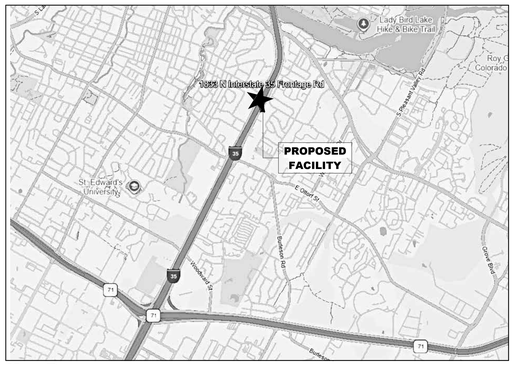
BONILLA LAW FIRM

BRADFORD ALAN LEGACY HOLDINGS LLC

1833 S I-35 Frontage Rd.
Austin, TX 78741



Location Map
N.T.S.



Key Plan
N.T.S.

BID ALTERNATES

PLEASE PROVIDE SEPARATE LINE ITEM BID ALTERNATES FOR THE FOLLOWING. INCLUDE BOTH THE DEDUCT OF ORIGINAL PROPOSED WORK AS IT APPLIES AND THE ADD FOR THE BID ALTERNATE.

1. NEW TPO ROOFING WITH NEW ABOVE-DECK INSULATION
   - A. DEMO ALL OF EXISTING WALL (FRAMING & BRICK) ON COLUMN LINE 5 FROM FLOOR TO TOP OF PARAPET
   - B. REMOVE NEW SUPPORTING STEEL FROM BID - DETAIL 24/S6.00. EXISTING STEEL TO REMAIN.
   - C. NEW STEEL WIND-BRACE REMAINS - DETAIL B/F/S6.00
   - D. NO SPRAYED INSULATION BELOW DECK
   - E. NEW R25 RIGID INSULATION ABOVE DECK
     JOHNS MANVILLE - ENRGY 3
   - F. NEW TPO ROOFING
     JOHNS MANVILLE - JM TPO 60MIL SYSTEM - WHITE
2. PROVIDE NEW TOP COATING ON ASPHALT PARKING LOT WITH NEW STRIPING. MATCH EXISTING STRIPING.
3. DEDICATED MICROWAVE CIRCUIT IN BREAK ROOM
4. INSTALL APPLIANCES:
   - A. REFRIGERATOR WITH ICE MAKER AND WATER - PROVIDE PLUMBING - SAMSUNG - BESPOKE AI SIDE-BY-SIDE - RS22T5201SR/AA
   - B. ADA DISHWASHER - SUMMIT 24" WIDE BUILT-IN DISHWASHER, ADA COMPLIANT - DW244SSADA
   - C. INSTALL COUNTER MOUNTED MICROWAVE.
5. HARD PIPED COFFEE MACHINE - OWNER TO PROVIDE COFFEE MACHINE

OWNER:

BRADFORD BONILLA
BRADFORD ALAN LEGACY HOLDINGS LLC
3910 IH 35 SOUTH
STE. 200
AUSTIN, TX 78704
(512) 441 1111
BRAD@BONILLALEGAL.COM

GENERAL CONTRACTOR:

TBD

DESIGN TEAM:

ARCHITECTURE:
N-VIZION DESIGN, LLC
5900-2 SHEPHERD MOUNTAIN COVE,
STE. 250
AUSTIN, TX 78730
(512) 327 9995
STEPHEN HAMPTON, PE, ARCHITECT
SHAMPTON@N-VIZION.NET

STRUCTURAL ENGINEER:
TDI ENGINEERING
5906 OLD FEDERICKSBURG ROAD
SUITE 300
AUSTIN, TX 78749
(512) 301-3389

MEP ENGINEER:
EEA CONSULTING ENGINEERS
7300 RANCH ROAD 2222
BLDG. II, SUITE 100
AUSTIN, TX 78730
(512) 744 - 4400
austin-tx@eeace.com

DESCRIPTION OF PROJECT
REMODEL OF EXISTING SINGLE-STORY OFFICE BUILDING WITH NO CHANGE OF USE AND NO CHANGE TO BUILDING SQUARE FOOTAGE. REMODEL INCLUDES BOTH INTERIOR AND EXTERIOR WORK.

