TABLE 1705.3
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]	CBC REFERENCE
1. Inspect reinforcement, including prestressing tendons, and verify placement.	—	X	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. Reinforcing bar welding: a. Verify weldability of reinforcing bars other than ASTM A706; b. Inspect single-pass fillet welds, maximum $^5/_{16}$"; and c. Inspect all other welds.	— X	X X 	AWS D1.4 ACI 318: 26.6.4	—
3. Inspect anchors cast in concrete.	—	X	ACI 318: 17.8.2	—
4. Inspect anchors post-installed in hardened concrete members.[3] a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads. b. Mechanical anchors and adhesive anchors not defined in 4.a.	X 	 ACI 318: 17.8.2.4 X	 ACI 318: 17.8.2	—
5. Verify use of required design mix.	—	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—	ASTM C172 ASTM C31 ACI 318: 26.5, 26.12	1908.10
7. Inspect concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. Verify maintenance of specified curing temperature and techniques.	—	X	ACI 318: 26.5.3-26.5.5	1908.9
9. Inspect prestressed concrete for: a. Application of prestressing forces; and b. Grouting of bonded prestressing tendons.	X X	— —	ACI 318: 26.10	—
10. Inspect erection of precast concrete members.	—	X	ACI 318: 26.9	—
11. Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: 26.11.2	—
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.	—	X	ACI 318: 26.11.1.2(b)	—

For SI: 1 inch = 25.4 mm.

a. Where applicable, see Section 1705.12, Special inspections for seismic resistance.
b. Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with 17.8.2 in ACI 318, or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.
c. ***[OSHPD 1R, 2 & 5]*** *Installation of all adhesive anchors in horizontal and upwardly inclined positions shall be performed by an ACI/CRSI Certified Adhesive Anchor Installer, except where the factored design tension on the anchors is less than 100 pounds and those anchors are clearly noted on the approved construction documents or where the anchors are shear dowels across cold joints in slabs on grade where the slab is not part of the lateral force-resisting system.*

TABLE 1705.6
REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	—	X
2. Verify excavations are extended to proper depth and have reached proper material.	—	X
3. Perform classification and testing of compacted fill materials.	—	X
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X	—
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	—	X

SPECIAL INSPECTION

1. SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING WORK AS DESCRIBED IN CBC SECTION 1701

   A. ALL CONCRETE AND CMU WORK
   B. BOLTS INSTALLED IN CONCRETE
   C. REINFORCING STEEL
   D. STRUCTURAL WELDING
   E. WELDING OF REINFORCING STEEL
   F. HIGH STRENGTH BOLTING
   G. INSULATING CONCRETE FILL
   H. SPRAY APPLIED FIREPROOFING
   I. SPECIAL GRADING, EXCAVATION, AND BACKFILLING
   J. LIGHT GAUGE WELDING
   K. ADHESIVE AND EXPANSION ANCHOR
   L. a. VERIFY SOIL CONDITIONS ARE SUBSTANTIALLY IN CONFORMANCE WITH THE SOIL INVESTIGATION REPORT.
      b. VERIFY THAT FOUNDATION EXCAVATIONS EXTEND TO PROPER DEPTH AND BEARING STRATA.
      c. PROVIDE SOIL COMPACTION TEST RESULTS, DEPTH OF FILL RELATIVE DENSITY, BEARING VALUES.
   M. ALL MASONRY WORK
   N. SPECIAL ACTIVITY INSPECTION IS REQUIRED FOR BUILDINGS OVER 60' IN HEIGHT
   O. WORK AS DESCRIBED IN THE BELOW STATEMENT OF SPECIAL INSPECTION

2. CERTIFICATE OF SATISFACTORY COMPLETION OF WORK REQUIRING SPECIAL INSPECTION MUST BE COMPLETED AND SUBMITTED TO THE OWNER.

3. AN APPLICATION FOR OFF-SITE FABRICATION MUST BE SUBMITTED TO THE FIELD INSPECTION DIVISION FOR APPROVAL PRIOR TO FABRICATION.

4. CERTIFICATE OF COMPLIANCE FOR OFF-SITE FABRICATION MUST BE COMPLETED AND SUBMITTED TO THE FIELD INSPECTION DIVISION PRIOR TO ERECTION.

5. APPROVAL BY THE INSPECTOR DOES NOT MEAN APPROVAL OF FAILURE TO COMPLY WITH THE PLANS OR SPECIFICATIONS. ANY DETAIL WHICH FAILS TO BE CLEAR OR IS AMBIGUOUS MUST BE REFERRED TO THE ARCHITECT FOR INTERPRETATION OR CLARIFICATION.

6. CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO COMMENCEMENT OF WORK CONTAINING:
   -ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL INSPECTION REQUIREMENTS;
   -ACKNOWLEDGEMENT THAT CONTROL WILL EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL;
   -PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS;
   -IDENTIFICATION AND QUALIFICATION OF THE PERSONS EXERCISING SUCH CONTROL AND THEIR POSITIONS IN THE ORGANIZATION.

7. CONTRACTORS RESPONSIBLE FOR THE CONSTRUCTION OF A WIND OR SEISMIC FORCE RESISTING SYSTEM/COMPONENT LISTED IN THE "STATEMENT OF SPECIAL INSPECTION" SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE LADBS INSPECTORS AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON SUCH SYSTEM OR COMPONENT PER SEC 1709.1.

8. CONTINUOUS SPECIAL INSPECTION BY A REGISTERED DEPUTY INSPECTOR IS REQUIRED FOR FIELD WELDING, CONCRETE STRENGTH f'c > 2500 PSI, HIGH STRENGTH BOLTING, SPRAYED-ON FIREPROOFING, ENGINEERED MASONRY, AND HIGH-LIFT GROUTING.

Statement of Special Inspections, 2022 CBC

Project: Claremont PD Addition

Location: 570 W. Bonita Ave., Claremont, CA 91711

This Statement of Special Inspections is submitted in fulfillment of the requirements of CBC Section 1704. Included are:

- Schedule of Special Inspections and Tests applicable to this project:
  - ☒ Special Inspections per Sections 1704 and 1705
  - ☒ Special inspections for Seismic Resistance
  - ☐ Special inspections for Wind Resistance

Special Inspections and Testing will be performed in accordance with the approved plans and specifications, this statement and CBC Sections 1704 and 1705.

The Schedule of Special Inspections summarizes the Special Inspections and tests required. Special Inspectors will refer to the approved plans and specifications for detailed special inspection requirements. Any additional tests and inspections required by the approved plans and specifications will also be performed.

Seismic Requirements (Section 1704.3.2)

Reinforced CMU Shear Walls

The extent of the seismic-force-resisting system is defined in more detail in the construction documents.

LEVEL 3 SPECIAL INSPECTION SHALL BE USED FOR THIS PROJECT:

MINIMUM SPECIAL INSPECTION (TMS 602-16, Table 4)					
Inspection Task	Frequency[a]			Reference for Criteria	
	Level 1	Level 2	Level 3	TMS 402	TMS 602
1. As masonry construction begins, verify that the following are in compliance:					
a. Proportions of site-prepared mortar	NR	P	P		Art 2.1, 2.6 A & 2.6 C
b. Grade and size of prestressing tendons and anchorages	NR	P	P		Art 2.4 B & 2.4 H
c. Grade, type and size of reinforcement, connectors, anchor bolts, and prestressing tendons and anchorages	NR	P	P		Art 3.4 & 3.6 A
d. Prestressing technique	NR	P	P		Art 3.6 B
e. Properties of thin-bed mortar for AAC masonry	NR	C[b],[c]	C		Art 2.1 C.1
f. Sample panel construction	NR	P	C		Art 1.6 D
2. Prior to grouting, verify that the following are in compliance:					
a. Grout space	NR	P	C		Art 3.2 D & 3.2 F
b. Placement of prestressing tendons and anchorages	NR	P	P	Sec 10.8 & 10.9	Art 2.4 & 3.6
c. Placement of reinforcement, connectors, and anchor bolts	NR	P	C	Sec 6.1, 6.3.1, 6.3.6 & 6.3.7	Art 3.2 E & 3.4
d. Proportions of site-prepared grout and prestressing grout for bonded tendons	NR	P	P		Art 2.6 B & 2.4 G.1.b
3. Verify compliance of the following during construction:					
a. Materials and procedures with the approved submittals	NR	P	P		Art 1.5
b. Placement of masonry units and mortar joint construction	NR	P	P		Art 3.3 B
c. Size and location of structural members	NR	P	P		Art 3.3 F
d. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames, or other construction	NR	P	C	Sec 1.2.1(e), 6.2.1 & 6.3.1	
e. Welding of reinforcement	NR	C	C	Sec. 6.1.6.1.2	
f. Preparation, construction, and protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F)	NR	P	P		Art 1.8 C & 1.8 D
g. Application and measurement of prestressing force	NR	C	C		Art 3.6 B
h. Placement of grout and prestressing grout for bonded tendons is in compliance	NR	C	C		Art 3.5 & 3.6 C
i. Placement of AAC masonry units and construction of thin-bed mortar joints	NR	C[b],[c]	C		Art 3.3 B 9 & 3.3 F.1.b
4. Observe preparation of grout specimens, mortar specimens, and/or prisms	NR	P	C		Art. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3 & 1.4 B.4

(a) Frequency refers to the frequency of inspection, which may be continuous or periodically during the listed task, as defined in the table. NR-Not Required, P=Periodic, C=Continuous.
(b) Required for the first 5000 square feet of AAC masonry
(c) Required after the first 5000 square feet of AAC masonry

TABLE N5.6-1
Inspection Tasks Prior to Bolting

Inspection Tasks Prior to Bolting	QC	QA
Manufacturer's certifications available for fastener materials	O	P
Fasteners marked in accordance with ASTM requirements	O	O
Correct fasteners selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane)	O	O
Correct bolting procedure selected for joint detail	O	O
Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements	O	O
Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used	P	O
Protected storage provided for bolts, nuts, washers and other fastener components	O	O

TABLE N5.6-2
Inspection Tasks During Bolting

Inspection Tasks During Bolting	QC	QA
Fastener assemblies placed in all holes and washers and nuts are positioned as required	O	O
Joint brought to the snug-tight condition prior to the pretensioning operation	O	O
Fastener component not turned by the wrench prevented from rotating	O	O
Fasteners are pretensioned in accordance with the RCSC *Specification*, progressing systematically from the most rigid point toward the free edges	O	O

TABLE N5.6-3
Inspection Tasks After Bolting

Inspection Tasks After Bolting	QC	QA
Document acceptance or rejection of bolted connections	P	P

TABLE N5.4-1
Inspection Tasks Prior to Welding

Inspection Tasks Prior to Welding	QC	QA
Welder qualification records and continuity records	P	O
WPS available	P	P
Manufacturer certifications for welding consumables available	P	P
Material identification (type/grade)	O	O
Welder identification system[d]	O	O
Fit-up of groove welds (including joint geometry) • Joint preparations • Dimensions (alignment, root opening, root face, bevel) • Cleanliness (condition of steel surfaces) • Tacking (tack weld quality and location) • Backing type and fit (if applicable)	O	O
Fit-up of CJP groove welds of HSS T-, Y- and K-joints without backing (including joint geometry) • Joint preparations • Dimensions (alignment, root opening, root face, bevel) • Cleanliness (condition of steel surfaces) • Tacking (tack weld quality and location)	P	O
Configuration and fit of access holes	O	O
Fit-up of fillet welds • Dimensions (alignment, gaps at root) • Cleanliness (condition of steel surfaces) • Tacking (tack weld quality and location)	O	O
Check welding equipment	O	–

[d] The fabricator or erector, as applicable, shall maintain a system by which a welder who has welded a joint or member can be identified. Stamps, if used, shall be the low-stress type.

TABLE N5.4-2
Inspection Tasks During Welding

Inspection Tasks During Welding	QC	QA
Control and handling of welding consumables • Packaging • Exposure control	O	O
No welding over cracked tack welds	O	O
Environmental conditions • Wind speed within limits • Precipitation and temperature	O	O
WPS followed • Settings on welding equipment • Travel speed • Selected welding materials • Shielding gas type/flow rate • Preheat applied • Interpass temperature maintained (min./max.) • Proper position (F, V, H, OH)	O	O
Welding techniques • Interpass and final cleaning • Each pass within profile limitations • Each pass meets quality requirements	O	O
Placement and installation of steel headed stud anchors	P	P

TABLE N5.4-3
Inspection Tasks After Welding

Inspection Tasks After Welding	QC	QA
Welds cleaned	O	O
Size, length and location of welds	P	P
Welds meet visual acceptance criteria • Crack prohibition • Weld/base-metal fusion • Crater cross section • Weld profiles • Weld size • Undercut • Porosity	P	P
Arc strikes	P	P
k-area[e]	P	P
Weld access holes in rolled heavy shapes and built-up heavy shapes[b]	P	P
Backing removed and weld tabs removed (if required)	P	P
Repair activities	P	P
Document acceptance or rejection of welded joint or member	P	P
No prohibited welds have been added without the approval of the EOR	O	O

[e] When welding of doubler plates, continuity plates or stiffeners has been performed in the *k*-area, visually inspect the web *k*-area for cracks within 3 in. (75 mm) of the weld.
[b] After rolled heavy shapes (see Section A3.1c) and built-up heavy shapes (see Section A3.1d) are welded, visually inspect the weld access hole for cracks.

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Exp. 3-31-26
STRUCTURAL
STATE OF CALIFORNIA

No.	Description	Date
1	BACKCHECK SET	4/4/2025

CLAREMONT PD ADDITION

CITY OF CLAREMONT

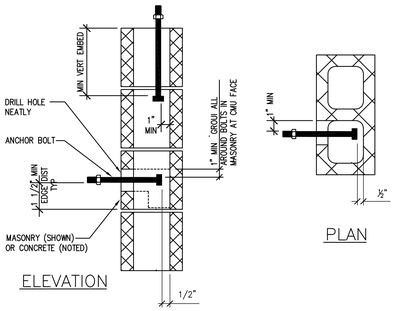
570 W BONITA AVE,
CLAREMONT, CA 91711

GENERAL NOTES

Project number	23010
Date	8/12/24
Drawn by	LL

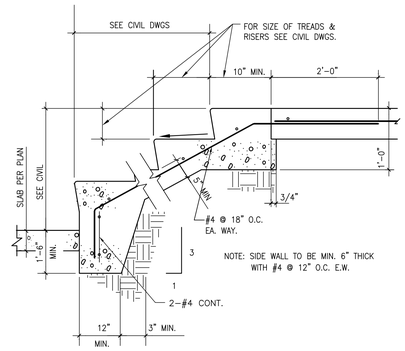
S1.00B

Scale



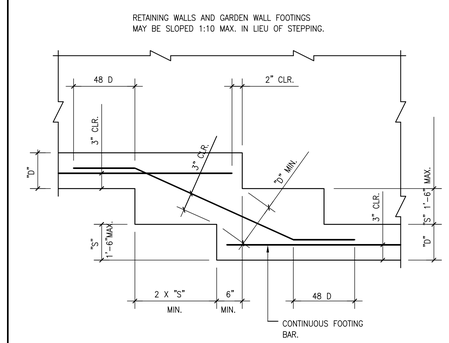
ANCHOR BOLTS IN CMU DETAIL

SCALE: NO SCALE | 12



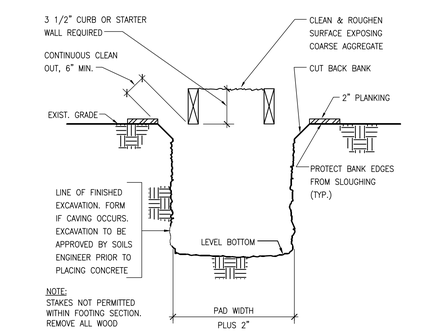
TYPICAL STAIRS ON GRADE

SCALE: NO SCALE | 8



STEPPED FOOTING DETAIL

SCALE: NO SCALE | 5



FOOTING EXCAVATION

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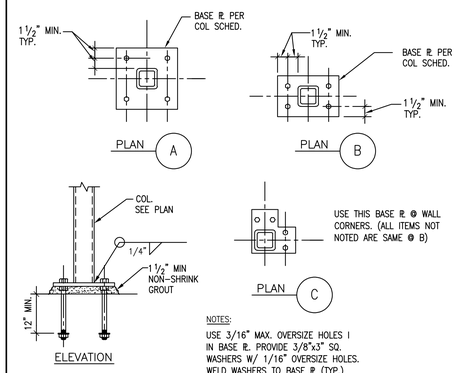
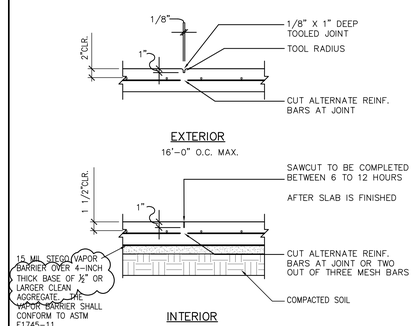


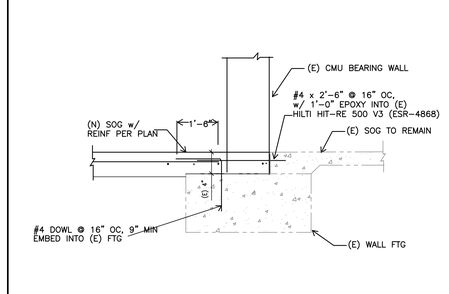
TYP HSS COL BASE PL

SCALE: NO SCALE | 13



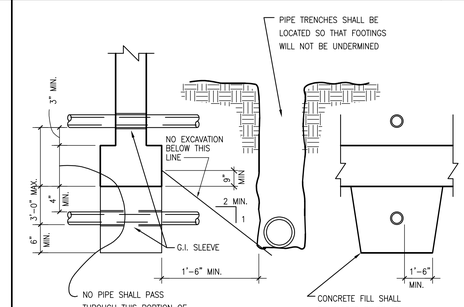
SLAB ON GRADE CONTROL JOINT

SCALE: NO SCALE | 9



(N) SLAB ON GRADE TO (E) SLAB ON GRADE

SCALE: NO SCALE | 6



PIPE TRENCH LOCATION

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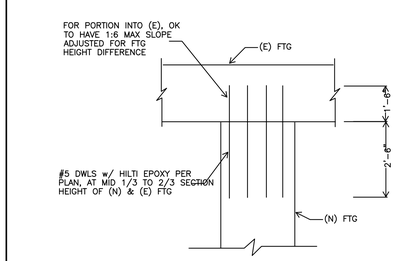
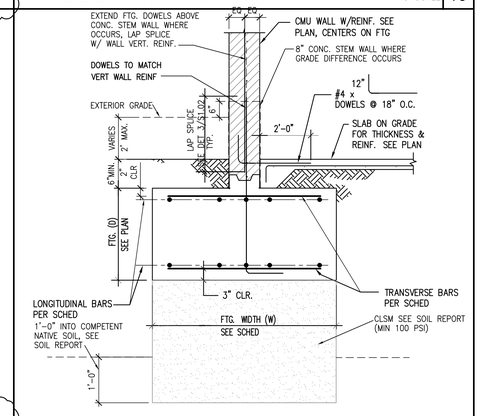


NEW TO EXISTING FOOTING

SCALE: NO SCALE | 15



TYPICAL WALL FOOTING DETAIL

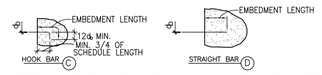
SCALE: NO SCALE | 11

f'c=3000 psi				
BAR SIZE No.	SPLICE		EMBEDMENT	
	TOP	OTHER	TOP	OTHER
3	42	33	33	25
4	56	43	43	33
5	70	54	54	42
6	84	65	65	50
7	122	94	94	72
8	139	107	107	83
9	157	121	121	93
10	177	136	136	105
11	217	167	167	129

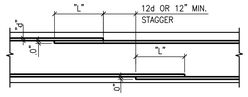
f'c=4000 psi				
BAR SIZE No.	SPLICE		EMBEDMENT	
	TOP	OTHER	TOP	OTHER
3	37	28	28	22
4	49	37	37	29
5	61	47	47	36
6	73	56	56	43
7	106	81	81	63
8	121	93	93	72
9	136	105	105	81
10	153	118	118	91
11	188	145	145	111

NOTES:

1. ALL DETAILING AND PLACING OF REINFORCING SHALL COMPLY WITH THE LAP AND DETAILS. UNLESS SPECIFICALLY DETAILED OTHERWISE ON THE DRAWINGS.
2. ALL SPLICES SHALL BE STAGGERED AS SHOWN IN (A)&(B)
3. THE SMALLER BAR LAP LENGTH SHALL BE USED WHEN SPLICING DIFFERENT SIZE BARS.
4. TOP BARS ARE HORIZONTAL REBARS WITH MORE THAN 12" CONCRETE PLACEMENT BELOW DURING A POUR. OTHERS BARS ARE BOTTOM OR VERTICAL BARS.
5. MINIMUM CENTER TO CENTER BAR SPACING SHALL BE THREE (3) BAR DIAMETERS.
6. WHERE STRAIGHT BAR CANNOT BE PROVIDED FOR THE REQUIRED EMBEDMENT, PROVIDE 90° OR 180° HOOK PER (C)



7. SPECIFICALLY DETAILED LENGTH ON DRAWINGS SHALL BE USED IN LIEU OF THE ABOVE SCHEDULED LENGTH.
8. THE CONTRACTOR MAY USE A BUTT WELDED SPLICE IN LIEU OF THE LAP SPLICE SHOWN, SEE REBAR WELDING DETAIL.
9. LAP SPLICE NOTED AS "LAP", DEVELOPMENT/EMBEDMENT NOTED AS "Ld" ON DRAWINGS.



REINFORCING BAR SPLICE AND EMBEDMENT LENGTH SCHEDULE & DETAIL

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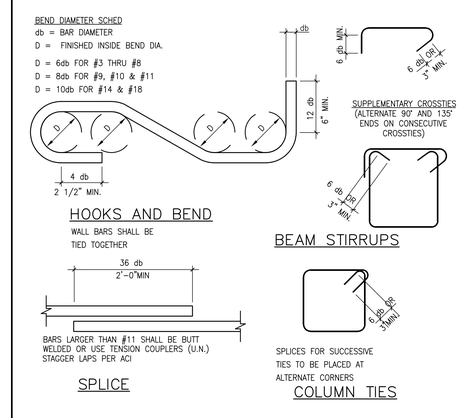

BAR BENDS AND LAPS

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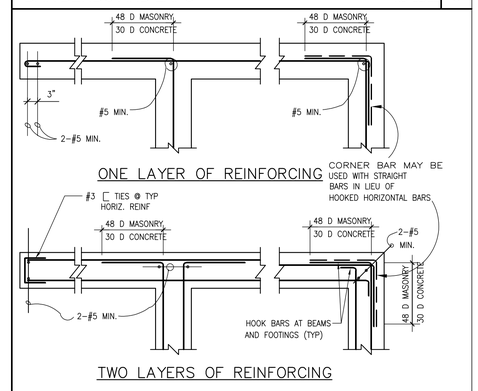

BAR BENDS AND LAPS IN CONCRETE, MASONRY WALLS, FOOTINGS AND BEAMS

SCALE: NO SCALE | 4

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REGISTERED PROFESSIONAL ENGINEER LES E. SCHULTZ No. SE2570 Exp.3-31-26 STRUCTURAL STATE OF CALIFORNIA

No.	Description	Date
1	BACKCHECK SET	4/4/2025

CLAREMONT PD ADDITION

CITY OF CLAREMONT

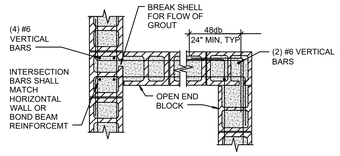
570 W BONITA AVE,
CLAREMONT, CA 91711

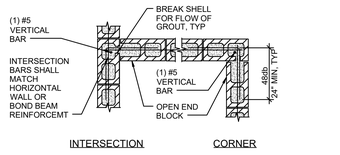
TYPICAL DETAILS

Project number	23010
Date	8/12/24
Drawn by	LL

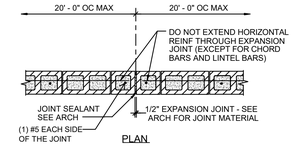
S1.01

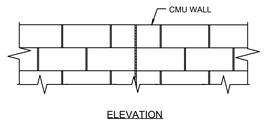
Scale



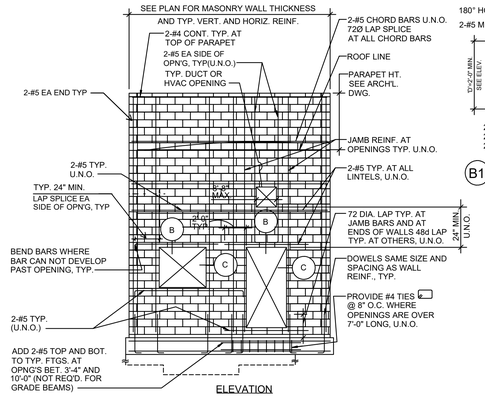


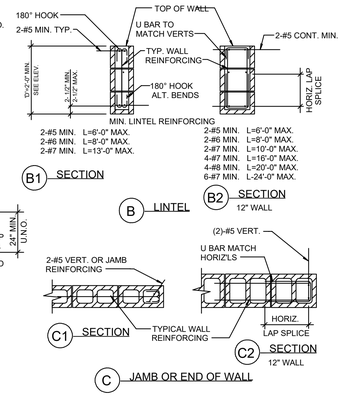
CMU WALL INTERSECTION DETAILS — SCALE: NO SCALE — 5



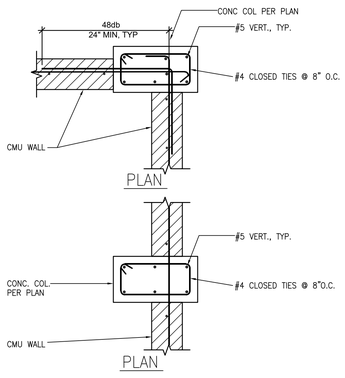


CMU EXPANSION JOINT DETAIL — SCALE: NO SCALE — 1





CONCRETE BLOCK MINIMUM REINFORCING AT CMU WALL OPENING — SCALE: NO SCALE — 2

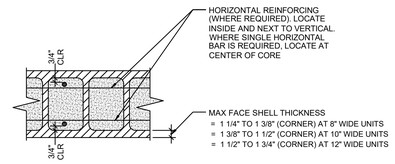


CONCRETE PILASTER DETAIL — SCALE: NO SCALE — 6

BAR DEVELOPMENT LENGTH (Ld) & LAP SPLICE SCHEDULE (INCHES)	
Bar Size	f'c = 2,000 psi, fy = 60,000 psi
#3	27
#4	36
#5	45
#6	54
#7	63
#8	72
#9	81

NOTE: LAP SPLICE LENGTH = Ld

MASONRY REBAR DEVELOPMENT LENGTH AND LAP SPLICE SCHEDULE — SCALE: NO SCALE — 3



PLAN DETAIL OF REINF. DOUBLE LAYER — SCALE: NO SCALE — 4

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REGISTERED PROFESSIONAL ENGINEER LES E. SCHULTZ No. SE2570 Exp. 3-31-26 STRUCTURAL STATE OF CALIFORNIA

No.	Description	Date
1	BACKCHECK SET	4/4/2025

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

TYPICAL MASONRY DETAILS

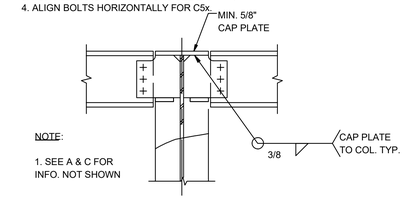
Project number	23010
Date	8/12/24
Drawn by	LL

S1.02

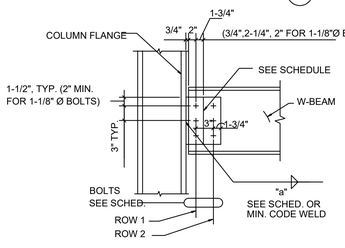
Scale

TYPICAL BEAM CONNECTION SCHEDULE LRFD/ASD						
TYPE	BEAM / CHANNEL / GIRDER SIZE	NUMBER & SIZE OF A325X BOLTS TYP.U.N.O.		CONNECTION PLATE FY= 50 KSI U.N.O.		
		ROW 1	ROW 2	PLATE THICKNESS "t"	WELD "a"	WELD "b"
1	C5x, C6x, C8, C10 W8x, W10x	2-7/8"Ø	—	3/8"	1/4"	1/4"
2	C12, C15 W12x, W14x	3-7/8"Ø	—	3/8"	1/4"	1/4"
3	W16x W18x	4-7/8"Ø	—	3/8"	1/4"	1/4"
4	W21x	5-7/8"Ø	—	1/2"	5/16"	5/16"
5	W24x	6-7/8"Ø	—	1/2"	5/16"	5/16"
6	W27x	7-7/8"Ø	—	1/2"	5/16"	5/16"
7	W30x	8-7/8"Ø	—	1/2"	5/16"	5/16"
8	W33x	9-7/8"Ø	—	1/2"	5/16"	5/16"
9	W36x	10-7/8"Ø	—	1/2"	5/16"	5/16"
10	W40x	11-7/8"Ø	—	1/2"	5/16"	5/16"
11	W44x	12-1 1/4"Ø	—	1"	1/2"	1/2"

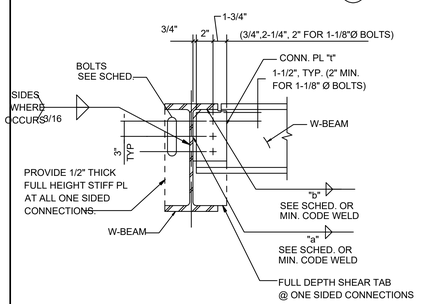
NOTES:
1. PROVIDE FULL-DEPTH SHEAR TAB AT ALL ONE SIDED CONNECTIONS.
2. ONE SIDED CONNECTIONS APPLY WHERE THE ADJACENT BEAM WEB CENTERLINE IS LOCATED 6" OR MORE FROM THE BEAM WEB CENTERLINE.
3. FOR ALL DRAG CONNECTIONS SEE 2/-.
4. ALIGN BOLTS HORIZONTALLY FOR C5x.



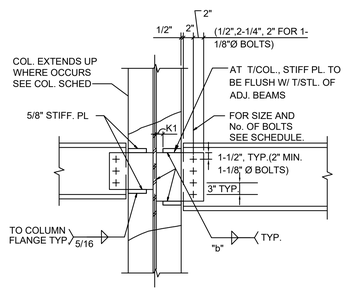
T.O. COLUMN CONNECTION (D)



BEAM TO COLUMN FLANGE CONNECTION (C)



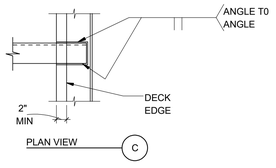
BEAM TO BEAM CONNECTION (B)

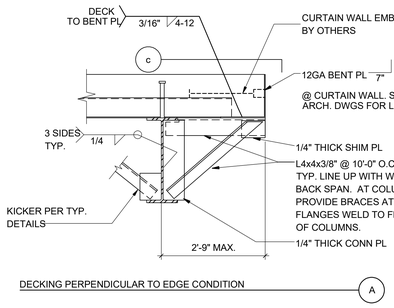


BEAM TO COLUMN WEB CONNECTION (A)

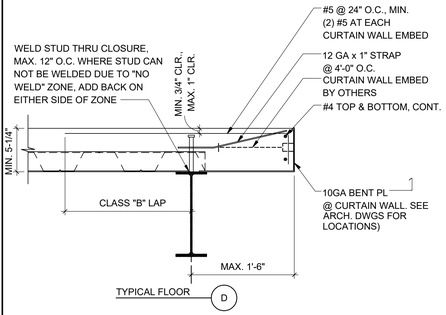
TYPICAL STEEL BEAM CONNECTION

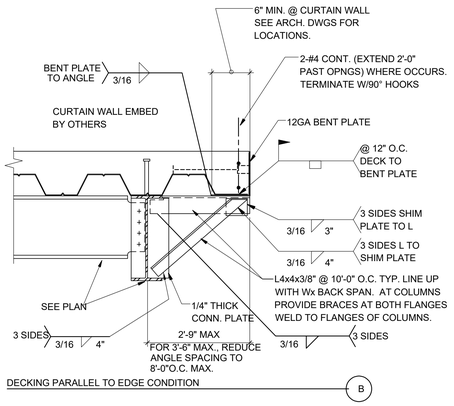
SCALE: 1"=1'-0" | 9





DECKING PERPENDICULAR TO EDGE CONDITION (A)

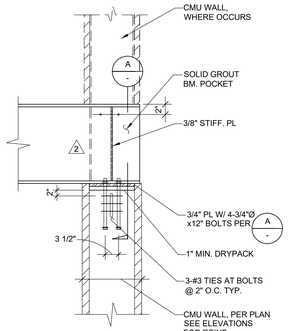


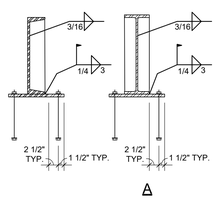


DECKING PARALLEL TO EDGE CONDITION (B)

TYPICAL EXTERIOR SLAB EDGE DETAIL

SCALE: 1"=1'-0" | 6

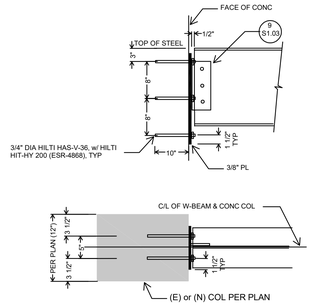




NOTES:
1. FOR BEAM SLOPE SEE ARCH'L. DRAWINGS
2. DRILL (2) 1"Ø HOLE ON BM. WEB FOR CHORD BARS PASSING

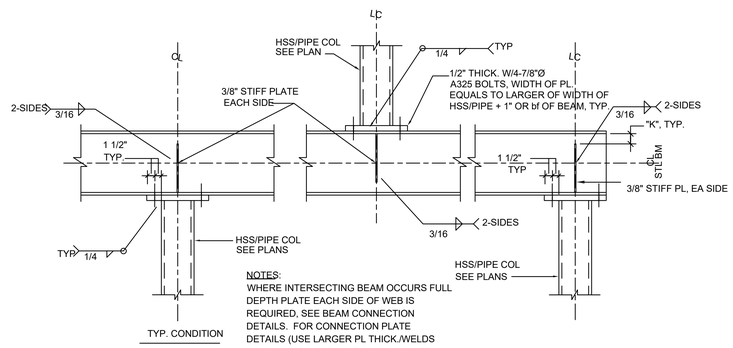
BEAM AT CMU WALL

SCALE: 1"=1'-0" | 8



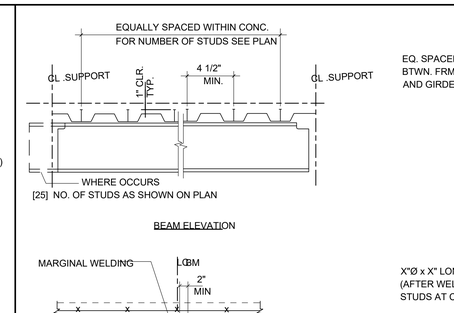
STEEL BEAM TO CONC. WALL/PIER CONN.

SCALE: NO SCALE | 7

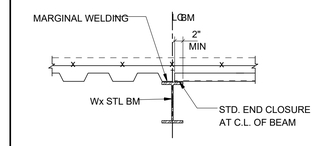


TYP. HSS/PIPE COLUMN CONNECTIONS

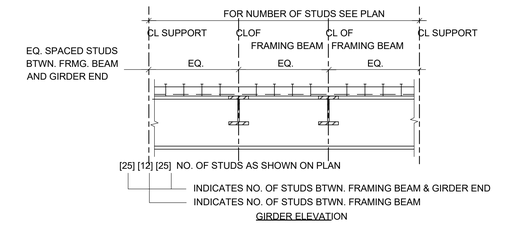
SCALE: 1"=1'-0" | 5



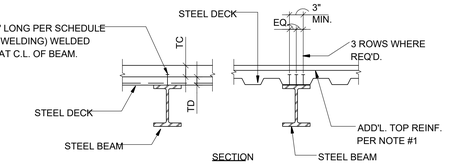
BEAM ELEVATION



TYP. DETAIL AT CHANGE IN DECK DIRECTION



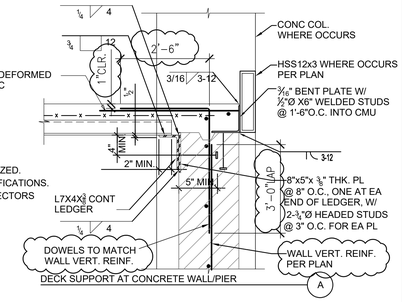
GIRDER ELEVATION



SECTION

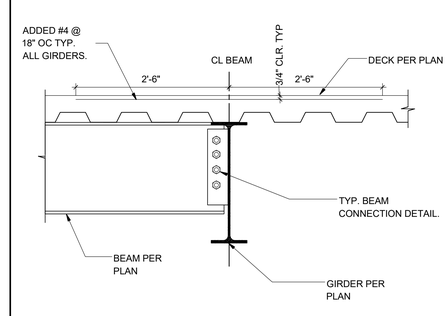
MARK	METAL DECKING		TOTAL SLAB "t"	SLAB DESCRIPTION	METAL DECK WELDING			MAXIMUM UNSHORED SPAN (CLEAR SPAN BETWEEN SUPPORTS)			WELDED STUDS	LOCATIONS
	TYPE	GAUGE			PERPENDICULAR TO DECK	PARALLEL TO DECK	SEAMS (NOTE 5)	SINGLE	DOUBLE	TRIPLE		
D-1	VERCO W2 FORMLOCK	16	5 1/4"	3 1/4" L. W. CONC FILL OVER 2" MTL DECK W/#4 @ 12" O.C. E.W.	4-1/2"ø EFFECTIVE PLUG WELDS PER 36" SHEET (3 PER 24" SHEET)	1/2"ø EFFECTIVE PLUG WELD @ 12" O.C.	TOP SEAM WELD @ 24" O.C.	11'-0"	13'-0"	13'-0"	3/4" DIA x 4"	MEZZ FLOOR

NOTE:
1. FOR ADDED TYPICAL NEGATIVE REINF. OVER GIRDERS SEE DETAIL 4/-.
2. ALL SLAB EXPOSED TO WEATHER SHALL BE PROVIDED WITH POSITIVE VENTED STEEL DECK GALVANIZED.
3. WELDED STUD SHALL BE HEADED STUDS OF A TYPE IN CONFORMANCE WITH CODES AND THE SPECIFICATIONS.
4. WHERE STUDS ARE NOT INDICATED ON FRAMING PLANS PROVIDE 3/4"ø WELDED STUD SHEAR CONNECTORS @ 12" O.C. MAX. SPACING.
5. ALT. TO TOP SEAM WELD, USE BUTTON PUNCH @ 12" O.C.
6. ALT. TO PUDDLE WELDS FROM DECK TO STEEL BEAMS, USE HILTI FASTENERS PER ESR-2197.



