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SHEET INDEX

PROGRESS SET NOT FOR CONSTRUCTION

GENERAL NOTES

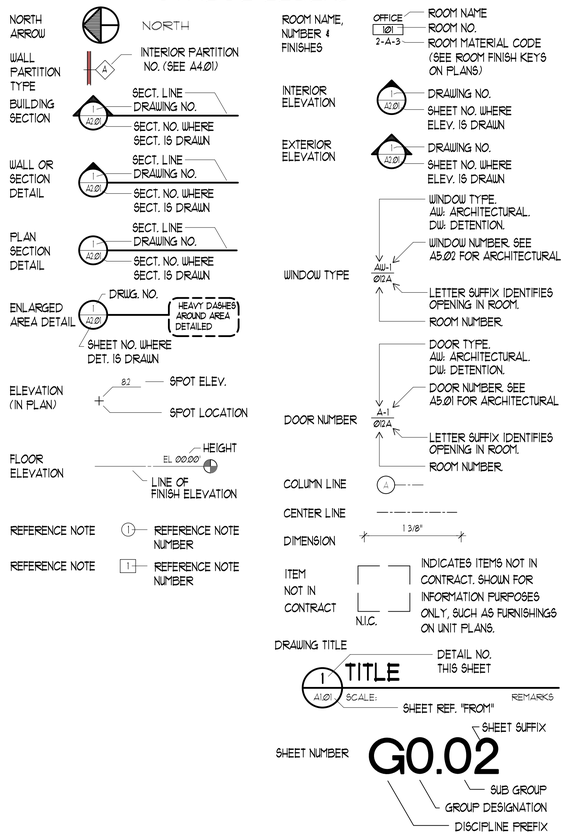
THESE NOTES REFER TO ARCHITECTURAL DRAWINGS ONLY

1. DRAWING NOTATION: MATERIALS IDENTIFICATIONS APPEAR AS ONE OF THE FOLLOWING:
   A. MATERIAL KEYNOTE WHICH IS REFERENCED BACK TO THE SPECIFICATIONS BY DIVISION.
   B. REFERENCE NOTES
   C. FULL NOTES DIRECTLY ON THE DRAWING

   WHERE USED, KEYNOTES HAVE BEEN INCLUDED AS AN AID TO THE CONTRACTOR ESPECIALLY IN THE AREA OF COORDINATING THE DRAWINGS AND SPECIFICATIONS. THE KEY NOTE SYSTEM IS NOT INTENDED TO REPLACE THE RESPONSIBILITY OF THE CONTRACTOR IN HIS COORDINATION PROCESS.

2. THE CONTRACTORS SHALL CHECK AND VERIFY ALL CONDITIONS AND DIMENSIONS, BOTH EXISTING AND NEW, REPORTING ANY DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATION BEFORE BEGINNING ANY PHASE OF THE WORK AS EACH CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK FITTING.

SYMBOL LEGEND



ABBREVIATIONS

A

ACOUST.	ACOUSTICAL
ADA	AMERICAN WITH DISABILITIES ACT
AFF.	ABOVE FINISHED FLOOR
ALUM.	ALUMINUM
∠	ANGLE
APPX.	APPROXIMATE
ASB.	ASBESTOS
A/C	AIR CONDITIONER

B

BD.	BOARD
BM.	BENCHMARK
BLK.	BLOCK

C

CLG.	CEILING
CEM.	CEMENT
CTR.	CENTER
C. TO C.	CENTER TO CENTER
C.L. OR ℄	CENTER LINE
C.T.	CERAMIC TILE
[	CHANNEL
C.R.	COLD ROLLED
CONC.	CONCRETE
C.	COURSE
C.F.M.	CUBIC FEET/MINUTE
CONT.	CONTINUOUS
CMU	CONCRETE MASONRY UNIT
C.J.	CONTROL JOINT

D

DIA.	DIAMETER
DIM.	DIMENSION
DBL.	DOUBLE
DN.	DOWN
DS.	DOWN SPOUT
DR.	DOOR
D.F.	DRINKING FOUNTAIN
DMP.	DAMP PROOFING
DEC	DETENTION EQUIPMENT CONTRACTOR

E

E	EAST
EL.	ELEVATION
EQ.	EQUAL
EXH.	EXHAUST
EXP.	EXPANSION
EXP. JT.	EXPANSION JOINT
EXT.	EXTERIOR
E.D.F.	ELECTRIC DRINKING FOUNTAIN
E.W.C.	ELECTRIC WATER COOLER
EXST. OR EX.	EXISTING
ELEC.	ELECTRICAL
E.F.I.S.	EXTERIOR FINISH INSULATING SYSTEM

F

FIN.	FINISH
F.F.	FINISH FLOOR
F.E.	FIRE EXTINGUISHER
F.E.C.	FIRE EXTINGUISHER CABINET
F.H.	FIRE HOSE
F.H.C.	FIRE HOSE CABINET
F.D.	FLOOR DRAIN
FL. TO FL.	FLOOR TO FLOOR
F.L.	FLOW LINE
F.O.S.	FACE OF STUD
F.G.B.	FACE OF GRADE BEAM
F.S.	FLOOR SINK

G

GA.	GAUGE
GALV.	GALVANIZED
G.S.T.	GLAZED STRUCTURAL TILE
GYP.	GYPSUM
G.I.	GALVANIZED IRON

H

H.B.	HOSE BIB
HDW.	HARDWARE
HD.	HEAD
HGT. OR HT.	HEIGHT
H.P.	HIGH POINT
HR.	HOUR
H.R.	HANDCUFF RING
HDCP	HANDICAPPED

I,J,K,L

I.D.	INSIDE DIAMETER
INT.	INTERIOR
JT.	JOINT
LAV.	LAVATORY
L.P.	LOW POINT

M

MANF.	MANUFACTURER
MECH.	MECHANICAL
MEMB.	MEMBRANE
MISC.	MISCELLANEOUS
MTD.	MOUNTED
M.P.	MID POINT

N

N	NORTH
N.T.S.	NOT TO SCALE
NO. OR #	NUMBER
N.I.C.	NOT IN CONTRACT

O

OPP.	OPPOSITE
OZ.	OUNCE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
O.A.	OVERALL
O.H.	OVER HEAD

P,Q

PR.	PAIR
PLAS.	PLASTER
PL. LAM.	PLASTIC LAMINATE
℄	PLATE OR PROPERTY LINE
d	PENNY
LB. OR #	POUND
PLMG.	PLUMBING

R

R. OR RAD.	RADIUS
RECP.	RECEPTACLE OR REINFORCE
REF. OR REF.	REFER TO
RES.	RESILIENT
REQD. OR RQD.	REQUIRED
RM.	ROOM
R.O.	ROUGH OPENING

S

S	SOUTH
SM.	SHEET METAL
STRUC.	STRUCTURE OR STRUCTURAL
ST. OR STL.	STEEL
SCHD.	SCHEDULE
SECT.	SECTION
SH.	SHOWER
SHT.	SHEET
SQ.	SQUARE
STD.	STANDARD
SHTHG.	SHEATHING

T

T.B.	TACK BOARD
TEL.	TELEPHONE
T.V.	TELEVISION
T.C.	TOP OF CURB
T.W.	TOP OF WALL
THK.	THICK
T&G	TONGUE AND GROOVE
TYP.	TYPICAL
T.O.S.	TOP OF STEEL
T.S.	TOP OF SLAB
T.O.D.	TOP OF DECK
T.D.	TRENCH DRAIN

U,V

U.L.	UNDERWRITER'S LABORATORY
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL

W,X,Y,Z

W	WEST
WT.	WEIGHT
WDW.	WINDOW
W/	WITH
W/O	WITHOUT
WD.	WOOD
WWM.	WELDED WIRE MESH
W.P.	WATER PROOFING
W.C.	WATER CLOSET

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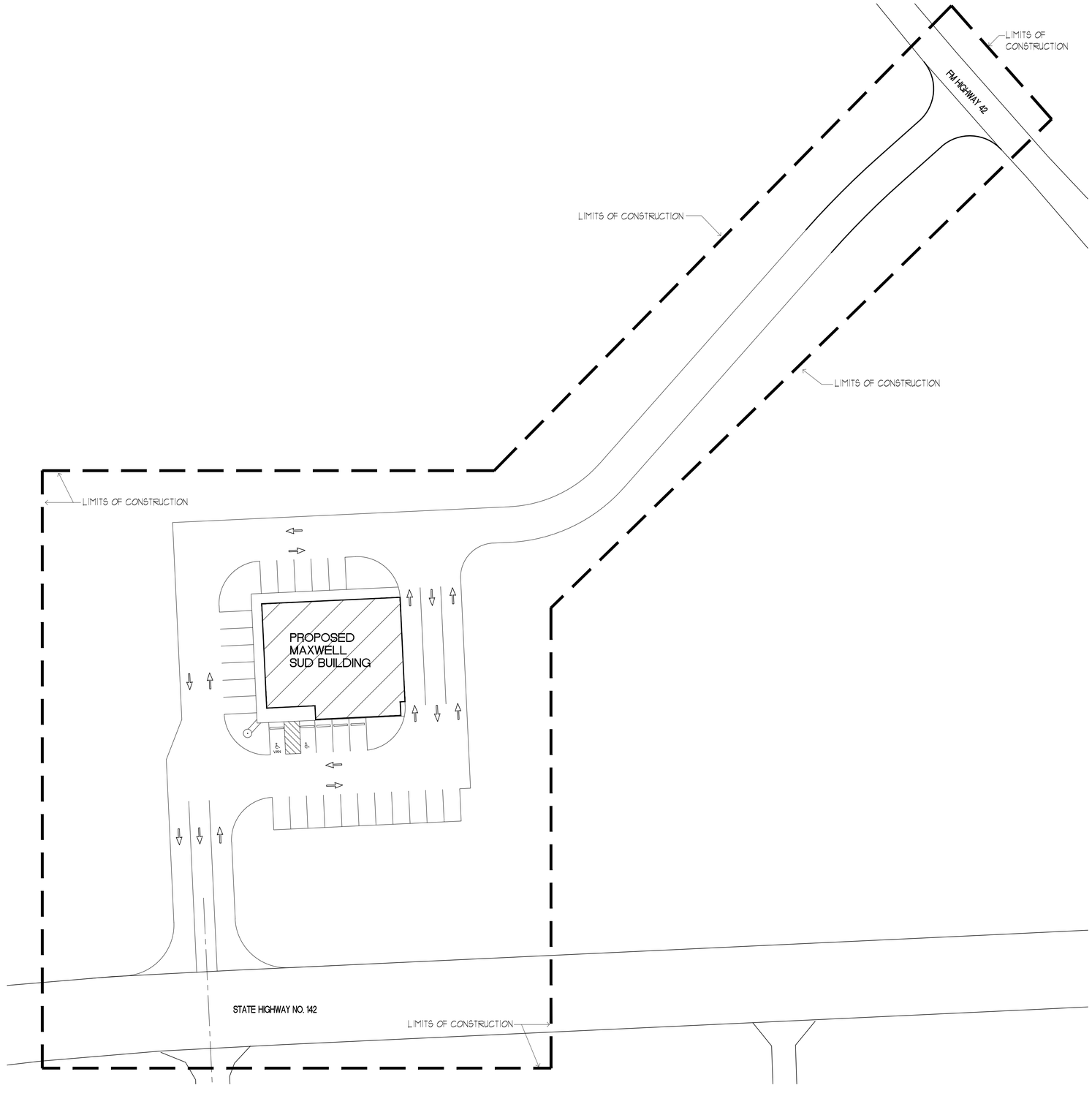
ABBREVIATIONS AND SYMBOLS

G0.01

DRG REFERENCE



NORTH

1 / A0.01 SITE PLAN

SCALE: 1" = 30'

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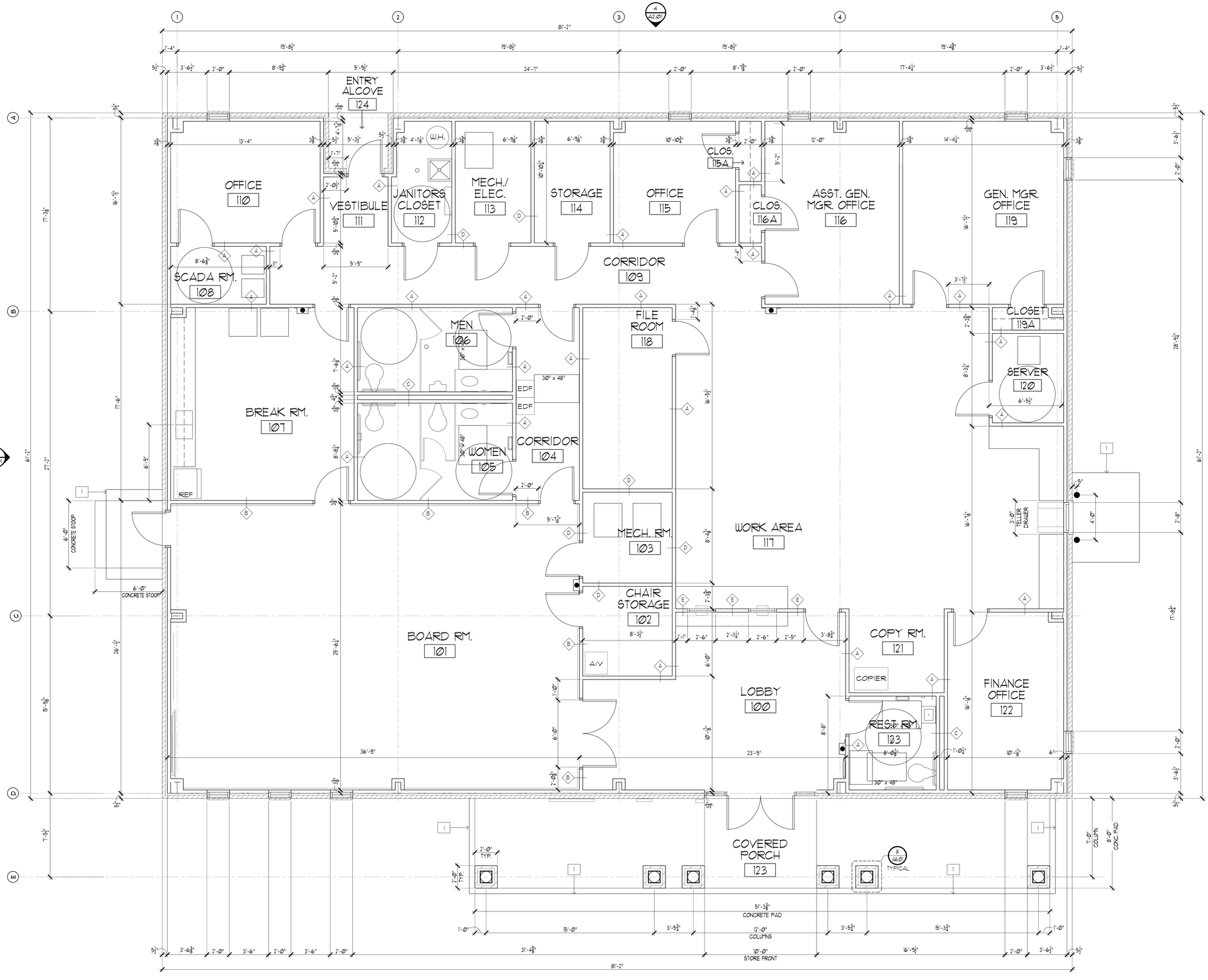
SITE PLAN

A0.01

DRG REFERENCE



KEYNOTES

1 ROOF - REF ROOF PLAN A1.04.

WALL LEGEND

EXTERIOR: 2 x 6 METAL STUDS AT 16" O.C. WITH STONE VENEER WAINSCOT AND CEMENTITIOUS LAPPED SIDING

INTERIOR: 2 x 4 METAL STUDS AT 16" O.C. WITH 5/8" GYPSUM BOARD EACH SIDE

C PARTITION TYPES REF. 1/A4.01.

NORTH

1 / A1.01 DIMENSIONED FLOOR PLAN

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

202270

1 / A2.01

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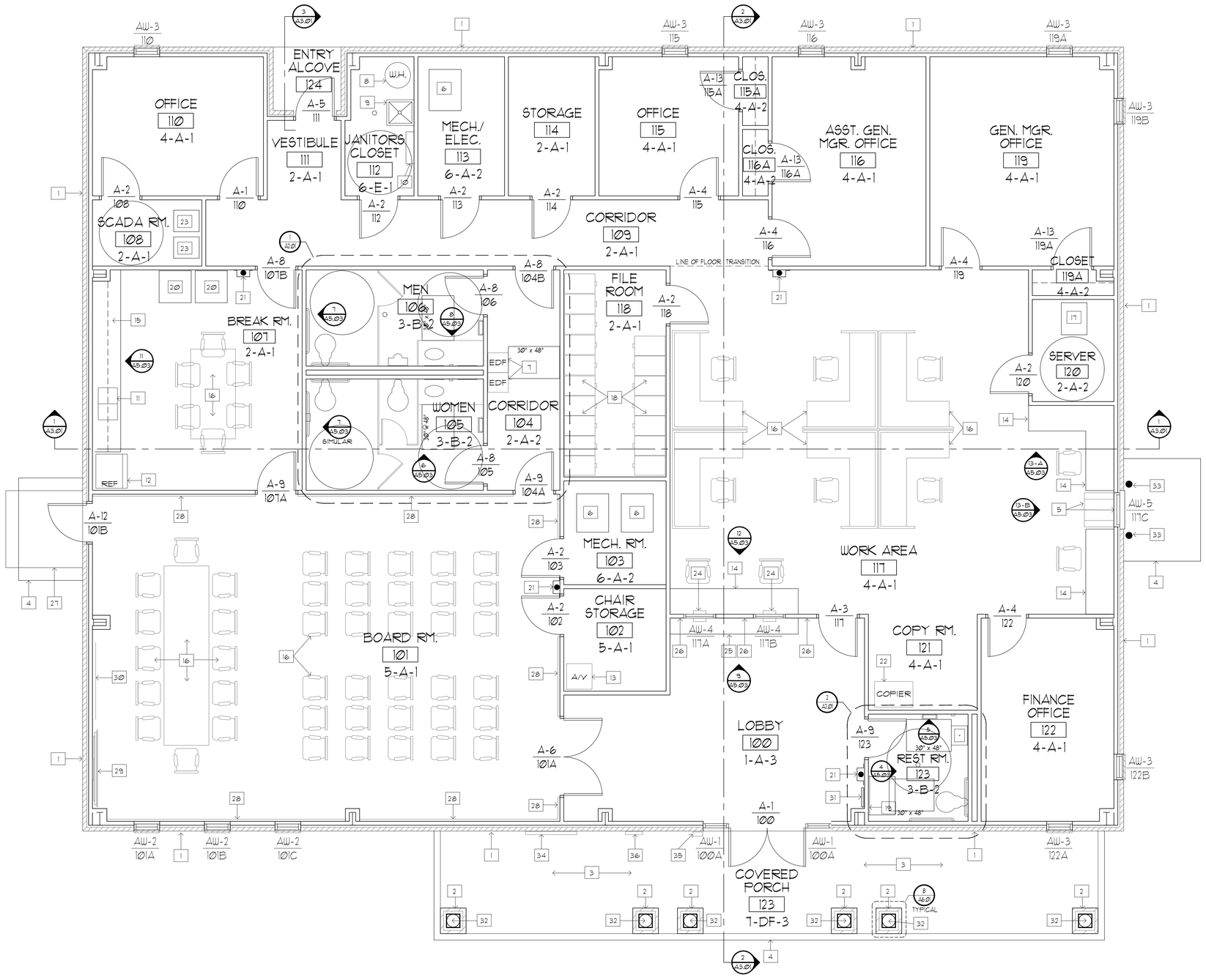
DIMENSION FLOOR PLAN

A1.01

DRG REFERENCE



NORTH

1 A1.01 REFERENCE KEY FLOOR PLAN

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

202270

ROOM FINISH KEY

OFFICE 067 — ROOM NAME / ROOM NUMBER
1-A-2 — ROOM MATERIAL CODE: 1ST. NO. - FLOOR / BASE; 2ND NO. - WALLS / WAINSCOT; 3RD NO. - CEILING

FLOOR / BASE

1. LVT FLOORING / WOOD BASE
2. LVT FLOORING / VINYL BASE
3. CERAMIC TILE / CERAMIC TILE BASE
4. CARPET (PATTERN 1) / VINYL BASE
5. CARPET (PATTERN 2) / WOOD BASE
6. FLOOR SEALER / VINYL BASE
7. STAINED CONCRETE

WALLS

A. 5/8" GYPSUM BOARD - PAINTED
B. CERAMIC TILE UP TO CEILING
C. ALUMINUM STOREFRONT - FACTORY FINISH
D. MASONRY - SEE ELEVATIONS
E. FRP WALL PANELS
F. METAL WALL PANELS

CEILINGS

1. 24" X 24" ACOUSTICAL TILE IN METAL LAY-IN SUSPENSION SYSTEM.
2. SUSPENDED 5/8" GYP BOARD - PAINTED.
3. METAL SOFFIT PANELS.

KEYNOTES

1 STONE VENEER AS SPEC.
2 STONE WRAPPED COLUMN AS SPEC.
3 CONCRETE PORCH. SEE STRUCTURAL PLANS.
4 METAL ROOF AS SPEC - SEE ROOF PLAN A/1.04.
5 WINDOW UNIT WITH BULLET-RESISTANT GLAZING AND TRANSACTION DRAWER. AS SPEC.
6 MECHANICAL EQUIPMENT. SEE MECHANICAL PLANS.
7 DRINKING FOUNTAINS AS SPEC.
8 WATER-HEATER AS SPEC.
9 JANITORS SINK AS SPEC.
10 MOP RACK AS SPEC.
11 SINK AS SPEC.
12 REFRIDGERATOR BY OWENER.
13 AUDIO/VIDEO CABINET AS SPEC.
14 SOLID SURFACE COUNTER AND BASE CABINETS.
15 SOLID SURFACE COUNTER, BASE AND UPER CABINETS. SEE 9/A2.01.
16 SYSTEMS FURNITURE - BY OWNER
17 IT SYSTEM SERVER RACK - BY OWNER
18 FILE CABINETS - BY OWNER
19 BABY CHANGING STATION - KOALA KARE MODEL: KB200-01.
20 VENDING MACHINES - BY OTHERS
21 WALL MOUNTED FIRE EXTINGUISHER AND CABINET (4) TOTAL.
22 COPIER - BY OWNER
23 METAL RACK - BY OTHERS
24 WINDOW UNIT WITH BULLET RESISTANT GLAZING AND TRANSACTION TRAY.
25 SOLID SURFACE SERVICE COUNTER.
26 BULLET RESISTANT WALL MATERIAL INSTALLED BEHIND GYP BOARD IN PARTITION - FLOOR TO 6'-0" AFF.
27 CONCRETE STOOP - SEE STRUCTURAL
28 WOOD CHAIR RAIL - SEE 10/A5.03.
29 TELEVISION BY OWNER
30 6'-0" WIDE x 4'-0" HIGH MAGNETIC MARKER BOARD - REF. SPEC. SECTION 10000
31 FIRE ALARM CONTROL PANEL - SEE ELECTRICAL
32 WOOD COLUMN - SEE STRUCTURAL PLANS
33 STEEL BOLLARDS - SEE CIVIL PLANS
34 LOCKABLE DISPLAY CABINET - REF. SPEC. SECTION 10000
35 CARD READER - REF. ELECTRICAL DRAWINGS
36 BUILDING PLAQUE

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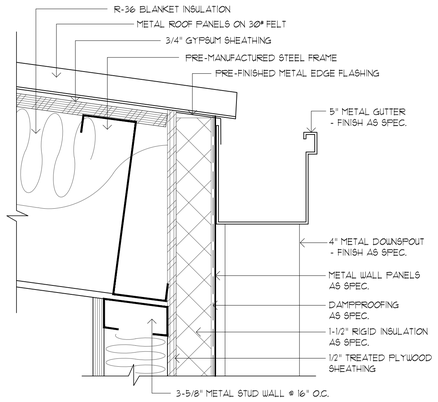
REFERENCE KEY FLOOR PLAN

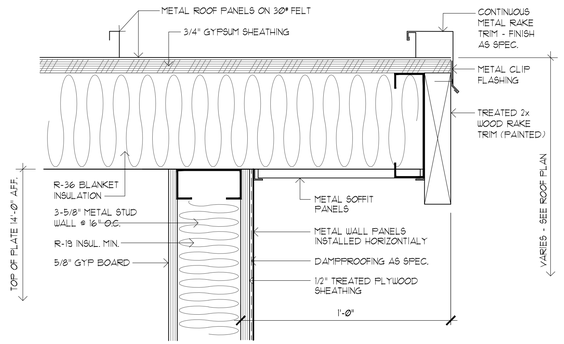
A1.02

DRG REFERENCE



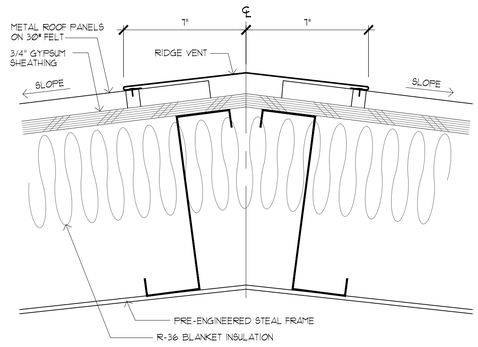
2 ROOF DETAIL

A1.04 SCALE: 3" = 1'-0"



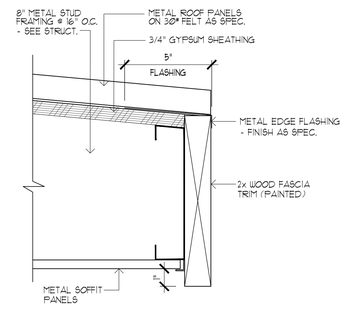
3 ROOF DETAIL

A1.04 SCALE: 3" = 1'-0"



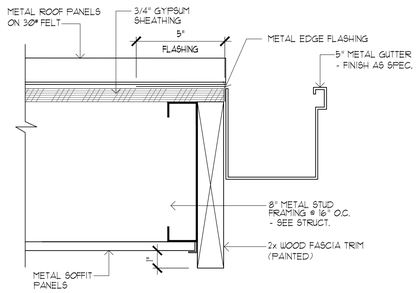
4 ROOF RIDGE DETAIL

A1.04 SCALE: 3" = 1'-0"



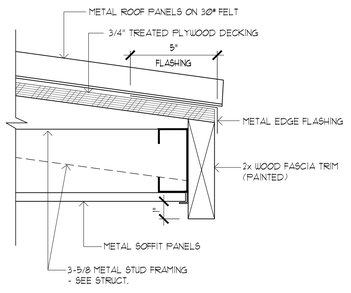
5 ROOF DETAIL

A1.04 SCALE: 3" = 1'-0"



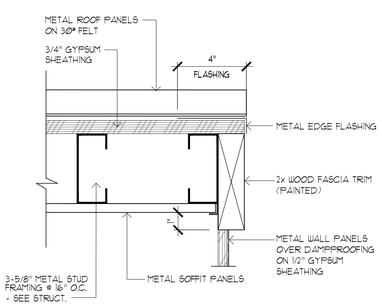
6 ROOF DETAIL

A1.04 SCALE: 3" = 1'-0"



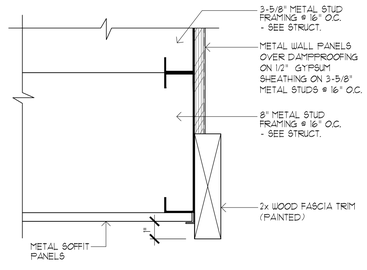
7 ROOF DETAIL

A1.03 SCALE: 3" = 1'-0"



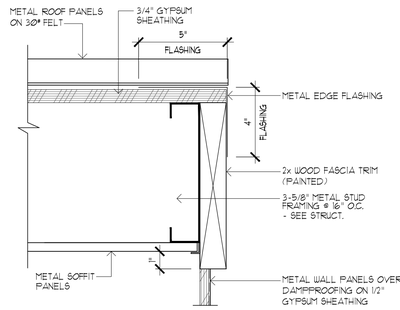
8 ROOF DETAIL

A1.04 SCALE: 3" = 1'-0"



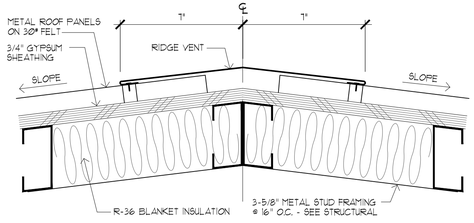
9 ROOF DETAIL @ PORCH FASCIA

A1.04 SCALE: 3" = 1'-0"



10 ROOF DETAIL @ PORCH ROOF

A1.04 SCALE: 3" = 1'-0"



11 ROOF RIDGE DETAIL

A1.04 SCALE: 3" = 1'-0"

ROOF PLAN KEYNOTES

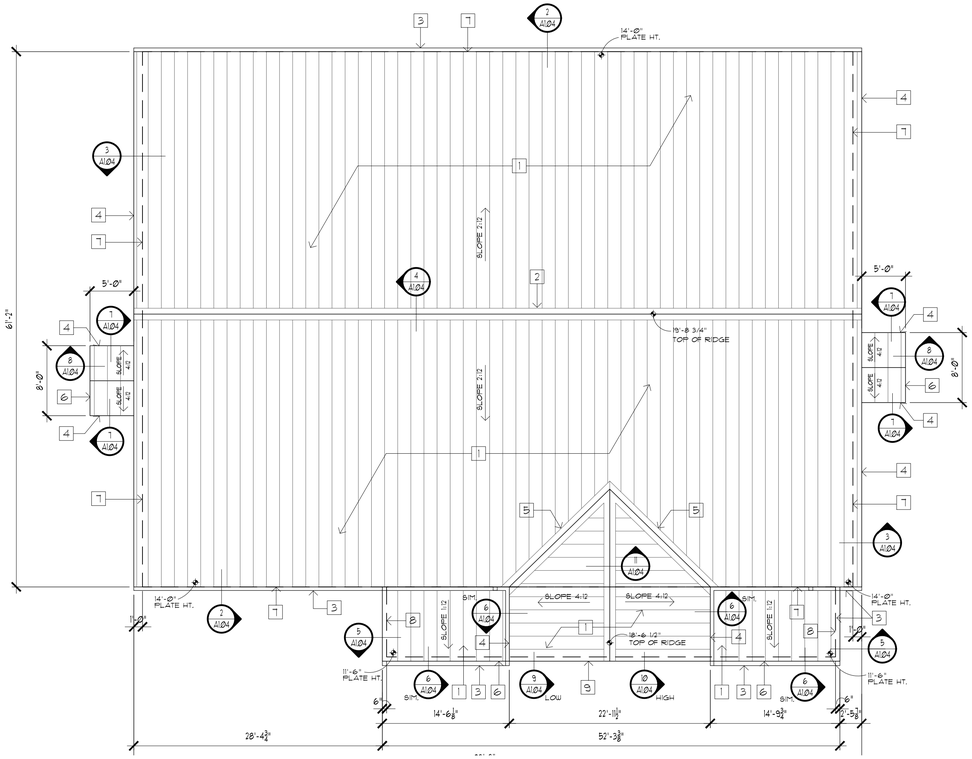
1. PRE FORMED METAL ROOF PANELS - REF. SPEC. SECTION Ø7140
2. CONTINUOUS METAL RIDGE CAP - FINISH AS SPEC.
3. CONTINUOUS 5" METAL GUTTER - FINISH AS SPEC.
4. WOOD RAKE (PAINTED) WITH METAL DRIP EDGE.
5. CONTINUOUS METAL VALLEY FLASHING - FINISH AS SPEC.
6. WOOD LOW EAVE TRIM (PAINTED) WITH METAL DRIP EDGE.
7. EDGE OF BUILDING BELOW.
8. EDGE OF PORCH CONCRETE SLAB BELOW.
9. 1x6 WOOD FASCIA (LOW) AND, 1x8 WOOD FASCIA (HIGH) - PAINT.

GENERAL NOTES

1. REFER TO SPECIFICATION SECTION 13122 FOR ROOF CURBS. ROOF CURBS (TO MATCH ROOFING PROFILE) ARE TO BE FURNISHED AND INSTALLED BY THE METAL ROOFING CONTRACTOR. THE MECHANICAL CONNECTIONS TO THE CURBS ARE TO BE BY THE MECHANICAL CONTRACTOR. THE MECHANICAL CONTRACTOR IS TO COORDINATE THE EXACT SIZE OF THE ROOF CURB SIZE WITH THE WOOD FRAMING CONTRACTOR.

2. ALL ROOF CURB LOCATIONS, SIZES AND QUANTITIES ARE TO BE COORDINATED WITH THE MECHANICAL PLANS.

3. ALL ROOF JACKS AND ANY OTHER PENETRATIONS THROUGH THE ROOF ARE TO BE FURNISHED AND INSTALLED BY THE METAL ROOFING CONTRACTOR. LOCATIONS FOR THE PENETRATIONS ARE TO BE COORDINATED WITH THE VARIOUS TRADES. PENETRATIONS ARE TO BE LOCATED SO AS TO BE CENTERED IN THE ROOF PANEL AND NOT EXTEND ACROSS PANEL RIBS UNLESS FLASHING PENETRATIONS CONFORMING TO THE ROOF CONFIGURATIONS ARE UTILIZED.



NORTH

1 ROOF PLAN

A1.05 SCALE: 1/8"=1'-0"

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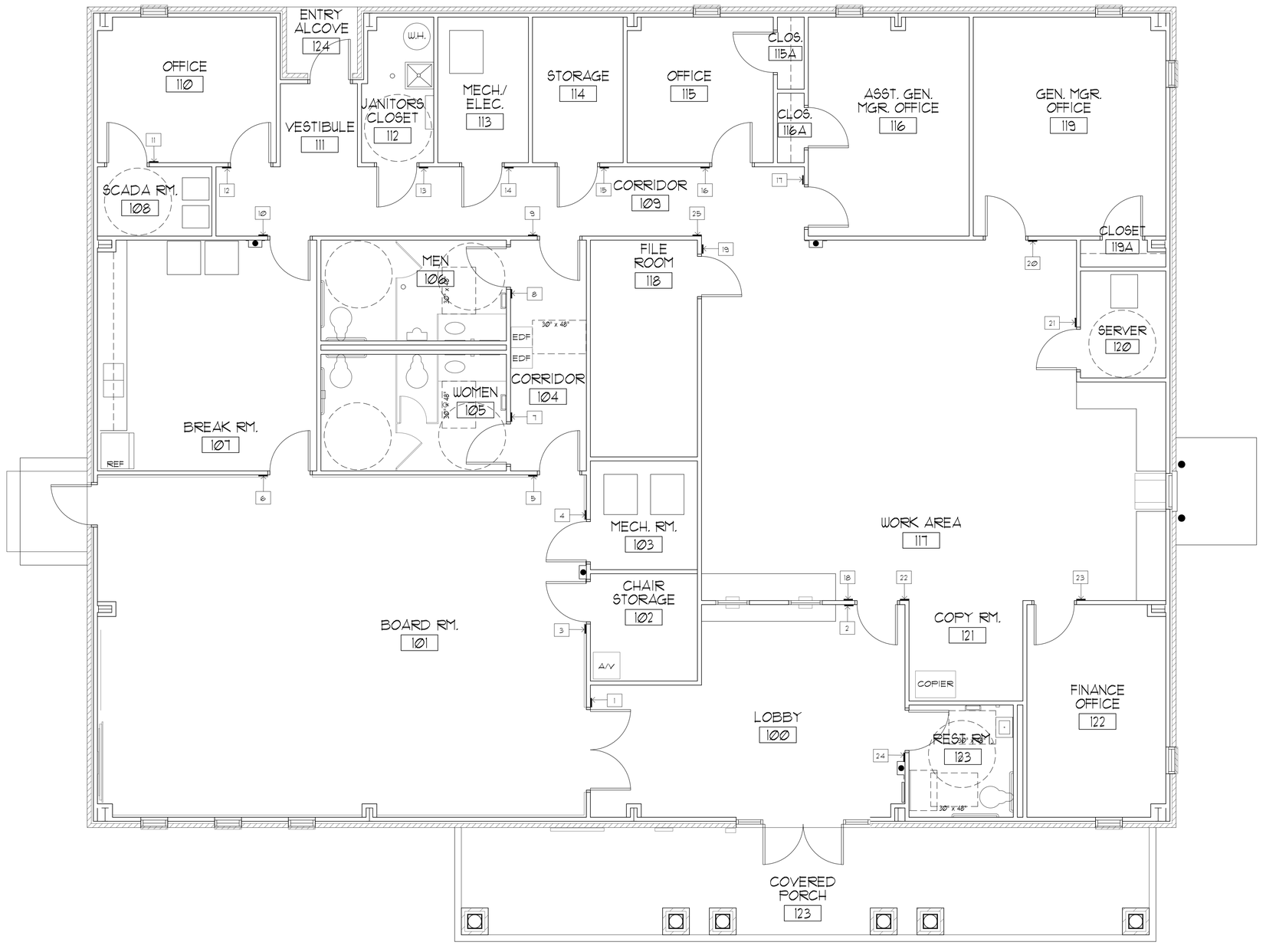
ROOF PLAN AND DETAILS

A1.04

DRG REFERENCE



NORTH

1 SG1.01 — ROOM SIGNAGE FLOOR PLAN

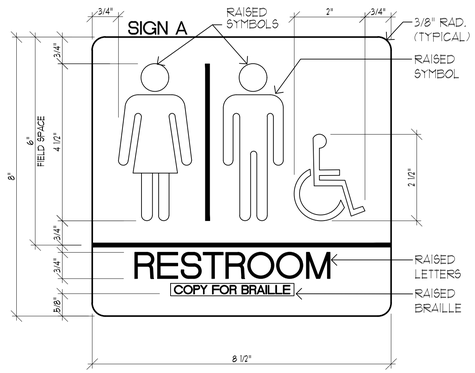
SCALE: 1/4" = 1'-0"

202270

NO.	LOCATION	SIGN TYPE	TEXT/CHARACTERS	REMARKS
1	LOBBY 100	B	BOARD ROOM 101	Center Text
2	LOBBY 100	B	WORK AREA 117	Center Text
3	BOARD ROOM 101	B	CHAIR STORAGE 102	Center Text
4	BOARD ROOM 101	B	MECHANICAL 103	Center Text
5	BOARD ROOM 101	B	RESTROOMS 104	Center Text
6	BOARD ROOM 101	B	BREAK ROOM 107	Center Text
7	CORRIDOR 104	B	WOMEN 105	Center Text
8	CORRIDOR 104	B	MEN 106	Center Text
9	CORRIDOR 109	B	RESTROOMS 104	Center Text
10	CORRIDOR 109	B	BREAK ROOMS 107	Center Text
11	OFFICE 110	B	SCADA 108	Center Text
12	CORRIDOR 109	B	OFFICE 110	Center Text
13	CORRIDOR 109	B	JANITORS 112	Center Text
14	CORRIDOR 109	B	MECHANICL / ELCTRICAL 113	Center Text
15	CORRIDOR 109	B	STORAGE 114	Center Text
16	CORRIDOR 109	B	OFFICE 115	Center Text
17	CORRIDOR 109	B	ASSISTANT GENERAL MANAGER 116	Center Text
18	WORK AREA 117	B	LOBBY 100	Center Text
19	WORK AREA 117	B	FILE ROOM 118	Center Text
20	WORK AREA 117	B	GENERAL MANAGER 119	Center Text
21	WORK AREA 117	B	SERVER 119	Center Text
22	WORK AREA 117	B	COPY ROOM 121	Center Text
23	WORK AREA 117	B	FINANCE 122	Center Text
24	LOBBY 100	A	RESTROOM 123	Center Text
25	CORRIDOR 109	B	WORK AREA 117	Center Text

2 SG1.01 — ROOM SIGNAGE SCHEDULE

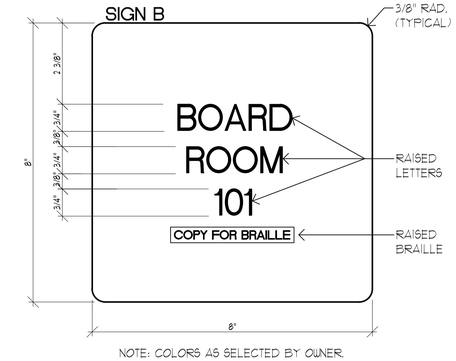
SCALE: NO SCALE



NOTE: COLORS, BLUE BACKGROUND WITH WHITE LETTERS AND SYMBOLS.

3 SG1.01 — HANDICAP RESTROOM SIGN

SCALE: 6" = 1'-0"



NOTE: COLORS AS SELECTED BY OWNER.

4 SG1.01 — ROOM SIGNAGE DETAIL

SCALE: 6" = 1'-0"

NOTES:

1. SIGN MOUNTING HEIGHT IS 48" ABOVE FINISHED FLOOR, MEASURED TO THE BASELINE OF THE LOWEST TACTILE CHARACTER AND 60" MAX. ABOVE FINISHED FLOOR MEASURED FROM THE BASELINE OF THE HIGHEST TACTILE CHARACTER. LOCATE SIGNS WITH A CLEAR FLOOR SPACE OF 18" MIN. BY 18" MIN. CENTERED ON TACTILE CHARACTERS, BEYOND THE LATCH SIDE OF ANY DOOR SWING AS REQUIRED BY TAS STANDARDS.
2. SIGNAGE LETTERS, BRAILLE AND RAISED CHARACTERS SHALL COMPLY WITH TAS STANDARDS.