SHEET INDEX

SHEET	SHEET NAME	DATE	DESCRIPTION
A000	COVER SHEET	05/05/26	BID SET
A001	CODE ANALYSIS & GEN. NOTES	05/05/26	BID SET
A010	ACCESSIBILITY DETAILS	05/05/26	BID SET
A020	LIFE SAFETY PLAN	05/05/26	BID SET
A030	DEMOLITION PLAN	05/05/26	BID SET
A031	DEMO ELEVATIONS	05/05/26	BID SET
A032	DEMO ELEVATIONS	05/05/26	BID SET
A041	ARCHITECTURAL SITE PLAN	05/05/26	BID SET
A100	OVERALL FLOOR PLAN	05/05/26	BID SET
A110	OVERALL FINISH PLAN	05/05/26	BID SET
A120	OVERALL REFLECTED CEILING PLAN	05/05/26	BID SET
A130	OVERALL ROOF PLAN	05/05/26	BID SET
A220	ENLARGED CONFERENCE RCPS	05/05/26	BID SET
A300	MATERIAL SCHEDULE	05/05/26	BID SET
A302	FINISH SCHEDULE & WALL TYPES	05/05/26	BID SET
A303	DOOR AND HARDWARE SCHEDULES	05/05/26	BID SET
A304	WINDOW SCHEDULE & WINDOW DETAILS	05/05/26	BID SET
A400	EXTERIOR ELEVATIONS	05/05/26	BID SET
A401	EXTERIOR ELEVATIONS	05/05/26	BID SET
A410	INTERIOR ELEVATIONS	05/05/26	BID SET
A510	WALL SECTIONS	05/05/26	BID SET
A511	WALL SECTIONS	05/05/26	BID SET
A512	WALL SECTIONS	05/05/26	BID SET
A513	WALL SECTIONS	05/05/26	BID SET
A520	ENLARGED WALL SECTIONS DETAILS	05/05/26	BID SET
A521	ENLARGED WALL SECTIONS DETAILS	05/05/26	BID SET
A700	MILLWORK DETAILS	05/05/26	BID SET
STRUCTURAL			
S1.00	GENERAL NOTES	04/30/26	FOR CONSTRUCTION
S1.01	GENERAL NOTES	04/40/26	FOR CONSTRUCTION
S2.00	FOUNDATION PLAN	04/30/26	FOR CONSTRUCTION
S3.00	FRAMING PLAN	04/30/26	FOR CONSTRUCTION
S5.00	FOUNDATION DETAILS	04/30/26	FOR CONSTRUCTION
S6.00	FRAMING DETAILS	04/30/26	FOR CONSTRUCTION
MECHANICAL			
M001	MECHANICAL GENERAL NOTES & LEGENDS	04/28/26	FOR CONSTRUCTION
M002	MEP GENERAL NOTES	04/28/26	FOR CONSTRUCTION
M003	MECHANICAL SPECIFICATIONS	04/28/26	FOR CONSTRUCTION
M004	MECHANICAL SPECIFICATIONS	04/28/26	FOR CONSTRUCTION
MD101	MECHANICAL DEMOLITION PLAN - LVL 1	04/28/26	FOR CONSTRUCTION
MD102	MECHANICAL DEMOLITION PLAN - ROOF	04/28/26	FOR CONSTRUCTION
M101	MECHANICAL PLAN - LVL 1	04/28/26	FOR CONSTRUCTION
M102	MECHANICAL PLAN - ROOF	04/28/26	FOR CONSTRUCTION
M601	MECHANICAL SCHEDULES	04/28/26	FOR CONSTRUCTION
M602	MECHANICAL SCHEDULES	04/28/26	FOR CONSTRUCTION
M701	MECHANICAL DETAILS	04/28/26	FOR CONSTRUCTION
M901	MECHANICAL CALCULATIONS	04/28/26	FOR CONSTRUCTION
ELECTRICAL			
E001	ELECTRICAL SYMBOLS AND LEGENDS	04/28/26	FOR CONSTRUCTION
E002	ELECTRICAL SPECIFICATIONS	04/28/26	FOR CONSTRUCTION
E003	ELECTRICAL SPECIFICATIONS	04/28/26	FOR CONSTRUCTION
ED101	ELECTRICAL DEMOLITION PLAN	04/28/26	FOR CONSTRUCTION
E101	LIGHTING PLAN	04/28/26	FOR CONSTRUCTION
E201	POWER PLAN	04/28/26	FOR CONSTRUCTION
E202	HVAC POWER PLAN	04/28/26	FOR CONSTRUCTION
E601	ELECTRICAL SCHEDULES	04/28/26	FOR CONSTRUCTION
PLUMBING			
P001	PLUMBING GENERAL NOTES & LEGENDS	04/28/26	FOR CONSTRUCTION
P002	PLUMBING SPECIFICATIONS	04/28/26	FOR CONSTRUCTION
P003	PLUMBING SPECIFICATIONS	04/28/26	FOR CONSTRUCTION
PD101	PLUMBING DEMOLITION PLAN	04/28/26	FOR CONSTRUCTION
P101	PLUMBING SANITARY WASTE & VENT PLAN	04/28/26	FOR CONSTRUCTION
P102	PLUMBING DOMESTIC WATER & GAS PLAN	04/28/26	FOR CONSTRUCTION
P103	PLUMBING ROOF PLAN	04/28/26	FOR CONSTRUCTION
P501	PLUMBING RISERS	04/28/26	FOR CONSTRUCTION
P601	PLUMBING SCHEDULES	04/28/26	FOR CONSTRUCTION

