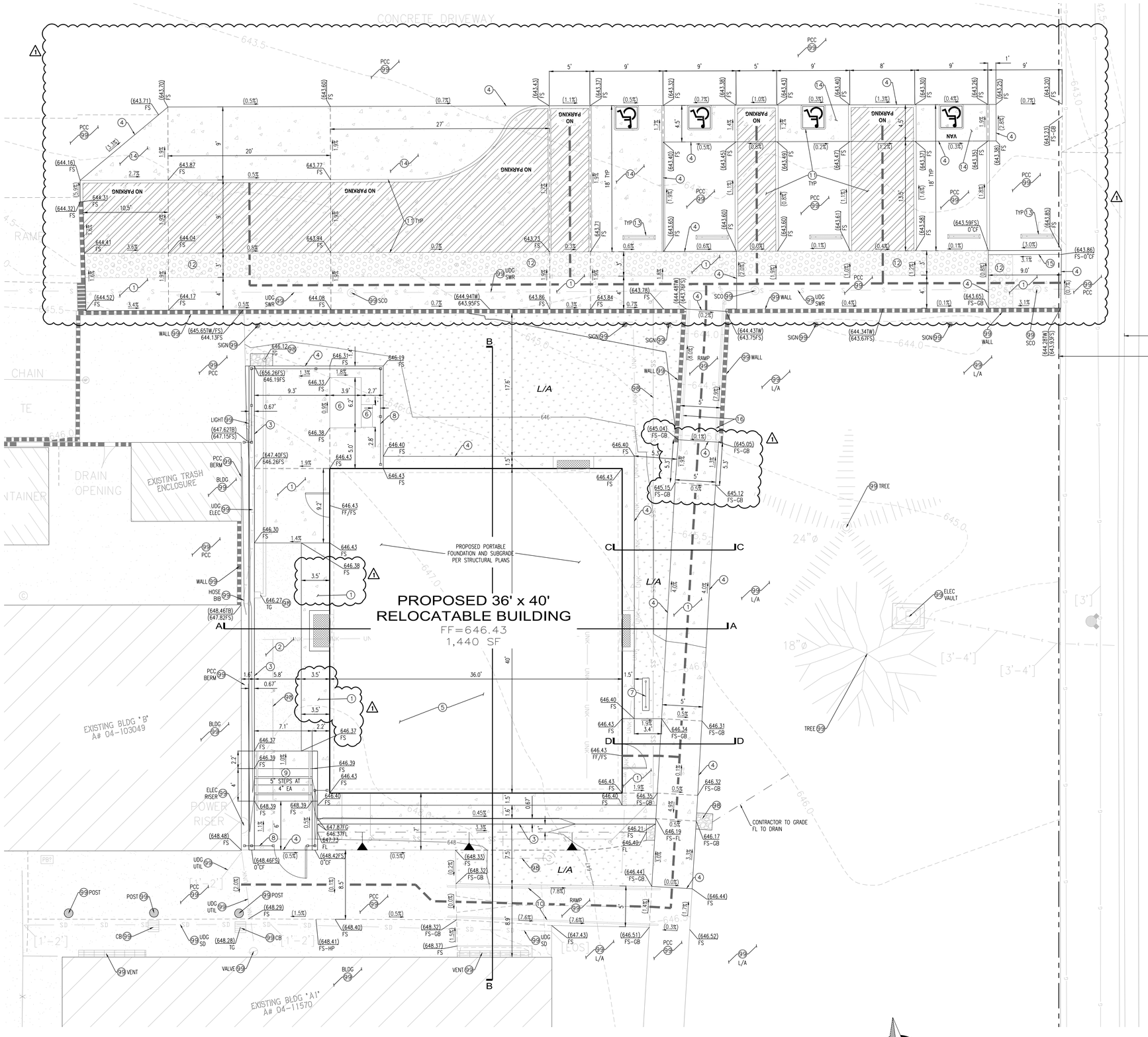

GRADING PLAN LEGEND & ABBREVIATIONS

- PROPOSED PCC PAVEMENT
- PROPOSED DECOMPOSED GRANITE
- PROPOSED LANDSCAPING
- ADA PATH OF TRAVEL

BLDG	BUILDING
℄	CENTERLINE
CB	CATCH BASIN
EA	EACH
ELEC	ELECTRICAL
FF	FINISH FLOOR
FS	FINISH SURFACE
GB	GRADE BREAK
HP	HIGH POINT
L/A	LANDSCAPING
LF	LINEAR FEET
PCC	PORTLAND CEMENT CONCRETE
SCO	SEWER CLEANOUT
SD	STORM DRAIN
SF	SQUARE FEET
SWR	SEWER
TB	TOP OF BERM
TC	TOP OF CURB
TW	TOP OF WALL
UDG	UNDERGROUND
UTIL	UTILITY

CONSTRUCTION ITEMS

		QUANTITIES
1	CONSTRUCT 4" PCC PAVEMENT OVER COMPACTED NATIVE SOIL	1,515 SF
2	CONSTRUCT DECOMPOSED GRANITE SURFACE	150 SF (1)
3	CONSTRUCT RETAINING CURB PER DETAIL (A/C5.1)	108 LF
4	CONSTRUCT PAVEMENT JOINT JUNCTURE PER DETAIL (B/C5.1)	325 LF
5	FURNISH AND INSTALL RELOCATABLE BUILDING PER ARCHITECTURAL PLANS	--
6	CONSTRUCT PCC MECHANICAL PAD PER ARCHITECTURAL PLANS	--
7	CONSTRUCT SIGN PER ARCHITECTURAL PLANS	--
8	FURNISH AND INSTALL CHAIN LINK FENCE AND GATES PER ARCHITECTURAL PLANS	--
9	CONSTRUCT STEPS WITH HAND RAILING PER ARCHITECTURAL PLANS	--
10	EXISTING HAND RAILING AND RAMP PER PLANS A# 04-111570	--
11	INSTALL STRIPING PER ARCHITECTURAL PLANS	--
12	INSTALL ADA TRUNCATED DOMES PER ARCHITECTURAL PLANS	--
13	INSTALL PARKING WHEEL STOP PER ARCHITECTURAL PLANS	--
14	CONSTRUCT 7" PCC PAVEMENT OVER 4" COMPACTED AGGREGATE BASE OVER COMPACTIVE NATIVE SOIL	1,425 SF (1)
15	CONSTRUCT 6" CURB (TYPE 6A) PER CITY OF CORONA STD. PLAN NO. 137	9 LF
16	EXISTING HAND RAILING AT RAMP	--
98	SEE SHEET C2.2 FOR STORM DRAIN AND UTILITY ITEMS	
99	PROTECT IN PLACE, ITEM PER PLAN	

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

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DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE

KEY PLAN

NORTH: PLAN TRUE

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1	CONC., PARKING & HANDRAILS	12/14/23

DSA Submittal

GRADING PLAN

C2.1

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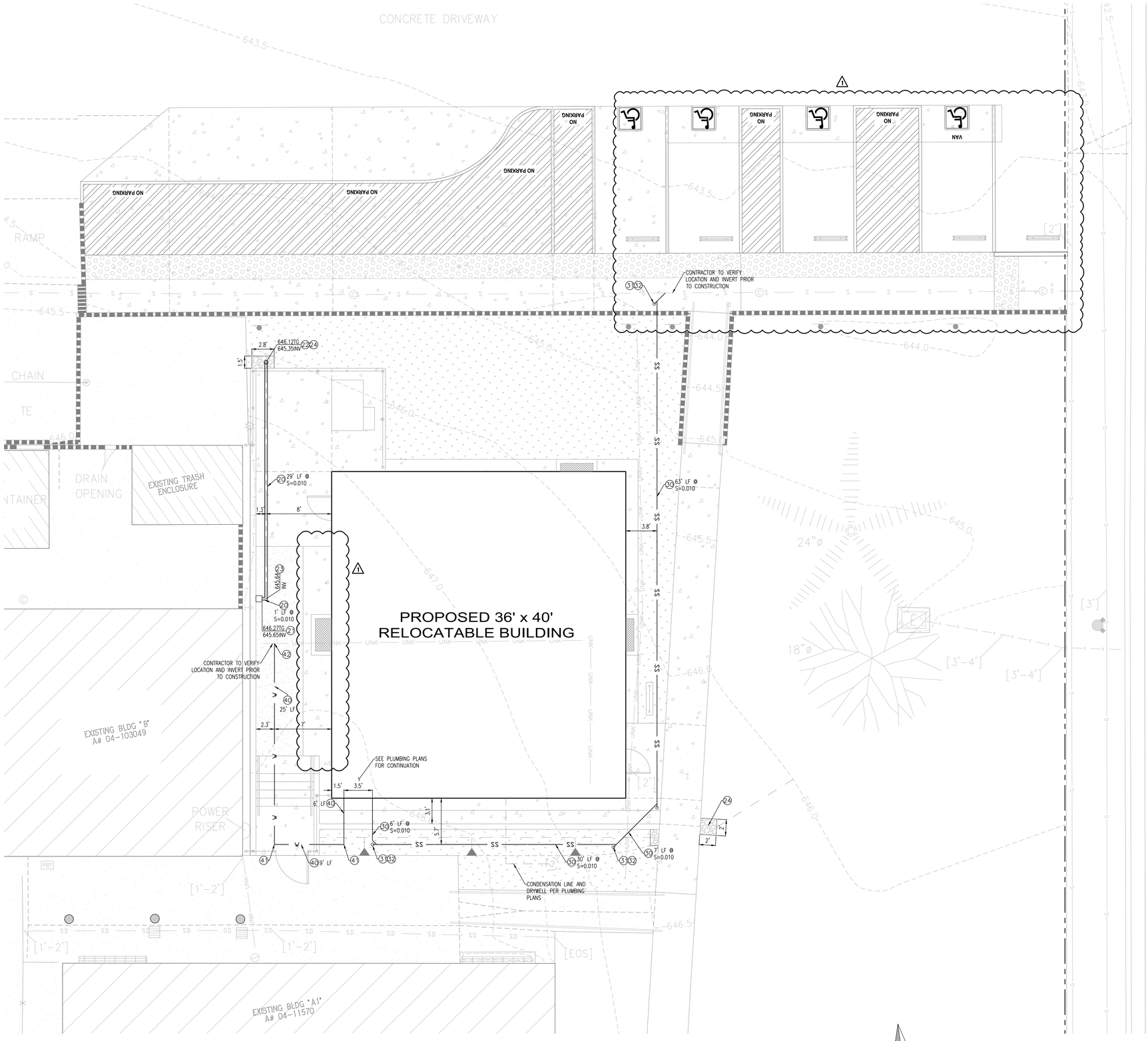

STORM DRAIN ITEMS

		QUANTITIES
20	FURNISH AND INSTALL 4" PVC, SCHEDULE 40 STORM DRAIN PIPE PER MANUFACTURERS SPECIFICATIONS	30 LF
21	FURNISH AND INSTALL 9"x9" CATCH BASIN BY NDSPRO WITH D.I GRATE (OR APPROVED EQUAL) PER DETAIL C/C5.1	1 EA
22	FURNISH AND INSTALL 4" POP-UP DRAINAGE EMITTER BY NDSPRO (OR APPROVED EQUAL) PER DETAIL E/C5.1	1 EA
23	FURNISH AND INSTALL 4" PVC 90° BEND	1 EA
24	CONSTRUCT RIP-RAP SPLASH PAD WITH 6" ROCK, SIZE PER PLAN	3 EA

SEWER ITEMS

		QUANTITIES
30	FURNISH AND INSTALL 2" PVC, SCHEDULE 40 SEWER LINE PER MANUFACTURERS SPECIFICATIONS	106 LF
31	FURNISH AND INSTALL 2" PVC WYE	4 EA
32	FURNISH AND INSTALL SEWER CLEANOUT PER CITY OF CORONA STD. 307 PER DETAIL F/C5.1	4 EA

WATER ITEMS

		QUANTITIES
40	FURNISH AND INSTALL 3/4" PVC, SCHEDULE 80 DOMESTIC WATER PER MANUFACTURERS SPECIFICATIONS	40 LF
41	FURNISH AND INSTALL 3/4" PVC 90° BEND	2 EA
42	CONNECT TO EXIST DOMESTIC WATER	1 EA

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

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CNUSD TRANSPORTATION OFFICE

H G F E D A1 B A

KEY PLAN NORTH: PLAN TRUE

Consultant

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DSA Submittal

UTILITY PLAN

C2.2

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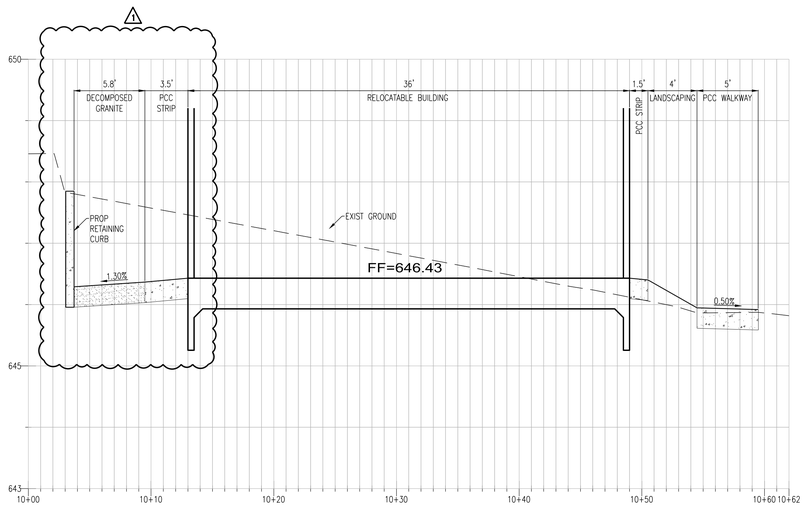
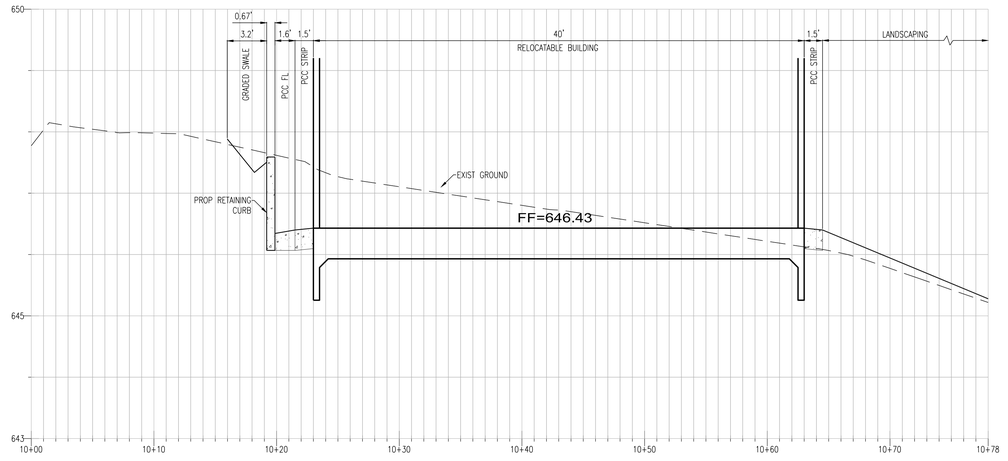


SECTION A-A

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'



SECTION B-B

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'

SECTION C-C

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'

SECTION D-D

HORIZ SCALE: 1"=5'
VERT SCALE: 1"=1'

APPROVED
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DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD TRANSPORTATION OFFICE

H
G — A1
F — B
E — A
D

KEY PLAN

NORTH: PLAN TRUE

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CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
12-14-23	230010

REVISIONS

No.	Description	Date
1	CONC. PARKING & HANDRAILS	12/14/23

DSA Submittal

SECTIONS

C3.1

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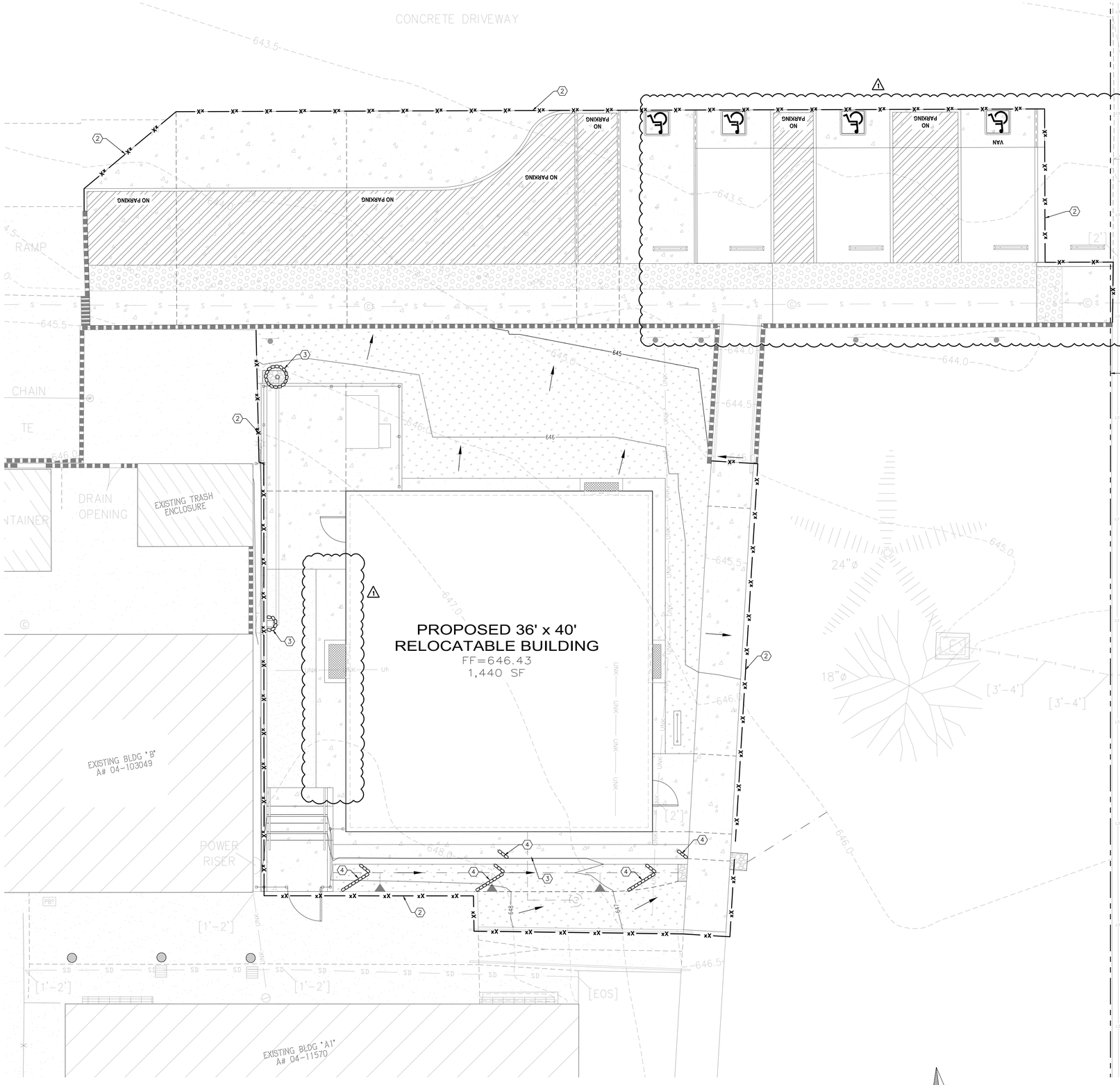