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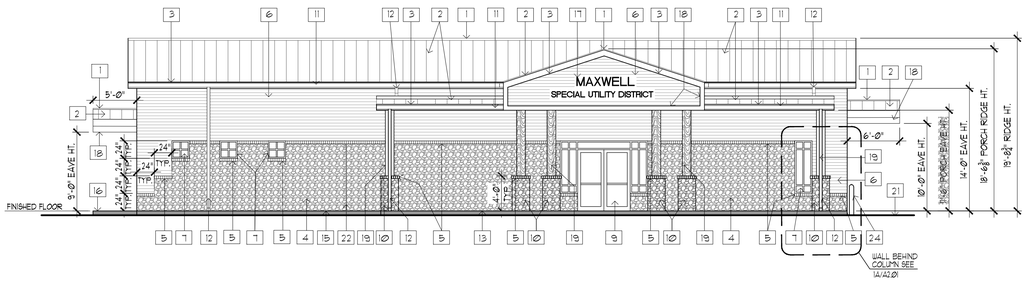
ROOM SIGNAGE FLOOR PLAN

SG1.01

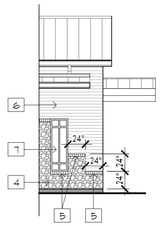
DRG REFERENCE

KEYNOTES

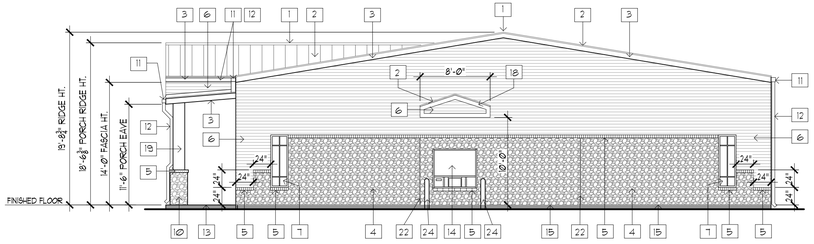
1. CONTINUOUS METAL RIDGE CAP - FINISH AS SPEC.
2. METAL ROOF PANELS AS SPEC. ON 30# FELT ON ¾" PLYWOOD PLYWOOD ON PRE-ENGINEERED STEEL ROOF TRUSSES
3. 2x8 WOOD FASCIA TRIM - PAINT AS SPEC.
4. STONE VENEER
5. FACE BRICK ROW LOCK ACCENT COURSE - TYPICAL
6. HORIZONTAL METAL WALL PANELS - FINISH AS SPEC.
7. ALUMINUM WINDOW AS SPEC.
8. HOLLOW METAL DOOR AND FRAME AS SCHEDULED (PAINTED).
9. ALUMINUM STOREFRONT DOORS AND WINDOWS AS SCHEDULED
10. STONE VENEER COLUMN
11. 5" METAL GUTTER - FINISH AS SPEC.
12. 4" METAL DOWNSPOUT - FINISH AS SPEC.
13. CONC. PORCH - REF. STRUCT. DRAWINGS
14. PRE-MANUFACTURED WINDOW UNIT WITH BULLET-RESISTANT GLAZING AND TRANSACTION DRAWER
15. FINISHED FLOOR - REF. STRUCT. DRAWINGS
16. CONCRETE STOOP - REF. STRUCTURAL DRAWGINS
17. METAL LETTERS: "MAXWELL" LETTERS TO BE 12" TALL LETTERS. "SPECIAL UTILITY DISTRICT" LETTERS TO BE 8" TALL LETTERS.
18. 2x6 WOOD FACIA TRIM - PAINT AS SPEC.
19. 12" DIA. WOOD COLUMN - PAINT AS SPEC.
20. CONCRETE SIDEWALK - SEE CIVIL DRAWINGS6
21. ASPHALT PAVEMENT AT DRIVE THRU - SEE CIVIL DRAWINGS.
22. EXPANSION JOINT AS SPEC.
23. STEEL LINTLE - SEE STRUCTURAL PLANS
24. STEEL BOLLARD - SEE CIVIL PLANS



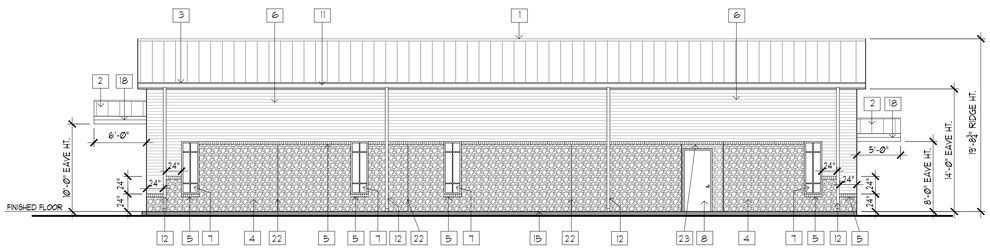
1 SOUTH ELEVATION
A2.01 1/8"=1'-0"



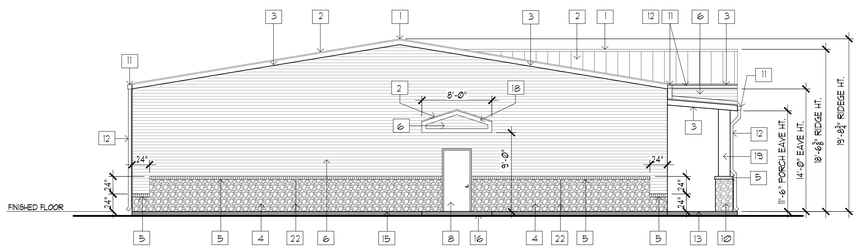
1A PARTIAL SOUTH ELEVATION
A2.01 1/8"=1'-0"



2 EAST ELEVATION
A2.01 1/8"=1'-0"



3 NORTH ELEVATION
A2.01 1/8"=1'-0"



4 WEST ELEVATION
A2.01 1/8"=1'-0"

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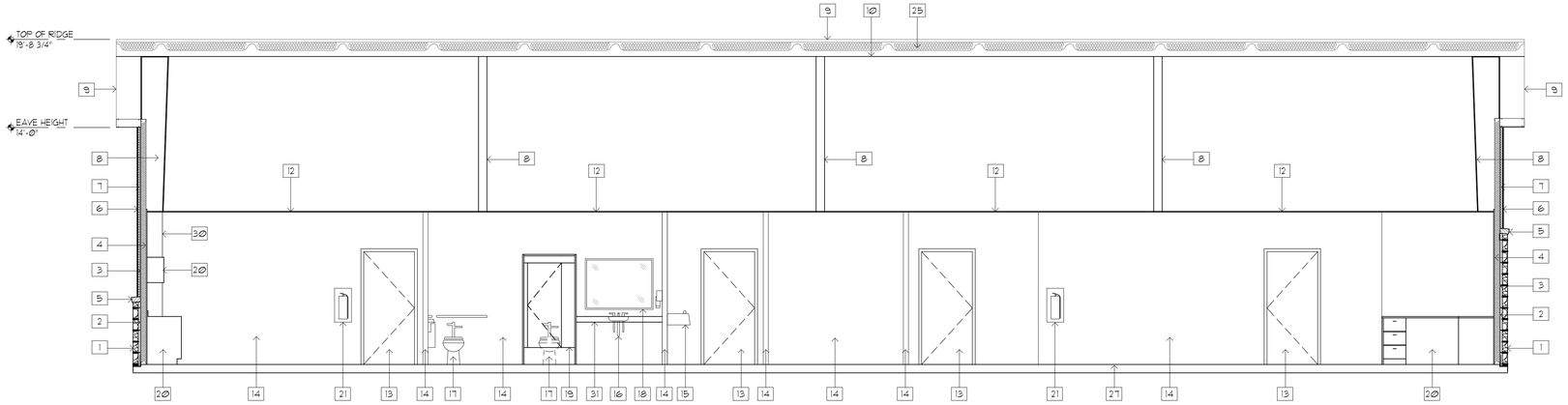
OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202270
DATE: MAY 2023

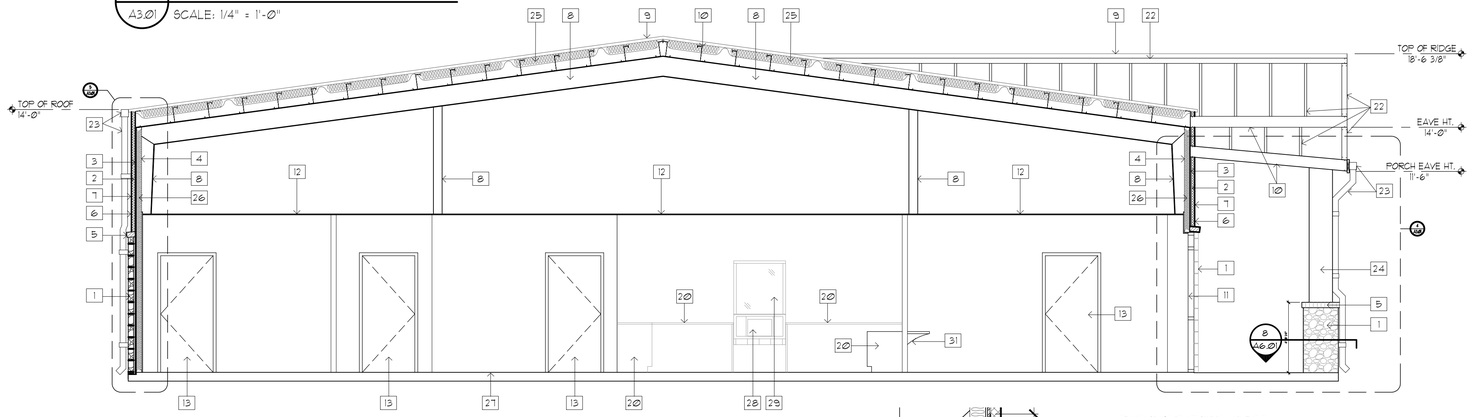
EXTERIOR ELEVATIONS

A2.01

DRG REFERENCE



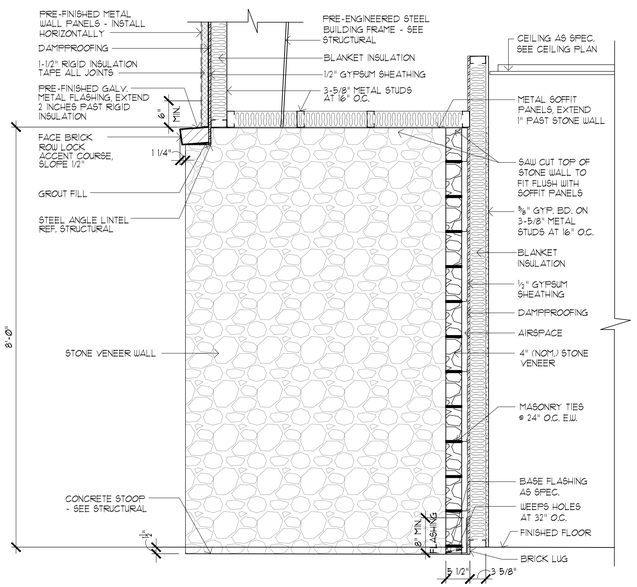
1 BUILDING SECTION
A3.01 SCALE: 1/4" = 1'-0"



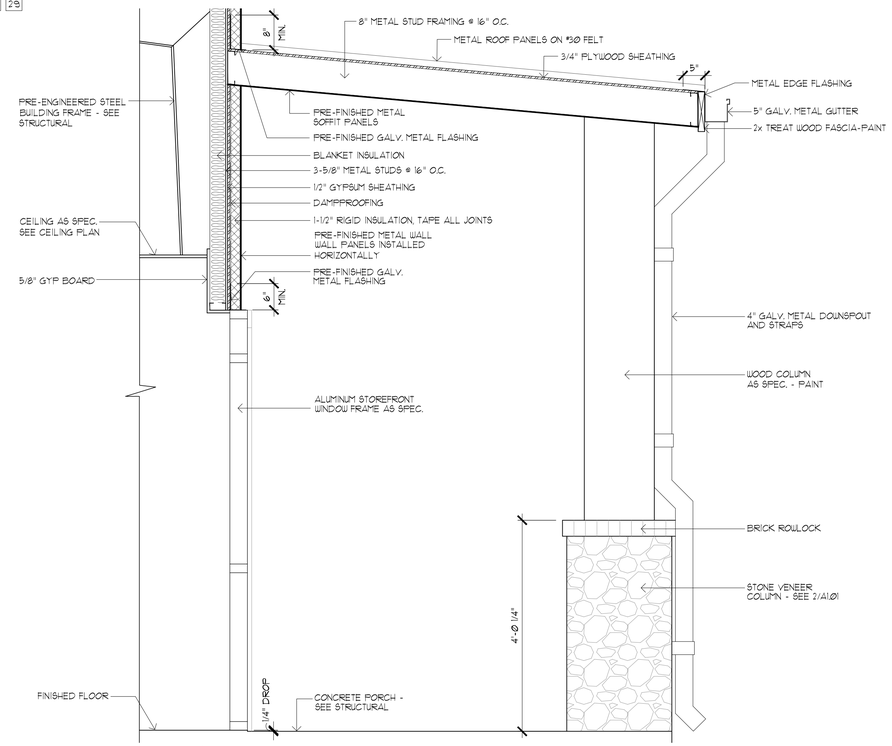
2 BUILDING SECTION
A3.01 SCALE: 1/4" = 1'-0"

KEYNOTES

1. STONE VENEER WITH MASONRY TIES AT 24" O.C. MAX.
2. WATERPROOFING AS SPEC.
3. 1/2" PLYWOOD SHEATHING
4. 3-5/8" METAL STUDS AT 16" O.C. WITH 5/8" GYP. BOARD.
5. FACE BRICK ROW LOCK ACCENT COURSE
6. METAL WALL PANELS INSTALLED HORIZONTALY AS SPEC.
7. 1-1/2" RIGID INSULATION BOARD
8. PRE-ENGINEERED STEEL BLDG. FRAME - SEE STRUCTURAL PLANS
9. METAL ROOF PANELS ON 30# FELT ON ¾" PLYWOOD ON 8" METAL STUDS AT 16" O.C.
10. 8" METAL STUDS AT 16" O.C.
11. ALUMINUM STOREFRONT WINDOW AS SPEC.
12. CEILING AS SPEC.
13. DOOR AS SCHEDULED
14. WALL PARTITION, FINISH AS SCHEDULED - SEE PARTITIONS A4.01.
15. DRINKING FOUNTAIN AS SPEC.
16. SINK AS SPEC.
17. TOILET AS SPEC.
18. MIRROR AS SPEC.
19. TOILET PARTITION AS SPEC.
20. CASEWORK AS SPEC.
21. FIRE EXTINGUISHER AS SPEC.
22. 3-5/8" METAL STUDS AT 16" O.C.
23. GUTTER AND DOWNSPOUT AS SPEC.
24. WOOD COLUMN AS SPEC, SEE 2/A4.01 - PAINT
25. R-30 INSULATION WITH VAPOR BARRIER AS SPEC.
26. BLANKET INSULATION AS SPEC.
27. CONCRETE SLAB - SEE STRUCTURAL PLANS
28. TELLER TRANSACTION DRAWER
29. BULLET PROOF GLASS AS SPEC.
30. COLUMN FURR-OUT
31. PLAM COUNTERTOP AS SPEC.



3 SECTION @ ALCOVE 124
A3.01 SCALE: 3/4" = 1'-0"



4 SECTION @ COVERED PORCH 123
A3.01 SCALE: 3/4" = 1'-0"

5 WALL DETAIL TYPICAL
A3.01 SCALE: 3/4" = 1'-0"

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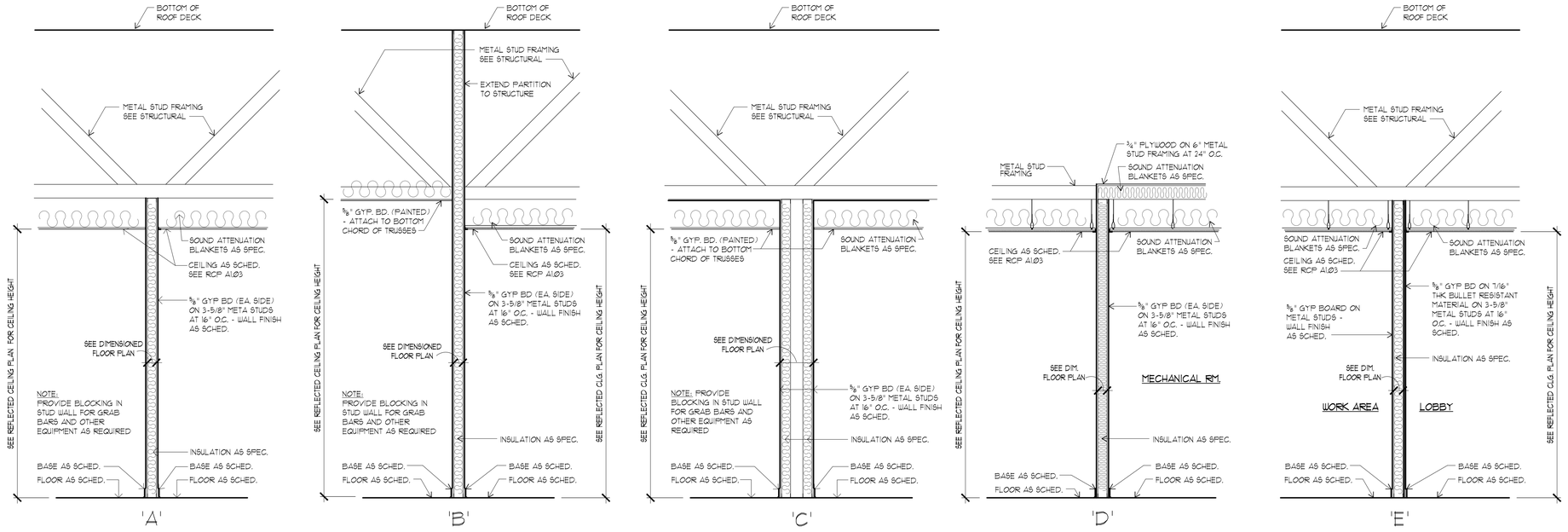
DATE: MAY 2023

BUILDING SECTIONS AND WALL DETAIL

A3.01

DRG REFERENCE



1 A4Ø1

WALL PARTITION TYPES

SCALE: ½" = 1'-Ø"

1Ø1500

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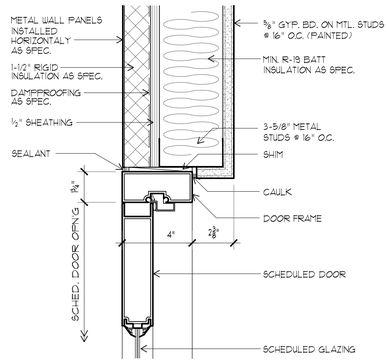
INTERIOR PARTITION TYPES

A4.01

DRG REFERENCE



1 A5.01 — HEAD @ EXTERIOR
SCALE: 3" = 1'-0" AT STOREFRONT DOOR
2015500

DOOR SCHEDULE

DOOR TYPE	DOOR ELEV.	DOOR SIZE or OPEN'G SIZE (WIDTHXHEIGHT)	DOOR MATERIAL	FRAME MATERIAL	FIRE RATING	FRAME DETAILS			REMARKS	HARDWARE SET
						HEAD	JAMB	SILL		
A-1	A	PR 3'-Ø"x7'-Ø"	ALUMINUM	ALUMINUM	- - -	1/A5.Ø1	2/A5.Ø1	3/A5.Ø1	1, 2	1
A-2	D	3'-Ø"x7'-Ø"	PLAS. LAM. WOOD	HOLLOW METAL	20-MIN.	7/A5.Ø1	7/A5.Ø1			2
A-3	D	3'-Ø"x7'-Ø"	PLAS. LAM. WOOD	HOLLOW METAL	- - -	4/A5.Ø1	5/A5.Ø1		2	3
A-4	D	3'-Ø"x7'-Ø"	PLAS. LAM. WOOD	HOLLOW METAL	- - -	7/A5.Ø1	7/A5.Ø1			4
A-5	C	3'-Ø"x7'-Ø"	HOLLOW METAL	HOLLOW METAL	- - -	6/A5.Ø1	6/A5.Ø1		2	5
A-6	D	3'-Ø"x7'-Ø"	PLAS. LAM. WOOD	HOLLOW METAL	- - -	7/A5.Ø1	7/A5.Ø1			6
A-7	D	3'-Ø"x7'-Ø"	PLAS. LAM. WOOD	HOLLOW METAL	- - -	7/A5.Ø1	7/A5.Ø1			7
A-8	D	3'-Ø"x7'-Ø"	PLAS. LAM. WOOD	HOLLOW METAL	- - -	7/A5.Ø1	7/A5.Ø1			8
A-9	D	3'-Ø"x7'-Ø"	PLAS. LAM. WOOD	HOLLOW METAL	- - -	7/A5.Ø1	7/A5.Ø1			9
A-12	B	3'-Ø"x7'-Ø"	HOLLOW METAL	HOLLOW METAL	- - -	4/A5.Ø1	4 & 5/A5.Ø1			11
A-13	D	3'-Ø"x7'-Ø"	PLAS. LAM. WOOD	HOLLOW METAL	- - -	7/A5.Ø1	7/A5.Ø1			12

REMARKS

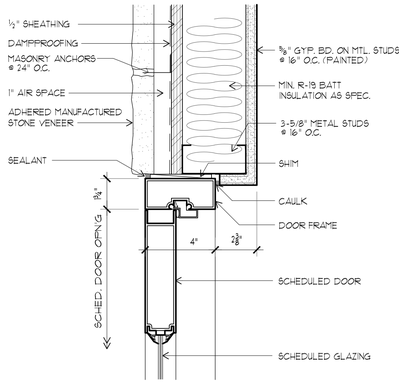
1. SEE DOOR ELEVATION FOR GLAZING.
2. PROVIDE ELECTRICAL STRIKE.

GENERAL NOTES

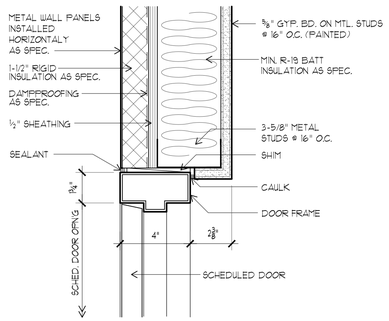
1. SEE REFERENCE FLOOR PLAN A1Ø2 FOR DOOR QUANTITY. THIS SCHEDULE DEFINES DOOR TYPES, NOT INDIVIDUAL DOORS. EACH DOOR SHOWN IS SEPARATELY IDENTIFIED BY AN OPENING NUMBER UNDER THE DOOR TYPE AS SHOWN ON THE PLAN.
2. ALL EXTERIOR DOORS HAVE WEATHER-STRIPPING, SWEEPS AND THRESHOLDS.
3. ALL SWINGING DOORS ARE 1¾" THICK UNLESS NOTED OTHERWISE.
4. SEE WINDOW FRAME ELEVATIONS FOR ADDITIONAL INFORMATION AT ALUMINUM DOORS.

HARDWARE SCHEDULE

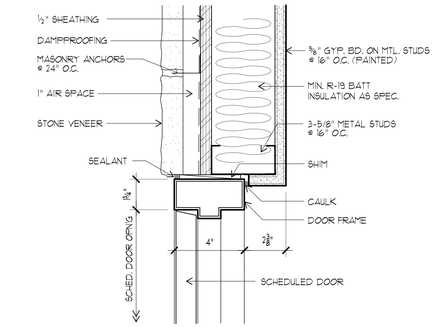
SET NO. 1: 3 PR BUTTS (ONE ELEC. HINGE), RIM CYLINDER (WITH DEADBOLT), CLOSERS, THRESHOLD, PANIC DEVICE (WITH ELECTRIC LATCH RETRACTION), WEATHER-STRIPPING.
SET NO. 2: 1½ PR BUTTS, STOREROOM LOCK SET, CLOSER, SWEEP, WALL STOP
SET NO. 3: 1½ PR BUTTS (ONE ELEC. HINGE), STOREROOM LOCKSET (WITH ELECTRIC LOCKING/UNLOCKING), CLOSER, WALL STOP
SET NO. 4: 1½ PR BUTTS, OFFICE LOCK SET, WALL STOP.
SET NO. 5: 1½ PR BUTTS (ONE ELEC. HINGE), RIM CYLINDER, CLOSER, THRESHOLD, PANIC DEVICE (WITH ELECTRIC LATCH RETRACTION), WEATHER-STRIPPING.
SET NO. 6: 3 PR BUTTS, CLASSROOM LOCK SET, CLOSERS, HEAD & FOOT BOLTS AT INACTIVE LEAF, WALL STOP
SET NO. 7: 1½ PR BUTTS, OFFICE LOCK SET, PANIC DEVICE, WALL STOP.
SET NO. 8: 1½ PR BUTTS, PASSAGE SET, CLOSER, SWEEP, KICKPPLATE, WALL STOP.
SET NO. 9: 1½ PR BUTTS, CLASSROOM LOCK SET, CLOSER, WALL STOP
SET NO. 10: 1½ PR BUTTS (ONE ELEC. HINGE), STOREROOM LOCKSET (WITH ELECTRIC LOCKING/UNLOCKING), CLOSER, PANIC DEVICE (WITH ELECTRIC LATCH RETRACTION), WALL STOP.
SET NO. 11: 1½ PR BUTTS, OFFICE LOCK SET, CLOSER, PANIC DEVICE, THRESHOLD, WEATHER-STRIPPING
SET NO. 12: 1½ PR BUTTS, PASSAGE SET, WALL STOP.



2 A5.01 — JAMB @ EXTERIOR
SCALE: 3" = 1'-Ø" AT STOREFRONT DOOR
2015500

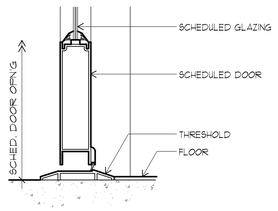


4 A5.01 — HEAD/JAMB @ EXTERIOR
SCALE: 3" = 1'-Ø" AT EXTERIOR WEST ELEVATION

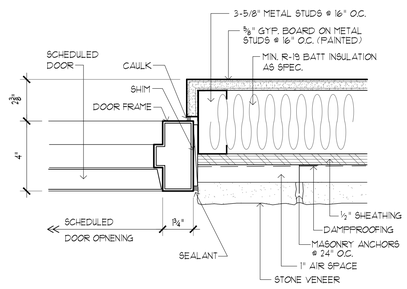


6 A5.01 — HEAD/JAMB @ EXTERIOR
SCALE: 3" = 1'-Ø" AT EXTERIOR NORTH ELEVATION

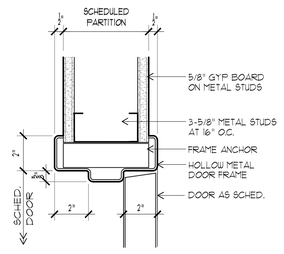
8 A5.01 — DOOR TYPES
SCALE: 1/4" = 1'-Ø"



3 A5.01 — SILL ALUM. DOOR
SCALE: 3" = 1'-Ø" AT STOREFRONT DOOR
2015500



5 A5.01 — JAMB @ EXTERIOR
SCALE: 3" = 1'-Ø" AT EXTERIOR WEST ELEVATION



7 A5.01 — HEAD/JAMB @ INTERIOR
SCALE: 3" = 1'-Ø" AT INTERIOR DOORS

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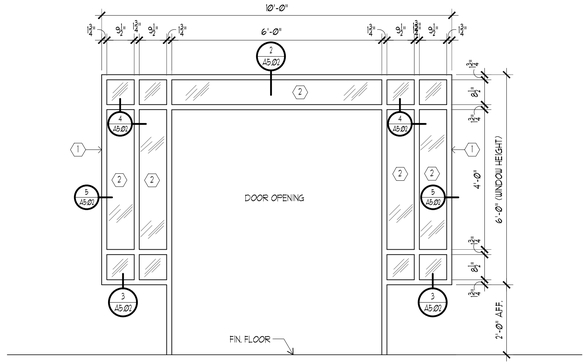
MAXWELL, TEXAS

PROJECT NO: 202270
DATE: MAY 2023

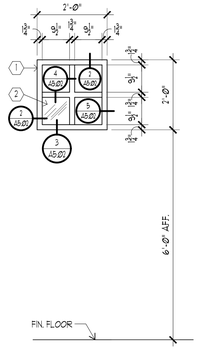
DOOR SCHEDULE AND DETAILS

A5.01

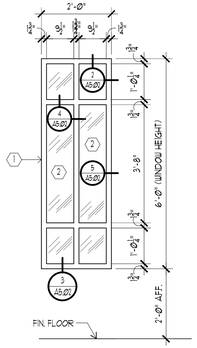
DRG REFERENCE



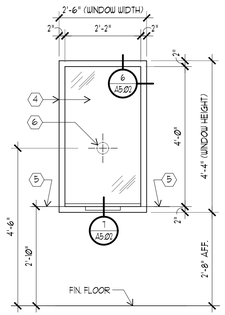
AW-1



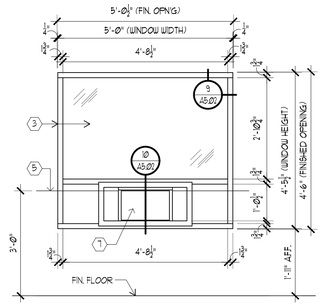
AW-2



AW-3



AW-4



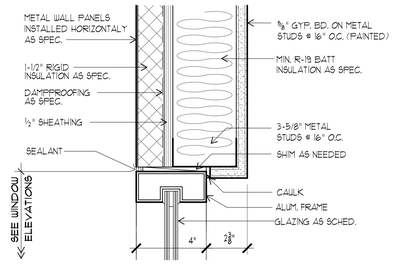
AW-5

WINDOW KEYNOTES

1. ALUMINUM FRAME.
2. TEMPERED GLASS (BRONZE TINTED).
3. PRE-MANUFACTURED WINDOW UNIT WITH BULLET-RESISTANT GLAZING AND TRANSACTION DRAWER AND DROP SLOT
4. PRE-MANUFACTURED WINDOW UNIT WITH BULLET-RESISTANT GLAZING, PAPER PASS AND SPEAKING DEVICE
5. LINE OF TOP OF COUNTER
6. SPEAKING DEVICE AS SPEC.
7. TRANSACTION DRAWER, ALIGH WITH TOP OF COUNTER

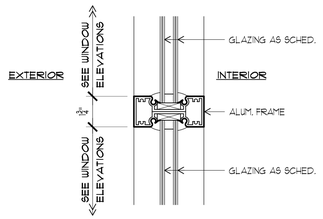
1 WINDOW ELEVATIONS

A5.02 — 1/2" = 1'-0"



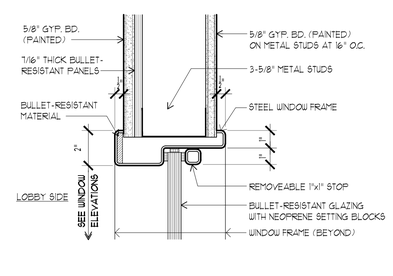
2 HEAD (JAMB SIMILAR)

A5.02 — SCALE: 3" = 1'-0"



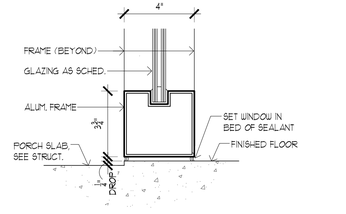
4 MULLION

A5.02 — SCALE: 3" = 1'-0"



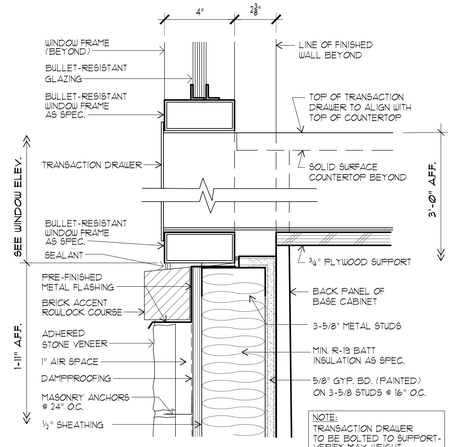
6 HEAD (JAMB SIMILAR)

A5.02 — SCALE: 3" = 1'-0" — AT WINDOW AW-4



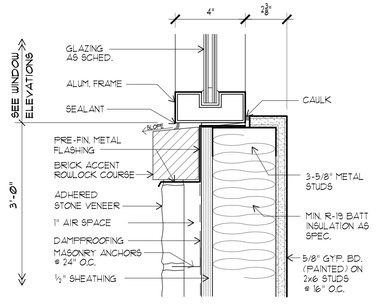
8 SILL

A5.02 — SCALE: 3" = 1'-0" — AT WINDOW AW-1



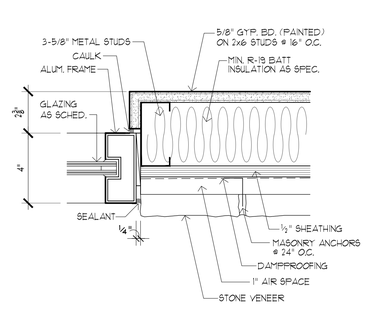
10 SILL

A5.02 — SCALE: 3" = 1'-0" — AT WINDOW AW-5



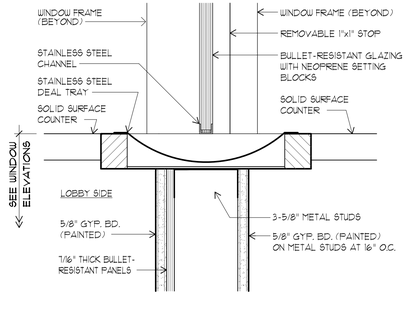
3 SILL

A5.02 — SCALE: 3" = 1'-0"



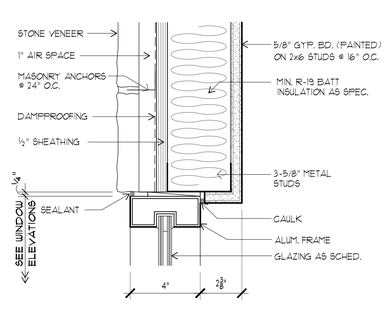
5 JAMB

A5.02 — SCALE: 3" = 1'-0" — AT WINDOW AW-1, AW-2, AW-3



7 SILL

A5.02 — SCALE: 3" = 1'-0" — AT WINDOW AW-4



9 HEAD (JAMB SIMULAR)

A5.02 — SCALE: 3" = 1'-0"

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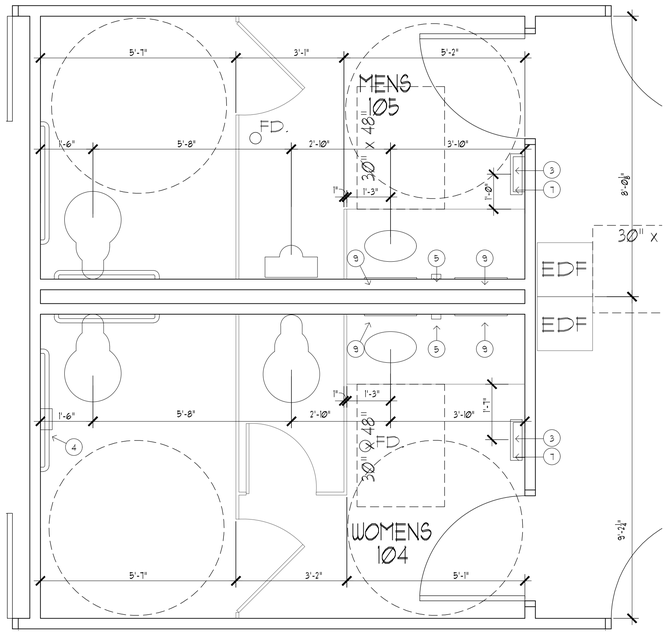
MAXWELL, TEXAS

PROJECT NO: 202270
DATE: MAY 2023

ARCHITECTURAL WINDOW ELEVATIONS AND DETAILS

A5.02

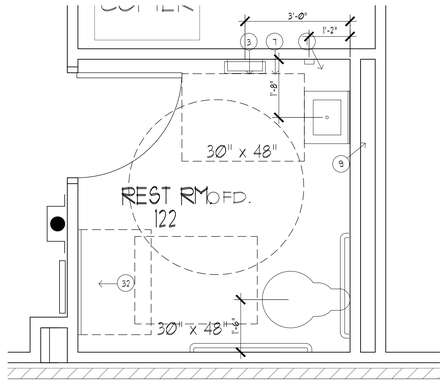
DRG REFERENCE



1 ENLARGED RESTROOMS PLAN

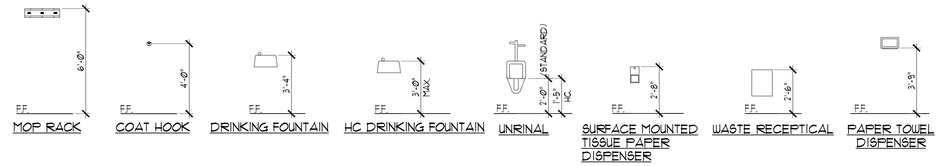
A1.01 SCALE: 1/2" = 1'-0"

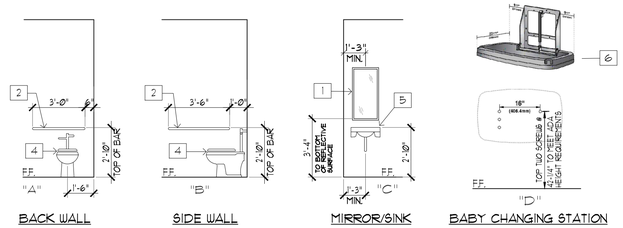
2.01 SCALE: ¼" = 1'-0"



2 ENLARGED RESTROOM PLAN

A1.01 SCALE: 1/2" = 1'-0"





FIXTURE SCHEDULE

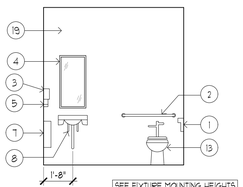
1	18"Wx36"H STAINLESS STEEL CHANNEL FRAME MIRROR. MOUNT AT 3'-4" AFF. TO BOTTOM OF REFLECTIVE EDGE.	BOBRICK MODEL B-165-1836
2	GRAB BAR: TWO WALL WHEELCHAIR TOILET COMPARTMENT. MOUNT TOP AT 2'-10" AFF.	ASI MODEL TYPE 01: 36" LONG AT BACK WALL 42" LONG AT SIDE WALL
3	JANITOR'S MOP AND BROOM RACK WITH SHELF	BOBRICK MODEL B-224X36"
4	TOILET AS SPEC	SEE PLUMBING PLANS
5	LAVATORY AS SPEC	SEE PLUMBING PLANS
6	WALL-MOUNTED BABY-CHANGING STATION	BOBRICK MODEL KB200-00

3 FIXTURE MOUNTING HEIGHTS

A2.01 SCALE: ¼" = 1'-0"

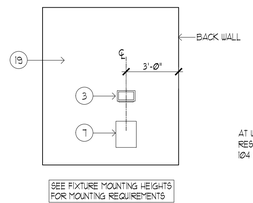
GENERAL NOTES

1. ALL FLUSH VALVE CONTROLS AT H.C. ACCESSIBLE TOILETS ARE TO BE ON OPEN SIDE OF TOILET - NOT ON WALL SIDE
2. PROVIDE FIRE RATED SOLID WOOD BLOCKING IN WALLS (MIN. 2x8) TO ADEQUATELY SUPPORT ALL WALL MOUNTED ACCESSORIES OR EQUIPMENT. ALL BLOCKING TO MEET CODE LOADING REQUIREMENTS OF EQUIPMENT SUPPORTED.
3. MOUNT ALL COAT HOOKS ON INTERIOR ROOM SIDE OF DOOR.
4. FIELD VERIFY CHAIR RAIL LOCATIONS AND LENGTH.



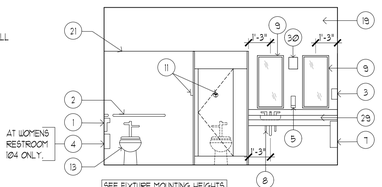
4 RESTROOM 123

A2.01 SCALE: ¼" = 1'-0"



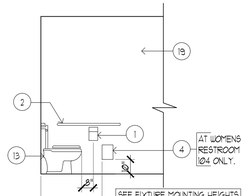
5 RESTROOM 123

A2.01 SCALE: ¼" = 1'-0"



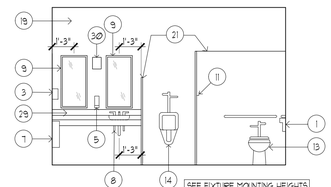
6 WOMENS RESTROOM 105

A2.01 SCALE: ¼" = 1'-0"



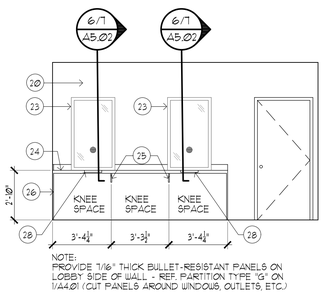
7 TYP. SIDE RESTROOM ELEV.

A2.02 SCALE: ¼" = 1'-0"



8 MENS RESTROOM 106

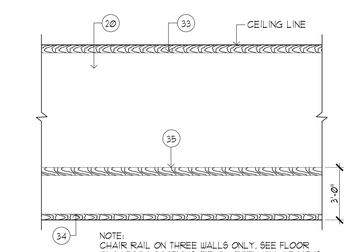
A2.01 SCALE: ¼" = 1'-0"



NOTE:
PROVIDE 1/16" THICK BULLET-RESISTANT PANELS ON LOBBY SIDE OF WALL - REF. PARTITION TYPE 'G' ON 1/A4.01 (CUT PANELS AROUND WINDOWS, OUTLETS, ETC.)

9 LOBBY 100

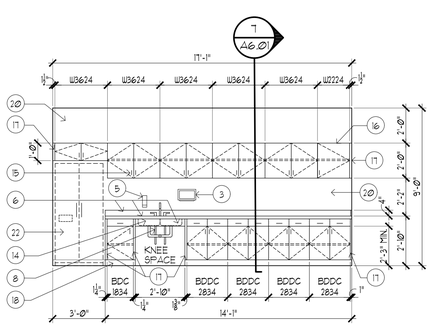
A2.01 SCALE: ¼" = 1'-0"



NOTE:
CHAIR RAIL ON THREE WALLS ONLY. SEE FLOOR PLAN FOR LOCATIONS. FIELD VERIFY ALL LENGTHS.

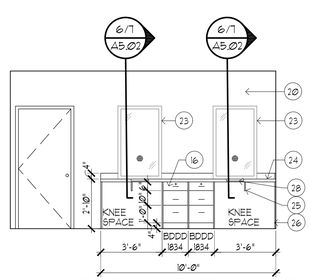
10 TYPICAL BOARD ROOM 101 ELEV.

A2.01 SCALE: ¼" = 1'-0"



11 BREAK ROOM 107

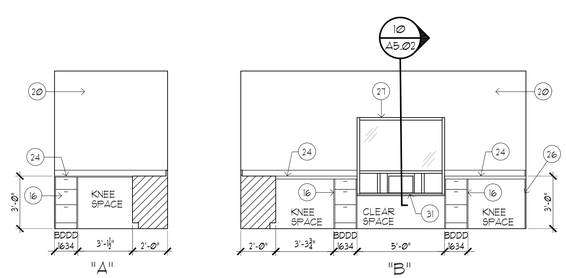
A2.01 SCALE: ¼" = 1'-0"



PROVIDE CASH DRAWER INSERTS AT TOP DRAWER OF MIDDLE TWO BASE CABINETS - PROVIDE LOCKS AT THESE DRAWERS

12 WORK AREA 117

A2.01 SCALE: ¼" = 1'-0"



"A"

"B"

PROVIDE CASH DRAWER INSERTS AT TOP DRAWERS OF TWO BASE CABINETS - PROVIDE LOCKS AT THESE DRAWERS

13 WORK AREA 117

A2.01 SCALE: ¼" = 1'-0"

ELEVATION KEYNOTES

1	SURFACE MOUNTED TOILET TISSUE DISPENSER	BOBRICK MODEL B-2888	
2	GRAB BAR - TWO WALL WHEELCHAIR TOILET COMPARTMENT -MOUNT TOP AT 2'-10" A.F.F.	ASI MODEL TYPE 01: 36" LONG AT WET WALL 42" LONG AT SIDE WALL	
3	SURFACE MOUNTED PAPER TOWEL DISPENSER	BOBRICK MODEL B-262	
4	SURFACE MOUNTED SANITARY NAPKIN DISPOSAL	BOBRICK MODEL B-270	
5	SOAP DISPENSER	BOBRICK MODEL B-2111	
6	FRE FINISHED PLAS. LAM. COUNTERTOP, BACKSPLASH AND APRON	SEE SPECIFICATIONS	
7	SURFACE MOUNTED WASTE RECEPTACLE	BOBRICK MODEL B-367-60	
8	HOT WATER PIPE INSULATION	SEE SPECIFICATIONS	
9	18"Wx36"H STAINLESS STEEL CHANNEL FRAME MIRROR (MOUNT 3'-4" AFF. TO BOTTOM OF REFLECTIVE EDGE)	BOBRICK MODEL B-165-1836	
10	ELECTRIC DRINKING FOUNTAIN (HI-LO FOR HANDICAP ACCESSIBILITY)	SEE PLUMBING PLANS	
11	COAT HOOK - MOUNT ON INSIDE OF DOOR	BOBRICK MODEL B-211	
12	TOILET	SEE PLUMBING PLANS	
13	URINAL	SEE PLUMBING PLANS	
14	SINK AND FAUCUET	SEE PLUMBING PLANS	
15	HARDWARE	SEE SPECIFICATIONS	
16	CASE WORK	SEE SPECIFICATIONS	
17	FILLER PANEL	SEE SPECIFICATIONS	
18	BASE AS SPEC	SEE SPECIFICATIONS	
19	CERAMIC WALL TILE	SEE SPECIFICATIONS	
20	WALL, FINISH AS SPEC	SEE SPECIFICATIONS	
21	TOILET PARTITION	SEE SPECIFICATIONS	
22	REFRIDGERATOR BY OWNER		
23	30"x 30" TRANSACTION WINDOW WITH SPEAKING DEVICE	SEE SPECIFICATIONS	
24	SOLID SURFACE COUNTERTOP AND 4" BACKSPLASH	SEE SPECIFICATIONS	
25	PLAM COUNTERTOP SUPPORTS	SEE SPECIFICATIONS	
26	END PANEL	SEE SPECIFICATIONS	
27	PRE-MANUFACTURED WINDOW UNIT WITH BULLET-RESISTANT GLAZING AND TRANSACTION DRAWER	SEE SPECIFICATIONS	
28	CUT COUNTERTOP FOR PAPER PASS THROUGH AT EACH WINDOW	SEE SPECIFICATIONS	
29	24" DEEP SOLID SURFACE COUNTER, BACKSPLASH & APRON	SEE SPECIFICATIONS	
30	WALL MOUNTED LIGHT FIXTURE	SEE ELECTRICAL PLANS	
31	3/4" PLYWOOD DRAWER SUPPORT	SEE DETAIL 10/A5.02	
32	WALL-MOUNTED BABY-CHANGING STATION	BOBRICK MODEL KB200-00	
33	1x6 WOOD TRIM (STAINED)	SEE SPECIFICATIONS	
34	1x4 WOOD BASE (STAINED)	SEE SPECIFICATIONS	
35	1x6 WOOD CHAIR RAIL (STAINED)	SEE DETAIL 10/A6.01	

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MAXWELL SUD
OFFICE BUILDING
MAXWELL, TEXAS

FOR REVIEW ONLY - NOT FOR CONSTRUCTION

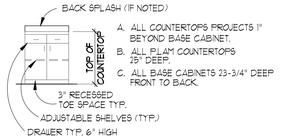
PROJECT NO: 202270
DATE: MAY 2023

ENALRGED RESTROOM PLANS AND INTERIOR ELEVS

A5.03

CAD REFERENCE

TYPICAL FIXTURES



TYPICAL FIXTURES

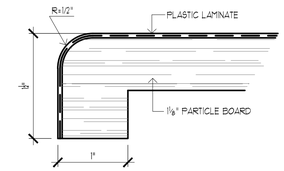
TYPICAL ELEV.	ABBREVIATION	SIZE
BDC 1634	BDC - BASE SINGLE DOOR DRAWER CABINET	16" WIDE 34" HIGH
WALL CABINET 14" DEEP FRONT TO BACK		
BDDC 3036	BDDC - BASE DOUBLE DRAWER CABINET	30" WIDE 36" HIGH

TYPICAL FIXTURES

TYPICAL ELEV.	ABBREVIATION	SIZE
W2430 W0S 2436	W - WALL HUNG HINGED DOOR	24" WIDE 30" HIGH
	W0S - WALL OPEN SHELF (ADJUSTABLE SHELF)	
	W0 - WALL OPEN (NO SHELF)	
COUNTERTOP KR. BASE CAB. 36" KNEE SPACE	COMPUTER KEYBOARD RETURN WITH 36" WIDE KNEE SPACE	36" WIDE
BASE CAB. BDDD 3024	THREE DRAWER BASE CABINET	30" HIGH 18" WIDE

1 PREFABRICATED CABINET LEGEND

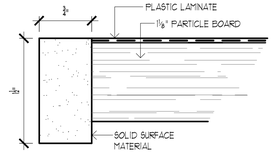
A6.01 SCALE: 1/4" = 1'-0"



2 COUNTERTOP NOSING DETAIL

A6.01 SCALE: FULL SCALE AT TYPICAL COUNTERTOPS

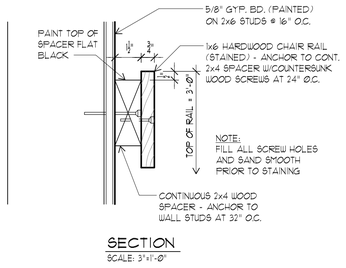
2015500



3 COUNTERTOP DETAIL

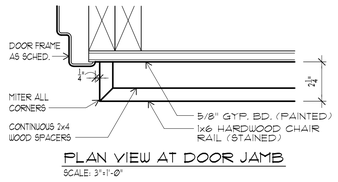
A6.01 SCALE: FULL

2015500



SECTION

SCALE: 3"=1'-0"



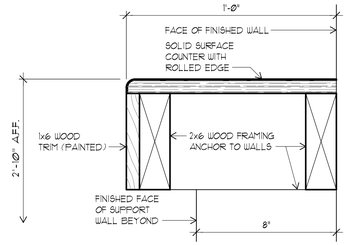
PLAN VIEW AT DOOR JAMB

SCALE: 3"=1'-0"

4 MILLWORK DETAIL

A6.02 SCALE: 3" = 1'-0" AT CHAIR RAIL IN BOARDROOM 106

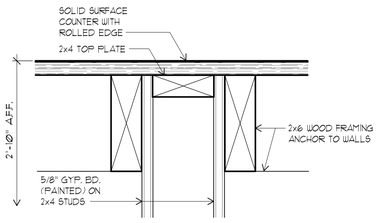
2015500



6 MILLWORK DETAIL

A6.01 SCALE: 3" = 1'-0" AT COUNTER IN LOBBY 101

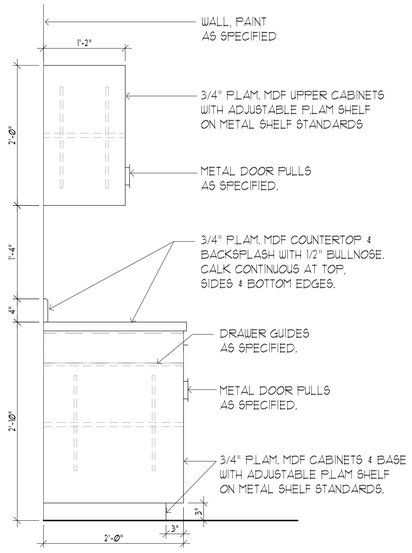
2015500



5 MILLWORK DETAIL

A6.01 SCALE: 3" = 1'-0" AT WALL SUPPORTS FOR COUNTER IN LOBBY 101

2015500

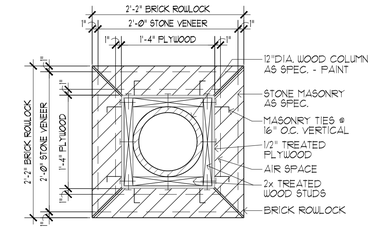


7 BREAK ROOM 107

A6.01 SCALE: 1" = 1'-0"

NOTE:

SEE SHEET A5.03 FOR OTHER MILLWORK DETAILS.