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05/01/26

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BONILLA LAW FIRM
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1833 S I-35 Frontage Rd
Austin, TX 78741

N-VIZION
FORMS + ENVIRONMENTS + IMAGES

COVER SHEET

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, Texas 78730 - (512) 327-9995 - www.n-vizion.com
Registered: TX: PE: F-12799 - TX:25498 - LA: 9413 Mi:
1301069591 - NV: 8252, NC: 14883, OH: ARC.1917885

Date:	Description:
05/05/26	BID SET

A000

GENERAL NOTES

1. ALL NOTES ON GENERAL NOTES SHEET APPLY TO ALL DRAWINGS AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO READ, UNDERSTAND AND ADHERE TO ALL NOTES.

2. REFERENCE STRUCTURAL DRAWINGS FOR DIMENSIONS AND LOCATIONS OF ALL STRUCTURAL ELEMENTS.

3. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES ADOPTED BY LOCAL JURISDICTION. REF. CODE ANALYSIS FOR LIST OF CODES.

4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A COPY OF A UL DESIGN MANUAL ON SITE AND TO INSURE THAT ALL DESIGN REQUIREMENTS NOT NOTED ON THE DRAWINGS ARE MET.

5. ALL PENETRATIONS INTO OR THROUGH FIRE RATED WALLS, CEILINGS, FLOORS AND ROOFS SHALL BE FIRE STOPPED PER CODE.

6. ALL WALL COVERINGS TO COMPLY WITH CODE ADOPTED BY AUTHORITY HAVING JURISDICTION. SPECIFICALLY BUT NOT LIMITED TO THE REQUIRED FIRE CLASS AND RATING.