EROSION CONTROL AND BMP ITEMS

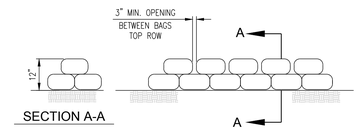
1. CONTRACTOR TO PREPARE AND IMPLEMENT A CONSTRUCTION SCHEDULE PER BMP (CASQA BMP HANDBOOK) EC-1
2. INSTALL SILT FENCE PER BMP (CASQA BMP HANDBOOK) SE-1
3. PLACE INLET PROTECTION PER BMP (CASQA BMP HANDBOOK) SE-10
4. PLACE GRAVEL BAGS 2 COURSE HIGH PER BMP (CASQA BMP HANDBOOK) SE-6 AND PER DETAIL ON THIS SHEET

OTHER NON-STORMWATER "BMPS"

NS-1	WATER CONSERVATION PRACTICES
NS-3	PAVING & GRIND OPERATIONS
NS-6	ILLICIT CONNECTION/DISCHARGE
NS-12	CONCRETE CURING
NS-13	CONCRETE FINISHING
WM-1	MATERIAL DELIVERY & STORAGE
WM-2	MATERIAL USE
WM-3	STOCKPILE MANAGEMENT
WM-4	SPILL PREVENTION & CONTROL
WM-5	SOLID WASTE MANAGEMENT
WM-6	HAZARDOUS WASTE MANAGEMENT
WM-8	CONCRETE WASTE MANAGEMENT
WM-9	SANITARY/SEPTIC WASTE MANAGEMENT
WM-10	LIQUID WASTE MANAGEMENT

LEGEND

- xx — SILT FENCE PER SE-1
- GRAVEL BAGS PER SE-6
- INLET PROTECTION PER SE-10
- FLOW DIRECTION



SECTION A-A

4 GRAVEL BAGS
NOT TO SCALE

SCALE 1"= 5'

0 2.5' 5' 10' 15'

GRAPHIC SCALE

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☐ ACS ☑
DATE: 12/21/2023

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DSA Submittal

DSA APPL NO.: 04-121966 DSA FILE NO.: 33-9

CNUSD
TRANSPORTATION
OFFICE

KEY PLAN

NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER
JEFFREY D. NEAL
No. 64696
CIVIL
STATE OF CALIFORNIA

Architect

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
12-14-23	230010

REVISIONS

No.	Description	Date
1	CONC., PARKING & HANDRAILS	12/14/23

DSA Submittal

EROSION CONTROL PLAN

C4.1

VALUED ENGINEERING, INC
CIVIL ENGINEERING • LAND SURVEYING • LAND PLANNING
1529 W. 13TH STREET, UNIT G, UPLAND, CA 91786
PHONE: (909) 982-4601

File: P:\JOBS\0752301\CAD\SHEETS\GRADING\0752301 C4.1 EROSION.dwg Dec 14, 2023 - 4:45pm Kent

0" 1"

A9.01 - FINISH FLOOR PLAN AND SCHEDULE

FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALL FINISH NORTH WALL	EAST WALL	SOUTH WALL	WEST WALL	CEILING FINISH	CEILING HEIGHT	COMMENTS
101	ENTRY	CPT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
102	WORK ROOM	CPT-1	RB-1	TS-1	TS-2	TS-1	TS-1	ACT-1	8'-6"	
103	OFFICE	CPT-1	RB-1	TS-1	TS-2	TS-1	TS-1	ACT-1	8'-6"	
104	OFFICE	CPT-1	RB-1	TS-1	TS-2	TS-1	TS-1	ACT-1	8'-6"	
105	CONFERENCE ROOM	CPT-1	RB-1	TS-2	TS-1	TS-1	TS-1	ACT-1	8'-6"	
106	COPY ROOM	LVT-1	RB-1	TS-1	TS-1	TS-1	TS-1	ACT-1	8'-6"	
107	BREAK AREA	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	8'-6"	

FINISH FLOOR LEGEND

- LUXURY VINYL TILE FLOORING (LVT-1)
- CARPET (CPT-1)
- ENTRY MAT (EM-1) — 21 / G0.05
- INTERIOR FIELD PAINT COLOR (P-1)
- TACKABLE SURFACE (TS-1)
- TACKABLE SURFACE (TS-2) 1
- DOOR PAINT COLOR (P-4 @ INTERIOR DOORS & P-5 AT EXTERIOR DOORS) - PROVIDE SPLIT FACE PAINT AT EXTERIOR DOORS
- EXTERIOR PAINT COLOR (P-2) - ACCENT PAINT COLOR (P-3)

27 FINISH SCHEDULE

FINISH ABBREVIATIONS

ACT	ACOUSTICAL CEILING PANEL
CPT	CARPET
EM	ENTRY MAT
LVT	LUXURY VINYL TILE
MB	MARKERBOARD
P	PAINT
PL	PLASTIC LAMINATE
RB	RUBBER BASE
TS	TACKABLE SURFACE
WSC	WINDOW SHADE CLOTH

NOTES:
1. ALL FINISH MATERIALS MUST MEET THE FLAME SPREAD RATINGS PER 2016 CBC, CHAPT 8.
2. REFER TO INTERIOR ELEVATIONS FOR SPECIFIC MATERIAL LOCATIONS.
3. NON-CONFIRMED ITEMS IN THE DESIGN MUST BE CONFIRMED WITH THE CLIENT AND THE ARCHITECT.
4. ANY CHANGES TO FLOOR PLAN LAYOUT DURING THE PROJECT MIGHT CHANGE FINISHES. FINISHES MUST BE CONFIRMED WITH PBK PRIOR TO INSTALLATION.
5. FOR MANUFACTURERS AND COLORS, SEE FINISH SCHEDULE. ALL FINISHES TO BE INSTALLED IN ACCORADANCE WITH MANUFACTURER'S SPECIFICATIONS.
6. PAINT ALL EXPOSED DUCTWORK, CONDUIT, ELECTRICAL EQUIPMENT, ETC TO MATCH ADJACENT SURFACES, UNO.
7. PAINT ALL NON-FACTORY FINISHED EXPOSED METAL.
8. REFER TO TYPICAL FLOORING TRANSITION DETAILS FOR ALL FLOORING MATERIALS.
9. FLOORING TRANSITIONS AT DOORS SHOULD BE LOCATED UNDER, AND CONCELED BY THE DOOR IN THE CLOSED POSITION, UNO.
10. CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING FINISHED FLOORING SURFACES FROM DAMAGE DURING ALL CONSTRUCTION PHASES.
11. REFER TO REFLECTED CEILING PLANS FOR CEILING HEIGHTS.
12. ALL ELECTRICAL DEVICE COVERS ARE TO BE WHITE, UNO.
13. CARPET PATTERNS TO RUN PARALLEL TO CORRIDOR AND/OR PARALLEL TO THE LONG DIMENSION OF A ROOM OR SPACE, UNO.
14. ALL HOLLOW METAL DOOR FRAMES TO BE PAINTED TO MATCH ADJACENT WALL COLOR.
15. FOR PLASTIC LAMINATE LOCATIONS SEE CABINETRY DEATAIL DRAWINGS.
16. SUBCONTRACTORS TO SUBMIT FINISH SAMPLES (PLASTIC LAMINATE, PAINT, FLOORING, ETC.) TO PBK FOR APPROVAL PRIOR TO INSTALLATION. ALLOW SUFFICIENT TIME TO REORDER IF MATERIAL IS DEFECTIVE OR UNACCEPTABLE.

MATERIAL SCHEDULE

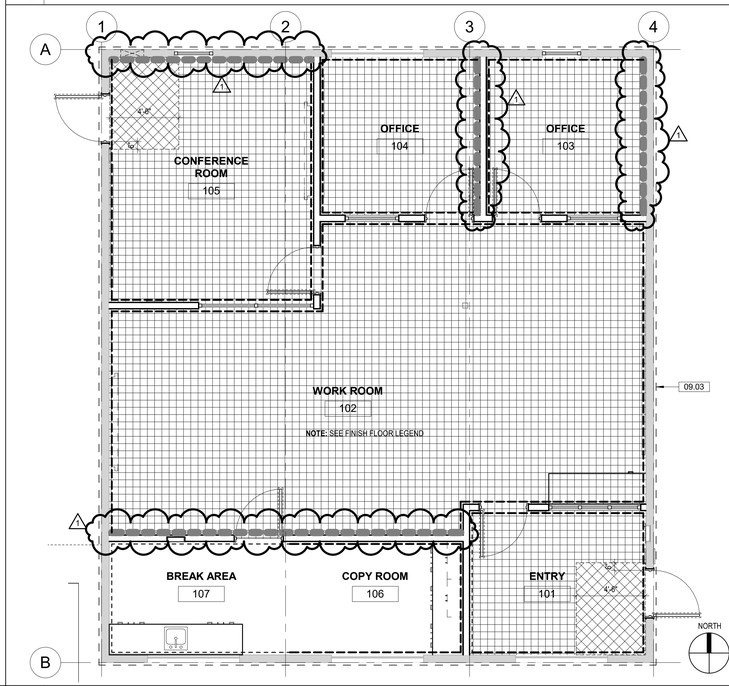
ITEM	MANUFACTURER	DESCRIPTION	COLOR	SIZE	LOCATION	NOTES
CARPET						
CPT-1	MOHAWK	INTERPLAY STRIPE	951 YELLOW JACKET	18" x 35.5"	SEE FINISH PLAN	
ENTRY MAT						
EM-1	MOHAWK	TUFF STUFF II	FIRST STEP II - GT315	SEE FINISH PLAN	SEE FINISH PLAN	
LUXURY VINYL TILE						
LVT-1	ALTRO FLOORS	LVT	ALABASTER - LAVI16033	12" x 24"	SEE FINISH PLAN	
PLASTIC LAMINATE						
PL-1	WILSONART	HPL	7966K-12 5th AVE ELM	N/A	@ CABINETS	REFER TO MILLWORK DRAWINGS
PL-2	WILSONART	HPL	0427-60 LINEN	N/A	@ COUNTER-TOPS	REFER TO MILLWORK DRAWINGS
INTERIOR PAINT						
P-1	DUNN EDWARDS	PAINT	DE6226 - FOGGY DAY	N/A	INT. FIELD COLOR	LOW SHEEN FINISH
P-2	DUNN EDWARDS	PAINT	DE6359 - SILVER SETTING	N/A	EXT. FIELD COLOR	
P-3	DUNN EDWARDS	PAINT	DE5852 - RAINY LAKE	N/A	EXT. ACCENT COLOR	
P-4	DUNN EDWARDS	PAINT	DEA002 - BLACK	N/A	INT. DOOR COLOR	
P-5	DUNN EDWARDS	PAINT	DE5852 - RAINY LAKE	N/A	EXT. DOOR COLOR	
RESILIENT BASE						
RB1	MOHAWK	DURACOVE 4" RUBBER BASE	073 AIRCRAFT CARRIER	4" H	@NEW FLOORING	
WINDOW SHADE CLOTH						
WSC-1	MECHOSHADE	ECOVEIL SYSTEM	1369 SILVER BIRCH	N/A	WINDOWS	5% OPENESS
MARKERBOARD						
MB-1	POLYVISION	TBD	BRILLIANT WHITE	SEE INTERIOR ELEV.	SEE INTERIOR ELEV.	MAGNETIC CERAMIC COATED STEEL
TACKABLE SURFACE						
TS-1	KOROSEAL / CHATFIELD CLARKE	INTERLOOM	COCONUT NM21-02	N/A	SEE FINISH PLAN - FIELD	
TS-2	KOROSEAL / CHATFIELD CLARKE	INTERLOOM	HAZE NM21-05	N/A	SEE FINISH PLAN - ACCENT	
ACOUSTIC CEILING PANEL						
ACT1	ARMSTRONG	SCHOOL ZONE FINE FISSURED	WHITE	2' x 4' TILES	CEILING	

*REFER TO INTERIOR ELEVATION FOR SPECIFIC PATTERN

15 MATERIAL SCHEDULE

CONSTRUCTION KEYED NOTES

#	Description
09.03	EXTERIOR PLASTER WITH PAINT FINISH TO BE PROVIDED, TYP. - SEE FINISH FLOOR LEGEND



3 PROPOSED FLOOR PLAN

1/4" = 1'-0"

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☐ ACS ☑
DATE: 12/21/2023

PBK

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CORONA-NORCO USD TRANSPORTATION OFFICE AT ORANGE GROVE HIGH SCHOOL

PROJECT ADDRESS:
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NORCO, CA 92882

100% CONSTRUCTION DOCUMENTS

DSA APPL NO.: 04-122251 DSA FILE NO.: 33-H4

CNUSD TRANSPORTATION OFFICE

H G F E D A1 B A

KEY PLAN

NORTH: PLAN TRUE

Consultant

Architect

LICENSED ARCHITECT Yong Yao No. C-31162 REN. 10-31-2025 STATE OF CALIFORNIA

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
08-07-23	230010

REVISIONS

No.	Description	Date
1	Addendum No. 01	11/30/23

100% CONSTRUCTION DOCUMENTS

FINISH FLOOR PLAN AND SCHEDULE

A9.01

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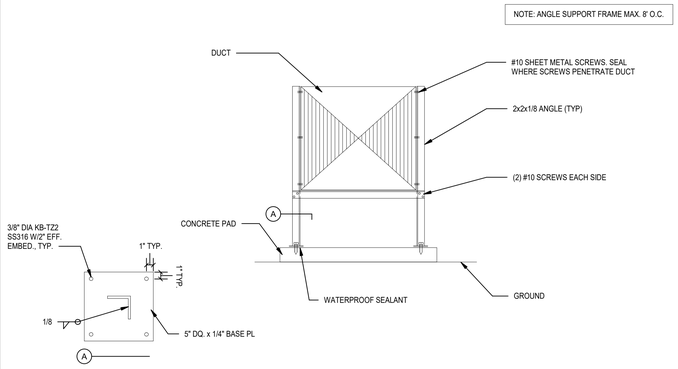
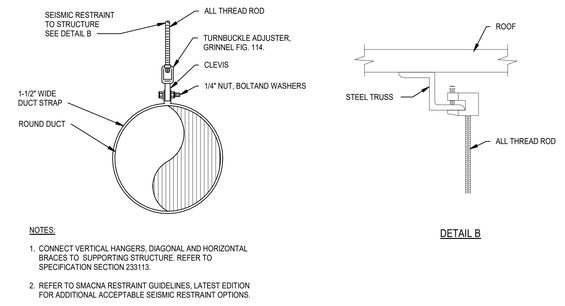
11/30/2023 3:55:35 PM

0" 1"



11 DUCT SUPPORT DETAIL
NOT TO SCALE

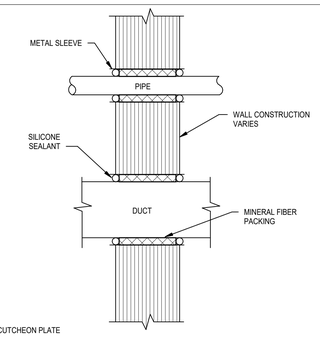


NOTES:

1. CONNECT VERTICAL HANGERS, DIAGONAL AND HORIZONTAL BRACES TO SUPPORTING STRUCTURE. REFER TO SPECIFICATION SECTION 233113.
2. REFER TO SMACNA RESTRAINT GUIDELINES, LATEST EDITION FOR ADDITIONAL ACCEPTABLE SEISMIC RESTRAINT OPTIONS.

DETAIL B

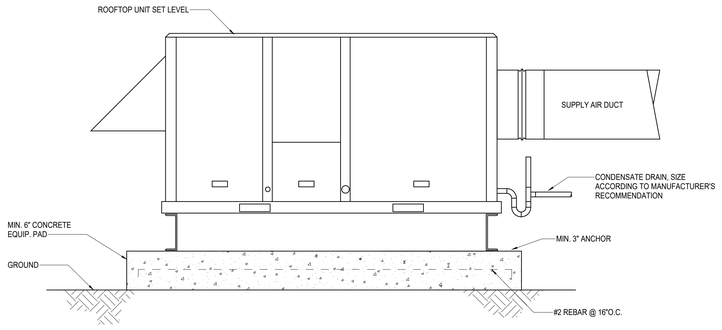
8 ROUND DUCT SUPPORT DETAIL
NOT TO SCALE



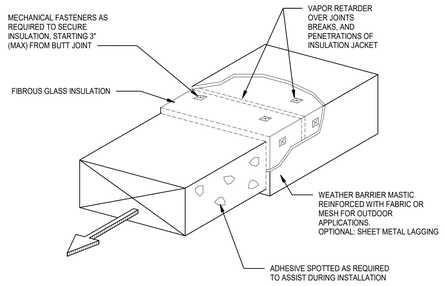
NOTE:

1. REFER TO SPECIFICATIONS FOR ESCUTCHEON PLATE REQUIREMENTS.
2. SUPPORT PIPES & DUCTS ON EITHER SIDE OF WALL. DO NOT LET THEM LOAD ONTO THE WALL.