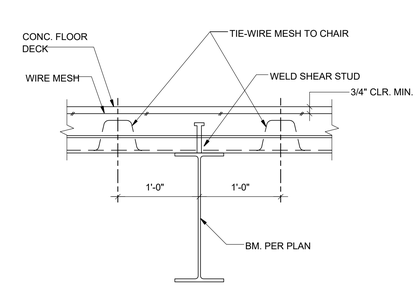
TYPICAL METAL DECK DETAILS

SCALE: 1"=1'-0" | 1



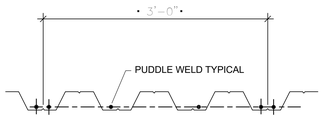
TYPICAL ADDED GIRDER REINF.

SCALE: 1"=1'-0" | 4



TYPICAL SLAB DETAIL

SCALE: 1"=1'-0" | 2



NOTES:
1. WHERE DECK RIBS ARE PARALLEL TO SUPPORTS, USE 1/2" DIA EFFECTIVE PUDDLE WELDS @ 12" O.C.
2. BUTTON PUNCH SIDE LAPS @ 30"o.c.
3. DECK TO BE WELDED TO SUPPORTS BY 3/4" DIA EFFECTIVE PUDDLE WELDS @ EACH FLUTE
4. WHERE NELSON STUDS AND PUDDLE WELDS COINCIDE THE PUDDLE WELD MAY BE REPLACED BY THE STUDS ICBO EVALUATION REPORT NO. 2078

TYP. METAL DECK SECTION

SCALE: 1"=1'-0" | 3

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REGISTERED PROFESSIONAL ENGINEER LES E. SCHULZ No. SE2570 Exp. 3-31-26 STRUCTURAL STATE OF CALIFORNIA

No.	Description	Date
1	BACKCHECK SET	4/4/2025

CLAREMONT PD ADDITION

CITY OF CLAREMONT

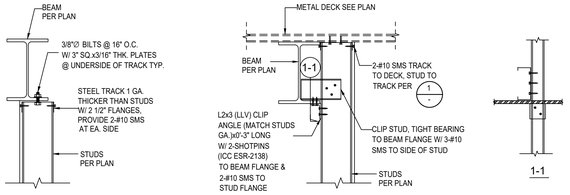
570 W BONITA AVE, CLAREMONT, CA 91711

TYPICAL STEEL & CONC. METAL DECK DETAILS

Project number	23010
Date	8/12/24
Drawn by	LL

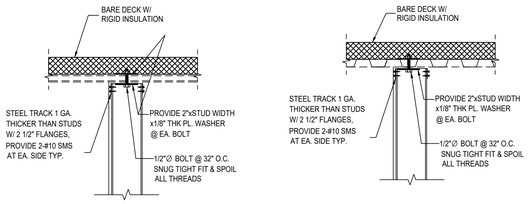
S1.03

Scale



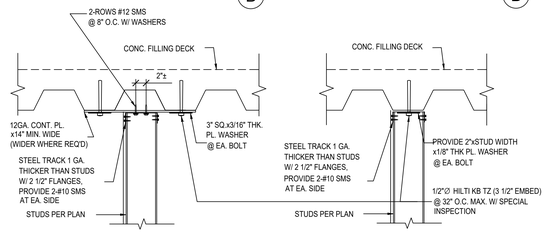
STUD BELOW BEAM A

STUD ADJACENT TO BEAM A

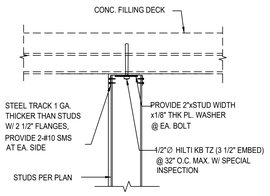


DECK PERPENDICULAR TO STUDS B

DECK PARALLEL TO STUDS B



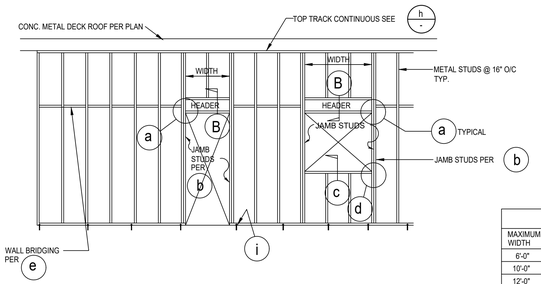
DECK PARALLEL TO STUDS C



DECK PARPENDICULAR TO STUDS C

STEEL SOFFIT STUDS HUNG FROM STEEL BEAMS OR STEEL DECK

SCALE: N.T.S | 3

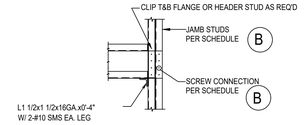


NOTES:

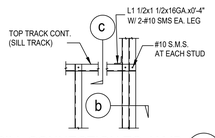
1. FOR OPNENINGG SIZE AND LOCATION SEE ARCHITECTURAL AND/OR MECHANICAL DRAWINGS
2. FOR HEADER SIZES AND JAMB STUDS SEE SCHEDULE B

TYPICAL METAL STUD ELEVATION A

ICC ER-4943P

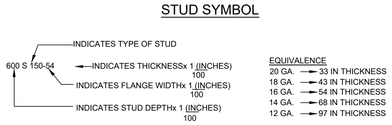


TYPICAL HEADER CONN. TO JAMB STUD a



SILL CONNECTION TO JAMB d

STUD SYMBOL



EQUIVALENCE

20 GA.	33 IN THICKNESS
18 GA.	43 IN THICKNESS
16 GA.	54 IN THICKNESS
14 GA.	68 IN THICKNESS
12 GA.	97 IN THICKNESS

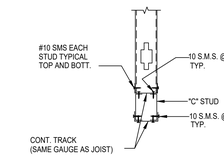
T: CONT. TRACK
S: C STUD/JOIST

SCHEDULE FOR INTERIOR NON-BEARING PARTITION	
MAX. STUD HEIGHT	STUD SIZE
14'-0"	362S137-33 @ 16" O.C. OR 600S137-33 @ 16" O.C.
20'-0"	362S137-43 @ 16" O.C. OR 600S137-43 @ 16" O.C.
24'-0"	600S137-68 (50 KSI) @ 16" O.C.
32'-0"	600S200-97 (50 KSI) @ 12" O.C.

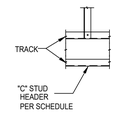
SCHEDULE FOR EXTERIOR NON-BEARING PARTITION	
MAX. STUD HEIGHT	STUD SIZE
14'-0"	600S162-54 @ 16" O.C. OR 400S200-54 @ 16" O.C.
20'-0"	600S300-68 (50 KSI) @ 16" O.C.
24'-0"	600S200-97 (50 KSI) @ 12" O.C.
32'-0"	800S200-118 (50 KSI) @ 12" O.C.

TYPICAL METAL STUD WALL DETAILS

SCALE: N.T.S | 1



SECTION

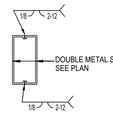


SECTION

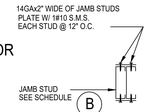
HEADER/JAMB SCHEDULE (FOR INTERIOR WALL)			
MAXIMUM WIDTH	HEADER SIZE	NUMBER OF STUDS AT JAMB	#10 S.M.S. EACH SIDE OF HEADER TO JAMB
6'-0"	2-400S200-43	1	2
10'-0"	2-600S200-43	2	3 (6 TOTAL)
12'-0"	2-800S200-43	2	4 (8 TOTAL)

HEADER/JAMB SCHEDULE FOR EXTERIOR WALL			
MAXIMUM WIDTH	HEADER SIZE	NUMBER OF STUDS AT JAMB	#10 S.M.S. EACH SIDE OF HEADER TO JAMB
6'-0"	2-600S200-54	2	3 (6 TOTAL)
8'-0"	2-800S200-54	2	4 (8 TOTAL)
10'-0"	2-1000S200-54	3	5 (10 TOTAL)

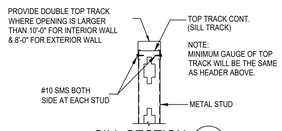
METAL STUD HEADER DETAIL B



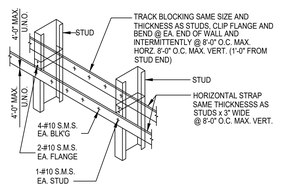
OR



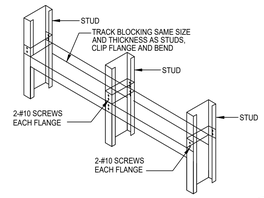
JAMB SECTION b



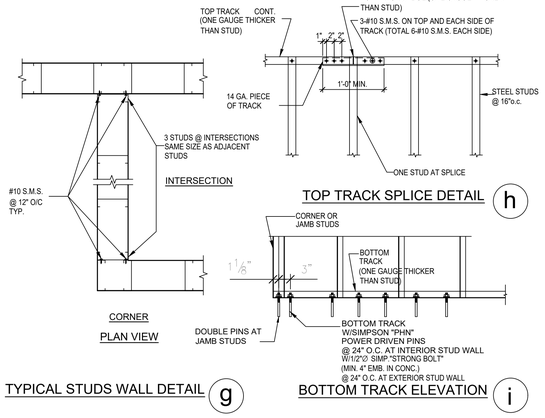
SILL SECTION c



TYPICAL STUDS BRIGDING DETAIL e



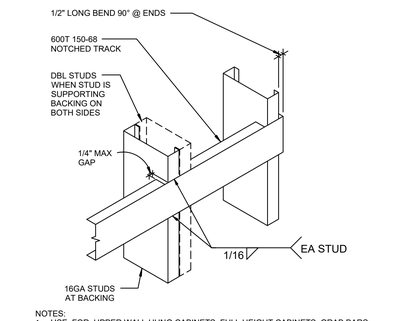
TYPICAL JOISTS BLOCKING DETAIL f



TOP TRACK SPLICE DETAIL h

TYPICAL STUDS WALL DETAIL g

BOTTOM TRACK ELEVATION i



NOTES:

1. USE FOR UPPER WALL HUNG CABINETS, FULL HEIGHT CABINETS, GRAB BARS, HANDRAILS, WALL HUNG EQUIPMENT ETC. MAX WT 300LBS/LIN FT.
2. LENGTH, HEIGHT AND LOCATION TO SUIT ITEMS BEING FASTENED. SEE ANCHORAGE DETAIL OF SPECIFIC ITEMS FOR ADDITIONAL INFORMATION.
3. ATTACH TO THREE STUDS MIN (DBL STUD COUNTS AS ONE STUD).
4. USE #12 SHEET METAL SCREWS MIN WHEN ATTACHING ITEMS.

TYPICAL BACKING STUD

N.T.S | 5

STUD PROPERTIES

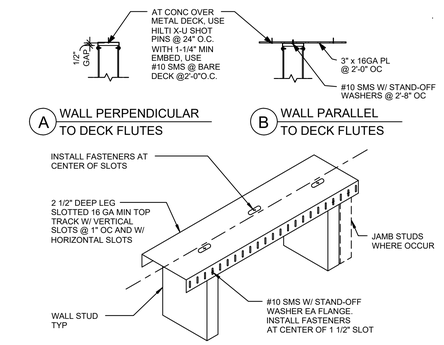
DESIGNATION	SECTION	(in^2) A x-x	(in^4) I x-x	(in^3) S x-x	(in^4) I Y-Y	FLANGE (in)	REMARKS
3⅝" STUDS	362 S 162-33	0.262	0.551	0.304	0.099	1 5/8"	BRACE C.J.
4" STUDS	400 S 125-43	0.295	0.682	0.341	0.048	1 5/8"	STUD
6" STUDS	600 S 162-54	0.556	2.860	0.953	0.180	1 5/8"	HEADER
6" STUDS	600 S 162-54	0.556	2.860	0.953	0.180	1 5/8"	STUD

TOP & BOTTOM TRACK PROPERTIES

SECTION	(in^2) A x-x	(in^4) I x-x	(in^3) S x-x	(in^4) I Y-Y	FLANGE (in)	REMARKS
362 T 150-54	0.374	0.823	0.431	0.080	1 1/2"	UNPUNCHED
400 T 150-43	0.315	0.811	0.390	0.066	1 1/2"	UNPUNCHED
600 T 150-54	0.509	2.611	0.843	0.091	1 1/2"	UNPUNCHED

METAL STUD PROPERTIES

SCALE: N.T.S | 4



INTERIOR NON-BEARING PARTITION TOP TRACK

SCALE: N.T.S | 2

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REGISTERED PROFESSIONAL ENGINEER
LES E. SCHULTZ
No. SE2570
Exp. 3-31-26
STRUCTURAL
STATE OF CALIFORNIA

No.	Description	Date
1	BACKCHECK SET	4/4/2025

CLAREMONT PD ADDITION

CITY OF CLAREMONT

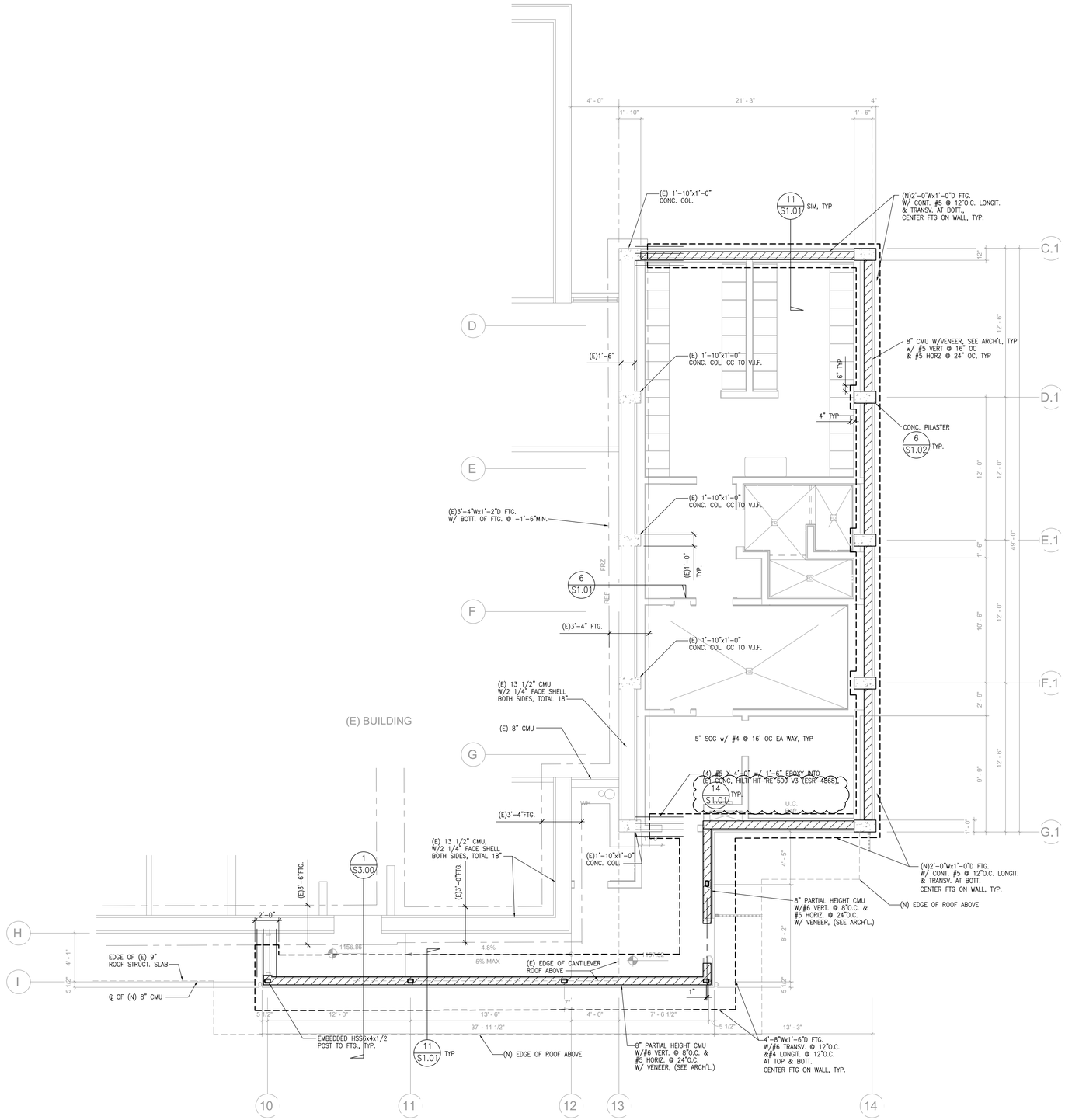
570 W BONITA AVE,
CLAREMONT, CA 91711

TYPICAL METAL STUD PARTITION WALL DETAILS

Project number	23010
Date	8/12/24
Drawn by	LL

S1.04

Scale



NOTE:
SEE SOIL REPORT FOR SLOT CUTTING, A-B SEQUENCE, GC TO PROVIDE SHORING & MAINTAIN INTEGRITY OF (E) FOOTING.

FOUNDATION PLAN

SCALE:
1/4"=1'-0"

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CLAREMONT PD ADDITION

CITY OF CLAREMONT

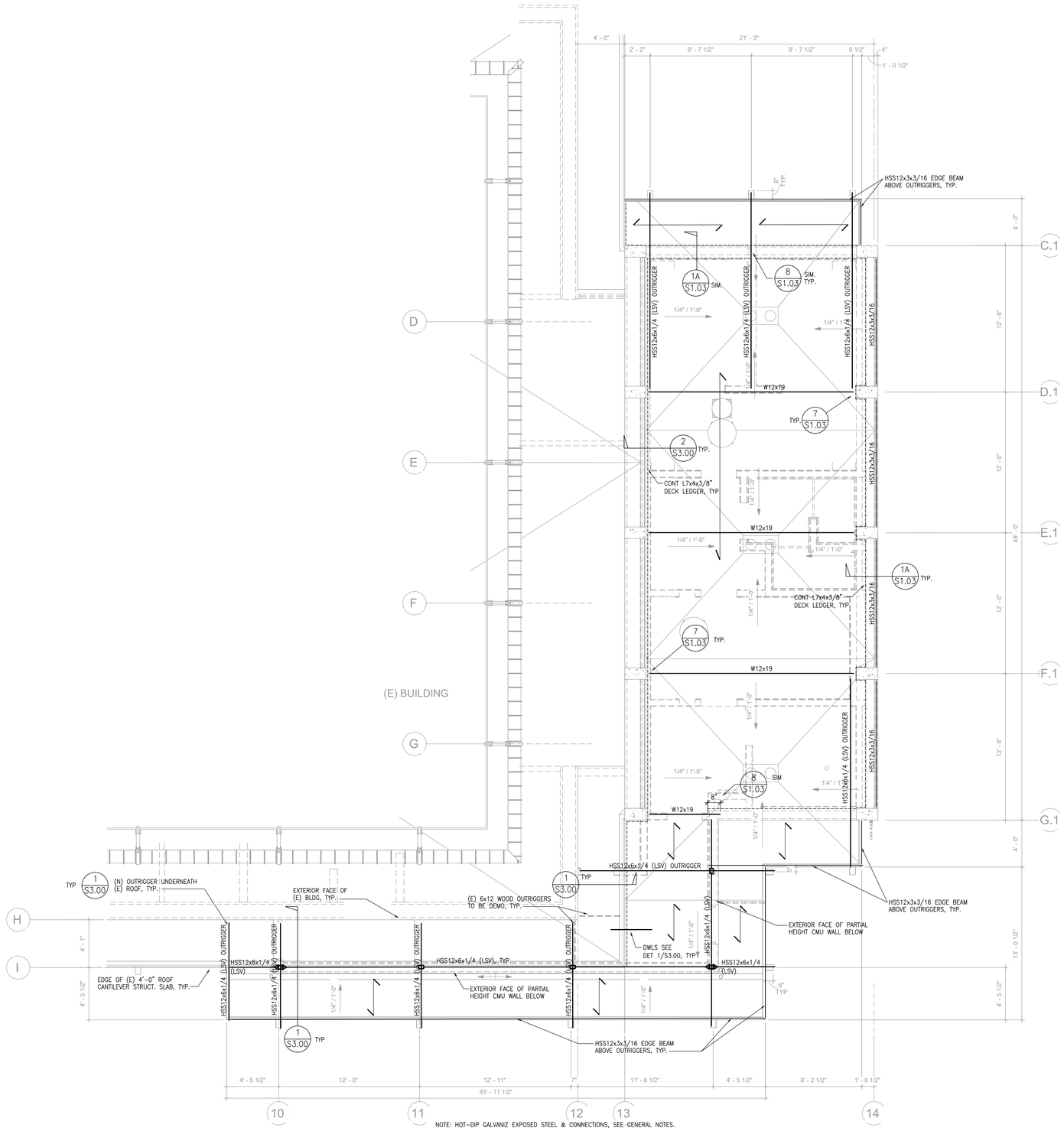
570 W BONITA AVE,
CLAREMONT, CA 91711

FOUNDATION PLAN

Project number	23010
Date	8/12/24
Drawn by	LL

S2.10

Scale AS NOTED



NOTE: HOT-DIP GALVANIZ EXPOSED STEEL & CONNECTIONS, SEE GENERAL NOTES.

ROOF FRAMING PLAN

SCALE:
1/4"=1'-0"

LEGEND:

16" GA PLW2 W/ 3 1/4" LT. WT. CONT.
TOTAL 5 1/4", 2-SPAN MIN. (OR PROVIDE SHORING), TYP.

MOMENT CONNECTION, TYP.

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No.	Description	Date
1	BACKCHECK SET	4/4/2025

CLAREMONT PD ADDITION

CITY OF CLAREMONT

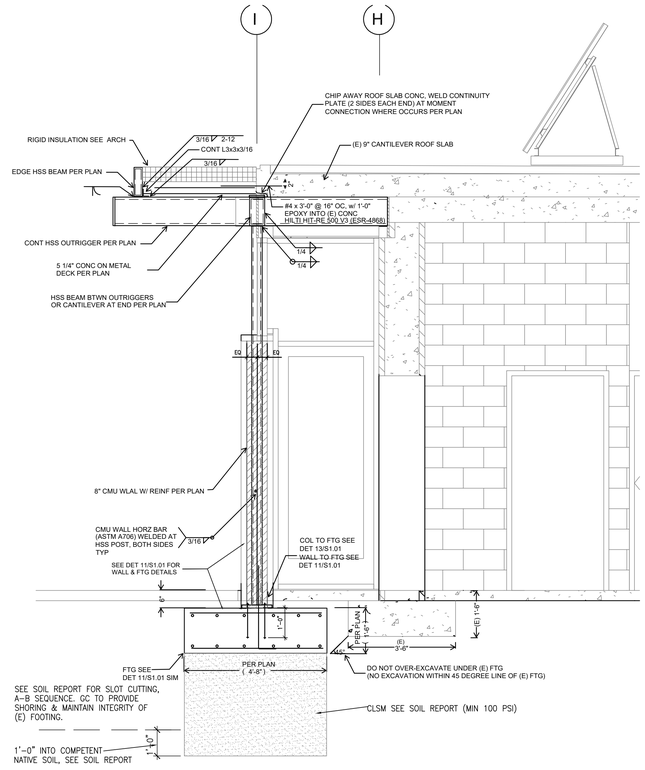
570 W BONITA AVE,
CLAREMONT, CA 91711

ROOF FRAMING PLAN

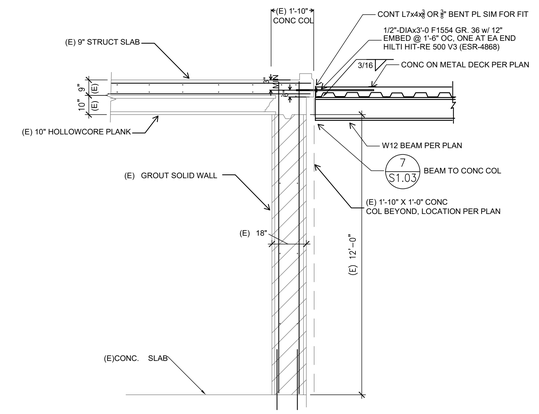
Project number	23010
Date	~~8/27/24~~
Drawn by	LL

S2.11

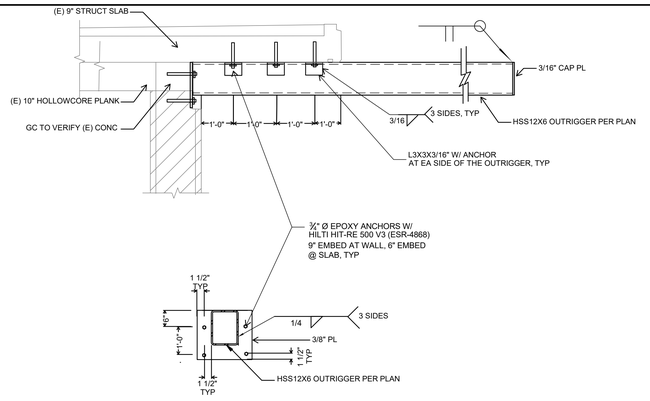
Scale AS NOTED



SECTION — SCALE: 1/2"=1'-0" — 1



SECTION — SCALE: 1/2"=1'-0" — 2



OUTRIGGER BEAM CONNECTION — SCALE: 1/2"=1'-0" — 3

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REGISTERED PROFESSIONAL ENGINEER — LES E. SCHULTZ — No. SE2570 — Exp. 3-31-26 — STRUCTURAL — STATE OF CALIFORNIA

No.	Description	Date
1	BACKCHECK SET	4/4/2025

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

SECTIONS

Project number	23010
Date	8/12/24
Drawn by	LL

S3.00

Scale

SYMBOL/ABBREV./DEFINITION

SYMBOL	ABBREV	DEFINITION
1 / M-1		DETAIL TOP - I.D. NUMBER REFERENCE BOTTOM - SHT NUMBER
	SA	SUPPLY AIR DUCT
	RA	RETURN AIR DUCT
	EA	EXHAUST AIR DUCT
	FC	FLEXIBLE CONNECTION
		INCLINED DUCT RISE
		INCLINED DUCT DROP
		ACOUSTICAL DUCT LINING
		SUPPLY AIR DIFFUSER
		RETURN AIR GRILLE
		45 DEGREE DUCT TAP IN WITH CONICAL FITTING
D		DOOR LOUVER
S	S	SENSOR
T	T-STAT	THERMOSTAT
(E) T	T-STAT	EXISTING THERMOSTAT
T R	T-STAT	RELOCATED THERMOSTAT
TC	TC	TIME CLOCK
SD	SD	DUCT SMOKE DETECTOR
		EQUIPMENT SHOWN HATCH IS TO BE REMOVED
T		INDICATES CONTROL WIRING
		SUPPLY DUCT UP
		RETURN DUCT UP
		EXHAUST AIR DUCT UP
		SIDEWALL DISCHARGE GRILLE
U C		DOOR UNDERCUT
SF	SF	SMOKE FIRE DAMPER
MD	MD	MIXING DAMPER
M	M	MOTORIZED DAMPER
		FLEX CONNECTION
	POC	POINT OF CONNECTION
	GLV	GLOBE VALVE
	BAL VAL	BALANCING VALVE
	CV	CHECK VALVE
	STR	STRAINER
	BLV	BALL VALVE, BUTTERFLY VALVE
	U	UNION
	GAC	GAGE COCK
		CAPPED OR PLUGGED OUTLET
	PRV	PRESSURE REDUCING VALVE
	AV	ANGLE VALVE
		PIPE DOWN
		PIPE UP
	AN	PIPE ANCHOR
	GU	PIPE GUIDE
	FC	FLEXIBLE CONNECTION
CHS	CHS	CHILLED WATER SUPPLY
CHR	CHR	CHILLED WATER RETURN
CS	CS	CONDENSER WATER SUPPLY
CR	CR	CONDENSER WATER RETURN
HWS	HWS	HEATING HOT WATER SUPPLY
HWR	HWR	HEATING HOT WATER RETURN
CD	CD	CONDENSATE DRAIN

ABBREV/DEFINITIONS

ABBREV.	DEFINITION
ABV	ABOVE
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AP	ACCESS PANEL
ARCH	ARCHITECT
BDD	BACK DRAFT DAMPER
BEL	BELOW
BLDG	BUILDING
C	COLD AIR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CLG	CEILING
CL	CENTER LINE
COMP	COMPRESSOR
CONC	CONCRETE
CONT	CONTINUATION
CHW	CHILLED WATER
DET	DETAIL
DIA	DIAMETER
DN	DOWN
DR	DRAIN
DRWG	DRAWING
EAV	EXHAUST AIR VALVE
EL	ELEVATION
ENCL	ENCLOSURE
EMS	ENERGY MANAGEMENT SYSTEM
EXH	EXHAUST
EXIST	EXISTING
FD	FIRE DAMPER
FG	FLOOR GRILLE
FIN	FINISH
FLR	FLOOR
FPF	FINS PER FOOT
FPM	FEET PER MINUTE
FS	FLOOR SINK
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
GR	GRADE
H	HOT AIR
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MIN	MINIMUM
MECH	MECHANICAL
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
OPNG	OPENING
FA	FRESH AIR
PLBG	PLUMBING
POC	POINT OF CONNECTION
R	RELOCATED
RD	ROOF DRAIN
SAV	SUPPLY AIR VALVE
SCR	SCREEN
SD	SMOKE DETECTOR
S/F	SMOKE/FIRE DAMPER
SM	SHEET METAL
SOV	SHUT OFF VALVE
TEMP	TEMPERATURE
TYP	TYPICAL
VD	VOLUME DAMPER
VEL	VELOCITY
VTR	VENT THROUGH ROOF
WG	WATER GAUGE

GENERAL NOTES

1. CONTRACTOR SHALL EXAMINE ALL OTHER SPECIFICATIONS, DRAWINGS AND ALL FEATURES OF BUILDING CONSTRUCTION WHICH MAY AFFECT HIS WORK AND SHALL BE GOVERNED BY THESE AND OTHER SPECIFICATIONS, INCLUDING THE GENERAL CONDITIONS AND PARTICULAR INSTRUCTIONS TO ALL BIDDERS AND SUPPLIERS.
2. ALL WORK SHALL BE EXECUTED AND INSPECTED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND/OR STATE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THIS PARTICULAR CLASS OF WORK, AND EACH CONTRACTOR SHALL INCLUDE IN HIS PRICE ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, TAXES, AND OTHER SIMILAR COSTS IN CONNECTION THEREWITH.
3. PRIOR TO FABRICATION OF DUCT OR PIPING, CONTRACTOR SHALL EXAMINE AND VERIFY ALL CONDITIONS ABOVE AND BELOW THE FLOORS WHICH MAY INTERFERE WITH THE MATERIALS AND NOTIFY THE ENGINEER OF ANY CONFLICT ENCOUNTERED. CONTRACTOR SHALL PROVIDE ALL OFFSETS, ETC. WHICH MAY BE REQUIRED, WITHOUT ADDITIONAL COST TO THE OWNER.
4. ALL PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE CALIFORNIA MECHANICAL CODE.
5. PROVIDE LATERAL BRACING OF PIPES AS REQUIRED BY CODE.
6. MOUNT ALL THERMOSTATS AT 48" ABOVE FINISHED FLOOR.
7. ALL BRACING OF PIPING SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA GUIDELINES AS APPROVED BY THE ENGINEER.
8. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE MECHANICAL ENGINEER.
9. A COPY OF THE GUIDELINES PUBLISHED BY "SMACNA" AND APPROVED BY ENGINEER SHALL BE PROVIDED BY THE CONTRACTOR AND KEPT ON THE JOB AT ALL TIMES.
10. CONTRACTOR SHALL VERIFY PLACEMENT OF UNITS PRIOR TO BIDDING.
11. LABEL ALL EQUIPMENT TO INDICATE THE SPACE IT SERVES.
12. ALL APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE.
13. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF CEILING DIFFUSERS.
14. ALL DUCTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CMC CHAPTER 6.
15. ALL DUCT DIMENSIONS ARE INTERNAL
16. PROVIDE BALANCING DAMPERS IN ALL DUCT BRANCHES
17. PROVIDE AIR BALANCE REPORT BY A THIRD PARTY AABC AIR BALANCE CONTRACTOR. INCLUDE THE COST OF MULTIPLE BALANCES IN ORDER TO ACHIEVE THE AIRLFLOWS INDICATED.
18. ALL EXISTING EQUIPMENT IS MARKED "(E)" ON THESE PLANS. ANY EQUIPMENT NOT MARKED WITH "(E)" SHALL BE CONSIDERED NEW.

GREEN BUILDING CODE

1. THE PERMANENT HVAC SYSTEM SHALL ONLY BE USED DURING CONSTRUCTION IF NECESSARY TO CONDITION THE BUILDING OR AREAS OF ADDITION OR ALTERATION 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 EFFICIENCY REPORTING VALUE (MERV) 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 ALTERATION, AT THE CONCLUSION OF CONSTRUCTION.

(CAL GREEN 5.504.1)

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

(CAL GREEN 5.410.3)

3. ALL INSTALLED HVAC, REFRIGERATION, AND FIRE SUPPRESSION EQUIPMENT SHALL NOT CONTAIN CHLOROFLUOROCARBONS (CFCs).
4. AFTER COMPLETION OF TESTING, ADJUSTING AND BALANCING, PROVIDE A FINAL REPORT OF TESTING SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.

(CAL GREEN 5.410.4.4)

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

(CAL GREEN 5.410.4.5)

6. INCLUDE A COPY OF ALL INSPECTION VERIFICATIONS AND REPORTS REQUIRED BY THE ENFORCING AGENCY WITH THE FINAL REPORT TO THE BUILDING OWNER.

(CAL GREEN 5.410.4.5.1)

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

(CAL GREEN 5.504.3)

8. IN MECHANICALLY VENTILATED BUILDINGS, PROVIDE REGULARLY OCCUPIED AREAS OF THE BUILDING WITH CLEARLY LABELED AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY THAT PROVIDES AT LEAST A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 13.

(CAL GREEN (5.504.5.3))

SCOPE OF WORK

BUILDING ADDITION TO AN EXISTING POLICE DEPARTMENT BUILDING. WORK INCLUDES:

1. INSTALL NEW SPLIT SYSTEM DX FAN COIL/HEAT PUMP AND ALL ASSOCIATED REFRIGERANT PIPING AND ACCESSORIES TO SERVE NEW BUILDING ADDITION.
2. INSTALL DUCTWORK AS INDICATED ON THE PLANS.
3. INSTALL GRAVITY INTAKE/RELIEF VENTILATORS ON ROOF TO PROVIDE OUTSIDE AIR FOR FAN COIL AND RELIEF FOR EXHAUST AND PASSIVE RELIEF DURING ECONOMIZER OPERATION.
4. INSTALL NEW INLINE EXHAUST FAN TO PROVIDE GENERAL EXHAUST FOR JANITOR'S ROOM, RESTROOMS, SHOWER ROOMS, AND LOCKER ROOM.
5. INSULATE ALL SA AND RA DUCTWORK WITH 1" OF R-4.2 INSULATION IF LOCATED ABOVE A CEILING OR IN A PLENUM SPACE. DUCTWORK LOCATED IN CONDITIONED SPACE DOES NOT NEED TO BE INSULATED PER CMC 605.1(2). IF DUCTWORK IS LOCATED IN AN UNCONDITIONED SPACE INSULATE WITH 1.5" OF R-8 INSULATION.
6. PROVIDE FINAL AIR TEST AND BALANCE AND DUCT LEAKAGE TESTING FOR ALL NEW OR ALTERED AIR DISTRIBUTION. PROVIDE NEW SHEAVES, BELTS, BALANCING DAMPERS, ETC. AS REQUIRED.

GOVERNING CODES

2022 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.

2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
(2021 INTERNATIONAL BUILDING CODE & 2022 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
(2020 NATIONAL ELECTRICAL CODE & 2022 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
(2021 IAPMO UNIFORM MECHANICAL CODE & 2022 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
(2021 IAPMO UNIFORM PLUMBING CODE & 2022 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.

2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R.
(2021 INTERNATIONAL FIRE CODE & 2022 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 C.C.R.
(2021 INTERNATIONAL EXISTING BUILDING CODE & 2022 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 C.C.R.

2022 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.

TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

DUCT SMOKE DETECTORS

PROVIDE AND INSTALL DUCT SMOKE DETECTOR AS REQUIRED BY CHAPTER 6, SECTION 609 OF THE 2022 CMC., AND PER NFPA 72. THE SMOKE DETECTOR SHALL DETECT PRODUCTS OF COMBUSTION OTHER THAN HEAT. THE SMOKE DETECTOR SHALL BE INSTALLED ON THE MAIN SUPPLY AIR DUCT AHEAD OF ANY OUTSIDE AIR INLET. THE ACTIVATION OF THE SMOKE DETECTOR SHALL AUTOMATICALLY SHUT-DOWN THE AIR CONDITIONING UNIT.