8 COLUMN DETAIL

A6.01 SCALE: 1" = 1'-0"

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OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202270
DATE: MAY 2023

MILLWORK AND DETAILS

A6.01

DRG REFERENCE

S T R U C T U R A L N O T E S

1000 COORDINATION

A. The Contractor shall compare the Architectural, Structural, Mechanical, Electrical, Plumbing, and other series drawings and report any discrepancies between each set of drawings and within each set of drawings prior to fabrication and installation of any structural members.

B. Only larger sleeve openings and framed openings in structural framing component members are indicated on the Structural Drawings. However, all sleeves, inserts and openings, including frames and/or sleeves shall be provided for passage, provision and/or incorporation of the work of the contract, including but not limited to Mechanical, Electrical and Plumbing work. This work shall include the coordination of sizes, alignment, dimensions, position, locations, elevations and grades as required to serve the intended purpose. Openings not indicated on the Structural Drawings, but required as noted above, shall be submitted to the Engineer for review.

C. Refer to Architectural, Mechanical, Electrical and Plumbing drawings for floor elevations, slopes, drains and location of depressed and elevated floor areas.

D. Compatibility of the structure and provisions for building equipment supported on or from structural components shall be verified as to size, dimensions, clearances, accessibility, weights and reaction with the equipment for which the structure has been designed prior to submission of shop drawings and data for each piece of equipment and for structural components. Differences shall be noted on the submittals.

E. Shop drawings shall be prepared for all structural items and submitted for review by the Engineer. Structural Drawings shall not be reproduced and used as shop drawings. All items deviating from the Structural Drawings or from previously submitted shop drawings shall be clouded.

F. The details designated as "Typical Details" apply generally to the Structural Drawings in all areas where conditions are similar to those described in the details.

G. All dimensions and conditions of existing construction shall be verified at the job site prior to the preparation of shop drawings. Differences between existing construction and that shown on the Structural Drawings shall be referred to the Architect. Differences shall also be clouded on the shop drawings.

H. All structural elements of the project have been designed by the Engineer to resist the required Code vertical and lateral forces that could occur in the final completed structure only. It is the responsibility of the Contractor to provide all required bracing during construction to maintain the stability and safety of all structural elements during the construction process until the lateral-load resisting or stability-providing system is completely installed and the structure is completely tied together. Temporary supports shall not result in the overstress or damage of the elements to be braced nor any elements used as brace supports.

I. The Contract Structural Drawings and Specifications represent the finished structure, and except where specifically shown do not indicate the means or methods of construction. The Contractor and their Sub-Contractors shall supervise and direct the Work and shall be solely responsible for all construction means, methods, procedures, techniques, sequences and safety measures including, but not limited to, adherences to all OSHA guidelines. The Engineer shall not have control of, and shall not be responsible for, construction means, methods, techniques, sequences or procedures, for safety precautions and programs in connection with the Work, for the acts or omissions of the Contractor, Subcontractors, or any other person performing any of the Work, or for the failure of any of these persons to carry out the Work in accordance with the Structural Contract Documents.

J. Where conflict exists among the various parts of the Structural Contract Documents, Structural Drawings, General Notes, and Specifications, the strictest requirements, as indicated by the Engineer, shall govern.

K. Periodic site observation by field representatives of Intelligent Engineering Services, LLP (IES) is solely for the purpose of determining if the Work is proceeding in accordance with the Structural Contract Documents. This limited site observation is not intended to be a check of the quality or quantity of the Work, but rather a periodic check in an effort to inform the Owner against defects and deficiencies in the work of the Contractor.

1010 SUBSTITUTIONS

A. All requests for substitutions of materials or details shown in the Structural Contract Documents shall be submitted for approval during the bidding period.

B. Once bids are accepted, proposed substitutions will be considered only when they are officially submitted with an identified savings or duration to be deducted from the contract and/or schedule impact. Submittals not satisfying the above criteria will not be reviewed.

1020 CODES

A. The General Building Code used as the basis for the structural design is as follows:

Building Code: 2018 International Building Code with Local City Amendments

1030 IBC 2018 DESIGN LOADS

A. Dead Loads include the self-weight of the structural elements and the following superimposed loads:

Ceiling and Mechanical at roof 15 psf

Note: See Roof plan for Concentrated MEP Loadings (Moveable Partitions, Heavy Pipe, Heaters, Screens, Etc.) Not considered in the above distributed loading.

B. Live Loads

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
Partitions at areas with Live Load less than 80 psf	15	N/A
Assembly areas		
Lobbies	100	N/A
Corridors		
First floor	100	N/A
Mechanical rooms, typical	150	Equip. Wt.
Roof - See Section Design Loads Note C		

Notes:

Live Load Reduction

a. Floor live loads have been reduced in accordance with the General Building Code, Section 1607.11 as follows:

$LL_{red} = LL\ (0.25+(15/sqrt(K_{ll}*A_t))$

Where LL_{red} = Reduced Live Load (psf)
LL = Unreduced Live Load (psf)
K_{ll} = Live Load Element Factor
A_t = Tributary Area (sf)

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1030 IBC 2018 DESIGN LOADS (Cont.)

Notes (Cont.):

b. the reduction, R, shall not exceed 40 percent for members supporting one level only, 60 percent for other members, or R as calculated in the following formula: 23.1 (1 + D/L/L$_o$)

c. Live loads exceeding 100 pounds per square foot have not been reduced, except columns supporting 2 or more stories, live loads have been reduced 20 percent.

d. Connection Design. The reaction to be used for connection design both for the support member and within the end of the member delivering the reaction shall be based on the tributary area for the connection and not the reaction based on the reduced live load using the tributary area of the member itself. All connections shall be designed for a minimum service load of 10 kips vertical load, and 2 kips horizontal load.

C. Roof Live Loads

ROOF USE	ROOF LIVE LOAD UNIFORM	ROOF LIVE LOAD CONCENTRATED
Ordinary Flat, Pitched, and Curved Roofs	20 psf	N/A

Notes:

a. Concentrated load applied to skeleton structure.

b. Roof live load has been reduced according to the General Building Code using the formula:

$L_r = L_o \times R_1 \times R_2$

Where L_r = Reduced live load per square foot of horizontal projection supported by the member.
L_o = Unreduced design of roof live load per square foot of horizontal projection supported by the member.
R_1 = Reduction factor based on Tributary Area
R_2 = Reduction factor based in Roof Slope

D. Snow Loads

Ground snow load, P_g 5 psf

E. Wind Loads

1. Wind lateral load on structural frame is based on ASCE 7 using the following:

Ultimate Design Wind Speed (V_{ult})	109 mph
Nominal Design Wind Speed (V_{asd})	84 mph
Exposure Category	C
Internal Pressure Coefficient, GCpi	+/-0.18
Risk Category	II

2. Ultimate Level Components and Cladding Wind Pressures:

Surface	(psf)	Zone	Area, A_e (ft^2)
Exterior	+35.27	Interior and edge	10 or less
Walls	-38.24	Interior	10 or less
	-47.28	Edges	10 or less
	+29.93	Interior and edge	100 or greater
	-36.61	Interior and edge	100 or greater
Roof	+21.34	Interior, edges, and corners	10 or less
	-65.21	Field	10 or less
	-95.00	Interior	10 or less
	-95.00	Edges	10 or less
	-112.93	Corners	10 or less
	+16	Interior edges and corners	100 or greater
	-20.30	Field	100 or greater
	-52.32	Interior	100 or greater
	-52.32	Edges	100 or greater
	-54.13	Corners	100 or greater

- Pressure for Tributary Areas in between the listed values may be linearly interpolated.
- Negative value signifies pressure acting away from the surface (suction).
- For edge and corner zone distances refer to Wind Zone summary plan for location and extent of wind zones and wind load pressures for both roof components & cladding and wall components & cladding
- Pressures on parapets shall be determined by combining positive and negative wall pressures or wall and roof pressures listed above in accordance with the referenced standard.
- Wind loads provided in above table are in LRFD (1.0W)].

*Pressures are for gross uplift conditions. Refer to roof plan(s) for net uplift values.

F. Seismic Loads

1. The structure and structural components of the building have been designed in accordance with General Building Code with the following criteria:

Seismic Importance Factor, I_e	1.25
Risk Category	II
Mapped Spectral Response Accelerations	
S_s (g)	0.052
S_1 (g)	0.029
Site Class	D
Design Spectral Response Accelerations	
S_{DS} (g)	0.056
S_{D1} (g)	0.046
Seismic Design Category	A
Basic Seismic-force-resisting system	Steel Oordinary Moment Frames
Design Base Shear, V	5,400#
Seismic Response Coefficient(s), Cs	0.01
Response Modification Factor(s), R	3 1/2
Analysis Procedure Used	Equivalent Lateral Force

G. Mechanical Equipment Loads

1. Loading for mechanical rooms are based on the weights of equipment and concrete pads as indicated on the Structural Drawings. The Contractor shall submit actual weights of equipment to be used in the project to the Structural Engineer for verification of loads used in the design at least three weeks prior to fabrication and construction of the supporting structure. Any revisions in equipment type, size, or quantity shall be reported to the Architect immediately for verification of the structural design.

H. Restroom accessories, such as grab bars, tub and shower seats, fasteners, and mounting devices, shall be designed to resist a concentrated load of 250 lbf at any location and in any direction.

1030 IBC 2018 DESIGN LOADS

I. Load Combinations

1. Strength Design
   a. 1.4(D+F)
   b. 1.2(D+F) + 1.6(L+H) + 0.5(L$_r$ or S or R)
   c. 1.2(D+F) + 1.6(L$_r$ or S or R) + 1.6H + (F$_1$L or 0.5W)
   d. 1.2(D+F) + 1.0W + F$_1$L + 1.6H + 0.5(L$_r$ or S or R)
   e. 1.2(D+F) + 1.0E + F$_1$L + 1.6H + F$_2$S
   f. 0.9D + 1.0W + 1.6H
   g. 0.9(D+F) + 1.0E + 1.6H

   F$_1$ = 1.0 for places of public assembly live loads in excess of 100 pounds per square foot and parking garages; and 0.5 for other live loads.
   F$_2$ = 0.7 for roof configurations (such as saw tooth) that do not shed snow off the structure; and 0.2 for other roof configurations.

2. Allowable Stress Design:
   a. D + F
   b. D + H + F + L
   c. D + H + F + (L$_r$ or S or R)
   d. D + H + F + 0.75L + 0.75(L$_r$ or S or R)
   e. D + H + F + (0.6W or 0.7E)
   f. D + H + F +0.75(0.6W) + 0.75L + 0.75(L$_r$ or S or R)
   g. D + H + F +0.75(0.7E) + 0.75L + 0.75S
   h. 0.6D + 0.6W + H
   i. 0.6(D+F) + 0.7E + H

Future Expansion: NO FUTURE expansions have been considered on the metal building rigid frames.

1040 BUILDING MOVEMENTS

A. The building movements specified herein are anticipated to occur and shall be taken into account by the Contractor in the design, detailing, and installation of the building elements.

B. Interior floor/roof deflections: Provisions shall be made in interior partitions and other elements supported by or attached to the floors or roofs for relative floor to floor vertical deflections of 3/4 inches.

C. Slab-on-grade movement: Provisions shall be made in the building cladding and interior partitions for relative deflections between the soil-supported slab on grade and the roof or floor level directly above. Design of soil supported building slabs is based on a range of 0 inches to 1 inches, based on the recommendations of the project geotechnical report. Refer to Building Pad Preparation Notes for soil stabilization under soil-supported building slabs.

D. Lateral building drift: Provisions shall be made in building cladding and other architectural finishes for relative floor to floor lateral deflections of story height/360.

1100 SUBMITTALS

A. Shop drawings shall be prepared for all structural items and submitted for review by the Engineer. Structural Drawings shall not be reproduced and used as shop drawings. All items deviating from the Structural Drawings or from previously submitted shop drawings shall be clouded.

B. Contractor shall review shop drawings for compliance with the Structural Drawings and shall certify that they have done so by a stamp noting that the drawings have been "Approved" and which bears the signature (or initials) of an authorized representative of the Contractor and the date. Submittals which do not reflect the Contractor's approval, signature and date will be returned without review.

C. Contractor shall be responsible for delays caused by rejection of inadequate shop drawings.

D. Where review and return of shop drawings is required or requested, the Engineer will review each submittal and, where possible, return within 2 weeks of receipt.

E. Corrections or comments on shop drawings or manufacturer's data sheets do not relieve the Contractor from compliance with requirements of the plans and specifications. Engineer's review is for general conformance with the requirements of the Structural Drawings. Contractor is responsible for confirming and correcting all quantities and dimensions, selecting fabrication processes and techniques of construction, and coordinating the work with that of all other contractors.

F. Refer to individual sections for specific submittal requirements.

2315 BUILDING PAD PREPARATION:

A. Structural fill material shall have a plasticity index below 18 and not posses particle sizes greater than 3 inches in diameter. The upper six feet of on site soils can be considered as select fill provided they are stockpiled and tested for suitability as select soils by the Geotechnical Engineer of Record.

B. Prior to placing fill material, remove all organic and other deleterious material from the existing subgrade for a distance of 5' 0" beyond building line, to a depth of where vegetation is not present, approximately 12" below existing grades. Excavate the building pad area to provide a minimum of 8'-0" of compacted select fill directly below the slab soffit. All exposed surfaces shall then be scarified to a depth of 6 inches, watered as required and re-compacted to a minimum of 95 percent of the maximum dry density as defined by ASTM D 698 (Standard Proctor Test) at a moisture content within 0 and (+) 4 2 percent of the optimum moisture content.

C. The compacted surface shall then be proof-rolled using a fully loaded dump truck or equivalent with 20 tons or heavier over the building pad with not evidence of pumping or 1" deflections. Soft spots or areas of pumping should be excavated and re-compacted. Excavated areas shall be replaced with materials meeting select fill requirements.

D. Structural fill shall be placed in 8 inch loose lifts to final subgrade elevation, watered as required and compacted to a minimum of 98 percent of the maximum dry density as defined in ASTM D 698 at a moisture content within (-) 3 to (+) 3 percent of the optimum moisture content.

E. Compaction and moisture content of subgrade and each lift of structural fill shall be inspected and approved by a qualified engineering technician, supervised by a Geotechnical Engineer.

F. Structural fill shall not be placed beyond the limits of the exterior building structure.

G. Provide a vapor retarder that conforms to ASTM E1745, Class A or better with a maximum water vapor permeance of 0.03 perms per ASTM E154. Vapor retarder shall be no less than 15 mils thick. Lap and tape seams per the manufacturer's specifications. Repair all damages to vapor barrier per manufacturer.

H. Building pad preparation information is based on a geotechnical report provided by Burge Engineering & Associates, BEA Project No. 12-23-0099, dated March 28, 2023.

2480 CONCRETE FOOTINGS

A. Concrete footing design is based on an allowable net bearing capacity of noted below in accordance with the geotechnical report by Burge Engineering & Associates, BEA Project No. 12-23-0099, dated March 28, 2023

Spread Footings at 24" below grade ..... 2,000 psf

B. Bearing stratum shall be in compacted fill or natural grade and shall be relatively level.

C. Footings not specifically located on the plan shall be located on centerline of pilaster or column above. Where no pilaster or column occurs, locate on centerline of wall or beam.

D. Provide dowels from footings into concrete above using same bar size and number as shown for pilaster or column above. Where no pilaster or column occurs, use 4 #7 dowels. Extend dowels 30 bar diameters into pier and wall, beam, pilaster or column, unless noted otherwise on the Structural Drawings.

E. Elevation of top of plinths/footings, unless noted otherwise on the Structural Drawings, is at the bottom of the deepest intersecting beam or wall supported by the footing.

F. Footing excavations shall be to neat lines and shall be free of loose or wet materials.

G. Footing reinforcing and concrete shall be placed within 24 hours after excavations are complete; Protect exposed subgrade with plastic to prevent drying out if concrete cannot be placed within time frame.

H. Reinforcing steel shop drawings shall include placing drawings for templates to set dowels in footings.

I. All footings shall be inspected by a representative of BURGE ENGINEERING & ASSOCIATES in order to ensure that the proposed bearing material has been reached in accordance with the recommendations given in the geotechnical report and that the footing has been constructed to specified size, with detailed reinforcing, and to specified tolerances.

3000 CAST-IN-PLACE CONCRETE

A. Structural Concrete Code: Building Code Requirements for Structural Concrete, American Concrete Institute, ACI 318, as referenced by the General Building Code.

B. Classes of Concrete

1. All concrete shall conform to the requirements as specified in the table below, unless noted otherwise on the Structural Drawings:

2. Concrete Mix Schedule:

Conc Class	Strength psi	Agg Type	Max Agg Size	Slump Inches	Max w/c	Notes
C	3000	NWT	1"	3-5	0.55	
D	3500	NWT	3/4"	3-5	---	

   a. "NWT" refers to normal concrete having an dry unit weight of approximately 145 pcf (ASTM c33 AGGREGATE)
   b. Where the w/c ratio is not indicated in the Concrete Mix Schedule, it shall be as necessary to meet strength requirements.
   c. Where the w/c ratio is shown, it shall be adhered to regardless of the strength requirements.
   d. Strength" is required compressive cylinder strength at an age of 28 days.
   e. "Maximum aggregate size" is defined as first sieve with greater than 15 cumulative percent retained.

3. Mix Usage Schedule:

Description of Use	Concrete Class	Air Content
Grade Beams/Foundation/Walls	C	3 - 6%
Interior Slab-on-Grade	C	---
Housekeeping Pads	D	---

C. Fly ash shall not be used in architecturally exposed concrete.

D. Provide 4 1/2 percent plus or minus 1 1/2 percent of entrained air in concrete permanently exposed to the weather and elsewhere at the contractor's option.

E. Horizontal construction joints in concrete placements shall be permitted only where indicated on the Structural Drawings. All vertical construction joints shall be made in the center of spans in accordance with the typical details. Contractor shall submit proposed locations for construction joints not shown on the Structural Drawings for review by the Architect and Engineer. Additional construction joints may require additional reinforcing as specified by the Engineer which shall be provided by the contractor at no additional cost to the owner.

F. Embedded conduits, pipes, and sleeves shall meet the requirements of ACI 318, and the following:

1. Conduits and pipes running within a slab, beam, or wall shall not be larger in outside dimension than 1/3 the overall thickness of the slab, wall or beam and shall be located within the middle third of that thickness.

2. Conduits, pipes, and sleeves passing horizontally through a beam shall not be larger in outside dimension than 1/3 the overall depth of the beam and shall be located within the middle third of that depth.

3. Conduits, pipes, and sleeves passing vertically through a beam shall utilize a sleeve not larger in outside dimension than 1/3 the overall width of the beam or 6 inches (whichever is less). The sleeve shall be made of hot dip galvanized schedule 40 steel.

4. Conduits, pipes and sleeves shall not be spaced closer than three diameters or widths on center.

G. Concrete placements shall not exceed 10,000 square feet or 100 linear feet on each side without prior approval by the Engineer for each placement, or contractor ability to successfully pour in a day.

H. Concrete sampling for quality assurance: Concrete that is pumped shall be sampled at the point of discharge from the truck.

I. Submittal: Submit proposed mix designs in accordance with ACI 301, chapter 4.2.3. Each proposed mix design shall be accompanied by a record of past performance or by three laboratory trial mixtures with confirmation tests

DRG ARCHITECTS
13300 OLD BLANCO RD
SUITE 175
SAN ANTONIO, TEXAS 78216
TEL: (210) 349-7950
FAX: (210) 366-0847

MAXWELL SUD OFFICE BUILDING

MAXWELL, TEXAS

PROJECT NO: 202270

DATE: 05/19/23

STRUCTURAL NOTES

S0.1

DRG REFERENCE

INTERIM REVIEW DOCUMENTS
(NOT INTENDED FOR BIDDING, PERMIT OR CONSTRUCTION PURPOSES)
JOSEPH H. HUIZAR
TEXAS REGISTRATION No: 87226
DATE: 05/19/23

INTELLIGENT ENGINEERING SERVICES
ENGINEERING COMMUNITIES FROM THE GROUND UP
1045 CENTRAL PARKWAY NORTH, SUITE 200 SAN ANTONIO, TEXAS 78232
210.349.9098 ie-services.com
IES JOB NO: 1223216
TBPE FIRM F-432

S T R U C T U R A L N O T E S

3020 CONCRETE EXPOSURE CLASS

A. Freezing an Thawing exposure category: F
   a. Class F0 – Concrete not exposed to freezing and thawing cycles
      - Max w/cm ratio – none
      - Min compressive strength (psi) – 2500
      - Air content – none
      - Limits on cementitious materials – none
   b. Class F1 – Concrete exposed to freezing and thawing cycles with limited exposure to water
      - Max w/cm ratio – 0.55
      - Min compressive strength (psi) – 3500
      - Air content – Table 19.3.3.1
      - Limits on cementitious materials – none
   c. Class F2 – Concrete exposed to freezing and thawing cycles with frequent exposure to water
      - Max w/cm ratio – 0.45
      - Min compressive strength (psi) – 4500
      - Air content – Table 19.3.3.1
      - Limits on cementitious materials – none
   d. Class F3 – Concrete exposed to freezing and thawing cycles with frequent exposure to water and exposure to deicing chemicals
      - Max w/cm ratio – 0.40
      - Min compressive strength (psi) – 5000
      - Air content – Table 19.3.3.1
      - Limits on cementitious materials – 26.4.2.2(b)

B. Sulfate exposure category: S
   a. Class S0 - Water soluble sulfate concentration in soil by percent mass is less than 0.10 and/or dissolved sulfate concentration in water by ppm is less than 150
      - Max w/cm ratio – None
      - Min compressive strength (psi) – 2500
      - Limits on cementitious material types – none
      - Calcium chloride admixture – no restriction
   b. Class S1 - Water soluble sulfate concentration in soil by percent mass is equal or more than 0.10 but less than 0.20 and/or dissolved sulfate concentration in water by ppm is equal or more than 150 but less than 1500 or seawater
      - Max w/cm ratio – 0.50
      - Min compressive strength (psi) – 4000
      - Limits on cementitious material types – ASTM C150 type II, ASTM C595 types IP, IS, or IT with (MS) designation, ASM C1157 type MS
      - Calcium chloride admixture – no restriction

3020 CONCRETE EXPOSURE CLASS

   c. Class S2 - Water soluble sulfate concentration in soil by percent mass is equal or more than 0.20 but less than 2.00 and/or dissolved sulfate concentration in water by ppm is equal or more than 1500 but less than 10,000
      - Max w/cm ratio – 0.45
      - Min compressive strength (psi) – 4500
      - Limits on cementitious material types – ASTM C150 type V, ASTM C595 types IP, IS, or IT with (HS) designation, ASM C1157 type HS
      - Calcium chloride admixture – not permitted
   d. Class S3 - Water soluble sulfate concentration in soil by percent mass is greater than 2.00 and/or dissolved sulfate concentration in water by ppm is greater than 10,000
      - Max w/cm ratio – 0.45
      - Min compressive strength (psi) – 4500
      - Limits on cementitious material types – ASTM C150 type V plus pozzolan or slag cement, ASTM C595 types IP, IS, or IT with (HS) designation plus pozzolan or slag cement, ASM C1157 type HS plus pozzolan or slag cement
      - Calcium chloride admixture – not permitted

C. Water exposure category: W
   a. Class W0 – Concrete in dry service. Concrete in contact with water and low permeability is not required
      - Max w/cm ratio – none
      - Min compressive strength (psi) – 2500
   b. Class W1 - Concrete in contact with water and low permeability is required
      - Max w/cm ratio – 0.50
      - Min compressive strength (psi) – 4000

D. Corrosion exposure category: C
   a. Class C0 – Concrete dry or projected from moisture
      - Max w/cm ratio – none
      - Min compressive strength (psi) – 2500
      - Max water-soluble chloride ion content in concrete, percent by weight of cement – 1.00 (non-prestressed concrete), 0.06 (pre-stressed concrete)
   b. Class C1 – Concrete exposed to moisture but not to an external source of chloride
      - Max w/cm ratio – none
      - Min compressive strength (psi) – 2500
      - Max water-soluble chloride ion content in concrete, percent by weight of cement – 0.3 (non-prestressed concrete), 0.06 (pre-stressed concrete)
   c. Class C2 – Concrete exposed to moisture and an external source of chlorides from deicing chemicals, salt, brackish water, seawater, or spray from these source
      - Max w/cm ratio – 0.40
      - Min compressive strength (psi) – 5000
      - Max water-soluble chloride ion content in concrete, percent by weight of cement – 0.15 (non-prestressed concrete), 0.06 (pre-stressed concrete)
      - Concrete cover not less than 2" for walls and slabs (1.5" for pre-stress under plant control conditions) and 2.5" for other members (2" for pre-stress under plant control conditions).

3050 SLAB-ON-GRADE

A. Provide control joints or construction joints at the centerlines of all columns or at 15 on center maximum in both directions. Coordinate locations with Architect and submit for approval.

B. Tooled, sawcut, or preformed joints shall be 1/4 the depth of the slab. Sawcut joints must be made within 12 hours after the slab has been placed.

C. Metal keyway forms or bulkheads shall be removed prior to placement of adjacent concrete.

D. Slab-on-grade shall be placed over prepared subgrade per Building Pad Preparation notes.

3200 CONCRETE REINFORCING

A. Concrete reinforcement for the project shall conform to the following:

1. All reinforcing steel shall be new billet steel in accordance ASTM A615, Grade 60, unless noted otherwise in the Structural Drawings or these notes.
2. Vertical Reinforcing Steel in Columns. ASTM A615, Grade 60.
3. Welded Reinforcing Steel. Provide reinforcing steel conforming to ASTM A706.
4. Deformed Bar Anchors (DBA). ASTM A1064 minimum yield strength 70,000 psi as noted on the Structural Drawings. Reinforcing bars shall not be substituted for deformed bar anchors.
5. Welded wire reinforcement. Welded smooth wire reinforcement, ASTM A1064, yield strength 65,000 psi where noted on the Structural Drawings. Welded deformed wire reinforcement, ASTM A497, yield strength 70,000 psi where noted on the Structural Drawings. Welded wire reinforcement to be provided in flat sheets.

B. Detailing of reinforcing steel shall conform to the American Concrete Institute 315 Detailing Manual and all hooks and bends in reinforcing bars shall conform to ACI detailing standards, unless noted otherwise on the Structural Drawings.

C. Welded Wire Reinforcement shall be continuous across the entire concrete surface and not interrupted by beams or girders and properly lapped one cross wire spacing plus 2". WWR shall be flat sheets and not rolled.

3200 CONCRETE REINFORCING

D. Reinforcement in Housekeeping Pads shall be welded smooth wire reinforcement 6 x 6 W2.9 x W2.9 minimum in all housekeeping pads supporting mechanical equipment whether shown on the Structural Drawings or not unless heavier reinforcement is called for on the Structural Drawings.

E. In unscheduled grade beams, walls, and slabs, detail reinforcing as follows:

1. Class A lap beam top reinforcing bars at mid span.
2. Class A lap beam bottom reinforcing bars at the supports.
3. Provide Class B lap at other location pending Engineer's approval.
4. Provide standard hooks in top bars at cantilever and discontinuous ends of beams, walls and slabs.
5. Provide corner bars for all horizontal bars at the inside and outside faces of intersecting beams or walls. Corner bars are not required if horizontal bars are hooked.
6. Provide 2-#4 diagonal bars at all slab re-entrant corners placed under the top mat of steel.

F. Welding of reinforcing steel will not be permitted unless specifically shown on the Structural Drawings.

G. Heat shall not be used in the fabrication or installation of reinforcement.

H. Reinforcing steel clear cover shall be as follows:

1.	Beams	1-1/2" interior, 2" exterior exposure
2.	Columns	1-1/2" interior, 2" exterior exposure
3.	Earth-formed Grade Beams	1-1/2" top, 3" sides, 3" bottom
4.	Footings	3"
5.	Formed Grade Beams	1-1/2" top, 2" sides, 3" bottom
6.	Slab-on-grade	3/4" top
7.	Walls	1" interior, 2" exterior exposure

*Exterior Exposure refers to concrete exposed to earth or weather

5160 PRE-ENGINEERED METAL BUILDINGS

A. All structural steel used for Pre-Engineered Building Components shall be designed, fabricated, and erected in conformance with the latest standards of the AISC. The design and fabrication of cold-formed steel members shall comply with the AISI, latest edition.

B. The design for all Pre-Engineered Building members and components (including anchor bolt sizes, lengths and embedment) shall be the responsibility of the Pre-Engineered Building manufacturer. The design shall be carried out under the direction of a Professional Engineer licensed in the State of Texas.

C. The design of all Pre-Engineered Building Components shall be based on the loads indicated in the "Design Loads" section of the Structural Notes. Deflections of the Pre-Engineered Building Structure under loading shall not exceed the following:

Rigid Frames and Columns - Drift	H/360 Lateral
Wall Girst and Eave Struts	L/360 Lateral
Rigid Frames and Roof Purlins with:	
Drop in Ceiling or No Ceiling	L/240 Vertical
Plaster or Gypsum Board Ceiling	L/360 Vertical

*where "L" is defined as a member's length between supports and "H" ids defined as a column's height measured from to top of column

D. Bases of columns shall be designed as pinned supports.

E. All building components shall be compatible with the Contract Documents. Any requests for modifications shall be submitted to the Architect during the bidding process.

F. Field welded connections for cold-formed steel members shall not be permitted without specific written approval of the Architect.

G. Lateral stability of the building frame shall be provided in the structural framing. Walls and other building components shall not be used to resist lateral loads unless noted otherwise on the Structural Drawings.

H. Shop drawings shall be prepared for all structural items and submitted for record only. Structural Drawings shall not be reproduced and used as shop drawings. Any items deviating from the Contract Documents or from previously submitted shop drawings shall be so noted. Shop drawings shall be sealed and signed by a Professional Engineer licensed in the State of Texas.

I. Steel anchor bolt pattern templates shall be provided to the contractor to set anchor bolts for all base plates.

J. Lateral rod bracing shall be round bar stock material and not air craft cable braided steel.

5400 LIGHT GAUGE STRUCTURAL STEEL MEMBERS

A. Light Gauge Steel: North American Specification for the Design of Cold-Formed Steel Structural Members, American Iron and Steel Institute, AISI S100, as referenced by the General Building Code.

B. The design, installation, and construction of cold-formed structural steel shall be in accordance with the American Iron and Steel Institute (AISI-General, AISI-NAS, AISI-Header, AISI-WSD, and AISI-Lateral)

C. Unless noted otherwise on the Structural Drawings, all cold-formed structural steel shall be manufactured from zinc coated (hot dip process minimum G60) sheet conforming to current ASTM A653 with minimum yield strength of 33 ksi for 18 gauge and lighter and 50 ksi for 16 gauge and heavier.

D. Provide cold-formed structural steel studs, jambs, headers, and sills as indicated on the Structural Drawings.

E. All connections in between cold-formed structural steel and connections to foundation, unless noted otherwise on the Structural Drawings, are not the responsibility of the Engineer, and shall be designed by a Professional Engineer licensed in the State of Texas.

F. The design of connections shall include superimposed dead and live loads, special loading conditions, net wind uplift loads, and wall wind pressures provided in the Structural Drawings.

G. All cold-formed structural steel studs and jambs shall be full height without an intermediate plate line or splice unless detailed otherwise on the Structural Drawings.

H. Horizontal bridging for wall studs shall be provided at 6 feet on center maximum in accordance with the typical details.

I. Place a continuous runner at the bottom and top of all wall studs. Bottom runner shall be bolted or shot to support members as required by the connection designer, and at a maximum spacing of 36 inches on center.

J. Contractor shall submit shop drawings for review and approval prior to fabrication or construction. Shop drawings shall be signed and sealed by a Professional Engineer licensed in the State of Texas to include the following:

1. Design of permanent wall horizontal bridging and joist blocking, including member sizes and connections.

K. Properties of connection components, such as clips, straps, and screws.

L. Calculations including forces in connections and design of connections.

M. Erection plan identifying all temporary bracing required for wall studs.

100000 DESIGN BY CONTRACTOR

A. In accordance with the Specifications the items listed below are not included in the Contract Documents. Design of these elements shall be the responsibility of the Contractor, and shall be designed and sealed by a Professional Engineer licensed in the State of Texas.

1. Cold Formed Metal Framing
2. Curtainwall Systems
3. Pre-Engineered Metal Buildings
4. Embedded assemblies and inserts, clamps, hangers, trapezes, unistrut, etc. for the support of MEP systems.
5. Embedded assemblies, inserts, and/or hangers for fire suppression systems.

B. Design of the items listed above shall be in accordance with the General Building Code, and shall include all attachments to the structure.

SYMBOLS LEGEND	
SYMBOL	DESCRIPTION
COLUMN SIZE / BASE PLATE TYPE	STEEL COLUMN
#	NEW COLUMN GRID
	SLAB OR DECK SPAN DIRECTION
	DROP IN SLAB OR DECK
	DROP AND SLOPE IN SLAB OR DECK
	SLOPE IN SLAB OR DECK
✳	HEAVY STEEL CONNECTION
⌗	STUDRAIL
10P, 15P, 20P, 30P, 40P, 53P, 66P	STANDARD PAN WIDTH
xxSP	SKIP PAN, xx WIDTH

A/C -	AIR CONDITIONER	FIN -	FINSH (OR) FINISHED	PEMB -	PRE-ENGINEERED METAL BUILDING
AB -	ANCHOR BOLT	FIN FL -	FINISHED FLOOR	PERP -	PERPENDICULAR
ABV -	ABOVE	FL -	FLOOR	PI -	PLASTICITY INDEX
ACI -	AMERICAN CONCRETE INSTITUTE	FLG -	FLANGE	PJ -	PANEL JOINT
ADDL -	ADDITIONAL	FP -	FIREPROOF(ING)	PJP -	PARTIAL JOINT PENETRATION
ADH -	ADHESIVE	FRMG -	FRAMING	PL -	PLATE
ADJ -	ADJACENT	FS -	FAR SIDE	PLF -	POUNDS PER LINEAR FOOT
AEC -	ARCHITECTURALLY EXPOSED CONCRETE	FT -	FOOT (OR) FEET	PLYWD -	PLYWOOD
AESS -	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL	FTG -	FOOTING	PREFAB -	PREFABRICATED
AFF -	ABOVE FINISHED FLOOR	FV -	FIELD VERIFY	PRELIM -	PRELIMINARY
AGGR -	AGGREGATE			PROJ -	PROJECTION
AHU -	AIR HANDLING UNIT	GA -	GAGE (OR) GAUGE	PSF -	POUNDS PER SQUARE FOOT
AISC -	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	GALV -	GALVANIZED	PSI -	POUNDS PER SQUARE INCH
ALT -	ALTERNATE	GC -	GENERAL CONTRATOR	PSL -	PARALLEL STRAND LUMBER
APPROX -	APPROXIMATE	GLULAM -	GLUE LAMINATED TIMBER	PT -	POINT (OR) PRESSURE TREATED
ARCH -	ARCHITECT (OR) ARCHITECTURAL	GR -	GRADE	PT-T -	POST-TENSION(ED)
		GR BM -	GRADE BEAM		
B TO B -	BACK TO BACK			QTY -	QUANTITY
BD -	BOARD	HB -	HORIZONTAL BRACE		
BOF -	BOTTOM OF	HCA -	HEADED CONCRETE ANCHOR	R -	RADIUS (OR) REACTION (OR) REMAINDER
BF -	BACK FACE	HDG -	HOT DIPPED GALVANIZED	RD -	ROOF DRAIN
BFF -	BELOW FINISH FLOOR	HDR -	HEADER	REINF -	REINFORCE(ING)(ED)(MENT)
BIL -	BOTTOM INSIDE LAYER	HI -	HIGH	REQ -	REQUIRE(MENT)
BL -	BUILDING LINE	HK -	HOOK	REQD -	REQUIRED
BLDG -	BUILDING	HL -	HOLE	RET -	RETAINING
BLKG -	BLOCKING	HORIZ -	HORIZONTAL	RET SYS -	RETENTION SYSTEM
BM -	BEAM	HP -	HIGH POINT	RF -	ROOF
BOL -	BOTTOM OUTSIDE LAYER	HS -	HEADED STUD	RIS -	RISER
BOS -	BOTTOM OF STEEL	HSS -	HOLLOW STRUCTURAL SECTION	RM -	ROOM
BOTT -	BOTTOM	HT -	HEIGHT	RO -	ROUGH OPENING
BP -	BASE PLATE			RTU -	ROOF TOP UNIT
BRDG -	BRIDGING	ID -	INSIDE DIAMETER		
BRG -	BEARING	IF -	INSIDE FACE	SCHED -	SCHEDULE(D)
BRKT -	BRACKET	IN -	INCH	SECT -	SECTION
BRL -	BRICKLEDGE	INFO -	INFORMATION	SF -	SQUARE FOOT
BSMT -	BASEMENT	INT -	INTERIOR	SHT -	SHEET
BTWN -	BETWEEN	INTERM -	INTERMEDIATE	SHTG -	SHEATHING
				SIM -	SIMILAR
C -	CAMBER (OR) COMPRESSION	JG -	JOIST GIRDER	SJI -	STEEL JOIST INSTITUTE
CANT -	CANTILEVER	JST(S)	JOIST(S)	SL -	SLOPE
CFS -	COLD FORMED STEEL	JT -	JOINT	SOG -	SLAB ON GRADE
CG -	CENTER OF GRAVITY			SP -	SOUTHERN PINE
CGS -	CENTER OF GRAVITY OF STRAND	K -	KIPS (1000 LBS)	SPA -	SPACE
CIP -	CAST-IN-PLACE	KLF -	KIP PER LINEAR FOOT	SPECD -	SPECIFIED
CJ -	CONTROL JOINT	KSF -	KIP PER SQUARE FOOT	SPEC(S) -	SPECIFICATION(S)
CJP -	COMPLETE JOINT PENETRATION	KSI -	KIP PER SQUARE INCH	SQ -	SQUARE
CL -	CENTER LINE			SS -	STAINLESS STEEL
CLG -	CEILING	L -	LENGTH	SSL -	SHORT SLOTTED HOLE
CLR -	CLEAR (OR) CLEARANCE	LBS -	POUNDS	STAGG -	STAGGERED
CMU -	CONCRETE MASONRY UNIT	LL -	LIVE LOAD	STD -	STANDARD
COL -	COLUMN	LLH -	LONG LEG HORIZONTAL	STIFF -	STIFFENER
C OR COMP -	COMPRESSION	LLV -	LONG LEG VERTICAL	STIRR -	STIRRUPS
CONC -	CONCRETE	LO -	LOW	STL -	STEEL
CONN(S) -	CONNECTION(S)	LOC -	LOCATION	STRUCT -	STRUCTURE (OR) STRUCTURAL
CONST -	CONSTRUCTION	LONG -	LONGITUDINAL	SUBCONTR -	SUBCONTRACTOR
CONST JT -	CONSTRUCTION JOINT	LP -	LOW POINT	SW -	SHEARWALL (OR) SIDEWALK
CONT -	CONTINOUS	LSH -	LONG SIDE HORIZONTAL		
CONTR -	CONTRACTOR	LSL -	LONG SLOTTED HOLES	T -	TENSION
COORD -	COORDINATE	LSV -	LONG SIDE VERTICAL	T.O. -	TOP OF
CVR -	COVER	LVL -	LAMINATED VENEER LUMBER	TAB -	TOP AND BOTTOM
		LW -	LIGHTWEIGHT	TAG -	TONGUE AND GROOVE
DBA -	DEFORMED BAR ANCHORS	LWC -	LIGHTWEIGHT CONCRETE	TEMP -	TEMPERATURE
DBL -	DOUBLE			THK -	THICK
DE -	DECK EDGE	M -	MOMENT	THRD -	THREAD(ED)
DEV -	DEVELOPMENT	MAS -	MASONRY	TIL -	TOP INSIDE LAYER
DFL -	DOUGLAS FIR LARCH	MATL -	MATERIAL	TOB -	TOP OF BEAM
DIA -	DIAMETER	MAX -	MAXIMUM	TOC -	TOP OF CONCRETE
DIAG -	DIAGONAL	MC -	MOMENT CONNECTION(S)	TOF -	TOP OF FOOTING
DIM(S) -	DIMENSION(S)	MECH -	MECHANICAL	TOJ -	TOP OF JOIST
DKG -	DECKING	MEP -	MECHANICAL, ELECTRICAL, PLUMBING	TOL -	TOP OUTSIDE LAYER
DL -	DEAD LOAD	MEZZ -	MEZZANINE	TOP -	TOP OF PIER
DN -	DOWN	MFR -	MANUFACTURER	TOPC -	TOP OF PIER (PILE) CAP
DS -	DOWNSPOUT	MID -	MIDDLE	TOS -	TOP OF STEEL
DTL -	DETAIL	MIN -	MINIMUM	TOW -	TOP OF WALL
DWG(S) -	DRAWING(S)	MISC -	MISCELLANEOUS	TR -	TREAD
DWL(S) -	DOWELS	MTL -	METAL	TRANSV -	TRANSVERSE
				TYP -	TYPICAL
EA -	EACH	NF -	NEAR FACE		
EF -	EACH FACE (OR) EXHAUST FAN	NIC -	NOT IN CONTRACT	UNO -	UNLESS NOTED OTHERWISE
EJ -	EXPANSION JOINT	NOM -	NOMINAL		
EL -	ELEVATION	NS -	NON-SHRINK	V -	SHEAR
ELEC -	ELECTRICAL	NTS -	NOT TO SCALE	VB -	VERTICAL BRACE
ELEV -	ELEVATOR			VERT -	VERTICAL
EMBED -	EMBEDMENT	OC -	ON CENTER		
ENGR -	ENGINEER	OCEW -	ON CENTER EACH WAY	W -	WIDTH
EOR -	ENGINEER OF RECORD	OD -	OUTSIDE DIAMETER (OR) OVERFLOW DRAIN	W/ -	WITH
EQ -	EQUAL (OR) EQUIVALENT	OF -	OUTSIDE FACE	W/O -	WITHOUT
EQUIP -	EQUIPMENT	OH -	OPPOSITE HAND	WD -	WOOD
EW -	EACH WAY	OPNG(S) -	OPENING(S)	WDW -	WINDOW
EXIST -	EXISTING	OPP -	OPPOSITE	WL -	WIND LOAD
EXP -	EXPANSION			WP -	WORK POINT
EXT -	EXTERIOR	P -	PAN	WPRFG -	WATERPROOFING
EXTN -	EXTENSION	P/C -	PRECAST CONCRETE	WS -	WATERSTOP
		P/E -	PRE-ENGINEERED	WT -	WEIGHT
F TO F -	FACE TO FACE	PAF -	POWDER ACTUATED FASTENER	WWM -	WELDED WIRE MESH
FABR -	FABRICATOR	PAR -	PARALLEL		
FD -	FLOOR DRAIN	PCF -	POUNDS PER CUBIC FOOT	X-STR -	EXTRA STRONG
FDN -	FOUNDATION			XX-STR -	DOUBLE EXTRA STRONG
FFE -	FINISHED FLOOR ELEVATION				

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STRUCTURAL NOTES

S0.2

DRG REFERENCE

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SPECIAL INSPECTIONS TABLES FOR STRUCTURAL ELEMENTS - 2018

SPECIAL INSPECTIONS

1. Special inspections shall be performed in accordance with Chapter 17 of the 2018 International Building Code (IBC) by a Special Inspector hired by the Owner to perform the Special Inspections listed below. The Special Inspector shall be qualified by an approved agency according to the City's building official to perform the special inspections for which they will be undertaking. The Contractor shall coordinate with and notify the Special Inspector of all required tests and inspections listed in the following tables. The Special Inspector shall be responsible to verify that the items detailed in the Construction Documents were built accordingly and shall prepare, sign, and furnish inspection reports to the building official and the Architect for all time spent at the site. The Inspector shall bring discrepancies to the immediate attention of the General Contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and to the Architect prior to the completion of that phase of the work. These special inspections are in addition to the other inspections listed in these Structural Notes or Project Specifications.