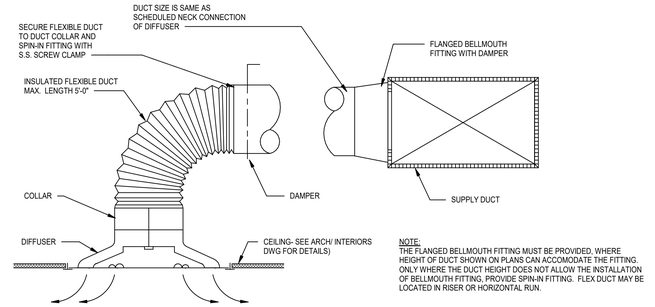
4 DUCT OR PIPE THRU NON RATED WALL DETAIL
NOT TO SCALE



10 HEAT PUMP ON GROUND DETAIL
NOT TO SCALE

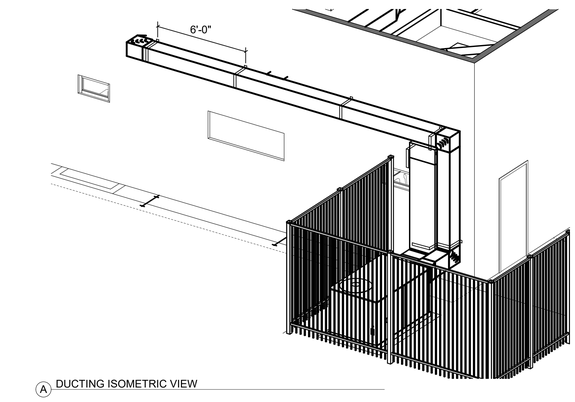


7 EXTERIOR DUCT DETAIL
NOT TO SCALE

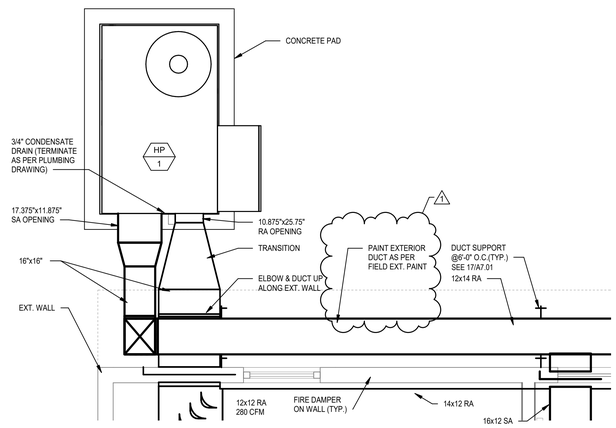


NOTE:
THE FLANGED BELLMOUTH FITTING MUST BE PROVIDED, WHERE HEIGHT OF DUCT SHOWN ON PLANS CAN ACCOMODATE THE FITTING. ONLY WHERE THE DUCT HEIGHT DOES NOT ALLOW THE INSTALLATION OF BELLMOUTH FITTING, PROVIDE SPIN-IN FITTING. FLEX DUCT MAY BE LOCATED IN RISER OR HORIZONTAL RUN.

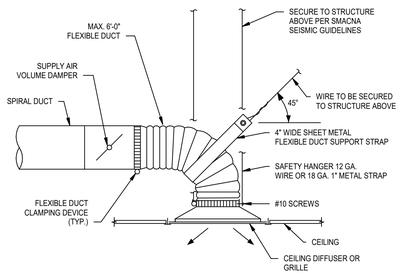
3 CEILING DIFFUSER CONNECTION DETAIL
NOT TO SCALE



A DUCTING ISOMETRIC VIEW



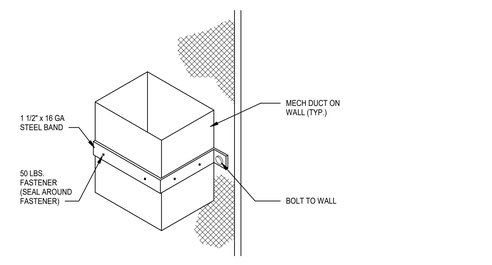
9 HEAT PUMP DUCTING DETAIL
NOT TO SCALE



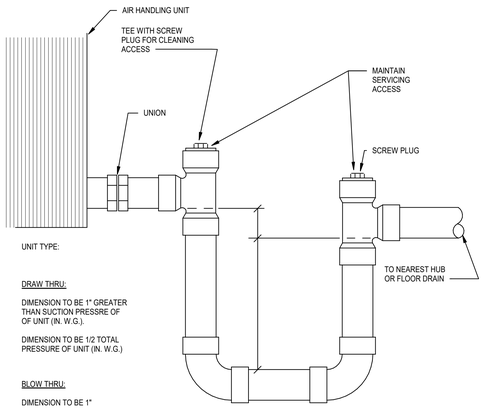
NOTES:

1. REFER TO DETAIL X SHEET M-XXX FOR FLEXIBLE DUCTWORK DETAIL.
2. LOCATE VOLUME DAMPER AS FAR AWAY FROM DIFFUSER OR GRILLE AS POSSIBLE.

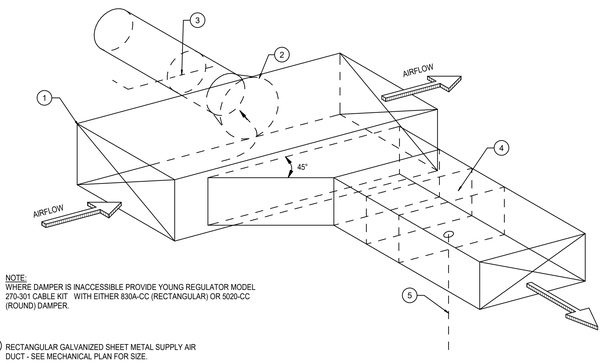
6 LAY IN DIFFUSER CONNECTION DETAIL
NOT TO SCALE



2 DUCT SUPPORT ON WALL DETAIL
NOT TO SCALE



5 CONDENSATE TRAP PIPING DETAIL
NOT TO SCALE



NOTE:
WHERE DAMPER IS INACCESSIBLE PROVIDE YOUNG REGULATOR MODEL 270-301 CABLE KIT WITH EITHER 830A-CC (RECTANGULAR) OR 5020-CC (ROUND) DAMPER.

1. RECTANGULAR GALVANIZED SHEET METAL SUPPLY AIR DUCT - SEE MECHANICAL PLAN FOR SIZE.
2. CUT OPENING ACCURATELY FOR SPIN IN (FLARED) FITTING - WHERE POSSIBLE.
3. BUTTERFLY DAMPER W/ LOCKING QUAD. (TYP)
4. VOLUME CONTROL DAMPER WITH LOCKING QUADRANT.
5. DAMPER REGULATOR

1 BRANCH DUCT TAKE-OFF & DMP. DETAIL
NOT TO SCALE

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☐ ACS ☑
DATE: 12/21/2023

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DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

MODULAR BLDG
A
B
400
300
KEY PLAN
NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER
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No.M36155
Exp.09-30-2024
STATE OF CALIFORNIA

Architect

CLIENT
CORONA-NORCO USD
DATE 05-19-03
PROJECT NUMBER 230010

REVISIONS

No.	Description	Date
1	Addendum #01	11/29/23

DSA Submittal

MECHANICAL DETAILS

M6.01

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11/28/2023 9:58:15 AM

TECHNOLOGY GENERAL NOTES

1. THE SEISMIC BRACING AND ANCHORAGE OF ELECTRICAL CONDUITS, BUS DUCT, WIREWAY, AND CABLE TRAY SHALL BE IN ACCORDANCE WITH THE UNIFORM BUILDING CODE, CHAPTER 23 AND "GUIDELINE FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS," PUBLISHED BY SMACNA AND PPIC, OR THE SUPER STRUT-SEISMIC RESTRAINT SYSTEM, OR THE KIN- LINE SEISMIC RESTRAINT SYSTEM.

2. ALL ELECTRICAL PREFABRICATED EQUIPMENT SHALL BE DESIGNED AND CONSTRUCTED IN SUCH A MANNER THAT ALL PORTIONS, ELEMENTS, SUB-ASSEMBLIES AND/OR PARTS OF SAID EQUIPMENT, AND THE EQUIPMENT AS A WHOLE INCLUDING ITS ATTACHMENTS WILL RESIST A LOAD WHICH EXCEEDS THE FORCE LEVEL USED TO RESTRAIN AND ANCHOR THE EQUIPMENT TO THE SUPPORTING STRUCTURE.

3. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL) OR OTHER APPROVED TESTING AUTHORITY AND BEAR THEIR LABEL OR LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING.

4. AUTHORITY WHERE UL DOES NOT HAVE A LISTING. CUSTOM MADE EQUIPMENT SHALL HAVE COMPLETE TEST DATA SUBMITTED BY THE MANUFACTURER ATTESTING TO ITS SAFETY. IN ADDITION, THE MATERIALS, EQUIPMENT, AND INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING AS APPLICABLE:

   AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)

   INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)

   NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

   AMERICAN STANDARD ASSOCIATION (ASA)

   NATIONAL FIRE PROTECTION AGENCY (NFPA)

   AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)

   INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

5. ALL LOCAL CODES HAVING JURISDICTION. WHERE THE CODES HAVE DIFFERENT LEVELS OF REQUIREMENT, THE MOST STRINGENT RULE SHALL APPLY AS DETERMINED BY ENGINEER.

6. ALL ITEMS SUCH AS SERVICE CONDUIT, CONDUCTORS, DUCTS, CONCRETE PADS, TRANSFORMERS, RISERS, MANHOLES, PULL BOXES, AND PROTECTIVE COVERING FROM SERVICE LOCATION SHALL BE PROVIDED AND SHALL BE VERIFIED WIT THE SERVING UTILITY COMPANY. THE CONTRACTOR SHALL PROVIDE THE SERVICE IN COMPLIANCE WITH THE SERVING UTILITY AGENCY. CJV SHALL PAY ALL CHARGES LEVIED BY THE SERVING UTILITY AGENCY FOR SERVICE EXCEPT THE FIRST BILLING DEPOSIT

7. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION AND CONFIGURATION OF THEIR RESPECTIVE EQUIPMENT. SUPPLY POWER AND MAKE CONNECT TO MOTORS AND EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AS INDICATED ON THE SINGLE LINE DIAGRAM, ELECTRICAL DRAWINGS, AND DRAWINGS OF OTHER TRADES. REVIEW THE DRAWINGS OF OTHER TRADES FOR CONTROL DIAGRAMS, SIZE AND LOCATION OF EQUIPMENT. DISCONNECT SWITCHES, STARTERS, WIRING, CONTROLS, CONDUIT FOR MECHANICAL, MISC. 120V POWER REQUIREMENTS AND PLUMBING OPERATIONS SHALL BE PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGHING IN ALL CONDUIT TO THIS EQUIPMENT.

8. EXACT METHOD AND LOCATION OF CONDUIT PENETRATION AND OPENINGS IN CONCRETE OR MASONRY WALLS, GRADE BEAMS, FLOORS OR STRUCTURAL STEEL MEMBERS SHALL BE AS DIRECTED BY THE STRUCTURAL ENGINEER. PERFORM CORING, SAWCUTTING, PATCHING, AND REFINISHING OF WALLS AND SURFACES WHEREVER IT IS NECESSARY TO PENETRATE. OPENINGS SHALL BE SEALED IN AN APPROVED METHOD TO MEET THE FIRE RATING OF THE PARTICULAR WALL, FLOOR OR CEILING. EXACT METHOD AND LOCATIONS OF CONDUIT PENETRATIONS AND OPENINGS IN CONCRETE WALLS OR FLOORS SHALL BE FOR UL APPROVED SYSTEMS.

9. CONNECTIONS TO VIBRATING EQUIPMENT, MECHANICAL, AND PLUMBING EQUIPMENT AND SEISMIC SEPARATIONS: LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN ALL LOCATIONS MAXIMUM LENGTH OF FLEXIBLE CONDUIT RUNS SHALL BE 6'-0" UNLESS OTHERWISE NOTED. TRAIN CONTROL CONDUIT, 2" AND BIGGER ARE SHOWN IN MSF-02 AND MSF-03 E-900 SERIES. SMALLER CONDUIT RUN SHALL BE SHOWN IN ELECTRICAL CONTRACTOR'S SHOP DRAWINGS.

10. STRAIGHT FEEDER, BRANCH CIRCUIT, AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES AS REQUIRED BY CODE. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

11. UTILITY PENETRATIONS OF ANY KIND IN FIRE AND SMOKE PARTITIONS AND CEILING ASSEMBLIES SHALL BE FIRESTOPPED AND SEALED WITH AN APPROVED MATERIAL. SECURELY INSTALLED STEEL ELECTRICAL OUTLET BOXES WHICH DO NOT EXCEED 16 SQUARE INCHES IN AREA, NEED NOT BE PROTECTED IN ONE HOUR OR TWO-HOUR FIRE RATED WALLS, PARTITIONS, CEILINGS, OR AREA SEPARATION UNLESS THEY:

12. OCCUR ON OPPOSITE SIDES OF THE WALL WITHIN 24 INCH HORIZONTAL DISTANCE OF ONE ANOTHER. IN THIS CASE, ONLY ONE OUTLET BOX NEED TO PROTECTED BY AN APPROVED FIRESTOP MATERIAL OR DETAIL TO CORRECT THIS CONDITION.

13. OCCUR IN COMBINATION WITH OUTLET BOXES OF ANY SIZE SUCH THAT THE AGGREGATE AREA OF UNPROTECTED OUTLET BOXES EXCEEDS 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL AREA. IN THIS CASE, ONLY A SUFFICIENT NUMBER OF OUTLET BOXES NEED TO BE PROTECTED BY AN APPROVED MATERIAL OR DETAIL TO DECREASE THE AGGREGATE AREA OF UNPROTECTED UTILITY BOXES TO LESS THAN 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL.

14. STEEL ELECTRICAL OUTLET BOXES, WHICH EXCEED 16 SQUARE INCHES IN AREA, AND ALL OTHER STEEL UTILITY OUTLET BOXES REGARDLESS OF SIZE, SHALL BE PROTECTED BY AN APPROVED FIRESTOP MATERIAL AS LISTED.

15. UTILITY AND ELECTRICAL OUTLETS OR BOXES SHALL BE SECURELY FASTENED TO THE STUD OF FRAMING OF THE WALL, PARTITION OR CEILING ASSEMBLY. THE OPENING IN THE GYPSUM BOARD FACING SHALL BE CUT SO THAT THE CLEARANCE BETWEEN THE BOX, AND THE GYPSUM BOARD DOES NOT EXCEED 1/8 INCH IN SMOKE WALLS OR PARTITIONS, THE 1/8 INCH CLEARANCE SHALL BE FILLED WITH AN APPROVED FIRE-RATED SEALANT.

16. MAXIMUM NUMBER OF CONDUCTORS IN OUTLET OR JUNCTION BOXES SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE, ARTICLE 314-16, BUT IN NO CASE SHALL CONTAIN MORE THAN THE FOLLOWING NUMBER OF #12 AWG CONDUCTORS FOR THE SIZE OF BOX INDICATED. THE MINIMUM SIZE OUTLET OR JUNCTION BOX PERMITTED IN A WALL IS FOUR INCHES SQUARE BY 1 1/2 INCHES DEEP.

    4" SQUARE BY 1 1/2" D=9 CONDUCTORS
    4" SQUARE BY 2 1/8" D=13 CONDUCTORS
    4 11/16" SQUARE BY 1 1/2" D=11 CONDUCTORS
    4 11/16" SQUARE BY 2 1/8" D=18 CONDUCTORS
    ALL OUTLET BOXES CONTAINING MORE THAN ONE DEVICE SHALL BE GANGED.
    TWO DEVICES DOUBLE GANGED, MINIMUM.

17. WHERE MULTI-HOMERUNS ARE INDICATED ON DRAWINGS INDICATING THE SAME PANELBOARD CIRCUIT NUMBER, PROVIDE JUNCTION BOX ABOVE ACCESSIBLE CEILING AND ROUTE ONE SET OF WIRED TO CIRCUIT BREAKERS.

18. DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT SHOW SPECIAL CONDUIT ROUTING OR LENGTHS REQUIRED FOR A COMPLETE INSTALLATION. ROUTING OF RACEWAYS SHALL BE COORDINATED IN THE FIELD WITH OTHER TRADES BUT SHALL BE IN STRICT COMPLIANCE WITH STRUCTURAL REQUIREMENTS AND SPECIFICATIONS, UNLESS OTHERWISE NOTED AND SHALL BE COORDINATED WITH OTHER TRADES. NO CONDUIT SHALL BE ROUTED HORIZONTALLY IN MASONRY WALLS IN EXCESS OF 48". DO NOT SCALE THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL OR MECHANICAL ITEMS OR FEATURES, REFER TO ARCHITECTURAL AND STRUCTURAL DIMENSIONAL DRAWINGS.

19. THE EQUIPMENT GROUNDING CONDUCTOR, ALTHOUGH NOT SHOWN ON CONDUIT RUNS, SHALL BE INSTALLED AND RUN CONTINUOUS FROM PANEL TO THE LAST OUTLET. THIS WIRE SHALL BE PIGTAILED IN EACH OUTLET FOR CONNECTION TO BOX AND DEVICE SO THAT IF DEVICE IS REMOVED, GROUND WILL NOT BE INTERRUPTED. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSULATED GREEN CONDUCTORS, ALTERNATE METHODS OF IDENTIFICATION SHALL NOT BE USED.