THE SMOKE DETECTOR IS REQUIRED WHEN THE TOTAL CFM SUPPLIED EXCEEDS 2000 CFM, OR THE TOTAL COMBINED CFM SUPPLIED BY MORE THAN ONE UNIT TO ONE SPACE EXCEEDS 2000 CFM.

SHEET INDEX

HEAT PUMP SCHEDULE

SYMBOL	LOCATION	MODEL	NOMINAL TONS	SUMMER AMBIENT	CLG. CAP. TOTAL BTU/H	EER / SEER	HSPF	WINTER AMBIENT	HTG. CAP. TOTAL BTU/H	COP	NO. OF COMPRESSORS	COMP RATED AMPS	NO. OF FANS	FAN RATED AMPS	MCA	MOP	VOLT	HZ	PH	REFRIGERANT PIPE SIZES		OPER. WEIGHT	REMARKS
																				LIQUID	GAS		
HP 1	OUTSIDE	CARRIER 38MBRCQ58	4.8	101°F DB	58,587.5	12.3 / 17	10	34°F DB	44,144.5	3.50	1	25	2	-	35	50	208/230	60	1	3/8"	7/8"	225	VARIABLE SPEED (INVERTER), FACTORY INSTALLED BASE PAN HEATER, FACTORY INSTALLED CRANKCASE HEATER, LOW VOLTAGE CONTROLS, AUTO-RESTART FUNCTION, CONDENSER HIGH TEMP PROTECTION, QUIET OPERATION, ANTI-CORROSIVE FIN COATING. SEE 5/M2.0 FOR WIRING DIAGRAM.

FAN COIL SCHEDULE

SYMBOL	MATCHING UNIT	LOCATION	MANUFACTURER MODEL	CFM	OSA	MAX ESP	CLG. CAP. TOTAL BTU/H	CLG. CAP. SENS. BTU/H	COOLING EDB	COOLING EWB	COOLING COIL LAT	HTG. CAP. BTU/H	HEATING EDB	HEATING COIL LAT	FAN WATTS	RATED AMPS	MCA	MOP	VOLT	HZ	PH	REFRIGERANT PIPE SIZES		WEIGHT LBS.	REMARKS
																						LIQUID	GAS		
FC 1	HP 1	RESTROOM 05	CARRIER 40MBDAQ58	2,150	440	0.7"	58,588	57,323	82°F	67°F	55.9°F	44,145	60°F	79.3°F	420	3.3	5.0	-	208/230	60	1	3/8"	7/8"	175	INTEGRAL CONDESNATE LIFT PUMP, QUIET INDOOR OPERATION, ANTI-CORROSIVE FIN COATING, T-STAT MODEL# KSAIC0301230. INSTALL "MICROMETL" #MB-V00B4CA-D00B MIXING BOX: ULTRA LOW LEAK, ECONOMIZER CONTROLS. SEE 5/M2.0 FOR WIRING DIAGRAM.

EXHAUST FAN SCHEDULE

SYMBOL	SERVICE	MANUFACTURER MODEL	TYPE	CFM	E.S.P.	FRPM	SOUND LEVEL (SONE)	DRIVE	HP	VOLT	PHASE	HZ	OPER. WEIGHT (LBS)	REMARKS	ANCHORAGE DETAIL
EF 1	LOCKER ROOM	GREENHECK SG-100-VG	CENTRIFUGAL	610	0.25"	990	3.6	DIRECT	1/4	115	1	60	65	UL LISTED, SPRING ISOLATORS W/ 1" DEFLECTION AND SEISMIC RESTRAINT, VARI-GREEN EC MOTOR, NEMA-1 TOGGLE/SWITCH, JUNCTION BOX, GALVANIZED BIRDSCREEN, CONDUIT CHASE, GRAVITY OPERATED BACKDRAFT DAMPER.	10&11 / M2.0

GRAVITY INTAKE/RELIEF SCHEDULE

SYMBOL	LOCATION	MODEL	DIMENSIONS		PERFORMANCE				WEIGHT LBS	REMARKS
			THROAT W	THROAT L	CFM	S.P.	THROAT AREA	THROAT VEL.		
GR 1	ROOF	GREENHECK FGI	24"	24"	2,150	0.049"	4.0 FT SQ.	538	115	GALVANIZED BIRDSCREEN, ROOF CURB, AND GRAVITY OPERATED BACKDRAFT DAMPER.
GR 1	ROOF	GREENHECK FGR	12"	12"	610	0.052"	1.0 FT SQ.	610	55	
GR 2	ROOF	GREENHECK FGR	24"	24"	2,150	0.077"	4.0 FT SQ.	538	115	

FC-1 AIRFLOW TABLE

Room No.	Room Name	Area	Ceiling Height	Volume	Min OSA Air Rate	Min OSA CFM	Actual OSA CFM	Actual Air Changes	Design Supply Airflow	Return Air	Min Exhaust Air (By Rate)	Actual Exhaust Air	Trans. Air	Pressure
1	ENTRY HALL	223	9.5	2,119	0.15	33	149	20.7	730	730		0	0	E
2	JAN. RM.	44	9.5	418		0	0	0.0	0		44	50	-50	N
3	VESTIBULE	118	9.5	1,121	0.15	18	33	8.6	160	160		0	0	E
4	QUIET ROOM	107	9.5	1,017	0.15	16	47	13.6	230	230		0	0	E
5	RESTROOM	185	9.5	1,758		180	37	6.1	180		140	210	-30	N
6	PREP AREA	98	9.5	931	0.15	15	22	7.1	110	0		0	110	P
7	SHOWER VEST.	37	9.5	352	0.15	6	22	18.8	110	0		0	110	P
8	ADA SHOWER	31	9.5	295		0	0	0.0	0		50	125	-125	N
9	SHOWER	37	9.5	352		0	0	0.0	0		50	125	-125	N
10	LOCKER ROOM	392	9.5	3,724	0.25	98	129	10.2	630	590	98	100	-60	N
	Totals	**1,272 Sq. Ft.**				**365 CFM**	**440 CFM**		**2,150 CFM**	**1,710 CFM**	**382**	**610 CFM**	**-170**	**N**
OSA =	20%													

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REGISTERED PROFESSIONAL ENGINEER — KEVIN A. SMOLA — No. M21106 — MECHANICAL — STATE OF CALIFORNIA

No.	Description	Date
	50% DD	07/08/24
	50% CD	08/12/24
	PLAN CHECK	10/21/24
1	BACK CHECK 1	01/27/25

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

MECHANICAL LEGENDS, NOTES & SCHEDULES

Project number	47067
Date	01/27/2025
Drawn by	DG

M0.1

Scale

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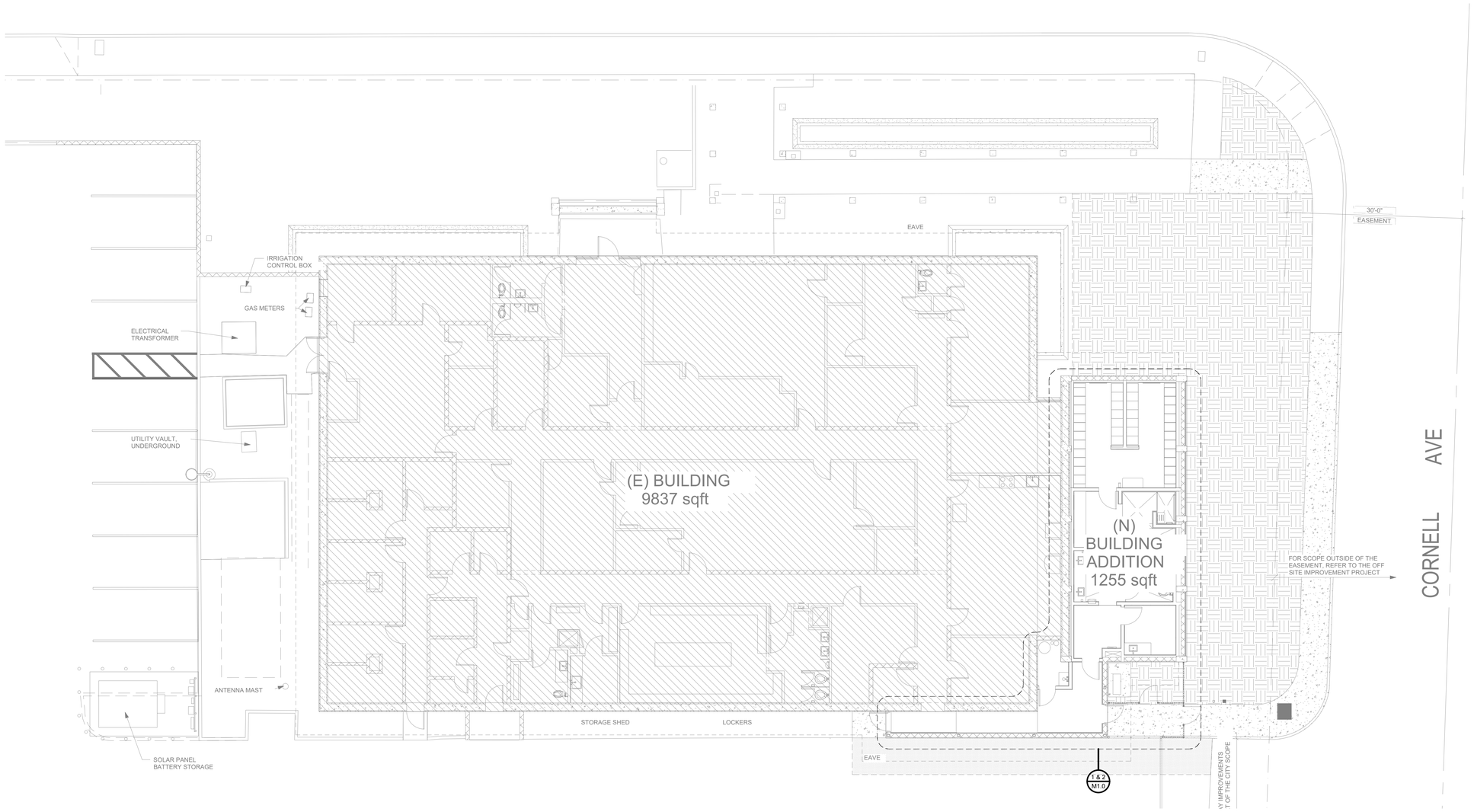

MECHANICAL OVERALL SITE PLAN

SCALE: 1/8" = 1'-0"

0' 4' 8' 16'

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CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
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MECHANICAL SITE PLAN

Project number	47067
Date	01/27/2025
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M0.2

Scale

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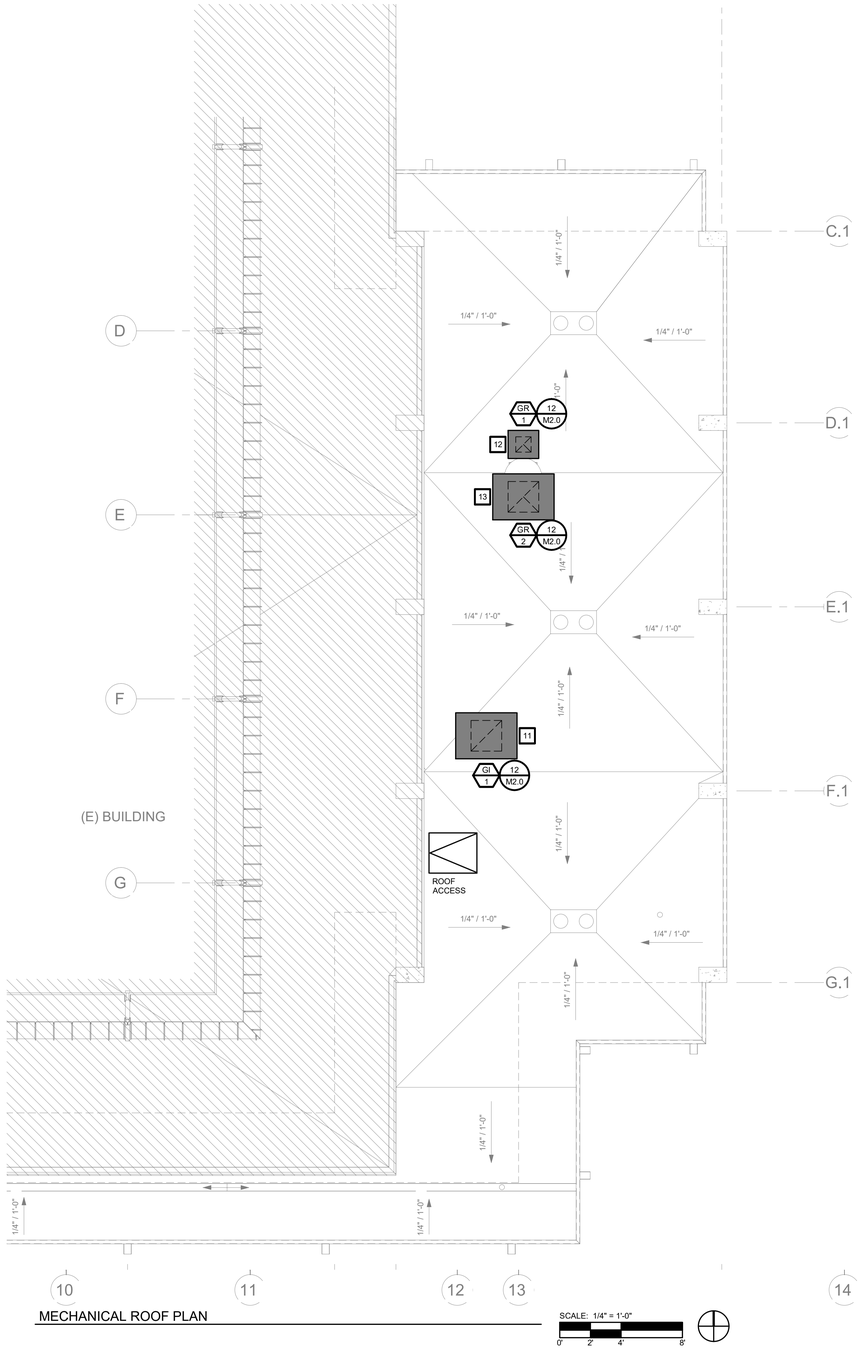
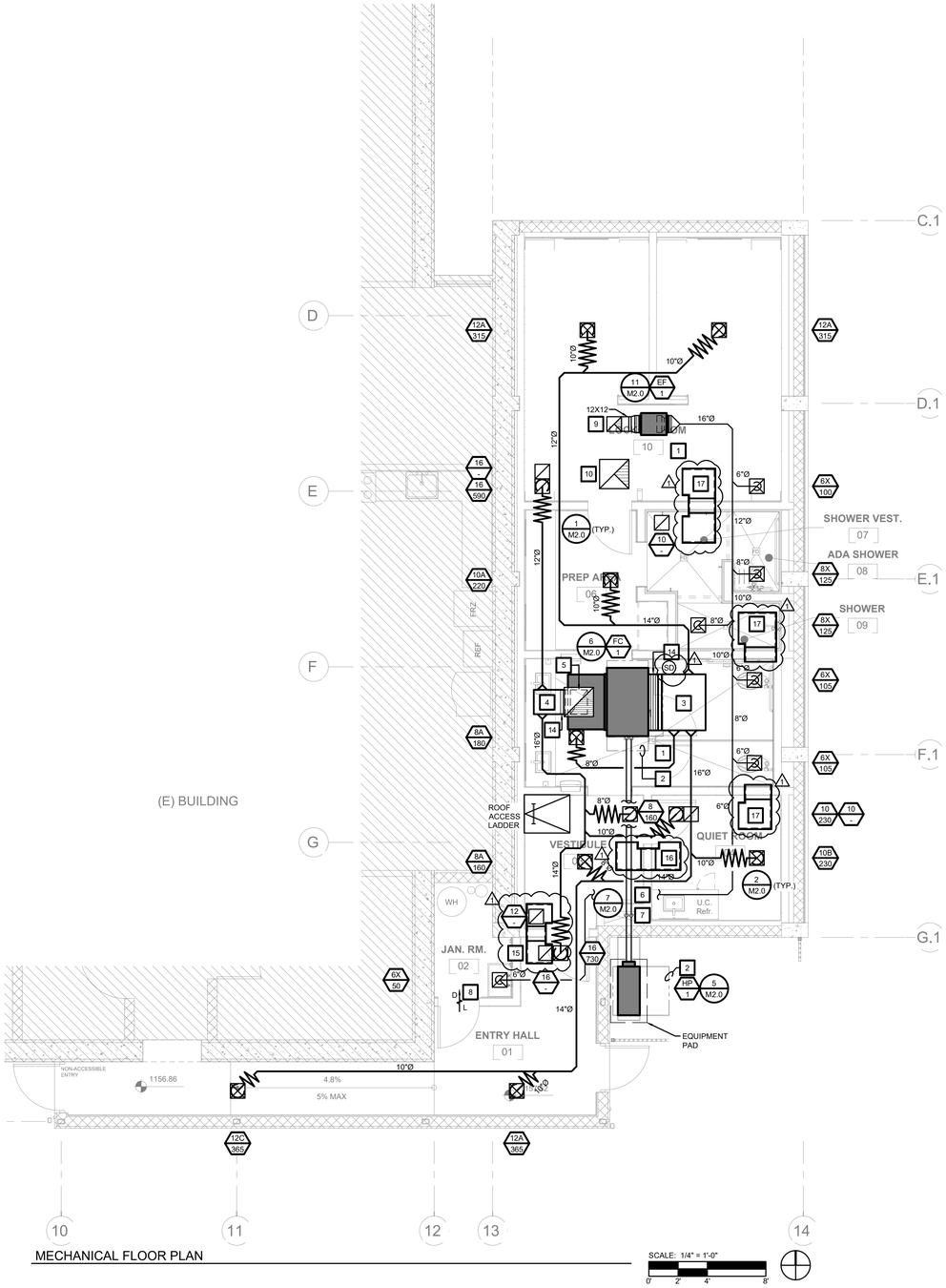
PLAN NOTES

1. ACCESS PANEL. SEE ARCHITECTURAL DRAWINGS.
2. INDICATES UNIT CLEARANCES. (TYP.)
3. 46X16 SA WITH FLEXIBLE CONNECTION TRANSITION TO 46X18 SA PLENUM.
4. 20X18 RA PLENUM WITH FLEXIBLE CONNECTION.
5. 20X14 OSA UP FROM MIXING BOX AND TRANSITION TO 24X24 AND CONNECT TO GI-1 ON ROOF. SEE 2/M1.0 FOR CONTINUATION.
6. 3/8" AND 7/8" INSULATED REFRIGERANT PIPING.
7. 3/8" AND 7/8" INSULATED REFRIGERANT PIPING DOWN TO 18" AFF. TO HP-1.
8. DOOR LOUVER WITH A MINIMUM OF 40 SQ.IN. OF FREE AREA. SEE ARCHITECTURAL DRAWINGS FOR DOOR SCHEDULE.
9. 12X12 EXH DUCT RISER UTR TO GR-1. SEE 2/M1.0 FOR CONTINUATION.
10. 24X24 RELIEF DUCT RISER UTR TO GR-2. TERMINATE RELIEF DUCT ABOVE CEILING W/ BIRDSCREEN AT OPENING. SEE 2/M1.0 FOR CONTINUATION.
11. 24X24 OSA DOWN FROM GI-1 AND TRANSITION TO 20X14 TO FC-1. SEE 1/M1.0 FOR CONTINUATION.
12. 12X12 EXH DUCT RISER DOWN FROM GR-1. SEE 1/M1.0 FOR CONTINUATION.
13. 24X24 RELIEF DUCT RISER DOWN FROM GR-2. SEE 1/M1.0 FOR CONTINUATION.
14. FLEXIBLE CONNECTION.
15. 14X16(1"L) TRANSFER BOOT.
16. 20X16(1"L) TRANSFER BOOT.
17. 24X16(1"L) TRANSFER BOOT.



MECHANICAL ROOF PLAN

SCALE: 1/4" = 1'-0"



MECHANICAL FLOOR PLAN

SCALE: 1/4" = 1'-0"

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CLAREMONT PD ADDITION

CITY OF CLAREMONT

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MECHANICAL FLOOR PLANS

Project number	47067
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M1.0

Scale

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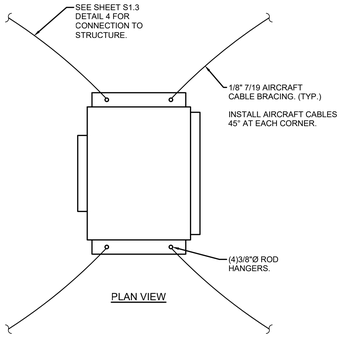
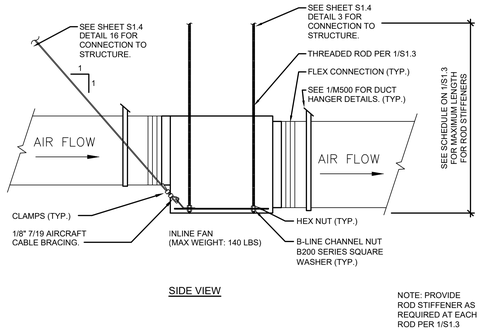


PLAN VIEW

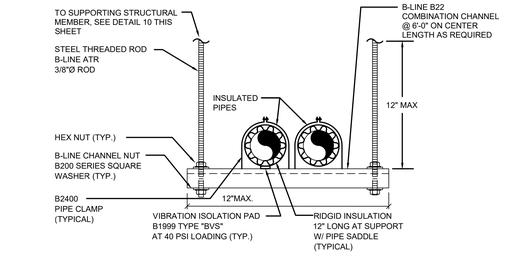


SIDE VIEW

NOTE: PROVIDE
ROD STIFFENER AS
REQUIRED AT EACH
ROD PER 1/S1.3

FAN MOUNTING DETAIL

SCALE: NTS | 11



PIPING DESIGN NOTES:

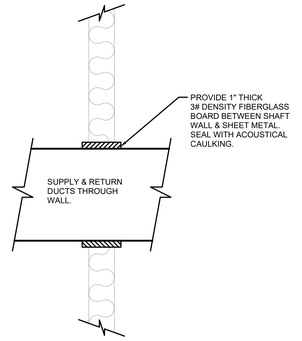
1. 11 LBS. HANGER LOAD @ 6'-0" O.C. SPACING.
2. 680 LBS. MAX ROD LOAD.
3. VALUES ARE WORST CASE SCENARIO.
4. HANGER IS NOT A SEISMIC BRACE. SEISMIC BRACING NOT REQUIRED PER CBC 1617A.1.26 ASCE 7, SECTION 13.6.7.3, EXCEPTION 1. PIPING IS SUPPORTED ON A TRAPEZE BY 3/8" HANGER ROD WITH MAXIMUM LENGTH OF 12" FROM POINT OF SUPPORT TO CONNECTION AT STRUCTURE. PIPING IS LESS THAN 3"Ø AND TRAPEZE SUPPORTS A TOTAL WEIGHT OF LESS THAN 100 LBS.
5. MAXIMUM PIPE WEIGHT BASED ON: 1" TYPE L COPPER TUBING FILLED WITH REFRIGERANT (1.0 #/FT) + 1" OF INSULATION WRAP @ (0.798#/FT) = 1.8#/FT

NOTES:

1. FOR COPPER TUBING USE FELT LINED B3690F OR PLASTIC COATED B3690C HANGERS. INSTALL HANGERS AT 6'-0" O.C. MAXIMUM DESIGN LOAD 11 LBS.

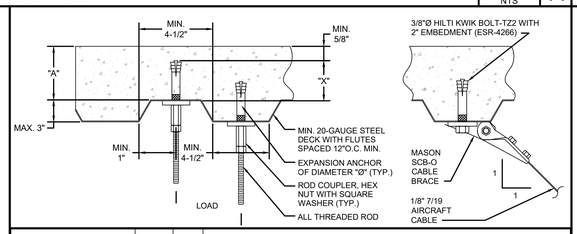
REFRIGERANT PIPING SUPPORT DETAIL

SCALE: NTS | 7



DUCT THRU NON RATED WALL

SCALE: NTS | 3

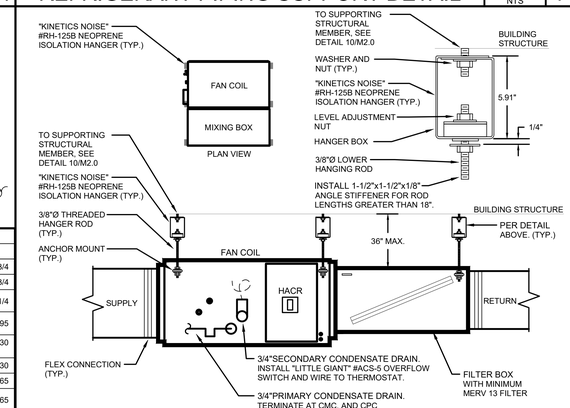


DESIGN PARAMETER	SYMBOL	UNITS	ANCHOR DIAMETER											
			1/4	3/8			1/2				5/8		3/4	
EFFECTIVE MIN EMBEDMENT	X	IN.	1-1/2	1-1/2	2	2-1/2	1-1/2	2	2-1/2	3-1/4	2-3/4	4	3-1/4	3-3/4
MIN HOLE DEPTH	Y	IN.	2	2	2-3/4	3-1/4	2-1/4	2-3/4	3-1/4	4-1/4	3-3/4	4-3/4	4-1/4	4-3/4
MIN CONCRETE THICKNESS OVER UPPER FLUTE	A	IN.	2-1/2	2-1/2			2-1/2				2-1/2		2-1/2	3-1/4
PULLOUT STRENGTH, UNCRACKED CONCRETE	B	LB	1725	1855	2625	2995	1855	2750	3745	4715	4415	5815	3800	4795
PULLOUT STRENGTH, CRACKED CONCRETE	C	LB	515	1625	2295	2405	1650	2135	3275	3340	3930	4395	3325	3730
PULLOUT STRENGTH, SEISMIC	D	LB	515	1625	2295	2405	1650	2135	3275	3340	3930	4395	3325	3730
STEEL STRENGTH IN SHEAR	E	LB	1630	1355	2120	2120	1790	2260	3555	4345	3815	6150	4085	7865
STEEL STRENGTH IN SHEAR, SEISMIC	F	LB	1630	1355	2120	2120	1790	2260	3555	4345	3815	6150	4085	7865

HILTI KWIK BOLT-TZ2 (ESR-4266) IN 3000 PSI LIGHT WEIGHT CONCRETE

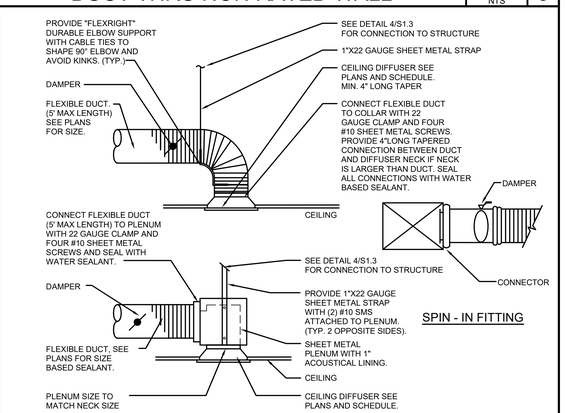
CONCRETE ATTACHMENTS TO METAL DECK

SCALE: NTS | 10



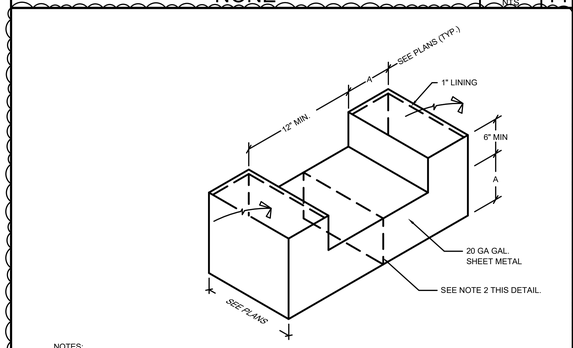
HORIZONTAL FAN COIL MOUNTING DETAIL

SCALE: NTS | 6



DIFFUSER DETAIL

SCALE: NTS | 2

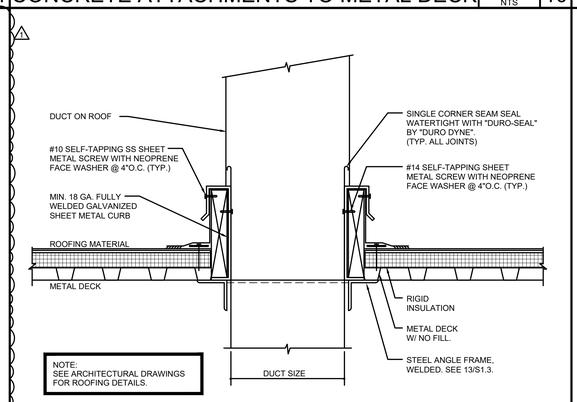


NOTES:

1. USE 1" WIDE HANGER STRAP 18 GA., MINIMUM OF 4 STRAPS PER BOOT. SEE DRWG'S FOR LOCATION & WIDTH.
2. INSTALL HALF OF BOOT IF OBSTRUCTION PREVENTS INSTALLATION OF FULL BOOT. IF FACE OF BOOT IS EXPOSED INSTALL "PRICE" #510 RA GRILLE FLUSH WITH FINISHED WALL. ALL SUCH INSTALLATIONS SHALL BE APPROVED BY THE ARCHITECT.
3. ALL DIMENSIONS ARE INTERNAL.

TRANSFER BOOT DETAIL

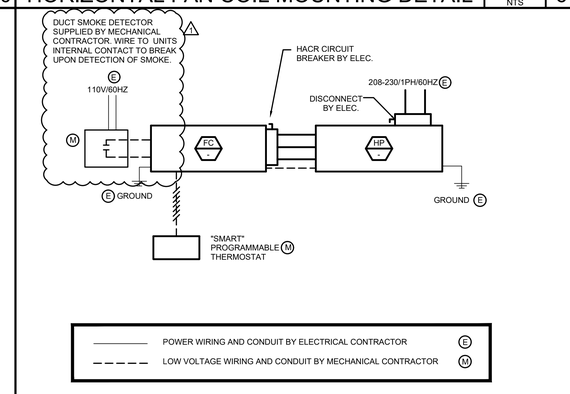
SCALE: NTS | 13



NOTE:
SEE ARCHITECTURAL DRAWINGS
FOR ROOFING DETAILS.

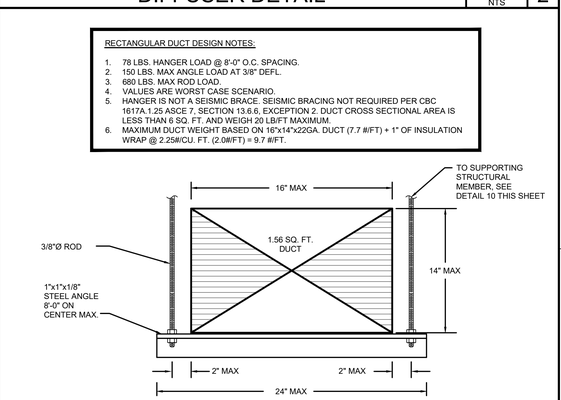
DUCT THRU ROOF DETAIL

SCALE: NTS | 9



SPLIT SYSTEM WIRING DIAGRAMS

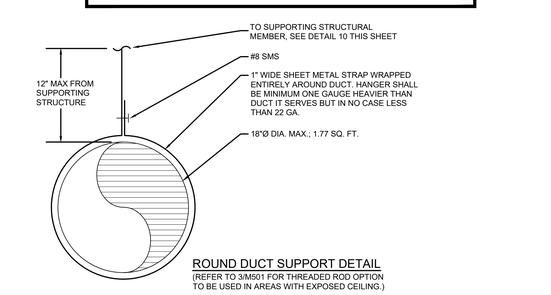
SCALE: NTS | 5



RECTANGULAR DUCT SUPPORT DETAIL

ROUND DUCT DESIGN NOTES:

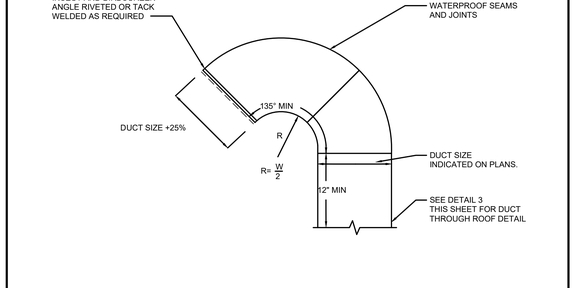
1. 81 LBS. HANGER LOAD @ 12'-0" O.C. SPACING.
2. 260 LBS. MAX STRAP LOAD.
3. VALUES ARE WORST CASE SCENARIO.
4. HANGER IS NOT A SEISMIC BRACE. SEISMIC BRACING NOT REQUIRED PER CBC 1617A.1.25 ASCE 7, SECTION 13.6.6, EXCEPTION 2. DUCT CROSS SECTIONAL AREA IS LESS THAN 6 SQ. FT. AND WEIGH 20 LB/FT MAXIMUM.
5. MAXIMUM DUCT WEIGHT BASED ON 18"Ø x24GA. DUCT (5.7 #/FT) + 1" OF INSULATION WRAP @ 2.25#/CU. FT. (1.0#/FT) = 6.7#/FT.



ROUND DUCT SUPPORT DETAIL
(REFER TO 3/M501 FOR THREADED ROD OPTION TO BE USED IN AREAS WITH EXPOSED CEILING.)

DUCT HANGER DETAILS

SCALE: NTS | 1

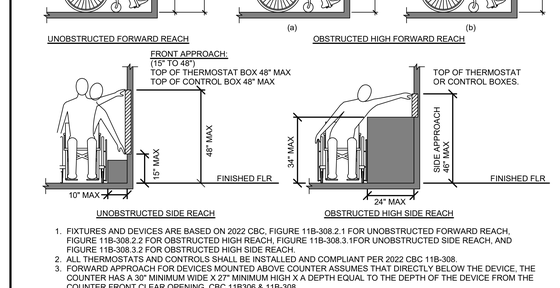


GRAVITY INTAKE/RELIEF MOUNTING DETAIL

SCALE: NTS | 12

GOOSENECK DETAIL

SCALE: NTS | 8



1. FIXTURES AND DEVICES ARE BASED ON 2022 CBC, FIGURE 11B-308.2.1 FOR UNOBSTRUCTED FORWARD REACH, FIGURE 11B-308.2.2 FOR OBSTRUCTED HIGH REACH, FIGURE 11B-308.3.1'FOR UNOBSTRUCTED SIDE REACH, AND FIGURE 11B-308.3.2 FOR OBSTRUCTED HIGH SIDE REACH.
2. ALL THERMOSTATS AND CONTROLS SHALL BE INSTALLED AND COMPLIANT PER 2022 CBC 11B-308.
3. FORWARD APPROACH FOR DEVICES MOUNTED ABOVE COUNTER ASSUMES THAT DIRECTLY BELOW THE DEVICE, THE COUNTER HAS A 30" MINIMUM WIDE X 27" MINIMUM HIGH X A DEPTH EQUAL TO THE DEPTH OF THE DEVICE FROM THE COUNTER FRONT CLEAR OPENING. CBC 11B306 & 11B-308.

MOUNTING HEIGHT OVER OBSTRUCTION

SCALE: NTS | 4

NONE

SCALE: NTS | 14

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CITY OF CLAREMONT

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MECHANICAL DETAILS

Project number	47067
Date	01/27/2025
Drawn by	DG

M2.0

Scale

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SECTION 23 0000

HEATING, VENTILATION AND AIR CONDITIONING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A.DIVISION 1 REQUIREMENTS APPLY TO THIS SECTION.

1.2 SUMMARY

A. SECTION INCLUDES: HEATING, VENTILATING, AND AIR CONDITIONING REQUIRED FOR THIS WORK IS INDICATED ON THE DRAWINGS AND INCLUDES, BUT NOT NECESSARILY LIMITED TO:

1. PACKAGED AIR CONDITIONING UNITS, SEISMIC CURBS, ECONOMIZERS, DUCTS, DAMPERS, GRILLES, REGISTERS, AND DIFFUSERS.
2. DUCT AND PLENUM INSULATION.
3. DUCT SMOKE DETECTOR INSTALLATION.
4. LOW VOLTAGE ELECTRICAL.
5. OTHER ITEMS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM OF HEATING VENTILATING, AND AIR CONDITIONING.
6. EQUIPMENT OPERATING AND MAINTENANCE MANUALS.

B. RELATED WORK DESCRIBED ELSEWHERE:

1. LINE VOLTAGE, SERVICE WIRING AND ALL CONDUIT.

1.3 QUALITY ASSURANCE

A. QUALIFICATIONS OF MANUFACTURERS: USE PRODUCTS BY MANUFACTURERS REGULARLY ENGAGED IN MANUFACTURE OF SIMILAR ITEMS AND WITH A HISTORY OF SUCCESSFUL PRODUCTION ACCEPTABLE TO THE ARCHITECT.

B. QUALIFICATIONS OF WORKERS: USE ADEQUATE NUMBERS OF SKILLED WORKERS WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND THE METHODS NEEDED FOR PROPER PERFORMANCE OF THE WORK OF THIS SECTION.

C. CODES AND STANDARDS: IN ADDITION TO COMPLYING WITH PERTINENT CODES AND REGULATIONS, COMPLY WITH PERTINENT RECOMMENDATIONS CONTAINED IN "DUCT MANUAL AND SHEET METAL CONSTRUCTION FOR VENTILATING AND AIR CONDITIONING SYSTEMS", LATEST EDITION, PUBLISHED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA). ALL AIR CONDITIONING EQUIPMENT SHALL BE ARI TESTED AND CEC APPROVED AND ALL GAS FIRED EQUIPMENT SHALL BEAR AGA AND UL LABELS.