7. FLOOR FINISH MATERIAL TRANSITIONS SHALL HAVE EDGE OR JOINT COVERS. INSURE TRANSITIONS ARE IN COMPLIANCE W/ TAS.

8. ALL BREAKS IN FLOOR FINISHES WHICH OCCUR AT DOOR OPENINGS SHALL BE CENTERED AT CENTER OF DOOR IN THE CLOSED POSITION.

9. REFER TO DOOR SCHEDULE FOR DOOR DETAILS. GASKETED, SWEEPS, KICKPLATES, PUSHPLATES, DOORSTOPS, ETC. INSTALL COMMERCIAL GRADE.

10. PROVIDE SAFETY GLASS & WALL/CEILING/FLOOR COVERINGS PER CODE ADOPTED BY LOCAL JURISDICTION.

11. PROVIDE FIRE TREATED BLOCKING IN WALLS FOR ALL MATERIALS TO BE WALL MOUNTED.

12. REFER TO FINISH & MATERIAL SCHEDULES FOR FINISHES, TYPICAL.

13. ALL REQUIRED LIFE SAFETY AND ACCESSIBILITY SIGNAGE AND GRAPHICS TO BE INSTALLED PER THE APPROPRIATE CODE PRIOR TO OCCUPYING THE BUILDING.

14. CONSULT N-VIZION PRIOR TO CONSTRUCTION IN CASES WHERE CONFLICTS EXIST BETWEEN ARCHTECTS AND ENGINEERS DRAWINGS.

15. DIMENSIONS ARE REFERENCED TO:
A. FACE OF FRAMING
B. FACE OF CONCRETE
C. COLUMN STRUCTURE GRID LINE

RESTROOM ELEVATIONS AND ACCESSIBILITY D'LS DIMENSIONS ARE REFERENCED TO:

A. FACE OF SHEETROCK
B. FACE OF TILE
C. FACE OF PARTITION

16. PLANS LABELED AS "PERMIT SET" OR "BID SET" MAY BE USED FOR PRELIMINARY BIDS WHICH SHOULD BE REGARDED AS PRELIMINARY ESTIMATES. FINAL BIDS SHOULD BE BASED ON THE "CONSTRUCTION SET". FAILURE TO DO SO MAY LEAD TO UNNECESSARY ADDITIONAL EXPENSES TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

17. CONTRACTOR WILL BE HELD RESPONSIBLE FOR STUDYING DRAWINGS, TO HAVE VISITED THE SITE, AND TO HAVE SATISFIED HIMSELF REGARDING ALL EXISTING CONDITIONS UNDER WHICH HE WILL BE OBLIGED TO OPERATE.

18. THE SUBMISSION OF A BID OR PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT THE CONTRACTOR HAS FAMILIARIZED HIMSELF WITH THE PLANS AND EXISTING CONDITIONS OF THE BUILDING SITE. CLAIMS MADE SUBSEQUENT TO THE BID OR PROPOSAL FOR ADDITIONAL MATERIALS AND LABOR BECAUSE OF DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED IF THEY COULD HAVE BEEN FORESEEN HAD PROPER EXAMINATION BEEN MADE. AND SHALL BE PERFORMED AT THE EXPENSE OF THE CONTRACTOR.

19. CONTRACTOR IS ENCOURAGED TO MAKE COST SAVING SUGGESTIONS AS TO MATERIALS AND MEANS OF CONSTRUCTION DURING BOTH THE BID PHASE AND CONSTRUCTION PHASE. ANY SUGGESTIONS REQUIRE SUBMITTAL IN HARD COPY OR DIGITAL FORM TO N-VIZION. WRITTEN APPROVAL BY N-VIZION IS REQUIRED PRIOR TO EXECUTION IN THE FIELD. N-VIZION AND THE OWNER RESERVE THE RIGHT TO REJECT ALTERNATE SUGGESTIONS FOR ANY REASON.

20. PRIOR TO STARTING CONSTRUCTION THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION OF ANY ITEM SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED ALL PLANS AND ANY OTHER APPROVALS FROM GOVERNMENTAL AGENCIES OR OTHER REGULATORY AUTHORITIES HAVING JURISDICTION OVER THE PROJECT.

21. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A COPY OF ALL APPLICABLE CODES AND THEIR AMENDMENTS ADOPTED BY LOCAL JURISDICTION AT THE JOB SITE.

22. CONTRACTOR IS RESPONSIBLE FOR SEQUENCE AND MEANS OF CONSTRUCTION AND SHALL SUPERVISE THE WORK AND COORDINATE ALL PORTIONS THEREOF.

23. CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTS AND OMISSIONS OF ALL HIS EMPLOYEES AND SUBCONTRACTORS.

24. BEFORE PERFORMING ANY WORK OR ORDERING ANY MATERIALS, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF ANY EXISTING OR NEW WORK AND SHALL BE RESPONSIBLE FOR THEIR ACCURACY, ANY DIFFERENCES FOUND SHALL BE SUBMITTED TO N-VIZION FOR CONSIDERATION BEFORE PROCEEDING WITH THE WORK. ENLARGED SCALE DRAWINGS/DETAILS SHALL GOVERN OVER SMALLER SCALED DRAWINGS. SPECIFICATIONS SHALL GOVERN OVER ALL.

25. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE UTILITY COMPANIES AND TO VERIFY THE EXISTING LOCATION AND DEPTH OF THE UTILITIES PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL PROTECT ALL PRIVATE AND PUBLIC UTILITIES FROM DAMAGE.

26. CONTRACTOR SHALL COORDINATE ALL DELIVERIES AND ACCESSIBILITY TO THE BUILDING FOR ALL ITEMS SUCH AS, BUT NOT LIMITED TO THE FOLLOWING: FURNITURE, FIXTURES, EQUIPMENT, ACCESSORIES.

27. ALL MATERIALS AND EQUIPMENT INCORPORATED IN THE WORK SHALL BE NEW UNLESS OTHERWISE SPECIFIED AND ALL WORK SHALL BE OF GOOD QUALITY, FREE FROM FAULTS AND IN CONFORMANCE WITH THE PLANS.

28. ALL GLAZED OPENINGS SHALL BE FIELD VERIFIED AND COORDINATED WITH SHOP DRAWINGS BEFORE ORDERING.

29. SHOP DRAWINGS SHALL BE SUBMITTED TO THE OWNER/N-VIZION FOR APPROVAL PRIOR TO FABRICATION OF ANY ITEM. FAILURE TO ADHERE TO THIS PROCEDURE SHALL PLACE FULL RESPONSIBILITY FOR ANY ERRORS DIRECTLY UPON THE CONTRACTOR.

30. CONTRACTOR SHALL PROVIDE A SAMPLE IN INCONSPICUOUS LOCATIONS FOR ALL STAIN AND PAINT FINISHES, FOR APPROVAL BY N-VIZION/OWNER PRIOR TO FINAL FINISHING. FINAL FINISHING WITHOUT APPROVED SAMPLES MAY REQUIRE REFINISHING AS DIRECTED BY N-VIZION AT THE CONTRACTOR'S EXPENSE.

31. PROTECT ALL METAL IN CONTACT WITH DISSIMILAR METALS.

32. ALL GYPSUM BOARD TO BE 5/8" UNLESS NOTED OTHERWISE: IN WET AREAS MOISTURE RESISTANT GYPSUM SHALL BE USED.

33. DURING THE COURSE OF WORK IF THE CONTRACTOR OR ITS AGENTS SHOULD DAMAGE OR DESTROY ANY EXISTING WORK WHICH IS TO REMAIN THEN THE CONTRACTOR SHALL REPAIR OR REPLACE THE DAMAGED WORK TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

34. CONTRACTOR SHALL KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY HIS OPERATIONS. AT THE COMPLETION OF THE WORK HE SHALL PERFORM A FINAL CLEAN-UP INSIDE. CLEAN ALL GLASS SURFACES AND LEAVE THE WORK ROOM CLEAN.