20. JUNCTION AND PULL BOXES: FOR INTERIOR DRY LOCATIONS, BOXES SHALL BE GALVANIZED ONE-PIECE, DRAWN STEEL, KNOCKOUT TYPE WITH REMOVABLE MACHINE SCREW SECURED COVERS. FOR OUTSIDE, DAMP, OR PROVIDE NEMA 4X WHERE REQUIRED. BOXES SHALL BE LABELED TO INDICATE PANEL AND CIRCUIT NUMBER, OR TYPE OF SIGNAL OR COMMUNICATIONS SYSTEM.

21. WHEN CONFLICTS OCCUR ON DRAWINGS, THE MOST STRINGENT APPLICATION SHALL APPLY.

22. IT IS THE INTENT OF THE DRAWINGS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION BE PROVIDED FOR THE EQUIPMENT DESCRIBED OR SHOWN AS BEING IN THIS CONTRACT. FURNISH ALL LABOR AND TOOLS NECESSARY AND FURNISH AND INSTALL ALL APPARATUS, MATERIALS AND EQUIPMENT IN A FASHION COMPLYING WITH ALL APPLICABLE CODES, INCLUDING ITEMS REQUIRED BUT NOT NORMALLY SHOWN, SUCH AS LAMPS, HANGERS, BRACKETS, CLAMPS, COUPLINGS, BOXES, CONNECTORS, AND HARDWARE REFER ALSO TO WRITTEN SPECIFICATIONS FOR GENERAL, MECHANICAL AND ELECTRICAL SECTIONS.

23. NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO TECHNOLOGY EQUIPMENT SHALL BE PERMITTED TO BE LOCATED WITHIN DEDICATED SPACE ABOVE THE TECHNOLOGY EQUIPMENT.
24. ALL GROUNDING ELECTRODES THAT ARE PRESENT AT EACH BUILDING OR STRUCTURE SHALL BE BONDED TOGETHER.

25. REFER TO SPECIFICATION SECTION 26 05 33 FOR TYPE OF CONDUITS USED.

26. FUTURE EQUIPMENT SUBMITTALS TO SHOW THE EXACT LOCATIONS FOR ALL FUTURE PANELS SHOWN ON THE DRAWINGS.

27. RACEWAY AND BOXES FOR TECHNOLOGY SYSTEMS

    CONDUIT

    A. ALL CONDUITS, CABLES, AND WIRING SHALL BE CONCEALED FROM PUBLIC VIEW. UNLESS APPROVED BY OWNER.

    B. DRY LOCATIONS EXPOSED AND CONCEALED: PROVIDE ELECTRICAL METALLIC TUBING CONDUIT, BASED FP 11.3.16.67 (A) THAT USE OF EMT IS SUBJECT TO OWNER APPROVAL. GALVANIZED RIGID STEEL (RGS) CONDUIT SHALL BE USED IN AREAS SUBJECT TO PHYSICAL DAMAGE INCLUDING ALL TUG ROUTES OR TUG AREAS. PROVIDE SHEET-METAL BOXES PROVIDE FLUSH MOUNTING OUTLET BOX IN FINISHED AREAS.

    C. ANY SPACE CONDUITS SHALL BE PROVIDED WITH PULL LINES.

    D. THE MINIMUM CONDUIT SIZE SHALL BE 3/4 INCH FOR POWER.

    E. ROMEX AND ALUMINUM FLEX CONDUITS ARE NOT ALLOWED.

    ENCLOSURES

    A. METAL CLAD TYPE MC CABLE IS ALLOWED FOR TEMPORARY INSTALLATIONS.

    PULL BOXES

    A. INDOOR DRY ENCLOSURES SHALL BE NEMA TYPE 1.

    B. OUTDOOR ENCLOSURES SHALL BE NEMA TYPE 4X STAINLESS STELL.

    C. ENCLOSURES EXPOSED TO DUST OR MOISTURE SHALL BE NEMA TYPE 12 OR TYPE 3R/12.

28. IDENTIFICATION FOR SYSTEMS

    NAMEPLATES ON EQUIPMENT

    A. ENGRAVED PLASTIC NAMEPLATES AND SIGNS: ENGRAVING STOCK, MELAMINE PLASTIC LAMINATE, MINIMUM 1/16 INCH (1.6 MM) THICK FOR SIGNS UP TO 20 SQ. IN. (129 SQ. CM) AND 1/8 INCH (3.2 MM) THICK FOR LARGER SIZES. ENGRAVED LEGEND WITH WHITE LETTERS ON BLACKFACE FOR NORMAL POWER, WHITE LETTERS ON RED FACE FOR EMERGENCY POWER. PUNCHED OR DRILLED FOR MECHANICAL FASTENERS. TEXT IS AT 1/2-INCH (13 MM) HIGH LETTERING.

    B. NAMEPLATES SHALL ADEQUATELY DESCRIBE THE FUNCTION OF THE PARTICULAR EQUIPMENT INVOLVED. WHERE NAMEPLATES ARE DETAILED ON THE DRAWINGS, INSCRIPTION, AND SIZE OF LETTERS SHALL BE AS SHOWN, AND SHOP DRAWING SUBMITTED FOR APPROVAL. NAMEPLATES FOR PANELBOARDS AND SWITCHBOARDS SHALL INCLUDE THE PANEL DESIGNATION, VOLTAGE, PHASE AND WIRE, THE NEXT ITEM SHALL BE EITHER OWNER, CONCESSIONS, OR AIRLINE PANEL, DEPENDING ON LOADS SERVED. IN ADDITION, DESCRIBED WHERE THE PANEL IS FED FROM. FOR EXAMPLE:

    PANEL 1LA, 120/208V, 3PH, 4W FED
    OWNER PANEL
    FED FROM MS

    C. NAMEPLATES SHALL BE SECURED TO EQUIPMENT FRONT USING STAINLESS STEEL SCREWS OR RIVETS.

    D. CUSTOM METAL MASTER NAMEPLATES SHALL BE FURNISHED AND INSTALLED BY THE MANUFACTURER ON EACH DISTRIBUTION SECTION, SWITCHBOARD SECTION AND MOTOR CONTROL CENTER INDICATING THE MANUFACTURER'S NAME, AMPERE RATING, SHORT-CIRCUIT RATING (BUS BRACING) AND DATE. PAPER STICKERS ARE NOT ACCEPTABLE. FOR EXAMPLE:

    ABC SWITCHBOARD CO.
    AMPERE RATING: 5000A
    SHORT CIRCUIT RATING: 100KAIC
    DATE: 01/01/2011
    PANELBOARD DIRECTORIES

29. PERMANENT MARKING

    A. ALL CONDUITS, BUSWAYS, CABLE TRAYS, AND PULL BOXES SHALL BE IDENTIFIED WITH PERMANENT BLACK LETTERS AND NUMBERS WHICH INDICATE THE SOURCE PANEL (FEEDER SUPPLY SOURCE), CIRCUIT NUMBERS, AND DESIGNATED PANEL OR LOAD, FOR EXAMPLE, "PA-1.3.5 TO MG" FOR CONDUITS. THE LETTER HEIGHT SHALL BE ONE-THIRD (1/3) THE CONDUIT SIZE WITH ¼ INCH MINIMUM HEIGHT. FOR PULL BOXES AND BUSWAYS, THE LETTER HEIGHT SHALL BE ½ INCH MINIMUM HEIGHT AND NOT LARGER THAN ¾ INCH HEIGHT OR PER DEVELOPER CMMS REQUIREMENTS.

    B. THE IDENTIFICATIONS FOR CONDUITS, BUSWAYS, AND CABLE TRAYS SHALL BE PLACED AT BEGINNING AND END INTERVALS AND WITHING 10 FEET OF WALL AND FLOOR PENETRATIONS, PULL BOXES PANELS, DISTRIBUTION BOARDS, SWITCHBOARDS, AND ELECTRICAL EQUIPMENT.

    C. SPARE CONDUITS, PULL BOXES, BUSWAYS, AND ABANDONED RACEWAYS (THAT ARE TO REMAIN AS SHOWN ON THE DRAWINGS) SHALL BE IDENTIFIED AS DESCRIBED ABOVE (A, B).

    D. THE PERMANENT MARKING IDENTIFICATIONS ON THE RACEWAYS AND PULL BOXES SHALL BE VISIBLE AFTER THE INSTALLATIONS ARE MADE.

    E. ALL RECEPTACLE AND SWITCH FACEPLATES SHALL BE LABELED WITH THE SOURCE PANEL AND CIRCUIT NUMBER, THE LABEL SHALL BE BLACK ARIAL FONT ON WHITE OR CLEAR TAPE, PRODUCED BU A P-TOUCH OR OTHER LABEL MACHINE.

30. UNDERGROUND WARNING TAPE

    A. DESCRIPTION: PERMANENT, DETECTABLE, RED COLORED, CONTINUOUS PRINTED, POLYETHYLENE TAPE WITH SUITABLE WARNING LEGEND DESCRIBING BURIED ELECTRICAL LINES. TAPE SHALL BE MINIMUM 6 INCHES WIDE BY 4 MILS THICK. OTHER COLOR CODES INCLUDE:

SAFETY RED	ELECTRICAL AND LIGHTING CONDUIT AND CABLES
SAFETY YELLOW	GAS, OIL STEAM, PETROLEUM, OR GASEOUS MATERIALS
SAFETY ORANGE	TELEPHONE, ALARM, OR SIGNAL CABLES AND CONDUIT
SAFETY BLUE	POTABLE WATER OR IRRIGATION
SAFETY GREEN	SEWER OR DRAIN LINES

31. MANHOLE AND UNDERGROUND PULL BOXES COVER LABEL

    A. ALL MANHOLE AND UNDERGROUND PULL BOXES COVERS SHALL HAVE THE FOLLOWING CAST-IN OR BEAD WELDED AND GALVANIZED IDENTIFICATION LABEL PERMANENTLY AFFIXED TO THE EXTERIOR:

    "ELEC-LV" FOR ELECTRICAL POWER CIRCUITS 600 VOLTS OR LESS
    "ELEC-HV" FOR ELECTRICAL POWER CIRCUITS OVER 600 VOLTS
    "COMM" FOR COMMUNICATIONS CIRCUITS

    B. A CUSTOM 3-DIGIT NUMBER SHALL BE ADDED TO THE COVER. CONTACT THE ENGINEER FOR NUMBER ASSIGNMENT.

    C. THE MINIMUM LETTER HEIGHT SHALL BE ONE (1) INCH.

32. ALL EQUIPMENT MOUNTED ON ROOF FOR CONNECTION OF HVAC EQUIPMENT SHALL BE MOUNTED ON UNISTRUT STANDS UTILIZING APPROVED PITCH POCKETS, FLASHING, ETC.

33. EQUIPMENT OUTLETS, LIGHTING FIXTURES, CONDUIT, WIRE, AND CONNECTION METHODS IN HVAC AIR PLENUMS SHALL BE APPROVED FOR USE IN PLENUMS AND SHALL OFNROM TO THE "CEC."

34. THE EXACT LOCATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL ELEVATIONS, DETAILS, OR SECTIONS PRIOR TO INSTALLATION. ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE RECESSED IN WALLS UNLESS OTHERWISE NOTED. OUTLETS NOT INDICATED ON ARCHITECTURAL ELEVATIONS SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ROUGH-IN. UNLESS OTHERWISE NOTED, MOUNT ELECTRICAL DEVICES AT THE FOLLOWING HEIGHTS:

WAL SWITCH	+4'-0" MAX TO TOP OF BOX, SET VERTICALLY +1'-6" SET VERTICALLY (15" MIN. TO BOTTOM OF BOX)
CONVENIENCE RECEPTACLE	+1'-6" SET VERTICALLY (15" MIN. TO BOTTOM OF BOX)
TELEPHONE/DATA OUTLETS	+46" MAX TO TOP OF BOX OR
OUTLETS AT COUNTERS	+6" ABOVE COUNTERS WITHOUT SPLASHES OR CENTERED IN SPLASH SET HORIZONTALLY

35. REVIEW ARCHITECTURAL ELEVATIONS OF CASEWORK. OUTLETS MOUNTED ABOVE OR BELOW, OR ADJACENT TO CASEWORK SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS, PRIOR TO FINAL ROUGH-IN. ELECTRICAL DRAWINGS SHALL GOVERN NUMBER AND TYPE OF OUTLETS. HOWEVER, LOCATIONS SHALL BE AS INDICATED ON ARCHITECTURAL ELEVATIONS. PROVIDE CONDUIT, WIRES, AND OUTLETS FOR WORK REQUIRED IN CASEWORK INSTALLATIONS. REFERENCE ARCHITECTURAL DETAILS FOR METHOD OF ROUTING CONDUIT WITHIN CASEWORK CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CUT-OUTS IN TILE OR COUNTER SPLASHES WHERE RECEPTACLES, OUTLETS, ETC., OCCUR. PROVIDE BOX EXTENSIONS THROUGH ALL CASEWORK. FINISH FLUSH WITH FACE OF SPLASH, CABINET, ETC.

36. MOUNTING HEIGHTS OF ALL DEVICES AND EQUIPMENT ARE FROM FINISHED FLOOR TO TOP OF DEVICES AND EQUIPMENT UNLESS OTHERWISE NOTED. BOXES INSTALLED IN LOCATIONS NOT APPROVED BY THE ARCHITECT SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

37. REVIEW STRUCTURAL DRAWINGS FOR LOCATIONS AND SIZES OF FOOTINGS AND GRADE BEAMS. SEE ELECTRICAL DETAILS/PLANS FOR REQUIREMENTS FOR INSTALLATION OF CONDUIT THROUGH GRADE BEAMS.

38. WHERE OUTLETS OCCUR AT TACKABLE WALL PANELS OR OTHER WALL FINISHES, PROVIDE EXTENSION RINGS AS REQUIRED SO THAT NO SPACE WILL EXIST BETWEEN DEVICE PLATE AND BACKBOX, PER NEC 270.20, TYPICAL. SEE ARCHITECTURAL ELEVATIONS FOR WALL FINISHES AND LOCATIONS.

39. FOR CONNECTIONS TO EXHAUST FANS, PUMPS, COMPRESSORS, SPACE HEATERS, WATER HEATERS, AQUASTATS, SOLENOID VALVES, AND OTHER MECHANICAL EQUIPMENT AND FOR CONDUITS AND WIRE REQUIRED BUT NOT NECESSARILY SHOWN ON THESE DRAWINGS REFER TO MECHANICAL PLANS AND DETERMINE EXACT LOCATIONS UNDER DIRECTION OF HEATING AND VENTILATING CONTRACTOR.

40. ALL LINE VOLTAGE WIRING SHALL BE MINIMUM #12 AWG COPPER WITH THWN/THHN INSULATION AND IN ¾" DIAMETER CONDUIT MINIMUM. IN EACH CONDUIT WITHOUT CONDUCTORS, PROVIDE STRING OR PULL CORD WITH TAG IDENTIFYING LOCATION OF OPPOSITE END.

41. ROUTE EXPOSED CONDUIT AND CONDUIT ABOVE ACCESSIBLE CEILING SPACES PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.

42. CONDUCTORS SHALL BE BASED ON THE TERMINALS NOT TO EXCEED 60°C (140°F) FOR CONDUCTOR SIZE 14 THROUGH 1AWG OR 75°C (167°F) FOR CONDUCTOR SIZES OVER 1AWG.

43. ALL EXTERIOR TECHNOLOGY EQUIPMENT SHALL BE WEATHERPROOF.

44. ALL RACEWAYS SHALL BE CONCEALED FROM PUBLIC VIEW, UNLESS APPROVED BY ENGINEERS/ARCHITECT AND OWNER.

45. ALL IN-SERVICE CIRCUIT INCLUDING, BUT NOT LIMITED TO FIRE ALARM, SECURITY, AND TELEPHONE THAT MAYBE INTERRUPTED AS PART OF THIS WORK SHALL BE COORDINATED WITH THE OWNER PER SERVICE INTERRUPTION PROTOCOL DETAILED IN THE "SPECIFICATIONS."

46. ALL EQUIPMENT FASTENED IN PLACE OR CONNECTED BY PERMANENT WIRING METHOD SHALL BE GROUNDED.

47. PORTIONS OF RACEWAYS AND CABLE SLEEVES THAT ARE EXPOSED TO WIDELY DIFFERENT TEMPERATURES, SUCH AS COOLERS, FREEZERS OR SERVICE ENTRANCE CONDUCTORS, SHALL BE SEALED TO PREVENT CIRCULATION OF AIR AND/OR MOISTURE.

48. PROVIDE CABLE SUPPORTS ON VERTICAL RUNS PER CEC 300.19.

49. TECHNOLOGY SYSTEMS INSTALLATION.
    A. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN. REFER TO THE ADA GUIDELINES FOR ALL CONFIGURATION DETAILS ON THIS PAGE FOR ADDITIONAL INFORMATION.
    B. CONCEAL ALL CONDUIT IN WALLS, PARTITIONS, ABOVE CEILING, IN FLOOR SLAB, ETC. UNLESS OTHERWISE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS. CONDUIT IN MECHANICAL ROOMS AND STORAGE ROOMS WITHOUT CEILINGS MAY BE EXPOSED ON BUILDING STRUCTURE.
    C. BOXES LOCATED ON OPPOSITE SIDES OF NON-RATED WALLS SHALL BE OFFSET A MINIMUM OF 6" HORIZONTALLY. BOXES ON OPPOSITE SIDES OF FIRE RATED WALLS SHALL BE OFFSET A MINIMUM OF 24" HORIZONTALLY. "THRU-THE-WALL" BOXES SHALL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
    D. VERIFY ALL FURNITURE, MODULAR FURNITURE, AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL PLANS, ELEVATIONS, AND REVIEWED SHOP DRAWINGS. PRIOR TO MAKING THE ACTUAL TELECOMMUNICATIONS INSTALLATION, ADJUST OUTLETS OR CONNECTION LOCATIONS TO ACCOMMODATE FURNITURE AND/OR EQUIPMENT.
    E. TELECOMMUNICATIONS EQUIPMENT SHALL BE MOUNTED TO ALLOW ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT. ALL MOUNTING OF TELECOMMUNICATION DEVICES ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
    F. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
    G. ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
    H. REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED FOR THE EXECUTION OF TELECOMMUNICATIONS WORK THAT IS OUTSIDE THE CONTRACT LIMITS OF CONSTRUCTION. REPLACE CEILING TILES WITH IDENTICAL MATERIAL WHERE DAMAGED BY THIS CONTRACTOR.
    I. FLUSH MOUNT ALL TELECOMMUNICATION OUTLETS AT +18" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. OUTLETS MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED.