1.4 SUBMITTALS

A. COMPLY WITH PERTINENT PROVISIONS OF THE GENERAL CONDITIONS.

B. SHOP DRAWINGS: FURNISH 1/4" SCALE MINIMUM DETAILED DUCTWORK LAYOUT SHOP DRAWINGS AND CATALOG PLATES OF ALL SPECIAL EQUIPMENT AS REQUIRED FOR APPROVAL. SHOP DRAWINGS OR CATALOG PLATES SHALL SHOW SIZES, SECTIONS AND DIMENSIONS OF EQUIPMENT, METHODS OF CONNECTION OR ATTACHING TO WORK OF OTHER TRADES, AND COPIES OF ALL SHALL BE FURNISHED TO OTHER TRADES. MAKE ALL ERECTION DRAWINGS NECESSARY FOR THE INSTALLATION OF THE WORK.

1. THE DUCTWORK LAYOUT SHOP DRAWINGS SHALL BE DONE BY AN HVAC DETAILER OR SIMILARLY TRAINED INDIVIDUAL. THE DRAWINGS SHALL BE THE RESULT OF REVIEW OF: THE COMPLETE SET OF CONSTRUCTION DOCUMENTS, COORDINATION WITH OTHER TRADES TO DETERMINE UTILITY ROUTING AND UPDATING OF DRAWINGS BASED ON FIELD CONDITIONS.
2. THE DRAWINGS SHALL INCLUDE DUCTWORK SIZES, TRANSITION, OFFSETS, FITTINGS, TOP AND BOTTOM DUCT ELEVATIONS, ROUTING OF OTHER TRADES SUCH AS PIPING AND CONDUIT, OTHER FIXTURE LOCATIONS SUCH AS LIGHTING AND PLUMBING, DIMENSIONED PENETRATIONS AND OPENINGS. OBTAIN A CLEAN, ARCHITECTURAL BACKGROUND (FLOOR PLAN OR REFLECTED CEILING PLAN) FOR USE AS BASE SHEETS. COPIES OF MECHANICAL PLANS ARE NOT ACCEPTABLE.
3. SUBMIT ONE SET OF REPRODUCIBLES FOR APPROVAL, WITHIN 4 WEEKS OF AWARD OF CONTRACT, OR 4 WEEKS PRIOR TO NEEDING APPROVAL TO ORDER DUCTWORK FABRICATION AND EQUIPMENT ORDERING (TO ALLOW TIME FOR RESUBMITTALS).

C. MATERIAL LIST:

1. BEFORE ENTERING INTO ANY CONTRACT FOR PURCHASE OF MATERIALS, AND BEFORE ANY WORK IS STARTED, CONTRACTOR SHALL SUBMIT FOR APPROVAL AND RECEIVE APPROVAL OF SIX (6) IDENTICAL COPIES OF A COMPLETE LIST, INCLUDING CATALOGS AND DESCRIPTIVE MATTER, OF THE FOLLOWING MATERIALS AND EQUIPMENT THEY PROPOSED TO FURNISH AND INSTALL. MATERIALS LIST SHALL BE COMPLETE AND CONTAINED IN THE BOUND LOOSE LEAF NOTEBOOKS. ITEMS NOT CONTAINED IN THE SUBMITTAL SHALL CONFORM TO DESIGN SPECIFICATIONS. PARTIAL OR SUPPLEMENTAL SUBMITTALS WILL NOT BE ACCEPTED.
   a. PACKAGED AIR CONDITIONING UNITS, SEISMIC CURBS, ECONOMIZERS, DUCTS, DAMPERS, GRILLES, REGISTERS, AND DIFFUSERS.
   b. DUCT AND PLENUM INSULATION.
   c. DUCT SMOKE DETECTOR INSTALLATION.
   d. LOW VOLTAGE ELECTRICAL.
   e. OTHER ITEMS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM OF HEATING, VENTILATING, AND AIR CONDITIONING.
   f. EQUIPMENT OPERATING AND MAINTENANCE MANUALS.

D. WIRING DIAGRAMS: WIRING DIAGRAMS OF WORK REQUIRED FOR THE INSTALLATION OF THE VENTILATING AND AIR CONDITIONING EQUIPMENT SHALL BE SUBMITTED FOR APPROVAL. ONLY APPROVED DIAGRAMS SHALL BE USED FOR INSTALLATION PURPOSES.

1.5 CODES, ORDINANCES AND CONDITIONS

A. ALL WORK SHALL CONFORM TO, AND BE INSTALLED IN ACCORDANCE WITH, THE REQUIREMENTS OF ALL LAWS, RULES AND REGULATIONS OF THE STATE, CITY, AND COUNTY. REQUIREMENTS OF THIS SECTION ARE MINIMUM REQUIREMENTS AND SHALL GOVERN, EXCEPT THAT THE BUILDING LAWS AND/OR THE DRAWINGS SHALL GOVERN WHEN THEIR REQUIREMENTS ARE GREATER OR MORE STRINGENT, WITHOUT ADDED COST TO THE OWNER.

B. EXAMINE ALL OTHER SECTIONS FOR WORK RELATED TO THOSE OTHER SECTIONS AND REQUIRED TO BE INCLUDED AS WORK UNDER THIS SECTION.

1.6 PLAN CHECK PERMITS AND RELATED FEES:

A. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS FOR THE EXECUTION OF THE WORK UNDER THIS SECTION.

1.7 PRODUCT HANDLING

A. COMPLY WITH PERTINENT PROVISIONS OF DIVISION 1.

B. PROTECTION: USE MEANS NECESSARY TO PROTECT MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION, AND TO PROTECT WORK AND MATERIALS OF OTHER TRADES.

C. REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY MAKE REPAIRS AND REPLACEMENTS NECESSARY TO THE APPROVAL OF THE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.

1.8 WARRANTY

A. IN ADDITION TO EQUIPMENT MANUFACTURER'S WARRANTIES, THE CONTRACTOR SHALL WARRANT THE ENTIRE HEATING, VENTILATING AND AIR CONDITIONING SYSTEM FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. IF DURING THIS PERIOD ANY MATERIAL OR APPARATUS PROVES DEFECTIVE, OR ANY PART OF THE SYSTEM FAILS TO FUNCTION PROPERLY, THIS CONTRACTOR SHALL MAKE GOOD THE DEFECTS WITHOUT EXPENSE TO THE OWNER.

B. FURNISH OWNER ALL MANUFACTURERS' WRITTEN WARRANTIES OF MATERIAL AND EQUIPMENT AS A CONDITION OF FINAL PAYMENT.

1.9 DUTIES OF THE SYSTEM

A. IT IS INTENDED THAT THE SYSTEM WILL PROVIDE VENTILATING, HEATING AND COOLING WITH AUTOMATIC CONTROL FOR THE AREAS. EQUIPMENT SHALL BE DESIGNED AND INSTALLED TO PRODUCE AND AUTOMATICALLY MAINTAIN DESIGN CONDITIONS WITHOUT DRAFTS OR OBJECTIONABLE NOISES.

B. BEFORE ACCEPTANCE, QUIETNESS OF OPERATION AND SATISFACTORY TO OWNER SHALL BE OBTAINED FOR ALL APPARATUS EQUIPMENT.

C. PROVIDE ALL REQUIRED VIBRATION ISOLATION EQUIPMENT TO ENSURE THAT NO OBJECTIONABLE VIBRATION IS TRANSMITTED TO THE STRUCTURE.

1.10 DESIGN DRAWINGS: GENERAL DRAWINGS: STRUCTURAL AND ARCHITECTURAL DRAWINGS SHALL BE USED FOR THE DESIGN OF THE HVAC SYSTEM AND SHALL FORM A PART OF WORK TO BE DONE UNDER THIS SPECIFICATION. CONTRACTOR SHALL EXAMINE ALL DRAWINGS IN ORDER TO FULLY INFORM THEMSELVES AS TO THE SCOPE AND DETAIL OF WORK REQUIRED OF THEM AND TO CHECK FOR INTERFERENCES, ETC.

1.11 COORDINATION WITH OTHER TRADES

A. THE CONTRACTOR SHALL ORDER THEIR WORK IN SUCH A MANNER THAT PROGRESS WILL HARMONIZE WITH ALL TRADES AND SO THAT ALL WORK MAY PROCEED AS EXPEDITIOUSLY AS POSSIBLE.

B. CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL AND ELECTRICAL SECTIONS OF THE SPECIFICATION TO MAKE SURE EACH AND EVERY ITEM HAS BEEN COVERED. NO EXTRAS WILL BE ALLOWED FOR ANY CONTROVERSIES ARISING BETWEEN TRADES.

C. AS FAR AS POSSIBLE THE WORK UNDER THIS CONTRACT SHALL BE INDICATED ON THE DESIGN DRAWINGS BY THE MECHANICAL CONTRACTOR IN SUCH POSITIONS AS TO SUIT AND ACCOMMODATE THE WORK OF THE OTHER TRADES. THEREFORE, THE CONTRACTOR IS HEREBY MADE DIRECTLY RESPONSIBLE FOR THE CORRECT PLACING OF HIS WORK AND THE PROPER LOCATION AND CONNECTION OF HIS WORK IN RELATION TO THE WORK OF THE VARIOUS TRADES.

1.12 CLEAN-UP: CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY HIS EMPLOYEES OR WORK. AFTER COMPLETION OF WORK AND PRIOR TO FINAL ACCEPTANCE, THOROUGHLY CLEAN ALL PARTS OF THE WORK, REMOVE ALL DEBRIS AND SURPLUS EQUIPMENT AND LEAVE INSTALLATION IN PERFECT CONDITION, READY FOR USE.

1.13 CONFLICTS IN SHOP DRAWINGS OR SUBMITTALS:

A. CONTRACTOR AGREES THAT SHOP DRAWING SUBMITTALS PROCESSED BY THE ARCHITECT DO NOT BECOME CONTRACT DOCUMENTS AND ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING REVIEW IS TO ESTABLISH A REPORTING PROCEDURE AND IS INTENDED FOR THE CONTRACTORS CONVENIENCE IN ORGANIZING HIS WORK AND TO PERMIT THE ARCHITECT TO MONITOR THE CONTRACTOR'S PROGRESS AND UNDERSTANDING OF THE DESIGN. THE PROCESS OF REVIEW OF THE CONTRACTOR'S SUBMITTALS IS NOT THE PURPOSE OF TESTING THE ARCHITECT'S PERCEPTION. IF DEVIATIONS, DISCREPANCIES OR CONFLICTS BETWEEN SHOP DRAWINGS SUBMITTALS AND CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER THE SHOPDRAWING SUBMITTALS ARE PROCESSED BY THE ARCHITECT, THE CONTRACTOR AGREES THAT THE CONTRACTDOCUMENTS SHALL CONTROL AND SHALL BE FOLLOWED.

PART 2 PRODUCTS

2.1 SHEET METAL

A. DESCRIPTION: THE SHEET METAL SHALL INCLUDE HOUSINGS, DUCTWORK, PLENUMS, DAMPERS, EQUIPMENT CONNECTIONS, ETC.

B. MATERIALS: SHEET METAL SHALL BE FABRICATED OF GALVANIZED STEEL SHEETS OF LOCK FORMING QUALITY (LFQ) AND SHALL HAVE A GALVANIZED COATING OF 1-1/4 NECTED TO GRILLE FACE OR TO SIDE OF DUCT PERMITTING ADJUSTMENT FROM EXTERIOR PART OF DUCTS, BAR OR ANGLE REINFORCING, DAMPER RODS AND ITEMS MADE OF UNCOATED MILD STEEL SHALL BE PAINTED WITH TWO COATS OF PRIMER.

C. CONSTRUCTION: SHEET METAL DUCTWORK MAY BE OF EITHER RECTANGULAR CONSTRUCTION (STEEL OR ALUMINUM) OR ROUND CONSTRUCTION (ONLY SPIRAL SEAM STEEL). GAGES AS PER LOCAL CODE REQUIREMENTS; FABRICATION SHALL BE IN ACCORDANCE WITH THE SHEET METAL AND AIR CONDITIONING NATIONAL ASSOCIATION (SMACNA) LOW VELOCITY AND DUCT CONSTRUCTION STANDARD, SECOND EDITION - 1995, AND AS HEREINAFTER SPECIFIED.

D. ELBOWS AND TEES: SHALL HAVE A CENTER LINE RADIUS OF 1-1/2 TIMES DUCT WIDTH, MEASURED IN PLANE OF TURN. ALL SQUARE ELBOWS SHALL BE EQUIPPED WITH TURNING VANES OF DOUBLE THICK METAL OF AIR FOIL DESIGN. VANES SHALL BE STRAIGHT, AND SECURELY FASTENED TO THE SIDES. SQUARE ELBOWS WITH RADIUS HEEL WILL NOT BE PERMITTED.

E. FLEXIBLE CONNECTIONS: NEOPRENE COATED FIBERGLASS SLEEVE TO PROVIDE A MINIMUM 3" CLEARANCE BETWEEN METAL PARTS OF ALL FAN AND UNIT CONNECTIONS. VERIFY APPROVAL OF MATERIALS WITH LOCAL AUTHORITIES.

F. EXTRACTORS: ADJUSTABLE VOLUME TYPE WITH EXTENDED FLEXIBLE SHAFT, CONOF DUCT.

G. OPERATED DAMPERS OR SPLITTERS: FABRICATED OF 16 GAUGE STEEL, AND AS RECOMMENDED BY SMACNA MANUAL, EQUIPPED WITH VENT-LOCK #637 SELF-LOCKING REGULATOR ON ALL DUCTS UNLESS NOTED OTHERWISE. PROVIDE WHERE REQUIRED FOR AIR BALANCING, INCLUDING O.S.A. INTAKES. SINGLE LEAF DAMPER APPROVED UP TO 36" X 12" MAXIMUM DUCT SIZE, OVER THESE SIZES MULTI-BLADE OPPOSED TYPE DAMPER SHALL BE USED.

H. BLANKET TYPE DUCT LINER. LINING MUST BE APPROVED BY LOCAL CODES AND SHALL ACCESS DOORS: PROVIDE ACCESS DOORS FABRICATED OF GALVANIZED STEEL, REINFORCED WITH STEEL ANGLES. HINGE AND DOUBLE LATCHES WITH SPONGE RUBBER GASKET TO PROVIDE AIRTIGHT SEALS. PROVIDE 2 OR 3 VENT-LOCK #260 LATCHES AS REQUIRED TO MAINTAIN AIRTIGHT CLOSURE. ALL DOORS SHALL BE LINED WHERE REQUIRED FOR ACCESS TO CONTROLS AND ALL ITEMS REQUIRING SERVICING.

I. JOINTS AND SEAMS: SEAL ALL FIELD JOINTS AND SEAMS AIRTIGHT WITH "HARDCAST" DUCT SEALER 321 FOR RECTANGULAR DUCTS AND POLYMERICS DP1010 FOR ROUND DUCT.

2.2 DIFFUSERS, REGISTERS AND GRILLES

A. ALL DIFFUSERS, REGISTERS AND GRILLES SHALL BE FURNISHED WITH FINISH AS PER ARCHITECT.

B. THE MANUFACTURER SHALL VERIFY THAT ALL SUPPLY AND RETURN SELECTIONS SHALL NOT PRODUCE AN AMBIENT NOISE LEVEL IN EXCESS OF NC-30. ONLY THE SELF-NOISE OF THE OUTLET SHALL BE CONSIDERED.

C. SHOP DRAWINGS ARE REQUIRED FOR EACH TYPE REGISTER OR DIFFUSER AND MANUFACTURED PLENUMS, WITH REFERENCE TO SCHEDULE NUMBER.

D. DIFFUSERS, REGISTERS AND GRILLES SHALL BE FURNISHED WITH NEOPRENE GASKETS, AND CONCEALED FASTENERS UNLESS INDICATED OTHERWISE. NO TEK SCREWS ALLOWED FOR FASTENING.

E. DESCRIPTION: CONTRACTOR SHALL CONFIRM CEILING AND MOUNTING TYPES PRIOR TO ORDERING OF DEVICES. DIFFUSERS SHALL BE MODULAR TYPE WITH LOUVERED BLADES. WHERE TEE BAR CEILINGS ARE TO BE USED, GRILLES SHALL BE FURNISHED WITH PERFORATED FACES. GRILLES SHALL BE OFF-WHITE.

F. MANUFACTURERS: PRICE OR KRUEGER.

2.3 SINGLE SOURCE

A. FOR EASE OF MAINTENANCE AND PARTS REPLACEMENT, TO THE MAXIMUM EXTENT PRACTICABLE USE EQUIPMENT OF A SINGLE MANUFACTURER.

B. THE ARCHITECT MAY REJECT ANY MATERIALS LIST WHICH CONTAINS EQUIPMENT FROM VARIOUS MANUFACTURERS IF SUITABLE MATERIALS CAN BE SECURED FROM FEWER MANUFACTURERS, AND THE ARCHITECT MAY REQUIRE SOURCE OF MATERIALS TO BE UNIFIED TO THE MAXIMUM EXTENT PRACTICABLE.

2.4 OTHER MATERIALS: MATERIALS NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR A COMPLETE AND PROPER INSTALLATION OF THE WORK OF THIS SECTION SHALL BE NEW, FIRST QUALITY OF THEIR RESPECTIVE KINDS, AND AS SELECTED BY THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ARCHITECT.

PART 3 EXECUTION

3.1 EXAMINATION: EXAMINE THE AREAS AND CONDITIONS UNDER WHICH WORK OF THIS SECTION WILL BE PERFORMED. CORRECT CONDITIONS DETRIMENTAL TO TIMELY AND PROPER COMPLETION OF THE WORK. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

3.2 INSTALLATION, GENERAL

A. INSTALL EQUIPMENT IN LOCATIONS SHOWN ON THE REVIEWED AND APPROVED SHOP DRAWINGS, EXCEPT WHERE SPECIFICALLY OTHERWISE APPROVED ON THE PROJECT BY THE ARCHITECT.

B. AVOID INTERFERENCE WITH STRUCTURE, AND WITH WORK OF OTHER TRADES, PRESERVING ADEQUATE HEADROOM AND CLEARING DOORS AND PASSAGEWAYS TO THE APPROVAL OF THE ARCHITECT.

C. CHECK EACH ITEM IN THE SYSTEM AND DEFECTS, VERIFYING THAT PARTS ARE PROPERLY FURNISHED AND INSTALLED, THAT ALL ITEMS FUNCTION PROPERLY, AND THAT REQUIRED ADJUSTMENTS HAVE BEEN MADE.

3.3 INSTALLATION OF DUCTWORK

A. FABRICATE AND INSTALL DUCTWORK IN ACCORDANCE WITH THE REVIEWED AND APPROVED SHOP DRAWINGS AND THE REFERENCED STANDARDS.

B. SHEET METAL DUCTWORK:

1. CROSS-BREAK OR KINK FLAT SURFACES TO PREVENT VIBRATION.
2. SIZES SHALL BE AS NOTED ON DRAWINGS, TO PROVIDE QUIET DRAFT-FREE VENTILATION.
3. SLOPE: NO MORE THAN 1 TO 7 ON ANY SIDE EXCEPT WHERE CONNECTIONS DICTATE. A MAXIMUM OF 1 TO 4 MAY BE USED, SUBJECT TO APPROVAL.
4. THROAT: AREA OF THE BRANCH DUCT TAKEOFF SHALL BE IN DIRECT PROPORTION TO THE VOLUME OF AIR TO EACH BRANCH.
5. HOLES: HOLES IN DUCT FOR DAMPER RODS AND OTHER NECESSARY DEVICES SHALL BE DRILLED AND SHALL BE AIRTIGHT. NO PIPES, CONDUITS OR OTHER MEMBER MAY PASS THROUGH ANY DUCT UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
6. NOISE: ENTIRE SYSTEM SHALL PROVE QUIET TO A DEGREE SATISFACTORY TO THE OWNER. ANY ADJUSTMENT REQUIRED TO PRODUCE QUIETNESS SHALL BE MADE BY THE CONTRACTOR BEFORE WORK CAN BE DEEMED TO BE FINISHED AND ACCEPTED.
7. ISOLATION: WHERE INCOMPATIBLE MATERIALS COME IN CONTACT, THEY SHALL BE ISOLATED FROM EACH OTHER WITH RUBBER, NEOPRENE, LEAD OR MATERIAL BEST SUITED FOR THE MATERIALS TO BE ISOLATED.

SEE M3.1 FOR CONTINUATION

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No.	Description	Date
	50% DD	07/08/24
	50% CD	08/12/24
	PLAN CHECK	10/21/24
1	BACK CHECK 1	01/27/25

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

MECHANICAL SPECIFICATIONS

Project number	47067
Date	01/27/2025
Drawn by	DG

M3.0

Scale

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8. SUPPORTS: SECURE DUCTS AGAINST DISPLACEMENT AND VIBRATION. AN-

10 FEET. SUSPEND WITH 18 GAUGE STRAPS AND AS RECOMMENDED IN THE SMACNA MANUAL.

9. ALL SUPPLY AND RETURN AIR DUCTS INSULATED ON ALL SIDES WITH EXTERNALLY APPLIED FLEXIBLE FIBERGLASS BLANKET INSULATION, APPLIED WITH BUTTED JOINTS, SECURELY AND NEATLY SEAL WITH ALUMINUM HEAT SENSITIVE TAPE, OR LINED WITH FLEXIBLE BLANKET TYPE INSULATION WITH PLASTIC COATING TO AIR STREAM. EXTERNALLY APPLIED INSULATION AT DUCTS USED FOR COOLING SHALL BE COVERED WITH A VAPOR BARRIER, MAXIMUM PERMEANCE OF 0.05.

C. ALL DUCTWORK:

1. WHEREVER OBSTRUCTIONS REQUIRE A CHANGE IN DUCT SHAPE, MAINTAIN EQUIVALENT AREAS. SIZES SHOWN ON DRAWINGS ARE NET DIMENSIONS INSIDE THE INSULATION.

2. DUCTWORK JOINTS: INTERNALLY SEAL WITH DP 1080 DUCT SEALANT.

D. CONNECTIONS:

1. INSTALL AND MAKE NECESSARY CONNECTIONS FOR THE COMPLETE SUPPLY, AND RECIRCULATION SYSTEMS INDICATED ON APPROVED SHOP DRAWINGS, INCLUDING DUCTWORK, GRILLE COLLARS, INTAKE HOUSINGS, HANGERS, CONNECTIONS, FASTENERS, AND OTHER ITEMS REQUIRED.

2. SUPPLY AIR AND RETURN AIR DUCTS, USED FOR HEATING, COOLING OR BOTH, SHALL HAVE THEIR LONGITUDINAL AND TRANSVERSE SEAMS TIGHTLY SEALED TO PROVIDE AN AIR-TIGHT SYSTEM.

3. PROVIDE FLEXIBLE CONNECTIONS BETWEEN UNITS AND DUCT.

E. VOLUME DAMPERS:

1. PROVIDE ADJUSTABLE VOLUME DAMPERS IN BRANCH SUPPLY DUCTS.

2. LOCATE THE DAMPERS AS CLOSE AS POSSIBLE TO THE MAIN DUCT.

3. PROVIDE REMOTE OPERATING DEVICE WHERE DAMPER IS INACCESSIBLE. LOCATE DEVICE ON SHOP DRAWINGS FOR ARCHITECT'S APPROVAL.

3.4 INSTALLATION OF GRILLES, REGISTERS, AND DIFFUSERS

A. INSTALL AND CONNECT GRILLES, REGISTERS, AND DIFFUSERS IN THE LOCATIONS SHOWN ON THE REVIEWED SHOP DRAWINGS, SECURELY ANCHORING EACH ITEM IN PLACE AND SEALING WITH RUBBER GASKETS TO PREVENT LEAKAGE. NO "TEK" SCREWS WILL BE ALLOWED IN THE FACE OF ANY DEVICE.

B. SIZES: MAXIMUM NC-30.

C. PERFORMANCE: PROVIDE THE REQUIRED AIR THROW AND SPREAD WITH NO APPARENT DRAFTS OR EXCESSIVE AIR MOVEMENT WITHIN SPACE SERVED.

3.5 GENERAL DUCTWORK INSULATION

A. ALL DUCTWORK, EQUIPMENT AND APPURTENANCES HANDLING AIR AT TEMPERATURES ABOVE OR BELOW ROOM AMBIENT SHALL BE INSULATED AS GENERALLY DESCRIBED HEREIN. CERTAIN PLENUMS, EXHAUST DUCTS AND TRANSFER AIR DUCTS SHALL BE INSULATED AS DESCRIBED HEREIN AND WHERE INDICATED ON THE DRAWINGS.

B. INSTALLATION SHALL BE NEAT AND WORKMANLIKE IN APPEARANCE AND QUALITY OF WORKMANSHIP. INSULATION SHALL BE NEATLY CUT AT SUPPORTS, ETC., AND BEVELED AT INSPECTION DOORS, UNIONS, ETC., AND SHALL BE FIRST CLASS IN WORKMANSHIP. INSTALLATION SHALL BE IN DIRECT COMPLIANCE WITH MANUFACTURER'S WRITTEN AND APPROVED INSTRUCTIONS FOR THIS PARTICULAR MATERIALS. CARE SHALL BE TAKEN DURING INSTALLATION TO ELIMINATE OR REDUCE DUST AND DIRT TO A MINIMUM. WASTE AND DEBRIS SHALL BE REMOVED AS IT ACCUMULATES.

C. LOCATION: ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE INSULATED ON THE EXTERIOR WHERE NOT INDICATED ON THE DRAWINGS AND/OR SPECIFIED TO BE LINED ON THE INTERIOR.

D. APPLICATION: INSULATION SHALL BE FIRMLY WRAPPED DUCT AND LAPPED MINIMUM OF 4" LONGITUDINALLY AND TRANSVERSELY. SECURELY FASTEN WITH 16 GAUGE GALVANIZED WIRE SPACED NOT MORE THAN 12" O.C. FOR STRAIGHT RUNS AND 3" O.C. FOR ELBOWS AND FITTINGS. IN ADDITION, SECURELY WIRE EACH TRANSVERSE JOINT OF THE INSULATION.

3.6 ELECTRICAL WORK

A. MOTOR STARTERS, DISCONNECT SWITCHES, LINE VOLTAGE WIRING AND ALL CONDUIT (POWER LINE AND LOW VOLTAGE) ARE SPECIFIED IN THE ELECTRICAL SECTION OF THE SPECIFICATIONS.

B. WIRING DIAGRAMS OF ELECTRICAL CONNECTIONS REQUIRED FOR THE INSTALLATION OF EQUIPMENT OF THIS SECTION SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL. AFTER APPROVAL, THE WIRING DIAGRAMS SHALL BE SUBMITTED TO THE ELECTRICAL CONTRACTOR FOR USE IN INSTALLATION.

C. IN THE EVENT THE EQUIPMENT FURNISHED OR SUBMITTED REQUIRES A GREATER NUMBER OF MOTORS, STARTERS, ETC., OR REQUIRES MOTORS, STARTERS, ETC., OF HIGHER RATING THAN SHOWN ON THE DRAWINGS, THE CONTRACTOR FOR THE WORK OF THIS SECTION SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COST INVOLVED IN PROVIDING ADDITIONAL ELECTRICAL SERVICES TO THE EQUIPMENT.

3.7 PAINTING: PAINTING OF ALL APPARATUS, UNLESS HEREINBEFORE SPECIFIED, SHALL BE DONE UNDER THE PAINTING SECTION OF THE SPECIFICATIONS. ALL APPARATUS FURNISHED BY THE CONTRACTOR SHALL BE PROVIDED WITH A SHOP COAT AT THE FACTORY. INSIDE OF DUCTS AND BOXES BEHIND ALL AIR INLETS AND OUTLETS IN FINISHED AREAS SHALL BE PAINTED TWO COATS OF DULL FLAT BLACK BY THIS CONTRACTOR.

3.8 EQUIPMENT IDENTIFICATION

A. PROVIDE A THOROUGH AND COMPLETE SYSTEM OF IDENTIFICATION OF ALL EQUIPMENT INCLUDING, DAMPERS, AND OTHER APPURTENANCES, TO PERMIT IMMEDIATE AND POSITIVE RECOGNITION OF COMPONENTS.

B. EQUIPMENT LABELS: ON EACH ITEM OF EQUIPMENT PROVIDED UNDER THIS SECTION, PROVIDE THE MANUFACTURER'S METAL LABELS SECURELY ATTACHED TO EACH INDIVIDUAL PLACE PIECE OF EQUIPMENT, AND SHOWING COMPLETE AND COMPREHENSIVE PERFORMANCE CHARACTERISTICS, SIZE, MODEL NUMBER, AND SERIAL NUMBER.

C. IDENTIFY ALL EQUIPMENT, USING BRASS DISCS OR BLACK LAMINATED PLASTIC PLATES WITH WHITE ENGRAVED LETTERS. INSTALL IN READILY VISIBLE LOCATION, NOT INTERFERING WITH INSULATION.

D. DAMPERS:

1. IDENTIFY FIRE AND FIRE SMOKE DAMPERS WITH RED LETTERS ON A WHITE BACKGROUND; IDENTIFY ALL OTHER DAMPERS WITH BLACK LETTERS ON A WHITE BACKGROUND.

3.9 CLEANING THE SYSTEM

A. DUCTWORK: AFTER THE DUCTWORK HAS BEEN TESTED AND PROVED TIGHT, THOROUGHLY CLEAN ALL COMPONENTS OF THE DUCTWORK AND REMOVE ALL DIRT, SCALE, OIL AND OTHER FOREIGN SUBSTANCES WHICH MAY HAVE ACCUMULATED DURING THE INSTALLATION PROCESS.

B. EQUIPMENT: AFTER THE EQUIPMENT HAS BEEN STARTED AND PROVED OPERATIONAL, CAREFULLY CLEAN ALL ACCESSIBLE PARTS OF EACH PIECE OF EQUIPMENT, THOROUGHLY REMOVING ALL TRACES OF DIRT, OIL, GREASE, AND OTHER FOREIGN SUBSTANCE.

3.10 COOPERATION WITH OTHER TRADES

A. DO ALL THINGS NECESSARY TO COOPERATE WITH OTHER TRADES IN ORDER THAT ALL SYSTEMS IN THE WORK MAY BE INSTALLED IN THE BEST ARRANGEMENT.

B. COORDINATE AS REQUIRED WITH OTHER TRADES TO SHARE SPACE IN COMMON AREAS AND TO PROVIDE THE MAXIMUM ACCESS TO EACH SYSTEM.

3.11 OPERATING AND MAINTENANCE INSTRUCTIONS

A. COMPLETE SETS OF INSTRUCTIONS CONTAINING THE MANUFACTURER'S OPERATING AND MAINTENANCE INSTRUCTION FOR EACH PIECE OF EQUIPMENT SHALL BE FURNISHED IN ACCORDANCE WITH THE GENERAL REQUIREMENTS TO THE ENGINEER. EACH SET SHALL BE PERMANENTLY BOUND AND SHALL HAVE A HARD COVER. THE FOLLOWING IDENTIFICATION SHALL BE INSCRIBED ON THE COVERS; THE WORDS "OPERATING AND MAINTENANCE INSTRUCTIONS", THE NAME AND LOCATION OF THE BUILDING, THE NAME OF THE CONTRACTOR AND THE CONTRACT NUMBER.

B. THE CONTRACTOR SHALL INCORPORATE, AMONG OTHERS IN THE SETS OF OPERATING AND MAINTENANCE INSTRUCTIONS TO THE OWNER'S REPRESENTATIVE, THE FOLLOWING DIRECTIONS:

1. PART NUMBERS OF ALL REPLACEABLE PARTS.

2. CUTS AND RATING TABLES.

3. OILING, LUBRICATING AND GREASING DATA.

4. COMPLETE ELECTRICAL LOAD DATA FROM OPERATION TESTS.

5. AIR FLOW DATA ON ALL FANS INDICATED ON THE DRAWINGS.

6. SERIAL NUMBERS OF ALL PRINCIPAL PIECES OF EQUIPMENT.

7. INSTALLING COMPANIES' NAMES, ADDRESSES AND TELEPHONE NUMBERS.

8. CONTROL DIAGRAMS AND OPERATING SEQUENCES TOGETHER WITH LABELING OF CONTROL WIRING AND INSTRUMENTS TO MATCH DIAGRAMS.

C. AFTER APPROVAL BY THE OWNER, THREE (3) COPIES OF THE INSTRUCTION AND MAINTENANCE MANUALS, AND INSPECTIONS AND REPORTS SHALL BE FURNISHED TO THE OWNER.

INSTRUCTING

A. UPON COMPLETION OF ALL REQUIRED TESTING AND BALANCING, AND AT A DATE SET BY THE ARCHITECT TO COINCIDE WITH THE OWNER'S ACCEPTANCE OF THE COMPLETED WORK, PROVIDE WRITTEN INSTRUCTIONS AND THOROUGHLY INDOCTRINATE AND INSTRUCT THE OWNER'S MAINTENANCE AND OPERATING PERSONNEL IN ALL ASPECTS OF OPERATION AND MAINTENANCE OF THE INSTALLED SYSTEMS.

B. DEMONSTRATE THE CONTENTS OF THE MANUAL REQUIRED TO BE SUBMITTED AND AS DESCRIBED IN 3.13 ABOVE, AND ENSURE THAT THE OWNER PERSONNEL ARE THOROUGHLY FAMILIAR WITH ALL ASPECTS OF OPERATION AND MAINTENANCE OF THE INSTALLED SYSTEMS.

3.12 GUARANTEE: IN ADDITION TO OTHER GUARANTEES REQUIRED AND AS A CONDITION PRECEDENT TO THE ISSUING OF THE FINAL CERTIFICATE FOR COMPLETION PAYMENT, THE CONTRACTOR SHALL DELIVER TO THE ARCHITECT A WRITTEN GUARANTEE THAT ALL MATERIALS, APPARATUS AND EQUIPMENT FURNISHED AND INSTALLED HEREUNDER SHALL BE NEW AND FREE FROM ALL DEFECTS. SHOULD ANY TROUBLE DEVELOP WITHIN ONE (1) YEAR FROM DATE OF ACCEPTANCE OF THE BUILDING, DUE TO FAULTY OR INFERIOR MATERIAL AND/OR WORKMANSHIP, THE TROUBLE SHALL BE CORRECTED BY THE CONTRACTOR WITHOUT EXPENSE TO THE OWNER. THE CONTRACTOR SHALL GUARANTEE ALL APPARATUS AND EQUIPMENT TO DELIVER THE CAPACITIES AS SCHEDULED AND/OR SPECIFIED.

3.13 DESCRIPTIVE NAMES: SELECTED MANUFACTURERS: WHERE THE NAME OF A SELECTED MANUFACTURER OF EQUIPMENT, FIXTURES, OR MATERIAL IS SPECIFIED, THE PROPOSAL OF THE CONTRACTOR SHALL BE BASED ON THE USE OF THE NAMED PRODUCT OR EQUIVALENT PRODUCT OF MANUFACTURERS IF SUCH ARE LISTED. NO SUBSTITUTIONS WILL BE PERMITTED.

3.14 ALTERATION WORK (IF REQUIRED)

THE DRAWINGS SHOW THE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTWORK, BUT DO NOT NECESSARILY REFLECT ALL INTERFERENCES WITH EXISTING EQUIPMENT, DUCTWORK. PERFORM THE ALTERATION WORK IN SUCH A MANNER THAT IT WILL ELIMINATE ADDITIONAL REROUTING OF EXISTING DUCTWORK, PIPING, ETC., AS MUCH AS POSSIBLE. SYSTEMS WHICH MUST BE INTERRUPTED AND/OR REROUTED SHALL BE PUT BACK INTO OPERATION, USING NEW MATERIALS, IN AN APPROVED MANNER SUCH THAT THEY WILL FUNCTION AND OPERATE AS THEY WERE ORIGINALLY INTENDED.

3.15 DEMOLITION

A. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM/HERSELF WITH ALL EXISTING CONDITIONS AFFECTING HIS/HER WORK. SPECIAL ATTENTION SHOULD BE GIVEN TO POSSIBLE ASBESTOS PRODUCTS, REMOVAL IS BY OTHERS, AND THIS CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS.

PROTECTION:

1. PERFORM DEMOLITION IN SUCH A MANNER AS TO ELIMINATE HAZARDS TO PERSONS AND PROPERTY AND TO MINIMIZE INTERFERENCE WITH USE OF NEIGHBORING UTILITIES AND STRUCTURES OR INTERRUPTION OF USE OF SUCH UTILITIES AND FREE PASSAGE TO AND FROM THE STRUCTURES.

2. PROVIDE SAFEGUARDS, INCLUDING WARNING SIGNS AND THE LIKE THAT ARE REQUIRED FOR THE PROTECTION OF OWNER'S AND CONTRACTOR'S EMPLOYEES AND OTHERS, DURING DEMOLITIONS AND REMOVAL OPERATIONS.

3. CARE SHALL BE TAKEN TO PREVENT SPREAD OF FLYING PARTICLES AND DUST.

B. CONTRACTOR SHALL EXAMINE ALL THE ITEMS WHICH ARE DESIGNATED TO BE REUSED, AND REFURBISH THEM AND STORE THEM FOR REUSE.

C. CONTRACTOR SHALL CONTACT OWNER TO SEE WHICH ITEMS (EQUIPMENT, FIXTURES, ETC.) OWNER WISHES TO KEEP. OWNER WILL DIRECT CONTRACTOR AS TO WHERE ITEMS SHALL BE STORED.

D. ALL REMOVED EQUIPMENT, PIPING, ETC., WHICH ARE NOT TO BE REUSED OR KEPT BY THE OWNER SHALL BE REMOVED FROM THE SITE AND SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

E. ON COMPLETION OF THE DEMOLITION WORK AND AFTER REMOVAL OF ALL DEBRIS, THE SITE SHALL BE LEFT IN CLEAN CONDITION SATISFACTORY TO THE OWNER. CLEANING SHALL INCLUDE OFFSITE DISPOSAL OF ITEMS, MATERIALS, DEBRIS, AND RUBBISH RESULTING FROM DEMOLITION OPERATIONS.