2. Where structural members and assemblies are shop fabricated, the Special Inspector shall verify that the fabricator maintains detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and the fabricator's ability to conform to the Construction Documents and Referenced Standards, unless the fabricator is registered and approved to perform such work without special inspection.

REQUIRED SPECIAL INSPECTIONS FOR WELDING OF STRUCTURAL STEEL[1] (AISC 360-16 Table N5.4)

SPECIAL INSPECTION TYPE	INSPECTION FREQUENCY		REFERENCED STANDARD	IBC REFERENCE
	CONTINUOUS	PERIODIC		
1. Inspection tasks prior to welding:				
a. Welder qualification records and continuity records	--	X	AISC 360-16 N5.4-1; AWS D1.1	1705.2.1
b. Welding procedure specifications (WPSs) available	X	--		
c. Manufacturer certifications for welding consumables available	X	--		
d. Material identification (type/grade) [2]	--	X		
e. Welder identification system [2]	--	X		
f. Fit-up of CJP groove welds (including joint geometry) [2] 1) Joint preparation 2) Dimensions (alignment, root opening, root face, bevel) 3) Cleanliness (condition of steel surfaces) 4) Tacking (tack weld quality and location) 5) Backing type and fit (if applicable)	--	X		
g. Fit-up of CJP groove welds of HSS t-, y-, and k-joints without backing (including joint geometry) [2] 1) Joint preparation 2) Dimensions (alignment, root opening, root face, bevel) 3) Cleanliness (condition of steel surfaces) 4) Tacking (tack weld quality and location)	--	X		
h. Configuration and finish of access holes [2]	--	X		
i. Fit-up of fillet welds [2] 1) Dimensions (alignment, gaps at root) 2) Cleanliness (condition of steel surfaces) 3) Tacking (tack weld quality and location)	--	X		
2. Inspection tasks during welding:				
a. Control and handling of welding consumables [2] 1) Packaging 2) Exposure control	--	X	AISC 360-16 N5.4-2; AWS D1.1	1705.2.1
b. No welding over cracked tack welds [2]	--	X		
c. Environmental conditions [2] 1) Wind speed within limits 2) Precipitation and temperature	--	X		
d. WPS followed [2] 1) Settings on weld equipment 2) Travel speed 3) Selected welding materials 4) Shielding gas type/flow rate 5) Preheat applied 6) Interpass temperature maintained (min/max) 7) Proper position (F, V, H, OH)	--	X		
e. Welding techniques [2] 1) Interpass and final cleaning 2) Each pass within profile limitations 3) Each pass meets quality requirements	--	X		
f. Placement and installation of steel headed stud anchors	X	--		
3. Inspection tasks after welding:				
a. Welds cleaned	--	X	AISC 360-16 N5.4-2; AWS D1.1	1705.2.1
b. Size, length and location of welds	X	--		
c. Welds meet visual acceptance criteria 1) Crack prohibition 2) Weld/base-metal fusion 3) Crater cross section 4) Weld profiles 5) Weld size 6) Undercut 7) Porosity	X	--		
d. Arc strikes	X	--		
e. k-area [3]	X	--		
f. Backing removed and weld tabs removed (if required)	X	--		
g. Repair activities	X	--		
h. Document acceptance or rejection of welded joint or member	X	--		
i. No prohibited welds have been added without the approval of the Engineer of Record	--	X		
j. Weld access holes in rolled heavy shapes and built-up heavy shapes [4]	X	--		

1. Inspection tasks noted in this table are the responsibility of the Special Inspector or Quality Assurance Inspector (QAI). The fabricator and erector are responsible for all inspection tasks indicated in AISC 360-16 Section N5 assigned to the Quality Control Inspector (QCI).

2. Inspection tasks may be coordinated with the fabricator or erector's Quality Control Inspector (QCI) where indicated with this footnote. All other tasks shall be performed by the Special Inspector.

3. 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.

4. After rolled heavy shapes and built-up heavy shapes are welded, visually inspect the weld access hole for cracks. Shapes are considered heavy when flange or plate thickness exceeds 2 inches.

REQUIRED SPECIAL INSPECTIONS FOR BOLTING STRUCTURAL STEEL[1] (AISC 360-16 Table N5.6)

SPECIAL INSPECTION TYPE	INSPECTION FREQUENCY		REFERENCED STANDARD	IBC REFERENCE
	CONTINUOUS	PERIODIC		
1. Inspection tasks prior to bolting:				
a. Manufacturer's certifications available for fastener materials	X	--	AISC 360-16 N5.6-1	1705.2.1
b. Fasteners marked in accordance with ASTM requirements	--	X		
c. Correct fasteners selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane) [2]	--	X		
d. Correct bolting procedure selected for joint detail [2]	--	X		
e. Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements	--	X		
f. Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used	--	X		
g. Protected storage provided for bolts, nuts, washers and other fastener components	--	X		
2. Inspection tasks during bolting:				
a. Fastener assemblies placed in all holes, and washers and nuts are positioned as required [2]	--	X	AISC 360-16 N5.6-2	1705.2.1
b. Joint brought to the snug-tight condition prior to the pretensioning operation [2]	--	X		
c. Fastener component not turned by the wrench prevented from rotating [2]	--	X		
d. Fasteners are pretensioned in accordance with the RCSC Specification, progressing systematically from the most rigid point toward the free edges	--	X		
3. Inspection tasks after bolting:				
a. Document acceptance or rejection of bolted connections	X	--	AISC 360-16 N5.6-3	1705.2.1

1. Inspection tasks noted in this table are the responsibility of the Special Inspector or Quality Assurance Inspector (QAI). The fabricator and erector are responsible for all inspection tasks indicated in AISC 360-16 Section N5 assigned to the Quality Control Inspector (QCI).

2. Inspection tasks may be coordinated with the fabricator or erector's Quality Control Inspector (QCI) where indicated with this footnote. All other tasks shall be performed by the Special Inspector.

REQUIRED SPECIAL INSPECTIONS OF CONCRETE CONSTRUCTION (IBC Table 1705.3)

SPECIAL INSPECTION TYPE	INSPECTION FREQUENCY		REFERENCED STANDARD	IBC REFERENCE
	CONTINUOUS	PERIODIC		
1. Inspect reinforcement and verify placement	--	X	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
3. Inspect anchors cast in concrete	--	X	ACI 318: 17.8.2	--
4. Inspect anchors post-installed in hardened concrete members				
a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads	X	--	ACI 318: 17.8.2.4	--
b. Mechanical anchors and adhesive anchors not defined in 4.a	--	X	ACI 318: 17.8.2	--
5. Verifying 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 placement for proper application techniques	X	--	ACI 318: 26.5	--
8. Verify maintenance of specified curing temperature and techniques	--	X	ACI 318: 26.5.3-26.5.5	1908.9
9. Inspect formwork for shape, location and dimensions of the concrete members being formed	--	X	ACI 318: 26.10.1(b)	--

REQUIRED SPECIAL INSPECTIONS OF SOILS (IBC Table 1705.6)

SPECIAL INSPECTION TYPE	INSPECTION FREQUENCY	
	CONTINUOUS	PERIODIC
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

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SPECIAL INSPECTIONS

S0.3

DRG REFERENCE:

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LIVE LOAD LEGEND		
HATCH PATTERN	UNIFORM LOAD(PSF)	OCCUPANCY, USE , ROOM, OR LOCATION
	250*	---
	150*	---
	125*	---
	100*	---
	100	---
	80 + 15	---
	60 +15	---
	50 +15	---
	40 +15	---

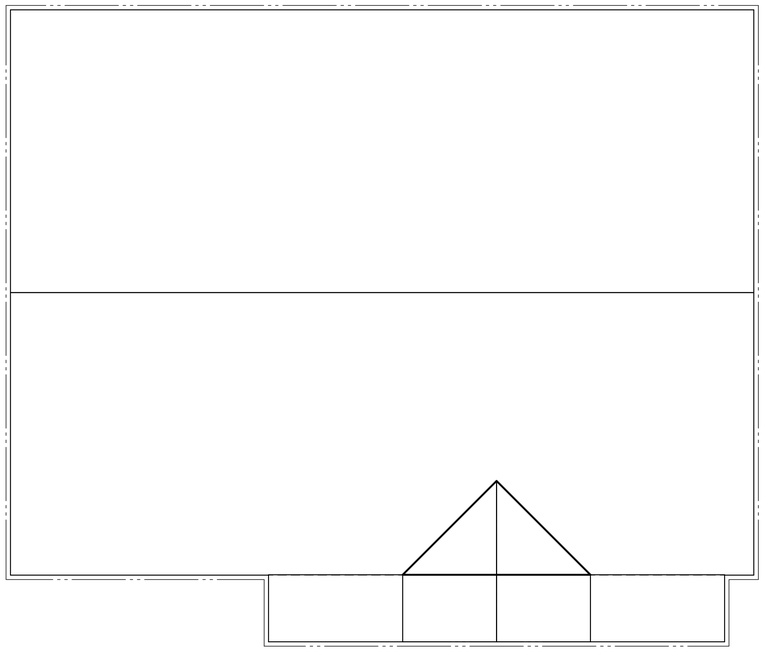
LIVE LOAD PLAN NOTES:

1. A PARTITION LIVE LOAD OF 15 PSF HAS BEEN ADDED TO ALL UNIFORM LOADS THAT DO NOT EXCEED 80 PSF.
2. ALL FLOORS HAVE ADDITIONALLY BEEN DESIGNED FOR SUPERIMPOSED DEAD (COLLATERAL) LOAD OF X PSF.
3. LIVE LOADS DENOTED WITH AN ASTERISK (*) HAVE NOT BEEN REDUCED. SEE STRUCTURAL NOTES "DESIGN LOADS" FOR INFORMATION REGARDING LIVE LOAD REDUCTION.
4. SEE STRUCTURAL NOTES "DESIGN LOADS" FOR INFORMATION REGARDING CONCENTRATED LOADS AT EACH UNIFORM LOAD. THESE LOADS ARE NOT CONCURRENT WITH THE UNIFORM LOAD.
5. SEE STRUCTURAL NOTES "DESIGN LOAD" FOR ADDITIONAL INFORMATION ON WHEEL LIVE LOADS. THESE LOADS ARE CONCURRENT WITH A 20 PSF CONSTRUCTION LIVE LOAD.

north

1 LIVE LOAD PLANS

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



WIND PRESSURES LEGEND (PSF)					
	HATCH PATTERN	ZONE	LOCATION	TRIBUTARY AREA		
				10 SF	100 SF	500 SF
MAIN ROOF		1	FIELD	+X/-X	+X/-X	-
		2	PERIMETER	+X/-X	+X/-X	-
		3	CORNER	+X/-X	+X/-X	-
		2H	OVERHANG PERIMETER	+X/-X	+X/-X	-
		3H	OVERHANG CORNER	+X/-X	+X/-X	-
		2'	OVERHANG PERIMETER	+X/-X	+X/-X	+X/-X
		3'	OVERHANG CORNER	+X/-X	+X/-X	+X/-X
WALLS		4	INTERIOR	+X/-X	+X/-X	+X/-X
		5	EDGE	+X/-X	+X/-X	+X/-X
PARAPET	WINDWARD			+X/-X		
	LEEWARD			+X/-X		

WIND LOAD PLAN NOTES:

1. PRESSURES SHOWN ARE ULTIMATE STRENGTH LEVEL PRESSURES (Vult) AND MAY BE SCALED TO NOMINAL PRESSURES (Vasd) BY MULTIPLYING THE INDICATED VALUE BY 0.60. SEE STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.
2. PRESSURES FOR TRIBUTARY AREA IN BETWEEN THE LISTED VALUES MAY BE LINEARLY INTERPOLATED.
3. NEGATIVE VALUES SIGNIFY PRESSURES ACTING AWAY FROM THE SURFACE (SUCTION).
4. PRESSURES AREA FOR GROSS UPLIFT CONDITIONS. DEAD LOADS AND LOAD COMBINATIONS ARE LISTED IN THE STRUCTURAL NOTES. JOIST MANUFACTURER SHALL CALCULATE NET UPLIFT PRESSURES WITH THIS PROVIDED INFORMATION MINUS 3 PSF.
5. "a" = SEE PLAN
6. ALL AWNING OR SIMILAR OVERHANGING CANOPIES AND SHADE STRUCTURES SHALL BE DESIGNED FOR THE OVERHANG PRESSURES (ZONE 2H AND ZONE 3H) UNLESS NOTED OTHERWISE.
7. PRESSURES FOR PARAPETS SHALL BE DESIGNED USING BOTH WINDWARD AND LEEWARD PRESSURES ADDED TOGETHER.

north

2 FRAMING PLAN

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

INTERIM REVIEW DOCUMENTS

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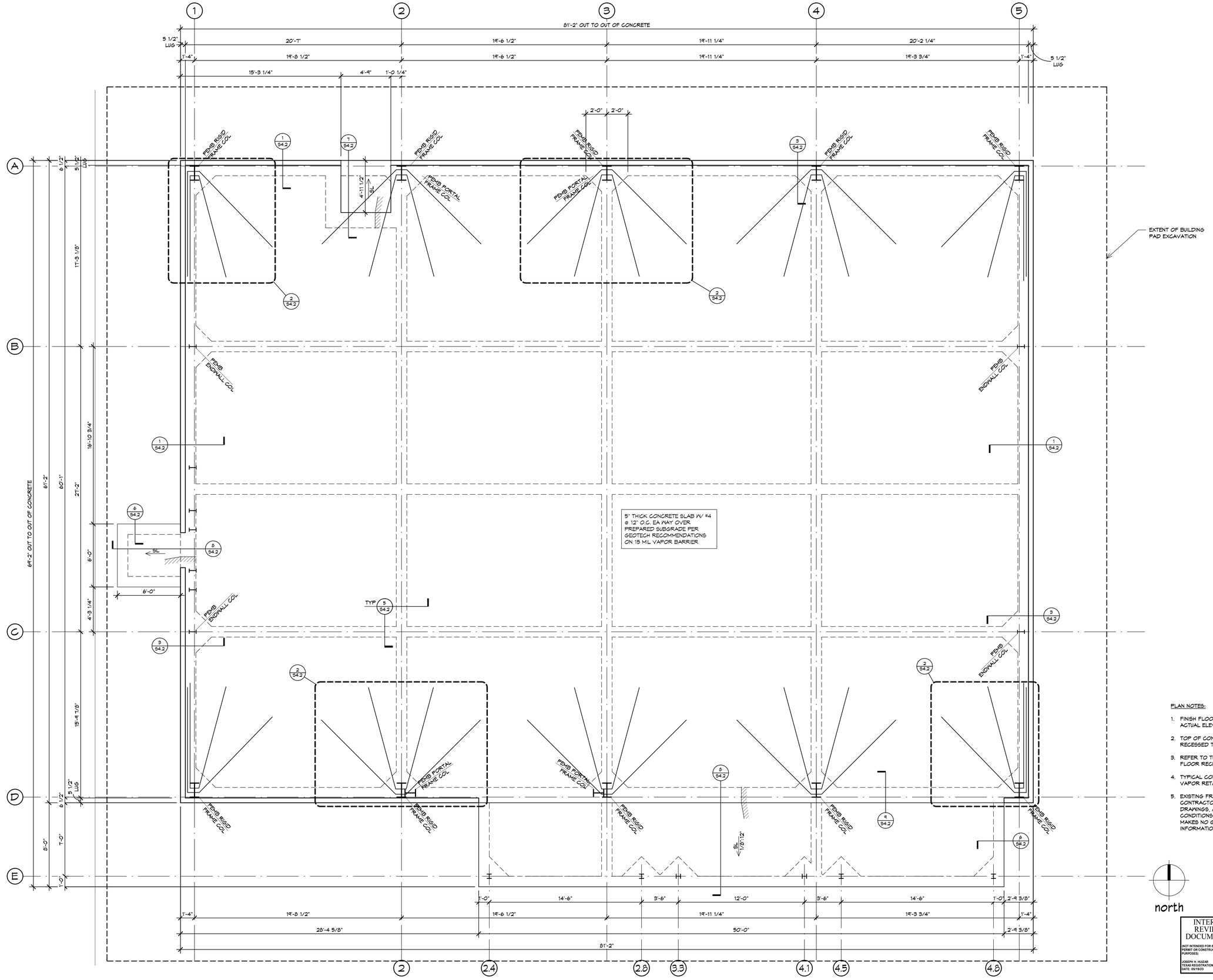
LIVE/WIND LOAD PLANS

S0.4

DRG REFERENCE



PLAN NOTES:

1. FINISH FLOOR ELEVATION = 100'-0", UNLESS NOTED OTHERWISE. ACTUAL ELEVATION REF CIVIL = 100'-0".
2. TOP OF CONCRETE ELEVATION (TOC EL) = FINISH FLOOR. UNLESS RECESSED TO RECEIVE FLOORING MATERIALS.
3. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF FLOOR RECESSES, DROPS AND SLOPES NOT DIMENSIONED ON PLAN.
4. TYPICAL CONCRETE SLAB THICKNESS IS 5" (OVERALL), OVER 15 MIL VAPOR RETARDER, UNLESS NOTED OTHERWISE.
5. EXISTING FRAMING INFORMATION IS PROVIDED FOR THE CONTRACTOR'S CONVENIENCE ONLY. IT IS BASED ON EXISTING DRAWINGS, AND MAY NOT ACCURATELY REFLECT THE ACTUAL CONDITIONS IN THE FIELD. INTELLIGENT ENGINEERING SERVICES, LLP MAKES NO GUARANTEE CONCERNING THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. FIELD VERIFY ALL CONDITIONS.

north

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

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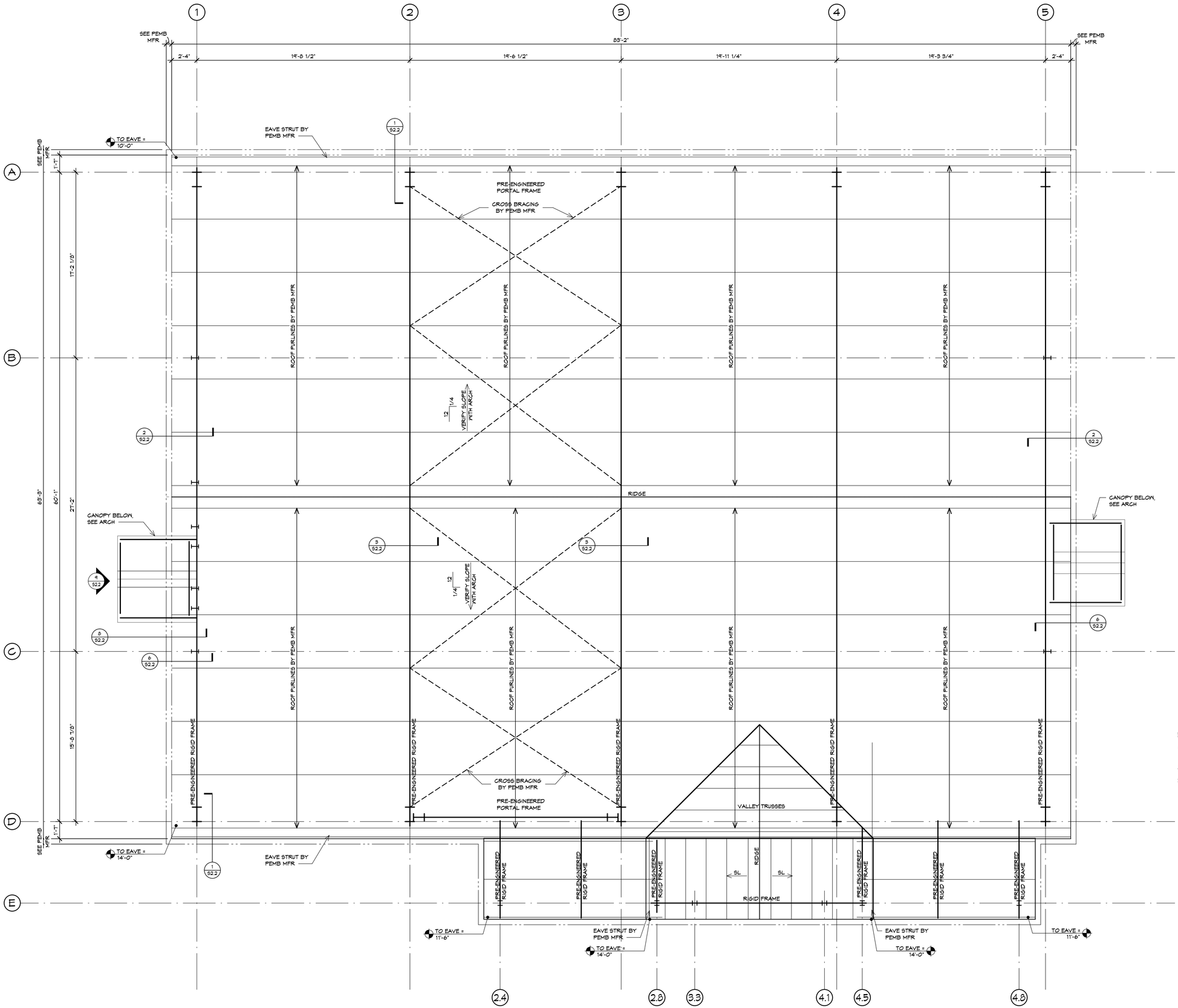
FOUNDATION PLAN

S1.1

DRG REFERENCE



PLAN NOTES:

1. SEE ARCHITECTURAL & MEP DRAWINGS FOR MECHANICAL LOADS SUPPORTED BY THE PRE-ENGINEERED FRAMING MEMBERS.
2. FRAMING SHOWN IS SCHEMATIC ONLY.
3. EXISTING FRAMING INFORMATION IS PROVIDED FOR THE CONTRACTOR'S CONVENIENCE ONLY. IT IS BASED ON EXISTING DRAWINGS, AND MAY NOT ACCURATELY REFLECT THE ACTUAL CONDITIONS IN THE FIELD. INTELLIGENT ENGINEERING SERVICES, LLP MAKES NO GUARANTEE CONCERNING THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. FIELD VERIFY ALL CONDITIONS.

north

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

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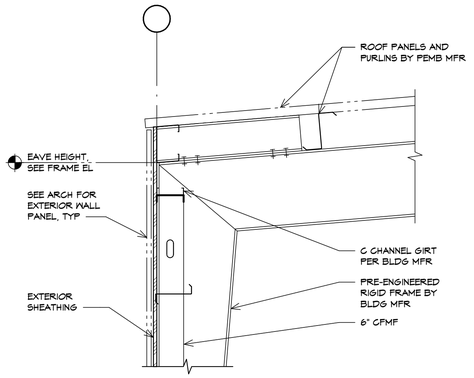
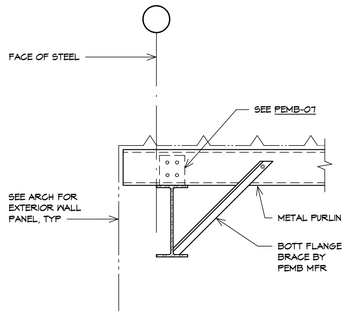
ROOF FRAMING PLAN

S2.1

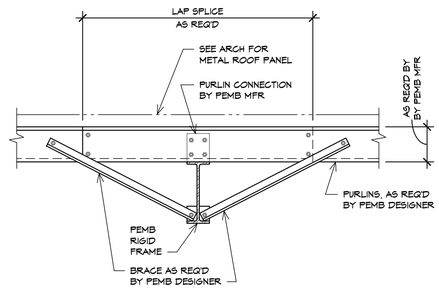
DRG REFERENCE



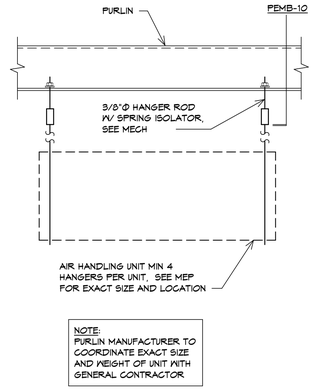
1 TYPICAL EXTERIOR SECTION
NO SCALE



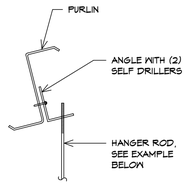
2 TYPICAL DETAIL AT BEAM BOTTOM FLANGE BRACE
NO SCALE



3 TYPICAL DETAIL AT BEAM BOTTOM FLANGE BRACE
NO SCALE



4 TYPIAL DETAIL AT PURLIN SUPPORTED EQUIPMENT
NO SCALE

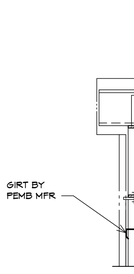


AN ANGE IS SELF-TAPPED TO THE WEB OF THE PURLIN TO CATCH HANGER ROD. THIS METHOD DOES NOT FRECLUDE OTHER FORMS OF ATACHMENT TO THE PURLIN WEB.

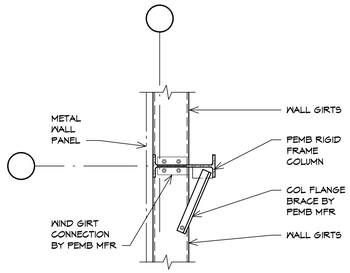
THE TOTAL HANGER LOAD SHALL NOT EXCEED THE DESIGN COLLATERAL LOAD FOR THE BUILDING. A SAMPLE CALCULATION IS SHOWN BELOW.
5' (PURLIN SPACING) x 5' (HANGER SPACING) x 3 PSF (COLLATERAL LOAD) = 75 LBS

HANGING A/C DUCT FROM PURLIN

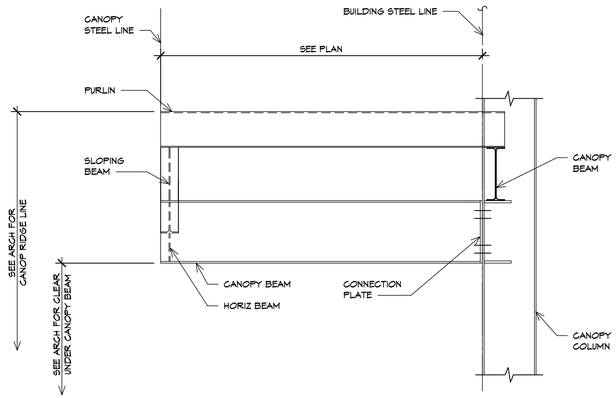
5 TYPICAL DETAIL AT PURLIN SUPPORTED EQUIPMENT
NO SCALE



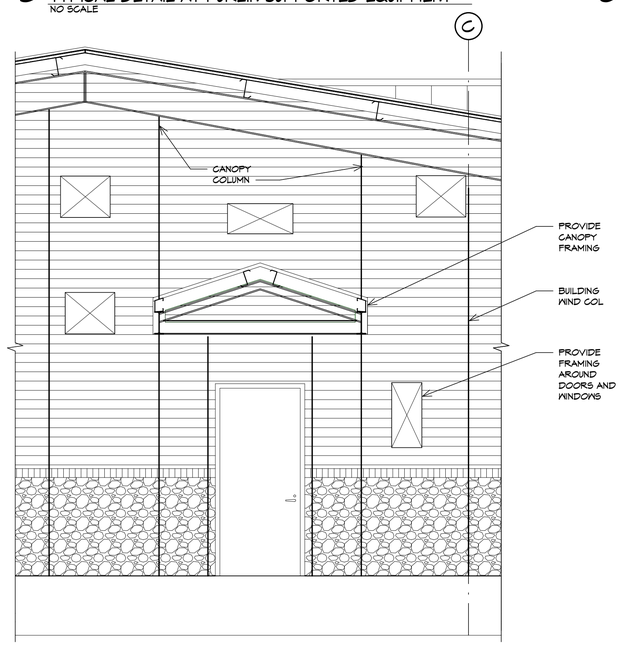
6 TYPICAL ENDWALL SECTION
NO SCALE



7 TYPICAL DETAIL AT COLUMNS FLANGE BRACE
NO SCALE



8 SECTION
SCALE: 3/4" = 1'-0"



9 ELEVATION
SCALE: 3/8" = 1'-0"

DRG ARCHITECTS
13300 OLD BLANCO RD
SUITE 175
SAN ANTONIO, TEXAS 78216
TEL: (210) 349-7950
FAX: (210) 366-0847

MAXWELL SUD OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202270

DATE: 05/19/23

STEEL SECTIONS & DETAILS

S2.2

DRG REFERENCE

INTERIM REVIEW DOCUMENTS
(NOT INTENDED FOR BIDDING, PERMIT OR CONSTRUCTION PURPOSES)
JOSEPH H. HUIZAR
TEXAS REGISTRATION No: 87226
DATE: 05/19/23

INTELLIGENT ENGINEERING SERVICES
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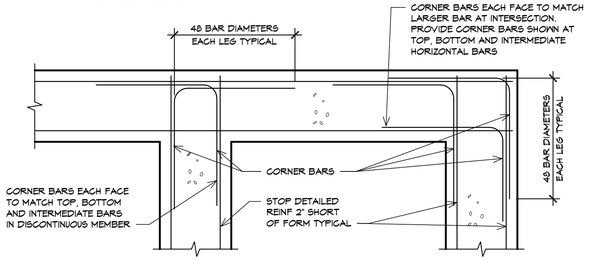
1045 CENTRAL PARKWAY NORTH, SUITE 200 SAN ANTONIO, TEXAS 78232
210.349.9098 ie-services.com
IES JOB NO: 1223216 TBPE FIRM F-432

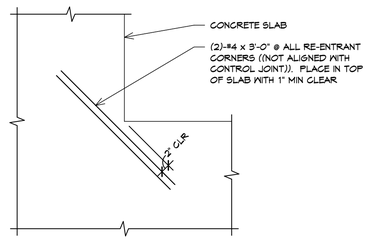
NOTES:

1. MATCH SIZE, LOCATION AND NUMBER OF HORIZONTAL BEAM AND WALL BARS, EXCEPT THAT WHERE THERE ARE MORE THAN 2 TOP OR BOTTOM BARS, ONLY THE INSIDE AND OUTSIDE BARS MUST BE MATCHED.
2. WHERE 90 DEGREE HOOKS ARE PROVIDED FOR TOP BARS CORNER BARS MAY BE OMITTED AT TOP. WHERE 90 DEGREE HOOKS ARE PROVIDED FOR BOTTOM BARS, CORNER BARS MAY BE OMITTED AT BOTTOM.



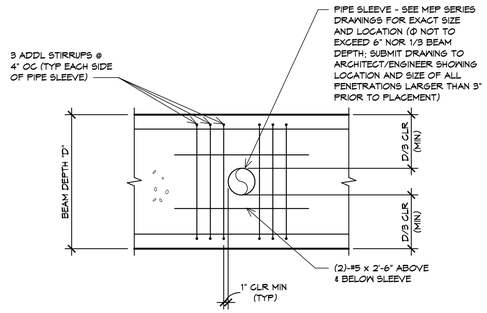
PLAN

1 TYPICAL CORNER BARS AT WALL OR GRADE BEAM INTERSECTION DETAIL
NO SCALE



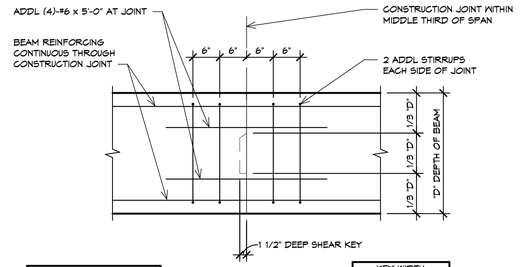
PLAN

2 TYPICAL SLAB RE-ENTRANT CORNER REINFORCING DETAIL
NO SCALE



ELEVATION

3 TYPICAL HORIZONTAL GRADE BEAM PENETRATION DETAIL
NO SCALE



NOTE:
THIS DETAIL APPLIES TO BEAMS ≤ 4'-0" DEPTH.

ELEVATION

KEY WIDTH	
BEAM WIDTH	W
< 12"	8 1/2"
12" TO 16"	8 1/2"
16" TO 20"	1 1/4"
20" TO 24"	4 1/4"
24" TO 30"	11 1/4"

4 TYPICAL CONCRETE BEAM CONSTRUCTION JOINT DETAIL
NO SCALE

5 TYPICAL STRUCTURAL SLAB CONSTRUCTION JOINT DETAIL
NO SCALE

NOTES:

1. EQUIPMENT PADS TO BE PROVIDED UNDER EQUIPMENT SUPPORTED ON SLAB-ON-GRADE OR ELEVATED SLABS.
2. COORDINATE MECHANICAL PAD SIZE, LOCATION AND EMBEDDED ITEMS WITH MEP DRAWINGS AND EQUIPMENT MANUFACTURER.

6 TYPICAL MECHANICAL EQUIPMENT PAD DETAIL
NO SCALE

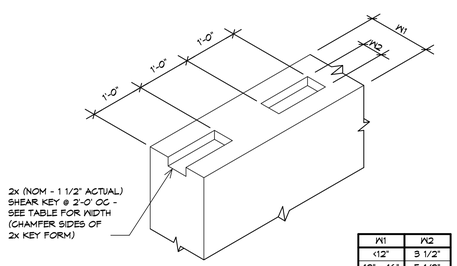
NOTES:

1. COORDINATE ANY EMBEDDED ITEMS IN PAD W/ MECHANICAL, ELECTRICAL & PLUMBING DRAWINGS.
2. VERIFY PAD DIMENSIONS WITH UNIT MANUFACTURER PRIOR TO CONSTRUCTION.
3. PAD SHALL BE PLACED ON UNDISTURBED EXISTING SOIL OR COMPACTED FILL.
4. SEE MEP, SITE AND/OR CIVIL DRAWINGS FOR PAD LOCATION.

7 CONDENSER UNIT PAD DETAIL
NO SCALE

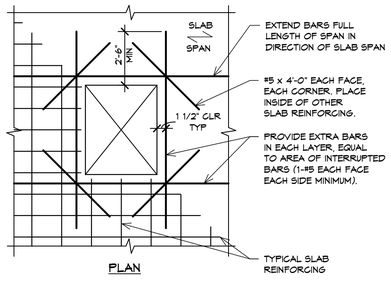
NOTE:
CONTRACTOR MAY DRILL 6" AND EPOXY SET DOWEL IN LIEU OF CAST-IN-PLACE. DOWEL END IN FLATWORK SHALL BE GREASED AND WRAPPED IN PLASTIC TO PREVENT BONDING TO CONCRETE.

8 TYPICAL FLATWORK AT EXTERIOR DOORS AND ENTRIES DETAIL
SCALE: 1 1/2" = 1'-0"



X1	X2
<12"	5 1/2"
12" - 16"	5 1/2"
>16"	7 1/4"

9 TYPICAL SHEAR WALL KEY AT HORIZONTAL JOINT DETAIL
NO SCALE



PLAN

NOTE:
EXTRA BARS MAY BE OMITTED WHERE SIDES OF OPENING ARE FRAMED BY BEAMS.

10 TYPICAL REINFORCEMENT AT CONCRETE SLAB OPENING < 3'-0" DETAIL
NO SCALE

Ld TENSION DEVELOPMENT LENGTH (GRADE 60 BARS - NORMAL WEIGHT CONCRETE)						
BAR SIZE	f'c = 3000 psi		f'c = 4000 psi		f'c = 5000 psi	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	1'-10"	1'-5"	1'-7"	1'-3"	1'-5"	1'-1"
#4	2'-5"	1'-10"	2'-1"	1'-7"	1'-11"	1'-5"
#5	3'-0"	2'-4"	2'-7"	2'-0"	2'-4"	1'-10"
#6	3'-7"	2'-9"	3'-1"	2'-5"	2'-10"	2'-2"
#7	5'-3"	4'-0"	4'-6"	3'-6"	4'-1"	3'-2"
#8	6'-0"	4'-7"	5'-2"	4'-0"	4'-8"	3'-7"
#9	6'-9"	5'-2"	5'-10"	4'-6"	5'-3"	4'-0"
#10	7'-7"	5'-10"	6'-7"	5'-1"	5'-11"	4'-6"
#11	8'-5"	6'-6"	7'-3"	5'-7"	6'-6"	5'-0"

BASIC TENSION LAP SPLICES-CLASS B (GRADE 60 BARS - NORMAL WEIGHT CONCRETE)						
BAR SIZE	f'c = 3000 psi		f'c = 4000 psi		f'c = 5000 psi	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	2'-4"	1'-10"	2'-1"	1'-7"	1'-10"	1'-5"
#4	3'-2"	2'-5"	2'-9"	2'-1"	2'-5"	1'-11"
#5	3'-11"	3'-0"	3'-5"	2'-7"	3'-0"	2'-4"
#6	4'-8"	3'-7"	4'-1"	3'-1"	3'-8"	2'-10"
#7	6'-9"	5'-3"	5'-11"	4'-6"	5'-3"	4'-1"
#8	7'-9"	6'-0"	6'-9"	5'-2"	6'-0"	4'-8"
#9	8'-9"	6'-9"	7'-7"	5'-10"	6'-9"	5'-3"
#10	9'-10"	7'-7"	8'-6"	6'-7"	7'-8"	5'-11"
#11	10'-11"	8'-5"	9'-6"	7'-3"	8'-6"	6'-6"

Ldh HOOK DEVELOPMENT LENGTH (GRADE 60 BARS - NORMAL WEIGHT CONCRETE)			
BAR SIZE	f'c = 3000 psi	f'c = 4000 psi	f'c = 5000 psi
#3	0'-9"	0'-8"	0'-7"
#4	0'-11"	0'-10"	0'-9"
#5	1'-2"	1'-0"	0'-11"
#6	1'-5"	1'-3"	1'-1"
#7	1'-8"	1'-5"	1'-3"
#8	1'-10"	1'-7"	1'-5"
#9	2'-1"	1'-10"	1'-8"
#10	2'-4"	2'-1"	1'-10"
#11	2'-7"	2'-3"	2'-0"

NOTES:

1. BAR SPACING NOT LESS THAN 2 BAR DIAMETERS, CLEAR COVER NOT LESS THAN 1 BAR DIAMETER.
2. FOR CONCRETE STRENGTHS (f'c) NOT SPECIFICALLY LISTED IN SCHEDULES ABOVE, USE CLOSEST LOWER CONCRETE STRENGTH VALUE.
3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BAR OR SPLICE.

11 TYPICAL REINFORCEMENT DEVELOPMENT LENGTHS & LAP SPLICES SCHEDULES (GRADE 60 REINFORCEMENT)
NO SCALE

INTERIM REVIEW DOCUMENTS
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JOSEPH H. HUIZAR
TEXAS REGISTRATION No: 87226
DATE: 05/19/23

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DRG ARCHITECTS
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MAXWELL SUD OFFICE BUILDING
MAXWELL, TEXAS

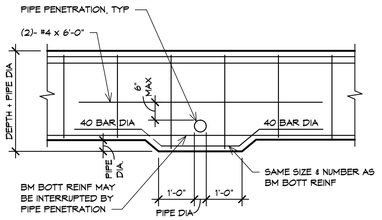
PROJECT NO: 202270

DATE: 05/19/23

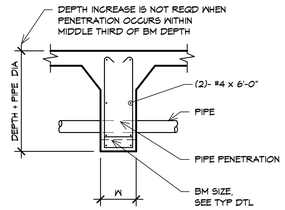
CONCRETE TYPICAL DETAILS

S4.0

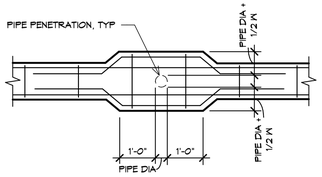
DRG REFERENCE



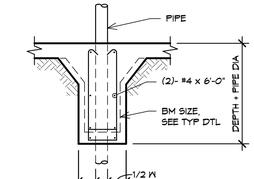
ELEVATION - HORIZONTAL PENETRATION



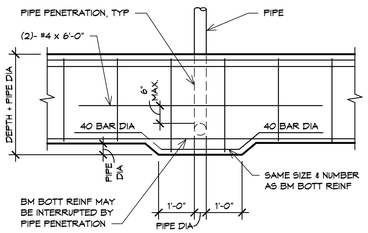
SECTION - HORIZONTAL PENETRATION



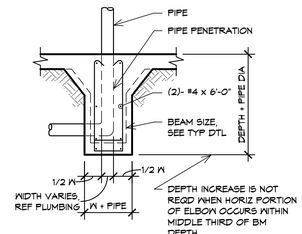
PLAN VIEW
VERTICAL PENETRATION



SECTION - VERTICAL PENETRATION



ELBOW - ELEVATION

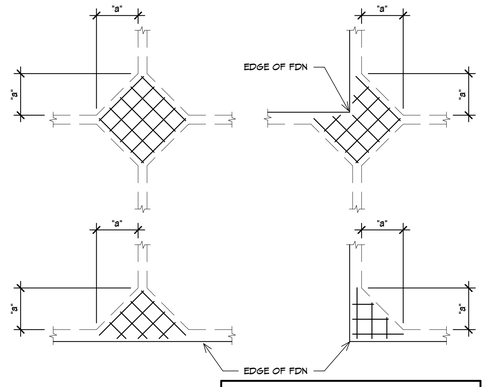


ELBOW - SECTION

NOTES:

1. THIS DETAIL APPLIES TO HORIZ PENETRATIONS THAT OCCUR OUTSIDE OF THE MIDDLE THIRD OF THE BM DEPTH AND TO ALL VERT PENETRATIONS AND ALL ELBOWS. FOR HORIZ BM PENETRATIONS THAT OCCUR IN THE MIDDLE THIRD OF THE BM DEPTH, SEE DETAIL GTP-16
2. PERIMETER BM PENETRATION SHALL BE SLEEVED.
3. FOR PIPE SLEEVES LARGER THAN 4" O.D., ADJACENT PIPE PENETRATIONS SHALL HAVE A MINIMUM CLR OF THE LARGER PIPE SLEEVE DIA BTWN THEM.

1 TYPICAL GRADE BEAM PENETRATION
NO SCALE



CONCRETE FOOTING SCHEDULE

MARK	"a"	DEPTH	REINFORCING	REMARKS
F2	2'-0"	3'-0"	#7 @ 9" OCEW	
F3	3'-0"	3'-0"	#7 @ 9" OCEW	
F4	4'-0"	3'-0"	#7 @ 9" OCEW	
F5	5'-0"	3'-0"	#7 @ 8" OCEW	

NOTES:

1. SEE DETAIL PEMB-02 FOR VERTICAL REINFORCING WITHIN CONCRETE FOOTING.
2. CONCRETE FOOTING DEPTH SHALL MATCH DEEPEST ADJACENT CONCRETE BEAM.
3. COLUMNS OMITTED FOR CLARITY, SEE FOUNDATION PLAN.

2 TYPICAL CONCRETE FOOTING SCHEDULE
NO SCALE

DRG ARCHITECTS
13300 OLD BLANCO RD
SUITE 175
SAN ANTONIO, TEXAS 78216
TEL: (210) 349-7950
FAX: (210) 366-0847

MAXWELL SUD OFFICE BUILDING

MAXWELL, TEXAS

PROJECT NO: 202270

DATE: 05/19/23

CONCRETE TYPICAL DETAILS

S4.1

DRG REFERENCE

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JOSEPH H. HUIZAR
TEXAS REGISTRATION No: 87226
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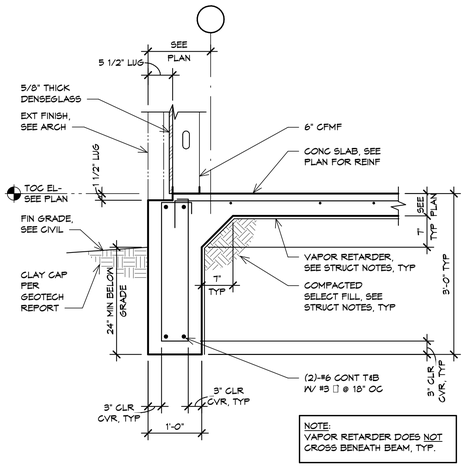
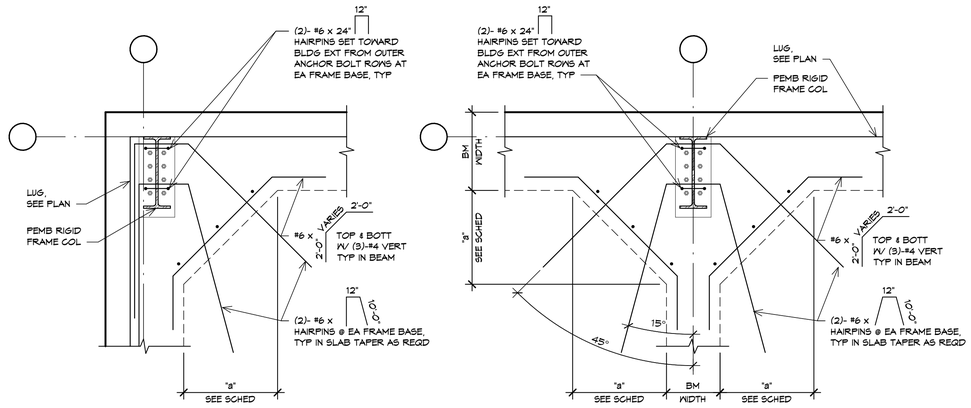
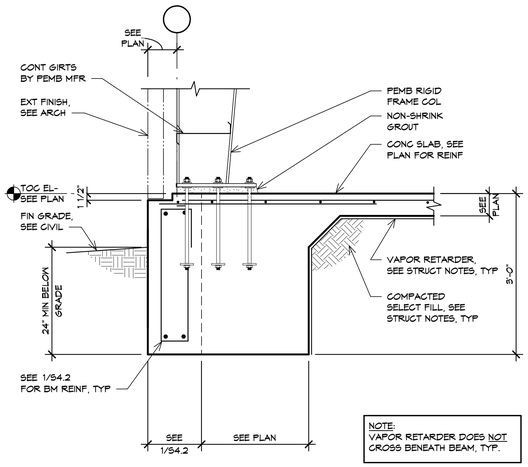


1 EXTERIOR GRADE BEAM DETAIL
SCALE: 3/4" = 1'-0"

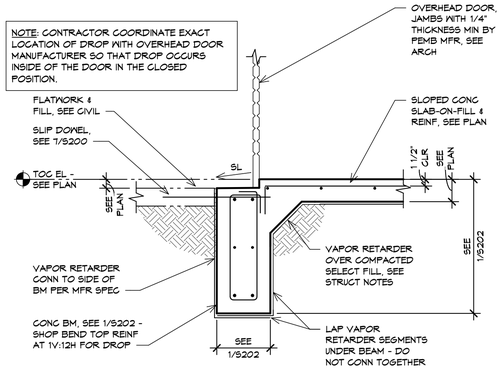


2 TYPICAL WIDENED BEAM DETAIL AT PRE-ENGINEERED RIGID FRAME
SCALE: 3/4" = 1'-0"

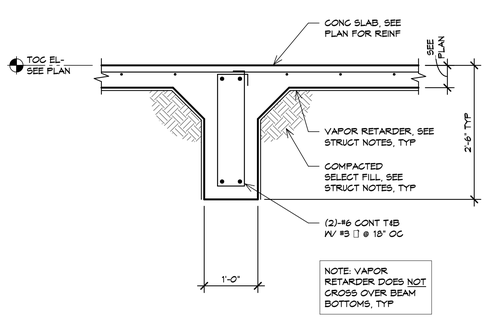


3 EXTERIOR GRADE BEAM AT PEMB COLUMN DETAIL
SCALE: 3/4" = 1'-0"

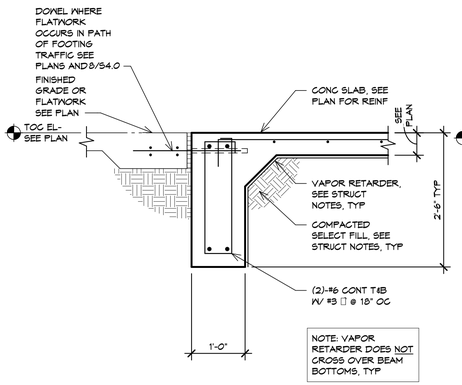
NOTE: CONTRACTOR COORDINATE EXACT LOCATION OF DROP WITH OVERHEAD DOOR MANUFACTURER SO THAT DROP OCCURS INSIDE OF THE DOOR IN THE CLOSED POSITION.