50. TECHNOLOGY OUTSIDE PLANT.
    A. THE LOCATION OF THE CONDUIT, HAND HOLES AND/OR MAINTENANCE HOLES SHOWN ARE APPROXIMATE LOCATIONS. FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIVATE AND/OR PUBLIC PRIOR TO THE INSTALLATION OF THE COMPONENT. FIELD COORDINATE THE FINAL LOCATION WITH THE OWNER AND ENGINEER PRIOR TO INSTALLATION.
    B. POTHOLING TO LOCATE EXISTING UNDERGROUND UTILITIES, IF APPLICABLE, SHALL BE INCLUDED WITHIN THE CONTRACTORS BID. CONTRACTOR IS RESPONSIBLE FOR FINAL PLACEMENT OF HAND HOLES AND/OR MAINTENANCE HOLES AND SHALL NOTIFY THE ENGINEER OF FINAL LOCATIONS PRIOR TO INSTALLATION.
    C. HAND HOLES AND/OR MAINTENANCE HOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE FRAME WILL BE FLUSH WITH THE GROUND LINE.
    D. REMOVAL AND REPLACEMENT OF THE EXISTING UNDERGROUND UTILITIES THAT ARE REQUIRED TO COMPLETE THE INSTALLATION SHALL BE INCLUDED WITHIN THE CONTRACTORS BID.
    E. CONTRACTOR SHALL INCLUDE WITHIN THEIR BID ANY REMOVAL AND REPLACEMENT OF EXISTING SIDEWALK, PAVEMENT, GRASS, SHRUBS, TREES, ETC. THAT WILL BE IMPACTED BY THE INSTALLATION OF THE NEW CONDUITS SHOWN ON THE DRAWINGS. IF TREES ARE REQUIRED TO BE REMOVED THE CONTRACTOR SHALL CONTACT THE OWNER AND DISCUSS OPTIONS PRIOR TO CUTTING DOWN ANY TREE OR SHRUB OVER 5' IN HEIGHT.
    F. NO ADDITIONAL COST SHALL BE APPROVED FOR PLACING CONDUITS DEEPER THAN REQUIRED MINIMUM DEPTH TO AVOID EXISTING UNDERGROUND UTILITIES.
    G. PROVIDE A MINIMUM OF 25'-0" SLACK LOOP WITHIN EACH HAND HAND HOLES AND/OR MAINTENANCE HOLES . SLACK LOOP SHALL BE SECURE SO COPPER OR FIBER IS NOT RESTING ON EARTH AFTER FINAL INSTALLATION.

TECHNOLOGY SYMBOL LIST

1

SYMBOL:	DESCRIPTION:	NOTE:
# # ▼	COMBINATION DATA/TELEPHONE OUTLETS	1.
AV ▽	AUDIO VIDEO OUTLETS	2.,5.,9.
#-TV ▽	COMBINATION DATA/TV OUTLETS	1.,2.,5.
WAP	WIRELESS ACCESS POINT DEVICE/ENCLOSURE (CEILING)	.
# ▽	INFORMATION OUTLET (WALL)	1.,2.,5.
W ▽	WALL PHONE	1.,2.,5.
AV# ◉	ELECTRICAL FLOOR BOX WITH AV	1., 3.
UPB1	UNDERGROUND PULL BOX TYPE1	7.
UPB2	UNDERGROUND PULL BOX TYPE2	8.
——	CONDUIT (CONCEALED IN OR ABOVE CEILING/HORIZONTAL SURFACE)	.
- - - -	UNDERGROUND/FLOOR CONDUIT	.
○——	CONDUIT UP	.
●——	CONDUIT DOWN	.
ς——	CONDUIT WITH CONTINUATION	.
[——]	CONDUIT SLEEVE	.
▭	FIRE RATED PATHWAY SLEEVE SYSTEM	.

GENERAL NOTES:

1. ALL SYMBOLS LISTED ABOVE ARE FOR REFERENCE ONLY. REFER TO PLANS AND LINE TYPE KEY FOR NEW, EXISTING TO REMAIN AND TO BE REMOVED ITEMS FOR ADDITIONAL INFORMATION. REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR FULL.
2. DESCRIPTIONS AND MANUFACTURERS OF ALL DEVICES.

TECHNOLOGY SYMBOL LIST NOTES:

1. "#" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION.
2. SYMBOL SUBSCRIPT INDICATES DEVICE TYPE.
3. INFORMATION OUTLET INSTALLED IN E.C. PROVIDED FLOOR BOX. "#" INDICATES DATA OUTLET FACEPLATE CONFIGURATION. REFER TO THE ELECTRICAL FLOOR PLANS FOR ADDITIONAL INFORMATION.
4. NOT USED.
5. EQUIPMENT/DEVICE HEIGHT AS INDICATED ON PLANS.
6. NOT USED.
7. REFER TO SPECIFICATION - EXTERIOR COMMUNICATION PATHWAYS AND DETAIL 3/T5.01 FOR UNDERGROUND COMMUNICATIONS PULL BOX.
8. REFER TO SPECIFICATION - EXTERIOR COMMUNICATION PATHWAYS FOR UNDERGROUND COMMUNICATIONS HANDHOLE.
9. PROVIDE AV OUTLET WITH (2) HDMI CONNECTORS AND CABLES. REFER TO FLOOR PLAN FOR DETAILS.

DRAWING INDEX

SHEET	DESCRIPTION
T0.00	TECHNOLOGY SYMBOLS, LEGENDS & GENERAL NOTES
T1.01	TECHNOLOGY SITE PLAN
T1.02	TECHNOLOGY RISER DIAGRAM
T2.01	TECHNOLOGY FLOOR PLANS
T4.00	TECHNOLOGY ENLARGMENT PLAN
T6.01	TECHNOLOGY DETAILS
T6.02	TECHNOLOGY DETAILS

TECHNOLOGY SCOPE OF WORK

1

1. PROVIDE COMPLETE TECHNOLOGY SYSTEMS EQUIPMENT WITH INSTALLATION AS REQUIRED FOR A COMPLETE WORKING SYSTEM.
2. PROVIDE NEW CONDUITS, J-HOOKS ABOVE ACCESSIBLE CEILING SPACES TO SUPPORT NEW TECHNOLOGY WIRING AS REQUIRED BETWEEN END DEVICES AND TECHNOLOGY HEADEND EQUIPMENT. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL WIRING WITH TERMINATION AND TESTING AS REQUIRED FOR A COMPLETE WORKING SYSTEM.
3. THE CONTRACTOR SHALL PROVIDE CONDUITS, UNDERGROUND PULL BOXES, AND WIRING AS REQUIRED FOR CONNECTIONS TO ALL SITE DEVICES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TECHNOLOGY EQUIPMENT/DEVICES MOUNTING AS NOTED PER THE DESIGN DRAWINGS.
5. THE CONTRACTOR SHALL PROVIDE NEW UNDERGROUND CONDUITS FOR NEW UTILITY SERVICE PROVIDER CONNECTION, AND COORDINATE WITH UTILITY SERVICE PROVIDER COMPANY FOR FINAL POINT OF CONNECTION PRIOR TO INSTALLATION.

APPLICABLE CODES

PARTIAL LIST OF APPLICABLE CODES AS OF JANUARY 1, 2022
2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

PARTIAL LIST OF APPLICABLE STANDARDS
NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE (CA AMENDED): 2016 EDITION
NFPA 720 STANDARD FOR THE INSTALLATION OF CARBON MONOXIDE DETECTION AND WARNING EQUIPMENT; 2016 EDITION
NFPA 80 STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2016 EDITION
UL 464 AUDIBLE SIGNALING DEVICES FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES; 2003 EDITION
UL 521 STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS; 1999 EDITION
UL 1971 STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED; 2002 EDITION (R2010)
ICC 300 STANDARD FOR BLEACHERS, FOLDING AND TELESCOPING SEATING AND GRANDSTANDS; 2017 EDITION

FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS REFER TO 2022 CBC (SFM) CHAPTER 35 AND CALIFORNIA FIRE CODE CHAPTER 80.

SEE CALIFORNIA BUILDING CODE, CHAPTER 35, FOR STATE OF CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS.

TECHNOLOGY ABBREVIATION KEY

ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
BFC	BELOW FINISHED CEILING
C	CONDUIT
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
G.C.	GENERAL CONTRACTOR
J-BOX	JUNCTION BOX
MPOE	MIMIMUM POINT OF ENTRY
MC	MAIN CROSS-CONNECT
S.C.	SECURITY CONTRACTOR
SIM	SIMILAR
T.C.	TECHNOLOGY CONTRACTOR
TR-#	TELECOMMUNICATIONS ROOM
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
+#	MOUNTING HEIGHT ABOVE FINISHED FLOOR

NOTES:

1. THIS DETAIL APPLIES TO MOUNTING OF ANY MECHANICAL AND ELECTRICAL DEVICE WHICH CONTAINS AN OPERABLE PART THAT IS ADJUSTABLE BY THE OCCUPANT. THIS DOES NOT APPLY TO SENSORS OR CONTROLS THAT ARE ONLY ADJUSTABLE THROUGH THE BUILDING AUTOMATION SYSTEM (IE: TEMPERATURE AND HUMIDITY SENSORS).

2. FORWARD OR FRONT APPROACH FOR DEVICES MOUNTED ABOVE COUNTERS ASSUMES THAT DIRECTLY BELOW THE DEVICE, THE COUNTER HAS A 30"MIN. WIDTH x27" HIGH x19" MIN. DEEP CLEAR OPENING. CBC SECTIONS 11B-306 & 11B-308.

APPROVED
DIV. OF THE STATE ARCHITECT
APP. 04-122251 INC:
REVIEWED FOR
SS ☑ FLS ☐ ACS ☑
DATE: 12/21/2023

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DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

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CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date
1	Revision 1	Date 1

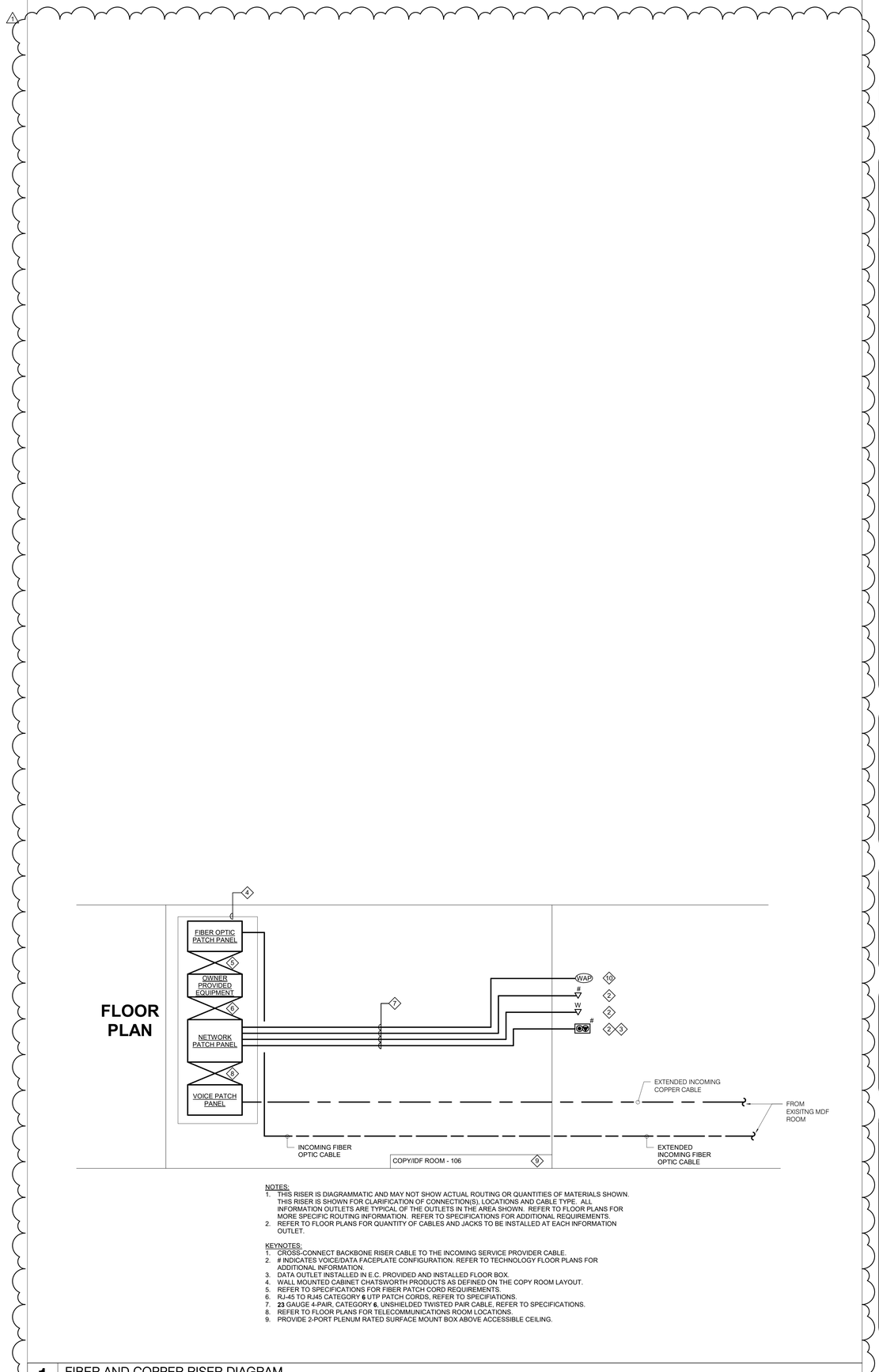
DSA Submittal

TECHNOLOGY SYMBOLS, LEGENDS & GENERAL NOTES

T0.00

T1.02 - TECHNOLOGY RISER DIAGRAM

0" 1"



FLOOR PLAN

NOTES:
1. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS SHOWN. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION(S), LOCATIONS AND CABLE TYPE. ALL INFORMATION OUTLETS ARE TYPICAL OF THE OUTLETS IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO FLOOR PLANS FOR QUANTITY OF CABLES AND JACKS TO BE INSTALLED AT EACH INFORMATION OUTLET.

KEYNOTES:
1. CROSS-CONNECT BACKBONE RISER CABLE TO THE INCOMING SERVICE PROVIDER CABLE.
2. # INDICATES VOICE/DATA FACEPLATE CONFIGURATION. REFER TO TECHNOLOGY FLOOR PLANS FOR ADDITIONAL INFORMATION.
3. DATA OUTLET INSTALLED IN E.C. PROVIDED AND INSTALLED FLOOR BOX.
4. WALL MOUNTED CABINET CHATSWORTH PRODUCTS AS DEFINED ON THE COPY ROOM LAYOUT.
5. REFER TO SPECIFICATIONS FOR FIBER PATCH CORD REQUIREMENTS.
6. RJ-45 TO RJ45 CATEGORY **6** UTP PATCH CORDS. REFER TO SPECIFIATIONS.
7. **23** GAUGE 4-PAIR, CATEGORY **6**, UNSHIELDED TWISTED PAIR CABLE, REFER TO SPECIFICATIONS.
8. REFER TO FLOOR PLANS FOR TELECOMMUNICATIONS ROOM LOCATIONS.
9. PROVIDE 2-PORT PLENUM RATED SURFACE MOUNT BOX ABOVE ACCESSIBLE CEILING.