3.16 TESTING AND ADJUSTING:

A. EACH PIECE OF EQUIPMENT IN THE ENTIRE SYSTEM SHALL BE ADJUSTED AND READJUSTED TO INSURE PROPER FUNCTIONING OF ALL CONTROLS AND PROPER DISTRIBUTION OF AIR, INCLUDING A COMPLETE AND THOROUGH BALANCING OF THE SYSTEM, ELIMINATION OF DRAFTS, NOISE AND VIBRATION, AND THE SYSTEM SHALL BE LEFT IN A FIRST CLASS OPERATING CONDITIONING.

B. WHERE REQUIRED, FANS SHALL BE PROVIDED WITH PULLEYS AT NO ADDITIONAL COST TO THE OWNER TO DRIVE THE FANS AT THE SPEEDS NECESSARY TO GIVE THE INDICATED VOLUMES.

C. TESTING AND BALANCING AIR DISTRIBUTION SYSTEMS:

1. OBTAIN THE SERVICES OF AN INDEPENDENT TEST AND BALANCE AGENCY THAT SPECIALIZES IN AND WHOSE BUSINESS IS LIMITED TO THE TESTING AND BALANCING OF AIR CONDITION SYSTEMS.

2. THE AGENCY SELECTED SHALL BE A FULLY CERTIFIED MEMBER OF THE AABC OR NEBB. AT LEAST ONE MEMBER OF THE AGENCY SHALL BE QUALIFIED AS A CERTIFIED TEST AND BALANCE ENGINEER BY THE NATIONAL EXAMINING BOARD. ALL FINAL REPORTS SHALL BE SIGNED BY THIS CERTIFIED TEST AND BALANCE ENGINEER AND SHALL INCLUDE HIS OFFICIAL STAMP.

3. TESTING AND BALANCING SHALL BE PERFORMED IN COMPLETE ACCORDANCE WITH AABC STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION. TESTING AND BALANCING SHALL BE PERFORMED ON ALL SYSTEMS.

4. INSTRUMENTS USED FOR TESTING AND BALANCING OF SYSTEMS MUST HAVE BEEN CALIBRATED WITHIN PERIOD OF SIX MONTHS AND BEEN CHECKED FOR ACCURACY PRIOR TO START OF WORK.

5. MEASURE MAXIMUM AIR FLOW QUANTITY OF EACH SUPPLY AIR DIFFUSER. SET BALANCING DAMPER AND LOCK INTO PLACE. VERIFY AND/OR ADJUST MINIMUM AND MAXIMUM FLOWS OF THE VAV BOXES AND SET FOR REQUIRED FLOWS. MAXIMUM FLOW EQUALS THE TOTAL OF ALL DIFFUSER, MINIMUM FLOW EQUALS AT LEAST 40% OF THE MAXIMUM COOLING AIR FLOW.

END OF SECTION

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REGISTERED PROFESSIONAL ENGINEER
KEVIN A. SMOLA
No. M21106
MECHANICAL
STATE OF CALIFORNIA

No.	Description	Date
	50% DD	07/08/24
	50% CD	08/12/24
	PLAN CHECK	10/21/24
1	BACK CHECK 1	01/27/25

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

MECHANICAL SPECIFICATIONS

Project number	47067
Date	01/27/2025
Drawn by	DG

M3.1

Scale

6/20/2024 1:25:49 PM

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-ENV-E

This document is used to demonstrate compliance with mandatory requirements in 110.8(g) and 120.7(b)/ 160.1 for newly constructed nonresidential, hotel/ motel, multifamily and mixed-use buildings, and 141.0(b)1/ 180.2 for alterations, related to roof, wall and floor assemblies. It is also used to demonstrate compliance with prescriptive requirements in 140.3/ 170.2 for newly constructed buildings, and 141.0/ 180.1/ 180.2 for additions and alterations, related to roof, wall, floor, door, fenestration and daylighting requirements.

Project Name:		**Report Page:**	**(Page 1 of 13)**
Project Address:		**Date Prepared:**	10/16/2024

A. GENERAL INFORMATION

01	Project Location (city)		05	# of Stories (Habitable Above Grade)	1
02	Zipcode		06	Total Conditioned Floor Area (ft^2)	1228
03	Climate Zone	9	07	Total Unconditioned Floor Area (ft^2)	0
04	Occupancy Types Within Project: (select all that apply): If one occupancy constitutes >= 80% of the conditioned floor area, the entire building envelope may be designed to comply with the provisions of that occupancy per 100.0(f).		08	☐	Project includes unconditioned enclosed space(s) > 5,000 ft^2 under a roof with a ceiling height of at least 15 ft.[1]

● Office ● Support Areas ● All Other Occupancies

[1] *FOOTNOTE: Enclosed spaces > 5,000 ft^2 directly under roof with ceiling height > 15 ft in climate zones 2 through 15 are required to meet the minimum daylighting requirements defined in 140.3(c)/ 170.2(b). Compliance with 140.3(c)/ 170.2(b) is documented in Table L. This is the only prescriptive requirement which applies to unconditioned spaces.*

B. PROJECT SCOPE

This table specifies project envelope components within the permit application demonstrating compliance using the prescriptive paths outlined in 140.3/ 170.2 and 141.0(a)1/ 180.1 and 141.0(b)1 and 2/ 180.2 for additions and alterations.

My project consists of (check all that apply)	Component Types					
01	02					
☐ New Construction or Newly Conditioned Space	☐	Roof	☐	Walls	☐	Exterior Opaque Doors
☐ One or more enclosed spaces > 5,000 ft^2 directly under roof with ceiling height > 15ft			☐	Floors	☐	Fenestration/ Glazed Doors[1]
☒ Addition of conditioned space	☒	Roof	☒	Walls	☒	Exterior Opaque Doors
☐ One or more enclosed spaces > 5,000 ft^2 directly under roof with ceiling height > 15ft						
☐ Addition is <=700 ft^2			☐	Floors	☒	Fenestration/ Glazed Doors[1]
☒ Addition is >700 ft^2						
☒ Alteration of conditioned space	☐	Roof Assembly	☒	Walls		
☐ One or more enclosed spaces > 5,000 ft^2 directly under roof with ceiling height > 15ft and lighting system installed for the first time	☐	Roofing Material[2]	☐	Floors	☒	Fenestration

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STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 2 of 13)**
		Date Prepared:	10/16/2024

B. PROJECT SCOPE

[1] *FOOTNOTE: Doors that are more than 25% glass in area are considered Glazed Doors and should be documented on table K with fenestration.*

[2] *Roof recovers and replacements must also check "Roof Assembly" box and document compliance with insulation requirements in Table F. Roof recoats may document compliance with roof material only in Table G.*

C. COMPLIANCE RESULTS

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

Opaque Envelope Components					Fenestration	Daylighting Spaces > 5,000ft^2	Compliance Results
Roof Assembly	Roofing Materials	Walls	Floors	Doors			
01	02	03	04	05	06	07	08
(See Table F)	(See Table G)	(See Table H)	(See Table I)	(See Table J)	(See Table K)	(See Table L)	COMPLIES
Yes	Yes	Yes		Yes	Yes		

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.

F. ROOF ASSEMBLY SCHEDULE

This table demonstrates compliance for prescriptive roof assembly requirements in 140.3(a)1B/ 170.2(a)1B for new construction, 141.0(a)/ 180.1 for additions, or 141.0(b)2Biii/ 180.2 for alterations,

01	Indicate roof types included in the project:	☐	Framed	☐	Framed-Multifamily	☐	SIPS	☒	Span Deck & Concrete	☐	Metal Panels	☐ Metal Building

Span Deck And Concrete Roof Assemblies

01	☒	Include Span Deck and Concrete Roof Assemblies in Area-Weighted Average U-factor Calculation[1]

02	03	04	05	06

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 3 of 13)**
		Date Prepared:	10/16/2024

F. ROOF ASSEMBLY SCHEDULE

Span Deck And Concrete Roof Assemblies

Tag/Plan Detail ID	Name/Description	Status	Exception to Roof Insulation Requirements in 141.0(b)2Biii (Alts. Only)	Occupancy Type
Roof	Metal Deck Roof w/ Batt & Rigid Ins.	New		Nonresidential/ Relocatable 1 CZ
Roof	Metal Deck Roof w/ Batt & Rigid Ins.	New		Nonresidential/ Relocatable 1 CZ
Roof	Metal Deck Roof w/ Batt & Rigid Ins.	New		Nonresidential/ Relocatable 1 CZ
Roof	Metal Deck Roof w/ Batt & Rigid Ins.	New		Nonresidential/ Relocatable 1 CZ
Roof	Metal Deck Roof w/ Batt & Rigid Ins.	New		Nonresidential/ Relocatable 1 CZ
Roof	Metal Deck Roof w/ Batt & Rigid Ins.	New		Nonresidential/ Relocatable 1 CZ
Roof	Metal Deck Roof w/ Batt & Rigid Ins.	New		Nonresidential/ Relocatable 1 CZ
Roof	Metal Deck Roof w/ Batt & Rigid Ins.	New		Nonresidential/ Relocatable 1 CZ
Roof	Metal Deck Roof w/ Batt & Rigid Ins.	New		Nonresidential/ Relocatable 1 CZ

07	08	09	10	11	12	13	14		15
Tag/Plan Detail ID	How Design U-factor was determined	Fireproofing	Concrete Topping Thickness (in.)	Continuous Insulation per Design[2]	Thermal Performance Unit	Required Thermal Performance[3]	U-factor per Design		Net Area[4] ft^2
Roof	JA4 Tables			27	U-factor	0.034	per JA4 per Software/ Other	 0.034	223
Roof	JA4 Tables			27	U-factor	0.034	per JA4 per Software/ Other	 0.034	118

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 4 of 13)**
		Date Prepared:	10/16/2024

F. ROOF ASSEMBLY SCHEDULE

07	08	09	10	11	12	13	14		15
Tag/Plan Detail ID	How Design U-factor was determined	Fireproofing	Concrete Topping Thickness (in.)	Continuous Insulation per Design[2]	Thermal Performance Unit	Required Thermal Performance[3]	U-factor per Design		Net Area[4] ft^2
Roof	JA4 Tables			27	U-factor	0.034	per JA4 per Software/ Other	 0.034	107
Roof	JA4 Tables			27	U-factor	0.034	per JA4 per Software/ Other	 0.034	98
Roof	JA4 Tables			27	U-factor	0.034	per JA4 per Software/ Other	 0.034	37
Roof	JA4 Tables			27	U-factor	0.034	per JA4 per Software/ Other	 0.034	185
Roof	JA4 Tables			27	U-factor	0.034	per JA4 per Software/ Other	 0.034	31
Roof	JA4 Tables			27	U-factor	0.034	per JA4 per Software/ Other	 0.034	37
Roof	JA4 Tables			27	U-factor	0.034	per JA4 per Software/ Other	 0.034	392

[1] *FOOTNOTES: If any individual assembly is non-compliant, assemblies may show compliance using an area-weighted calculation. Metal building roofs may not be combined with other roof types. The area-weighted compliance option is not available for alterations demonstrating compliance with R-values in Table 141.0-C.*

[2] *For alterations using U-factor as the Thermal Performance Unit, at least R-10 insulation must be above deck.*

[3] *If "R-value" is shown in cell 13 as the Thermal Performance Unit, the R-value shown here is for continuous insulation per Table 141.0-C.*

[4] *Roof area minus any fenestration/ skylight area*

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 5 of 13)**
		Date Prepared:	10/16/2024

F. ROOF ASSEMBLY SCHEDULE

Area-Weighted Average U-factor Compliance Calculation for Framed/ SIPs/ Span Deck & Concrete/ Metal Panel Roofs

01	02	03	04	05
Roof Type	Total Area of Roof Type (ft^2)	Area-weighted U-factor for Roof Type		Compliance Results Using Area-Weighted Calculation Option
		Required	Designed	
Span Deck & Concrete	1228	0.034	0.034	
Total for all Roof Types:	**1228**	**0.034**	**0.034**	**COMPLIES**

G. RATED ROOFING MATERIAL (COOL ROOF)

This table demonstrates compliance with prescriptive roof material requirements in 140.3(a)1A/ 170.2(a)1A for new construction, 141.0(a)/ 180.1 for additions, and 141.0(b)2B/ 180.2 for alterations. Roof recovers and replacements must also document compliance with insulation requirements in Table F. Roof recoats may document compliance with roof material only in Table G.

01	02	03	04	05	06	07	08		09		10
Tag/Plan Detail ID	Name/ Description/ Location	Status	Occupancy Type	Roof Slope	Roof Material	Compliance Method	Required Minimum Material Performance		Designed Material Performance		U-factor / R-value of Assembly
Metal Deck Roof w/ Batt & Rigid Ins.	Roof	Altered	Nonresidential	Low slope	To Be Determined	Aged solar reflectance and thermal emittance	Reflectance	0.63	Reflectance[1]	0.63	
							Emittance	0.75	Emittance	0.75	
							SRI		SRI		

H. WALL ASSEMBLY SCHEDULE

This table demonstrates compliance with prescriptive wall assembly requirements in 140.3(a)/ 170.2(a) for new constructions, 141.0(a)/ 180.1 for additions and 141.0(b)1B/ 180.2 for alterations.

01	Indicate wall types included in the project:[1]	☐ Framed	☒ Mass (new only)	☐ Concrete Sandwich Panel (new only)	☐ SIPS	☐ ICF (new only)
		☐ Metal Panels	☐ Metal Building	☐ Spandrel/ Curtain Wall	☐ Straw Bale	☐ Log Home (new only)

[1] *FOOTNOTES: Wall types indicated above as "(new only)" do not have Title 24, Part 6 requirements for alterations. New construction and additions do have requirements and should be clicked above and compliance demonstrated within this table.*

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 6 of 13)**
		Date Prepared:	10/16/2024

H. WALL ASSEMBLY SCHEDULE

Mass Walls (new walls only)

01	☒	Calculate Area-Weighted Average U-factor for Mass Walls[1]

02	03	04	05	06	07	08	09	10	11		12
Tag/Plan Detail ID	Occupancy Type	How Design U-factor was determined	Mass Information			Additional Insulation Information		Maximum U-factor Allowed[2]	U-factor per Design		Net Area[3] ft^2
			Mass Material	Fill Options	Thickness (in)	Frame Material & Thickness	Cavity Insulation per Design				
Exterior Wall - E	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	54
Exterior Wall - W	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	No frame type- any Thick 0.50 in	0	0.69	per JA4 per Software/ Other	 0.57	16
Exterior Wall - S	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	31
Exterior Wall - E	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	37
Exterior Wall - S	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	129

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 7 of 13)**
		Date Prepared:	10/16/2024

H. WALL ASSEMBLY SCHEDULE

02	03	04	05	06	07	08	09	10	11		12
Tag/Plan Detail ID	Occupancy Type	How Design U-factor was determined	Mass Information			Additional Insulation Information		Maximum U-factor Allowed[2]	U-factor per Design		Net Area[3] ft^2
			Mass Material	Fill Options	Thickness (in)	Frame Material & Thickness	Cavity Insulation per Design				
Exterior Wall - E	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	120
Exterior Wall - E	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	112
Exterior Wall - E	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	50
Exterior Wall - E	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	75
Exterior Wall - E	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	234
Exterior Wall - N	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	255

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 8 of 13)**
		Date Prepared:	10/16/2024

H. WALL ASSEMBLY SCHEDULE

02	03	04	05	06	07	08	09	10	11		12
Tag/Plan Detail ID	Occupancy Type	How Design U-factor was determined	Mass Information			Additional Insulation Information		Maximum U-factor Allowed[2]	U-factor per Design		Net Area[3] ft^2
			Mass Material	Fill Options	Thickness (in)	Frame Material & Thickness	Cavity Insulation per Design				
Exterior Wall - W	Nonresidential/ Relocatable 1 CZ	JA4 Tables	CMU medium weight	Solid Grout	8 in	Metal- 3.5 in	13	0.69	per JA4 per Software/ Other	 0.155	45

[1] *FOOTNOTES: If any individual assembly is non-compliant, assemblies may show compliance using an area-weighted calculation. Mass walls are combined with concrete sandwich panel, log and ICF wall types. Mass walls must meet mandatory requirements in 120.7(b), but may area-weight to comply with prescriptive requirements in Table 140.3 for new construction.*

[2] *Mass walls are defined as "light" or "heavy" depending on their Heat Capacity. Heat Capacity is determined in Tables 4.3.5 and 4.3.6 in Joint Appendix 4. Walls with Heat Capacity of 15 or greater are "heavy" while walls with Heat Capacity from 7 to less than 15 are "light". Walls with heat capacity less than 7 would be categorized as "Wood framed and Other" for compliance purposes.*

[3] *Wall area minus any fenestration area*

Area-Weighted Average U-factor Compliance Calculation for Mass/ Concrete Sandwich Panel/ Log/ ICF Walls

01	02	03	04	05	06
Wall Type	Total Area of Wall Type (ft^2)	Mandatory U-factor Required	Area-weighted U-factor for Wall TypeArea-weighted U-factor for Wall Type		Compliance Results Using Area-Weighted Calculation Option
			Required	Designed	
Light Mass	0	0.44	0	0	COMPLIES
Heavy Mass	1158	0.69	0.69	0.161	COMPLIES

I. FLOOR ASSEMBLY SCHEDULE

This section does not apply to this project.

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 9 of 13)**
		Date Prepared:	10/16/2024

J. EXTERIOR DOOR SCHEDULE

This table demonstrates compliance with prescriptive exterior door requirements in 140.3(a)7/ 170.2(a)4 for new construction or additions. Doors which are being replaced (alterations) do not need to be documented in this table because there are no Title 24, Part 6 requirements that apply. Exterior doors separate conditioned space from unconditioned space or from ambient air. Doors that are more than 25% glass in area are considered Glazed Doors and should be documented on Table K with fenestration per Table B.

01	02	03	04	05	06	07	
Tag/Plan Detail ID	Name/Description	Occupancy Type	Door Type	Door Insulation	Maximum Allowed U-factor	U-factor per Design	
	Wood Door	Nonresidential	Swinging	Any other wood door	0.7	per JA4	0.5

K. FENESTRATION AND GLAZED DOOR SCHEDULE

This table demonstrates compliance with prescriptive fenestration requirements in 140.3(a)5/ 170.2(a)3 for new constructions, 141.0(a)/ 180.1 for additions, or 141.0(b)2A/ 180.2 for alterations. Exterior doors that are more than 25% glass in area are considered Glazed Doors and should be documented on this table with fenestration.

01	Indicate fenestration types included in the project:[1]	☐ Vertical (alterations)	☒ Vertical (new)	☐ Skylights	☐ Glazed Doors (new only)

[1] *FOOTNOTES: Fenestration types indicated above as "(new only)" do not have Title 24, Part 6 requirements for alterations. New construction and additions do have requirements and should be clicked above and compliance demonstrated within this table.*

Vertical Fenestration and Glazed Doors- Total Building & West Facing Area (New Construction & Additions Only)

01		02	03	04		05
Elevation Item Tag/ Description		Orientation (Azimuth)[1]	Gross Exterior Wall Area[2] (ft^2)	Display Perimeter Length[2] (ft)		Vertical Fenestration Area per Design[3] (ft^2)
North		North Facing	255	0		0
East		East Facing	926	0		180
South		South Facing	160	0		0
West		West Facing	45	0		0
06	Maximum Allowed Vertical Fenestration (ft^2)- All Orientations		535.2	07	Total Vertical Fenestration (ft^2) per design- All Orientations	180
08	Maximum Allowed Vertical Fenestration (ft^2)- West Facing		18	09	Total Vertical Fenestration (ft^2) per design- West Facing	0

[1] *FOOTNOTES: Orientation between 226 deg and 315 deg are considered "West Facing". A diagram has been provided in the Nonresidential Compliance Manual for visual reference.*

[2] *Do not include demising walls per 140.3(a)5 .*

[3] *Includes glazed door fenestration area .*

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 10 of 13)**
		Date Prepared:	10/16/2024

K. FENESTRATION AND GLAZED DOOR SCHEDULE

Vertical Fenestration And Glazed Doors- U-factor, Solar Heat Gain Coefficient (RSHGC/ SHGC), Visible Transmittance (VT)

01	☒	Calculate Area-Weighted Average U-factor for Vertical Fenestration and Glazed Doors[1]
02	☒	Calculate Area-Weighted Average (R)SHGC for Vertical Fenestration and Glazed Doors[1]
03	☒	Calculate Area-Weighted Average VT for Vertical Fenestration and Glazed Doors[1]

Vertical Fenestration And Glazed Doors- U-factor, Solar Heat Gain Coefficient (RSHGC/ SHGC), Visible Transmittance (VT)

04	05	06	07	08	09	10	11	12	13
Tag/Plan Detail ID	Fenestration Type	Occupancy & Status	U-factor/ (R)SHGC Compliance Method	VT Compliance Method	Calculation Method for Performance Values per Design[2]	Product Performance Unit	Required Product Performance	Product Performance per Design	Area ft^2
Window	Fixed window	Nonresidential/ Relocatable 1 CZ: : New			NFRC Certified	U-factor (max)	0.34	0.34	27
					☐ Overhang/ Slats used for RSHGC	(R)SHGC (max)	0.22	0.22	
						VT (min)	0.42	0.42	
Window	Fixed window	Nonresidential/ Relocatable 1 CZ: : New			NFRC Certified	U-factor (max)	0.34	0.34	124
					☐ Overhang/ Slats used for RSHGC	(R)SHGC (max)	0.22	0.22	
						VT (min)	0.42	0.42	
Window	Fixed window	Nonresidential/ Relocatable 1 CZ: : New			NFRC Certified	U-factor (max)	0.34	0.34	14
					☐ Overhang/ Slats used for RSHGC	(R)SHGC (max)	0.22	0.22	
						VT (min)	0.42	0.42	
Window	Fixed window	Nonresidential/ Relocatable 1 CZ: : New			NFRC Certified	U-factor (max)	0.34	0.34	15
					☐ Overhang/ Slats used for RSHGC	(R)SHGC (max)	0.22	0.22	
						VT (min)	0.42	0.42	

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 11 of 13)**
		Date Prepared:	10/16/2024

K. FENESTRATION AND GLAZED DOOR SCHEDULE

[1] *FOOTNOTES: If any individual fenestration product is non-compliant, products may show compliance using an area-weighted calculation. Chromogenic glazing is not included in area-weighted calculations. Area-weighted calculation shown in separate area-weighted table below.*

[2] *The NA6 Default Calculation can only be used for alterations or dwelling units in buildings with <= 3 habitable stories. Alterations are limited to 200ft^2 of site built glazing and dwelling units are limited to 250ft^2 or 5% of conditioned floor area. If the fenestration does not meet these conditions, the only options for determining fenestration values are NFRC Certification or the Default Tables in 110.6.*

[3] *Overhangs must extend past the left and right window the same distance as the depth of the overhang or greater to show an affect on the RSHGC. If an overhang does not meet this requirement, the affect of the overhang will be ignored.*

[4] *Projecting includes casement and awning windows.*

Area-Weighted Average U-factor, SHGC, VT Compliance Calculation for Vertical Fenestration And Glazed Doors

01	02	03	04	05
Product Performance Unit	Total Area of Fenestration (ft^2)	Area-weighted Calculation for Fenestration		Compliance Results Using Area-Weighted Calculation Option
		Required	Designed	
U-Factor	180	0.34	0.34	COMPLIES
(R)SHGC	180	0.22	0.22	COMPLIES
VT	180	0.42	0.42	COMPLIES

L. DAYLIGHT IN LARGE ENCLOSED SPACES

This section does not apply to this project.

M. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection 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 can be found online

Form/Title
NRCI-ENV-01-E - Must be submitted for all buildings

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 12 of 13)**
		Date Prepared:	10/16/2024

N. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, form user must provide an explanation in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/. Individuals who perform the field testing and verification work, and provide the information required for completion of the fenestration Certificate of Acceptance documentation are not required to be licensed professionals. However, the person who signs the Certificate of Acceptance document to certify compliance with the acceptance requirements shall be licensed as specified in Standards Section 10-103(a)4 and NA7.3.1

Form/Title	Systems/Spaces To Be Field Verified
NRCA-ENV-02-F must be submitted for all new, added or altered site built fenestration.	Fenestration;

O. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no forms required for this project.

STATE OF CALIFORNIA

Envelope Component Approach

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-ENV-E**
Project Name:		**Report Page:**	**(Page 13 of 13)**
Project Address:		**Date Prepared:**	10/16/2024

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Eric Santellan	Documentation Author Signature: Eric Santellan
Company: Kevin A. Smola and Associates	Signature Date: 2024-10-16
Address: 16025 Arrow Highway, Ste. C	CEA/ HERS Certification Identification (if applicable): M21106
City/State/Zip: Irwindale CA 91706	Phone: 626-585-9338

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:	Responsible Designer Signature:
Company:	Date Signed: 2024-10-16
Address:	License:
City/State/Zip:	Phone:

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-E

This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, or 141.0(b)2 for alterations.

Project Name:		**Report Page:**	**(Page 1 of 10)**
Project Address:		**Date Prepared:**	10/16/2024

A. GENERAL INFORMATION

01	Project Location (city)		04	Total Conditioned Floor Area	1228
02	Climate Zone	9	05	Total Unconditioned Floor Area	0
03	Occupancy Types Within Project:		06	# of Stories (Habitable Above Grade)	1

● Office ● Support Areas ● All Other Occupancies

B. PROJECT SCOPE

This table Includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, 170.2(b) or 141.0(b)2 and 180.2(b)2 for alterations.

01		02		03	
Air System(s)		Wet System Components		Dry System Components	
☒	Heating Air System	☐	Water Economizer	☒	Air Economizer
☒	Cooling Air System	☐	Pumps	☐	Electric Resistance Heat
Mechanical Controls		☐	System Piping	☒	Fan Systems
☒	Mechanical Controls (existing to remain, altered or new)	☐	Cooling Towers	☒	Ductwork (existing to remain, altered or new)
		☐	Chillers	☒	Ventilation
		☐	Boilers	☐	Zonal Systems/ Terminal Boxes

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-MCH-E**
Project Name:		**Report Page:**	**(Page 2 of 10)**
		Date Prepared:	10/16/2024

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D., or the table indicated as not compliant for guidance.

01		02		03		04		05		06		07		08	09
System Summary 110.1, 110.2, 140.4, 170.2(c)	AND	Pumps 140.4(k), 170.2(c)4I	AND	Fans/ Economizers 140.4(c), 140.4(e), 170.2(c)	AND	System Controls 110.2, 120.2, 140.4(f), 170.2(c)	AND	Ventilation 120.1, 160.2	AND	Terminal Box Controls 140.4(d), 170.2(c)4B	AND	Distribution 120.3, 140.4(l), 160.2, 160.3	AND	Cooling Towers 110.2(e)2	Compliance Results
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)	
Yes	AND		AND	Yes	AND	Yes	AND	Yes	AND		AND	Yes	AND		COMPLIES
Mandatory Measures Compliance (See Table Q for Details)												COMPLIES			

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.

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
HP/FC-1	1	Single zone	New/ Addition		☐

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			**NRCC-MCH-E**
Project Name:		**Report Page:**	**(Page 3 of 10)**
		Date Prepared:	10/16/2024

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Equipment Category per Tables 110.2, 140.4(a)2 and 170.2(c)3aii	Equipment Type per Tables 110.2 and Title 20	Smallest Size Available[1] 140.4(a) and 170.2(c)1	Equipment Sizing per Mechanical Schedule (kBtu/h) 140.4(a&b), 170.2(c)1 & 170.2(c)2						
				Heating Output[2,3]			Cooling Output[2,3]		Load Calculations[3,4]	
				Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
HP/FC-1	Unitary Heat Pumps	Air-cooled, split (3 phase)	Yes	45.9	60	0	46.94	45.6	37.93	39.22

[1] *FOOTNOTES: 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 per 140.4(a) and 170.2(c)1. Healthcare facilities are excepted.*

[2] *It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.*

[3] *If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.*

[4] *Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).*

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
Name or Item Tag	Size Category (Btu/h)	Heating Mode				Cooling Mode		
		Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
HP/FC-1	<65,000		HSPF2	7.5	10	SEER2	14.3	18

G. PUMPS

This section does not apply to this project.

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ARCHITECTURE
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KEVIN A. SMOLA AND ASSOC. INC.
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16025 ARROW HWY STE C
IRWINDALE, CA 91706
P: (626) 585-9338

KEVIN A. SMOLA
NO. M21106

No.	Description	Date
	50% DD	07/08/24
	50% CD	08/12/24
	PLAN CHECK	10/21/24
1	BACK CHECK 1	01/27/25

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

MECHANICAL TITLE 24 FORMS

Project number	47067
Date	01/27/2025
Drawn by	DG

M4.0

Scale

6/26/2024 1:25:49 PM

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Report Page:	(Page 4 of 10)
	Date Prepared:	10/16/2024

H. FAN SYSTEMS & AIR ECONOMIZERS

This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(e), 140.4(m), 170.2(c)3, and 170.2(c)4A for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name	HP/FC-1	Quantity	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	2,150	Site Elevation	1,201	Economizer	Differential Enthalpy
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	100		499		Manufacturer provided		0.42
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		299				
			Hydronic/DX cooling coil or heat pump coil	100		299				
			Economizer Return Damper	100		99				
Supply Fan Base Allowance (kW)		Exhuast/Return/Relief/Transfer Fan Base Allowance(kW)				Fan System Allowance (kW)[3]		1.2	Fan System Electrical Output (kW)	0.42

[1] *FOOTNOTES: Fans serving spaces with design background noise goals below NC35*

[2] *Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.*

[3] *Fan system allowance includes fan system base allowance.*

[4] *Filter pressure loss can only be counted once per fan system.*

[5] *Complex Fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.*

[6] *Computer room economizers must meet requirements of 140.9(a) and will be documented on the NRCC-PRC-E document..*

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Report Page:	(Page 5 of 10)
	Date Prepared:	10/16/2024

H. EXHAUST AIR HEAT RECOVERY 140.4(q), 170.2(c)4O

01	02	03	04	05	06	07	08	09	10	11
Fan System Name	Qty	Hours of Operation per Year	Design Supply Airflow Rate	Outdoor Airflow	% Outdoor Air at Full Design Airflow	Exemptions to Exhaust Air Heat Recovery Requirement per 140.4(q) & 170.2(c)4O	Exhaust Air Heat Recovery 140.4(q) & 170.2(c)4O	Type Of Heat Recovery Rating	Required Recovery Ratio	Energy Recovery Bypass

Fan Energy Index (FEI)

01	02	03
Name or Item Tag	FEI Exception	FEI
HP/FC-1	Embedded Fan <5HP or <4.1kW	

I. SYSTEM CONTROLS

This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (n), 170.2(c)4D 170.2(c)4L or requirements in 141.0(b)2E 180.2(b)2 for altered space conditioning systems.

01	02	03	04	05	06	07	08	09
System Name	System Zoning	Conditioned Floor Area Being Served (ft^2)	Thermostats 110.2(b) & (c)[1], 120.2(a) 160.3(a)2A or 141.0(b)2E & 180.2(b)2	Shut-Off Controls 120.2(e) & 160.3(a)2D	Isolation Zone Controls 120.2(g) & 160.3(a)2F	Demand Response 110.12 120.2(b) & 160.3(a)2B	Supply Air Temp. Reset 140.4(f) & 170.2(c)4D	Window Interlocks per 140.4(n) & 170.2(c)4D
HP/FC-1	Single zone	<= 25,000 ft^2	Setback	Auto Timer Switch	NA: Single Zone	DR Tstat per 110.12	Included	NA: No operable windows

[1]*FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.*

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Report Page:	(Page 6 of 10)
	Date Prepared:	10/16/2024

J. VENTILATION AND INDOOR AIR QUALITY

This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1 120.2(e)3B 140.4(p) and 140.4(q) for all nonresidential and hotel/motel and d:t24refnolink/]160.2, 160.3(a)3D, 170.2(a)4N, 170.2(a)4O for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.

01	☐	Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.
02	☒	Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces
	☐	
03	☐	Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per 120.1(c)2.

Nonresidential and Hotel/ Motel Multifamily Common Use Ventilation Systems

04		05		06		07
System Name	HP/FC-1	System Design OA CFM Airflow[1]	388	System Design Transfer Air CFM	0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21[2]: Provided

08	09	10	11	12	13	14	15	16	
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3[3] & 160.2(c)3: Occupancy Type[4]	Conditioned Floor Area (ft^2)	# of Shower heads/ toilets	# of people[5]	Required Min OA CFM	Exh. Vent per 120.1(c)4 & 160.2(c)4: Required Min CFM	Provided per Design CFM	DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3[6] 160.2(c)5D 160.2(c)5E 160.2(c)5D	
OFFICE	Office space	583			87.4	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
RESTROOM	Toilet, public	185	2		0	140	140	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Report Page:	(Page 7 of 10)
	Date Prepared:	10/16/2024

J. VENTILATION AND INDOOR AIR QUALITY

SHOWER	Shower room	68	2	2	30	100	100	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
LOCKER	Locker room (all others)	392			0	98	100	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				117	18	Ventilation for this System Complies?		Yes

[1] *FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system*

[2] *Air filtration requirements apply to the following three system types per 120.1(c)1A: space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.*

[3] *Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.*

[4] *See Standards Tables 120.1-A and 120.1-B.*

[5] *For lecture halls with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code.*

[6] *120.2(e)3 requires systems serving rooms that are required by 130.1(c) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250ft[2] or smaller, multipurpose rooms less than 1,000 ft^2, classrooms, conference rooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by 130.1(c).*

K. TERMINAL BOX CONTROLS

This section does not apply to this project.

L. DISTRIBUTION (DUCTWORK and PIPING)

This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.

01	☐	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed.

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Report Page:	(Page 8 of 10)
	Date Prepared:	10/16/2024

L. DISTRIBUTION (DUCTWORK and PIPING)

Duct Leakage Testing

The answers to the questions below apply to the following duct systems:	HP/FC-1	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No
		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A
18		All ductwork is an extension of an existing duct system
19		Ductwork serving individual dwelling unit
20		< 25 ft of new or replacement space conditioning ducts installed
21	R-8	Duct Insulation R-value
22		
23		

M. COOLING TOWERS

This section does not apply to this project.

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Report Page:	(Page 9 of 10)
	Date Prepared:	10/16/2024

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

Form/Title
NRCI-MCH-01-E - Must be submitted for all buildings

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/

Form/Title	Systems/Spaces To Be Field Verified
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.	CARRIER 38MBRCQ58;
NRCA-MCH-03-A - Constant Volume Single Zone HVAC NOTE: This form does not automatically move to "Yes'. If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicant should move this form to "Yes".	CARRIER 38MBRCQ58;
NRCA-MCH-05-A - Air Economizer Controls	CARRIER 38MBRCQ58;
NRCA-MCH-12-A FDD for Packaged Direct Expansion Units	CARRIER 38MBRCQ58;

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no NRCV forms required for this project.