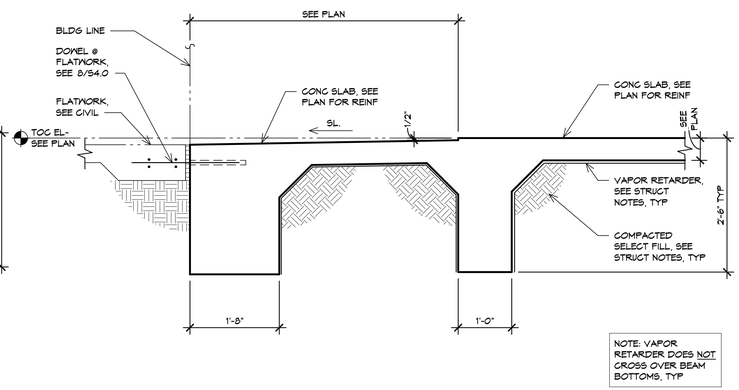
4 SECTION
SCALE: 3/4" = 1'-0"



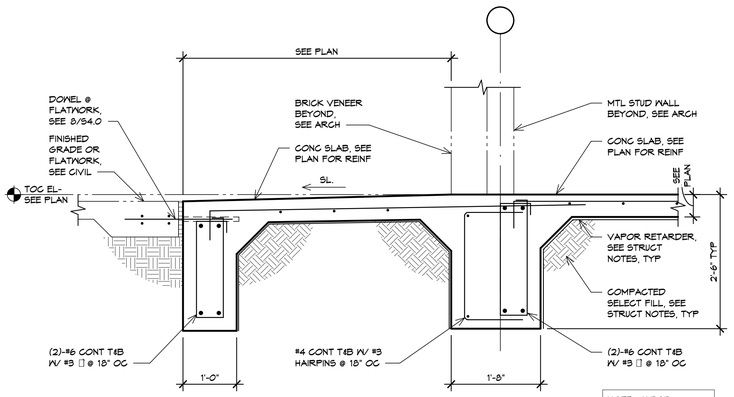
5 SECTION
NO SCALE



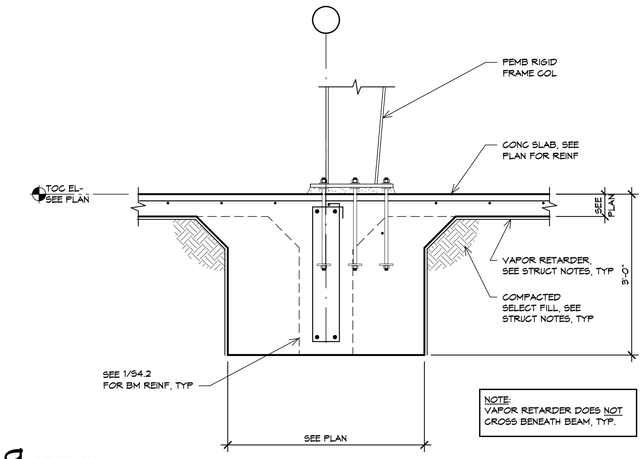
6 SECTION
NO SCALE



7 SECTION
SCALE: 3/4" = 1'-0"



8 SECTION
NO SCALE



9 SECTION
SCALE: 3/4" = 1'-0"

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MAXWELL SUD OFFICE BUILDING

MAXWELL, TEXAS

PROJECT NO: 202270

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CONCRETE SECTIONS & DETAILS

S4.2

DRG REFERENCE

INTERIM REVIEW DOCUMENTS
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TEXAS REGISTRATION No: 87226
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IES JOB NO: 1223216 TBPE FIRM F-432

HVAC SECTION 15500

THE WORK INCLUDES PROVIDING NEW DUCTWORK, DIFFUSERS, GRILLES, INSULATION, CONTROLS AND EQUIPMENT NECESSARY FOR A COMPLETE AND FUNCTIONING SYSTEM. THE WORK INCLUDES BUT IS NOT NECESSARY LIMITED TO THE FOLLOWING:

* INSTALL ROOFTOP UNITS AND ROOF CAPS.
* INSTALL EXHAUST FANS
* SUPPLY & RETURN DUCTWORK SYSTEM WITH GRILLES, DIFFUSERS, FILTERS, AND DAMPERS.
* TEMPERATURE CONTROL SYSTEM INCLUDING LOW-VOLTAGE WIRING AND CONDUIT.
* DUCT, PIPING, AND EQUIPMENT INSULATION, WHERE INDICATED HEREIN.
* ROOF CURBS, ROOFING AND FLASHING OF ROOF PENETRATIONS FOR EQUIPMENT NOTED.
* FANS AND MAKE-UP AIR UNITS.

SHOP DRAWINGS: SUBMIT 6 SETS OF EQUIPMENT/DUCT SUBMITTALS TO ARCHITECT/ENGINEER FOR APPROVAL.

EQUIPMENT INDICATED ON THE DRAWINGS OR AS REQUIRED FOR A COMPLETE INSTALLATION, SUCH AS DUCTWORK, EXHAUST FANS, SUPPLY AND RETURN DIFFUSERS, ETC. SHALL BE PROVIDED WITHIN THE SCOPE OF WORK OF THIS SECTION.

WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. EQUIPMENT PROVIDED BY MECHANICAL CONTRACTOR.

RECORD DOCUMENTS: PROVIDE AT THE TIME OF REQUEST FOR FINAL PAYMENT THE FOLLOWINGS DOCUMENTS:
1- LETTER OF GUARANTEE FROM THE CONTRACTOR.
2- MANUFACTURER'S PARTS DATA AND SERVICE INSTRUCTIONS ON ALL ITEMS OF EQUIPMENT.
3- MANUFACTURER'S GUARANTEES AND WARRANTIES.

INSTRUCTIONS TO THE OWNER: THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT. THE CONTRACTOR SHALL FURNISH TO THE OWNER ALL PAMPHLETS AND OTHER LITERATURE FURNISHED BY THE MANUFACTURER AND EXPLAIN THE PROPER OPERATING AND MAINTENANCE PROCEDURES.
DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS AS REQUIRED. FURNISH AND INSTALL ALL DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE SYSTEM'S FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED. THE WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES OR ORDINANCES AND SUBJECT TO INSPECTION.

COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

EXTRA STOCK: PROVIDE TWO SETS OF REPLACEMENT FILTERS PER EACH INSTALLED FOR ALL THE ROOFTOP UNITS, AND OTHER EQUIPMENT AND DEVICES, AND PROVIDE A ITEMIZED LIST OF THE NUMBER, TYPE REQUIRED AND WHERE USED. OBTAIN RECEIPT FROM OWNER THAT THESE ITEMS HAVE BEEN DELIVERED AND ACCEPTED BY THE OWNER'S REPRESENTATIVE.

EXHAUST FANS: FURNISH AND INSTALL EXHAUST FANS IN THE LOCATION AND OF THE SIZE AND CAPACITY SHOWN ON THE DRAWINGS. EXHAUST FANS SHALL BE CEILING CABINET IN-LINE EXHAUST FANS WITH PLASTIC HOUSING AND GRILL. SUPPORT FAN WITH VIBRATION ISOLATORS FROM ROOF STRUCTURE NOT FROM THE CEILING. PROVIDE TERMINATION CAP AS INDICATED ON THE DOCUMENTS. FANS SHALL BE DIRECT DRIVE WITH A SPEED CONTROL RELAY TO BALANCE THE FAN AT THE CFM'S SCHEDULED. FAN TO BE EQUIPED WITH INTERGRAL BACKDRAFT DAMPER AND SWITCHED LOCALLY AS INDICATED ON THE DOCUMENTS. APPROVED MANUFACTURERS ARE GREENHECK, COOK, AND PENN.

DUCT DIMENSIONS: UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON DRAWINGS ARE NET INSIDE CLEAR DIMENSIONS ON LINED DUCTS OR UNLINED SHEET METAL DUCTS.

SHEET METAL DUCTWORK: SHEETMETAL SHALL BE FABRICATED AND INSTALLED TO ASHRAE AND SMACNA STANDARDS. SHEETMETAL SHALL BE G-90 GALVANIZED SHEET STEEL OF LOCK-FORMING QUALITY, ASTM A-525. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOORS SHALL BE AIRTIGHT WITH APPROVED WEATHERPROOF CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR-TIGHT. PROVIDE TURNING VANES AT ALL ELBOWS OR OFFSETS EXCEEDING 33 DEGREES.

TRAPEZE DUCT HANGERS: MINIMUM 1" X 2" X 1" X 18 GAGE CHANNELS WITH 1" X 18 GAGE STRAPS TO STRUCTURAL SUPPORT ABOVE.

ALL SUPPLY AND RETURN DUCTWORK SHALL HAVE THE FIRST TEN (10) FEET INTERNALLY LINED. THE REMAINING DUCT SHALL BE EXTERNALLY WRAPPED.

DUCT WRAP/ASJ INSULATION: (ON ALL SUPPLY, RETURN, AND ROUND RIGID SHEETMETAL DUCTWORK): PROVIDE 2" THICK FIBERGLASS ASJ DUCTWRAP WITH VAPOR SEAL ON ALL SHEETMETAL DUCT. INSULATION SHALL HAVE AN INSTALLED R-VALUE OF 5 OR GREATER WITH A K VALUE OF 0.28. ACCEPTABLE MANUFACTURERS ARE KNAUF, OWENS CORNING, JOHNS MANVILLE. INSULATION SHALL MEET THE LATEST ADOPTED IECC AND LOCAL AMENDMENTS.

ALL DUCT INDICATED AS LINED SHALL BE INTERNALLY INSULATED WITH OWENS CORNING FIBERGLASS AEROFLEX DUCT WRAP, 2" THICK, TYPE B-150 INSULATION SHALL HAVE AN INSTALLED R-VALUE OF 5 OR GREATER WITH A A K VALUE OF 0.28. ACCEPTABLE MANUFACTURERS ARE KNAUF, OWENS CORNING, JOHNS MANVILLE. INSULATION SHALL MEET THE LATEST ADOPTED IECC AND AND LOCAL AMENDMENTS.

FLEXIBLE DUCT: PROVIDE FACTORY ASSEMBLED CLASS 1 AIR DUCT (UL 181) WITH 1-1/2" THICK 1 PCF FIBERGLASS INSULATION AND REINFORCED OUTER PROTECTIVE COVER / VAPOR BARRIER. FLEX DUCT SHALL MEET NFPA 90A WITH FLAME SPREAD UNDER 25, SMOKE DEVELOPED UNDER 50, AND SHALL BE RATED FOR 2" W.G. PRESSURE AND O TO 250 DEGREE TEMPERATURE. PROVIDE METAL ADJUSTABLE CLAMPING DEVICES, SCREW OPERATED. USE TWISTLOCK CONICAL TAP COLLARS AT CONNECTIONS INTO SHEET METAL DUCTWORK. DO NOT EXCEED 6 FEET IN LENGTH. FLEXMASTER 8M OR APPROVED EQUAL.

CEILING DIFFUSERS / RETURNS: INSTALL SUPPLY & RETURN DIFFUSERS/REGISTERS WITH DAMPER I SIZES, CAPACITIES, MATERIALS, AND PATTERN INDICATED ON THE DRAWINGS.

INSULATE REFRIGERANT SUCTION LINES WITH 1-1/2" CLOSED CELL FOAM PIPE INSULATION WITH SELF-ADHESIVE SEAMS. INSULATION SHALL BE EQUIVALENT TO ARMACELL AP ARMAFLEX.

ACCESS PANELS: PROVIDE HINGED ACCESS PANELS IN DUCTWORK WHERE REQUIRED FOR ACCESS TO EQUIPMENT. PROVIDE INSULATED ACCESS DOORS IN INSULATED DUCTWORK.

AUTOMATIC TEMPERATURE CONTROL: PROVIDE FOR EACH HVAC UNIT, LOW VOLTAGE SEVEN DAY PROGRAMABLE THERMOSTAT, TRANE, CAMABLE, CARRIER, OR HONEYWELL T7300. UNIT SHALL INCORPORATE TWO STAGE HEAT/COOL AS APPLICABLE WITH AN AUTO CHANGEOVER FEATURE. HEATING AND COOLING SET POINTS SHALL BE OPERATOR ADJUSTABLE (THERMOSTATS BY UNIT SUPPLIER). THERMOSTAT SHALL HAVE NON-VOLATILE MEMORY WITH MINIMUM 24 HOUR MEMORY RETAINTION, 5 DEGREE F DEADBAND, AND LCD DISPLAY.WIRING SHALL COMPLY WITH SECTION 16000 REQUIREMENTS. PROVIDE RELAYS AS REQUIRED FOR UNIT INTERFACE. PROVIDE ALL TEMPERATURE CONTROL WIRING FOR ALL HVAC SYSTEMS, INCLUDING THERMOSTATS, SMOKE DETECTOR INTERLOCK ETC. INSTALL THERMOSTAT SAME HEIGHT AS LIGHT SWITCHES. COORDINATE FINAL LOCATION WITH ARCHITECT.

ROOF PENETRATIONS SHALL COMPLY WITH SMACNA AND NRCA STANDARDS.

CONTRACTOR TO PROVIDE TEST AND BALANCE NEBB CERTIFIED AIR BALANCE BY INDEPENDENT THIRD PARTY CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL HAVE ALL EQUIPMENT STARTED, ADJUSTED AND TESTED PRIOR TO BALANCING. KITCHEN HOOD AND ANY ASSOCIATED FANS SHALL BE INCLUDED IN TEST AND BALANCE. MECHANICAL CONTRACTOR SHALL ALSO HAVE THEIR TECHNICIAN ON SITE DURING BALANCE TO ADJUST OR CORRECT EQUIPMENT OPERATION DURING BALANCE.

GENERAL ROOF PLAN NOTES:

1. CONTRACTOR SHALL CAREFULLY REVIEW CONTRACT DOCUMENTS INCLUDING DRAWINGS AND PROJECT MANUAL INFORMATION REGARDING WORK OF THE VARIOUS TRADES AND SUBCONTRACTORS ARE DISPERSED THROUGHOUT THE DOCUMENTS AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE FULL SET OF DOCUMENTS.
2. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES ABOVE THE CEILING TO PROVIDE GREATEST POSSIBLE CLEARANCE FOR INSTALLATION OF AND FUTURE CHANGES IN MECHANICAL EQUIPMENT. CONDUIT AND PIPE TO BE RUN THROUGH TRUSSES. COORDINATE SERVICE AND ACCESS POINTS ABOVE CEILING TO MINIMIZE REQUIRED ACCESS.
3. VERIFY EXACT LOCATION OF ALL HVAC EQUIPMENT WITH HVAC CONTRACTOR PRIOR TO COMMENCING ANY WORK.
4. ALL EQUIPMENT (RECEPTACLES, DISC. SWITCHES, ETC.) SHALL BE WEATHERPROOF.
5. ALL FUSES FOR HVAC UNITS SHALL BE SIZED AS REQUIRED BY MANUFACTURER'S NAMEPLATE ON EQUIPMENT. FUSES SHALL BE CURRENT LIMITING, TIME DELAY BUSSMAN FRN-R OR EQUAL BY GOULD SHAWMUT.
6. ALL CONDUIT SHALL BE RUN CONCEALED BELOW ROOF. PROVIDE WATERTIGHT PITCH POCKETS AS REQUIRED.
7. REFER TO HVAC DRAWINGS FOR ADDITIONAL ELECTRICAL REQUIREMENTS. PROVIDE ALL CONTROL CONDUIT AND WIRING AS REQUIRED FOR INTERLOCKING FANS, MOTORS, ETC. AS INDICATED ON THE HVAC DRAWINGS.
8. ALL DEVICES INSTALLED ON ROOF TOP EQUIPMENT SHALL BE MOUNTED ON A NON- REMOVABLE PANEL OF THE EQUIPMENT. THIS LOCATION SHALL BE COORDINATED WITH THE MECHANICAL OR PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
9. ROOF DECK PENETRATIONS: CONTRACTOR SHALL SECURE LANDLORD APPROVAL FOR ALL BUILDING ROOF DECK PENETRATIONS. REQUESTS SHALL BE ON A SCALED ROOF PLAN SHOWING EXACT LOCATION & SIZE OF PENETRATION & INCLUDE DETAILS OF MOUNTING, FLASHING & SEALING. CONTRACT WITH THE LANDLORD'S ROOFING CONTRACTOR TO PERFORM ALL WORK AT THIS CONTRACTOR'S SOLE EXPENSE. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL ROOFTOP EQUIPMENT, NEW ROOF PENETRATIONS, REMOVAL OF EXISTING ROOFTOP EQUIPMENT & INSTALLATION OF ALL ROOFTOP EQUIPMENT WITH THE LANDLORD.

GENERAL ENERGY NOTES:

THERMOSTATIC CONTROLS MUST HAVE A 5deg DEADBAND OR HAVE MANUAL CHANGEOVER BETWEEN HEATING AND COOLING.

PROVIDE AUTOMATIC CONTROLS: SETBACK TO 55degF (HEAT) AND 85degF (COOL); 7-DAY CLOCK, 2-HOUR OCCUPANT OVERRIDE, 10-HOUR BACKUP IN THE EVENT OF A POWER LOSS.

OUTDOOR AIR SUPPLY AND EXHAUST DUCTS SHALL BE PROVIDED WITH AUTOMATIC MEANS TO REDUCE AND SHUT OFF AIRFLOW WITH THE EXCEPTION FOR SYSTEM DESIGNED FOR CONTINUOUS OPERATION OR SYSTEM WITH AN FLOW RATE LESS THAN 3,000 CFM; SYSTEMS WITH READILY ACCESSIBLE MANUAL DAMPERS; OR RESTRICTED BY HEALTH AND LIFE SAFETY CODES.

ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS OR TAPES. TAPES AND MASTICS USED TO SEAL DUCTWORK SHALL BELISTED AND LABELED IN ACCORDANCE WITH UL181A OR UL181B. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEMS SHALL BE SEALED AND MECHANICALLY FASTENED. DUCT TAPE IS NOT PERMITTED AS A SEALANT OF ANY METAL DUCTS.

INSULATION SHALL BE PROVIDED FOR PIPING AS NOTED IN THE TABLE BELOW. PIPING INSULATION SHALL BE PROVIDED FOR RETURN CIRCULATION HOT WATER SYSTEM WITH 1" OR R-4 INSULATION. THE FIRST 8' OF PIPING IN NONCIRCULATING SYSTEMS SERVED BY EQUIPMENT W/O INTEGRAL HEAT TRAPS SHALL BE INSULATED WITH 5" OR R-4 INSULATION.

WATER HEATING EQUIPMENT NOT SUPPLIED WITH INTEGRAL HEAT TRAPS AND SERVING NONCIRCULATING SYSTEMS SHALL BE PROVIDED WITH HEAT TRAPS ON THE SUPPLY AND DISCHARGE PIPING AS ASSOCIATED WITH THE EQUIPMENT.

AUTOMATIC CIRCULATING HOT WATER SYSTEMS OR HEAT TRACE SHALL HAVE TIME SWITCHES THAT ARE CAPABLE OF BEING SET TO TURN OFF THE SYSTEM.

MINIMUM PIPE INSULATION (inch)		
	NORMINAL PIPE DIA.	
FLUID	≤ 1.5"	> 1.5"
STEAM	1-1/2	3-1/2
HOT WATER	1	1-1/2
CHILL WATER or REFRIGERANT	1	1

MINIMUM DUCT INSULATION (R)	
UNCONDITIONED SPACE	≥ 6
OUTSIDE BLDG. ENVELOPE	≥ 8

EXCEPTIONS:
1. WHEN LOCATED WITHIN EQUIPMENT.
2. WHEN DESIGN TEMP. DIFFERENCE BETWEEN THE INTERIOR AND EXTERIOR OF THE DUCT OR PLENUM DOES NOT EXCEED 15'F.

SYSTEMS START-UP REQUIREMENTS

CONTRACTOR SHALL PROVIDE AN EQUIPMENT OPERATION CHECK (EOC). EOC TO PROVIDE VERIFICATION AND DOCUMENTATION OF EQUIPMENT CONDITION, INTEGRITY OF INSTALLATION AND OPERATIONAL PERFORMANCE WITH REGARD TO THE SPECIFICATIONS. IT SHALL ALSO INCLUDE ALL ASSOCIATED COMPONENTS PROVIDED BY MANUFACTURER. THE FOLLOWING EQUIPMENT AND INSTALLATION INTEGRITY CHECKS SHALL BE PERFORMED AS PART OF AN EOC. ANY INSTALLER DEFECTS SHALL BE NOTED AND ANY FACTORY DEFECTS SHALL BE REPAIRED. A REPORT FOR EACH UNIT ALONG WITH A SUMMARY REPORT FOR THE JOB SITE WILL BE PROVIDED TO THE OWNER AND ENGINEER UPON COMPLETION.

JOB SITE REQUIREMENTS PRIOR TO EOC:

A. COMPLETE INSTALLATION OF UNIT PER MECHANICAL DRAWINGS, SPECIFICATIONS AND THE UNIT MANUFACTURER'S INSTALLATION INSTRUCTIONS.

B. UNIT MUST BE STARTED UP AND RUNNING 24 HOURS PRIOR TO EOC.

C. UNIT'S RETURN AIR FILTERS MUST BE NEW AND AT LEAST EQUIVALENT TO FACTORY PROVIDED FILTERS.

D. ALL FIELD INSTALLED HOODS ACCESSORIES MUST BE INSTALLED AND OPERATIONAL.

1. UNIT INSTALLATION CHECK:
   - _____ A. RECORD UNIT #, UNIT C/N, UNIT MODEL #, AND UNIT SERIAL #.
   - _____ B. CHECK CURB INSTALLATION INCLUDING VIBRATION ISOLATION AND WIND OR SEISMIC RESTRAINTS. VERIFY PER OWNER SPECIFICATIONS AND THE UNIT MANUFACTURER'S INSTALLATION INSTRUCTIONS.
   - _____ C. CHECK UNIT CLEARANCES AND VERIFY INSTALLATION PER THE UNIT MANUFACTURER'S INSTALLATION INSTRUCTIONS.
   - _____ D. CHECK DOOR ALIGNMENT AND ADJUST AS NECESSARY.
   - _____ E. CHECK UNIT INSTALLATION IS SECURE AND CLEAN.
   - _____ F. CHECK INSTALLATION OF CONDENSATE TRAP AND DRAIN LINES PER THE PROJECT SPECIFICATIONS, DRAWING DETAILS AND UNIT MANUFACTURER'S INSTALLATION INSTRUCTION.
   - _____ G. CHECK AND NOTE INSTALLATION OF ANY ROOFTOP UNIT MANUFACTURER'S PROVIDED ACCESSORIES PER THE UNIT MANUFACTURER'S INSTALLATION INSTRUCTIONS.
   - _____ H. CHECK CLEANLINESS OF UNIT AND AREA AROUND IT. DISPOSE OF ANY DEBRIS FOUND.
2. ELECTRICAL SYSTEM CHECK:
   - _____ A. CHECK AND RECORD INCOMING POWER SUPPLY. VERIFY PER THE UNIT MANUFACTURER'S SPECIFICATIONS AND RECORD.
   - _____ B. VERIFY INSTALLATION AND PROPER SIZING OF ELECTRICAL DISCONNECT OR CIRCUIT BREAKER INCLUDING WIRE SIZE.
   - _____ C. CHECK ELECTRICAL CONNECTIONS AND TIGHTEN AS NEEDED.
   - _____ D. VERIFY INSTALLATION OF WIRING TO 120V CONVENIENCE OUTLET (IF APPLICABLE).
   - _____ E. CHECK AND RECORD UNIT'S CONTROL TRANSFORMER(S) SECONDARY VOLTAGE. ADJUST PER THE UNIT MANUFACTURER'S SPECIFICATIONS.
3. INTEGRATED MODULAR CONTROLLER CHECK:
   - _____ A. VERIFY LED HEARTBEAT ON ALL THE UNIT MANUFACTURER'S PROVIDED CONTROL BOARDS.
   - _____ B. RECORD HARDWARE AND SOFTWARE VERSIONS OF ALL PROVIDED CONTROL BOARDS.
   - _____ C. VERIFY DIP SWITCHES ON ALL CONTROL BOARDS ARE SET FOR OWNER SPECIFICATIONS PER THE UNIT MANUFACTURER'S INSTALLATION INSTRUCTIONS.
   - _____ D. VERIFY ALL THE UNIT MANUFACTURER'S PROVIDED TEMPERATURE SENSORS READINGS ARE ACCURATE.
4. SUPPLY FAN SYSTEM CHECK:
   - _____ A. CHECK BLOWER PULLEY SEY SCREWS FOR PROPER TORQUE. ADJUST AS NEEDED.
   - _____ B. CHECK BELT TENSION AND ALIGNMENT AND ADJUST AS NEEDED.
   - _____ C. START UNIT INDOOR BLOWER TO CHECK ROTATION CORRECT AS NEEDED. VERIFY AND DRAW IS PER THE UNIT MANUFACTURERS SPECIFICATIONS AND RECORD.
5. COOLING SYSTEM CHECK:
   - _____ A. LEAK CHECK ALL CIRCUITS.
   - _____ B. CHECK COIL INTEGRITY AND CLEANLINESS. CLEAN AS NEEDED.
   - _____ C. START EACH COMPRESSOR IN UNIT. CONFIRM PROPER ROTATION AND CORRECT AS NEEDED
   - _____ D. CHECK REFRIGERANT PRESSURES OF EACH CIRCUIT PER THE UNIT MANUFACTURER'S SPECIFICATION. CORRECT CHARGE AS NEEDED.
   - _____ E. RECORD TEMPERATURE DROP ACROSS THE EVAPORATOR COIL IN FULL COOLING (ALL COMPRESSOR RUNNING).
6. GAS HEATING SYSTEM (WHEN SPECIFIED):
   - _____ A. RECORD FUEL TYPE.
   - _____ B. CHECK INSTALLATION OF INTAKE AND EXHAUST HOODS. VERIFY PER THE UNIT MANUFACTURER'S INSTALLATION INSTRUCTIONS.
   - _____ C. CHECK INSTALLATION OF GAS UNIONS.
   - _____ D. CHECK AND RECORD INCOMING GAS PRESSURE TO UNIT.
   - _____ E. CHECK MANIFOLD GAS PRESSURE FROM THE OUTLET OF THE BAS VALVE(S) PER THE UNIT MANUFACTURER'S SPECIFICATIONS. ADJUST AS NECESSARY.
   - _____ F. CHECK AND RECORD TEMPERATURE RISE ACROSS HEAT EXCHANGER IN FULL HEAT.
   - _____ G. CHECK OPERATION OF TEMPERATURE LIMIT.
7. ELECTRICAL HEAT SYSTEM CHECK: (WHEN SPECIFIED):
   - _____ A. CHECK AND RECORD AMP DRAW OF THE HEATING ELEMENTS.
   - _____ B. CHECK HEATING SECTION OPERATION. RECORD TEMPERATURE RISE THRU UNIT IN FULL HEATING OPERATION PER THE UNIT MANUFACTURER'S SPECIFICATIONS.
   - _____ C. CHECK OPERATION OF TEMPERATURE LIMIT.
   - _____ D. CHECK REFRIGERANT PRESSURES OF EACH CIRCUIT PER
8. THERMOSTAT/UNIT CONTROLS SYSTEM CHECK:
   - _____ A. RECORD THERMOSTAT OR DDC SYSTEM MAKE, MODEL AND SERIAL NUMBER.
   - _____ B. VERIFY CLASS 2 CONTROLS WIRING INSTALLATION TO TERMINAL BOARD OF UNIT.
   - _____ C. VERIFY THAT REMOTE SENSORS ARE OPERATIONAL.
   - _____ D. VERIFY CO^2SENSORS ARE OPERATIONAL.
   - _____ E. PERFORM COOLING SIMULATION TEST. VERIFY COOLING STAGES PER OWNER'S SPECIFICATIONS.
   - _____ F. PERFORM HEATING SIMULATION TEST. VERIFY HEATING STAGES PER OWNER'S SPECIFICATIONS.
   - _____ G. PERFORM VENTILATION SIMULATION TEST. VERIFY VENTILATION OPERATION PER OWNER'S SPECIFICATIONS.
9. INDOOR AIR QUALITY SYSTEM CHECK:
   - _____ A. CHECK AND RECORD CONDITION AND TYPE OF FILTERS.
10. OUTDOOR AIR ACCESSORY CHECK:
   - _____ A. CHECK OPERATION OF ECONOMIZER OR MOTORIZED OUTDOOR AIR DAMPER BY DRIVING IT FULL OPEN AND CLOSED.
   - _____ B. RECORD MINIMUM DAMPER POSITION AND ENTHALPY SETTING (IF PROVIDED).
   - _____ C. CHECK ECONOMIZER CONTROL BOARD SETTINGS PER OWNER SPECIFICATIONS. RECORD SETTING.
   - _____ D. CHECK OPERATION OF BAROMETRIC RELIEF DAMPER IF INSTALLED.
   - _____ E. CHECK OPERATION OF POWER EXHAUST IF INSTALLED. CHECK MOTOR AMP DRAW PER THE ROOFTOP UNIT MANUFACTURER'S INSTALLATION INSTRUCTIONS.
11. CONTROL CHECK:
   - _____ A. VERIFY COMPLETE INSTALLATION/OPERATION OF ALL THERMOSTATS AND TIME CLOCKS IF UTILIZED.
   - _____ B. VERIFY COMPLETE INSTALLATION/OPERATION OF SMOKE DETECTOR/FIRE ALARM INTERFACE.
12. DUCT SYSTEMS AND AIR DISTRIBUTION:
   - _____ A. VERIFY INSTALLATION CONFORMS TO DESIGN AND ALL PIECES OF AIR DISTRIBUTION, DUCTWORK, DIFFUSERS AND GRILLES ARE COMPLETE AND PROPERLY INSTALLED.
   - _____ B. VERIFY ALL MANUAL VOLUME DAMPERS ARE IN FULL OPEN OR NEUTRAL POSITION.
13. EXHAUST FAN(S):
   - _____ A. VERIFY PROPER INSTALLATION/OPERATION AND FAN ROTATION.

COMMENTS:_____
_____

SIGNATURE: _____ DATE: _____

PLEASE DATE AND INITIAL EACH ITEM AS VERIFIED. COMPLETED VERIFICATION CHECK LIST IS INCLUDED IN OUR REPORT TO THE OWNER AND MUST BE RETURNED PRIOR TO SCHEDULING ARRIVAL OF HVAC SYSTEMS TEST DATE. PLEASE FAX TO THE ITC UPON COMPLETION.

THE HVAC INSTALLER IS REQUIRED TO BE ON SITE FOR THE TWO (2) DAYS THAT THE ITC IS PERFORMING THEIR WORK IN ORDER TO CORRECT ANY PUNCH LIST ITEMS THAT MAY EXIST. SHOULD RETURN TRIPS BECOME NECESSARY AFTER THE INITIAL TWO (2) DAYS, ANY RETEST COST INCURRED BY THE ITC SHALL BECOME THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE ESTIMATED COST IS $1,000.00 PER DAY.

_ END OF SECTION _

MECHANICAL NARRATIVE:

THE HVAC SYSTEM CONSIST OF AN EXISTING DX PACKAGE ROOFTOP UNITS WITH ELECTRIC HEAT AND ONE NEW SPLIT DX SYSTEM.

ALL UNITS SHALL BE PROVIDED WITH THEIR OWN WALL MOUNTED THERMOSTAT FOR CONTROLLING TEMPERATURE IN THE SPACE. THE NEW UNIT IS LESS THAN 55,000 BTUH AND DOES NOT REQUIRE AN ECONOMIZER SECTION. THE NEW UNIT SHALL BE CONSTANT VOLUME AN OPERATE BASED ON AN OCCUPIED SCHEDULE.

THE EXHAUST FAN SHALL BE INTERLOCKED WITH THE RESTROOM LIGHTS.

REFER TO THE MECHANICAL ENERGY NOTES FOR COMPLIANCE REQUIREMENTS WITH IECC 2015. SEE THE HVAC DESIGN CRITERIA ON THIS SHEET AS REQUIRED BY THE 2015 IECC.

THE MECHANICAL CONTRACTOR SHALL REVIEW THE SYSTEM COMMISSIONING SPECIFICATION ON THIS SHEET FOR REQUIREMENTS AND PARTICIPATION IN THE COMMISSIONING PROCESS. FAILURE TO COMPLY OR PARTICIPATE MAY INCUR ADDITIONAL COST TO THE CONTRACTOR.

PROGRESS SET

THIS DOCUMENT IS RELEASED FOR THE PURPOSES OF INTERIM REVIEW UNDER THE AUTHORITY OF SEAN M. RODRIGUEZ P.E. NO. 96478 IT IS NOT TO BE USED FOR BIDDING OR CONSTRUCTION PURPOSES. May 15 2023

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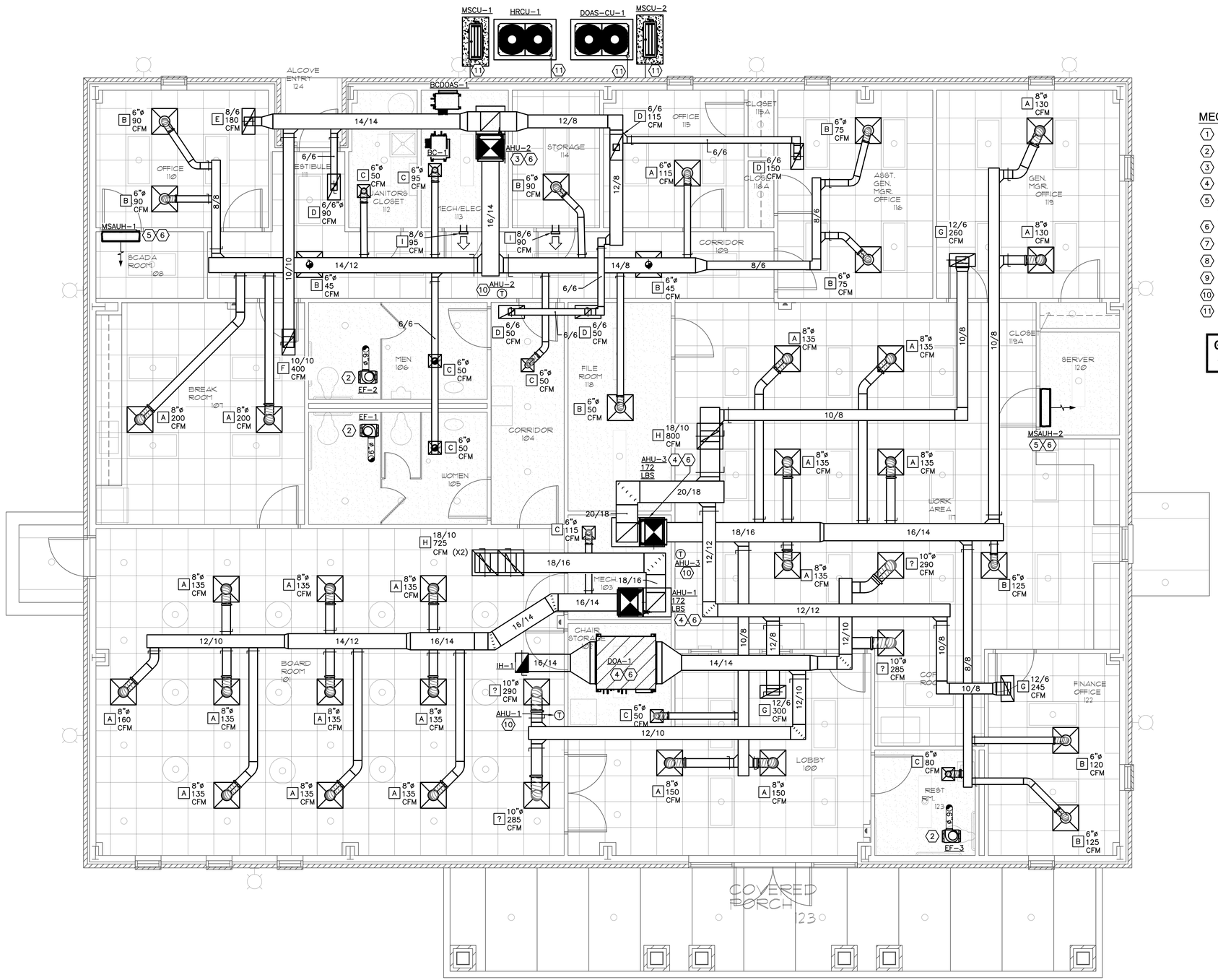
MAXWELL SUD
OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202210
DATE: APRIL 2023

MECHANICAL SPECIFICATIONS

M0.1

DRG REFERENCE



1 **MECHANICAL FLOOR PLAN**
SCALE: 1/4" = 1' - 0"

MECHANICAL KEYED NOTES:

1. PROVIDE MANUAL BALANCING DAMPERS AT ALL RUN OUTS SHOWN OR NOT (TYPICAL).
2. RESTROOM EXHAUST UP THROUGH ROOF. PROVIDE ROOF CAP (SEE DETAIL 6).
3. ROUTE CONDENSATE LINES FROM AHU-2 DOWN IN WALL TO MOP SINK IN JANITORS CLOSET.
4. ROUTE CONDENSATE LINES FROM AHU-1,AHU-3, AND DOAS-1 DOWN IN WALL TO FLOOR DRAIN IN MECHANICAL ROOM.
5. ROUTE CONDENSATE LINE FULL SIZE FROM MSAUH-1 AND MSAUH-2 TO NEAREST SERVICE SINK. PROVIDE 2" P-TRAP AT CONDENSATE OUTLET. TERMINATE 2' ABOVE TOP OF SERVICE SINK (SEE DETAIL)
6. INSULATE CONDENSATE DRAIN LINE WITH 1" CLOSED CELL INSULATION.
7. 16/14 SA AND 18/16 RA DUCT TO AHU-1 IN MECHANICAL ROOM.
8. 16/14 SA AND 18/18 RA DUCT TO AHU-2 IN JANITORS ROOM.
9. 18/16 SA AND 20/18 RA DUCT TO AHU-3 IN MECHANICAL ROOM.
10. MOUNT THERMOSTAT AT 48" ABOVE FINISH FLOOR.
11. ROUTE REFRIGERANT LINES INTO THE BUILDING DOWN LOW. PROVIDE SLEEVE AT WALL PENETRATION AND SEAL WATER TIGHT WITH MPI SEALANT.

GENERAL NOTE:
- INSULATE ALL CONDENSATE DRAIN LINES WITH 1" CLOSED CELL INSULATION.

PROGRESS SET

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MAXWELL SUD OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202210
DATE: APRIL 2023

MECHANICAL FLOOR PLAN

M1.1

DRG REFERENCE

HVAC GENERAL NOTES:

A. THESE GENERAL NOTES APPLY TO ALL HVAC DRAWINGS.
B. DUCT SIZES ARE INSIDE CLEAR DIMENSIONS.
C. INSULATE DUCTWORK AS FOLLOWS:
   1. WRAP ALL INDOOR SUPPLY, RETURN, OUTSIDE AIR DUCT AND EXHAUST DUCT WITH THICK INSULATION WITH A THERMAL MIN. R-6 VALUE PER SPECIFICATIONS. THIS APPLIES TO CONCEALED DUCTWORK.
   2. COVER ALL OUTDOOR SUPPLY AND RETURN DUCTS WITH 2" THICK RIGID BOARD INSULATION WITH A THERMAL MIN. R-8 VALUE PER SPECIFICATIONS. ALL OUTDOOR DUCTS SHALL HAVE ALL JOINTS AND SEAMS SEALED LIQUID TIGHT WITH A RCD #8, UL-181 MASTIC OR EQUAL. ALL JOINTS AND SEAMS ON THE RIGID INSULATION BOARD SHALL BE SEALED LIQUID TIGHT USING RCD #8, UL-181 MASTIC OR EQUAL. THEN ALL RIGID BOARD SHALL BE PAINTED WITH A LIBERAL AMOUNT OF "KOOL-SEAL" ALUMINUM ROOF COATING #20-400 OR EQUAL.
   3. PROVID DOUBLE WALL DUCTWORK IN AREAS WHERE DUCT IS EXPOSED TO VIEW. PROVIDE DUCT INSULATION BETWEEN DUCT WALLS WITH MINIMUM R-VALUE OF 6. REFER TO SPECIFICATIONS.
D. PROVIDE FLEXIBLE CONNECTION AT DUCT ATTACHMENTS TO MECHANICAL EQUIPMENT.
E. HVAC EQUIPMENT SUMITTED OTHER THAN SCHEDULED MANUFACTURER'S SHALL NOT EXCEED PHYSICAL DIMENSIONS DUE TO SPACE LIMITATIONS.
F. ALL PIPING AND DUCTWORK PENETRATIONS OF FIRE-RATED BARRIERS SHALL BE PROTECTED WITH FIRE BLOCKING MATERIAL AND/OR DAMPERS PER SPECIFICATIONS.
G. MANUAL VOLUME DAMPERS INSTALLED IN RECTANGULAR DUCTWORK SHALL BE OPPOSED BLADE TYPE. MANUAL VOLUME DAMPERS INSTALLED IN ROUND DUCTWORK SHALL BE BUTTERFLY TYPE.
H. BALANCING DAMPERS IN EXTERNALLY INSULATED DUCTWORK SHALL BE PROVIDED WITH A BUILD-OUT ON DAMPER OPERATOR TO EXTEND OPERATOR HANDLE TO OUTSIDE OF INSULATION.
I. CONCEALED DUCTWORK TO HAVE OPERABLE QUADANTS ON BALANCING DAPERS.
J. PROVIDE ACCESS TO ALL CONTROL, MOTORIZED, BALANCING AND FIRE DAMPERS. PROVIDE ACCESS DOORS IN DUCTS AND CEILINGS WHERE NECESSARY.
K. DUCTWORK SHALL BE GALVANIZED G-90 SHEETMETAL FABRICATED TO SMACNA STANDARDS. DUCTWORK SHALL BE SHEET STEEL OF LOCK-FORMING QUALITY, ASTM-525. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL SEAMS AIR TIGHT WITH LOW PRESSURE DUCT SEALANT.
L. FLEXIBLE DUCTWORK SHALL BE EQUAL TO FLEXMASTER 8M WITH AN INSULATING R-VALUE OF 6 OR BETTER. FLEX DUCT SHALL NOT EXCEED 6 FT. IN LENGTH. DUCT RUNOUTS TO DIFFUSERS SHALL BE SAME SIZE AS DIFFUSER NECK.
M. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH 24 HOUR MEMORY BACKUP SIMILAR TO HONEYWELLS T7350M1008/U.