35. DO NOT SCALE DRAWINGS. DRAWINGS ARE GENERALLY DRAWN TO SCALE HOWEVER, DIMENSIONS, LABELS AND NOTES TAKE PRECEDENCE OVER SCALE. CONTRACTOR HALL CHECK FOR DISCREPANCIES IN DIMENSIONS AND LABELS PRIOR TO BEGINNING WORK OR ORDERING MATERIALS. DISCREPANCIES SHALL BE REPORTED TO N-VIZION.

36. LOCATIONS OF MECHANICAL, ELECTRICAL OR PLUMBING EQUIPMENT.

37. ACCESSORIES SHOWN ON PLANS ARE APPROXIMATE. THE ACTUAL LOCATION IS TO BE DETERMINED BY CONTRACTOR. LOCATION IS SUBJECT TO THE APPROVAL OF THE ARCHITECT AND ENGINEER.

38. CONTRACTOR SHALL CONFINE HIS APPARATUS, STORAGE OF MATERIALS AND OPERATIONS OF HIS MATERIALS AND OPERATIONS OF HIS WORKMEN TO LIMITS INDICATED BY LAW, ORDINANCES, AND PERMITS AND SHALL ARRANGE AND MAINTAIN PARKING OF VEHICLES AND STORAGE OF MATERIALS IN AN ORDERLY MANNER LEAVING ALL WALKS, DRIVEWAYS, ROADS AND ENTRANCES UNENCUMBERED.

39. CONTRACTOR TO SUBMIT PLUMBING AND ELECTRICAL FIXTURE CUTS TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.

40. THE CONTRACTOR TO VERIFY THE LOCATION OF ALL GRADES, LINES, CURBS, UTILITIES, MANHOLES, HYDRANTS, FENCES, TREES, AND OTHER PHYSICAL OBSTRUCTIONS PRIOR TO COMMENCING WORK.

41. ALL MATERIALS AND EQUIPMENT INCORPORATED IN THE WORK SHALL BE NEW U.N.O. AND ALL WORK SHALL BE OF GOOD QUALITY, FREE FROM FAULTS AND IN CONFORMANCE WITH THE PLANS.

42. SUBSTITUTIONS, REVISIONS, OR CHANGES MAY BE ALLOWED ONLY IF SUCH ITEMS ARE SUBMITTED TO THE OWNER IN A TIMELY MANNER IN WRITING AND SUBSEQUENTLY APPROVED BY THE ARCHITECT IN DESIGN AND PERFORMANCE. THE CONTRACTOR IS LIABLE FOR REPLACEMENT, REPAIR AND DELAYS CAUSED BY ANY UNAUTHORIZED SUBSTITUTION, AND COMPLETE SPECIFICATIONS AND DRAWINGS AS REQUIRED COMPARING ITEMS. THE OWNER RESERVES THE RIGHT TO REJECT FOR ANY REASON.

43. CONTRACTOR SHALL SUBMIT ALL WOOD STAIN AND SPECIALTY FINISHES SAMPLES TO THE ARCHITECT AND OWNER FOR APPROVAL PRIOR TO FINAL FINISHING. IF FAILURE TO SUBMIT SAMPLES FOR APPROVAL THE CONTRACTOR WILL BE RESPONSIBLE FOR REFINISHING TO THE ARCHITECT AND OWNER'S SATISFACTION.

44. CONTRACTOR TO BALANCE SYSTEM FOR ADEQUATE AIR DISTRIBUTION WITHIN ALL CONDITIONED AREAS TO THE OWNER'S SATISFACTION. (UNLESS CERTIFIED TEST & BALANCE REPORT IS REQUIRED BY LOCAL AUTHORITY).