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

01		02
Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block	Yes	Plan sheet or construction document location: M-Sheets

STATE OF CALIFORNIA

Mechanical Systems

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name:	Report Page:	(Page 10 of 10)
Project Address:	Date Prepared:	10/16/2024

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Eric Santellan	Documentation Author Signature: Eric Santellan
Company: Kevin A. Smola and Associates	Signature Date: 2024-10-16
Address: 16025 Arrow Highway, Ste. C	CEA/ HERS Certification Identification (if applicable): M21106
City/State/Zip: Irwindale CA 91706	Phone: 626-585-9338

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: Richard Amado	Responsible Designer Signature: Richard D. Amado
Company: Kevin A. Smola and Associates	Date Signed: 2024-10-16
Address: 16025 Arrow Hwy Ste. C	License: M21106
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No.	Description	Date
	50% DD	07/08/24
	50% CD	08/12/24
	PLAN CHECK	10/21/24
1	BACK CHECK 1	01/27/25

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

MECHANICAL TITLE 24 FORMS

Project number	47067
Date	01/27/2025
Drawn by	DG

M4.0

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SYMBOLS/ABBREVIATIONS/DEFINITIONS

SYMBOL	ABBREV.	DEFINITION
	DEMO	DEMOLISH
—ICW—	ICW	INDUSTRIAL COLD WATER
	IW	INDUSTRIAL WASTE
	CW	COLD WATER
	HW	HOT WATER
	HWR	HOT WATER RETURN
	S (OR) W	SEWER OR WASTE ABOVE GRADE
	S (OR) W	SEWER OR WASTE BELOW GRADE
	V	VENT
D	D	INDIRECT DRAIN
SD	SD	STORM DRAIN ABOVE GRADE
SD	SD	STORM DRAIN BELOW GRADE
LPG	LPG	LIQUEFIED PETROLEUM GAS
N2	N2	NITROGEN
CA	CA	COMPRESSED AIR
DI	DI	DEIONIZATION
O2	O2	OXYGEN
VAC	VAC	VACUUM
F	F	FIRE PROTECTION SUPPLY
CSP	CSP	COMBINATION STANDPIPE
AS	AS	AUTOMATIC FIRE SPRINKLERS
SPD	SPD	SUMP PUMP DISCHARGE
SED	SED	SEWAGE EJECTOR DISCHARGE
FOS	FOS	FUEL OIL SUPPLY
FOR	FOR	FUEL OIL RETURN
FOV	FOV	FUEL OIL VENT
GV	GV	GATE VALVE
GLV	GLV	GLOBE VALVE
BLV	BLV	BALL VALVE
ANV	ANV	ANGLE VALVE
CV	CV	SWING CHECK VALVE
NCV	NCV	NON-SLAM CHECK VALVE
BC	BC	BALANCING COCK
PRV	PRV	PRESSURE REDUCING VALVE
PTR	PTR	PRESSURE-TEMPERATURE RELIEF VALVE
BFP	BFP	BACKFLOW PREVENTER
GC	GC	GAS COCK, GAS STOP
FHV	FHV	FIRE HOSE VALVE
FHC	FHC	FIRE HOSE CABINET (SURFACE MOUNTED)
FHC	FHC	FIRE HOSE CABINET (RECESSED)
FS	FS	FLOW SWITCH
PS	PS	PRESSURE SWITCH
DN	DN	RISER DOWN
		RISER UP
		RISE OR DROP
		VALVE IN RISER
WCO	WCO	WALL CLEANOUT
CO	CO	CLEANOUT PLUG
FCO	FCO	FOOR CLEANOUT, CLEANOUT TO GRADE
		CAP OR PLUG ON END OF PIPE
HB	HB	HOSE BIBB
WHA	WHA	WATER HAMMER ARRESTOR
RO	RO	REVERSE OSMOSIS WATER
GW	GW	GREASE WASTE
	POC	POINT OF CONNECTION
4 / P1.01		DETAIL TOP - I.D. NUMBER REFERENCE BOTTOM - SHEET NUMBER
	IE	INVERT ELEVATION
	HDR	HEADER
	FU	PLUMBING FIXTURE UNIT
	SPO	SOIL PLUGGED OUTLET
	VCO	VENT CAPPED OUTLET
	FPC	FIRE PROTECTION OUTLET
	SCW	SOFT COLD WATER

ABBREV/DEFINITIONS

ABBREV.	DEFINITION
A	AIR
ABV	ABOVE
AD	ACCESS DOOR
AP	ACCESS PANEL
ARCH	ARCHITECT
AW	ACID WASTE
BEL	BELOW
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
C	COLD AIR
CA	COMPRESSED AIR
CD	CONDENSATE
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CLG	CEILING
CL	CENTER LINE
COMP	COMPRESSOR
CONC	CONCRETE
CONT	CONTINUATION
CR	CONDENSER RETURN
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
DET	DETAIL
DI	DEIONIZATION
DIA	DIAMETER
DN	DOWN
DR	DRAIN
DRWG	DRAWING
DSP	DRY STANDPIPE
EL	ELEVATION
ENCL	ENCLOSURE
EQUIP	EQUIPMENT
EXH	EXHAUST
EXIST	EXISTING
FA	FRESH AIR
FD	FIRE DAMPER
FF	FINISHED FLOOR
FG	FLOOR GRILLE
FHC	FIRE HOSE CABINET
FIN	FINISH
FLR	FLOOR
FPF	FINS PER FOOT
FSP	FIRE SERVICE PIPE
FS	FLOOR SINK
G	GAS
GALV	GALVANIZED
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRADE
GW	GREASE WASTE
H	HOT AIR
IE	INVERT ELEVATION
IW	INDIRECT WASTE
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MIN	MINIMUM
MECH	MECHANICAL
N_2	NITROGEN
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
OPNG	OPENING
OSA	OUTSIDE AIR
OX	OXYGEN
PD	PLANTER DRAIN
PLBG	PLUMBING
POC	POINT OF CONNECTION
RD	ROOF DRAIN
SCR	SCREEN
SCW	SOFT COLD WATER
SD	STORM DRAIN
SM	SHEET METAL
TEMP	TEMPERATURE
TP	TRAP PRIMER
TYP	TYPICAL
TW	TEMPERED WATER
UTR	UP THROUGH ROOF
VAC	VACUUM
VD	VOLUME DAMPER
VTR	VENT THROUGH ROOF
WSP	WET STANDPIPE
YCO	YOKE CLEANOUT

GENERAL NOTES

1. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH ALL CALIFORNIA STATE, LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.
2. BEFORE STARTING ANY WORK, VERIFY THE ADEQUACY, LOCATION OF UTILITIES AT POINTS OF CONNECTION, SIZE AND AVAILABILITY OF ALL UTILITIES CONCERNED, INCLUDING SEWER INVERT ELEVATIONS AND WATER PRESSURE BEFORE START OF ANY WORK CONTRACTOR IS TO OBTAIN THE SERVICES OF A PIPE LOCATION COMPANY TO VERIFY ANY PIPE LOCATIONS FOR CONNECTIONS TO BE MADE
3. THE CONTRACTOR SHALL VISIT THE JOBSITE TO DETERMINE THE EXTENT OF WORK REQUIRED BY THE CONSTRUCTION ACTIVITIES. THE ARCHITECTURAL DRAWINGS FOR THESE AREAS SHOW THE CHANGES TO BE MADE. THE CONTRACTOR SHALL REVISE, REARRANGE, RE-ROUTE OR REMOVE EXISTING PIPING AS INDICATED TO ACCOMMODATE THE CHANGES AND ADDITION SHOWN TO PROVIDE CONTINUING SERVICE FOR THOSE EXISTING PORTIONS OF THE PROJECT WHICH ARE TO REMAIN IN OPERATIONS.
4. ALL WORK THAT INVOLVES A SHUT-DOWN OF EXISTING BUILDING UTILITIES OR PORTIONS THEREOF, SHALL BE DONE AT SUCH TIMES AS WILL CAUSE THE LEAST INCONVENIENCE TO THE BUILDING'S ACTIVITIES, OR AT THE APPROVAL OF THE ARCHITECT. THE EXACT TIME AND LENGTH OF SHUT-DOWN SHALL BE ARRANGED WITH THE ARCHITECT OR THE BUILDING ENGINEER AT LEAST SEVEN (7) DAYS BUT NOT MORE THAN THIRTY FIVE (35) DAYS IN ADVANCE OF THE REQUIRED SHUT-DOWN.
5. DRAWINGS INDICATE SIZE AND TERMINATION OF PIPING AND SUGGEST PROPER ROUTES OF PIPING TO CONFORM TO THE STRUCTURE TO AVOID OBSTRUCTION AND TO PRESERVE CLEARANCE. IT IS NOT THE INTENTION TO INDICATE ALL NECESSARY OFFSETS AND IT SHALL BE THE RESPONSIBILITY UNDER THIS SECTION TO INSTALL PIPING IN SUCH A MANNER AS TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM, KEEP OPENINGS AND PASSAGEWAYS CLEAR AND MAKE ALL EQUIPMENT REQUIRING INSPECTION, MAINTENANCE AND REPAIR ACCESSIBLE WITH OUT FURTHER INSPECTIONS OR EXTRA COST.
6. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES FOR CLEARANCES AND WORK INCLUDED PRIOR TO START OF WORK.
7. KEEP ALL PIPING CLEAR FROM LOAD BEARING FOOTINGS.
8. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT PLUMBING FIXTURES AND EQUIPMENT LOCATIONS.
9. ALL VENTS THRU ROOF SHALL BE MINIMUM OF THREE FEET VERTICALLY OR TEN FEET HORIZONTALLY FROM ANY FRESH AIR
10. CLEANOUTS SHALL BE INSTALLED PER 2022 CPC CODE SECTIONS 707.0 & 719.0
11. PENETRATIONS OF RATED ASSEMBLIES SHALL BE FIRE STOPPED. FIRE STOPPING SHALL BE AN APPROVED MATERIAL AS PRESCRIBED IN STATE FIRE MARSHAL STANDARD 43-1, AND SHALL BE U.L.
12. ALL FIXTURES SHALL BE PROTECTED DURING CONSTRUCTION FROM ANY DAMAGE. REFINISHED FIXTURES WILL NOT BE ACCEPTABLE UNDER ANY CONDITIONS.
13. PROVIDE TRAP PRIMER CONNECTION AND TRAP PRIMER VALVES BEHIND ACCESS PANEL FOR ALL FLOOR DRAINS AND FLOOR SINKS.
14. DRAWINGS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.
15. ALL PLUMBING FIXTURES AND EQUIPMENT SHALL HAVE ISOLATING VALVES ON WATER SUPPLY LINES.
16. PROVIDE ACCESS DOORS TO ALL CONCEALED VALVES.
17. PROVIDE STOP VALVES FOR ALL FIXTURES.
18. PROVIDE ISOLATING VALVES WITH ACCESS PANELS FOR EACH NEW COLD WATER BRANCH FEEDING A RESTROOM.
19. PROVIDE CLEAN-OUTS ABOVE ALL URINALS, LAVATORIES, UPPER TERMINAL WATER CLOSETS AND SINKS.
20. ALL CONDENSATE AND INDIRECT WASTE PIPING FROM AIR HANDLING/ FAN COIL UNITS LOCATED ABOVE CEILING/CONCEALED LOCATIONS SHALL BE INSULATED WITH FIRE RATED INSULATION TO ITS POINT OF DISCHARGE.
21. EACH PLUMBING VENT SHALL TERMINATE NOT LESS THAN TEN (10) FEET FROM OR AT LEAST THREE (3) FEET ABOVE ANY WINDOW, DOOR, OPENING AIR INTAKE OR VENT SHAFT.
23. ALL HOSE BIBS SHALL BE EQUIPPED WITH AN APPROVED NON-REMOVABLE VACUUM BREAKER. PER 2022 CPC 603.5.7
24. NEW OR REPAIRED POTABLE WATER SYSTEMS SHALL BE DISINFECTED PRIOR TO USE ACCORDING TO THE METHOD SET IN SECTION 609.10 OF THE PLUMBING CODE.
25. WATER SUPPLY AND DRAIN PIPES UNDER ACCESSIBLE LAVATORIES AND SINKS SHALL BE INSULATED OR OTHERWISE BE CONFIGURED TO PROTECT AGAINST CONTACT. PROTECTORS, INSULATORS, OR BOTH SHALL COMPLY WITH ASME A112.18.9 OR ASTM C1822. PER 2022 CPC 403.3
26. POTABLE WATER SUPPLY TRAP SEAL PRIMER VALVES SHALL COMPLY WITH ASSE 1018. DRAINAGE AND ELECTRONIC DESIGN TYPE TRAP SEAL PRIMER DEVICES SHALL COMPLY WITH ASSE 1044. PER 2022 CPC 1007.2

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	WASTE	TRAP	VENT	COLD WATER	HOT WATER	POWER REQUIRED	REMARKS
WC 1	WATER CLOSET (ADA)	4	INTEGRAL	2	1-1/2	-	-	FLOOR MOUNTED "AMERICAN STANDARD", MADERA FLOWISE #3461.001, WHITE SEAT (OPEN FRONT), WITH "AMERICAN STANDARD" #606B.721 DUAL FLUSH SELECTRONIC FLUSH VALVE HARD WIRED AC POWER (1.28/1.1 GPF)
WC 2	WATER CLOSET (15")	4	INTEGRAL	2	1-1/2	-	-	FLOOR MOUNTED "AMERICAN STANDARD", MADERA FLOWISE #3451.001, WHITE SEAT (OPEN FRONT), WITH "AMERICAN STANDARD" #606B.721 DUAL FLUSH SELECTRONIC FLUSH VALVE HARD WIRED AC POWER (1.28/1.1 GPF)
L 1	LAVATORY (ADA)	2	1-1/4X1-1/2	1-1/2	1/2	1/2	YES	KOHLER K2330, 17" DIAMETER BOWL, UNDERCOUNTER, WITH CLAMPS, OVERFLOW W/ "AMERICAN STANDARD" #2508.105, HARD WIRED AC POWER, SENSOR ACTIVATED FAUCET, LOW LEAD COMPLIANT, 0.35 GPM (V035 AERATOR). "BRADLEY" S59-4016 POINT OF USE THERMOSTATIC MIXING VALVE, LEAD FREE, SET TO 105°.
SH 1	SHOWER (ADA)	2	2	2	3/4	3/4	-	"BRADLEY" IN-WALL SHOWER, #HN300-TMV-SX15-LHV-A36-RSD-RSS-CRH. SHOWERHEAD, DIVERTER VALVE TO HAND HELD SHOWER SPRAY WITH 60" STAINLESS STEEL FLEXIBLE HOSE AND POST, GRAB BAR, BARRIER FREE SEAT, SHOWER ROD, CURTAIN, AND HOOKS. SHOWER INCLUDES THERMOSTATIC MIXING VALVE. ALL TO BE CALIFORNIA ADA. INSTALL ALL COMPONENTS PER ARCHITECTURAL INTERIOR ELEVATION. FLOW RATE AT 1.5 GPM.
SH 2	SHOWER	2	2	2	3/4	3/4	-	"BRADLEY" IN-WALL SHOWER, #TMV-SX15-LHV-RSD-NS-CRH. SHOWERHEAD, DIVERTER VALVE TO HAND HELD SHOWER SPRAY WITH GRAB BAR, SHOWER ROD, CURTAIN, AND HOOKS. SHOWER INCLUDES THERMOSTATIC MIXING VALVE. INSTALL ALL COMPONENTS PER ARCHITECTURAL INTERIOR ELEVATION. FLOW RATE AT 1.5 GPM.
S 1	SINK (ADA)	2	INTEGRAL	2	3/4	3/4	-	"ELKAY" MODEL: LRAD202265PD, 6-1/2" DEEP, WITH "CHICAGO" #4275.550 WITH GOOSENECK FAUCET. 1.5 GPM LAMINAR FLOW INSERT.
SS 1	SERVICE SINK	3	3	2	3/4	3/4	-	"ADVANCE TABCO" MODEL: 9-OP-48DF MOP SINK 16" HIGH SIDE STAINLESS STEEL WITH FAUCET #K-240, K-245, WITH 3 SIDE BACK SPLASH, K-298 (32")
FD 1	FLOOR DRAIN	2	2	1-1/2	1/2	-	-	J.R. SMITH 2005 WITH TRAP PRIMER CONNECTION, VANDAL PROOF TOP, AND HEAL PROOF GRATE. 1/4" MAX GRATE OPENINGS IN ALL DIRECTIONS.
TP 1	TRAP PRIMER	-	-	-	1/2	-	-	"PPP" PRIME RITE SERIES, LOW LEAD. PROVIDE "PPP" MODEL: P0-500 WITH DU-U DISTRIBUTION UNIT FOR MULTIPLE TRAPS.
BV 1	BACKWATER VALVE	4	-	-	-	-	-	"WATTS" #BV-200 CAST IRON INLINE BACKWATER VALVE WITH GASKETED COVER, BRONZE SEAT, BRONZE FLAPPER, AND NO-HUB CONNECTIONS.
HB 1	HOSE BIBB (ROOF)	-	-	-	3/4	-	-	"JR SMITH" #5903 NON-FREEZE
HB 2	HOSE BIBB (EXTERIOR)	-	-	-	3/4	-	-	"ACORN" MODEL #8120 LEAD FREE W/ VACUUM BREAKER.
RD 1	ROOF DRAIN	-	-	-	-	-	-	J.R. SMITH #1010. SEE PLANS FOR SIZES
OD 1	OVERFLOW DRAIN	-	-	-	-	-	-	J.R. SMITH #1010 WITH 2"DAM. SEE PLANS FOR SIZES

ELECTRIC WATER HEATER SCHEDULE

SYMBOL	LOCATION	MODEL	STORAGE (GAL.)	OPER. TEMP.	KW	VOLT	PHASE	WRKNG PRESS	OPER. WEIGHT	REMARKS
WH 1	JANITOR CLOSET	A.O. SMITH DSE-40	40	120	6.0	208	1	125	448	36 GPH @ 70° RISE WITH DRAIN PAN, EXPANSION TANK, AND CSA CERTIFIED AND ASME RATED T&P RELIEF VALVE, R-16 FOAM INSULATION, ASME TANK CONSTRUCTION, GLASS LINED, ANODIC PROTECTION, IMMERSION THERMOSTAT, AND HIGH TEMPERATURE CUTOFF (IMMERSION). ASHRAE/IESNA 90.1. WATER HEATER MUST MEET CA. TITLE 24, SECTION 111.

EXPANSION TANK SCHEDULE

SYMBOL	SERVICE	LOCATION	MANUFACTURER AND MODEL NUMBER	TANK VOLUME (GAL.)	ACCEPTANCE VOLUME (GAL.)	HEIGHT INCHES	DIAMETER INCHES	OPERATING WEIGHT (LBS)	REMARKS
ET 1	WH-1	JANITOR ROOM	WESSELS TTA-5	3.5	2.3	14"	10"	22	VERTICAL EXPANSION TANK, 2.3 ACCEPTANCE VOLUME GALLONS. 240° MAX. OPERATING TEMP. INTEGRAL RING STAND. INSULATE WITH 2" AMRACELL AP/ARMAFLEX 6.0 LBS/FT DENSITY, NSF/ANSI STANDARD 61 CERTIFIED, FM APPROVED. DENSITY, FM APPROVED. SEE #/S#.# FOR ANCHORAGE DETAIL.

PUMP SCHEDULE

SYMBOL	FIXTURE	LOCATION	MAKE	SERVICE	MODEL	TYPE	GPM	HEAD (FT)	WRKNG PRESS	WATTS	VOLT	PHASE	RPM	OPER. WEIGHT	REMARKS
CP 1	CIRCULATING PUMP	WH-1	B&G	HOT WATER RETURN	NRF-22	INLINE	4	12	125	92	115	1	2940	10#	PROVIDE AQUASTAT, BRONZE BODY, LEAD FREE, CONSTANT PRESSURE TYPE

PIPE MATERIALS

1. DOMESTIC WATER PIPE SHALL BE COPPER TYPE L (ABV.GROUND)
2. WASTE PIPING SHALL BE CAST IRON NO-HUB WITH STAINLESS STEEL COUPLINGS.
3. STORM DRAIN PIPING SHALL BE CAST IRON NO-HUB WITH STAINLESS STEEL COUPLINGS.
4. REFER TO SPECIFICATIONS FOR ASSOCIATED FITTINGS METHODS, AND JOINING METHODS.

SCOPE OF WORK

PROJECT CONSISTS OF NEW BUILDING ADDITION TO AN EXISTING BUILDING. NEW BUILDING ADDITION INCLUDES SHOWERS, RESTROOMS, AND QUIET ROOM.

1. PROVIDE NEW WASTE LINE TO CONNECT ALL NEW PLUMBING FIXTURES AND RE-CONNECT TO EXISTING WASTE LINE.
2. INSTALL NEW BACKWATER VALVE OUTSIDE OF BUILDING. SEE PLANS FOR EXACT LOCATION.
3. PROVIDE NEW WATER SUPPLY FROM EXISTING DOMESTIC WATER SYSTEM. SEE PLANS FOR EXACT LOCATION.
4. INSTALL NEW SHOWERS, WATER CLOSETS, LAVATORY'S, FLOOR DRAINS, AND SERVICE SINK. PROVIDE WASTE & VENT, AND COLD WATER & HOT WATER.
5. INSTALL NEW ELECTRIC TANK WATER HEATER IN JANITOR CLOSET.

GOVERNING CODES

2022 CALIFORNIA ADMINISTRATIVE CODE, TITLE 24 PART 1
2022 CALIFORNIA BUILDING CODE, TITLE 24 PART 2
(INCLUDES THE CALIFORNIA HISTORICAL BUILDING CODE,
PART 8 AND CALIFORNIA EXISTING BUILDING CODE, PART 10)
2022 CALIFORNIA ELECTRICAL CODE, TITLE 24 PART 3
2022 CALIFORNIA MECHANICAL CODE, TITLE 24, PART 4
2022 CALIFORNIA PLUMBING CODE, TITLE 24, PART 5
2022 CALIFORNIA FIRE CODE, TITLE 24 PART 9
2022 CALIFORNIA REFERENCED STANDARDS CODE, TITLE 24 PART 12

GREEN BUILDING CODE

1. PLUMBING FIXTURES AND FITTINGS SHALL MEET THE STANDARDS REFERENCED IN TABLE 5.303.6
2. WATER CONSERVING PLUMBING FIXTURES AND FITTINGS SHALL NOT EXCEED THE MAXIMUM ALLOWABLE FLOW RATE SPECIFIED ON TABLE A5.303.2.2 OF THE 2022 CAL GREEN CODE (5.303.3)

SHEET INDEX

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REGISTERED PROFESSIONAL ENGINEER
KEVIN A. SMOLA
No. M21106
MECHANICAL
STATE OF CALIFORNIA

No.	Description	Date
	50% DD	07/08/24
	50% CD	08/12/24
	PLAN CHECK	10/21/24

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

PLUMBING LEGENDS, NOTES & SCHEDULES

Project number	47067
Date	11/25/2024
Drawn by	DG

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PIPE SIZE CHART

	COLD WATER		HOT WATER
SIZE	FLUSH TANK	FLUSH VALVE	FLUSH TANK
1/2	1	-	1
3/4	6	-	6
1	13	-	15
1 1/4	26	-	26
1 1/2	51	12	46
2	175	76	119
2 1/2	406	270	245
3	719	666	406

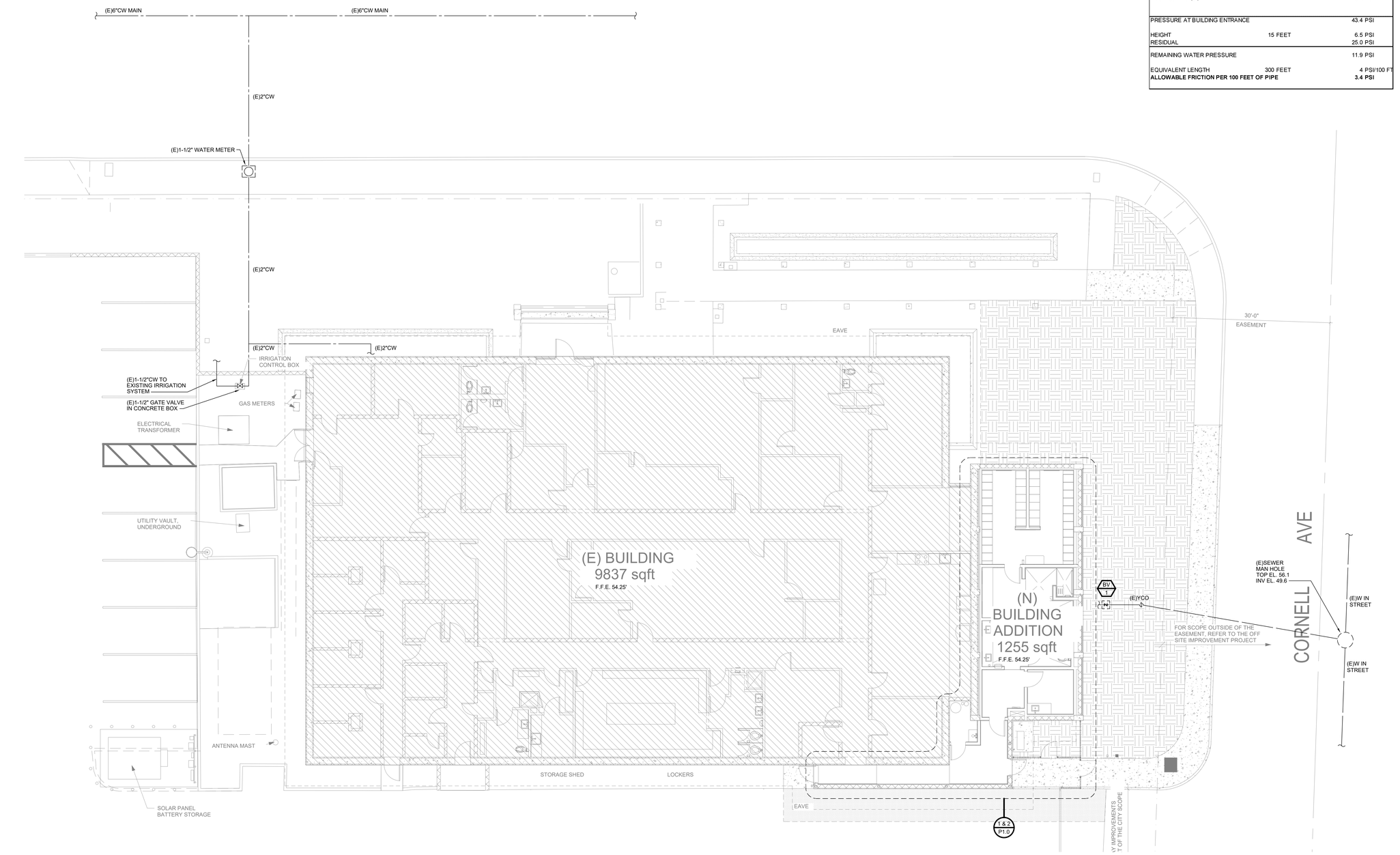
NOTE: CHART BASED ON MAX. 8 FPS., HW-5 FPS.
AND/OR 3.4 PSI/100 FT LOSS

PLUMBING FIXTURE & HOT WATER CALCULATION

FIXTUTE TYPE	QUANTITY	WATER FU		WASTE FU	
EXISTING:					
WATER CLOSET (TANK TYPE)	1	2.5	2.5	4	4
WATER CLOSET (FLUSH VALVE)	13	4	52	4	52
URINAL (FLUSH VALVE)	2	4	8	2	4
LAVATORIES	8	1	8	1	8
SHOWER	2	2	4	2	4
FLOOR DRAIN (SHOWER)	2			2	4
FLOOR DRAIN (EMERGENCY)	7			2	14
DRINKING FOUNTAIN	1	0.5	0.5	0.5	0.5
JANITOR SINK	2	3	6	3	6
FLOOR SINK	2			2	4
SINK	5	1.5	7.5	2	10
HOSE BIBB	1	2.5	2.5		
HOSE BIBB (ADDITIONAL)	5	1	5		
NEW:					
WATER CLOSET (FLUSH VALVE)	2	4	8	4	8
LAVATORIES	2	1	2	1	2
SHOWER	2	2	4	2	4
FLOOR DRAIN (SHOWER)	2			2	4
SINK	1	1.5	1.5	2	2
HOSE BIBB (ADDITIONAL)	3	1	3		
JANITOR SINK	1	3	3	3	3
TOTAL BUILDING FIXTURES		**	**117.5**		**133.5**
TOTAL WATER FLOW		**GPM**	**73**		

WATER CALCULATION

PRESSURE FROM SITE	130 HI 55 LO PSI	55.0 PSI
SUBTOTAL		55.0 PSI
1-1/2" WATER METER		3.6 PSI
EXISTING PRV (2")		8.0 PSI
PRESSURE AT BUILDING ENTRANCE		43.4 PSI
HEIGHT	15 FEET	6.5 PSI
RESIDUAL		25.0 PSI
REMAINING WATER PRESSURE		11.9 PSI
EQUIVALENT LENGTH	300 FEET	4 PSI/100 FT
ALLOWABLE FRICTION PER 100 FEET OF PIPE		**3.4 PSI**



PLUMBING OVERALL SITE PLAN

SCALE: 1/8" = 1'-0"
0' 4' 8' 16'

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REGISTERED PROFESSIONAL ENGINEER
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No. M21106
MECHANICAL
STATE OF CALIFORNIA

No.	Description	Date
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CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

PLUMBING SCHEDULES & SITE PLAN

Project number	47067
Date	11/25/2024
Drawn by	DG

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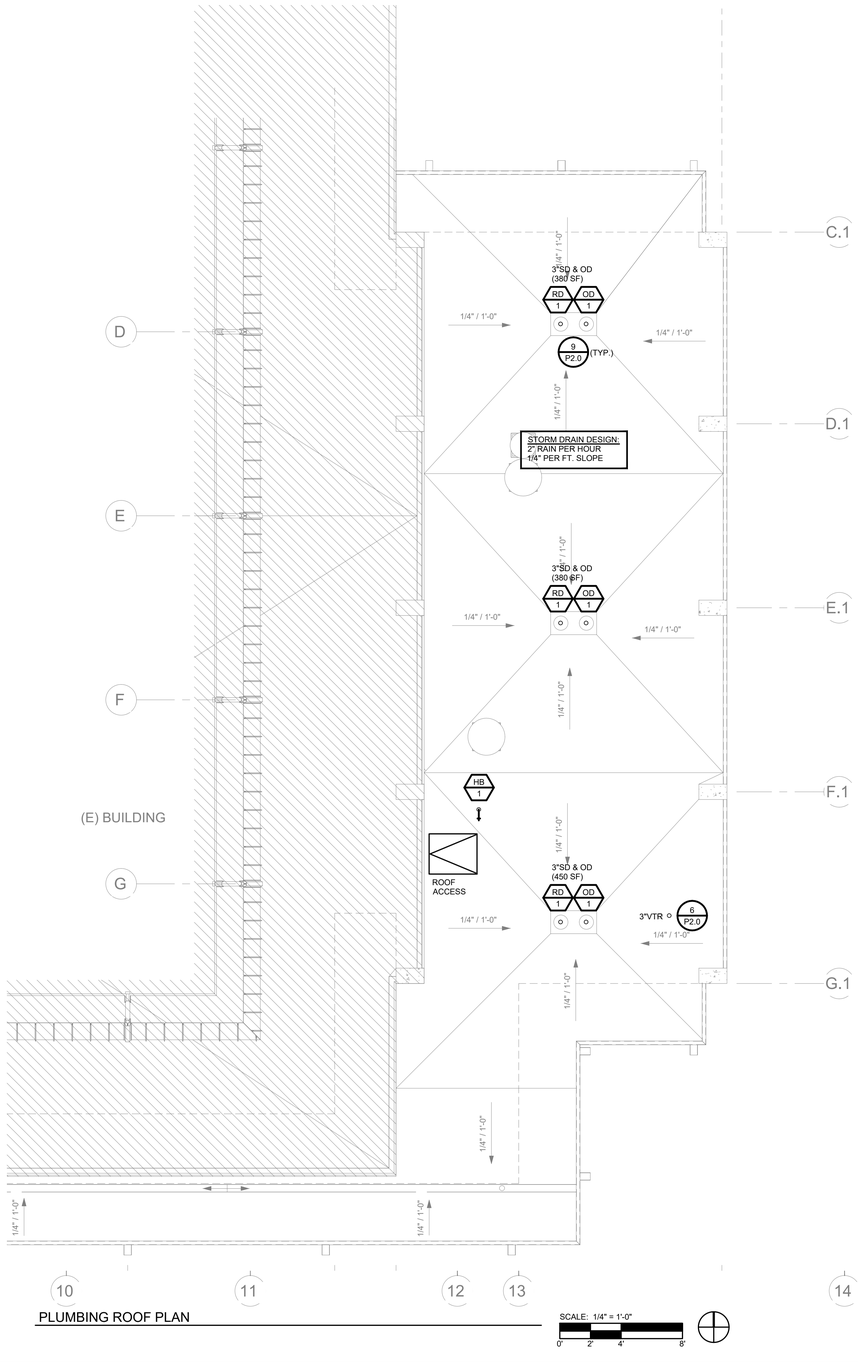
DEMOLITION NOTES

1. DEMOLISH (E)BACKWATER VALVE.
2. DEMOLISH EXISTING HOSE BIBB AND CAP IN WALL.

PLAN NOTES

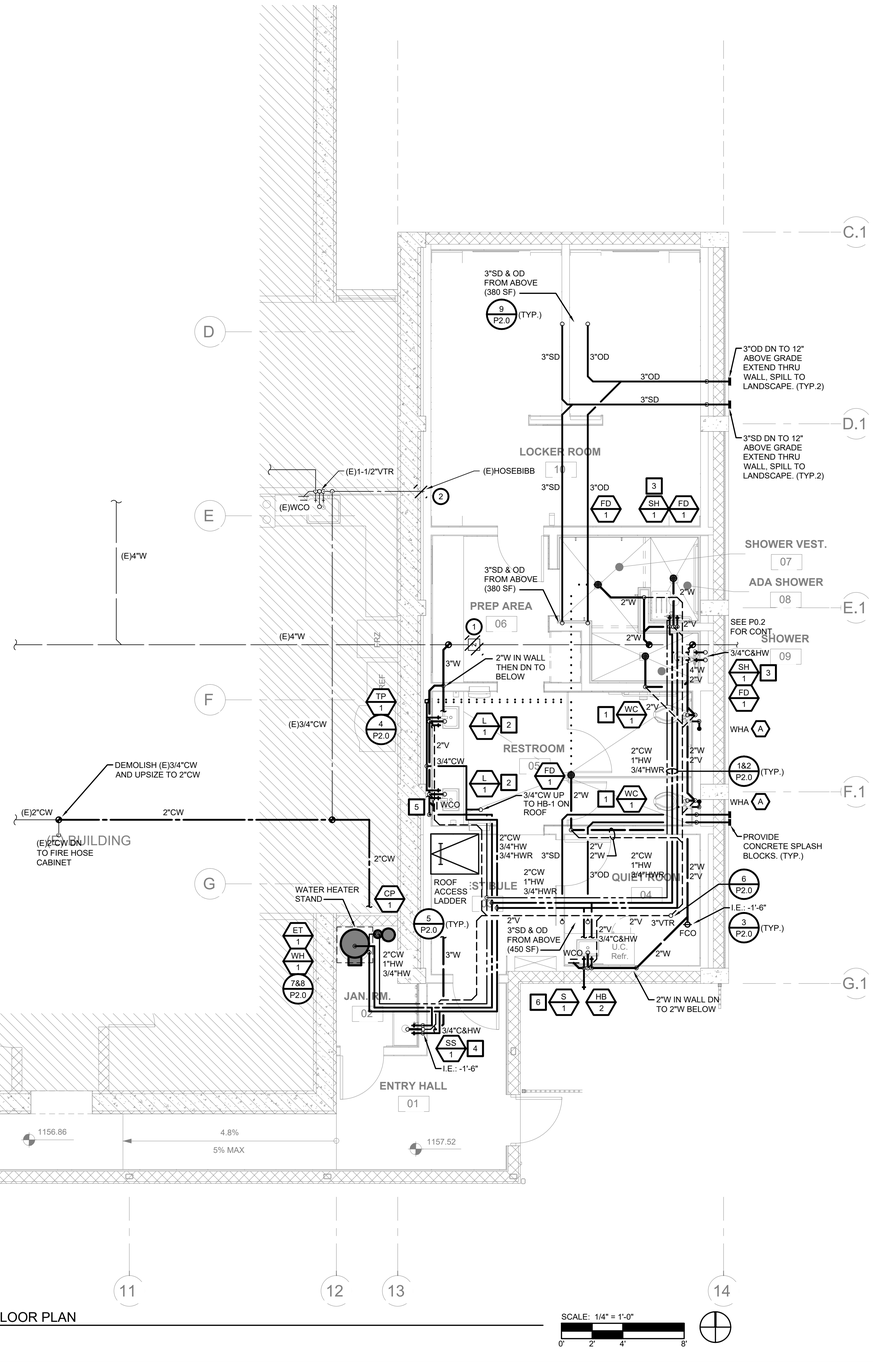
1. INSTALL NEW WATER CLOSET PER ADA REQUIREMENTS. (PROVIDE 4"W, 2"V AND 1-1/2"CW)
2. INSTALL NEW LAVATORY SINK PER ADA REQUIREMENTS. (PROVIDE 2"W, 1-1/2"V AND 1/2"C&HW)
3. INSTALL NEW SHOWER PER ADA REQUIREMENTS. (PROVIDE 2"W, 2"V AND 3/4"C&HW)
4. INSTALL NEW SERVICE SINK. (PROVIDE 3"W, 2"V AND 3/4"C&HW)
5. INSTALL TRAP PRIMER. PIPE 1/2"CW INTO WALL AND BELOW SLAB TO TRAP OF FD-1.
6. INSTALL NEW SINK PER ADA REQUIREMENTS. (PROVIDE 2"W, 2"V, 3/4"C&HW).



PLUMBING ROOF PLAN

SCALE: 1/4" = 1'-0"

0' 2' 4' 8'



PLUMBING FLOOR PLAN

SCALE: 1/4" = 1'-0"

0' 2' 4' 8'

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REGISTERED PROFESSIONAL ENGINEER — KEVIN A. SMOLA — No. M21106 — MECHANICAL — STATE OF CALIFORNIA

No.	Description	Date
	50% DD	07/08/24
	50% CD	08/12/24
	PLAN CHECK	10/21/24

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

PLUMBING FLOOR AND ROOF PLANS

Project number	47067
Date	11/25/2024
Drawn by	DG

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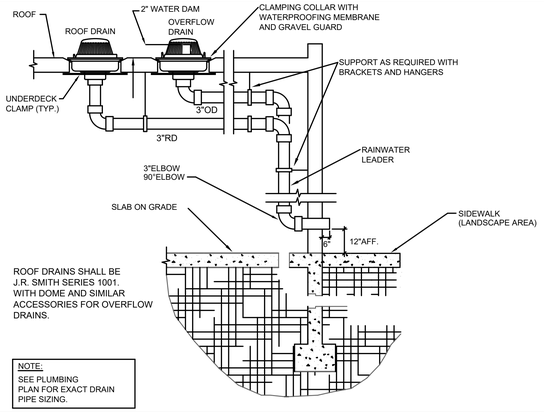
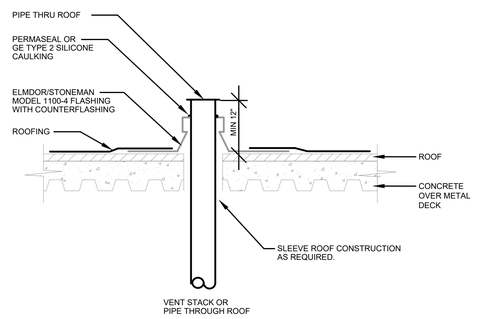
NONE

SCALE: NTS 13



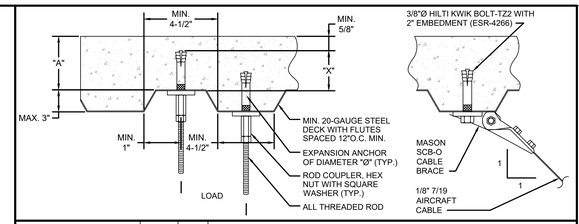
ROOF AND OVERFLOW DRAIN DETAIL

SCALE: NTS 9



TYPICAL VENT THRU ROOF DETAIL

SCALE: NTS 6



DESIGN PARAMETER	SYMBOL	UNITS	ANCHOR DIAMETER									
			1/4	3/8			1/2			5/8		3/4
EFFECTIVE MIN EMBEDMENT	X	IN.	1-1/2	1-1/2	2	2-1/2	1-1/2	2	2-1/2	3-1/4	2-3/4	4	3-1/4	3-3/4
MIN HOLE DEPTH	Y	IN.	2	2	2-3/4	3-1/4	2-1/4	2-3/4	3-1/4	4-1/4	3-3/4	4-3/4	4-1/4	4-3/4
MIN CONCRETE THICKNESS OVER UPPER FLUTE	A	IN.	2-1/2	2-1/2			2-1/2				2-1/2		2-1/2	3-1/4
PULLOUT STRENGTH, UNCRACKED CONCRETE	B	LB	1725	1855	2625	2995	1855	2750	3745	4715	4415	5815	3800	4795
PULLOUT STRENGTH, CRACKED CONCRETE	C	LB	515	1625	2295	2405	1650	2135	3275	3340	3930	4395	3325	3730
PULLOUT STRENGTH, SEISMIC	D	LB	515	1625	2295	2405	1650	2135	3275	3340	3930	4395	3325	3730
STEEL STRENGTH IN SHEAR	E	LB	1630	1355	2120	2120	1790	2260	3555	4345	3815	6150	4085	7865
STEEL STRENGTH IN SHEAR, SEISMIC	F	LB	1630	1355	2120	2120	1790	2260	3555	4345	3815	6150	4085	7865

HILTI KWIK BOLT-TZ2 (ESR-4266) IN 3000 PSI LIGHT WEIGHT CONCRETE.