HVAC SYMBOLS AND ABBREVIATIONS

DUCTWORK:

- 20"ø — PRIMARY DUCT, ROUND
- 20/12 — PRIMARY DUCT, RECTANGULAR
- DUCT TRANSITION
- BRANCH TAP
- MANUAL VOLUME DAMPER (MVD)

LINE TYPES:

- NEW EQUIPMENT
- NEW PIPING OR DUCT
- EXISTING PIPING OR DUCT

- RETURN AIR
- FD — FIRE/SMOKE DAMPER
- CEILING DIFFUSER
- RETURN/EXHAUST AIR GRILLE

MISCELLANEOUS:

- TS HS — ZONE TEMP/HUMIDITY SENSOR
- T H — ZONE THERMOSTAT/HUMIDISTAT
- A 8"ø 200 CFM — AIR DEVICE TYPE, NECK SIZE, SCHEDULED CFM
- NEW CONNECTION TO LANDLORD'S BASE SYSTEM

NOTE: ALL SYMBOLS & ABBREVIATIONS MAY NOT APPLY TO THIS PROJECT

LEGEND

⊕	SQUARE
ø	ROUND
ACC.DR.	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
CFM	CUBIC FEET PER MINUTE
DB	DRY BULB
E/A	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE
FC	FLEXIBLE CONNECTION
FLA	FULL LOAD AMPS
FPI	FINS PER INCH
FT W.G.	FOOT WATER GAUGE
GA.	GAUGE
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
HVAC	HEATING VENTILATING & AIR CONDITIONING
IN W.G.	INCH WATER GAUGE
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MOCP	MAXIMUM OVER CURRENT PROTECTION
O/A	OUTSIDE AIR
PD	PRESSURE DROP
R/A	RETURN AIR
RLA	RUNNING LOAD AMPS
RPM	REVOLUTION PER MINUTE
S/A	SUPPLY AIR
SP	STATIC PRESSURE
SQ FT	SQUARE FEET
U.C.D.	UNDERCUT DOOR BY 1"
WB	WET BULB

FAN SCHEDULE

MARK	EF-(1-2)	EF-3
SERVES	RESTROOM	RESTROOM
DRIVE	DIRECT	DIRECT
CFM	50	80
E.S.P. IN W.G.	0.5	0.5
WATTS	30	30
FAN RPM	583	583
SONES (MAX.)	3.0	3.0
VOLTS/PHASE/HERTZ	115/1/60	115/1/60
MANUFACTURER	GREENHECK	GREENHECK
MODEL NUMBER	SP-B110ES	SP-B110ES
WEIGHT	10	10
NOTES	1, 2, 3	1, 2, 3

NOTE:
1. FAN SHALL BE DIRECT DRIVE WITH MOTOR MOUNTED SPEED CONTROL RELAY, PREWIRED INTEGRAL DISCONNECT SWITCH, AND BACKDRAFT DAMPER.
2. EXHAUST FAN SHALL BE CONTROLLED BY LIGHT SWITCH TO TURN ON WHEN RESTROOM LIGHT IS ON. COORDINATE WITH ELECTRICAL.
3. EQUIVALENT MANUFACTURES ARE COOK AND GREENHECK.

AIR DEVICE SCHEDULE

PLAN MARK	MANUF. & MODEL NUMBER	SERVICE	MODULE SIZE	NECK SIZE	FACE SIZE	BORDER TYPE	FINISH	BLOW PATTERN	MAT'L.	OPTIONS/NOTES
A	TITUS OMNI-AA	SUPPLY	24 X 24	8"ø	18 X 18	3	26	4	ALU	
B	TITUS OMNI-AA	SUPPLY	24 X 24	6"ø	18 X 18	3	26	4	ALU	
C	TITUS OMNI-AA	SUPPLY	12 X 12	6"ø	9 X 9	3	26	4	ALU	
D	TITUS 50 F	RETURN	24 X 12	6 X 6	20 X 10	3	26	-	ALU	½" X ½" X 1" CORE AG-15-AA
E	TITUS 50 F	RETURN	24 X 12	8 X 6	20 X 10	3	26	-	ALU	½" X ½" X 1" CORE AG-15-AA
F	TITUS 50 F	RETURN	24 X 12	10 X 10	20 X 10	3	26	-	ALU	½" X ½" X 1" CORE AG-15-AA
G	TITUS 50 F	RETURN	24 X 12	12 X 6	20 X 10	3	26	-	ALU	½" X ½" X 1" CORE AG-15-AA
H	TITUS 50 F	RETURN	24 X 12	18 X 10	20 X 10	3	26	-	ALU	½" X ½" X 1" CORE AG-15-AA
I	TITUS 350 FL	RETURN TRANSFER	10 X 8	8 X 6	7.25 X 5.25	1	26	-	ALU	AG-15-AA

BORDER TYPE
1. SURFACE MOUNT
2. SNAP-IN
3. LAY-IN
4. SPLINE
5. DROPPED
6. BEVELED

BLOW PATTERN
1. 1-WAY
2. 2-WAY
2O. 2-WAY, OPPOSITE
3. 3-WAY
4. 4-WAY+

FINISH
01 ALUMINUM
04 MILL (STD)
26 WHITE

MATERIAL
ST'L 22 GAUGE STEEL
ALU ALUMINUM

OPTIONS/NOTES

TRM	RAPID MOUNT FRAME
PFSS	SS PLASTER FRAME
PFA	ALUM PLASTER FRAME
AG-15	STEEL DAMPER
AG-15-AA	ALUMINUM DAMPER
AG-15-SS	STAINLESS STEEL DAMPER
EQT	EARTHQUAKE TABS
L	FRONT BLADE LONG ORIENTATION
S	FRONT BLADE SHORT ORIENTATION
AG-85	BUTTERFLY DAMPER
EG	EQUALIZING GRID
TRV	THROW REDUCING VANES

DX SPLIT AIR HANDLING UNIT SCHEDULE

MARK	AHU-1	AHU-2	AHU-3	
SERVES	BOARD ROOM	NORTH WEST AREA	WORK AREA	
TYPE	CV	CV	CV	
TONS	3	3	3.5	
SUPPLY (CFM)	1,375	1,300	1,900	
OUTSIDE AIR (CFM)	0	0	0	
EXT. SP. (IN. WG)	0.75	0.75	0.75	
PERCENT OUTSIDE AIR	0%	0%	0%	
FAN MOTOR HORSEPOWER				
FAN MOTOR TYPE	ECM	ECM	ECM	
FAN STYLE/CONFIGURATION	VERTICAL	VERTICAL	VERTICAL	
FAN MOTOR TYPE	DIRECT DRIVE	DIRECT DRIVE	DIRECT DRIVE	
COOLING COIL				
MAX. COIL FACE VEL. (FPM)	500	500	500	
EAT DB/WB (F)	78/64.5	73/59.4	73/58.7	
LAT DB/WB (F)	54.2/51.8	55/51.8	55/51.1	
TOTAL GRAND (MBTUH)	34.9	44	39.7	
TOTAL SENSIBLE (MBTUH)	27.7	36.7	33.7	
REHEAT COIL				
HEATING KW	7.4	7.0	10.2	
HEATING BTUH	25245.0	23868.0	34884.0	
HEATING EAT DB (F)	68	68	68	
HEATING LAT DB (F)	85	85	85	
ELECTRICAL DATA				
VOLTS/PH/HZ	208/3/60	208/3/60	208/3/60	
MCA	5.63	5.6	5.63	
MOCP	15	10.1	15	
MANUFACTURE	MTSUBISHI/TRANE	MITSUBISHI/TRANE	MTSUBISHI/TRANE	
MODEL No.	TPVFYP054AM141A	TPVA0A0421AA70A	TPVFYP054AM141A	
NOTES:	1,2,3,5,6,7,8	1,2,3,5,6,7,8	1,2,3,5,6,7,8	

NOTES:
1. PROVIDE 2" PLEATED 30% EFFICIENT MERV 8 FILTERS FOR THE AHU WITH 80-85% EFFICIENCY.
2. PROVIDE SLIDE OUT FILTER FRAME ON RETURN INLET OF AIR HANDLER.
3. PROVIDE WITH SINGLE POINT OF ELECTRICAL CONNECTION FOR EACH UNIT. THE UNITS SHALL BE CONSTANT VOLUME.
4. PROVIDE 24" TALL STAND/PLENUM BASE FOR HORIZONTAL UNITS.
5. PROVIDE RUBBER IN SHEAR ISOLATORS FOR SUSPENDED AIR HANDLER.
6. PROVIDE SECONDARY DRAIN PAN WITH EMERGENCY FLOAT SWITCH. INTERLOCK FLOAT SWITCH WITH UNIT SAFETIES.
7. PROVIDE ALL SENSORS, ACCESSORIES, CONTROL POINTS, AND INTERLOCKS FOR THE AHUS AND THEIR RESPECTIVE ACCUS TO BE PROPERLY OPERATED AND STAGED BY THE DDC SYSTEM. COORDINATE ALL THE REQUIRED CONTROLS WITH THE EQUIPMENT TYPE, CONFIGURATION, NUMBER OF DX STAGES, REFRIGERATION CIRCUITS, CONTROLS SEQUENCES AND SPECIFICATIONS. ALL CONTROLS SHALL BE COMPATIBLE WITH THE DISTRICT STANDARDS.
8. INSTALL ALL UNITS AS PER THE MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS. PROVIDE THE MANUFACTURERS MINIMUM CLEARANCES FOR OPERATION AND SERVICE OF THE UNIT. COORDINATE THE INSTALLATION OF THE UNIT WITH ALL OTHER DISCIPLINES, DUCTWORK, STRUCTURE, ELECTRICAL, AND ALL OTHER OBSTRUCTION PRIOR TO INSTALLATION OF THE UNIT, ITS EQUIPMENT PAD, AND ALL ACCESSORIES.
9. MECHANICAL SPACES HAVE BEEN DESIGNED AROUND THE SPECIFIED MANUFACTURER. ALTERNATE MANUFACTURERS EQUIPMENT SHALL NOT EXCEED THE SPECIFIED MANUFACTURES PHYSICAL DIMENSIONS AND WEIGHTS.

DOA CONDENSING UNIT SCHEDULE

MARK	DOACU-1		
SERVES	DOAAHU-1		
NOMINAL TONNAGE	7.5		
VOLTS/PH/HZ	208/3/60		
MCA	38		
MOCP	60		
MFG	TRANE		
MODEL No.	TTA09043		
NOTES:	ALL		

NOTES:
1. PROVIDE SYSTEM WITH 1 YEAR PARTS, LABOR AND REFRIGERANT WARRANTY.
2. SIZE REFRIGERANT LINES PER MANUFACTURES RECOMMENDATIONS. PROVIDE HIGH AND LOW PRESSURE SWITCHES, LIQUID LINE FILTER DRIER, CRANKCASE HEATERS AND NON-BLEED PORT, ADJUSTABLE EXPANSION VALVE. PROVIDE LIQUID LINE SIGHT GLASS AND PRESSURE TAPS ON INLET AND OUTLET OF INDOOR COILS.
3. PROVIDE WITH HAIL GUARDS AND FACTORY APPLIED ENERGY GUARD COIL COATING.

DX MINISPLIT UNIT SCHEDULE

AIR HANDLER SCHEDULE

MARK	AHU-1&2		
SERVES	IT ROOM		
TYPE	WALL MOUNTED		
MIN-MAX SUPPLY (CFM)	265-455		
FAN MOTOR TYPE	DC MOTOR		
COOLING COIL (MBTUH) MAX/MIN	12/4.4		
NOMINAL TONNAGE	1		
VOLTS/PH/HZ	230/1/60		
MCA	1		
MANUFACTURER	MITSUBISHI		
MODEL NO.	PKA-A12LA		
NOTES	1,2,3,4,5,6		

CONDENSING UNIT SCHEDULE

MARK	CU-1&2		
SERVES	AHU-1&2		
NOMINAL TONNAGE	1		
SEER	21		
MCA	11		
MOCP	28		
VOLTS/PH.HZ	230/1/60		
MANUFACTURER	MITSUBISHI		
MODEL NO.	PUY-A12NKA7-BS		
NOTES	2,3,6		

1. PROVIDE UNIT WITH MICROBLUE OR MEGABLUE CONDENSATE PUMP AND RESERVOIR WITH OVERFLOW SENSOR.
2. SIZE REFRIGERANT LINES AS PER THE MANUFACTURERS INSTRUCTIONS. PROVIDE INVERTER DRIVEN COMPRESSORS, HIGH AND LOW PRESSURE SWITCHES, CRANKCASE HEATERS, NON-BLEED PORT, AND ADJUSTABLE EXPANSION VALVE. PROVIDE PRESSURE TAPS ON INLET AND OUTLET OF INDOOR COILS. PROVIDE SUCTION ACCUMULATORS ON ALL UNITS.
3. DO NOT EXCEED MANUFACTURES RECOMMENDED REFRIGERENT LINE LENGTHS.
4. PROVIDE WIRED THERMOSTAT WITH WIFI CAPABILITIES.
5. UNIT SHALL BE WALL MOUNTED COOLING ONLY UNIT.
6. ACCEPTABLE MANUFACTURES ARE MITSUBISHI OR DAIKIN.

DX SPLIT AIR HANDLING UNIT SCHEDULE

MARK	AHU-1	AHU-2	AHU-3		
SERVES	BOARD ROOM	NORTH WEST AREA	WORK AREA		
TYPE	CV	CV	CV		
TONS	3	3	3.5		
SUPPLY (CFM)	1,375	1,300	1,900		
OUTSIDE AIR (CFM)	0	0	0		
EXT. SP. (IN. WG)	0.75	0.75	0.75		
PERCENT OUTSIDE AIR	0%	0%	0%		
FAN MOTOR HORSEPOWER					
FAN MOTOR TYPE	ECM	ECM	ECM		
FAN STYLE/CONFIGURATION	VERTICAL	VERTICAL	VERTICAL		
FAN MOTOR TYPE	DIRECT DRIVE	DIRECT DRIVE	DIRECT DRIVE		
COOLING COIL					
MAX. COIL FACE VEL. (FPM)	500	500	500		
EAT DB/WB (F)	78/64.5	73/59.4	73/58.7		
LAT DB/WB (F)	54.2/51.8	55/51.8	55/51.1		
TOTAL GRAND (MBTUH)	34.9	44	39.7		
TOTAL SENSIBLE (MBTUH)	27.7	36.7	33.7		
REHEAT COIL					
HEATING KW	7.4	7.0	10.2		
HEATING BTUH	25245.0	23868.0	34884.0		
HEATING EAT DB (F)	68	68	68		
HEATING LAT DB (F)	85	85	85		
ELECTRICAL DATA					
VOLTS/PH/HZ	208/3/60	208/3/60	208/3/60		
MCA	5.63	5.6	5.63		
MOCP	15	10.1	15		
MANUFACTURE	MTSUBISHI/TRANE	MITSUBISHI/TRANE	MTSUBISHI/TRANE		
MODEL No.	TPVFYP054AM141A	TPVA0A0421AA70A	TPVFYP054AM141A		
NOTES:	1,2,3,5,6,7,8	1,2,3,5,6,7,8	1,2,3,5,6,7,8		

NOTES:
1. PROVIDE 2" PLEATED 30% EFFICIENT MERV 8 FILTERS FOR THE AHU WITH 80-85% EFFICIENCY.
2. PROVIDE SLIDE OUT FILTER FRAME ON RETURN INLET OF AIR HANDLER.
3. PROVIDE WITH SINGLE POINT OF ELECTRICAL CONNECTION FOR EACH UNIT. THE UNITS SHALL BE CONSTANT VOLUME.
4. PROVIDE 24" TALL STAND/PLENUM BASE FOR HORIZONTAL UNITS.
5. PROVIDE RUBBER IN SHEAR ISOLATORS FOR SUSPENDED AIR HANDLER.
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8. INSTALL ALL UNITS AS PER THE MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS. PROVIDE THE MANUFACTURERS MINIMUM CLEARANCES FOR OPERATION AND SERVICE OF THE UNIT. COORDINATE THE INSTALLATION OF THE UNIT WITH ALL OTHER DISCIPLINES, DUCTWORK, STRUCTURE, ELECTRICAL, AND ALL OTHER OBSTRUCTION PRIOR TO INSTALLATION OF THE UNIT, ITS EQUIPMENT PAD, AND ALL ACCESSORIES.
9. MECHANICAL SPACES HAVE BEEN DESIGNED AROUND THE SPECIFIED MANUFACTURER. ALTERNATE MANUFACTURERS EQUIPMENT SHALL NOT EXCEED THE SPECIFIED MANUFACTURES PHYSICAL DIMENSIONS AND WEIGHTS.

CONDENSING UNIT SCHEDULE

MARK	HRCU-1					
SERVES	AHU (1-3)					
TOT MBTUH	154					
AMBIENT TEMP.	105					
COOLING STAGES	3					
SEER (EER)	11					
IEER	24					
VOLTS/PH	208/3					
MCA	61					
MOCP	100					
MFG	TRANE/MITSUBISHI					
MODEL No.	TURYP168JAN40AN					
NOTES:	1,2,3					

NOTES:
1. PROVIDE COMPRESSOR WITH 5 YEAR WARRANTY.
2. PROVIDE RAWAL "APR" HOT GAS BYPASS CONTROL DEVICE TO PROVIDE MODULATING CAPACITY CONTROL.
3. SIZE REFRIGERANT LINES PER MANUFACTURES RECOMMENDATIONS. PROVIDE HIGH AND LOW PRESSURE SWITCHES, LIQUID LINE FILTER DRIER, CRANKCASE HEATERS AND NON-BLEED PORT, ADJUSTABLE TXV VALVE. PROVIDE LIQUID LINE SIGHT GLASS AND PRESSURE TAPS ON INLET AND OUTLET OF INDOOR COILS.

PROGRESS SET

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SUITE 175
SAN ANTONIO, TEXAS 78216
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FAX: (210) 366-0847

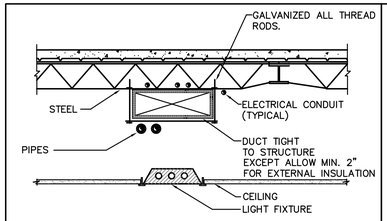
MAXWELL SUD
OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202210
DATE: APRIL 2023

MECHANICAL SCHEDULES

M2.1

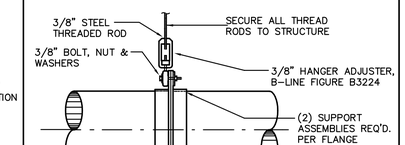
DRG REFERENCE



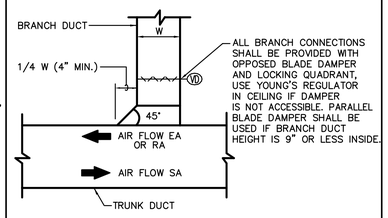
NOTES:

1. PIPES AND ELECTRICAL CONDUIT CAN BE ROUTED BETWEEN JOISTS OR THROUGH JOIST WEB SPACE AS REQUIRED. 2– DUCT SHALL BE LOCATED AS HIGH AS POSSIBLE.
2. U.L. DESIGN ASSEMBLY NUMBERS ARE SHOWN ON ARCHITECTURAL PLANS WHEN REQUIRED.
3. INSTALLATION OF ALL SERVICES MUST BE COORDINATED BY THE CONTRACTOR.

1 TYP. MEP INSTALLATION DETAIL
NOT TO SCALE — MAGD101.DWG

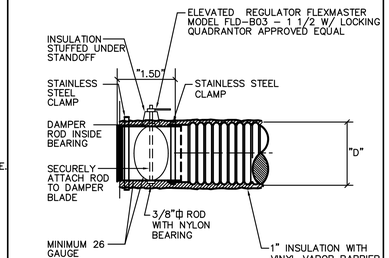


2 OVAL OR ROUND DUCT HANGER
NOT TO SCALE — MAGD103.DWG



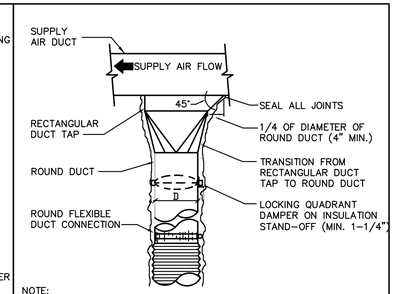
NOTE: THIS CONNECTION SHALL BE TYPICAL FOR ALL RECTANGULAR BRANCH DUCT CONNECTIONS TO RECTANGULAR TRUNK DUCTS, INCLUDING SUPPLY, RETURN, OUTSIDE AIR AND EXHAUST DUCTS.

3 RECTANGULAR BRANCH DUCT TAP
NOT TO SCALE — MAGD300.DWG



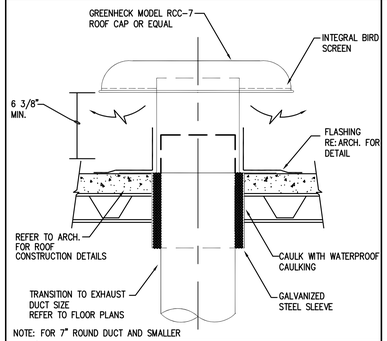
NOTE: 1. ALL FLEXIBLE DUCT OFFSETS AND BENDS SHALL MAINTAIN A RADIUS OF 1.5 X ("D") MINIMUM 3'–0" AND MAXIMUM 6'–0"
2. TYPICAL OF ROUND DUCT CONNECTIONS TO RECTANGULAR DUCTS

4 SPIN-IN DETAIL
NOT TO SCALE — MAGD301.DWG



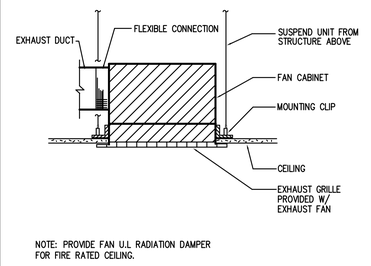
NOTE:
SEE FLOOR PLAN FOR SIZES

5 RECTANGLUAR TAP TO ROUND TRANSITION
NOT TO SCALE — MAGD302.DWG



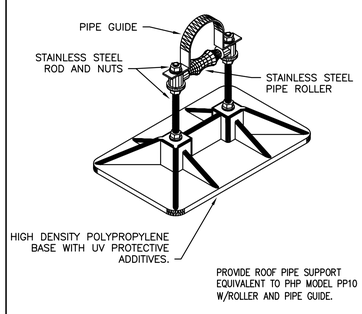
NOTE: FOR 7" ROUND DUCT AND SMALLER

6 CEILING EXHAUST ROOF CAP
NOT TO SCALE — MADT100.DWG



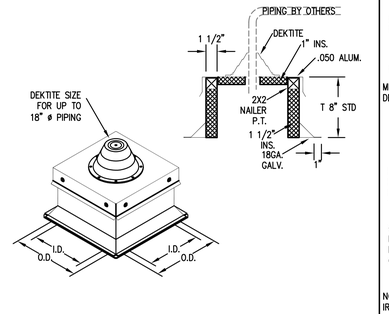
NOTE: PROVIDE FAN U.L RADIATION DAMPER FOR FIRE RATED CEILING.

7 CEILING MOUNTED EXHAUST FAN
NOT TO SCALE — MEFA300.DWG

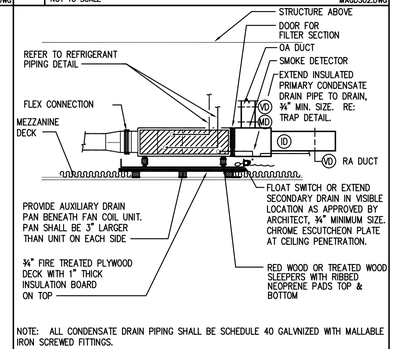


PROVIDE ROOF PIPE SUPPORT EQUIVALENT TO PHP MODEL PP10 W/ROLLER AND PIPE GUIDE.

8 PIPING SUPPORT DETAIL
NOT TO SCALE

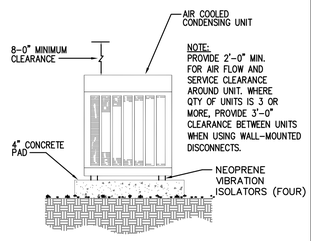


9 PIPE CURB AND COVER
NOT TO SCALE — PPCP108



NOTE: ALL CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 GALVNIZED WITH MALLABLE IRON SCREWED FITTINGS.

10 FAN COIL UNIT MOUNTING (DX)
NOT TO SCALE — MEFC200.DWG



NOTE:
CLEARANCE AROUND UNIT FOR AIR FLOW AND SERVICE PER MANUFACTURER INSTALLATION INSTRUCTION.

11 CONDENSING UNIT MOUNTING ON GRADE
NOT TO SCALE — MECU100.DWG

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FAX: (210) 366–0847

MAXWELL SUD
OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202210
DATE: APRIL 2023

MECHANICAL DETAILS

M3.1

DRG REFERENCE

PROGRESS SET

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22127

N

1 ELECTRICAL LIGHTING PLAN
SCALE: 1/4" = 1' - 0"

4' 2' 0 4'
SCALE: 1/4" = 1' -0"

GENERAL NOTES:

A. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE JOB SITE BEFORE COMMENCING ANY PHASE OF THE WORK. ADJUSTMENTS FOR FIT AND COORDINATION SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER. NOTIFY ENGINEER OF ANY CONFLICTS, DISCREPANCIES OR OMISSIONS PRIOR TO COMMENCEMENT OF THE CONTRACT WORK.

B. CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL, CIVIL, MECHANICAL & STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS.

C. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES.

D. ALL CONDUIT SHALL BE AS STRAIGHT AS POSSIBLE AND PARALLEL OR PERPENDICULAR TO BUILDING LINES.

E. ALL WORK SHALL COMPLY WITH CURRENTLY ADOPTED VERSION OF NATIONAL ELECTRICAL CODE.

F. SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS WITH UL LISTED FIRE SEALANT.

G. ALL CONDUIT SHALL BE ROUTED CONCEALED WITHIN WALLS AND/OR ABOVE CEILINGS. WHERE APPLICABLE

H. REFER TO DETAIL #XX/SHEET EXXX FOR EXACT MOUNTING HEIGHTS OF ALL DEVICES.

LIGHTING PLANS KEY NOTES:

1 EXHAUST FAN AND RESTROOM LIGHTING SHALL BE CONTROLLED BY RESTROOM SENSOR SWITCH (SWITCH SHALL BE AUTOMATIC ON/OFF).

2 EXHAUST FAN AND RESTROOM LIGHTING SHALL BE CONTROLLED BY RESTROOM CEILING SENSOR.

3 WALL SENSOR SWITCH TO BE PROGRAMMED TO BE AUTOMATIC ON/OFF FUNCTION.

CIRCUIT EXIT SIGNS & EMERGENCY LIGHTS (IF APPLICABLE) TO UNSWITCHED SIDE OF LIGHTING CIRCUIT SERVING AREA IN WHICH LOCATED, TYPICAL. ALL EMERGENCY BATTERY PACKS SHALL BE CIRCUITED TO UNSWITCHED SIDE OF CIRCUIT INDICATED.

OCCUPANCY SENSOR SCHEDULE
(SOME MAY NOT BE USED)

P_{2P}	SENSORSWITCH POWER PACK #PP20 2P
P_{P}	SENSORSWITCH POWER PACK #PP20
S_{OC}	SENSORSWITCH #WSXA-SA-CBA
S_{OC2}	SENSORSWITCH #WSXA-PDT-D-SA-CBA
S_{OCF}	SENSORSWITCH #WSX-PDT-2P-FAN-CBA
S_{D}	0-10V DIMMER SWITCH
S_{P}	SENSORSWITCH #sPODMA-SA-CBA
S_{P-D}	SENSORSWITCH #sPODMA-D-SA-CBA
S_{P2-D}	SENSORSWITCH #sPODMA-2P2SA-D-CBA
S_{P-3W}	SENSORSWITCH #sPODMA-SA-3X-CBA
S_{P-3W-D}	SENSORSWITCH #sPODMA-D-SA-3X-CBA
(1)	SENSORSWITCH #CM9
(2)	SENSORSWITCH #CM9-PDT
(3)	SENSORSWITCH #WV-PDT-16-WVBR
(4)	SENSORSWITCH #HWR13-WH
(5)	SENSORSWITCH #CM10
(6)	SENSORSWITCH #CM10-PDT

WHERE MULTIPLE OCCUPANCY SENSORS ARE INDICATED CIRCUITED TOGETHER TO ONE POWER PACK OR SET OF POWER PACKS. ACTIVATION OF ANY ONE SENSOR SHALL ENERGIZE POWER PACK (CLOSE RELAY).
"CBA" = STANDARD COLOR BY ARCHITECT

SENSOR LAYOUT IS BASED ON ACUITY COVERAGE PATTERNS. ADJUST QUANTITIES AND LOCATIONS FOR APPROVED SUBSTITUTION.

ALL SENSORS SHALL BE LINE VOLTAGE, WITH PROVIDED HOT, NEUTRAL AND GROUND CONDUCTORS AS REQUIRED. PROVIDE COPIES OF SENSOR OPERATION INSTRUCTIONS TO OWNER.

SET TIME DELAY TO 20-30 MINUTES FOR ALL OCCUPANCY SENSORS. SINGLE RELAY WALL SWITCH AND CEILING MOUNTED SENSORS TO BE SET TO MANUAL ON, AUTO OFF. REST ROOMS AND CORRIDORS SET THE SENSORS TO AUTO ON/AUTO OFF. DUAL RELAY WALL SWITCH SHALL BE SET TO MANUAL ON MODE RELAY 1, AUTO ON RELAY 2.

TIME BASED LIGHTING CONTROL SHALL BE ACCOMPLISHED BY USE OF AN ARP DIGITAL RELAY PANEL OR EQUIVALENT.

PROVIDE DIGITAL OUTDOOR PHOTOSENSOR, INSTALLED PER DETAIL#X ON SHEET XXXXX. CONNECT PHOTOCELL TO RELAY PANEL PER MANUFACTURERS INSTRUCTIONS. EXTERIOR LIGHTS SHALL BE TURNED ON BY PHOTOCELL, AND TURNED OFF BY TIME CLOCK. EXTERIOR SECURITY LIGHTS SHALL BE CONTROLLED BY PHOTOCELL ONLY. SEE LIGHTING CONTROLS WIRING DIAGRAM. SEE LIGHTING CONTROL SCHEDULE FOR ON/OFF SCHEDULE.

VERIFY TIME SETTINGS WITH OWNER REPRESENTATIVE. PROVIDE COPY OF OPERATING INSTRUCTIONS TO OWNER. PROVIDE COPY INSIDE RELAY PANEL.

PROGRESS SET

THIS DOCUMENT IS RELEASED FOR THE PURPOSES OF INTERIM REVIEW UNDER THE AUTHORITY OF JOHN A. RODRIGUEZ III P.E. NO. 90273 IT IS NOT TO BE USED FOR BIDDING OR CONSTRUCTION PURPOSES. April 27 2023

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MAXWELL SUD OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202210
DATE: APRIL 2023

ELECTRICAL LIGHTING PLAN

E1.1

DRG REFERENCE

Apr 27, 2023 - 5:09pm
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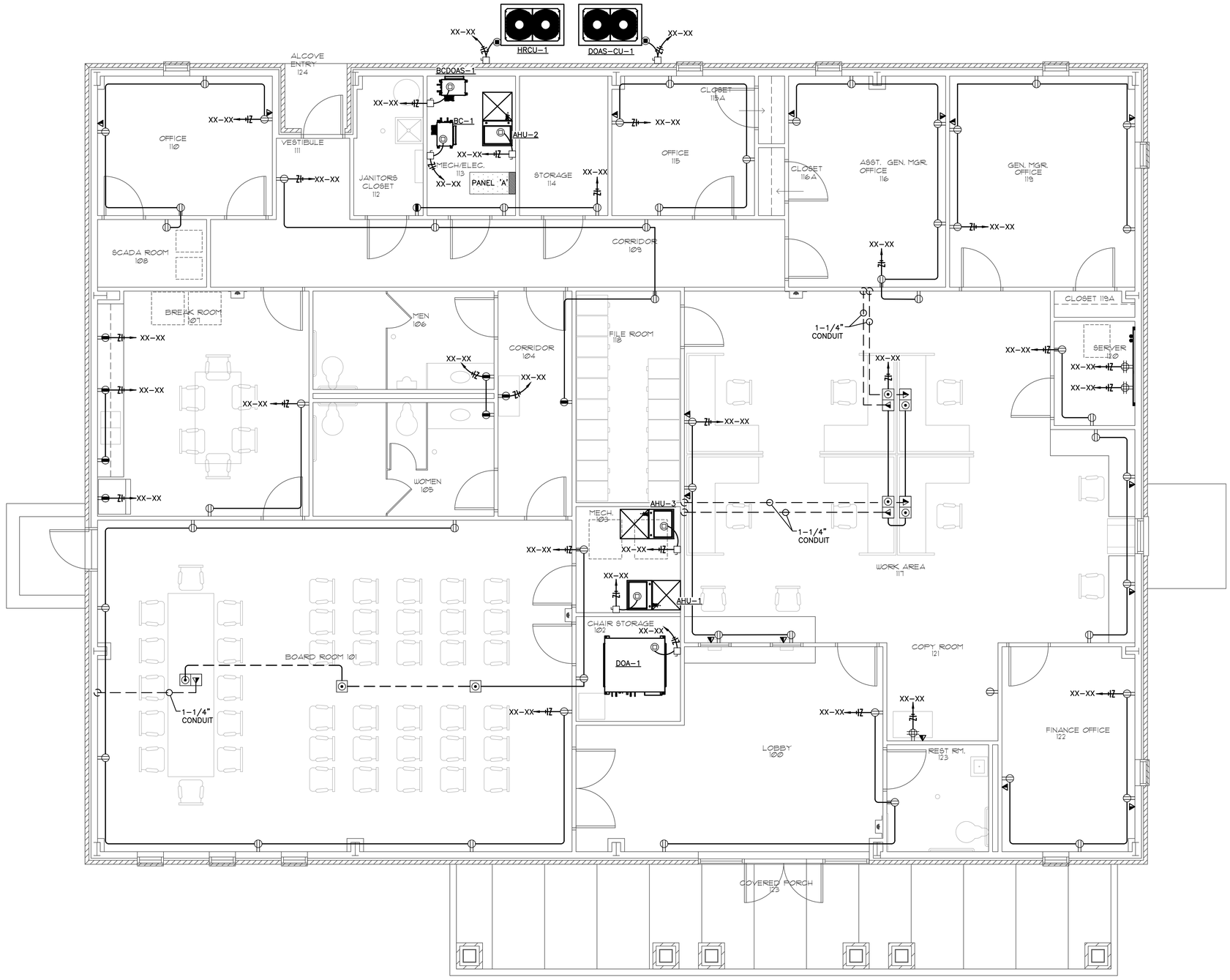

N

1 ELECTRICAL POWER PLAN

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

4' 2' 0 4'

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

GENERAL NOTES:

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D. ALL CONDUIT SHALL BE AS STRAIGHT AS POSSIBLE AND PARALLEL OR PERPENDICULAR TO BUILDING LINES.

E. ALL WORK SHALL COMPLY WITH CURRENTLY ADOPTED VERSION OF NATIONAL ELECTRICAL CODE.

F. SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS WITH UL LISTED FIRE SEALANT.

G. ALL CONDUIT SHALL BE ROUTED CONCEALED WITHIN WALLS AND/OR ABOVE CEILINGS. WHERE APPLICABLE

H. REFER TO DETAIL #XX/SHEET EXXX FOR EXACT MOUNTING HEIGHTS OF ALL DEVICES.

POWER KEY NOTES:

1. PROVIDE 30A/2P/NF/NEMA-1 DISCONNECT SWITCH.
2. PROVIDE 100A/3P/NF/NEMA-3R DISCONNECT SWITCH.

RECEPTACLES WITHIN THE BUSINESS OFFICES, AND CORRIDORS SHALL BE TAMPER-RESISTANT PER NEC 406.12

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MAXWELL SUD OFFICE BUILDING

MAXWELL, TEXAS

PROJECT NO: 202210

DATE: APRIL 2023

ELECTRICAL POWER PLAN

E2.1

DRG REFERENCE

PROGRESS SET

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ELECTRICAL LEGEND

NOTE: NOT ALL SYMBOLS MAY APPLY TO THIS JOB!

SYMBOL	DESCRIPTION
B-2	HOMERUN TO CIRCUIT AND PANEL INDICATED
	NEUTRAL CONDUCTOR
	HOT CONDUCTOR
	GROUNDING CONDUCTOR
	TRAVELER
	SWITCH LEG
$	TOGGLE SWITCH – 120/277V, 20A
$3	THREEWAY SWITCH – 120/277V, 20A
$4	FOURWAY SWITCH – 120/277V, 20A
$D	DIMMER SWITCH – REFER TO LTG CONTROL FOR ADDITIONAL INFORMATION
$K	KEY SWITCH – 120/277V, 20A
$M	MOTOR RATED SWITCH
	REFER TO LIGHTING PLAN FOR ADDITIONAL LOW VOLTAGE LIGHTING CONTROLS SYMBOLS
	DUPLEX RECEPTACLE – 125V,20A,1P
	SPLIT-CIRCUIT DUPLEX RECEPTACLE 125V,20A,1P
	GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE 125V,20A,1P
	ISOLATED GROUND RECEPTACLE – 125V,20A,1P
	SINGLE RECEPTACLE – 250V, AMPS PER PANEL SCHEDULE
	QUADRAPLEX RECEPTACLE – 125V,20A,1P
	ISOLATED GROUND QUADRAPLEX RECEPTACLE – 125V,20A,1P
	SINGLE RECEPTACLE – 125V,20A,1P
	DUPLEX RECEPTACLE – 125V,20A,1P (FLOOR MOUNTED)
J	JUNCTION BOX, SIZED PER N.E.C.
	COMBO RECEPT. & USB CHARGING DEVICE HUBBELL #USB20AC5
	TELEPHONE OUTLET BOX WITH CONDUIT TO ACCESSIBLE LOCATION ABOVE CEILING
	DATA/TELEPHONE OUTLET BOX WITH CONDUIT TO ACCESSIBLE LOCATION ABOVE CEILING
	DATA OUTLET BOX WITH CONDUIT TO ACCESSIBLE LOCATION ABOVE CEILING
TV	TELEVISION OUTLET BOX WITH CONDUIT TO ACCESSIBLE LOCATION ABOVE CEILING
S	SPEAKER
	PUSHBUTTON
HB	HOLD UP BUTTON
AC	ABOVE COUNTER
WP	WEATHER PROOF
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
E.C.	ELECTRICAL CONTRACTOR
NL	NIGHT LIGHT – ON 24 HOURS
RCP	CIRCULATION PUMP
	120V, 1P EQUIPMENT CONNECTION
	240V, 1P EQUIPMENT CONNECTION
	240V, 3P EQUIPMENT CONNECTION
	208V, 1P EQUIPMENT CONNECTION
	208V, 3P EQUIPMENT CONNECTION
	277V, 1P EQUIPMENT CONNECTION
	480V, 3P EQUIPMENT CONNECTION
	480V, 1P EQUIPMENT CONNECTION
	DISCONNECT SWITCH – SIZE AND POLE AS NOTED
	COMBINATION STARTER/DISCONNECT SWITCH
	STARTER
M	MANUAL MOTOR STARTER
	PANELBOARD AS SPECIFIED
	EXHAUST FAN
SEC	SECURITY PANEL
PA	GENERAL PAGING SYSTEM
	FIRE ALARM AUDIO HORN
F	FIRE ALARM PULL STATION
F	FIRE ALARM AUDIO/VISUAL SIGNAL
M	MOTION DETECTOR
V	FIRE ALARM ADA VISUAL SIGNAL
R	FIRE ALARM SHUT DOWN RELAY
S	SMOKE DETECTOR
H	HEAT DETECTOR
SD	DUCT MTD. SMOKE DETECTOR
DC	DOOR CONTACTOR ROUGH-IN WITH CONDUIT TO ACCESSIBLE LOCATIONS ABOVE CEILING.
KP	KEY PAD
AAN	FIRE ALARM ANNUCIATOR
FACP	FIRE ALARM CONTROL PANEL
	CAMERA
FS	FLOW SWITCH
TS	TAMPER SWITCH
PB	PUSH-TO-EXIT BUTTON
A	ANSUL SUPPRESSION SYSTEM
DR	FIRE ALARM DOOR RELEASE
KP	KEYPAD (ROUGH-IN W/CONDUIT TO ACCESSIBLE LOCATIONS ABOVE CEILING)
CR	CARD READER (ROUGH-IN W/CONDUIT TO ACCESSIBLE LOCATIONS ABOVE CEILING)
ES	ELECTRONIC STRIKE (ACCESS CONTROL)
MAG	MAGNETIC LOCK (ACCESS CONTROL)

ELECTRICAL SYSTEM SECTION 16000

THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND DISMANTLING OF TEMPORARY POWER USED FOR CONSTRUCTION AND ALL COSTS INCURRED AS A RESULT OF THIS WORK. COORDINATE ALL TEMPORARY ELECTRICAL SERVICE WORK WITH LOCAL UTILITY COMPANY PRIOR TO COMMENCING WORK.

WORK UNDER THIS CONTRACT INCLUDES MODIFICATIONS TO ANY EXISTING ELECTRICAL SYSTEM AND ALSO PROVIDING NEW MATERIALS, DEVICES, AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING ELECTRICAL SYSTEM. THE WORK ALSO INCLUDES FINAL CONNECTIONS TO FOOD SERVICE EQUIPMENT ITEMS PROVIDED BY OTHERS. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL CODES, ALL LOCAL APPLICABLE ORDINANCES AND LAWS, AS WELL AS, SUBJECT TO INSPECTION.

THE INTENT OF THESE DRAWINGS ARE TO INDICATE THE GENERAL EXTENT OF WORK REQUIRED FOR THE PROJECT. THE DRAWINGS FOR ELECTRICAL WORK ARE DIAGRAMMATIC, SHOWING THE LOCATION, TYPE, DEVICES, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. PROVIDE ALL DEVICE ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE PROPER OPERATION OF ALL SYSTEMS AND THEIR ASSOCIATED EQUIPMENT AS INDICATED BY THE DESIGN ON THESE PLANS.

COORDINATE WITH THE WORK OF ALL OTHER SECTIONS. VERIFY ALL EXISTING CONDITIONS PRIOR TO BID. REFER TO ARCHITECTURAL PLANS, AS WELL AS, KITCHEN EQUIPMENT PLANS FOR ADDITIONAL INFORMATION REGARDING RELATED EQUIPMENT, CASEWORK, AND ELECTRICAL CONNECTIONS REQUIRED THEREIN.

COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, NFPA, OSHA, LIFE SAFETY CODES, AND ALL APPLICABLE LAWS IN EFFECT AT THE TIME OF THIS PROPOSAL. IN THE CASE OF CONFLICT, THEN THE STRICTER INTERPRETATION SHALL TAKE PRECEDENCE. ALL MATERIALS USED SHALL BE NEW AND SHALL CONFORM TO THE STANDARDS ESTABLISHED BY THE UNDERWRITER'S LABORATORIES INC.

VERIFY VOLTAGE DROPS, A.I.C. RATINGS FOR ALL EQUIPMENT CONNECTED, AND VERIFY SIZE OF ALL CIRCUIT BREAKERS, CONDUIT, ETC. PRIOR TO INSTALLATION.

ROOF PENETRATIONS SHALL COMPLY WITH SMACNA, NRCA STANDARDS, AS WELL AS, ALL REQUIREMENTS OF THE OWNER AND ROOF METHODS AND MATERIALS WARRANTY. SUB-CONTRACT ROOFING PENETRATION WORK TO AN ENTITY APPROVED FOR USE BY THE OWNER AND ROOF MANUFACTURER.

PANELBOARDS: SHALL BE AS MANUFACTURED BY SQUARE D, EATON, OR SIEMENS. ALL EQUIPMENT SHALL BE U.L. LISTED AND MEET OR EXCEED ALL OF THE LATEST APPLICABLE U.L. AND NEMA STANDARDS. BUSSING SHALL BE COPPER WITH SILVER PLATING. PROVIDE SOLID NEUTRAL BAR.
DISCONNECT SWITCHES: SHALL BE HEAVY-DUTY TYPE AS MANUFACTURED BY SQUARE D, EATON, OR SIEMENS. ALL EQUIPMENT SHALL BE U.L. LISTED AND MEET OR EXCEED ALL OF THE LATEST APPLICABLE U.L. AND NEMA STANDARDS. DO NOT MOUNT DISCONNECT SWITCHES TO ANY HVAC UNIT. LOCATION TO BE COORDINATED WITH MECHANICAL CONTRACTOR.

TRANSFORMERS: SHALL BE AS MANUFACTURED BY SQUARE D, EATON, OR SIEMENS. ALL EQUIPMENT SHALL BE U.L. LISTED AND MEET OR EXCEED ALL OF THE LATEST APPLICABLE U.L. AND NEMA STANDARDS.

CIRCUIT BREAKERS: THERMAL MAGNETIC TYPE, QUICK-MAKE, QUICK-BREAK, BOLT-ON TYPE OF SINGLE UNIT CONSTRUCTION. TWO AND THREE POLE BREAKERS SHALL BE SINGLE UNIT COMMON TRIP TYPE. BREAKERS USED AS A SWITCH FOR 120 VOLT LIGHTING CIRCUITS SHALL BE APPROVED FOR THAT USE AND MARKED "SWD". BREAKERS USED FOR PROTECTING HVAC EQUIPMENT SHALL BE RATED 'HACR'.

SURGE PROTECTION DEVICE (SPD): SPDS SHALL BE UL1449 4TH EDITION LISTED AND MANUFACTURED BY THOR SQUARE D, EATON OR SIEMENS. SPDs SHALL HAVE STANDARD 7-MODE PROTECTION AND SERVICE ENTRANCE & INTERMEDIATE DISTRIBUTION UNITS SHALL BE UL LABELED WITH 20kA I-NOMINAL. SURGE CURRENT CAPABILITY FOR SERVICE ENTRANCE DEVICES SHALL BE 300kA PER PHASE, 200kA PER PHASE FOR INTERMEDIATE DISTRIBUTION OR ROOF MOUNTED BRANCH PANELS, AND 100kA FOR BRANCH PANELS. SPDs SHALL BE EXTERNAL TO EQUIPMENT UNLESS NOTED OTHERWISE ON DRAWING.

CABINETS: SHALL BE ONE PIECE CODE GAGE GALVANIZED STEEL WITH MOUNTING STUDS, WIRING GUTTERS OF AMPLE SIZE AND KNOCKOUTS FOR CONDUIT CONNECTIONS AS REQUIRED. BUS BARS SHALL BE 98% CONDUCTIVE COPPER, ALUMINUM, OR COPPER-CLAD ALUMINUM. FRONTS SHALL BE ONE PIECE CODE GAGE FURNITURE STEEL WITH ADJUSTABLE FASTENERS. PROVIDE FLUSH MOUNT UNITS UNLESS OTHERWISE INDICATED. PROVIDE A PLASTIC COVERED TYPEWRITTEN SCHEDULE IDENTIFYING ALL BRANCH CIRCUITS INSIDE EACH CABINET.