45. ALL WATERPROOFING PRODUCTS TO BE INSTALLED PER THE RECOMMENDATIONS OF THE MANUFACTURER. REFER TO MANUFACTURER'S DETAILS AND SPECIFICATIONS FOR REQUIREMENTS.

SYMBOLS

01 View Name
1/8" = 1'-0"
DRAWING TITLE/LABEL

ROOM
XXX
ROOM LABEL AND NUMBER

XX / AXXX
SECTION MARKER

XX / AXXX
DETAIL / ELEVATION DRAWING MARKER

X / AXXX
DETAIL CALLOUT

XXX
KEYNOTE

0'-0"
SPOT ELEVATION

T
TEMPERED GLASS TAG

DXX
DOOR LABEL REF. SCHEDULES

W000
WINDOW LABEL REF. SCHEDULES

XX | X'-X"
CEILING LABEL WITH CEILING HEIGHT FROM FF

XX
WALL LABEL - REF. SCHEDULES

FIRE EXTINGUISHER

XX
FINISH TAG

REVISION NUMBER/ DESIGNATION

N
NORTH ARROW

CONCRETE WALL

CMU WALL

BATT INSULATED WALL

3-HOUR FIRE RATED WALL

2-HOUR FIRE RATED WALL

1-HOUR FIRE RATED WALL

NON FIRE RATED FRAMED WALL

FIRE EXIT
REQUIRED EXIT

TRAVEL DISTANCE

CODE ANALYSIS

APPLICABLE CODES

BUILDING:	2024	INTERNATIONAL BUILDING CODE
ELEC:	2023	NEC
MECH:	2024	UNIFORM MECHANICAL CODE
PLUMB:	2024	UNIFORM PLUMBING CODE
ACCESS:	2012	TEXAS ACCESSIBILITY STANDARDS W/TECH. MEMOS.
FIRE:	2024	INTERNATIONAL FIRE CODE
ENERGY:	2024	INTERNATIONAL ENERGY CONSERVATION CODE
IEBC	2024	INTERNATIONAL EXISTING BUILDING CODE

OCCUPANCY GROUP - CHAPTER 3

OCCUPANCY GROUP
B - BUSINESS

DESCRIPTION OF USE:
AN EXISTING OFFICE BUILDING TO BE USED AS AN OFFICE BUILDING

OCCUPANCY SEPARATIONS - CHAPTER 3

N/A

AREA SEPARATION REQUIREMENTS - TABLE 302.3.2:

N/A

BUILDING HEIGHT - CHAPTER 5

MAX. STORIES ALLOWED	2
PROPOSED STORIES	1
MAX. HEIGHT ALLOWED	65 FT
PROPOSED HEIGHT	35 FT

BUILDING AREAS - CHAPTER 5

At (NS) =	9,000	SF
At (S1) =	36,000	SF
At (SM) =	27,000	SF
At =	9,000	SF
If =	0.15	
F =	112	FT
P =	282	FT
W =	30	FT
Aa = At + [At x If]:	10,324	SF
Sa =	1	
ALLOW. AREA	**10,324**	TOTAL SF ALLOWED
PROP. AREA	**4,458**	SF PROPOSED

OVERALL BLDG DIMS

(FOR FRONTAGE INC.)

NORTH	85 FT
EAST	56 FT
SOUTH	85 FT
WEST	56 FT
PERIMETER	282 FT

OCCUPANT LOAD/AREA CALC. - TABLE 1004.1.1

TOTAL EXITS REQ'D ON GROUND FLOOR	2
TOTAL EXITS PROVIDED ON GROUND FLOOR	2
	REQ'D

SPACE	AREA	FACTOR	OCCUP'S	EXITS	EGRESS CLASSIFICATION
OFFICE	1,998	150	14	1	BUSINESS AREA
CONFERENCE ROOMS	417	150	3	1	BUSINESS AREA
VESTIBULE	218	150	2	1	BUSINESS AREA
RECEPTION	311	150	3	1	BUSINESS AREA
UNISEX RESTROOM	72	150	1	1	BUSINESS AREA
UNISEX RESTROOM	98	150	1	1	BUSINESS AREA
BREAK ROOM	162	150	2	1	BUSINESS AREA
CORRIDORS	597	150	4	1	BUSINESS AREA
OPEN AREA	343	150	3	1	BUSINESS AREA
COPY	146	150	1	1	BUSINESS AREA
STOR/MECH.	130	300	1	1	ACCESSORY STORAGE AREAS, MECH.
TOTAL OCCUPANT LOAD			35		