CONCRETE ATTACHMENTS TO METAL DECK

SCALE: NTS 2

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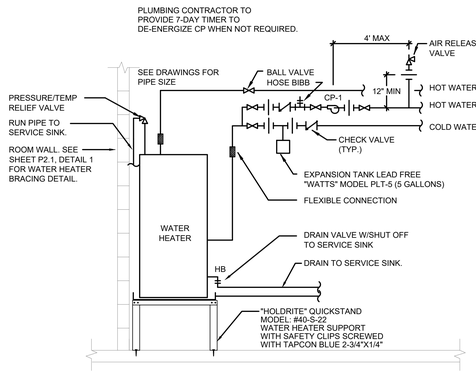
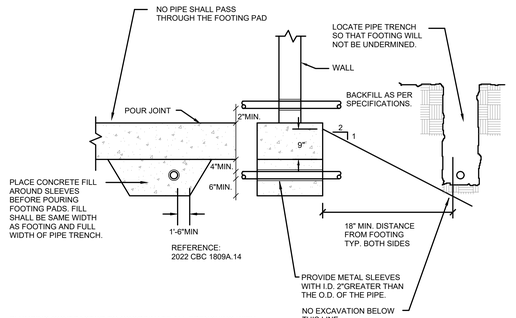
NONE

SCALE: NTS 12



WATER HEATER PIPING DIAGRAM

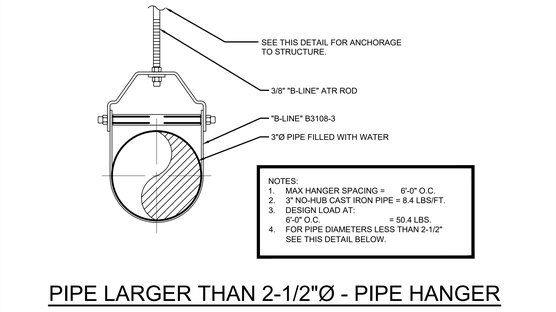
SCALE: NTS 8



PLUMBING CONTRACTOR TO COORDINATE ALL TRENCHING WITH GENERAL CONTRACTOR. PIPE INSTALLATION BY PLUMBER TRENCHING BY GENERAL CONTRACTOR.

TYPICAL PIPE TRENCH DETAIL

SCALE: NTS 5



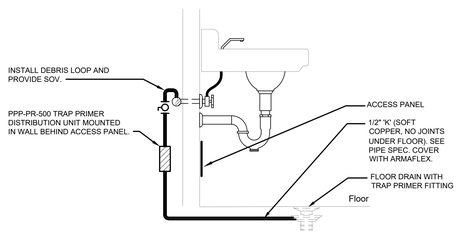
PIPE LARGER THAN 2-1/2"Ø - PIPE HANGER

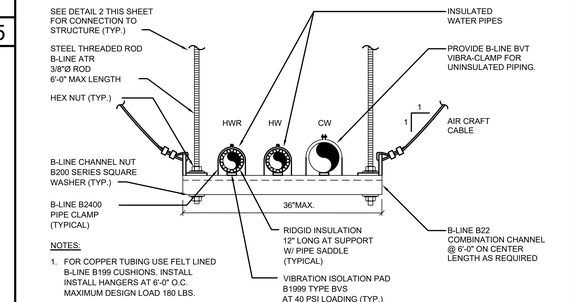
NONE

SCALE: NTS 11

TRAP PRIMER DETAIL

SCALE: NTS 4



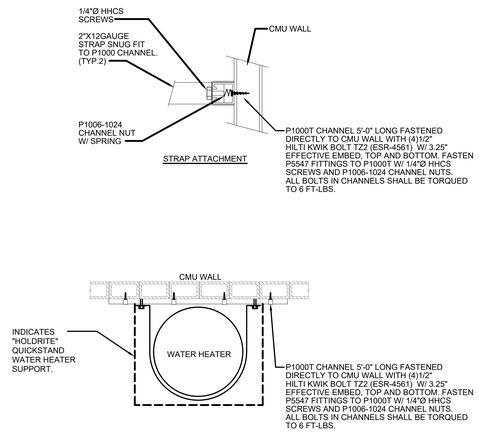


NOTES:
1. FOR COPPER TUBING USE FELT LINED B-LINE B199 CUSHIONS. INSTALL INSTALL HANGERS AT 6'-0" O.C. MAXIMUM DESIGN LOAD 180 LBS.
2. SEE SPECS. FOR PIPE SUPPORT & HANGER REQUIREMENTS.
3. MAXIMUM DESIGN LOAD"
   2" CPPER FILLED WITH WATER: 3.2 LBS./FT.
   1" COPPER WITH INSULATION FILLED WITH WATER: 1.8 LBS./FT.
   3/4" COPPER WITH INSULATION FILLED WITH WATER: 1.3 LBS./FT.
   6.3 LBS./FT. TOTAL OF 37.8 LBS. PER AT EVERY 6'-0".

3 - PIPE TRAPEZE DETAIL

NONE

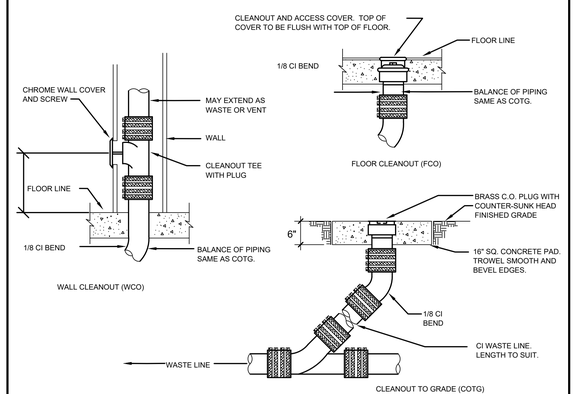
SCALE: NTS 10



NOTE:
1. STRAP TO RESIST DISPLACEMENT DUE TO EARTHQUAKE MOTION PER SECTION 507.2 OF CALIFORNIA PLUMBING CODE. STRAPPING SHALL BE AT POINTS WITHIN THE UPPER ONE-QUARTER (1/4) AN LOWER ONE-QUARTER (1/4) OF ITS VERTICAL DIMENSTIONS.

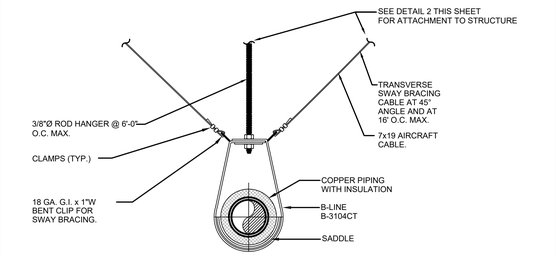
WATER HEATER BRACING DETAIL

SCALE: NTS 7



FLOOR/WALL CLEANOUT DETAILS

SCALE: NTS 3



NOTES:
1. FOR COPPER TUBING USE FELT LINED B3690F OR PLASTIC COATED B3690C HANGERS. INSTALL HANGERS AT 6'-0"O.C. MAXIMUM DESIGN LOAD 180 LBS.
2. MAXIMUM DESIGN LOAD = 2" COPPER FILLED WITH WATER: 3.2 LBS./FT.

NOTES:
1. CABLES TO BE INSTALLED 1/4" SLACK.
2. CABLE IS 7 X 19 AIRCRAFT CABLE.

PIPE LESS THAN 2-1/2"Ø - PIPE HANGER

PIPE HANGER DETAILS

SCALE: NTS 1

No.	Description	Date
	50% DD	07/08/24
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PLUMBING DETAILS

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SECTION 15400 - PLUMBING

PART 1 GENERAL DIVISION 1 REQUIREMENTS APPLY TO THIS SECTION

1.1 CONDITIONS

A. DEFINITIONS, GUARANTEES, SUBMITTALS, CLEAN-UP, AS-BUILTS AND ALL OTHER APPLICABLE REQUIREMENTS OF DIVISION O AND DIVISION 1 APPLY TO THE WORK UNDER THIS SECTION.

B. EXAMINE ALL OTHER SECTIONS FOR WORK RELATED TO THOSE SECTIONS WHICH ARE REQUIRED TO BE INCLUDED AS WORK UNDER THIS SECTION.

C. SUBSTITUTIONS: REQUEST FOR SUBSTITUTIONS MUST BE MADE BEFORE BID. SEE DIVISION 1.

D. INSPECTION OF CONDITIONS: EXAMINE RELATED WORK AND SURFACES BEFORE STARTING WORK OF THIS SECTION. REPORT TO ARCHITECT, IN WRITING, CONDITIONS WHICH WILL PREVENT PROPER PROVISION OF THIS WORK. BEGINNING WORK OF THIS SECTION WITHOUT REPORTING UNSUITABLE CONDITIONS TO ARCHITECT CONSTITUTES ACCEPTANCE OF CONDITIONS BY CONTRACTOR. CONTRACTOR SHALL PERFORM ANY REQUIRED REMOVAL, REPAIR, OR REPLACEMENT OF THIS WORK CAUSED BY UNSUITABLE CONDITIONS AT NO ADDITIONAL COST TO OWNER.

1.2 SCOPE

A. WORK INCLUDED: THE WORK UNDER THIS SECTION SHALL CONSIST OF ALL LABOR, MATERIALS, EQUIPMENT, FACILITIES, TRANSPORTATION AND SERVICES NECESSARY FOR AND REASONABLY INCIDENTAL TO THE FURNISHING, INSTALLATION, COMPLETION AND TESTING OF ALL PLUMBING WORK AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN. THE WORK IN GENERAL SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING PRINCIPAL ITEMS:

1. SOIL, WASTE AND VENT SYSTEM.
2. DOMESTIC WATER SYSTEM.
3. CONDENSATE AND INDIRECT DRAIN.
4. PERMITS AND FEES.
5. INSTALLATION OF FIXTURES AND EQUIPMENT SPECIFIED ELSEWHERE.

1.3 RELATED WORK

A. ELECTRICAL WIRING (LINE AND LOW VOLTAGE) AND CONDUIT - DIVISION 16.

B. CUTTING AND PATCHING OF BUILDING STRUCTURE AND PARTITIONS.

C. PAINTING, UNLESS SPECIFIED HEREIN

D. TRENCHING, BACKFILLING AND COMPACTING

E. COMFORT HEATING & COOLING SYSTEM

F. FIRE PROTECTION SYSTEM

1.4 QUALITY ASSURANCE

A. USE ADEQUATE NUMBERS OF SKILLED WORKERS WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND THE METHODS NEEDED FOR PROPER PERFORMANCE OF THE WORK OF THIS SECTION.

A. CODES AND REGULATIONS:

1. IN ADDITION TO COMPLYING WITH SPECIFIED REQUIREMENTS, COMPLY WITH PERTINENT REGULATIONS OF GOVERNMENTAL AGENCIES HAVING JURISDICTION.

2. IN THE EVENT OF CONFLICT BETWEEN OR AMONG SPECIFIED REQUIREMENTS AND PERTINENT REGULATIONS, THE MORE STRINGENT REQUIREMENT WILL GOVERN.

1.5 PERMITS, CONNECTION CHARGES AND FEES: OBTAIN AND PAY FOR ALL PERMITS, SEWER CONNECTION CHARGE FEES AND MISCELLANEOUS FEES, REQUIRED FOR EXECUTION OF THIS WORK. UP FRONT SEWER, GAS AND WATER FEE TO BE PAID BY OWNER.

1.6 CODES AND ORDINANCES: ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH ALL CITY, COUNTY, STATE, AND FEDERAL CODES, TITLE 24 LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE SERVICE CHARGES, FEES, PERMITS, ROYALTIES, TAXES, AND OTHER SIMILAR COSTS IN CONNECTION THEREWITH. IF TO THE KNOWLEDGE OF THE CONTRACTOR, THE DRAWINGS OR SPECIFICATIONS ARE AT VARIANCE WITH THE ABOVE-MENTIONED LAWS, RULES, AND REGULATIONS, HE/SHE SHALL PROMPTLY NOTIFY THE ARCHITECT IN WRITING AND ANY NECESSARY CHANGES CAN BE PROVIDED FOR IN HIS/HER CONTRACT. IF THE CONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO SUCH LAWS, RULES OR REGULATIONS, AND WITHOUT NOTICE AS REQUIRED ABOVE, HE/SHE SHALL BEAR ALL COSTS ARISING THEREFROM. PERMITS NOT REQUIRED ON PUBLIC WORK PROJECTS.

1.7 REFERENCES: REFERENCES TO STANDARD CODE SPECIFICATIONS SHALL MEAN EDITIONS IN EFFECT AT DATE OF BIDDING.

1.8 WORKMANSHIP, MATERIALS AND EQUIPMENT: ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER AND SHALL PRESENT A NEAT AND MECHANICAL APPEARANCE WHEN COMPLETED. ALL MATERIALS SHALL BE OF TYPE, QUALITY AND OF MINIMUM RATING PRESCRIBED HEREIN OR INDICATED BY MANUFACTURER'S NAME, TYPE, MODEL OR CATALOG NUMBER. ALL MATERIALS FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE OF FIRST QUALITY. ALL MATERIALS SHALL BE A PRODUCT OF DOMESTIC MANUFACTURERS.

1.9 CUTTING AND PATCHING: CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING REQUIRED FOR THE INTRODUCTION AND PLACEMENT OF HIS/HER WORK. HE/SHE SHALL EMPLOY PEOPLE TO PERFORM ALL PATCHING WORK THAT ARE SKILLED IN THE PARTICULAR TRADE INVOLVED. CUTTING AND PATCHING REQUIRED AS A RESULT OF THE OMISSIONS OF AN OPENING IN CONSTRUCTION SHALL BE DONE BY THE CONTRACTOR AT HIS/HER OWN EXPENSE.

1.10 PROTECTION OF WORK: ALL WORK SHALL BE PROTECTED AT ALL TIMES FROM DANGER BY FREEZING, BREAKAGE, DIRT, FOREIGN MATERIALS, ETC., AND SHALL REPLACE ALL WORK SO DAMAGED. THE CONTRACTOR SHALL USE EVERY PRECAUTION TO PROTECT THE WORK OF OTHERS, AND HE/SHE WILL BE HELD RESPONSIBLE FOR ALL DAMAGE TO OTHER WORK CAUSED BY HIS/HER WORK OR THROUGH THE NEGLECT OF HIS/HER WORKERS.

1.11 COORDINATION

A. ALL WORK SHALL BE COORDINATED WITH THAT OF OTHER TRADES TO AVOID CONSTRUCTION DELAYS. IF, IN THE OPINION OF THE ARCHITECT, ANY PIPING, EQUIPMENT, ETC., HAS BEEN IMPROPERLY PLACED OR INSTALLED DUE TO LACK OF COORDINATION, SUCH PIPING AND EQUIPMENT SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT AT THE CONTRACTOR'S EXPENSE.

B. AS FAR AS POSSIBLE THE WORK UNDER THIS CONTRACT SHALL BE INDICATED ON THE DESIGN DRAWINGS IN SUCH POSITIONS AS TO SUIT AND ACCOMMODATE THE WORK OF THE OTHER TRADES. THEREFORE, THE CONTRACTOR IS HEREBY MADE DIRECTLY RESPONSIBLE FOR THE CORRECT PLACING OF HIS/HER WORK AND THE PROPER LOCATION AND CONNECTION OF HIS/HER WORK IN RELATION TO THE WORK OF THE VARIOUS TRADES.

C. EQUIPMENT FOUNDATIONS AND BASES: FURNISH CERTIFIED DETAILS AND DRAWINGS FOR APPROVAL BEFORE FABRICATION. FURNISH PARTS NECESSARY FOR EACH FOUNDATION SUB-BASE AND SUPPORT.

D. PIPE SLEEVES AND INSERTS: FURNISH AND INSTALL ALL PIPE SLEEVES AND PIPE SUPPORT INSERTS BEFORE CONCRETE IS POURED.

1.12 DESIGN CHANGES CAUSED BY PRODUCT SUBSTITUTION

A. CONTRACTOR SHALL PAY COSTS OF DESIGN AND INSTALLATION (INCLUDES OTHER TRADES) FOR CHANGES RESULTING FROM SUBSTITUTION OF ALTERNATE PRODUCTS. ADDITIONALLY, THEY SHALL REIMBURSE THE SPECIFYING ENGINEER FOR THEIR ADDITIONAL TIME.

B. ACCEPTANCE OF ALTERNATE PRODUCTS BY ARCHITECT DOES NOT CHANGE THIS REQUIREMENT.

C. CONTRACTOR SHALL REIMBURSE ENGINEER FOR COSTS REQUIRED TO REVIEW SUBSTITUTED OR NON-APPROVED ALTERNATE PRODUCTS.

1.13 EXCAVATING AND BACKFILLING: PERFORM ALL EXCAVATION AND BACKFILLING AS REQUIRED. CONTRACTOR SHALL ESTABLISH ALL LINES AND ELEVATIONS PRIOR TO OPENING TRENCHES AND SHALL BE RESPONSIBLE FOR CORRECTNESS THEREOF.

1.14 CLEAN-UP: CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY HIS/HER EMPLOYEES OR WORK. AFTER COMPLETION OF WORK AND PRIOR TO FINAL ACCEPTANCE, THOROUGHLY CLEAN ALL PARTS OF THE WORK, REMOVE ALL DEBRIS AND SURPLUS EQUIPMENT AND LEAVE INSTALLATION IN PERFECT CONDITION, READY FOR USE.

1.15 SUBMITTALS AND SHOP DRAWINGS

A. SUBMITTALS:

1. COMPLY WITH PERTINENT PROVISIONS OF SECTION 03140.
2. NO PRODUCT WILL BE ACCEPTED ON JOB-SITE WITHOUT PRIOR APPROVAL.
3. REFERENCE CATALOG CUTS AND BROCHURES OF PRODUCTS TO PROPER PARAGRAPH IN SPECIFICATIONS. FURNISH NUMERICAL INDEX BY SPECIFICATION PARAGRAPH NUMBER LISTING PRODUCT NAME, CATALOG NUMBER AND REFERENCE TO PAGE NUMBER OF SUBMITTAL BROCHURE.
4. CROSS REFERENCE INDIVIDUAL CATALOG NUMBERS OF SUBSTITUTE PRODUCTS TO NUMBERS OF SPECIFIED MATERIALS.
5. SUBMITTALS SHALL BE COMPLETE AND BOUND IN BOOKLET FORM, OTHERWISE THE SUBMITTALS WILL BE REJECTED.
6. SUBMITTAL SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
   a. PLUMBING FIXTURES AND EQUIPMENT, CUTS, INCLUDING TRIM AND FITTINGS, AND ROUGHING DIMENSIONS.
   b. SCHEDULE OF PIPE, FITTINGS, VALVES, WITH MANUFACTURER AND CATALOG NUMBER.
   c. SUPPORTS, HANGERS, INSERTS.
   g. ALL SPECIAL PRODUCTS FURNISHED BY PLUMBING TRADES.

B. SHOP DRAWINGS:

1. PREPARE SHOP DRAWINGS OR TRANSPARENCIES AT A SCALE SUITABLE TO CLEARLY DELINEATE THE SUBJECT. SHEET SIZES SHALL BE 8-1/2" X 11" MINIMUM OR MULTIPLES OF 8-1/2" X 11".
2. DRAWING LEGEND SHALL CONTAIN PROJECT TITLE, DRAWING TITLE, DRAWING NUMBER AND NUMBER OF DRAWINGS TO SET.
3. SCALE SHOP DRAWINGS SHALL BE FURNISHED PRIOR TO INSTALLATION OF EQUIPMENT FOR:
   a. AREAS NOTED ON PLAN AS REQUIRED SHOP DRAWINGS.
   b. APPROVED DEVIATIONS FROM PLANS.
   C. DRAW EQUIPMENT ROOMS LAYOUTS TO A MINIMUM SCALE OF 1/4" = 1'- 0", INCLUDING EQUIPMENT, PIPING, ACCESSORIES, SHOWING CLEARANCES FOR OPERATING AND SERVICING.

1.16 INTERPRETATION OF THE DRAWINGS AND SPECIFICATIONS

A. AS USED IN THE DRAWINGS AND SPECIFICATIONS, CERTAIN NON-TECHNICAL WORKS SHALL BE UNDERSTOOD TO HAVE SPECIFIC MEANINGS AS FOLLOWS:

1. "FURNISH" . . . PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT.
2. "INSTALL" . . . UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT.
3. "PROVIDE" . . . "FURNISH" AND "INSTALL".

B. EXCEPT WHERE MODIFIED BY A SPECIFIC NOTATION TO THE CONTRARY IT SHALL BE UNDERSTOOD THAT THE INDICATION AND/OR DESCRIPTION OF ANY ITEM, IN THE DRAWINGS OR SPECIFICATIONS OR BOTH, CARRIES WITH IT THE INSTRUCTION TO FURNISH AND INSTALL THE ITEM, REGARDLESS OF WHETHER OR NOT THIS INSTRUCTION IS EXPLICITLY STATED AS PART OF THE INDICATION OR DESCRIPTION.

C. IT SHALL BE UNDERSTOOD THAT THE SPECIFICATIONS AND DRAWINGS ARE COMPLEMENTARY AND ARE TO BE TAKEN TOGETHER FOR A COMPLETE INTERPRETATION OF THE WORK. EXCEPTIONS ARE THAT NOTES ON THE DRAWINGS WHICH REFER TO AN INDIVIDUAL ELEMENT OF WORK TAKE PRECEDENCE OVER THE SPECIFICATIONS WHERE THEY CONFLICT WITH SAME.

D. NO EXCLUSIONS FROM, OR LIMITATION, IN THE LANGUAGE USED IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS MEANING THAT THE APPURTENANCES OR ACCESSORIES NECESSARY TO COMPLETE ANY REQUIRED SYSTEM OR ITEM OF EQUIPMENT ARE TO BE OMITTED.

E. THE DRAWINGS OF NECESSITY UTILIZE SYMBOLS AND SCHEMATIC DIAGRAMS TO INDICATE VARIOUS ITEMS OF WORK. NEITHER OF THESE HAVE ANY DIMENSIONAL SIGNIFICANCE, NOR DO THEY DELINEATE EVERY ITEM REQUIRED FOR THE INTENDED INSTALLATION. THE WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE DIAGRAMMATIC INTENT EXPRESSED ON THE PLUMBING DRAWINGS, AND IN CONFORMITY WITH THE DIMENSIONS INDICATED ON ARCHITECTURAL AND STRUCTURAL WORKING DRAWINGS AND ON EQUIPMENT SHOP DRAWINGS.

F. NO INTERPRETATION SHALL BE MADE FROM THE LIMITATIONS OF SYMBOLS AND DIAGRAMS THAT ANY ELEMENTS NECESSARY FOR COMPLETE WORK ARE EXCLUDED.

1.17 OPERATING AND MAINTENANCE DATA

A. UPON COMPLETION OF THE INSTALLATION PROVIDE TWO (2) COMPLETE SETS OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR THE SYSTEMS SPECIFIED IN THIS SECTION TO THE OWNER'S REPRESENTATIVE.

B. THE CONTRACTOR SHALL INCORPORATE, AMONG OTHERS IN THE SET OF OPERATING AND MAINTENANCE INSTRUCTIONS TO THE OWNER'S REPRESENTATIVE, THE FOLLOWING DIRECTIONS:

1. SCHEDULE OF MAJOR COMPONENTS OF EACH SYSTEM WITH MANUFACTURER'S CATALOG DATA, NAMEPLATE DATA, AND PARTS LIST.
2. PREVENTIVE MAINTENANCE SCHEDULE FOR EACH MAJOR COMPONENT OF EACH SYSTEM.
3. PRESSURE TEST REPORTS.
4. DIRECTORY: NAMES, ADDRESSES AND TELEPHONE NUMBERS OF GENERAL CONTRACTOR, ITS SUBCONTRACTOR'S AND RELATED EQUIPMENT SUPPLIERS, INCLUDING NAME OF PERSON TO CONTACT IN EACH CASE.
5. PROVIDE A SEPARATE LISTING OF ALL COMPONENTS FROM EACH MANUFACTURER AND FROM EACH SUPPLIER.
6. SPECIFIC MANUFACTURER'S WARRANTIES. LIST EACH PIECE OF EQUIPMENT COVERED, WITH DAY AND DATE WARRANTY BEGINS, DATE OF EXPIRATION AND NAME, ADDRESS AND TELEPHONE NUMBER OF PERSON TO CONTACT REGARDING PROBLEMS DURING WARRANTY PERIOD.
7. LISTING OF EXTRA STOCK PARTS FURNISHED AS PART OF THE CONTRACT.

1.18 MANUFACTURER'S WARRANTY: STANDARD WARRANTY OF MANUFACTURER SHALL APPLY FOR REPLACEMENT OF PARTS AFTER EXPIRATION OF OTHER WARRANTY PERIODS STATED IN SPECIFICATIONS IF THEY ARE FOR SHORTER TIME THAN STANDARD MANUFACTURER'S WARRANTY. MANUFACTURER SHALL FURNISH AND REPLACE PARTS TO OWNER. FURNISH ARCHITECT PRINTED MANUFACTURER'S WARRANTIES COMPLETE WITH MATERIAL INCLUDED AND EXPIRATION DATES UPON PROJECT COMPLETION.

1.19 GUARANTEES

A. ALL MATERIALS FURNISHED SHALL BE GUARANTEED, IN WRITING, ON A FORM APPROVED BY THE OWNER, FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE OF THE PROJECT BY THE OWNER. SHOULD ANY TROUBLE DEVELOP DURING THIS PERIOD DUE TO DEFECTIVE MATERIALS OR WORKMANSHIP, THE CONTRACTOR SHALL FURNISH ALL NEW MATERIALS AND LABOR TO CORRECT THE TROUBLE WITHOUT ANY COST TO THE OWNER.

B. ANY DEFECTIVE MATERIALS OR INFERIOR WORKMANSHIP NOTICED AT TIME OF INSTALLATION SHALL BE CORRECTED IMMEDIATELY TO THE ENTIRE SATISFACTION OF THE OWNER.

C. THE CONTRACTOR SHALL GUARANTEE THAT HIS/HER INSTALLATION OF ALL MATERIALS AND EQUIPMENT WILL MEET THE PERFORMANCE REQUIREMENTS OF THESE SPECIFICATIONS, AND THAT ALL EQUIPMENT WILL DELIVER THE SPECIFIED OR REQUIRED CAPACITIES.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO ANY PART OF THE PREMISES CAUSED BY LEAKS OR BREAKS IN PIPE LINES, FIXTURES OR EQUIPMENT PROVIDED UNDER THIS SECTION OF THE SPECIFICATIONS, FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE BY THE OWNER.

PART 2 PRODUCTS

2.1 SANITARY SOIL WASTE AND VENT SYSTEM

A. SOIL, WASTE AND VENT PIPING TO 5' OUTSIDE THE BUILDING MAY BE ONE OF THE FOLLOWING:

1. HUBLESS CAST IRON SOIL PIPE AND FITTINGS, CISPI - 301, ASTM A888, WITH STAINLESS STEEL CLAMP AND SHIELD COUPLINGS, CISPI - 301
2. HUBLESS CAST IRON SOIL PIPE, CISPI- 301, ASTM A888 WITH HUB AND SPIGOT CAST IRON FITTINGS CISPI - 301, ASTM A74 WITH THE A.B. & I. "BEST" CAST IRON COUPLING AND RUBBER GASKETS, ASTM C564.
3. HUBLESS CAST IRON SOIL PIPE, CISPI-301, ASTM A 888 WITH M.G. MECHANICAL JOINT COUPLINGS.
4. SCHEDULE 40 ABS OR PVC DWV PIPE AND DRAINAGE PATTERN FITTINGS. SOLVENT CEMENT JOINTS.

B. SOIL PIPING FROM 5' OUTSIDE THE BUILDING MAY BE ONE OF THE FOLLOWING:

1. CERTAINTEED CORP. "FLUID TIGHT" P.V.C. GRAVITY SEWER PIPE AND FITTINGS OR APPROVED EQUIVALENT.
2. EXTRA HEAVY BELL AND SPIGOT VITRIFIED CLAY PIPE AND FITTINGS WITH COMPRESSION JOINTS.
3. SAME AS SPECIFIED TO 5' OUTSIDE BUILDING.

C. CLEANOUTS:

1. ACCEPTABLE MANUFACTURERS: J.R. SMITH AS SPECIFIED, OR EQUIVALENT BY JOSAM, WADE OR ZURN.
2. ACCESSORIES: WHERE INSTALLED IN CONSTRUCTION WITH WATERPROOF MEMBRANE, PROVIDE CLEANOUTS WITH FLASHING CLAMP DEVICE WITH CORROSION-RESISTANT CLAMPING BOLTS.
3. FLOORS:
   a. FINISHED (TILE OR RESILIENT COVERING): J.R. SMITH #4048 WITH NIKALOY SQUARE TOP AND TAPERED THREAD BRONZE PLUG. SET TOPS SQUARE WITH FLOOR TILE OR RESILIENT COVERING PATTERN.
   b. UNFINISHED: J.R. SMITH #4248 WITH CAST IRON ROUND TRACTOR TYPE COVER AND TAPERED THREAD BRONZE PLUG.
4. WALLS: TAPPED TEE OR C.I. FERRULE, WITH TAPERED THREAD BRONZE PLUG. J.R. SMITH #4472 CHROME PLATED FOR TILED WALLS, PRIME COATED FOR PAINTED WALLS.

D. FLOOR DRAINS:

1. ACCEPTABLE MANUFACTURERS: J.R. SMITH AS SPECIFIED, OR EQUIVALENT BY JOSAM, WADE OR ZURN.
2. ACCESSORIES:
   a. WHERE INSTALLED IN CONJUNCTION WITH WATERPROOF MEMBRANES, PROVIDE WITH FLASHING CLAMP DEVICE WITH CORROSION-RESISTANT CLAMPING BOLTS.
   b. PROVIDE WITH TRAP PRIMER TAILPIECE WHERE REQUIRED.

2.2 DOMESTIC HOT AND COLD WATER SYSTEMS

A. PIPE AND FITTINGS: TYPE "L" HARD-DRAWN COPPER TUBE, ASTM B88, WITH WROUGHT COPPER SOLDER JOINT FITTINGS, ANSI B16.22. CAST BRONZE SOLDER JOINT FITTINGS, ANSI B16.18, MAY BE USED ONLY FOR SIZES FOR WHICH WROUGHT COPPER FITTINGS ARE NOT MANUFACTURED. LEADLESS SOLDER JOINTS.

B. VALVES:

1. PROVIDE SYSTEMS WITH VALVES WHERE INDICATED ON DRAWINGS AND AS SPECIFIED. ALL VALVES SHALL BE EASILY ACCESSIBLE. VALVES FOR SIMILAR SERVICE SHALL BE OF SAME MANUFACTURER.
2. PROVIDE SYSTEMS WITH VALVES SO LOCATED AND ARRANGED AS TO GIVE COMPLETE REGULATING CONTROL OVER ALL SYSTEMS. VALVES SHALL BE INSTALLED ON BOTH SIDES OF ALL EQUIPMENT, ON RISERS AND ON ALL BRANCH MAINS.
3. ACCEPTABLE MANUFACTURERS: HAMMOND, MILWAUKEE, STOCKHAM, NIBCO MANUFACTURER'S NAME AND FIGURE NUMBER SPECIFIED ARE FOR TYPE, CONSTRUCTION AND QUALITY REQUIRED.
   a. BALL VALVE (2" AND SMALLER): HAMMOND #8501, 150 LB., THREADED.
   b. BALL VALVE (2½" AND LARGER): NIBCO #F-510, 150 LB., FLANGED.
   c. CHECK VALVE (2" AND SMALLER): HAMMOND #IB904, 125 LB., THREADED.
   d. CHECK VALVE (2½" AND LARGER): HAMMOND #IR1124, IBBM, 125 LB., FLANGED.

C. UNIONS AND FLANGES:

1. UNIONS (2" AND SMALLER): CAST BRONZE GROUND JOINT PATTERN, BRASS TO IRON SEAT, ASTM B62 AND ANSI B16.18.
2. FLANGES (2½" AND LARGER): 150 LB., CAST BRONZE, SOLDER JOINT, ASTM B62 AND ANSI B16.24.
   a. FLANGE GASKETS SHALL BE 1/16" THICK AND SUITABLE FOR WATER. GARLOCK OR APPROVED EQUIVALENT.
   b. BOLTING MATERIALS: CARBON STEEL HEAVY HEX BOLTS AND NUTS, ASTM A307 TYPE B.

D. SPECIALTIES:

1. WATER HAMMER ARRESTORS:
   a. ACCEPTABLE MANUFACTURERS: PRECISION PLUMBING PRODUCTS, J.R SMITH.
   b. LOCATE AS SHOWN ON DRAWINGS AND SIZE PER DRAWING
2. HOSE BIBBS:
3. TRAP PRIMER ASSEMBLIES:
   a. TRAP PRIMERS FOR DRAINS SHALL BE AS INDICATED AND SPECIFIED.
   b. TRAP PRIMER PIPING: SAME AS SPECIFIED FOR DOMESTIC WATER (ANNEALED COPPER MAY BE USED).
   c. EQUIPMENT: PRECISION PLUMBING PRODUCTS

2.3 CONDENSATE AND RELIEF DISCHARGES: TYPE "L" OR "M" HARD-DRAWN COPPER TUBE, ASTM B88, WITH WROUGHT COPPER SOLDER JOINT FITTINGS, ANSI B16.22. SOLDER: SAME AS SPECIFIED FOR WATER SYSTEM.

SEE P3.1 FOR CONTINUATION.

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No.	Description	Date
	50% DD	07/08/24
	50% CD	08/12/24
	PLAN CHECK	10/21/24

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

PLUMBING SPECIFICATIONS

Project number	47067
Date	11/25/2024
Drawn by	DG

P3.0

Scale

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2.4 INSTALLATION OF FIXTURES AND EQUIPMENT SPECIFIED ELSEWHERE

A. WORK INCLUDED:

1. ROUGH-IN AND CONNECT PLUMBING SERVICES REQUIRED FOR LABORATORY AND/OR RESTROOMS EQUIPMENT AS INDICATED ON THE DRAWINGS.

2. FURNISH AND INSTALL STRAIGHT OR ANGLE STOPS ON ALL DOMESTIC HOT AND COLD WATER LINES AT HOSE BIBBS, AND ELSEWHERE AS INDICATED OR REQUIRED.

3. FURNISH AND INSTALL GAS SHUT-OFF COCKS AND GAS MANIFOLDS AS INDICATED OR REQUIRED.

4. FURNISH AND INSTALL WATER HAMMER ARRESTORS IN HOT AND COLD WATER LINES TO ALL EQUIPMENT OR APPARATUS EQUIPPED WITH QUICK CLOSING VALVES.

5. INSTALL GAS EMERGENCY SHUT-OFF VALVES FURNISHED BY OTHERS.

B. PRODUCTS:

1. MATERIALS AND METHODS:

a. WATER SUPPLY STOPS: BRASS-CRAFT STRAIGHTWAY AND ANGLE TYPE, AS REQUIRED.

b. FIXTURE TRAPS: CAST BRASS, ADJUSTABLE P-TRAP, CODE APPROVED.

c. REFER TO THE VARIOUS SECTIONS INCLUDED UNDER DIVISION NO. 15 FOR MATERIAL REQUIREMENTS FOR EACH PARTICULAR SYSTEM.

d. ALL EXPOSED UNINSULATED PIPING, VALVES, ETC., FURNISHED BY THIS CONTRACTOR FOR KITCHEN EQUIPMENT SHALL BE CHROME PLATED.

C. FIXTURES: (REFER TO FIXTURE SCHEDULE, PLUMBING COVER SHEET)

2.5 INDIRECT WASTE: TYPE DWV COPPER DRAINAGE TUBE, ASTM B306 WITH CAST BRASS OR WROUGHT COPPER DRAINAGE FITTINGS, ASTM AND ANSI B16.4, LEADLESS SOLDER.

2.6 PIPE HANGERS AND SUPPORTS

A. GENERAL:

1. A HANGER ASSEMBLY SHALL CONSIST OF AN UPPER ATTACHMENT SECURED TO STRUCTURE, A HANGER ROD AND A PIPE HANGER.

a. THE UPPER ATTACHMENT SHALL BE AS FOLLOWS:

1) CONCRETE: CONCRETE INSERT, OR EXPANSION SHIELD.