GROUNDING SYSTEM: PERMANENTLY AND EFFECTIVELY GROUND ALL METALLIC CONDUIT, SUPPORTS, CABINETS, PANELBOARDS AND SYSTEM NEUTRAL CONDUCTORS. MAINTAIN CONTINUITY OF EQUIPMENT GROUND THROUGHOUT THE SYSTEM. GROUND CLAMPS SHALL BE APPROVED TYPE, SPECIFICALLY DESIGNED FOR GROUNDING. WHERE GROUNDING CONDUCTORS ARE ENCLOSED IN CONDUIT, GROUND CLAMPS SHALL BE OF A TYPE WHICH GROUND BOTH CONDUCTOR AND CONDUIT. ALL CIRCUITS IN FLEXIBLE METAL OR PLASTIC CONDUIT SHALL INCLUDE A GROUND WIRE SIZE IN ACCORDANCE WITH NEC TABLE 250.

CONDUIT: SHALL BE SIZED TO COMPLY WITH NEC FOR NUMBER AND SIZE OF CONDUCTORS INSTALLED, MINIMUM OF 24" BELOW GRADE. PROVIDE SCHEDULE 40 PVC PLASTIC OR RIGID STEEL CONDUIT BELOW GRADE, MINIMUM SIZE 3/4". PROVIDE RIGID STEEL ELBOWS WHEN UNDERGROUND CONDUIT PENETRATES THE FLOOR SLAB. PROVIDE ELECTRICAL METALLIC TUBING (EMT) MEETING FSW-C563, ARMOR CABLE, OR FLEXIBLE CONDUIT (IN LENGTHS 6' OR LESS) FOR INTERIOR LOCATIONS. EMT CONNECTORS AND COUPLINGS 2" AND SMALLER SHALL BE COMPRESSION TYPE. CLAMP CONDUIT TO BOXES WITH BUSSING INSIDE AND LOCKNUT OUTSIDE.

1. RIGID STEEL CONDUIT: ANSI C80.1
2. INTERMEDIATE STEEL CONDUIT: UL 1242
3. ELECTRICAL METALLIC TUBING AND FITTINGS: ANSI C80.3
4. FLEXIBLE METAL CONDUIT: ZINC COATED STEEL.
5. LIQUID-TIGHT FLEXIBLE METAL CONDUIT AND FITTINGS: UL 360. FITTINGS TO BE SPECIFICALLY APPROVED FOR USE WITH THIS RACEWAY.
6. MC CABLE IS APPROVED FOR INSTALLATION ONLY AT THE END OF A RIGID CONDUIT RUN AND IS ONLY TO ORIGINATE FROM AN APPROVED JUNCTION BOX AND FEED DIRECTLY DOWN TO DEVICE.

CONDUCTORS: INSULATED SOFT ANNEALED 98% PURE COPPER WITH COLOR CODING, B AND S GAGE, #12 TO BE SOLID OR STRANDED, #10 AND LARGER TO BE STRANDED, MINIMUM #12, UNLESS OTHERWISE INDICATED. ALL EQUIPMENT TO BE PROVIDED WITH CU/AL 75° DEGREE C. TERMINAL LUGS. CONDUCTORS WITH "THHN" INSULATION MAY NOT BE USED UNDERGROUND AT SERVICE ENTRANCES, OUTSIDE, OR IN WET LOCATIONS. ALL INSULATION TO BE RATED FOR 90° DEGREE C OR 600 VOLT AND TYPES AS FOLLOWS:

BRANCH CIRCUITS	THHN, THWN2
FEEDERS	THWN2
SERVICE ENTRANCE	THWN2, XHHW, XHHW2

DEVICES & COVERPLATES:
PUBLIC AREAS:
ALL DEVICES AND COVERPLATES SHALL BE STAINLESS STEEL. STANDARD DUPLEX RECEPTACLES SHALL BE GROUNDING TYPE, 20 AMP, NEMA 5-20R, SIDE OR BACK WIRED.

SINGLE RECEPTACLE: 15 AMP, 125 VOLT, 2-POLE, 3-WIRE, GROUNDING TYPE WITH NEMA CONFIGURATION 5-15R. HUBBELL #5251-#. (DEVICE COLOR IS DEPENDENT ON AREA OF BUILDING).

DUPLEX RECEPTACLE: 20 AMP, 125 VOLT, 2-POLE, 3-WIRE, GROUNDING TYPE WITH NEMA CONFIGURATION 5-20R. HUBBELL #5342-#. (DEVICE COLOR IS DEPENDENT ON AREA OF BUILDING).

GROUND-FAULT INTERRUPTER RECEPTACLE: 20 AMP, 125 VOLT, 2-POLE, 3-WIRE, GROUNDING TYPE WITH NEMA CONFIGURATION 5-20R, FEED-THRU TYPE CAPABLE OF PROTECTING CONNECTED DOWNSTREAM RECEPTACLES. UL RATED CLASS A, GROUP 1, SOLID STATE GROUND-FAULT SENSING LEVEL WITH 5 ma GROUND-FAULT TRIP LEVEL. HUBBELL #1G5362#. (DEVICE COLOR IS DEPENDENT ON AREA OF BUILDING).

WEATHERPROOF RECEPTACLE: SHALL BE A GROUND-FAULT INTERRUPTER WITH STAINLESS STEEL, GASKETED LIDS AND PLATE. PLATE TO CONSIST OF TWO SPRING LOADED LIDS HINGED AT TOP.

PLUG FILLERS: PROVIDE FLUSH RECEPTACLE COVERS AT ALL DUPLEX RECEPTACLES IN PUBLIC AREAS. COLOR OF FILLERS TO MATCH COLOR OF RECEPTACLE AND COVERPLATE.

LIGHTING FIXTURES: ALL LIGHTING FIXTURES AND ASSOCIATED LAMPS AND BALLASTS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

LAYOUT BRANCH CIRCUIT WIRING AND ARRANGE HOMERUNS FOR MAXIMUM ECONOMY AND EFFICIENCY. INCREASE WIRE AND CONDUIT SIZE ACCORDINGLY IF VOLTAGE DROP EXCEEDS 3% OR LENGTH OF RUN EXCEEDS 100 FEET.

CONCEAL WIRING SYSTEM ABOVE SUSPENDED CEILINGS OR IN WALL OR FLOOR CONSTRUCTION WHERE POSSIBLE. INSTALL CONDUIT PARALLEL OR PERPENDICULAR TO ALL BUILDING LINES, SUCH THAT ALL OPENINGS, DEPRESSIONS, PIPES, DUCTS, STRUCTURE, ETC. ARE AVOIDED.

INSTALL CONDUIT CONTINUOUS BETWEEN BOXES AND CABINETS WITH NO MORE THAN FOUR (4) 90° DEGREE BENDS. SECURELY FASTEN IN PLACE WITH STRAPS, HANGERS AND STEEL SUPPORTS AS REQUIRED. DO NOT SUPPORT CONDUIT FROM SUSPENDED CEILING GRID OR SUSPENSION WIRES. REAM CONDUIT ENDS AND THOROUGHLY CLEAN BEFORE INSTALLATION. OPENINGS SHALL BE PLUGGED OR COVERED TO KEEP CONDUIT FREE OF DEBRIS. SWITCHES AND OUTLETS SHALL NOT BE USED TO "FEED THRU" TO THE NEXT SWITCH OR OUTLET. THE DISCONNECTION OR REMOVAL OF A RECEPTACLE, FIXTURE OR OTHER DEVICE FED FROM A BOX SHALL NOT INTERFERE WITH OR INTERRUPT THE CONDUCTOR CONTINUITY.

ADJUSTING AND TESTING: ALL ELECTRICAL EQUIPMENT SHALL BE ADJUSTED AND TESTED FOR PROPER OPERATION. COMPLETED WIRING SYSTEM SHALL BE FREE OF SHORT CIRCUITS.

TOUCH-UP OR REFINISH DAMAGED SURFACES OF FIXTURES AND EQUIPMENT, EXPOSED TO VIEW, TO PRESENT A "NEW" APPEARANCE.

ALL CONDUIT AND JUNCTION BOXES LOCATED WITHIN AN EXPOSED STRUCTURAL SYSTEM SHALL BE PAINTED TO MATCH THE COLOR OF THE STRUCTURE (COLOR TO BE VERIFIED WITH ARCHITECT).

ALL LAMPS, FIXTURES AND ASSOCIATED HOUSINGS, LENSES, AND LOUVERS SHALL BE CLEANED PRIOR TO OWNER ACCEPTANCE.

TOGGLE TYPE SWITCH: 20 AMP, 120/277 VOLT AC SINGLE-POLE, QUIET TYPE, WITH MOUNTING YOKE INSULATED FROM MECHANISM, EQUIPPED WITH PLASTER EARS, SIDE-WIRED SCREW TERMINALS. HUBBELL #HBL 1221i.
A. 2-POLE, 3-WAY & 4-WAY SWITCHES SHALL BE OF THE SAME MAKE AS FOR SINGLE-POLE.
PILOT TYPE TOGGLE SWITCH: INSTALL SWITCH DEVICE WITH 1/25 WATT NEON PILOT INTEGRAL WITH TOGGLE HANDLE, RATED 120/277 VOLT AC. PILOT LIGHT GLOWS IN THE "ON" POSITION. HUBBELL #HBL 1221PL.

ELECTRICAL EQUIPMENT IDENTIFICATION:
A. ENGRAVED PLASTIC-LAMINATE NAMEPLATES: SHALL BE ENGRAVING STOCK MELAMINE PLASTIC LAMINATE 1/16" THICK, 1-1/2" HIGH (2" HIGH FOR 2 LINES OF TEXT) WITH 1/2" HIGH ENGRAVER'S STYLE LETTERS. COLOR SHALL BE BLACK WITH WHITE LETTERING. NAMEPLATE SHALL BE PUNCHED FOR MECHANICAL FASTENING WITH SELF-TAPPING STAINLESS STEEL SCREWS, UNLESS ADHESIVE MOUNTING IS NECESSARY DUE TO SUBSTRATE MATERIAL.
B. UNDERGROUND-TYPE PLASTIC LINE MARKER: SHALL BE PERMANENT, BRIGHT COLORED, CONTINUOUS-PRINTED PLASTIC TAPE, INTENDED FOR DIRECT BURIAL SERVICE, NOT LESS THAN 6" WIDE x 4 MILS THICK. PROVIDE TAPE WITH WORDED PRINT WHICH MOST ACCURATELY DESCRIBES THE TYPE OF SERVICE FOR BURIED CABLE.
C. CABLE/CONDUCTOR IDENTIFICATION BANDS: SHALL BE VINYL-CLOTH, SELF-ADHESIVE, WRAP-AROUND TYPE MARKER; EITHER PRE-NUMBERED PLASTIC COATED TYPE OR WRITE-ON TYPE WITH CLEAR PLASTIC SELF-ADHESIVE COVER FLAP; NUMBERED TO SHOW CIRCUIT IDENTIFICATION.

GENERAL ROOF PLAN NOTES:

1. CONTRACTOR SHALL CAREFULLY REVIEW CONTRACT DOCUMENTS INCLUDING DRAWINGS AND PROJECT MANUAL. INFORMATION REGARDING WORK OF THE VARIOUS TRADES AND SUBCONTRACTORS ARE DISPERSED THROUGHOUT THE DOCUMENTS AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE FULL SET OF DOCUMENTS.
2. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES ABOVE THE CEILING TO PROVIDE GREATEST POSSIBLE CLEARANCE FOR INSTALLATION OF AND FUTURE CHANGES IN MECHANICAL EQUIPMENT. CONDUIT AND PIPE TO BE RUN THROUGH TRUSSES. COORDINATE SERVICE AND ACCESS POINTS ABOVE CEILING TO MINIMIZE REQUIRED ACCESS.
3. VERIFY EXACT LOCATION OF ALL HVAC EQUIPMENT WITH HVAC CONTRACTOR PRIOR TO COMMENCING ANY WORK.
4. ALL EQUIPMENT (RECEPTACLES, DISC. SWITCHES, ETC.) SHALL BE WEATHERPROOF.
5. ALL FUSES FOR HVAC UNITS SHALL BE SIZED AS REQUIRED BY MANUFACTURER'S NAMEPLATE ON EQUIPMENT. FUSES SHALL BE CURRENT LIMITING, TIME DELAY BUSSMAN FRN-R OR EQUAL BY GOULD SHAWMUT.
6. ALL CONDUIT SHALL BE RUN CONCEALED BELOW ROOF. PROVIDE WATERTIGHT PITCH POCKETS AS REQUIRED.
7. REFER TO HVAC DRAWINGS FOR ADDITIONAL ELECTRICAL REQUIREMENTS. PROVIDE ALL CONTROL CONDUIT AND WIRING AS REQUIRED FOR INTERLOCKING FANS, MOTORS, ETC. AS INDICATED ON THE HVAC DRAWINGS.
8. ALL DEVICES INSTALLED ON ROOF TOP EQUIPMENT SHALL BE MOUNTED ON A NON-REMOVABLE PANEL OF THE EQUIPMENT. THIS LOCATION SHALL BE COORDINATED WITH THE MECHANICAL OR PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
9. ROOF DECK PENETRATIONS: CONTRACTOR SHALL SECURE LANDLORD APPROVAL FOR ALL BUILDING ROOF DECK PENETRATIONS. REQUESTS SHALL BE ON A SCALED ROOF PLAN SHOWING EXACT LOCATION & SIZE OF PENETRATION & INCLUDE DETAILS OF MOUNTING, FLASHING & SEALING. CONTRACT WITH THE LANDLORD'S ROOFING CONTRACTOR TO PERFORM ALL WORK AT THIS CONTRACTOR'S SOLE EXPENSE. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL ROOFTOP EQUIPMENT, NEW ROOF PENETRATIONS, REMOVAL OF EXISTING ROOFTOP EQUIPMENT & INSTALLATION OF ALL ROOFTOP EQUIPMENT WITH THE LANDLORD.

LIGHTING CONTROL NARRATIVE:

- OCCUPANT SENSOR CONTROLS SHALL BE UTILIZED THROUGHOUT FOR INTERIOR LIGHTING CONTROL, EXCEPT IN AREAS FOR WHICH EXCEPTIONS APPLY.
- NO DAYLIGHT RESPONSIVE CONTROLS ARE REQUIRED DUE TO THE FACT THAT NO ZONE MEETS THE MINIMUM REQUIREMENT OF 150WATTS PER ZONE.
- EXTERIOR LIGHTING WILL BE CONTROLLED VIA TIME CLOCK AND PHOTOCELL.
- REDUCED LIGHTING POWER DENSITY (IECC C406.3) METHOD WILL BE UTILIZED TO SATISFY THE ADDITIONAL EFFICIENCY PACKAGE OPTION IN IECC C406.

LIGHTING SYSTEM CONTROLS FUNCTIONAL TESTING (IECC C408.3):

UNDER 2015 IECC, LIGHTING SYSTEM CONTROLS TESTING IS REQUIRED FOR ALL COMMERCIAL PROJECTS. A LETTER FROM THE THIRD PARTY REGISTERED DESIGN PROFESSIONAL OR COMMISSIONING AGENT THAT FOLLOWS THE REQUIREMENT IN C408.3.1 WILL FULFILL THIS REQUIREMENT. THIS INCLUDES IN PARTICULAR:

(A) OCCUPANT SENSOR CONTROLS, APPLICABLE FOR ALL PROJECTS C405.2.1
(B) TIME SWITCH CONTROLS, APPLICABLE FOR ALL PROJECTS C405.2.2
(C) DAYLIGHT RESPONSIVE CONTROLS, WHERE APPLICABLE C405.2.3
(D) SPECIFIC APPLICATION CONTROLS, WHERE APPLICABLE C405.2.4 (DISPLAY LIGHTING, ETC.)
(E) EXTERIOR LIGHTING CONTROLS, WHERE APPLICABLE C405.2.5

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MAXWELL SUD
OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202210
DATE: APRIL 2023

PROGRESS SET

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22127

SPECIFICATIONS

E4.1

DRG REFERENCE

Apr 27, 2023 - 5:09pm
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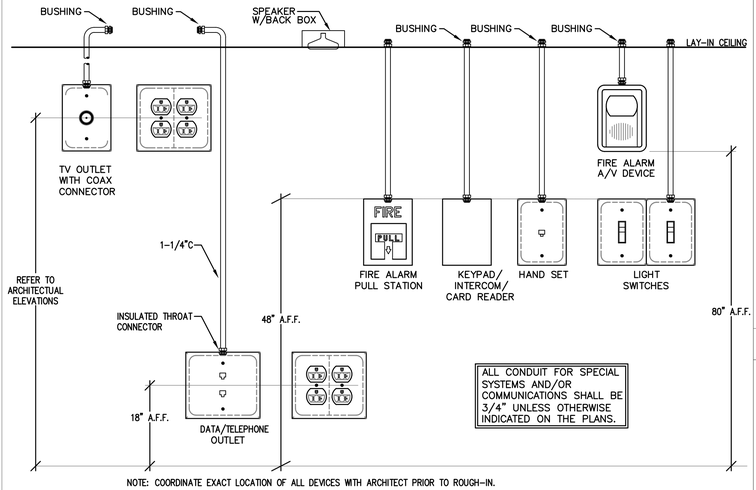
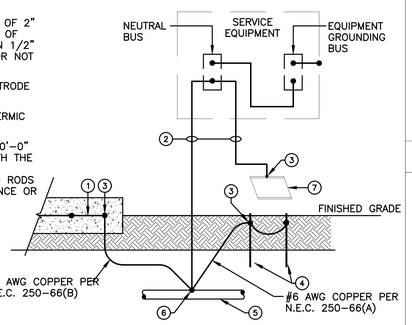


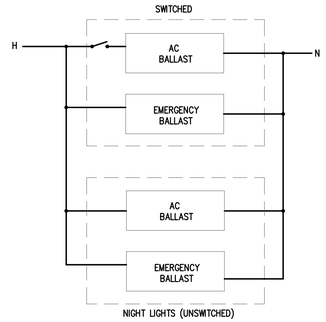
1 TYPICAL DEVICE ELEVATIONS (UNLESS NOTED OTHERWISE)
NOT TO SCALE

GROUNDING ELECTRODE KEYED NOTES

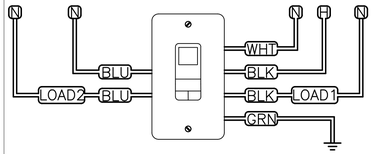
1. CONCRETE ENCASED ELECTRODE ENCASED BY A MINIMUM OF 2" CONCRETE OF FOUNDATION CONSISTING OF AT LEAST 20' OF ONE OR MORE STEEL REINFORCING BARS NOT LESS THAN 1/2" DIAMETER OR AT LEAST 20' OF BARE COPPER CONDUCTOR NOT LESS THAN #4 AWG. PER N.E.C. 250.52 (A) (3).
2. RGS CONDUIT WITH FULL SIZE COPPER GROUNDING ELECTRODE CONDUCTOR PER N.E.C. TABLE 250-66
3. CONNECTION SHALL BE CADWELD COPPER-BASED EXOTHERMIC WELD.
4. COPPER BONDED STEEL ELECTRODE 3/4" IN DIAMETER 10'-0" LONG WITH A MINIMUM OF 8'-0" IN DIRECT CONTACT WITH THE EARTH PER N.E.C. 250-52 (A) (5). TWO (2) REQUIRED, SEPARATE BY 6' MINIMUM. PROVIDE ADDITIONAL GROUND RODS AS REQUIRED TO ACHIEVE LESS THAN 25 OHMS RESISTANCE OR PER UTILITY COMPANY REQUIREMENTS.
5. METAL UNDERGROUND WATER PIPE IN DIRECT CONTACT WITH THE EARTH FOR 10'-0" OR MORE PER N.E.C. 250.52 (A) (1)
6. BOLTED TYPE CONNECTION SUITABLE FOR DIRECT BURIAL OR EXOTHERMIC WELD (TYP)
7. METAL FRAME OF BUILDING PER N.E.C. 250.52 (A) (2)



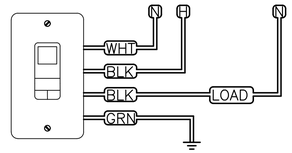
5 GROUNDING ELECTRODE SYSTEM DETAIL
NOT TO SCALE



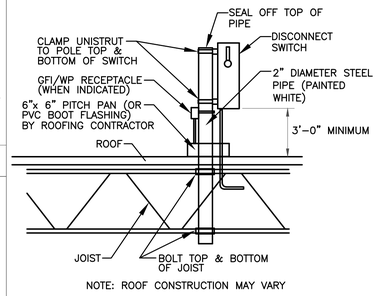
2 EMERGENCY BALLAST WIRING
NOT TO SCALE



3 DUAL RELAY WIRING DIAGRAM
NOT TO SCALE

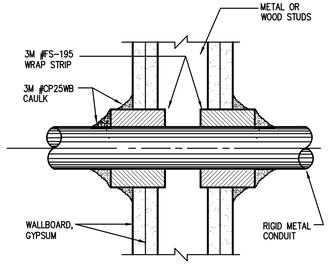


4 SINGLE RELAY WIRING DIAGRAM
NOT TO SCALE



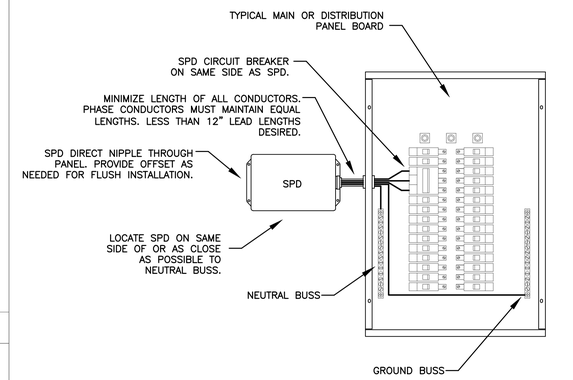
NOTE: ROOF CONSTRUCTION MAY VARY

6 DISCONNECT MOUNTING DETAIL
NOT TO SCALE

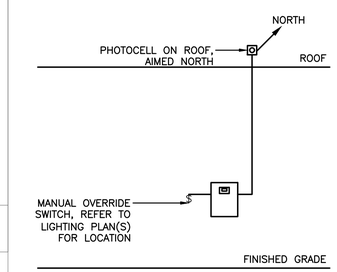


NOTE: FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION

8 1 AND 2 HR. GYPSUM/WALLBOARD PIPE PENETRATION
NOT TO SCALE



7 INSTALLATION OF BRANCH PANEL SPD
NOT TO SCALE



9 LIGHTING CONTROL PANEL DETAIL
NOT TO SCALE

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MAXWELL SUD OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202210
DATE: APRIL 2023

ELECTRICAL DETAILS

E5.1

DRG REFERENCE

PROGRESS SET

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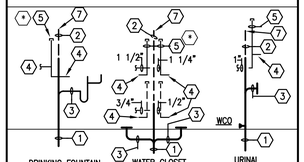
PLUMBING LEGEND

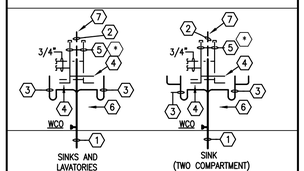
DISREGARD LEGEND ITEMS NOT INDICATED ON DRAWINGS

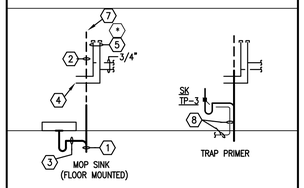
SYMBOL	DESCRIPTION	ABBR.
	SOIL OR WASTE PIPING B.G.	WST
	SOIL OR WASTE PIPING A.G.	WST
GW	GREASE WASTE PIPING	GW
	VENT PIPING	V
SD	STORM DRAIN PIPING	SD
OD	OVERFLOW STORM DRAIN PIPING	OD
G	GAS LINE	G
F	FIRE OR SPRINKLER LINE	F
	DOMESTIC COLD WATER	CW
	DOMESTIC HOT WATER	HW
	DOMESTIC HOT WATER RETURN	HWR
TW	TEMPERED DOMESTIC HOT WATER	TW
	GATE VALVE	GV
	GLOBE VALVE	GLV
	BALL VALVE	BV
	CHECK VALVE	CKV
	BALANCING VALVE	BAV
	BUTTERFLY VALVE	BTV
	PLUG VALVE	PLV
	PRESSURE REDUCING VALVE	PRV
	PRESSURE RELIEF VALVE	T&P
	STRAINER	STR
	UNION	UN
	THERMOMETER WELL	TW
	PRESSURE GAUGE	PG
	THERMOMETER	THRM
D	CONDENSATE OR INDIRECT DRAIN	D
	BRANCH CONNECTION, TOP	--
	BRANCH CONNECTION, BOTTOM	--
	ELBOW UP	--
	ELBOW DOWN	--
	FLOOR CLEANOUT (INTERIOR)	FCO
	CLEANOUT AT GRADE (EXTERIOR)	COG
	WALL CLEANOUT	WCO
	FLOOR DRAIN	FD
	FLOOR SINK	FS
	HOSE BIBB	HB
	WALL HYDRANT	WH
	NEW TO EXISTING PIPE CONNECTION	--
P/X	PLUMBING RISER IDENTIFICATION	P/X
DS/X	DOWNSPOUT RISER IDENTIFICATION	DS/X
F/X	FIRE RISER IDENTIFICATION	F/X
	ABBREVIATIONS	ABBR.
--	ABOVE FINISHED FLOOR	AFF
--	ACCESS PANEL	AP
--	BELOW FINISHED FLOOR	BFF
--	BOTTOM OF PIPE	BOP
--	INDIRECT DRAIN	D
--	EXISTING TO REMAIN	(E)
--	EXISTING TO BE DEMOLISHED	(D)
--	EXISTING TO BE RELOCATED	(R)
--	FINISHED	FIN
--	FLOOR	FLR
--	INVERT ELEVATION	INV. EL.
--	NORMALLY CLOSED	NC
--	SOFT WATER	SW
--	TRAP PRIMER	TP
--	TYPICAL	TYP
--	VENT THRU ROOF	VTR

NOT ALL SYMBOLS MAY BE USED

PLUMBING RISER DETAILS







KEYED NOTES - RISER DIAGRAM DETAILS:

1. REFER TO PLUMBING FIXTURE SCHEDULE FOR SOIL OR WASTE ROUGH-IN PIPE SIZE. MINIMUM SOIL OR WASTE DRAIN LINE SIZE (EXCEPT AS NOTED) FOR THIS FIXTURE.
2. REFER TO PLUMBING FIXTURE SCHEDULE FOR SANITARY VENT ROUGH-IN PIPE SIZE. MINIMUM SANITARY VENT BRANCH SIZE (EXCEPT AS NOTED) FOR THIS FIXTURE.
3. REFER TO PLUMBING FIXTURE SCHEDULE FOR FIXTURE DRAIN ROUGH-IN PIPE SIZE. MINIMUM FIXTURE DRAIN AND TRAP SIZE FOR THIS FIXTURE.
4. REFER TO PLUMBING FIXTURE SCHEDULE FOR WATER PIPING ROUGH-IN PIPE SIZE. MINIMUM WATER SUPPLY BRANCH SIZE (EXCEPT AS NOTED) FOR THIS FIXTURE.
5. SHOCK ARRESTOR INLET; REFER TO SHOCK ARRESTOR SCHEDULE FOR SIZE. LOCATION SHOWN HERE FOR INDIVIDUAL FIXTURE WILL VARY WHERE INCLUDED AS PART OF PLUMBING CHASE BATTERY OF PIPING. REFER TO RISER DIAGRAMS FOR BATTERY LOCATIONS. ARRANGE ALL WATER LINES TO GRAVITY DRAIN.
6. WALL CLEANOUTS SHALL BE PROVIDED AT END OF BATTERY OR END OF BRANCH LINE FIXTURES AND WHERE REQUIRED BY PLUMBING CODE OFFICIALS TO ASSURE COMPLETE ACCESS TO ALL PORTIONS OF DRAIN.
7. SANITARY VENT PIPES SHALL CONTINUE TO CEILING OR HEADER TOGETHER AT A MINIMUM 42" ABOVE FIN. FLOOR.
8. TRAP REFILL LINE; SEE PLUMBING DETAILS SHEET. EXTEND AND CONNECT TO FLOOR DRAIN TRAP AS SHOWN.

GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY ELEVATIONS AND DIMENSIONS OF FINISHED FLOORS AND WALLS. TRUE ALL DRAINS, ROUGH-INS AND CARRIERS IN ACCORDANCE WITH THE PROPOSED ELEVATIONS AND FINISHED SURFACES.
2. MOUNTING HEIGHT ELEVATION OF ALL WALL HUNG OR COUNTER MOUNTED FIXTURES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION OF ROUGH-IN WORK.
3. FOR ALL FIXTURES AND EQUIPMENT WITH ASSOCIATED TRIM OR COMPONENT ACCESSORIES, PROVIDE UNDER SEPARATE DIVISIONS AND REQUIRING PLUMBING CONNECTIONS; THIS CONTRACTOR SHALL FIELD COORDINATE EXACT REQUIREMENTS OF, MAKE PROVISIONS FOR, AND SUPPLY ALL MATERIALS AND LABOR FOR MAKING FINAL CONNECTIONS.
4. CONTRACTOR SHALL REFER TO SHOP DRAWINGS OF EQUIPMENT TO BE SUPPLIED FOR FINAL COORDINATION OF ALL ROUGH-IN OPENINGS BEFORE BEGINNING WORK.
5. ALL FIXTURE AND EQUIPMENT STUB-OUTS SHALL BE PROVIDED WITH A STOP VALVE. ALL FIXTURE STOPS SHALL BE SOLID BRASS, LOOSE KEY OPERATED, CHROME PLATED (WERE EXPOSED), AND FITTED TIGHT TO CHROME PLATED BRASS WALL ESCUTCHEON PLATES. SUPPLY RISERS SHALL BE TYPE "L" TUBING, CHROME PLATED. PROVIDE 1/2" FIP X 3/8" OD COMPRESSION FITTINGS FOR ALL SINKS, LAVATORIES, AND SIMILAR FIXTURES.
6. ALL P-TRAPS WITHIN THE BUILDING, ABOVE GRADE AND EXPOSED TO INSPECTION SHALL BE CHROME PLATED ADJUSTABLE, CAST BRASS WITH CLEANOUT PLUG. PROVIDE C.P. CAST BRASS SLIP NUTS AND WASHERS, 17 GAGE SEAMLESS TUBULAR BRASS DRAIN TO WALL AND WALL FLANGE. PROVIDE 1-1/2" P-TRAP FOR ALL LAVATORIES AND SIMILAR FIXTURES. PROVIDE 1-1/2" P-TRAP FOR ALL SINKS AND SIMILAR FIXTURES, MCGUIRE OR EQUAL
7. ALL ROUGH-IN OPENINGS SHALL BE FITTED WITH CHROME PLATED, WROUGHT BRASS DEEP BELL OR BOX ESCUTCHEON PLATES FITTED TIGHT TO PIPE AND FLUSH TO WALL. STEEL ESCUTCHEON PLATES ARE NOT ACCEPTED.
8. ALL EXPOSED BRASS SHALL BE CHROME PLATED.
9. ALL HANDICAPPED ACCESSIBLE FIXTURES SHALL BE OF APPROVED TYPES AND WITH REQUIRED CONTROLS INSTALLED TO HEIGHTS AND CLEARANCES, AS PRESCRIBED BY THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE TEXAS ACCESSIBILITY STANDARDS (TAS). FIXTURES SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL ACCESSIBILITY CODE REQUIREMENTS. PROVIDE FIXTURES WITH DEPTHS AT MAXIMUM PERMITTED AND AVAILABLE FOR INTENDED FIXTURE USE.
10. INSULATE ALL EXPOSED WATER AND DRAIN LINES ON ADA/TAS ACCESSIBLE LAVATORIES AND SINKS WITH MCGUIRE PRO WRAP OR EQUAL. PROVIDE OFFSET DRAIN FITTINGS WHERE REQUIRED TO PROVIDE MINIMUM CLEARANCES.
11. ALL ADA/TAS SINKS SHALL BE STAMPED WITH DRAIN OUTLET AT THE REAR OF THE BOWL.
12. PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE IN ACCORDANCE WITH SENATE BILL 587 FOR WATER SAVING PERFORMANCE. LAVATORY AND SINK FAUCETS SHALL INCLUDE 0.5 GPM AND 2.2 GPM FLOW CONTROL RESPECTIVELY.
13. ORIENT ADA/TAS WATER CLOSET FLUSH VALVE WITH OPERATOR ON LARGE SIDE OF ENCLOSURE AND BELOW GRAB BARS.
14. SEAL ALL SPACES BETWEEN PLUMBING FIXTURES AND MOUNTING SURFACES WITH WHITE LATEX CAULK WIPED SMOOTH AND FLUSH WITH FIXTURE.
15. FLOOR DRAINS SHALL BE INSTALLED AT LOW POINTS OF UNIFORMLY SLOPED FLOOR. CONTRACTOR SHALL FIELD COORDINATE WITH STRUCTURAL TO INSURE FLOORS ARE UNIFORMLY SLOPED ACROSS ENTIRE TOILET ROOMS OR OVER AS WIDE AN AREA AS PRACTICAL FOR OPEN AREA FLOOR DRAINS. CONVEX FLOOR SLOPE IN THE IMMEDIATE VICINITY OF THE FLOOR DRAIN IS NOT ACCEPTABLE.
16. EQUIVALENT MANUFACTURES OF CHINA FIXTURES ARE KOHLER, AND AMERICAN STANDARD. EQUIVALENT MANUFACTURES OF STAINLESS FIXTURES ARE JUST, ELKAY, AND ADVANCE TABCO.
17. WATER HEATER SHALL BE PROVIDED WITH CODE APPROVED VACUUM BREAKER AND BRASS ASME TEMPERATURE AND PRESSURE RELIEF VALVE. ROUTE TPR DRAIN LINE FULL SIZED TO EXTERIOR OF BUILDING AND TERMINATE 6" ABOVE FINISHED GRADE, OR AS INDICATED ON PLANS.
18. ROOF PENETRATIONS SHALL BE DONE IN STRICT COMPLIANCE WITH THE ARCHITECTS SPECIFICATIONS AND SHALL BE LEAK PROOF.
19. FIELD VERIFY ALL EXISTING CONDITIONS AND LOCATION OF STUB OUTS. NOTIFY ARCHITECT OF ANY DISCREPANCIES IMMEDIATELY WHICH MAY AFFECT THE INTENDED DESIGN.
20. ALL PLUMBING WORK SHALL BE DONE IN STRICT COMPLIANCE WITH ALL STATE AND LOCAL CODES.
21. THE PLUMBING CONTRACTOR SHALL GUARANTEE THE COMPLETE PLUMBING SYSTEM TO BE FREE OF DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF 12 MONTHS FROM DATE OF FINAL ACCEPTANCE.
22. ALL WATER HEATER SUPPLY CONNECTIONS SHALL HAVE HEAT TRAP NIPPLE CONNECTIONS. HEAT TRAP NIPPLES NOT REQUIRED IF HOT WATER RECIRCULATION SYSTEM IS PROVIDED.
23. NO HUB COUPLINGS SHALL BE HEAVY DUTY 4 BAND COUPLINGS WITH STAINLESS STEEL SHIELD.
24. INSULATE CONCEALED ROOF DRAIN BODIES, VERTICAL LEAD AND HORIZONTAL PIPING WITH R-6 FLEXIBLE BLANKET INSULATION. EXPOSED ROOF DRAIN BODIES AND PIPES SHALL BE INSULATED WITH AN R-6 RIGID INSULATION AND PAINTABLE CANVAS JACKET.

PLUMBING SYSTEM SECTION 15400

THE WORK INCLUDES PROVIDING NEW MATERIALS, FITTINGS, AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING PLUMBING SYSTEM. THE WORK ALSO INCLUDES ROUGH-IN AND FINAL CONNECTIONS TO FOOD SERVICE EQUIPMENT PROVIDED BY OTHERS. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND/OR ORDINANCES AND IS SUBJECT TO INSPECTION.

CONNECTION CHARGES, PERMITS AND ALL OTHER EXPENSES RELATED TO A COMPLETE AND FUNCTIONING PLUMBING SYSTEM ARE INCLUDED AS A PART OR THIS SECTION.

THE INTENT OF THE DRAWINGS IS TO INDICATE THE GENERAL EXTENT OF WORK REQUIRED FOR THE PROJECT. THE DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, FIXTURES AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD ROUGH-IN DRAWINGS FOR PLUMBING FIXTURE INSTALLATION REQUIREMENTS. COMPLY WITH ALL APPLICABLE ADA INSTALLATION REQUIREMENTS.

COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS ON THE PROJECT SITE.

SUBMITTALS
COORDINATE WITH DIVISION 1 FOR SUBMITTAL TIMETABLE REQUIREMENTS, UNLESS NOTED OTHERWISE WITHIN THIRTY (30) DAYS AFTER THE CONTRACT IS AWARDED THE CONTRACTOR SHALL SUBMIT A MINIMUM OF ONE ELECTRONIC COPY IN A PORTABLE DIGITAL FORMAT (PDF) COMPLETE WITH TABLE OF CONTENTS AND BOUND SETS OF SHOP DRAWINGS AND COMPLETE DATA COVERING EACH ITEM OF EQUIPMENT OR MATERIAL. THE FIRST SUBMITTAL OF EACH ITEM REQUIRING A SUBMITTAL MUST BE RECEIVED BY THE ARCHITECT OR ENGINEER WITHIN THE ABOVE THIRTY DAY PERIOD. THE ARCHITECT OR ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY DELAYS OR COSTS INCURRED DUE TO EXCESSIVE SHOP DRAWING REVIEW TIME FOR SUBMITTALS RECEIVED AFTER THE THIRTY (30) DAY TIME LIMIT. THE ARCHITECT AND ENGINEER WILL RETAIN A COPY OF ALL SHOP DRAWINGS FOR THEIR FILES. WHERE FULL SIZE DRAWINGS ARE INVOLVED, SUBMIT ONE (1) PRINT IN LIEU OF ELECTRONIC COPIES. ALL LITERATURE PERTAINING TO AN ITEM SUBJECT TO SHOP DRAWING SUBMITTAL SHALL BE SUBMITTED AT ONE TIME. A SUBMITTAL SHALL NOT CONTAIN INFORMATION FROM MORE THAN ONE SPECIFICATION SECTION, BUT MAY HAVE A SECTION SUBDIVIDED INTO ITEMS OR EQUIPMENT AS LISTED IN EACH SECTION. THE CONTRACTOR MAY ELECT TO SUBMIT EACH ITEM OR TYPE OF EQUIPMENT SEPARATELY.

PIPING SYSTEMS – GENERAL: ALL PIPING SHALL BE RUN PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. ALL PIPING SHALL BE CONCEALED EXCEPT IN UNFINISHED SPACES. INSTALL AS REQUIRED TO MEET ALL CONSTRUCTION CONDITIONS AND TO ALLOW FOR INSTALLATION OF OTHER WORK SUCH AS DUCTS AND ELECTRICAL CONDUIT. AT ALL CONNECTIONS BETWEEN FERROUS PIPING AND NONFERROUS PIPING, PROVIDE AN ISOLATING DIELECTRIC UNION. ALL HANGERS SHALL BE COMPATIBLE WITH PIPING MATERIAL TO PREVENT CORROSION.

PROVIDE ALL FITTINGS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE PLUMBING SYSTEM'S FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED.

SEWER/WASTE PIPING: SANITARY DRAINAGE PIPING ABOVE FLOOR SHALL BE HUBLESS CAST IRON, PVC PIPE WHERE ACCEPTED BY CODE, FITTINGS AND CONNECTIONS. SANITARY DRAINAGE PIPING BELOW GRADE SHALL BE SCHEDULE 40 PVC WITH SOVENT WELD JOINTS AND FITTINGS. ALL DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED, 1/4" PER FOOT FOR SIZES 3" AND SMALLER AND 1/8" PER FOOT FOR PIPE SIZES 4" AND LARGER.

VENTS: PROVIDE A COMPLETE SYSTEM OF STANDARD WEIGHT CAST IRON. DO NOT USE DWV PLASTIC IN RETURN AIR PLENUM SPACES. THE VENT SYSTEM SHALL BE CARRIED THROUGH THE ROOF WITH APPROPRIATE FLASHING.

CONDENSATE AND INDIRECT DRAIN PIPING: TYPE M COPPER TUBING UP TO 1" ID, TYPE DWV TUBING AND FITTINGS FOR 1-1/4" AND LARGER SIZES.

CLEANOUTS: PROVIDE CLEANOUTS AT THE END OF EACH HORIZONTAL RUN, AND AT THE BASE OF ALL VERTICAL WASTE AND DRAIN PIPES. CLEANOUTS SHALL BE OF THE SAME SIZE AS THE PIPES THEY SERVE, CONFORMING TO CODE REQUIREMENTS. PROVIDE SUITABLE WALL OR FLOOR CLEANOUTS WITH ACCESSORIES TO OBSCURE FROM VIEW.

WATER DISTRIBUTION PIPING: LAYOUT WATER PIPING SO THAT THE ENTIRE SYSTEM CAN BE DRAINED. HOT AND COLD WATER PIPING SHALL BE 1/2" MIN. TYPE L COPPER TUBING WITH WROUGHT COPPER FITTINGS AND SWEAT CONNECTIONS. PROVIDE WATER HAMMER ARRESSTORS AT EACH FIXTURE STOP. INSTALL CHROME PLATED BRASS ESCUTCHEON PLATES AT ALL PENETRATIONS THROUGH FINISHED SURFACES (INCLUDING CABINET INTERIORS). USE TIN-ANTIMONY SOLDER, 95/5 FOR ALL SWEAT FITTINGS OF COPPER PIPING.

PIPE INSULATION: INSULATE ALL HOT AND COLD WATER PIPING, ROOF DRAIN BODIES AND HORIZONTAL ROOF DRAIN PIPES WITH A THERMAL INSULATION HAVINGA AN R-VALUE OF 4 OR GREATER. INSULATION SHALL HAVE A K FACTOR OF 0.23 AT 75 DEGREES F. PROVIDE PRE-FORMED FIBERGLASS, ASJ-VB, FLAME SPREAD 25, SMOKE DEVELOPED 50, ASTM C-547. OR PROVIDE WHERE PERMITTED BY LOCAL CODES, 1" SELF-ADHESIVE CLOSED CELL FOAM PIPE INSULATION WITH PRE-FORMED PVC FITTING COVERS – EQUAL TO SELF-ADHESIVE ARMACELL'S AP ARMAFLEX WITH K FACTOR OF 0.23 AT 75 DEGREES MEAN TEMPERATURE. INSULATE ANY EXPOSED CONDENSATE PIPING WITH WASTE TEMPERATURES BELOW 60 DEGREES F.

PROVIDE HEAT TRAPS AT HOT AND COLD WATER CONNECTIONS TO WATER HEATER.

SHUTOFF VALVES, WITH UNIONS SHALL BE PROVIDED FOR SERVICE TO EACH PLUMBING FIXTURE, FOOD SERVICE EQUIPMENT ITEM OR OTHER EQUIPMENT ITEM, TO FACILITATE ISOLATION FOR REPAIR OR REPLACEMENT. VALVES SHALL BE EQUAL TO NIBCO NO. T-585-70-66 BALL VALVE, BRONZE BODY, S.S. BALL AND STEM, TEFLON SEATS AND PACKING, 600 LB. W.O.G., THREADED UNION END.

ACCESS PANELS SHALL BE PROVIDED WHERE CONCEALED CONTROL DEVICES, VALVES, ETC. ARE CONCEALED WITHIN WALLS. WHERE ACCESS FOR ADJUSTMENT AND MAINTENANCE IS POSSIBLE THROUGH LAY-IN SUSPENDED CEILINGS, ACCESS PANELS ARE NOT REQUIRED.

SUPPLIES AND TRAPS: PROVIDE WATER SEALED TRAPS AND/OR SUPPLIES INSTALLED AS CLOSE AS POSSIBLE TO ALL PLUMBING FIXTURES, DRAINS, AND FOOD SERVICE EQUIPMENT OR BEVERAGE DISPENSING EQUIPMENT ITEMS FURNISHED BY OTHERS, HAVING A WASTE CONNECTION, OR REQUIRING WATER SERVICE. EXPOSED TRAPS AND SUPPLIES IN EXPOSED AREAS (INCLUDING CABINET INTERIORS) SHALL BE CHROMIUM PLATED BRASS, WITH CHROME PLATED BRASS NUTS AND CHROME PLATED BRASS ESCUTCHEON PLATES. PROVIDE HUBLESS CAST IRON WASTE PIPING AND FITTINGS FOR THE TWO, THREE AND, FOUR COMPARTMENT SINKS. REMOVE MARKINGS FROM ALL PIPING WHEN INSTALLATION IS COMPLETE.

INSTALLATION: THOROUGHLY CLEAN ITEMS BEFORE INSTALLATION. CAP PIPE OPENINGS TO EXCLUDE DIRT UNTIL FIXTURES ARE INSTALLED AND FINAL CONNECTIONS HAVE BEEN MADE. PROCEED AS RAPIDLY AS CONSTRUCTION WILL PERMIT. SET ALIGNMENT WITH FIXTURES. INSTALL SILICONE SEALANT BETWEEN FIXTURES AND ADJACENT MATERIAL, FOR SANITARY JOINT, AND OMIT ESCUTCHEONS.

REPAIR EXISTING PLUMBING SYSTEM COMPONENTS DAMAGED BY CONSTRUCTION OPERATIONS AND RESTORE TO ORIGINAL CONDITIONS.