1 FIBER AND COPPER RISER DIAGRAM
12" = 1'-0"

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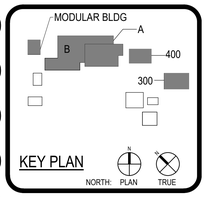
DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



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05-19-03	230010

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1	Revision 1	Date 1

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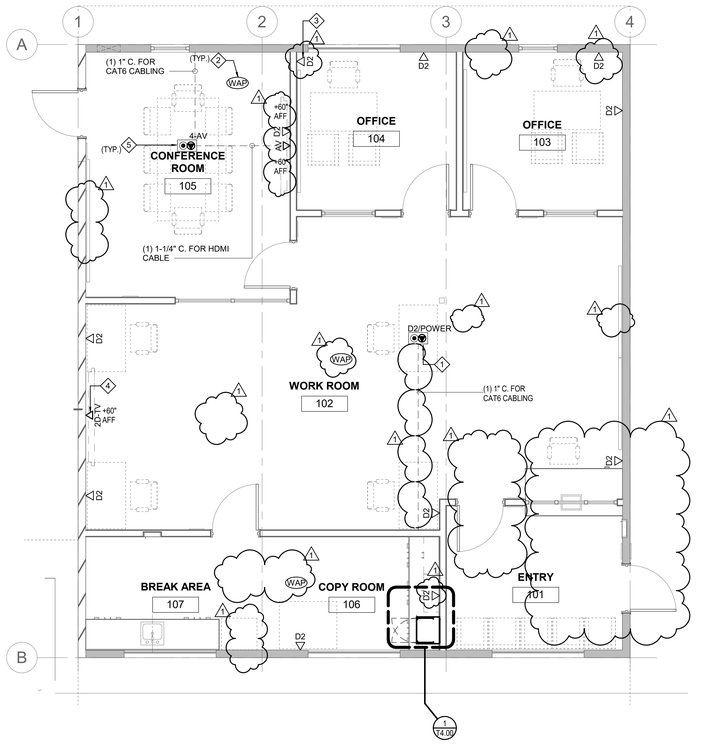
TECHNOLOGY RISER DIAGRAM

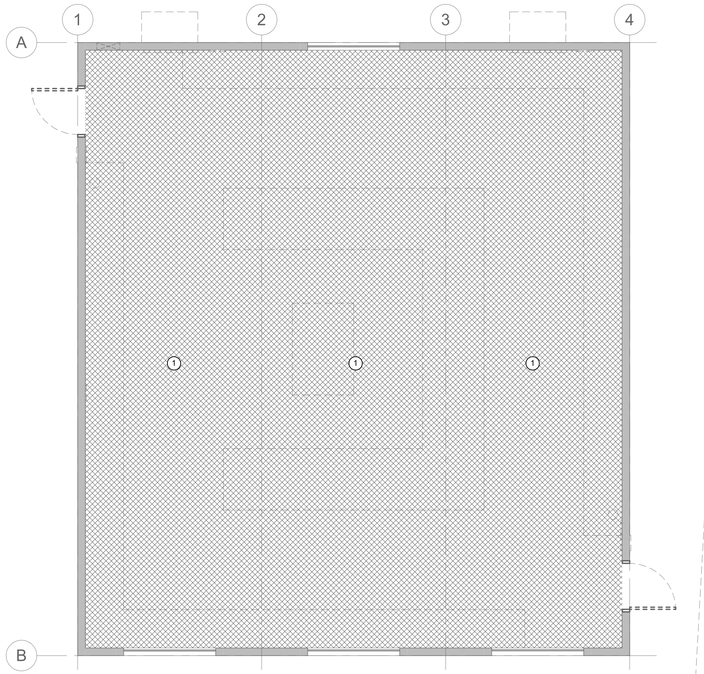
T1.02

0" 1"



2 PROPOSED FLOOR PLAN

1/4" = 1'-0"



1 DEMOLITION FLOOR PLAN

1/4" = 1'-0"

GENERAL NOTES

1- REFER TO DETAIL #1/T4.00 FOR TECHNOLOGY ENLARGED PLAN FOR COPY/IDF ROOM 106.

KEY NOTES

1. COMBINATION FLOOR BOX POWER/DATA. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS. PROVIDE (1) 1" C. WITH CAT6 CABLES FROM FLOOR BOX TO THE NEAREST WALL THEN STUB CONDUIT UP TO CEILING SPACE, USE J-HOOKS TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE TO THE IDF CABINET SERVING THIS AREA.TERMINATE ALL CABLES AS REQUIRED FOR A COMPLETE WORKING SYSTEM.

2. WIRELESS ACCESS POINT, CEILING MOUNT, OWNER FURNISHED AND CONTRACTOR INSTALLED "OFOI". CONTRACTOR TO PROVIDE DATA OUTLET FOR WIRELESS ACCESS POINT, (2) CAT6A CABLE, 2-PORT PLENUM RATED SURFACE MOUNT BOX ABOVE ACCESSIBLE CEILING AS INDICATED ON DRAWINGS. USE J-HOOKS TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE, FOR INACCESSIBLE CEILINGS SPACES NEW CONDUITS SHALL BE PROVIDED ABOVE CEILING TO THE IDF CABINET SERVING THIS AREA.CISCO WAP TO BE PROVIDED AS PER DISTRICT STANDARD.

3. PROVIDE A NEW WALL-MOUNTED DATA OUTLET. PROVIDE AND INSTALL DATA OUTLET IN A 4" SQUARE BACKBOX WITH A SINGLE-GANG PLASTER RING. INSTALL A (1) 1" EMT CONDUIT FROM BACKBOX UP TO ACCESSIBLE CEILING SPACE WITH (2) CAT6 CABLES (U.O.N.). THEN RUN CAT6 CABLES IN ACCESSIBLE CEILING SPACE USING J-HOOKS TO IDF CABINET SERVING THIS AREA. PROVIDE 4-PORT FACEPLATES AND RJ45 JACKS. PROVIDE REMOVABLE BLANK INSERTS FOR UNUSED PORTS (PANDUIT OR APPROVED EQUAL). THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL TERMINATION FOR A COMPLETE WORKING SYSTEM.REFER TO DETAILS#4/T6.01 FOR MORE INFORMATION

4. PROVIDE A NEW WALL-MOUNTED TV/DATA OUTLET BEHIND WALL MOUNTED TV. PROVIDE AND INSTALL OUTLET IN A 4" SQUARE BACKBOX WITH A SINGLE-GANG PLASTER RING. INSTALL A (1) 1" EMT CONDUIT FROM BACKBOX UP TO ACCESSIBLE CEILING SPACE FOR CAT6 CABLES, THEN RUN CABLES IN ACCESSIBLE CEILING SPACE USING J-HOOKS TO IDF CABINET SERVING THIS AREA. (PANDUIT OR APPROVED EQUAL). THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL TERMINATION FOR A COMPLETE WORKING SYSTEM.

5. COMBINATION FLOOR BOX POWER/DATA/AV. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS. PROVIDE (1) 1" C. WITH CAT6 CABLES FROM FLOOR BOX TO THE NEAREST WALL THEN STUB CONDUIT UP TO CEILING SPACE, USE J-HOOKS TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE TO THE IDF CABINET SERVING THIS AREA. PROVIDE (1) 1-1/4" C. FOR HDMI CABLE FROM FLOOR BOX TO AV OUTLET MOUNTED BEHIND TV. REFER TO KEYNOTE 1/T6.02 FOR DETAILS. TERMINATE ALL CABLES AS REQUIRED FOR A COMPLETE WORKING SYSTEM.REFER TO DETAILS#1/T6.02 FOR MORE INFORMATION.

DEMOLITION KEY NOTES

1. ALL EQUIPMENT AND DEVICES TO BE DISCONNECTED AND REMOVED AND ALL CABLES TO BE BACK TO SOURCE.

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DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9

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TECHNOLOGY FLOOR PLANS

T2.01

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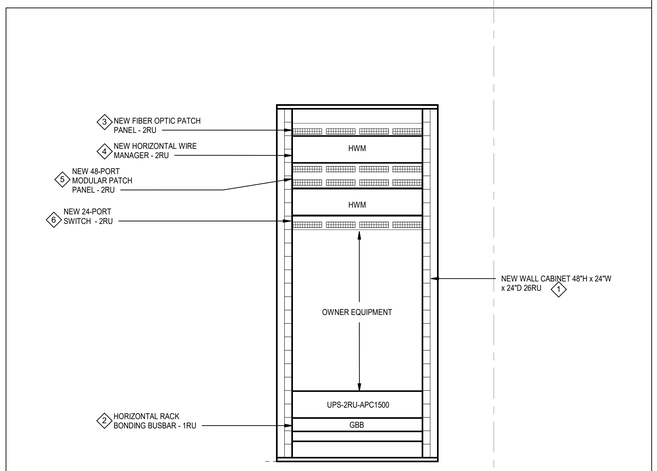
T4.00 - TECHNOLOGY ENLARGMENT PLAN

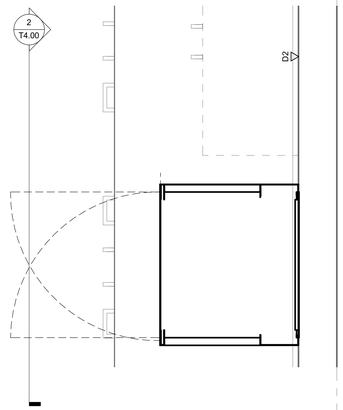
0" 1"

KEYED NOTES

1. PROVIDE WALL MOUNTED IDF CABINET CUBE-iT PART NUMBER 11900-E36 Wall-Mount Cabinet , (36"H x 24"W x 24"D (910 mm x 610 mm x 610 mm); 19U. LOCKABLE FRONT VENTED DOOR, LOCKABLE REAR VENTED DOOR, CHATSWORTH PRODUCTS PART NUMBER "11900-748" OR APPROVED EQUAL.
2. PROVIDE RACK-MOUNT GROUND BAR. WITH FLAT WASHER AND GROUND BAR LUG.
CHATSWORTH PRODUCTS "10610-019" OR APPROVED EQUAL.
3. PROVIDE OPTICAL FIBER DISTRIBUTION PATCH PANEL, RACK MOUNT. 24 FIBER MAXIMUM CAPACITY, FRONT LOCKING DOOR, SLIDE OUT RAILS TO FACILITATE FRONT ACCESS, JUMPER TROUGHS IN CONNECTOR PANELS TO REDUCE MOUNTING SPACE.
PROVIDE WITH CLAMP AND GROUNDING KIT, COUPLING PANEL(S), JUMPERS, AND REAR MOUNTED CLOSET HOUSING PANEL(S). REFER TO SPECIFICATIONS PANDUIT PRODUCTS "FLEXQUPN06" OR APPROVED EQUAL.
4. PROVIDE HORIZONTAL WIRE MANAGEMENT, DUAL SIDED MANAGER 2 RACK UNITES, SHALL BE INSTALLED ABOVE AND BELOW EACH PATCH PANEL. LIGHTWEIGHT PLASTIC CONSTRUCTION. PANDUIT PRODUCTS "WMP1E" OR APPROVED EQUAL.
5. PROVIDE COPPER PATCH PANEL, 48 MODULAR RJ-45 TERMINATIONS, MOUNTS DIRECTLY TO MDF/IDF CABINET, PORT IDENTIFICATION NUMBERS AND LABELS, U.L. LISTED. PANDUIT PRODUCTS "DP48688TGY" OR APPROVED EQUAL.
6. NETWORK SWITCHES BY OWNER "OFCI". THE EXACT LOCATION AND FINAL RACK ELEVATION SHALL BE COORDINATED AND APPROVED BY THE OWNER IT DEPARTMENT PRIOR TO INSTALLATION.



2 COPY/IDF ROOM #106 - RACK ELEVATION
1 1/2" = 1'-0"



1 COPY/IDF ROOM #106 - ROOM EQUIPMENT
1 1/2" = 1'-0"

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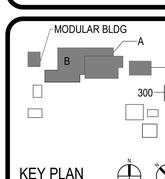

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TECHNOLOGY ENLARGMENT PLAN

T4.00

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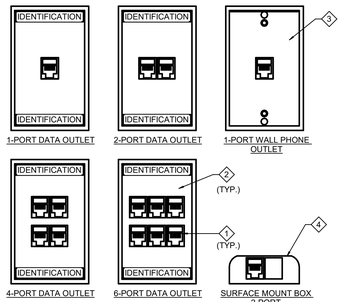
0" 1"



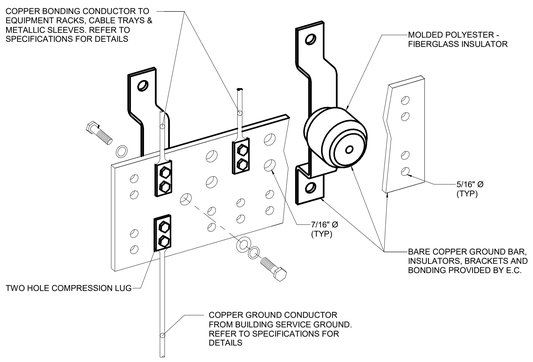
NOTES:

1. REFER TO SPECIFICATION SECTION 27 10 00 - HORIZONTAL CABLING REQUIREMENTS FOR CATEGORY CABLE PERFORMANCE REQUIREMENTS.
2. REFER TO SPECIFICATION SECTION 27 05 53 - IDENTIFICATION FOR DATA OUTLET PORT IDENTIFICATION.
3. DATA OUTLET SHALL BE INSTALL IN A 4" SQUARE BACKBOX WITH A SINGLE GANG PLASTER RING. REFER TO DETAIL 1/T5.01 TECHNOLOGY ROUGH-IN MOUNTING DETAILS FOR CONDUIT SIZE.
4. PROVIDE REMOVABLE BLANK INSERTS FOR UNUSED PORTS.
5. USE T568B WIRING SCHEME TO TERMINATE THE TWISTED-PAIR CABLE ONTO THE CONNECTOR INTERFACE.
6. WHERE APPLIES PER PLANS, PROVIDE AV OUTLET WITH HDMI CONNECTION PER BELOW.
   - PANDUIT COVER PLATE: CBEIWY OR APPROVED EQUAL
   - PANDUIT JACK:(HDMI 2.0) CMHDMIW OR APPROVED EQUAL
   - PANDUIT MODULAR INSERT: CHF2IW-X OR APPROVED EQUAL

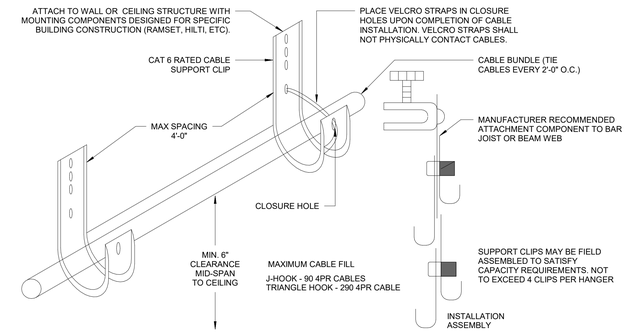
KEYNOTE NOTES:

1. PROVIDE CAT6 RJ-45 JACKS, 8-POSITION, 8-CONTACT (8P8C), COLOR BLUE FOR DATA, WHITE FOR VOICE, RED FOR SECURITY.
   - PANDUIT PRODUCTS "CJ688TGBU", COMMSCOPE "MGS400-318" OR APPROVED EQUAL
2. PROVIDE 1,2,4,6-PORT FACEPLATE AS INDICATED ON DRAWINGS.
   - 1-PORT: PANDUIT PRODUCTS "CFPE1WHY", COMMSCOPE OR APPROVED EQUAL.
   - 2-PORT: PANDUIT PRODUCTS "CFPE2WHY", COMMSCOPE OR APPROVED EQUAL.
   - 4-PORT: PANDUIT PRODUCTS "CFPE4WHY", COMMSCOPE OR APPROVED EQUAL.
   - 6-PORT: PANDUIT PRODUCTS "CFPE6WHY", COMMSCOPE OR APPROVED EQUAL.
3. PROVIDE STAINLESS STEEL 1-PORT FACEPLATE FOR OUTLETS INDICATED WITH "W" ON DRAWINGS. "W" INDICATES WALL PHONE MOUNTED AT +48" AFF FOR WALL HUNG PHONE.
   - 1-PORT: WALL PHONE "W" PANDUIT PRODUCTS "KWP6PY", COMMSCOPE OR APPROVED EQUAL.
4. PROVIDE SURFACE MOUNT BOX, PLENUM RATED, MOUNTED ABOVE CEILING FOR CONNECTIONS TO WIRELESS ACCESS POINTS.
   - 2-PORT: PANDUIT PRODUCTS "CBX2WH-AY", COMMSCOPE OR APPROVED EQUAL.

5 DATA OUTLETS CONFIGURATION DETAIL
12" = 1'-0"



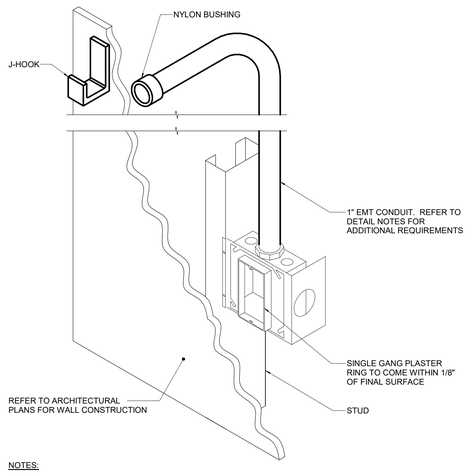
3 BONDING BUS BAR DETAIL
12" = 1'-0"



NOTES:

1. SUPPORT CLIPS MUST SPECIFICALLY BE DESIGNED AND RATED FOR USE IN CATEGORY 6 CABLE INSTALLATION.
2. INSTALL APPROPRIATE SIZE AND QUANTITY SUPPORT CLIPS FOR CABLES TO BE SUPPORTED + 30% EXPANSION.
3. USE MANUFACTURERS RECOMMENDED MOUNTING HARDWARE, APPROPRIATE FOR ATTACHING TO WALL OR CEILING STRUCTURES.
4. CEILING TILE TEE GRID, DROP WIRES AND HVAC EQUIPMENT SHALL NOT BE USED AS MOUNTING POINTS.
5. SECURE CABLE IN SUPPORT CLIPS AS PER MANUFACTURERS RECOMMENDATION FOR CAT-6 CABLE. DO NOT EXCEED INDICATED FILL RATIOS.
6. CABLE SUPPORT CLIPS SHALL BE SPACED A MAXIMUM OF 4' APART.
7. INSTALL TRIANGULAR METAL BRACKETS (NOT SHOWN) FOR HIGH STATION CABLE CAPACITY REQUIREMENTS.
8. THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT REPRESENT ALL CONDITIONS OF J-HOOK INSTALLATION REQUIREMENTS (APPLY THIS DETAIL WHERE OCCURS). REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.

1 TECHNOLOGY J-HOOK PATHWAY DETAIL
12" = 1'-0"



NOTES:

1. 1" EMT CONDUIT SHALL STUB UP TO NEAREST ACCESSIBLE CEILING AND TERMINATE ORIENTED HORIZONTALLY AT THE HEIGHT OF THE ASSOCIATED J-HOOK ROUTE. CONDUIT RUN SHALL NOT CONTAIN MORE THAN 180 DEGREES OF BEND BETWEEN ACCESSIBLE JUNCTION BOXES OR BETWEEN JUNCTION BOX AND END OF CONDUIT.
2. WHERE CONDUIT STUB IS LOCATED IN A ROOM WITH AN ACCESSIBLE CEILING AND IS NOT REQUIRED TO RUN TO CABLE ROUTE LOCATED OUTSIDE THE ROOM, STUB MUST TERMINATE ABOVE THE ACCESSIBLE CEILING WITH A 90-DEGREE BEND AT THE TOP ORIENTED IN TO THE ROOM AT THE HEIGHT OF THE ASSOCIATED J-HOOK ROUTE IN THE ROOM.
3. ALL STUBS MUST BE FITTED WITH A NYLON BUSHING ON EACH END OF THE CONDUIT.
4. INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR TECHNOLOGY ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR FIRESTOP REQUIREMENTS.