2) STEEL FRAMING: BEAM CLAMP.

3) WOOD FRAMING: ANGLE CLIP WITH ONE LEG BOLTED THRU WOOD MEMBER WITH A PLATE WASHER ON EACH SIDE. BOLT SHALL BE SAME SIZE AS REQUIRED ROD SIZE. LAG BOLTS WILL NOT BE ALLOWED.

2. PIPES AT THE SAME ELEVATION MAY BE SUPPORTED BY ACCEPTABLE TRAPEZE HANGERS.

3. EXPLOSIVE TYPE FASTENERS OR STUDS WILL NOT BE PERMITTED.

4. HANGERS AND SUPPORTS SHALL FIT OUTSIDE OF ALL PIPE INSULATION AND INSULATION INSERTS UNLESS SPECIFIED OTHERWISE.

5. REFER TO DRAWINGS FOR FABRICATION OF SPECIAL SUPPORTS.

6. ALL WATER PIPING SHALL BE ISOLATED FROM STRUCTURE.

B. HANGER SPACING FOR HORIZONTAL SUSPENDED PIPING SHALL BE AS FOLLOWS, UNLESS SPECIFIED OR SHOWN ON THE DRAWINGS OTHERWISE.

1. CAST IRON SOIL PIPE SHALL BE SUPPORTED AT NOT MORE THAN 5 FT. INTERVALS WITH SUPPORT NOT MORE THAN 18" FROM HUB.

2. STEEL PIPE 1" AND SMALLER: NOT TO EXCEED 6 FT. - 0 IN.

3. STEEL PIPE 1-1/4" AND LARGER: NOT TO EXCEED 10 FT. - 0 IN.

4. COPPER TUBING 1½" AND SMALLER: NOT TO EXCEED 6 FT. - 0 IN.

5. COPPER TUBING 2" AND LARGER: NOT TO EXCEED 10 FT. - 0 IN.

6. IN ALL CASES, SPACE PIPE SUPPORTS TO PROVIDE ADEQUATE SUPPORT FOR THE PIPES, THE MEDIUM IN THE PIPES, INSULATION, VALVES AND FITTINGS TO PREVENT ANY SAGGING OR SEPARATION OF JOINTS.

C. HANGER RODS: SOLID MILD STEEL, SIZED AS SPECIFIED BELOW. MAXIMUM LENGTH OF ALL THREAD ROD SHALL NOT EXCEED 6".

PIPE SIZE	ROD DIAMETER
1/2" THRU 3"	3/8"
4" THRU 6"	1/2"

D. VERTICAL PIPING SHALL BE SUPPORTED, NOT HUNG, AT EACH FLOOR WITH MALLEABLE IRON OR STEEL BOLTED PIPE CLAMPS. CLAMPS FOR WATER PIPES SHALL REST ON NEOPRENE AND CORK PADS.

E. HANGERS SHALL BE CLEVIS, OR SPLIT RING TYPE. ACCEPTABLE MANUFACTURERS: B-LINE, TOLCO, MICHIGAN HANGER, OR APPROVED EQUIVALENT.

F. PROVIDE PIPE TO STRUCTURE OR HANGER ISOLATION AS FOLLOWS:

1. HANGERS: WATER PIPING SHALL BE ISOLATED FROM HANGERS WITH TWO (2) LAYERS OF 1/4" FELT.

2. THROUGH STRUCTURAL MEMBERS:

a. ALL WASTE PIPING SHALL BE ISOLATED FROM ALL POINTS OF CONTACT WITH THE STRUCTURE OF THE BUILDING WITH TWO (2) THICKNESSES OF 1/4" HEAVY PLUMBERS' FELT. THERE SHALL BE NO POINTS OF CONTACT BETWEEN ANY WASTE LINE AND THE STRUCTURE OF THE BUILDING INCLUDING STUDS, GYPBOARD, PLATES, HEADERS, OR ANY OTHER PART OF THE BUILDING.

b. ALL WATER PIPING SHALL BE ISOLATED THE SAME AS THE WASTE PIPING EXCEPT PIPING 1" AND SMALLER. 1" AND SMALLER WATER PIPING SHALL BE ISOLATED USING ACOUSTO-PLUMB ISOLATORS AS MANUFACTURED BY SPECIALITY PRODUCTS CO. THIS INCLUDES STUB-OUTS AT FIXTURES.

2.7 PIPE FLASHING

A. PROVIDE A FLASHING ASSEMBLY AT EVERY PIPE PASSING THROUGH A ROOF.

B. LEAD FLASHING AND COUNTERFLASHING:

1. FOR VENT PIPING: STONEMAN #S-1000-4, 4 LB. LEAD, 6" SKIRT.

2. FOR OTHER THAN VENT PIPING: STONEMAN VERSA-FLASH, 4 LB. LEAD, 6" SKIRT.

2.8 ACCESS PANELS

A. PROVIDE METAL ACCESS PANELS AND FRAMES FOR ALL VALVES, TRAP PRIMERS, OR SIMILAR ITEMS REQUIRING ADJUSTMENT OR SERVICING LOCATED IN CONCEALED SPACES.

B. ACCESS PANELS: FACE-OF-WALL AND CEILING TYPE: STEEL WITH PRIMECOAT FINISH IN PAINTED WALLS AND CEILINGS: POLISHED CHROME-PLATED BRONZE IN TILE WALLS.

C. ACCESS PANEL SIZES SHALL BE 12" X 12" FOR VALVES 2" AND SMALLER AND INDIVIDUAL TRAP PRIMERS, 18" X 18" FOR VALVES 2-1/2" AND LARGER AND TRAP PRIMERS WITH DISTRIBUTION BOXES.

D. PROVIDE PANELS WITH CYLINDER LOCKS, KEYED ALIKE.

E. PANELS IN FIRE RATED WALLS SHALL HAVE SAME RATING AS WALLS.

F. ACCEPTABLE MANUFACTURERS: JOSAM, MILCOR, ELMDOR, OR ZURN.

2.9 DIELECTRIC ISOLATORS

A. ISOLATE INCOMPATIBLE PIPING MATERIALS.

B. FOR PIPING 2" DIAMETER AND SMALLER, USE UNIONS OR COMPANION FLANGES EQUIVALENT TO EPCO.

C. FOR PIPING 2-1/2" DIAMETER AND LARGER, USE FLANGE DIELECTRIC ISOLATION SETS EQUIVALENT TO F.H. MAHONEY TYPE E, 150 LB. CLASS.

2.10 TOOLS

A. FURNISH ALL SPECIAL TOOLS NECESSARY FOR THE CARE AND OPERATION OF ANY EQUIPMENT.

B. IDENTIFY TOOLS FOR THE SPECIFIC EQUIPMENT.

2.11 PIPE SLEEVES

A. PROVIDE PIPE SLEEVES FOR ALL PIPING PASSING THROUGH CONCRETE WALLS AND FLOORS.

B. SLEEVES SHALL BE CRETE-SLEEVES BY SPERZEL CO. OR APPROVED EQUIVALENT.

PART 3 EXECUTION

3.1 EXCAVATION, BACKFILL, AND DEWATERING

A. GENERAL: PERFORM ALL EXCAVATING, TRENCHING, BACKFILLING, COMPACTING AND DEWATERING REQUIRED FOR THE INSTALLATION OF THE WORK OF THIS DIVISION 15.

B. EXCAVATE, BACKFILL, AND COMPACT IN ACCORDANCE WITH TRENCHING, BACKFILL AND COMPACTING SECTION OF SPECIFICATIONS.

C. DEWATERING:

1. LAY PIPE IN DRY TRENCHES AND KEEP TRENCHES COMPLETELY DRY UNTIL PIPING SYSTEM HAS BEEN TESTED, CLEANED, INSULATED, INSPECTED AND ACCEPTED BY THE OWNER AND COMPLETELY BACKFILLED BEFORE DEWATERING FUNCTION CEASES.

2. FURNISH AND OPERATE PUMPS, WELL POINTS, SIPHONS OR OTHER EQUIPMENT AS MAY BE REQUIRED TO PROVIDE COMPLETE DEWATERING OF TRENCHES AND DISPOSAL OF EXCESS WATER.

3.2 PIPING INSTALLATION

A. LAYOUT OF WORK:

1. PERFORM ALL DIMENSIONAL LAYOUT OF THE WORK AND ESTABLISH ALL LINES AND GRADES AS SET FORTH ON THE DRAWING.

2. BE RESPONSIBLE FOR CONFORMITY OF THE FINISHED WORK WITH DRAWINGS AND SPECIFICATIONS.

3. LAYOUT ROUGH-IN FOR CONTRACT EQUIPMENT AS WELL AS OWNER FURNISHED EQUIPMENT AND APPLIANCES IN ACCORDANCE WITH ROUGH-IN DIAGRAMS PROVIDED BY THE MANUFACTURER.

B. INSTALLATION:

1. INSPECT ALL PIPING PRIOR TO INSTALLATION, PIPE FOUND UNSATISFACTORY ON INSPECTION OR DAMAGED BY HANDLING SHALL BE PROMPTLY REMOVED FROM THE JOB SITE.

2. ALL PIPING SYSTEMS SHALL BE GRADED AND VALVED TO PROVIDE COMPLETE DRAINAGE AND CONTROL OF ALL SYSTEMS.

3. INSTALL HORIZONTAL SANITARY AND STORM DRAINAGE PIPING TO UNIFORM GRADES CONFORMING TO THE APPLICABLE CODE FOR THIS INSTALLATION OR AS INDICATED ON DRAWINGS.

4. ALL PIPING SHALL RUN PARALLEL TO BUILDING CONSTRUCTION AND SHALL BE NEAT AND WORKMANLIKE. DO NOT CUT OR DRILL STRUCTURAL MEMBERS EXCEPT AS APPROVED BY THE STRUCTURAL ENGINEER, OR SPECIFICALLY NOTED ON THE DRAWINGS.

5. CONCEAL ALL PIPING IN FINISHED PORTIONS OF THE BUILDING UNLESS NOTED OTHERWISE ON THE DRAWINGS.

6. COUPLED SHOT SECTIONS OF PIPE, BUSHINGS, CLOSE NIPPLES, LONG SCREWS, AND CROSSES ARE PROHIBITED.

7. INSTALL ALL PIPING IN SUCH A MANNER AS TO PREVENT ANY UNDUE NOISE FROM THE FLOW OF WATER UNDER NORMAL CONDITIONS.

8. INSTALL PIPING TO PERMIT FREE EXPANSION AND CONTRACTIONS, EXCEPT WHERE THE DRAWINGS SPECIFICALLY INDICATE AN ANCHOR OR GUIDE. DO NOT CONNECT STIFFENING STRUCTURAL MEMBERS TO BENDS OR ELBOWS. WATER PIPING SHALL BE SECURED TO STRUCTURE AT FIXTURE LOCATIONS.

9. USE OFFSETS NECESSARY TO PREVENT UNDUE STRAIN ON PIPING. THE SPRINGING OF PIPING INTO PLACE IS PROHIBITED.

10. SELECT AND INSTALL PIPE SUPPORTS AND HANGERS IN SUCH A MANNER AS TO IMPOSE ONLY NEGLIGIBLE RESTRAINT ON THE FREE MOVEMENT OF PIPING AND NOT DEFORM PIPING. NO ANCHORS SHALL BE EMPLOYED.

11. LOCATE PIPE SUPPORTS AS CLOSE AS POSSIBLE TO VALVES OR OTHER HEAVY PIPING SPECIALTIES.

12. CAREFULLY LOCATE SUPPORTS AND HANGERS SO THAT THEY DO NOT HINDER FREE MOVEMENT OF ADJOINING PIPING OR OCCUPY OPEN SPACE IN A PIPE RACK.

13. BURIED PIPING:

a. CAREFULLY HANDLE AND LOWER PIPE IN SUCH A MANNER AS TO AVOID DAMAGE TO THE PIPE.

b. EXCAVATE A SOCKET HOLE UNDER THE JOINT SO THAT PIPE WILL BE SUPPORTED ON ITS BODY. PROVIDE SOCKET HOLES LARGE ENOUGH (BUT NOT EXCESSIVE) TO ALLOW ADEQUATE SPACE FOR WORKERS TO "MAKE" THE JOINTS.

14. ALL EXPOSED POLISHED OR ENAMEL CONNECTION FROM FIXTURES SHALL BE PUT ON WITH SPECIAL CARE SHOWING NO TOOL MARKS OR THREADS AT FITTINGS.

15. SWAY BRACING SHALL BE INSTALLED PER GOVERNING JURISDICTIONAL.

3.3 PIPE JOINTS

A. THREADED STEEL PIPE:

1. CUT SQUARE AND REMOVE ALL BURRS. REAM FOR FULL FLOW.

2. CUT THREADS WITH CLEAN DIES. APPLY THREAD COMPOUND TO MALE THREADS ONLY.

3. AFTER JOINTING, NOT MORE THAN THREE FULL THREADS SHALL REMAIN EXPOSED.

B. COPPER TUBING:

1. CUT SQUARE AND REMOVE ALL BURRS. REAM FOR FULL FLOW.

2. CLEAN OUTSIDE ENDS OF TUBING AND MALE FITTINGS AND SOCKETS OF FEMALE FITTINGS TO BRIGHT FINISH. CLEAN WITH EMERY CLOTH.

3. PROPERLY APPLY SOLDER FLUX TO SURFACES BEING JOINTED. APPLICATION AND TYPE OF FLUX SHALL BE AS RECOMMENDED BY THE SPECIFIC SOLDER MANUFACTURER.

4. REMOVE INTERNAL PARTS OF SOLDER-END VALVES PRIOR TO SOLDERING.

5. REFER TO SPECIFIC PIPING SYSTEM FOR TYPE OF SOLDER.

C. CAST IRON SOIL PIPE AND JOINTS: INSTALL IN ACCORD WITH COUPLING MANUFACTURER'S INSTRUCTIONS. REFER TO SPECIFIC PIPING SYSTEM FOR TYPE OF COUPLING.

3.4 PROTECTIVE COATING FOR UNDERGROUND PIPING

A. GENERAL: PROTECT UNDERGROUND PIPE AS SPECIFIED. PROTECT FITTINGS SIMILAR TO PIPING.

B. CAST IRON PIPE: ASPHALTUM VARNISH OR SIMILAR COATING STANDARD OF PIPE MANUFACTURER.

C. COPPER TUBING AND PIPE: NO COATING REQUIRED.

3.5 CLEANING AND DEGREASING OF PIPING

A. CLEAN ALL PIPING SYSTEMS TO REMOVE ALL DIRT, GREASE, SCALE, FOREIGN SUBSTANCES, ETC.

B. USE AIR AND/OR INERT GAS BLOWN THROUGH THE LINES OF GAS SYSTEM, TO PROVE THE PIPING CLEAN. ALL OTHER PIPING SYSTEMS SHALL BE THOROUGHLY FLUSHED OUT WITH WATER UNLESS SPECIFIED OTHERWISE.

C. PRIOR TO COMMENCING WORK, SUBMIT FOR APPROVAL A COMPLETE PROCEDURE FOR FLUSHING OF PIPING SYSTEMS. INCLUDE FLUSHING SOURCE, SYSTEM FLUSHING INLET PRESSURE, AND SIZE OF INLET AND OUTLET FLUSHING CONNECTIONS WITH THEIR LOCATIONS FOR EACH SYSTEM.

3.6 PLUMBING AND FIXTURE INSTALLATION

A. EACH FIXTURE SHALL BE INSTALLED AT THE HEIGHT AND LOCATION SHOWN ON DRAWINGS. FIXTURE SUPPLIES, TRAP AND TRAP ARM SHALL BE SET SQUARE WITH WALL, IN LINE WITH FIXTURE OUTLETS, AND PROPERLY ALIGNED TO PREVENT ANY UNDUE STRAIN ON FIXTURES. FIXTURES SHALL BE SET LEVEL. JOINT BETWEEN FIXTURE AND WALL OR FLOOR SHALL BE GROUTED SMOOTHLY WITH G.E. SILICONE GROUT. ALL FIXTURES SHALL HAVE THEIR WATER SUPPLIES PROTECTED AGAINST POSSIBLE BACK SIPHONAGE. THE DISCHARGE OUTLETS OF SUPPLY FAUCETS FOR SINKS AND LAVATORIES SHALL CLEAR THE TOP OF THE OVERFLOW RIM BY AT LEAST 1".

B. BACKING AND SUPPORT: FIXTURE OR SUPPORTING ARMS SHALL BE SECURELY ATTACHED TO A BACKING PLATE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. BACKING PLATES SHALL BE 1/4" THICK X 6" WIDE AND SHALL BE CONNECTED TO A MINIMUM OF 3 STUDS. PLATES SHALL BE DRILLED AND TAPPED IN EACH CASE TO RECEIVE THE FIXTURE MOUNTING BOLTS. FIXTURE BOLTS SHALL BE BRASS WITH CHROME PLATED HEADS WHEN EXPOSED.

1. FOR WOOD STUD CONSTRUCTION: RECESS BACKING PLATE FLUSH WITH STUDS. ATTACH BACKING PLATE TO EACH STUD THAT IT CROSSES WITH TWO 3/8" STEEL BOLTS (ON 4" CENTERS) EXTENDED THROUGH STUD AND SECURED REAR SIDE WITH NUTS PROVIDED WITH 1/8" X 2" STEEL BACKUP WASHERS.

2. FOR METAL STUD CONSTRUCTION: ATTACH BACKING PLATE TO EACH STUD THAT IT CROSSES BY 3/16" FILLET WELD ON TOP AND BOTTOM EDGES OF THE PLATE AND ACROSS THE FULL WIDTH OF STUD FLANGE.

3.7 EQUIPMENT AND APPLIANCE INSTALLATION

A. INSTALL EQUIPMENT AND APPLIANCES, BOTH OWNER FURNISHED AND IN CONTRACT WHERE SHOWN, AS INDICATED, AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR THE SPECIFIC SERVICE.

B. PROVIDE ANCHOR BOLTS, SETTING DRAWINGS AND TEMPLATES FOR SETTING EQUIPMENT.

C. ASSURE CORRECT ALIGNMENT OF EQUIPMENT OR APPLIANCE AFTER SETTING.

D. WHERE GROUTING IS NECESSARY, USE NON-SHRINK TYPE.

3.8 TESTING OF PIPING

A. TESTING AND INSPECTION OF ALL PIPING SYSTEMS AND ASSOCIATED EQUIPMENT FOR LEAKS SHALL BE ACCOMPLISHED AFTER INSTALLATION AND CLEANING AND PRIOR TO PLACING INTO SERVICE.

B. A RIGID VISUAL INSPECTION OF EACH SPECIFIC PIPING SYSTEM SHALL BE MADE PRIOR TO CONDUCTING TIGHTNESS TESTS, TO ASCERTAIN THAT ALL APPURTENANCES AND EQUIPMENT ARE PROVIDED, PROPERLY CONNECTED AND SUPPORTED, AND IN ALL RESPECTS READY FOR TESTING.

C. EQUIPMENT SUCH AS HOT WATER, FLEXIBLE HOSE, SAFETY VALVES AND SIMILAR TEST PRESSURE. EQUIPMENT SHALL EITHER BE DISCONNECTED FROM THE PIPING OR BE ISOLATED BY VALVES OR BLANKS DURING TESTING.

D. INDICATED PRESSURE GAUGES MOUNTED LOCALLY MAY BE TESTED WITH THE LINES, PROVIDED THE TEST PRESSURE DOES NOT EXCEED THE SCALE RANGE.

E. THE APPLICATION OF PRESSURE TO A SYSTEM SHALL BE UNDER CONTROL AT ALL TIMES, SO THAT IN NO CASE SHALL THE TEST PRESSURE BE EXCEEDED BY MORE THAN 6%.

F. GAUGES USED FOR TESTING SHALL BE TESTED FOR ACCURACY AS DIRECTED OR APPROVED BY THE OWNER, AND THEN INSTALLED AS CLOSE AS POSSIBLE TO THE LOW POINT OF THE PIPING SYSTEM.

G. DO NOT APPLY TEST PRESSURE UNTIL THE PIPING SYSTEM AND ITS CONTENTS APPROACH THE SAME TEMPERATURE.

H. WHILE PIPING IS UNDER TEST, EXERCISE CARE THAT EXCESSIVE PRESSURE DOES NOT OCCUR DUE TO INCREASE IN AMBIENT TEMPERATURE.

I. PIPING TEST PRESSURE SHALL BE AS SPECIFIED WITH THE PARTICULAR SYSTEM. IF TEST PRESSURES ARE NOT SPECIFIED, THEY SHALL BE 150% OF DESIGN PRESSURE FOR THE SPECIFIC SYSTEM BEING TESTED.

J. CONDUCT HYDROSTATIC TESTS WITH WATER AT A TEMPERATURE BELOW 100 DEGREES F.

1. FILL THE SYSTEM SLOWLY WITH WATER AND VENT AT HIGHEST POINTS TO EXPEL THE AIR BEFORE PRESSURIZING.

2. CAREFULLY EXAMINE ALL JOINTS FOR LEAKS OR DEFECTS.

3. PROVIDE CONNECTIONS AS REQUIRED TO ACCOMPLISH THE ABOVE.

K. KEEP ACCURATE TEST RECORDS OF EACH LINE OR SYSTEM TESTED. EACH TEST SHALL INCLUDE:

1. IDENTIFICATION OF PIPING SYSTEM AND TEST NUMBER.

2. TESTING MEDIUM.

3. TEST PRESSURE.

4. DATE OF TEST ACCEPTANCE.

L. TESTS: ALLOW TO STAND 4 HOURS OR LONGER AS DIRECTED TO PROVIDE TIGHT WITHOUT LEAKS. PERFORM TESTS IN PRESENCE OF THE OWNER OR HIS/HER REPRESENTATIVE.

1. SOIL, WASTE, AND VENT SYSTEM AND STORM DRAIN SYSTEM. TEST WITH WATER TO A STATIC HEAD OF 10 FT.

2. DOMESTIC WATER SYSTEM: TEST WITH WATER AT 1-1/2 TIMES SYSTEM PRESSURE.

3. GAS SYSTEM: TEST WITH AIR AT 40 PSI.

M. AT THE COMPLETION OF THE WORK, COMPLETELY ADJUST ALL VALVES AND EQUIPMENT FOR THEIR PROPER USE AND SEATING.

3.9 STERILIZING OF PIPING AND FIXTURES

A. WATER LINES AND FIXTURES SHALL BE FLUSHED THOROUGHLY PRIOR TO CHLORINATION TO REMOVE DIRT, ETC. SCREENS ON FAUCETS TO BE REMOVED DURING INJECTION AND REPLACED AFTER COMPLETION OF DISINFECTION.

1. INJECTION SHALL START ONLY WHEN ALL FIXTURES ARE CONNECTED UP AND READY FOR OPERATION.

2. A SERVICE COCK ON RISER, EITHER 3/4" TO AT LEAST 1-1/4", SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR AND LOCATED AT THE WATER SERVICE ENTRANCE. THE DISINFECTING AGENT SHALL BE INJECTED INTO AND THROUGH THE SYSTEM FROM THESE COCKS OR RISERS ONLY.

3. CHLORINE (EITHER GAS OR LIQUID) MUST BE USED AS DISINFECTING AGENT. CALCIUM OR SODIUM HYPOCHLORITE (LIQUID OR POWDERED), OR AS APPROVED IN FEDERAL AND AMWWA PROCEDURES, MAY BE USED.

4. THE DISINFECTING AGENT SHALL BE INJECTED BY A PROPORTIONING PUMP OR DEVICE THROUGH THE SERVICE COCK OR RISER SLOWLY AND CONTINUOUSLY AT AN EVEN RATE.

5. ALL OUTLETS MUST BE FULLY OPENED AT LEAST TWICE DURING INJECTION, AND THE RESIDUAL CHECKED WITH ORTHOTOLIDINE SOLUTION.

6. WHEN THE CHLORINE RESIDUAL CONCENTRATION INDICATED IS NOT LESS THAN 50 QUARTS PER MILLION AT ALL OUTLETS, THEN ALL FIXTURES AND WATER SUPPLY VALVES MUST BE CLOSED AND SECURED.

7. THEN THE RESIDUAL SHALL BE RETAINED FOR A PERIOD OF NOT LESS THAN 24 HOURS.

8. AFTER THE RETENTION, THE RESIDUAL UPON CHECKING AT MOST OUTLETS SHALL NOT BE LESS THAN 10 PARTS PER MILLION. IF LESS, THEN THE DISINFECTION MUST BE REPEATED AS DESCRIBED ABOVE.

B. IF SATISFACTORY, ALL PIPING AND FIXTURES MUST BE FLUSHED UNTIL RESIDUAL CHLORINE OR ORTHOTOLIDINE TESTS SHALL NOT BE GREATER THAN THE INCOMING WATER SUPPLY.

C. ALL WORK AND CERTIFICATION OF PERFORMANCE MUST BE DONE BY APPROVED APPLICATORS OR QUALIFIED PERSONNEL WITH CHEMICAL AND LABORATORY EXPERIENCE.

3.10 DEMOLITION

A. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM/HERSELF WITH ALL EXISTING CONDITIONS AFFECTING HIS/HER WORK. SPECIAL ATTENTION SHOULD BE GIVEN TO POSSIBLE ASBESTOS PRODUCTS, REMOVAL IS BY OTHERS, AND THIS CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS.

B. PROTECTION:

1. PERFORM DEMOLITION IN SUCH A MANNER AS TO ELIMINATE HAZARDS TO PERSONS AND PROPERTY AND TO MINIMIZE INTERFERENCE WITH USE OF NEIGHBORING UTILITIES AND STRUCTURES OR INTERRUPTION OF USE OF SUCH UTILITIES AND FREE PASSAGE TO AND FROM THE STRUCTURES.

2. PROVIDE SAFEGUARDS, INCLUDING WARNING SIGNS AND THE LIKE THAT ARE REQUIRED FOR THE PROTECTION OF OWNER'S AND CONTRACTOR'S EMPLOYEES AND OTHERS, DURING DEMOLITIONS AND REMOVAL OPERATIONS.

3. CARE SHALL BE TAKEN TO PREVENT SPREAD OF FLYING PARTICLES AND DUST.

C. CONTRACTOR SHALL EXAMINE ALL THE ITEMS WHICH ARE DESIGNATED TO BE REUSED, AND REFURBISH THEM AND STORE THEM FOR REUSE.

D. CONTRACTOR SHALL CONTACT OWNER TO SEE WHICH ITEMS (EQUIPMENT, FIXTURES, ETC.) OWNER WISHES TO KEEP. OWNER WILL DIRECT CONTRACTOR AS TO WHERE ITEMS SHALL BE STORED.

E. ALL REMOVED EQUIPMENT, PIPING, ETC., WHICH ARE NOT TO BE REUSED OR KEPT BY THE OWNER SHALL BE REMOVED FROM THE SITE AND SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

F. ON COMPLETION OF THE DEMOLITION WORK AND AFTER REMOVAL OF ALL DEBRIS, THE SITE SHALL BE LEFT IN CLEAN CONDITION SATISFACTORY TO THE OWNER. CLEANING SHALL INCLUDE OFFSITE DISPOSAL OF ITEMS, MATERIALS, DEBRIS, AND RUBBISH RESULTING FROM DEMOLITION OPERATIONS.

END OF SECTION

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REGISTERED PROFESSIONAL ENGINEER
KEVIN A. SMOLA
No. M21106
MECHANICAL
STATE OF CALIFORNIA

No.	Description	Date
	50% DD	07/08/24
	50% CD	08/12/24
	PLAN CHECK	10/21/24

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

PLUMBING SPECIFICATIONS

Project number	47067
Date	11/25/2024
Drawn by	DG

P3.1

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REGISTERED PROFESSIONAL ENGINEER — KEVIN A. SMOLA — No. M21106 — MECHANICAL — STATE OF CALIFORNIA

STATE OF CALIFORNIA
Domestic Water Heating System CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-PLB-E
This document is used to demonstrate compliance for nonresidential occupancies with requirements in 110.1, 110.3, 120.3, and 140.5, and with requirements in 141.0 for additions and alterations, for domestic water heating scopes using the prescriptive path. For high-rise residential and hotel/motel occupancies compliance is demonstrated with requirements in 110.1, 110.3, 160.4 and 170.2(d), and with requirements 180.1 for additions and 180.2 for alterations.	
Project Name:	**Report Page:** (Page 1 of 6)
Project Address:	**Date Prepared:** 10/16/2024

A. GENERAL INFORMATION

01	Project Location (city)		02	Climate Zone	9
03	Occupancy Types Within Project (select all that apply):				

● Office ● Support Areas ● All Other Occupancies

B. PROJECT SCOPE

This table includes domestic water heating systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive paths outlined in 140./170.2(d) and 141.0(a)/ 180.1, or 141.0(b)2N / 180.2 for additions or alterations. Solar water heating systems are documented on the NRCC-SAB compliance document. Combined hydronic water heating systems are documented on the NRCC-MCH compliance document.

01	02	03
My project consists of (check all that apply):	System Type[1,2]	System Components
☒ New system (DHW system being installed for the first time)	Individual System (serving nonresidential spaces)	☒ Equipment ☒ Distribution ☒ Controls
☐ System Alteration (equipment, distribution or controls)		☐ Equipment ☐ Distribution ☐ Controls

[1]DOTNOTES: Point of use water heaters, or other non-central systems used to serve nonresidential spaces, are considered individual systems.
[2] Dwelling units refers to hotel/motel guest rooms and units in a multifamily residential occupancy.
[3] DHW systems serving 2 or more dwelling units are considered "Central Systems" for multifamily occupancies

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with water heating requirements. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. or the table indicated as not compliant for guidance.

01	02	03	04
Domestic Hot Water Equipment	Distribution Systems	Controls	**Compliance Results**
Table F	Table G	Table H	
Yes	Yes	Yes	COMPLIES

D. EXCEPTIONAL CONDITIONS

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

STATE OF CALIFORNIA
Domestic Water Heating System CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-PLB-E
Project Name:	**Report Page:** (Page 2 of 6)
	Date Prepared: 10/16/2024

E. ADDITIONAL REMARKS

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

F. DOMESTIC HOT WATER EQUIPMENT

This table is used to demonstrate compliance with mandatory equipment requirements in 110.1 and 110.3. Compliance with prescriptive requirements in 140.5(c) / 170.2(d) must also be demonstrated and with 141.0 / 180.1/ 180.2 for addition and alteration scopes.

Equipment Schedule: Water Heating Efficiency and Standby Loss

03	04			05	06			
System Name	A.O. SMITH DSE-40	Exception to 140.5(c)/ 170.2(d)3		☐	Gas Service Water Heating System >= 1MMBtu/h[1]	Capacity-weighted Average Efficiency %		
07	08	09	10		11	12	13	14	15
Name or Item Tag	Equipment Type	Volume (gal)	Rated Input Capacity (Btu/h)	Max GPM/ First Hour Rating (FHR)	Rated Efficiency	Minimum Efficiency Required	Efficiency Unit	Designed Standby Loss	Maximum Standby Loss
A.O. SMITH DSE-40	Consumer Rated Electric Storage	40	20,460	18 <= FHR <51	0.92	0.93	UEF		

[1]FOOTNOTE: In systems >= 1MMBtu/h with multiple units, gas water heaters with input capacity > 100,000 Btu/h may meet 90% Et requirements via an input capacity-weighted average.

Water Heating Equipment All Occupancies

	Yes	No	Not Applicable	Requirement
18	☐	☐	☒	Unfired storage tank insulation shall have Internal + External >=R-16 OR External >=R-3.5. Label required per 110.3(c)3
19	☐	☐	☒	New state buildings 60% of energy for service water heating from sito solar energy or recovered energy per 110.3(c)5
20	☐	☐	☒	Isolation valves for instantaneous water heater with input rating >6.8 kBTUH or 2 kW has been specified per 110.3(c)6
21	☐	☐	☒	School buildings < 25,000 ft^2 and < 4 stories must install a heat pump water heating system per 140.5(a)1. Water heating systems serving an individual bathroom space may be an instantaneous electric water heater.

STATE OF CALIFORNIA
Domestic Water Heating System CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-PLB-E
Project Name:	**Report Page:** (Page 3 of 6)
	Date Prepared: 10/16/2024

G. DOMESTIC HOT WATER DISTRIBUTION SYSTEM

This table is used to demonstrate compliance for nonresidential occupancies with distribution requirements in 120.3 and 140.5. For multifamily and hotel/motel occupancies, compliance is demonstrated with requirements 110.3(c), 160.4, 170.2(d).

Mandatory Pipe Insulation All Occupancies

13	☐	For systems serving dwelling units, pipe insulation must meet the minimum insulation requirements in Table 160.4-A (see blow) except: • Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Piping that penetrates metal framing shall use grommets, plugs, wrapping or other insulating material to assure that no contact is made with the metal framing. Insulation shall abut securely against all framing members • Piping installed in interior or exterior walls shall not be required to have pipe insulation if all of the requirements are met for compliance with Quality Insulation Installation (QII) as specified in the Reference Residential Appendix RA3.5. • Piping surrounded with a minimum of 1 inch of wall insulation, 2 inches of crawlspace insulation, or 4 inches of attic insulation, shall not be required to have pipe insulation.
14	☒	For systems serving nonresidential spaces, pipe insulation for the following applications is specified to comply with Table 120.3-A (see below) per 120.3: • Recirculating system piping, including supply and return piping of the water heater • The first 8 ft of hot and cold outlet piping, including between storage tank and heat trap, for a nonrecirculating storage system • Pipes that are externally heated
15	☒	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service per 120.3(b) / 160.4(f). Pipe insulation buried below grade must be installed in a water proof and non-crushable casing or sleeve.

TABLE 120.3-A / 160.4-A PIPE INSULATION THICKNESS

Fluid Temperature Range (°F)	Conductivity Range (Btu-in per hour per ft^2 per °F)	Insulation Mean Rating Temp (°F)	Nominal Pipe Diameter (in)			
			< 1	1 to < 1.5	1.5 to < 4	1.5 to < 4 Multifamily & Hotel/Motel
			Minimum Insulation Required			
105-140	0.22 - 0.28	100	1.0 in or R-7.7	1.5 in or R-12.5	1.5 in or R-11	2.0 in or R-16

STATE OF CALIFORNIA
Domestic Water Heating System CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-PLB-E
Project Name:	**Report Page:** (Page 4 of 6)
	Date Prepared: 10/16/2024

H. DOMESTIC HOT WATER CONTROLS

This table is used to demonstrate compliance with control requirements in 110.3 for all occupancies. For multifamily residential and hotel/motel occupancies, compliance is also demonstrated with requirements in 160.4(e) / 170.2(d).

	Yes	No	Not Applicable	Requirement
01	☒	☐	☐	Construction documents require manufacturer certification that service water-heating systems are equipped with automatic temperature controls capable of adjusting temperature settings per 110.3(a).
02	☐	☐	☒	Systems with capacity > 167,000 BTUH equipped with outlet temperature controls per 110.3(c)1 unless covered by California Plumbing Code 613.0.
03	☐	☐	☒	Controls for circulating pumps or electrical heat trace systems are capable of automatically turning off the system per §110.3(c)2 unless systems serves healthcare facility.
04	☐	☐	☒	For recirculation systems serving multiple dwelling units, design includes automatic pump controls per 170.2(d) or 180.1(b)3 for additions.
05	☐	☐	☒	For recirculation systems serving individual dwelling units, design includes manual on/off controls as specified in Reference Appendix RA4.4.9 per 170.2(d).
06	☐	☐	☒	Combustion air positive shut-off shall be provided per 160.4(3).on all newly installed commercial boilers as follows: • Boilers with input capacity >= 2.5 MMBtu/h, in which the boiler is designed to operate with a nonpositive vent static pressure • Boilers where one stack serves two or more boilers with a total combined input capacity per stack of 2.5 MMBtu/h.
07	☐	☐	☒	Boiler combustion air fans with motor >= 10 hp shall meet one of the following • The fan motor shall be driven by a variable speed drive OR • The fan motor shall include controls that limit the fan motor demand to <=30% of the total design wattage at 50% of the design air volume.
08	☐	☐	☒	Newly installed boilers with an input capacity (dgte/) 5MMBtu/h and a steady state full-load combustion efficiency < 90% shall maintain excess (stack-gas) oxygen concentrations <= 5% by volume on a dry basis over firing rates of 20-100%. Combustion air volume shall be controlled with respect to firing rate or flue gas oxygen concentration. Use of a common gas and combustion air control linkage or jack shaft is prohibited.

STATE OF CALIFORNIA
Domestic Water Heating System CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-PLB-E
Project Name:	**Report Page:** (Page 5 of 6)
	Date Prepared: 10/16/2024

I. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection 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-PLB-E - Must be submitted for all buildings

J. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no forms required for this project.

K. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no forms required for this project.

STATE OF CALIFORNIA
Domestic Water Heating System CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-PLB-E
Project Name:	**Report Page:** (Page 6 of 6)
Project Address:	**Date Prepared:** 10/16/2024

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Eric Santellan	Documentation Author Signature: Eric Santellan
Company: Kevin A. Smola and Associates	Signature Date: 2024-10-16
Address: 16025 Arrow Highway, Ste. C	CEA/ HERS Certification Identification (if applicable): M21106
City/State/Zip: Irwindale CA 91706	Phone: 626-585-9338

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: Richard Amado	Responsible Designer Signature: Richard D. Amado
Company: Kevin A. Smola and Associates	Date Signed: 2024-10-16
Address: 16025 Arrow Hwy Ste. C	License: M21106
City/State/Zip: Irwindale CA 91706	Phone: 626-585-9338

No.	Description	Date
	50% DD	07/08/24
	50% CD	08/12/24
	PLAN CHECK	10/21/24

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE,
CLAREMONT, CA 91711

PLUMBING TITLE 24 FORMS

Project number	47067
Date	11/25/2024
Drawn by	DG

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