TEST WATER SYSTEM UNDER 150 PSIG HYDROSTATIC PRESSURE, FOR FOUR (4) HOURS MINIMUM. WHEN TESTING INDICATES MATERIALS OR WORKMANSHIP IS DEFICIENT, REPLACE OR REPAIR AS REQUIRED, AND REPEAT TEST UNTIL STANDARDS ARE ACHIEVED.

SHOP DRAWINGS: CONTRACTORS TO PROVIDE SIX SETS OF SHOP DRAWING SUBMITTALS FOR REVIEW AND APPROVAL TO ARCHITECT. OWNER, ARCHITECT, AND ENGINEER (WHEN APPLICABLE) TO RETAIN ONE SET FOR THEIR OWN RECORDS.

GENERAL ROOF PLAN NOTES:

1. CONTRACTOR SHALL CAREFULLY REVIEW CONTRACT DOCUMENTS INCLUDING DRAWINGS AND PROJECT MANUAL. INFORMATION REGARDING WORK OF THE VARIOUS TRADES AND SUBCONTRACTORS ARE DISPERSED THROUGHOUT THE DOCUMENTS AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE FULL SET OF DOCUMENTS.
2. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES ABOVE THE CEILING TO PROVIDE GREATEST POSSIBLE CLEARANCE FOR INSTALLATION OF AND FUTURE CHANGES IN MECHANICAL EQUIPMENT. CONDUIT AND PIPE TO BE RUN THROUGH TRUSSES. COORDINATE SERVICE AND ACCESS POINTS ABOVE CEILING TO MINIMIZE REQUIRED ACCESS.
3. ALL DEVICES INSTALLED ON ROOF TOP EQUIPMENT SHALL BE MOUNTED ON A NON-REMOVABLE PANEL OF THE EQUIPMENT. THIS LOCATION SHALL BE COORDINATED WITH THE MECHANICAL OR PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
4. ROOF DECK PENETRATIONS: CONTRACTOR SHALL SECURE LANDLORD APPROVAL FOR ALL BUILDING ROOF DECK PENETRATIONS. REQUESTS SHALL BE ON A SCALED ROOF PLAN SHOWING EXACT LOCATION & SIZE OF PENETRATION & INCLUDE DETAILS OF MOUNTING, FLASHING & SEALING. CONTRACT WITH THE LANDLORD'S ROOFING CONTRACTOR TO PERFORM ALL WORK AT THIS CONTRACTOR'S SOLE EXPENSE. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL ROOFTOP EQUIPMENT, NEW ROOF PENETRATIONS, REMOVAL OF EXISTING ROOFTOP EQUIPMENT & INSTALLATION OF ALL ROOFTOP EQUIPMENT WITH THE LANDLORD.

PLUMBING NARRATIVE:

ELECTRIC WATER HEATERS LESS THAN 12 KW SHALL HAVE A PERFORMANCE RATING OF 0.97.

THE HOT WATER HEATING SYSTEM SHALL BE BY AN ELECTRIC WATER HEATER WITH A RECIRCULATION LINE AND PUMP. THE RE-CIRC PUMP SHALL BE CONTROLLED BY AN AQUASTAT AND TIME CLOCK. THE TIME CLOCK SHALL ENABLE THE PUMP TO OPERATE FROM 6AM TO 8PM (ADJ.) AND SHUT OFF THE PUMP FROM 8PM TO 6AM (ADJ.).

AND/OR

THE HOT WATER HEATING SYSTEM SHALL BE BY WATER HEATER WITH A MAXIMUM OF 6'-0" OF 1/4" TUBING, 3'-0" OF 3/8" TUBING TO LAVATORIES AND 43'-0" OF 1/2" TUBING, 21'-0" OF 3/4" TUBING TO ALL OTHER FIXTURES.

REFER TO THE 2015 IECC SECTION C404 SERVICE WATER HEATING FOR OTHER REQUIREMENTS.

THE PLUMBING CONTRACTOR SHALL REVIEW THE SYSTEM COMMISSIONING SPECIFICATION ON THIS SHEET FOR REQUIREMENTS AND PARTICIPATION IN THE COMMISSIONING PROCESS. FAILURE TO COMPLY OR PARTICIPATE MAY INCUR ADDITIONAL COST TO THE CONTRACTOR

GENERAL ENERGY NOTES:

INSULATION SHALL BE PROVIDED FOR PIPING AS NOTED IN THE TABLE BELOW. PIPING INSULATION SHALL BE PROVIDED FOR RETURN CIRCULATION HOT WATER SYSTEM WITH 1" OR R-4 INSULATION. THE FIRST 8' OF PIPING IN NONCIRCULATING SYSTEMS SERVED BY EQUIPMENT W/O INTEGRAL HEAT TRAPS SHALL BE INSULATED WITH 1-1/2" OR R-4 INSULATION.

WATER HEATING EQUIPMENT NOT SUPPLIED WITH INTEGRAL HEAT TRAPS AND SERVING NONCIRCULATING SYSTEMS SHALL BE PROVIDED WITH HEAT TRAPS ON THE SUPPLY AND DISCHARGE PIPING AS ASSOCIATED WITH THE EQUIPMENT.

AUTOMATIC CIRCULATING HOT WATER SYSTEMS OR HEAT TRACE SHALL HAVE TIME SWITCHES THAT ARE CAPABLE OF BEING SET TO TURN OFF THE SYSTEM.

MINIMUM PIPE INSULATION THICKNESS (in inches)

FLUID	CONDUCTIVITY	MEAN TEMP °F	NORMINAL PIPE DIA.			
			< 1"	1 < 1.5"	1.5" TO< 4"	4 TO< 8"
DOM. COLD WATER	0.23	75	1/2	1	1	1
HOT WATER	0.24	100	1	1	1-1/2	1-1/2
LOW PSI STEAM	0.28	200	2-1/2	2-1/2	2-1/2	3
HI PSI STEAM	0.34	300	3	4	4-1/2	4-1/2
ROOF DRAIN	0.23	75	1/2	1	1	1

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MAXWELL SUD
OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202210
DATE: APRIL 2023

PLUMBING SPECIFICATIONS

P0.1

DRG REFERENCE

PROGRESS SET

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22127

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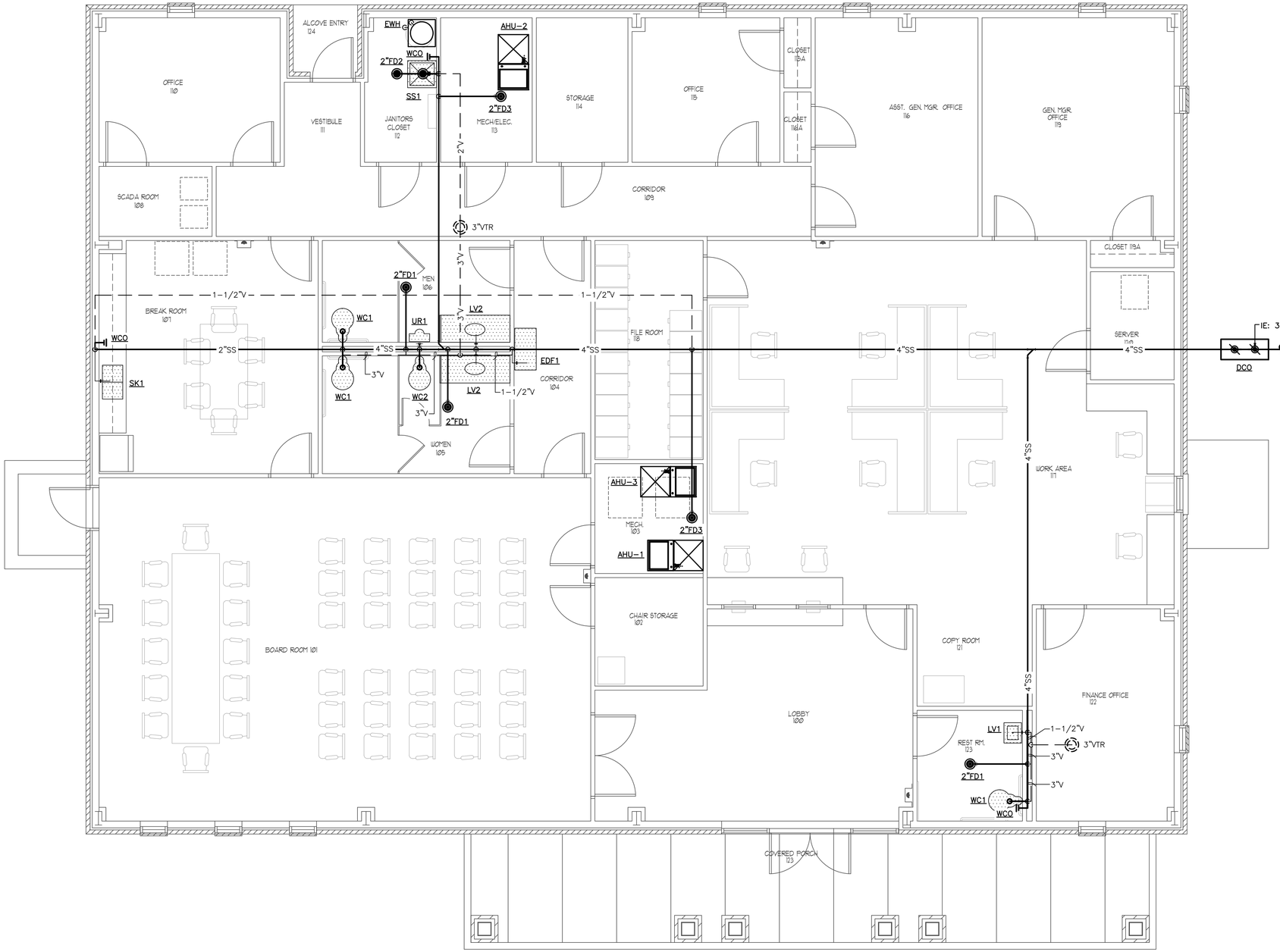
GENERAL PLUMBING NOTES:

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE JOB SITE BEFORE COMMENCING ANY PHASE OF THE WORK. ADJUSTMENTS FOR FIT AND COORDINATION SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER. NOTIFY ENGINEER OF ANY CONFLICTS, DISCREPANCIES OR OMISSIONS PRIOR TO COMMENCEMENT OF THE CONTRACT WORK.
2. CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL, CIVIL, MECHANICAL & STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS.
3. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES.
4. SEAL ALL WALL, ROOF, AND FLOOR PENETRATIONS WITH UL LISTED FIRE SEALANT.
5. IF INCOMING WATER PRESSURE IS ABOVE 80 PSI, INSTALL A PRESSURE REDUCING VALVE. INSTALL IN FIRE RISER/MECHANICAL ROOM OR AS HIGH AS POSSIBLE NEAR THE BAR JOIST WHEN NO ROOM IS AVAILABLE.
6. REMOVE AND CAP ABOVE CEILING LEVEL ALL DOMESTIC WATER AND VENT PIPING LOCATED IN WALLS THAT ARE TO BE DEMOLISHED.
7. WHERE PLUMBING FIXTURES ARE TO BE REMOVED AND RELOCATED OR REPLACED, THE CONTRACTOR SHALL CUT AND REPAIR EXISTING WALLS, FLOORS, AND CEILINGS AS NECESSARY TO MATCH NEW CONDITIONS.

PLUMBING KEYED NOTES

[1] REFER TO CIVIL PLANS FOR CONTINUATION.



1 PLUMBING DWV PLAN
SCALE: 1/4" = 1' - 0"

4' 2' 0 4'
SCALE: 1/4" = 1'-0"

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PLUMBING DWV PLAN

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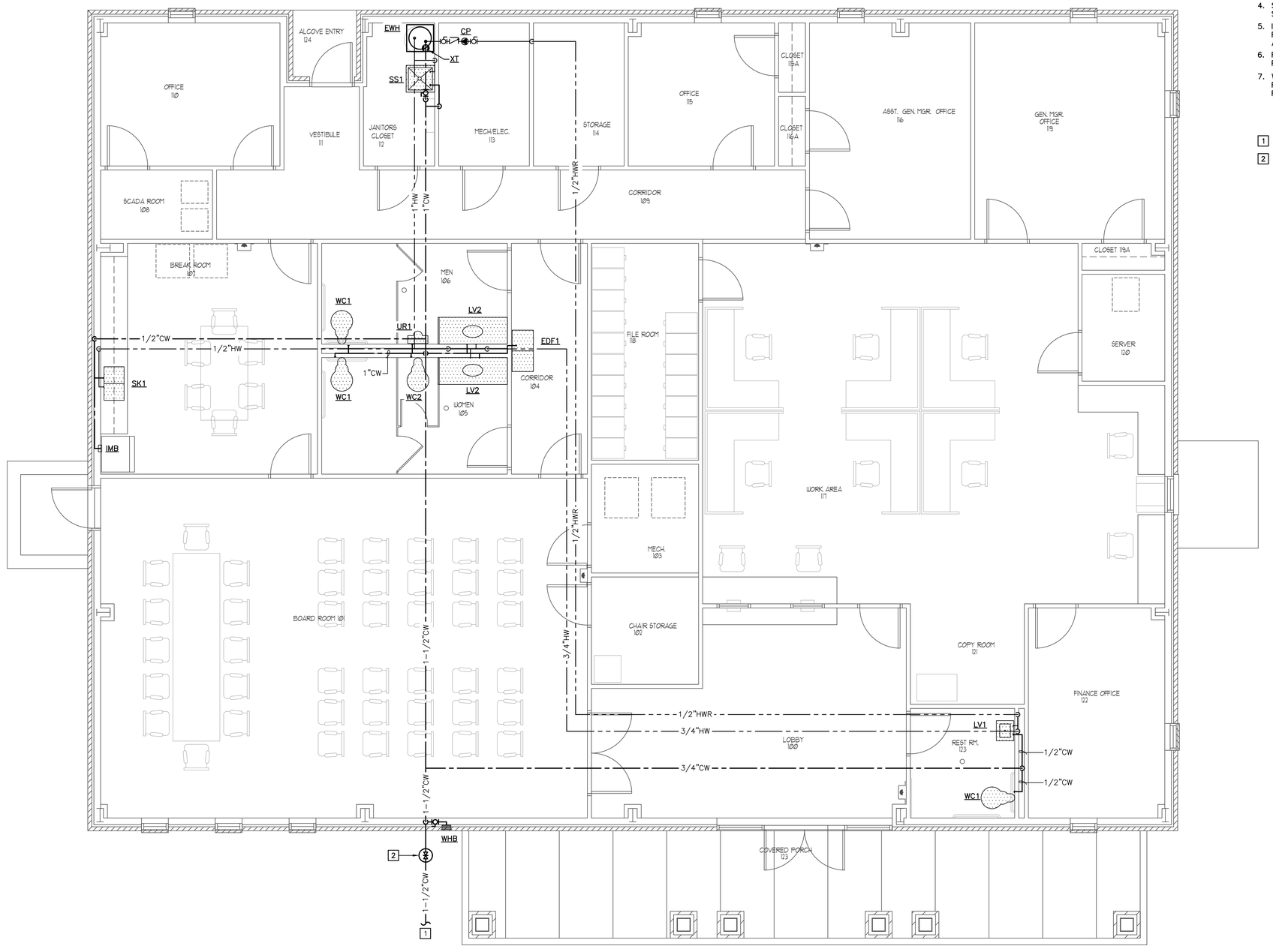

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7. WHERE PLUMBING FIXTURES ARE TO BE REMOVED AND RELOCATED OR REPLACED, THE CONTRACTOR SHALL CUT AND REPAIR EXISTING WALLS, FLOORS, AND CEILINGS AS NECESSARY TO MATCH NEW CONDITIONS.

PLUMBING KEYED NOTES

1 REFER TO CIVIL PLANS FOR CONTINUATION.

2 GATE VALVE IN BOX FLUSH WITH GRADE.

1 PLUMBING WATER PLAN

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

4' 2' 0 4'

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

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PLUMBING WATER PLAN

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PLUMBING FIXTURE UNITS

FIXTURE	QTY.	DRAINAGE			WATER SUPPLY				
		TRAP SIZE	DFU EA	SDFU	WSFU EA	TOT. WSFU	CW WSFU	HW WSFU	PEAK GPM
WATER CLOSET – FV	0	–	4	0	10	0	0	–	25.00
WATER CLOSET – TANK	4	–	4	16	5	20	20	–	1.60
LAVATORY	3	1 1/4"	1	3	2	6	4.5	4.5	0.40
SERVICE SINK	1	2"	2	2	3	3	2.25	2.25	3.00
DRINKING FOUNTAIN	2	1 1/4"	0.50	1.00	0.25	0.50	0.50	–	0.75
URINAL	1	–	2	2	5	5	5	–	12.00
SINK	1	1 1/2"	2	2	3	3	2	2	1.75
2" TRAP	0	2"	3	0					
3" TRAP	0	3"	5	0					
HOSE BIBB	1	–	0					–	5.00
TOTAL FU				26		38	34	9	
TOTAL GPM				13		26	25	14	
PIPE SIZE				4"		1.5"	1.5"	1"	

PLUMBING PIPE MATERIALS SCHEDULE

PIPING SYSTEM	PIPING MATERIAL
SANITARY SEWER BELOW GRADE	SCHEDULE 40 DWV PVC
SANITARY DRAIN AND VENTS ABOVE GRADE	SCHEDULE 40 DWV PVC*
DOMESTIC HOT & COLD WATER BELOW GRADE	COPPER, TYPE "K" SOFT
DOMESTIC HOT & COLD WATER ABOVE GRADE	COPPER, TYPE "L" HARD DRAWN
HOT AND COLD WATER PIPE INSULATION	1" RIGID FIBER GLASS

*SCHEDULE 40 DWV PVC SHALL NOT BE USED IN RETURN AIR PLENUMS. WHERE CEILING PLENUMS ARE USED FOR RETURN AIR, CONTRACTOR SHALL ONLY USE BELL AND SPIGOT SERVICE WEIGHT CAST IRON PIPE.

PLUMBING EQUIPMENT SCHEDULE

SYMB.	PLAN MARK	MINIMUM ROUGH–IN SIZES					DESCRIPTION
		WST & VENT		DRAIN	CW	HW	
	ELECTRIC WATER HEATER EWH	-----	-----	-----	3/4"	3/4"	A.O. SMITH NO. DEL–15S–4.5 WATER HEATER: 15 GALLON STORAGE, 23 GPH RECOVERY AT 80°F TEMPERATURE RISE, 4.5 KW SINGLE ELEMENT, 208V–1–60; INSULATED, JACKETED, MAGNESIUM ANODE, ON–OFF SWITCH, 150PSI RATED WORKING PRESSURE, GLASS LINED TANK, ASME TPR VALVE, 6 YEAR WARRANTY, BRASS DRAIN VALVE, AND MFG'S HEAT TRAPS. HOLDRITE NO. 30–SWHP–WM 24"X24" WALL MOUNTED EQUIP. PLATFORM W/ DRAIN FITTING, WATER TIGHT.
○	EXPANSION TANK XT	-----	----	----	3/4"	----	AMTROL No. ST–5–C, HEAVY DUTY BUTYL, FDA APPROVED DIAPHRAGM, POLYPROPYLENE LINED DOME WITH 2.0 GALLON VOLUME. ELBI IS AN EQUIVALENT MANUFACTURER. TANK TO WALL WITH HOLDRITE QUICK STRAP. TANK SHALL NOT BE SUPPORTED BY THE PIPING THAT CONNECTS TO SUCH TANK.
▶	CIRCULATING PUMP CP	-----	----	----	----	1/2"	GRUNDFOS MODEL No. UP15–18B5, IN–LINE, LEAD–FREE BRONZE CIRCULATOR. PROVIDE 1/2" SWEAT CONNECTION. 1 PHASE, 85 WATTS, 115 VOLTS, 1/25HP. PROVIDE WITH TIMER, SWITCHES ON AT 6AM, AND OFF AT 8PM. PROVIDE AQUASTAT, SWITCHES PUMP ON AT 105°F, AND OFF AT 115°F. 2 GPM AND 10 FOOT OF HEAD.
□	ACCESS DOOR AP1	-----	-----	-----	-----	-----	MIFAB UA ACCESS DOOR: 12"x12", 16 GUAGE SATINCOAT STEEL WALL FLANGE AND DOOR, WHITE PRIMED; INSTALL AT ALL CONCEALED VALVES OR ACCESSORIES IN ACCESSIBLE LOCATION NOT MORE THAN 9'0" AFF; COORDINATE ACCESS PANEL LOCATIONS WITH GENERAL CONTRACTOR.
⌀	DOUBLE CLEANOUT DCO	4"	-----	-----	-----	-----	WADE 8000–12 **(MIFAB C1100–4–R–P)(ZURN Z1400)(SMITH 4240)(JOSAM 55000–5)** EXTERIOR CLEANOUT: ADJUSTABLE C.I. CLEANOUT AND HOUSING, ABS TAPER PLUG, SPECIAL DUTY ROUND SCORIATED DUCTILE IRON TOP, NON–TILT TRACTOR COVER, ANCHOR IN CONCRETE PAD 42"x18"x6" DEEP, FLUSH WITH GRADE OR SET FLUSH WITH SIDEWALK.
◉	FLOOR DRAIN FD1 (REST ROOMS)	2"	1–1/2"	2"	-----	-----	**WADE 1100–TSD–A6–1 (MIFAB F1100–C)(JOSAM 30000–A)(SMITH 2005–A)(ZURN No.ZN–415B–P)(WATTS FD–100–A)** FLOOR DRAIN: CAST IRON DRAIN BODY WITH 1/2" IPS TRAP PRIMER TAP, BOTTOM OUTLET, CLAMPING COLLAR, WEEP HOLES, V.P. SCREWS, ADJUSTABLE TOP; STRAINER: 6" DIAMETER, LIGHT DUTY, NICKEL BRONZE, HEEL PROOF PERFORATED; DEEP SEAL TRAP. PROVIDE PROSET SYSTEMS TRAP GUARD INSERT.
◉	FLOOR DRAIN FD2 (JANITOR CLOSET)	2"	1–1/2"	2"	-----	-----	**WADE 1100–TSD–TS7–X (MIFAB F1100–C–N7)(JOSAM 30000–E–VP)(SMITH 2005–D)(WATTS FD–300–6)** FLOOR DRAIN: CAST IRON DRAIN BODY WITH 1/2" IPS TRAP PRIMER TAP, BOTTOM OUTLET, CLAMPING COLLAR, WEEP HOLES, V.P. SCREWS, ADJUSTABLE TOP; STRAINER: 7" DIAMETER, HEAVY DUTY, DUCTILE IRON, TRACTOR TOP; DEEP SEAL TRAP. PROVIDE PROSET SYSTEMS TRAP GUARD INSERT.
◉	FLOOR DRAIN FD3 (MECHANICAL ROOM)	2"	1–1/2"	2"	-----	-----	**WADE 1100–A6–1–TSD (MIFAB F1100)(JOSAM 30000–A)(SMITH 2005)(ZURN No.ZN–415B–P)(WATTS FD–100–A)** FLOOR DRAIN: CAST IRON DRAIN BODY WITH 1/2" IPS TRAP PRIMER TAP, BOTTOM OUTLET, CLAMPING COLLAR, WEEP HOLES, V.P. SCREWS, ADJUSTABLE TOP; STRAINER: 6" DIAMETER, LIGHT DUTY, NICKEL BRONZE, HEEL PROOF PERFORATED; DEEP SEAL TRAP. PROVIDE PROSET SYSTEMS TRAP GUARD INSERT.
	WALL CLEANOUT WCO	SEE PLAN	SEE PLAN	SEE PLAN	-----	-----	ZURN NO. ZS1469–7–VP ROUND STAINLESS STEEL ACCESS COVER COMPLETE WITH SECURING SCREW, MIN 5" DIA.. PROVIDE CLEANOUT PLUG TO MATCH PIPE MATERIAL.
○	WATER HAMMER ARRESTOR WHA	SEE DETAIL	SEE DETAIL	SEE DETAIL	-----	-----	SIOUX CHIEF 650 SERIES WATER HAMMER ARRESTER: TYPE L COPPER TUBE, POLY PISTON WITH TWO EPDM O–RINGS, ASSE 1010 CERT., MAX. 250°F, MAX. 350 PSIG, LEAD FREE, INSTALL TO MANUFACTURES SPECIFICATIONS.
⛸	WALL HYDRANT IN BOX WHB	-----	-----	-----	3/4"	-----	WOODFORD MODEL #B75, MODERATE CLIMATE WALL HYDRANT W/ ANTI–SPHON VACUUM BREAKER ENCLOSED IN A BRASS FLUSH WALL BOX.

PLUMBING FIXTURE SCHEDULE

REFER TO ARCHITECTURAL TAS/ADA SHEETS AND TAS/ADA REGULATIONS FOR MOUNTING HEIGHTS AND CLEARANCES.

SYMB.	PLAN MARK	MINIMUM ROUGH–IN SIZES					DESCRIPTION
		WST & VENT	DRAIN	CW	HW		
	ELEC. DRINKING FOUNTAIN EDF1 (BI LEVEL COOLER)	2"	1–1/2"	1–1/2"	1/2"	-----	ELKAY NO. EZSTL8WSLK "HI–LO" BARRIER FREE WATER COOLER AND BOTTLE STATION: TAS COMPLIANT, 8 GPH CAPACITY, WALL HUNG, STANDARD FINISH, COLOR TO BE SELECTED BY ARCHITECT, S.S. TOP WITH INTEGRAL STRAINER, FRONT & SIDE PUSH BARS, AUTOMATIC STREAM REGULATOR, THERMOSTAT, AIR COOLED, R–134A, AND STANDARD FACTORY WARRANTY, 1/5 HP, 120V–1–60, MOUNT AT MAX. 36" FROM FLOOR TO LOWER SPOUT OUTLET AND MIN. 38–43" MAX. FOR UPPER UNIT; LKAPREZL CANE TOUCH APRON: ABS PLASTIC, MOUNT ON UPPER UNIT; ZURN Z–1225–BL C.I. WALL CARRIER; WASTE: 1–1/4" 17 GA C.P. BRASS TAILPIECE, 1–1/4" 17 GA BRASS C.P. ADJ. "P"–TRAP W/ C.P. BRASS NUTS; SUPPLY: C.P. ANGLE SUPPLY W/STOP, 3/8" FLEX TUBE RISER.
	LAVATORY LV1 (WALL HUNG)	2"	1–1/2"	1–1/4"	1/2"	1/2"	AMERICAN STANDARD NO.0355.012 "LUCERNE" WALL MOUNTED LAVATORY: TAS COMPLIANT, WHITE, FRONT OVERFLOW, CONCEALED WALL CARRIER, 4" O.C. TAPPING; MIFAB MC–41 SERIES FLOOR MOUNTED CONCEALED ARM CARRIER WITH TWO UPRIGHTS; WATTS P1070 FAUCET: C.P. BRASS BODY, 0.5 GPM AERATOR, DECK PLATE, ASSE 1070, SET AT 105°F; WASTE: 1–1/4" 17 GA C.P. BRASS TAILPIECE WITH GRID STRAINER, 1–1/4" 17 GA BRASS C.P. ADJ. "P"–TRAP W/C.O. AND C.P. BRASS NUTS, ESCUTCHEON; SUPPLY: C.P. ANGLE SUPPLIES W/STOPS, 3/8" FLEX TUBE RISERS, ESCUTCHEONS. PROVIDE TRUEBRO FACTORY CUT LAV SHIELD NO. 2018–AS–L FOR EXPOSED PIPING. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT.
	LAVATORY LV1 (COUNTER MOUNT)	2"	1–1/2"	1–1/4"	1/2"	1/2"	AMERICAN STANDARD NO. 0476.028 "AQUALYN" SELF RIMMING LAVATORY: TAS COMPLIANT, WHITE, V.C., FRONT OVERFLOW 4" O.C. TAPPINGS; **WATTS P1070 (CHICAGO 420–T45E2805ABCP)** FAUCET: C.P. 0.5 AERATOR, DECK PLATE, SINGLE LEVER HANDLE, HOT AND COLD WATER MIXING THERMOSTATIC, ASSE 1070 CERTIFIED, SET AT 105°F; WASTE: 1–1/4" 17 GA C.P. BRASS OFFSET TAILPIECE WITH GRID STRAINER, 1–1/4" 17 GA BRASS C.P. ADJ. "P"–TRAP W/C.O., ESCUTCHEON; SUPPLY: C.P. ANGLE SUPPLIES W/STOPS, 3/8" FLEX TUBE RISERS, ESCUTCHEONS; PROVIDE TRUEBRO 103 EZ SERIES INSULATION KIT ON EXPOSED PIPING. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT.
	SINK SK1 (SINGLE COMPARTMENT)	2"	1–1/2"	1–1/2"	1/2"	1/2"	ELKAY LRAD191860L "LUSTERTONE" SINK: TAS COMPLIANT, 18 GA. TYPE 302 S.S., SATIN FINISH, SELF RIMMING, FITTING DECK, BACK LEDGE, SOUND DAMPENER, 3–HOLE, 19"x18"x6", REAR OFFSET DRAIN; WATTS GP1070 "LAVSAFE" FAUCET: C.P. BRASS, 6" GOOSENECK, DECK MOUNT, SINGLE LEVER HANDLE, 2.0 GPM VR AERATOR, HOT AND COLD WATER MIXING THERMOSTATIC, ASSE 1070 CERTIFIED, SET AT 105°F; WASTE: LK–35 3–1/2" S.S. DRAIN BODY, BASKET STRAINER, 1–1/2" TAILPIECE; 1–1/2" 17GA. C.P. BRASS ADJ. "P"–TRAP W/C.O., ESCUTCHEON; SUPPLY: C.P. ANGLE SUPPLIES WITH STOPS, 1/2" FLEX TUBE RISERS, ESCUTCHEONS; TRUEBRO 102–EZ INSULATION KIT FOR TAS/ADA.
	SERVICE SINK SS1 (FLOOR MOUNTED)	3"	2"	3"	1/2"	1/2"	FIAT MSB–2424 SERVICE SINK: PRE–CAST MOLDED STONE, FLOOR TYPE, 24"x24"x10", FIELD FABRICATED S.S. CAP ON ALL CURBS; NO. 830–AA C.P. SINK FAUCET: VACUUM BREAKER, INTEGRAL STOPS, ADJ. WALL BRACE, PAIL HOOK, 3/4" HOSE END SPOUT, 4–ARM HANDLES (MOUNT 36" AFF); WASTE: NO. 874 DRAIN, INTEGRAL C.P. STRAINER; NO. 832–AA HOSE & BRACKET; NO. 833–AA SEALANT; NO. 889–CC 3 MOP HANGER BRACKET.
	URINAL UR1	2"	2"	1–1/2"	3/4"	-----	AMERICAN STANDARD NO. 6550.001 "ALLBROOK" **(KOHLER NO. K–5016–ET "DEXTER")** URINAL: TAS COMPLIANT, SIPHON JET, V.C., WHITE, WALL HUNG, 3/4" TOP SPUD, 0.5 GAL. FLUSH, 14" LIP, MOUNT AT 17" A.F.F. TO TOP OF LIP; SLOAN ROYAL NO.186–0.5 FLUSH VALVE: 0.5 GPF, DIAPHRAGM TYPE, EXPOSED, C.P., 3/4"VACUUM BREAKER TOP SPUD, MANUAL OPERATED; ZURN ZR–1222 C.I. WALL CARRIER: C.I., FLOOR MOUNTED.
	WATER CLOSET WC1 (TANK TYPE)	4"	3"	4"	1/2"	-----	AMERICAN STANDARD 215AA.104 "CADET" FLUSH TANK WATER CLOSET: ADULT TAS COMPLIANT, 17"–19" MAX. TOP OF SEAT, ELONGATED, V.C., WHITE, FLOOR MOUNTED, 1.28 GPF SIPHON FLUSH, BOLT CAPS, CLOSET SEAL, MOUNT WITH HANDLE AT WIDE SIDE OF STALL; CHURCH 255SSC SEAT: ELONGATED, PLASTIC, WHITE, OPEN FRONT, SS POSTS, SELF SUSTAINING CHECK HINGE; SUPPLY: C.P. ANGLE SUPPLY WITH STOP, 3/8" FLEX TUBE RISER, ESCUTCHEON.
	WATER CLOSET WC2 (TANK TYPE)	4"	3"	4"	1/2"	-----	AMERICAN STANDARD 215CA.104 "CADET" FLUSH TANK WATER CLOSET: 15" TOP OF SEAT, ELONGATED, V.C., WHITE, FLOOR MOUNTED, 1.28 GPF SIPHON FLUSH, BOLT CAPS, CLOSET SEAL, MOUNT WITH HANDLE AT WIDE SIDE OF STALL; CHURCH 255SSC SEAT: ELONGATED, PLASTIC, WHITE, OPEN FRONT, SS POSTS, SELF SUSTAINING CHECK HINGE; SUPPLY: C.P. ANGLE SUPPLY WITH STOP, 3/8" FLEX TUBE RISER, ESCUTCHEON.

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MAXWELL SUD
OFFICE BUILDING
MAXWELL, TEXAS

PROJECT NO: 202210
DATE: APRIL 2023

PLUMBING SCHEDULES

P2.1

DRG REFERENCE

PROGRESS SET

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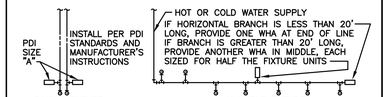
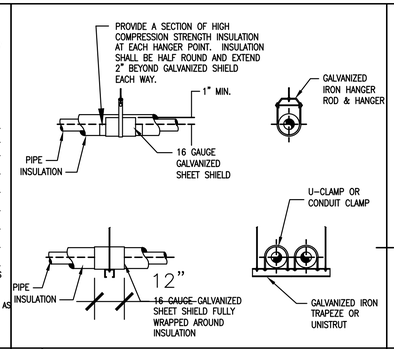


PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD	SIOUX CHIEF MODEL No.
A	1/2"	1–11	652–A
B	3/4"	12–32	653–B
C	1"	33–60	654–C
D	1–1/4"	61–113	655–D
E	1–1/2"	114–154	656–E
F	2"	154–330	657–F

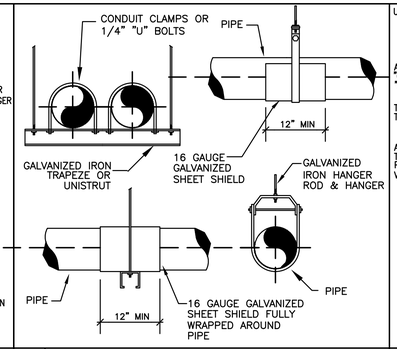
FIXTURE UNIT TABULATION		
FIXTURE	COLD	HOT
VALVE WATER CLOSET	10	--
TANK WATER CLOSET	5	--
URINAL	5	--
LAVATORY/SINK	1.5	1.5
JANITOR'S SINK	3	3
SHOWER/BATHTUB	2	2

PC TO PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND O-RING CONSTRUCTION, HAVING PDI #WH- 201, ASSE #1010 AND ANSI #A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE. PROVIDE ACCESS PANEL FOR SERVICING OR REPLACEMENT, WHERE REQUIRED.

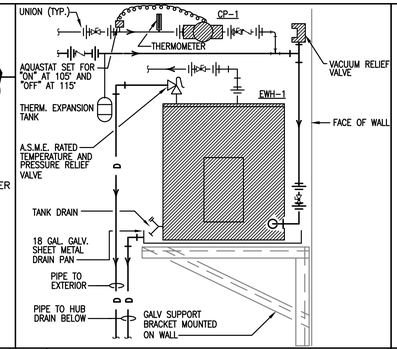
9 WATER HAMMER ARRESTOR
NOT TO SCALE PPTP100



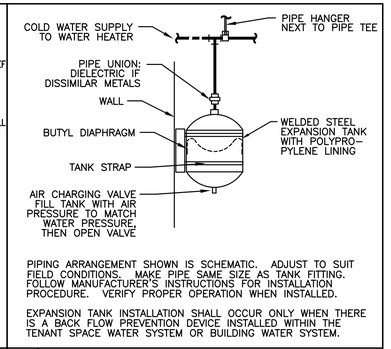
10 PIPE HANGER FOR INSUL. PIPE
NOT TO SCALE PWHE203



11 UNINSULATED PIPE HANGER
NOT TO SCALE PWHE203



12 WATER HEATER DETAIL
NOT TO SCALE PWHE203



PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. MAKE PIPE SAME SIZE AS TANK FITTING. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION PROCEDURE. VERIFY PROPER OPERATION WHEN INSTALLED.

EXPANSION TANK INSTALLATION SHALL OCCUR ONLY WHEN THERE IS A BACK FLOW PREVENTION DEVICE INSTALLED WITHIN THE TENANT SPACE WATER SYSTEM OR BUILDING WATER SYSTEM.

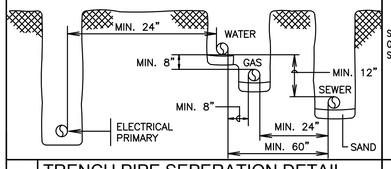
13 EXPANSION TANK DETAIL
NOT TO SCALE

CLEAR TRENCH OF ALL ROCKS AND DEBRIS BEFORE ADDING SAND CUSHION.

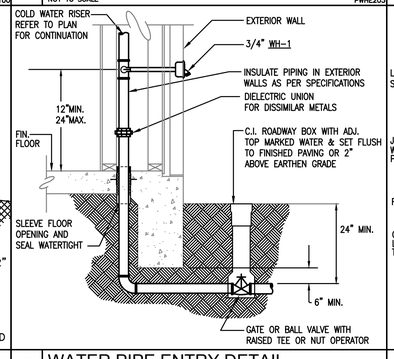
COMPACT TRENCH FILL TO 95% PROCTOR DENSITY.

MAINTAIN A MINIMUM OF 60 INCHES UNDISTURBED EARTH BETWEEN PARALLEL WATER AND SEWER LINES OR SUPPORT WATER LINE ON SEPERATE SHELF A MINIMUM OF 12" ABOVE SEWER LINE.

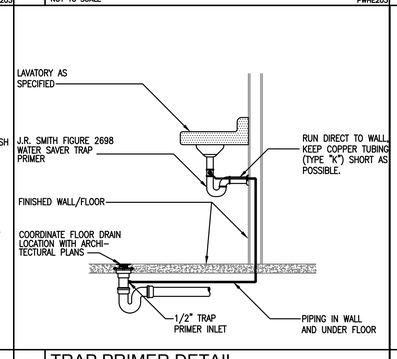
MAINTAIN A MINIMUM OF 24" HORIZONTALLY BETWEEN ELECTRICAL PRIMARY AND SEWER. MAINTAIN A MINIMUM OF 12" VERTICALLY OR 24" HORIZONTALLY BETWEEN ELECTRICAL PRIMARY AND WATER LINES, GAS LINES, TELEPHONE RACEWAYS AND CABLE RACEWAYS.



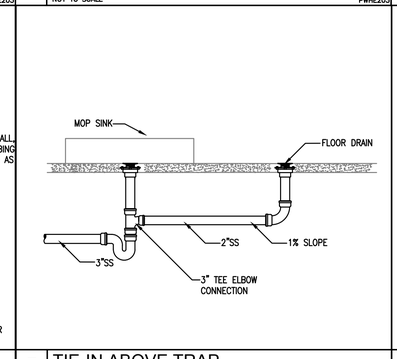
4 TRENCH PIPE SEPERATION DETAIL
NOT TO SCALE PPGP11



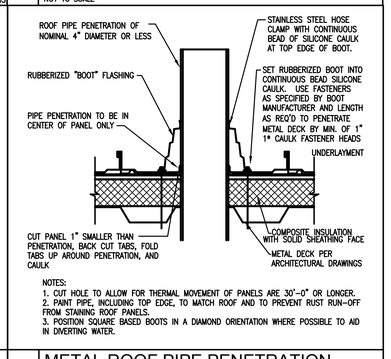
5 WATER PIPE ENTRY DETAIL
NOT TO SCALE PWR103



6 TRAP PRIMER DETAIL
NOT TO SCALE PPTP105



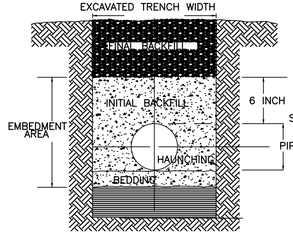
7 TIE-IN ABOVE TRAP
NOT TO SCALE PPTP105



NOTES:
1. CUT HOLE TO ALLOW FOR THERMAL MOVEMENT OF PANELS ARE 30'–0" OR LONGER.
2. PAINT PIPE, INCLUDING TOP EDGE, TO MATCH ROOF AND TO PREVENT RUST RUN–OFF FROM STAINING ROOF PANELS.
3. POSITION SQUARE BASED BOOTS IN A DIAMOND ORIENTATION WHERE POSSIBLE TO AID IN DIVERTING WATER.

8 METAL ROOF PIPE PENETRATION
NOT TO SCALE

UNDERGROUND INSTALLATION OF PLASTIC PIPE



NOTE–IN ADDITION TO THESE STANDARDS, PIPE SHOULD ALWAYS BE INSTALLED IN ACCORDANCE WITH ALL LOCAL CODE REQUIREMENTS.

PLASTIC PIPE SHOULD ALWAYS BE BURIED IN STRICT ACCORDANCE WITH THE ASTM STANDARD RELEVANT TO THE TYPE OF PLASTIC PIPING SYSTEM BEING INSTALLED. THOSE STANDARDS ARE:

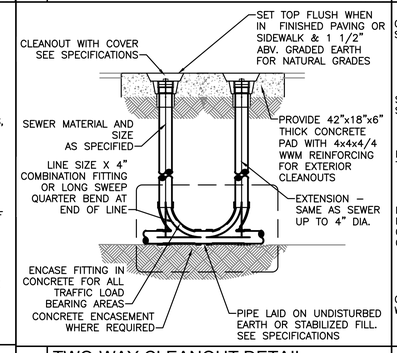
ASTM D2321 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY–FLOW APPLICATIONS.

ASTM D2774 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING.

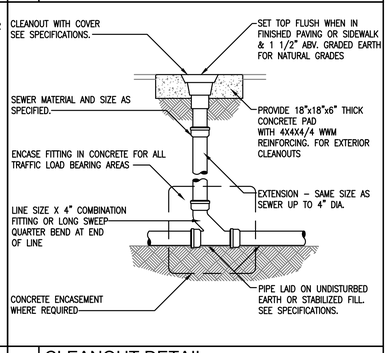
1. THE MINIMUM WIDTH OF THE TRENCH SHOULD BE THE PIPE OD (OUTSIDE DIAMETER) PLUS 16 INCHES OR THE PIPE OUTSIDE DIAMETER TIMES 1.25 PLUS 12 INCHES. THIS WILL ALLOW ADEQUATE ROOM FOR JOINING THE PIPE, SNAKING THE PIPE IN THE TRENCH TO ALLOW FOR EXPANSION AND CONTRACTION WHERE APPROPRIATE AND SPACE FOR BACKFILLING AND COMPACTION OF BACKFILL. THE SPACE BETWEEN THE PIPE AND TRENCH WALL MUST BE WIDER THAN THE COMPACTION EQUIPMENT USED TO COMPACT THE BACKFILL.
2. PROVIDE A MINIMUM OF 4 INCHES OF FIRM, STABLE AND UNIFORM BEDDING MATERIAL IN THE TRENCH BOTTOM. IF ROCK OR UNYIELDING MATERIAL IS ENCOUNTERED, A MINIMUM OF 6 INCHES OF BEDDING SHALL BE USED. BLOCKING SHOULD NOT BE USED TO CHANGE PIPE GRADE OR TO INTERMITTENTLY SUPPORT PIPE OVER LOW SECTIONS IN THE TRENCH.
3. PIPE SHOULD BE SURROUNDED WITH AGGREGATE MATERIAL WHICH CAN BE EASILY WORKED AROUND THE SIDES OF THE PIPE. BACKFILLING TO BE PERFORMED IN LAYERS OF 6 INCHES WITH EACH LAYER BEING SUFFICIENTLY COMPACTED TO 85% TO 95% COMPACTION.
4. A MECHANICAL TAMPER IS RECOMMENDED FOR COMPACTING SAND AND GRAVEL. THESE MATERIALS CONTAIN FINE–GRAINS, SUCH AS SILT AND CLAY. IF A TAMPER IS NOT AVAILABLE, COMPACTING SHOULD BE DONE BY HAND.
5. THE TRENCH SHOULD BE COMPLETELY FILLED. THE BACKFILL SHOULD BE PLACED AND SPREAD IN UNIFORM LAYERS TO PREVENT ANY UNFILLED SPACES OR VOIDS. LARGE ROCKS, STONES, FROZEN CLODS, OR OTHER LARGE DEBRIS SHOULD BE REMOVED. STONE BACKFILL SHALL PASS THROUGH AN 1–1/2" SIEVE. ROCK SIZE SHOULD BE ABOUT ONE–TENTH OF THE PIPE OUTSIDE DIAMETER. HEAVY TAMPERS OR ROLLING EQUIPMENT SHOULD ONLY BE USED TO CONSOLIDATE THE FINAL BACKFILL.
6. TO PREVENT DAMAGE TO THE PIPE AND DISTURBANCE TO PIPE EMBEDMENT, A MINIMUM DEPTH OF BACKFILL ABOVE THE PIPE SHOULD BE MAINTAINED. PIPE SHOULD ALWAYS BE INSTALLED BELOW THE FROST LEVEL. TYPICALLY, IT IS NOT ADVISABLE TO ALLOW VEHICULAR TRAFFIC OR HEAVY CONSTRUCTION EQUIPMENT TO TRAVERSE THE PIPE TRENCH.

1 UNDERGROUND INSTALLATION DETAIL OF PLASTIC PIPING SYSTEMS
NOT TO SCALE

UNDERGROUND INSTALLATION



2 TWO-WAY CLEANOUT DETAIL
NOT TO SCALE PPWV100



3 CLEANOUT DETAIL
NOT TO SCALE PPWV100

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MAXWELL, TEXAS

PROJECT NO: 202210
DATE: APRIL 2023

PLUMBING DETAILS

P3.1

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