4 TECHNOLOGY ROUGH-IN MOUNTING DETAIL
12" = 1'-0"

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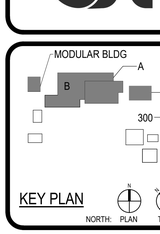

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TECHNOLOGY DETAILS

T6.01

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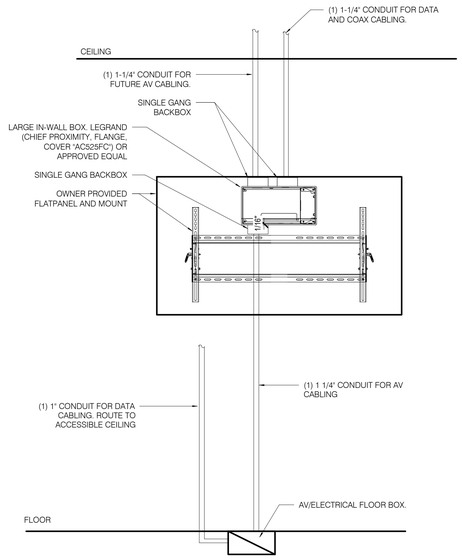
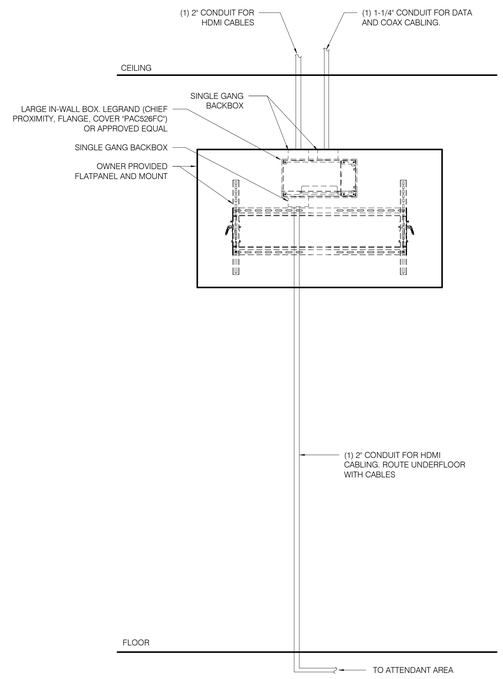


NOTES:

1. CONFIGURATIONS SHOWN IN THE DETAIL ABOVE ARE DIAGRAMMATIC, INTENDED TO DESCRIBE THE ROUGH-IN REQUIREMENTS OF A TYPICAL FLAT PANEL DISPLAY. DETAILS ABOVE MAY NOT ACCURATELY REPRESENT DISPLAY SIZE, MOUNTING HEIGHT, OR PHYSICAL RELATIONSHIP. REFER TO ARCHITECTURAL ELEVATIONS FOR COMPLETE INFORMATION AND MIRROR THE DETAIL AS REQUIRED.
2. ROUGH-IN SHOWN IN THE DETAIL ABOVE REPRESENTS THE MINIMUM REQUIREMENTS FOR THE DISPLAY UNLESS OTHERWISE NOTED. COORDINATE EXACT REQUIREMENTS OF THE SELECTED DEVICES AND CABLING PRIOR TO INSTALLATION.
3. ALL CABLING IN WALLS SHALL BE INSTALLED IN EMT CONDUIT. CABLING ROUTED HORIZONTALLY ABOVE THE ACCESSIBLE CEILING MAY BE INSTALLED FREE-AIR WITH CABLING PROPERLY RATED FOR THE CEILING ENVIRONMENT.
4. INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC.

2 TYPICAL AV CONFERENCE ROOM DETAIL
1" = 1'-0"



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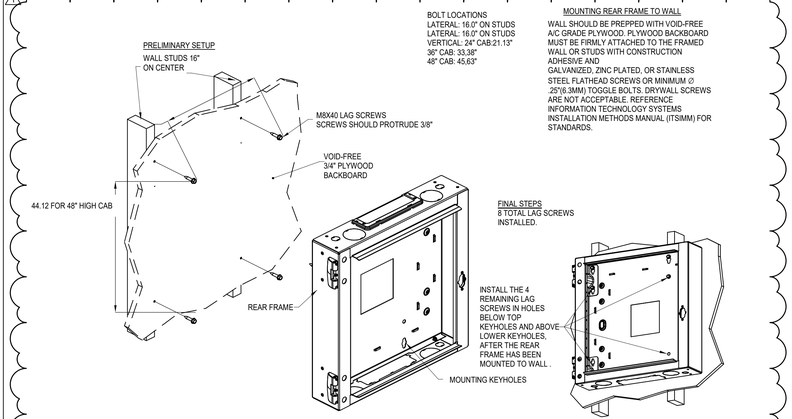
4. INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC.

1 WALL DISPLAYS ROUGH-IN REQUIREMENT DETAIL
1" = 1'-0"



NOTES:

1. THE REAR FRAME MUST BE SECURED TO WALL USING ALL 8 LAG SCREWS PROVIDED. THE SCREWS ARE INTENDED TO GO THROUGH 3/4" PLYWOOD BACK-BOARD AND THEN INTO WOOD WALL STUDS FOR MASONRY SURFACE, THE INSTALLER MUST PROVIDE APPROPRIATE HARDWARE.

STEP 1. INSURE THAT THE WALL OR MOUNTING SURFACE HAS SUFFICIENT STRENGTH TO SUPPORT THE CABINET AND THE EXPECTED CABINET PAYLOAD. THE MOUNTING SURFACE MUST ALSO BE FLAT AND EXTEND BEYOND THE TOP, BOTTOM, LEFT, AND RIGHT EDGES OF THE REAR PANEL.

STEP 2. DRILL 5/32" PILOT HOLES FOR THE FOUR M8X40mm LAG SCREWS TO THE DIMENSIONS SHOWN ON THE DRAWING.
THE SCREWS SHOULD GO DIRECTLY INTO THE WALL STUDS.

STEP 3. INSTALL THE LAG SCREWS INTO THE HOLES. THE SCREW HEAD SHOULD PROTRUDE ABOUT 3/8" FROM THE WALL.

STEP 4. MOUNT THE REAR FRAME TO THE WALL BY HOOKING THE UPPER AND LOWER KEYHOLES OVER THE SCREWS. TIGHTEN THE SCREWS SECURELY.

STEP 5. INSTALL THE REMAINING 4 LAG SCREWS IN THE HOLES BELOW THE TOP TWO KEYHOLES, AND ABOVE LOWER KEYHOLES.

3 WALL CABINET MOUNTING DETAILS
.12" = 1'-0"

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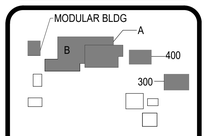
NORCO, CA 92860

DSA Submittal

DSA APPL NO.: 04-121956 DSA FILE NO.: 33-9



KEY PLAN
NORTH: PLAN TRUE

Consultant

REGISTERED PROFESSIONAL ENGINEER
RONALD C DELA CRUZ
No. E 23576
Exp. 09-30-2025
ELECTRICAL
STATE OF CALIFORNIA

Architect

CLIENT
CORONA-NORCO USD

DATE	PROJECT NUMBER
05-19-03	230010

REVISIONS

No.	Description	Date
1	Revision 1	Date 1

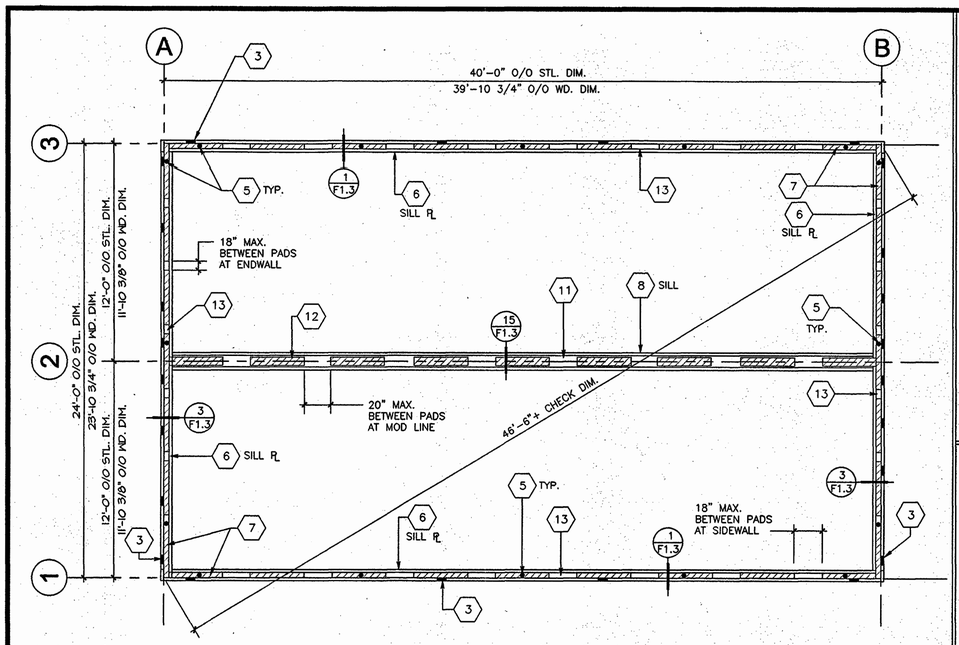
DSA Submittal

TECHNOLOGY DETAILS

T6.02

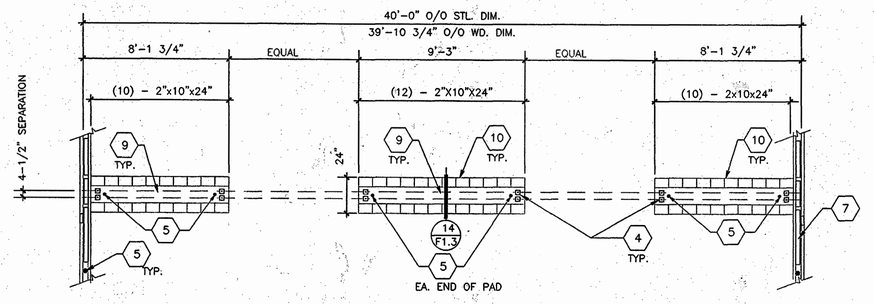
FILE PATH: Z:\Projects\...
11/28/2023 10:12:50 AM

Use the details and construction notes for 36' x 40' with a 50 lbs
L.L., with 80 mile wind for tie plate schedules



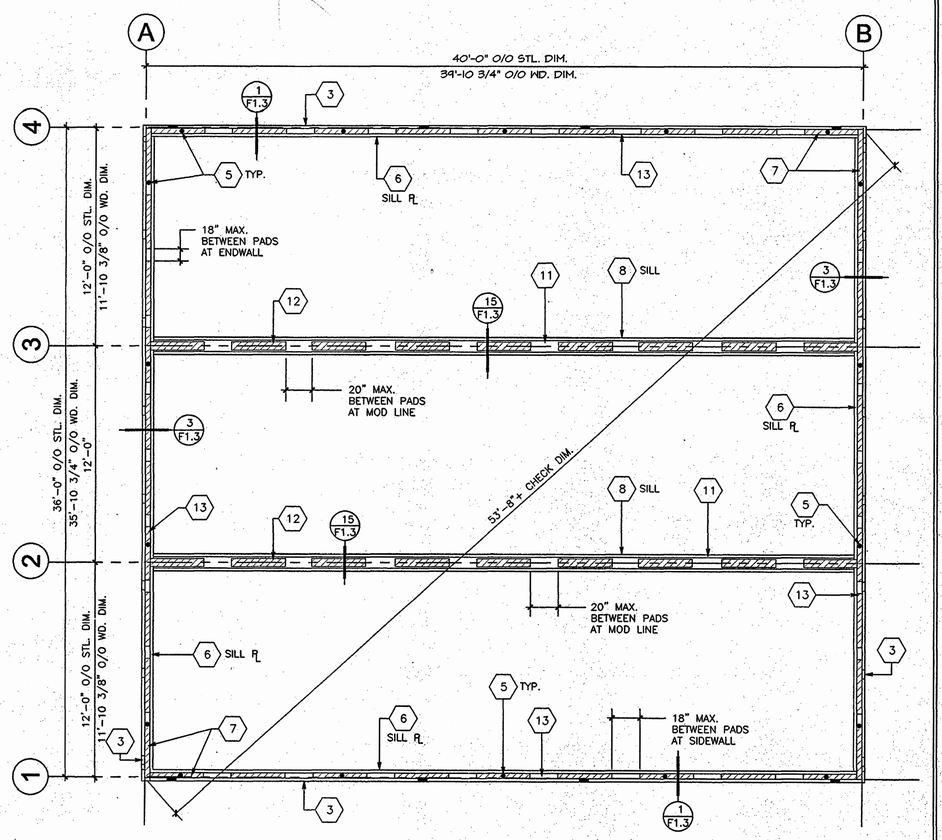
FOUNDATION PLAN (24x40)

SCALE: 1/4" = 1'-0" (50 PSF LIVE LOAD)



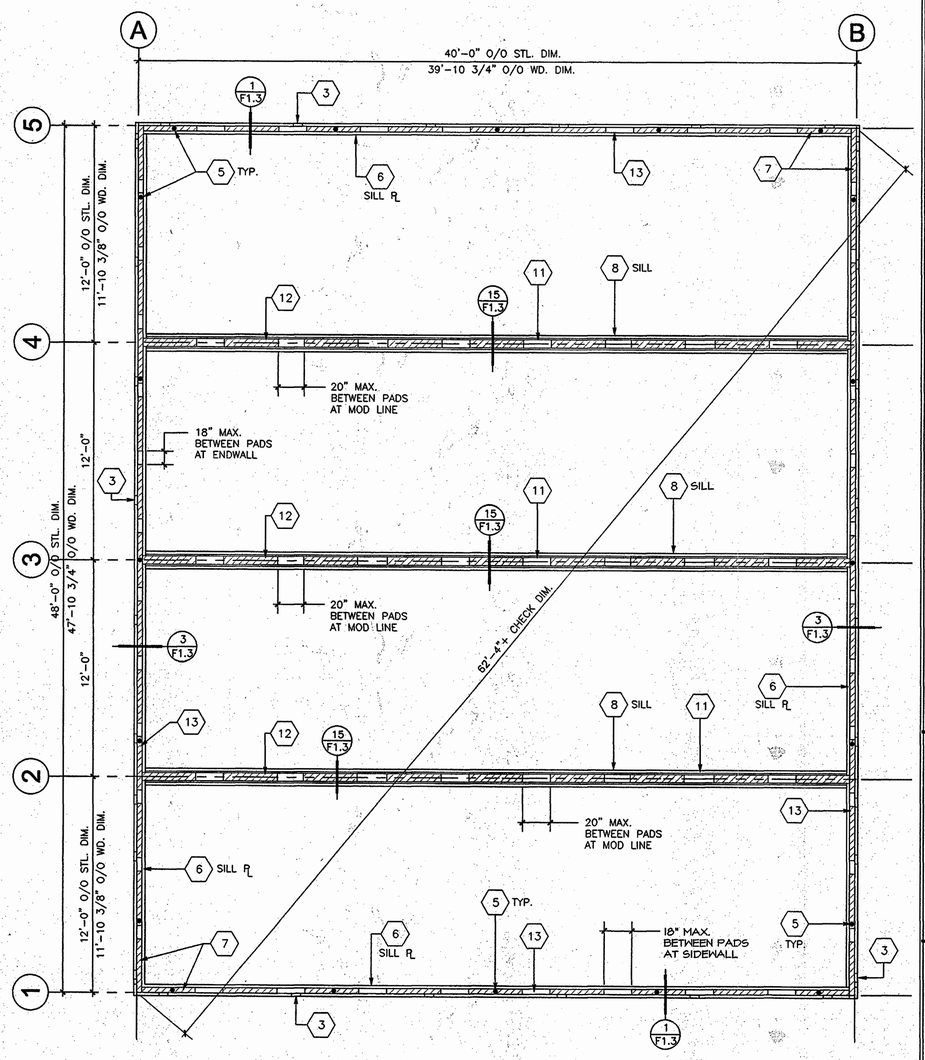
FOUNDATION PLAN @ ADJACENT BUILDING

SCALE: 1/4" = 1'-0" (50 PSF LIVE LOAD)



FOUNDATION PLAN (36x40)

SCALE: 1/4" = 1'-0" (50 PSF LIVE LOAD)



FOUNDATION PLAN (48x40)

SCALE: 1/4" = 1'-0" (50 PSF LIVE LOAD)

KEYNOTES AS APPLICABLE

1. MAXIMUM SOIL BEARING PRESSURE – 1000 P.S.F.
2. ALL FOUNDATION LUMBER SHALL BE HEM FIR #2
   ALL LUMBER IN CONTACT WITH GRADE SHALL BE STAMPED "FOR GROUND CONTACT".
   ALL FOUNDATION NAILS SHALL BE CORROSION RESISTANT PER U.B.C. STANDARD 25.1717.
3. TIE PLATE – 12"x 6"x 10Ga. PLATE W/ (8) 5/16" HOLES AS SHOWN FOR (4) 1/4"x 3/4" LONG SELF TAP SCREWS INTO CHANNEL & (4) 1/4"x 3" LAG BOLTS. SEE TIE PLATE SCH. AND SHEET F1.3, FOR MORE INFORMATION
4. USE 6– 5/8"ø x4" LAGS @ EACH BLDG. & NAIL PLATE TO PLATE W/ 2– 16d BOX @ 4" O.C.
5. DRIVE 1" DIA. x 15" G.I. PIPE @ 10'–0" O.C. MAX. AND WITHIN 3' OF CORNERS. DRILL SILL PLATE 1–1/4" MAX. PIPE MAY BE DRIVEN AT MAX. 45 ANGLE TO VERTICAL.
6. P.T.H.F. SILL PLATE. PLATE SPLICES (SEE DET.1 SHEET F1.3) SHALL OCCUR AT CENTER OF BLOCK LOCATIONS.
7. BLOCKS. NAIL BLOCKS TOGETHER WITH 16d BOX NAILS @ 4" O.C. AND (2) 16d NAILS AT EACH END (SEE DET.1 SHEET F1.3)
8. P.T.H.F. SILL PLATE. PLATE SPLICES SHALL OCCUR AT CENTER OF BLOCK LOCATIONS. (SEE DET. 15 SHEET F1.3)
9. 24x40:
   70 & 80 M.P.H.= CONT. 2x12x(SEE PLAN)– NAIL PLATE TO PLATE WITH (2) 16d BOX NAILS @ EACH END @ 6" O.C.
   36x40:
   70 & 80 M.P.H.= CONT. 2x12x(SEE PLAN)– NAIL PLATE TO PLATE WITH (2) 16d BOX NAILS @ EACH END @ 5" O.C.
   48x40:
   70 & 80 M.P.H.= CONT. 2x12x(SEE PLAN)– NAIL PLATE TO PLATE W/ (2) 16d BOX NAILS @ EACH END @ 4" O/C.
10. SILL PADS. P.T.H.F. (SEE PLAN FOR QUANTITY 10 AT ENDS & 12 AT INTERIOR) (SEE DET. 14 SHEET F1.3)
11. H.F. PLATE. PLATE SPLICES SHALL OCCUR AT CENTER OF BLOCK LOCATIONS. (SEE DET. 15 SHEET F1.3)
12. BLOCKS. NAIL BLOCKS TOGETHER WITH 16d BOX NAILS @ 4" O.C. AND (2) 16d NAILS AT EACH END. (SEE DET. 15 SHEET F1.3)
13. INTERNAIL TO EACH PAD WITH 16d BOX NAILS @ 5" O.C. STAGGERED. (SEE DET. 1 SHEET F1.3)

TIE PLATE SCHEDULES

		70 MILE WIND		80 MILE WIND	
	FLR. LOAD	END WALLS	SIDE WALLS	END WALLS	SIDE WALLS
24'x40'	50 lbs.	6 PLATES	4 PLATES	8 PLATES	4 PLATES
36'x40'	FLR. LOAD				
	50 lbs.	8 PLATES	6 PLATES	8 PLATES	6 PLATES
48'x40'	FLR. LOAD				
	50 lbs.	8 PLATES	6 PLATES	8 PLATES	8 PLATES

24' X 40" VENTILATION CALC.

BUILDING SQUARE FOOTAGE – 24' X 40' = 960 SF

REQUIRED VENTILATION – 1 SF. / 150 SF.
960 / 150 = 6.4 SF VENT REQUIRED

SIZE OF VENT TO BE USED AT SIDE WALLS– 3"x 18" = 54 SQ IN.
54 / 144 = 0.375 SQ. FT.

SIZE OF VENT TO BE USED AT END WALLS– 3"x 6" = 18 SQ IN.
18 / 144 = 0.125 SQ. FT.

16 VENTS PROVIDED @ SIDE WALLS 16x0.375 =6 SF
12 VENTS PROVIDED @ END WALLS 12x0.125 =1.5
TOTAL VENTILATION PROVIDED 7.5 SF > 6.4 SF

36' X 40' VENTILATION CALC.

BUILDING SQUARE FOOTAGE – 36' X 40' = 1,440 SF

REQUIRED VENTILATION – 1 SF. / 150 SF.
1,440 / 150 = 9.6 SF VENT REQUIRED

SIZE OF VENT TO BE USED AT SIDE WALLS– 4 ½"x 18" = 81 SQ IN.
81 / 144 = 0.5625 SQ. FT.

SIZE OF VENT TO BE USED AT END WALLS– 4 ½"x 8" = 36 SQ IN.
36 / 144 = 0.25 SQ. FT.

16 VENTS PROVIDED @ SIDE WALLS 16x0.5625 =9 SF
18 VENTS PROVIDED @ END WALLS 18x0.25 =4.5
TOTAL VENTILATION PROVIDED 13.5 SF > 9.6 SF

48' X 40' VENTILATION CALC.

BUILDING SQUARE FOOTAGE – 48 X 40'' = 1,920 SF

REQUIRED VENTILATION – 1 SF. / 150 SF.
1,920 / 150 = 12.8 SF VENT REQUIRED

SIZE OF VENT TO BE USED AT SIDE WALLS– 4 ½"x 18" = 81 SQ IN.
81 / 144 = 0.5625 SQ. FT.

SIZE OF VENT TO BE USED AT END WALLS– 4 ½"x 9" = 40.5 SQ IN.
40.5 / 144 = 0.28125 SQ. FT.

16 VENTS PROVIDED @ SIDE WALLS 16x0.5625 =9 SF
24 VENTS PROVIDED @ END WALLS 24x0.28125 =6.75
TOTAL VENTILATION PROVIDED 15.75 SF > 12.8 SF

DSA - PC

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 - 104816
AC. FLS SS
DATE 4/30/05

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
JAMES T. SIMPSON
No. 3602
CIVIL STRUCTURAL
STATE OF CALIFORNIA
LICENSE EXPIRES 6-30-2004

17300 Perris Blvd.
Moreno Valley, Ca. 92551
Phone (909) 571–2200
www.aurora–modular.com

AURORA MODULAR INDUSTRIES

FOUNDATION PLANS (WOOD 50 LB. L.L.)

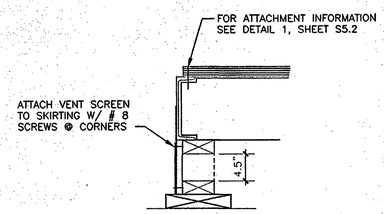
BY DATE
CHECKED AM#

F1.0

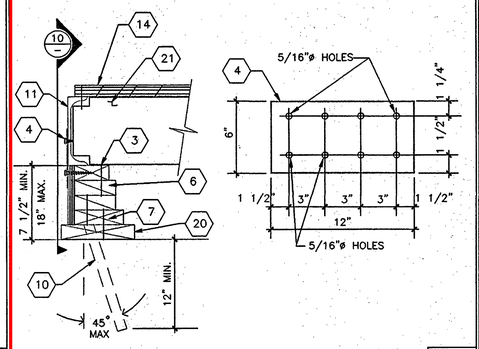
SHEET

Use the details and construction notes for 36' x 40' with a 50 lbs L.L., with 80 mile wind for tie plate schedules

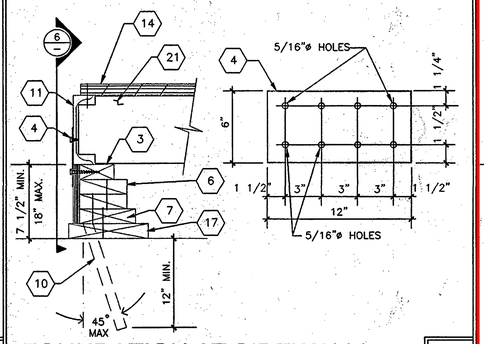
TYPICAL DETAILS



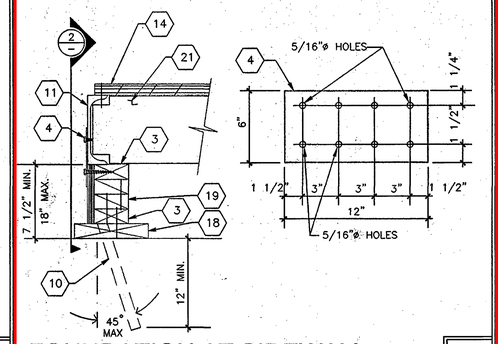
FOUNDATION VENTING — SCALE 1 1/2"=1'-0" — 13



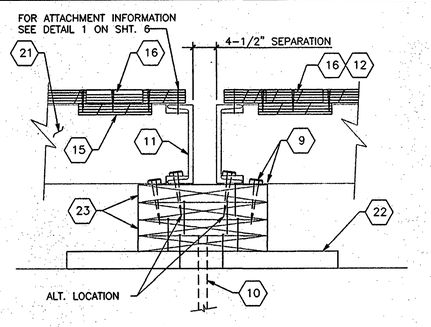
FOUNDATION AT SIDEWALL — SCALE 1 1/2"=1'-0" — 9



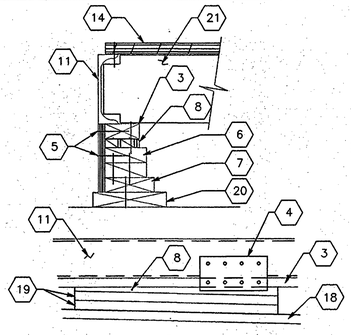
FOUNDATION AT SIDEWALL — SCALE 1 1/2"=1'-0" — 5



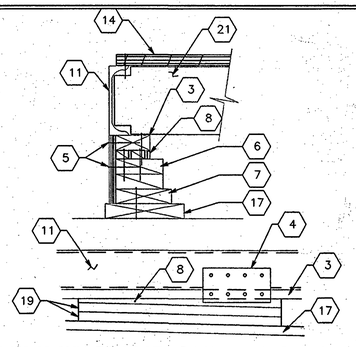
FOUNDATION AT SIDEWALL — SCALE 1 1/2"=1'-0" — 1



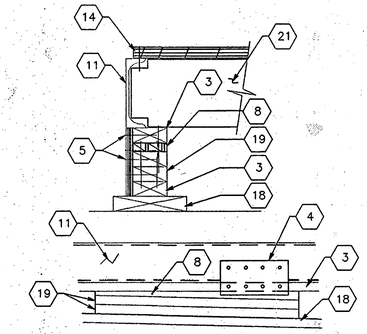
COMMON PAD — 14



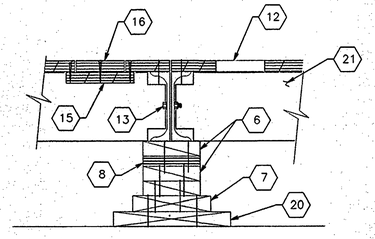
SHIMMING AND SKIRTING (SIDEWALL SHOWN) — 10



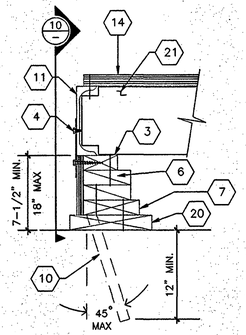
SHIMMING AND SKIRTING (SIDEWALL SHOWN) — 6



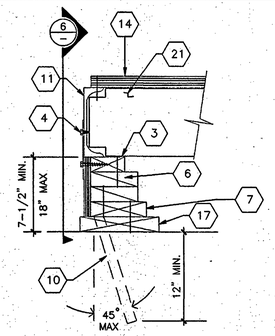
SHIMMING AND SKIRTING (SIDEWALL SHOWN) — 2



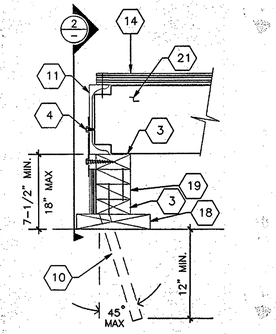
FOUNDATION AT MOD LINE — 15



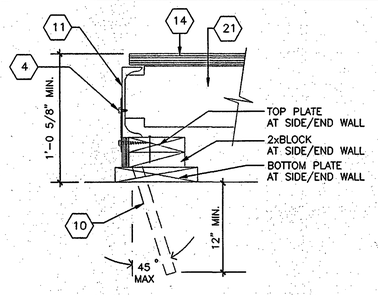
FOUNDATION AT ENDWALL — 11



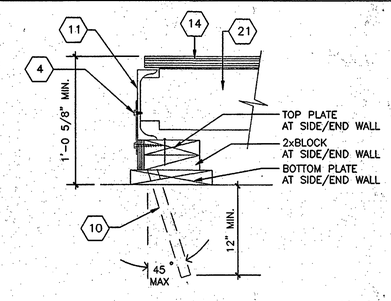
FOUNDATION AT ENDWALL — 7



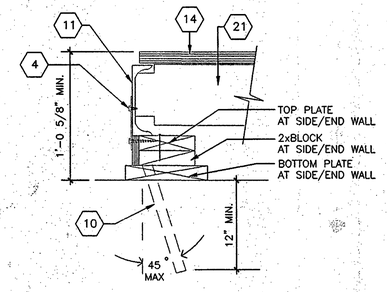
FOUNDATION AT ENDWALL — 3



MIN. FOUNDATION SET — 12



MIN. FOUNDATION SET — 8



MIN. FOUNDATION SET — 4

KEYNOTES

1. MAXIMUM SOIL BEARING PRESSURE – 1000 P.S.F.
2. ALL FOUNDATION LUMBER SHALL BE HEM FIR #2 ALL LUMBER IN CONTACT WITH GRADE SHALL BE STAMPED "FOR GROUND CONTACT".
   ALL FOUNDATION NAILS SHALL BE CORROSION RESISTANT PER U.B.C. STANDARD 25.1717.
3. 2"x4"x CONTINUOUS. INTERNAIL TO EACH PAD WITH 16d BOX NAILS @ 5" O.C. STAGGERED.
4. TIE PLATE – 12"x 6"x 10Go. PLATE W/ (8) 5/16" HOLES AS SHOWN FOR (4) 1/4"x 3/4" LONG SELF TAP SCREWS INTO CHANNEL & (4) 1/4"x 3" LAG BOLTS.
5. 5/8" PLYWOOD PERIMETER SKIRTING. NAIL TO FOUNDATION PADS WITH 8d BOX NAILS @ 12" O.C. TOP AND BOTTOM.
6. 2"x6"x 3'-0" LONG BLOCKS. NAIL BLOCKS TOGETHER W/ (2) 16d NAILS AT EACH END & 16d BOX NAILS @ 4" O.C. AT 50 PSF + 20 LBS. PARTITIONS FLOOR LOAD & @ 2 1/2" O.C. AT 125 PSF FLOOR LOAD.
7. CONTINUOUS 2"x'S (SEE PLAN) H.F. PLATE. PLT. SPLICES SHALL OCCUR AT CENTER OF 2"x6" BLOCK LOCATION. NAIL W/ 16d BOX NAILS @ 4" O.C. AT 50 PSF + 20 LBS. PARTITIONS FLOOR LOAD AND @ 2 1/2" O.C. AT 125 PSF FLOOR LOAD.
8. PLYWOOD OR WOOD SHIM – MIN. 8" LONG; MAX. 16" BETWEEN SHIMS. NAIL TO PLATES WITH MIN (3) 16d BOX NAILS PER SHIM. MAX. 1-1/2" SHIM HEIGHT AT ANY LOCATION.
9. USE 6– 5/8"ø x4" LAGS @ EACH BLDG. & NAIL PLATE TO PLATE TO PLATE W/ 2– 16d BOX @ 4" O.C.
10. DRIVE 1"ø x 15" G.I. PIPE @ 10'-0" O.C. MAX. DRILL SILL PLATE 1-1/4" MAX. PIPE MAY BE DRIVEN AT MAX. 45 ANGLE TO VERTICAL.
11. STEEL FLOOR CHANNEL.
12. 5" ø ACCESS HOLE AT MODULE CONNECTION BOLT LOCATIONS.
13. 5/8"ø MACHINE BOLT @ MODULE CONNECTION. SEE DET. "1" ON SHEET S6.0 FOR REF. (TYP.)
14. PLYWOOD FLOOR DECK. ATTACH PLY'WD. FLOORING TO STEEL CHANNEL WITH #10x1 1/2" S.T.S.
15. PLYWOOD STRIP – 3/4"x 3"x8" PIECE W/ (2) #12x 2-1/4" FLAT HEAD WOOD SCREWS EACH END.
16. PLUG – 5"ø PIECE OF FLOOR SHEATHING W/ (2) #12x2-1/4" FLAT HEAD WOOD SCREWS EACH END.
17. CONTINUOUS 2"x10" P.T.H.F. SILL PLATE. PLATE SPLICES SHALL OCCUR AT CENTER OF 2"x8" BLOCK LOCATIONS.
18. CONTINUOUS 2"x8" P.T.H.F. SILL PLATE. PLATE SPLICES SHALL OCCUR AT CENTER OF 2x4 BLOCK LOCATIONS.
19. 2"x4"x 3'-0" LONG BLOCKS. NAIL BLOCKS TOGETHER WITH 16d BOX NAILS @ 4" O.C. AND (2) 16d NAILS AT EACH END.
20. CONTINUOUS 2x(SEE PLAN) P.T.H.F. SILL PLATE. PLATE SPLICES SHALL OCCUR AT CENTER OF 2x8 BLOCK LOCATIONS.
21. FLOOR JOIST OR BLOCK BETWEEN FLOOR JOIST.
22. 2"x10"x24" LONG SILL PADS. P.T.H.F. (SEE PLAN FOR QUANTITY 10 AT ENDS AND 12 AT INTERIOR)
23. CONTINUOUS 2"x12"x(SEE PLAN) – NAIL (2) 16d AT 4" O.C. & (2) 16d AT EACH END OF PLATE.

DSA - PC

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 - 104816
AC FLS SS
DATE 4/30/03

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
JAMES T. SIMPSON
No. 36021
STRUCTURAL
STATE OF CALIFORNIA
LICENSE EXPIRES 6-30-2004

17300 Perris Blvd.
Moreno Valley, Ca. 92551
Phone (909) 571-2200
www.aurora-modular.com

AURORA MODULAR INDUSTRIES

WOOD FOUNDATION PLAN DETAILS

BY | DATE
CHECKED | JOB #

F1.3
SHEET