NOTE - ASBESTOS SURVEY OF EXISTING BUILDING FOUND NON-FRIABLE ASBESTOS IN THE EXISTING ROOF DRAIN. THE PROPOSED WORK LEAVES THIS ROOF DRAIN IN PLACE AND UNDISTURBED. NO OTHER ASBESTOS WAS FOUND IN THE BUILDING - REFERENCE ASBESTOS SURVEY.

CONSTRUCTION TYPE - CHAPTER 6

TYPE V/B
DESCRIPTION OF CONSTRUCTION:
STEEL STUD CONSTRUCTION WITH STEEL COLUMNS AND STEEL ROOF STRUCTURE

SEPARATION DISTANCE - TABLE 602

NORTH	0	FT TO PROPERTY LINE	1	HR RATED EXISTING
EAST	76	FT TO PROPERTY LINE		NO RATING REQ'D
SOUTH	14	FT TO PROPERTY LINE		NO RATING REQ'D
WEST	18.7	FT TO PROPERTY LINE		NO RATING REQ'D
	27.175			

INT. WALL & FINISH REQUIREMENTS - TABLE 803.5

GROUP	VERT. EXITS	EXIT ACCESS	ROOMS/ ENC. SPACES
B - BUSINESS	A	A	B

AUTOMATIC FIRE PROTECTION SYSTEMS - CHAPER 9

NO SPRINKLER PROVIDED
NO FIRE ALARMS REQUIRED
SMOKE DETECTORS NOT REQUIRED

PLUMBING FIXTURE COUNT

PER CITY OF AUSTIN AMENDMENTS 422.0 CHAPTER 29 (PLUMBING SYSTEMS)
IS USED FOR MINIMUM NUMBER OF REQUIRED FIXTURES

TOTAL OCCUPANT LOAD:		35 PEOPLE	18 MEN	18 WOMEN
MEN	RATIOS	REQ'D	PROVIDED	
WATER CLOSETS	25	1	1	
LAVATORIES	50	1	1	
URINALS			0	
WOMEN				
WATER CLOSETS	25	1	1	
LAVATORIES	50	1	1	
SERVICE SINKS REQ'D		1	1	
DRINKING FOUNTAINS REQ'D			0	

EXIT SEPARATION - SECTION 1014.2.1

MAX. DIAGONAL OF OVERALL SPACE	98.5 FT	
MIN. DISTANCE BETWEEN EXITS	49 FT	1/2 OVERALL DIAG.
DISTANCE BETWEEN EXITS PROVIDED	49 FT	

TRAVEL DISTANCE - SECTION 1015

MAXIMUM DISTANCE ALLOWED	75 FT
MAXIMUM DISTANCE PROVIDED	54 FT

REQUIRED EGRESS WIDTH - SECTION 1005

	EGRESS FACTOR	CALC'D WIDTH	REQ'D WIDTH	WIDTH PROVIDED
STAIR	0.3	N/A IN	N/A IN	N/A
OTHER	0.2	7 IN	44 IN	72 IN

IEBC ALTERATION LEVEL 3

WORK INCLUDES RECONFIGURING MORE THAN 50% OF THE BUILDING AREA
ADDING WINDOWS, ENLARGING DOORS, RECONFIGURING THE ENTIRE MECHANICAL SYSTEM, AND RECONFIGURING MORE THAN 50% OF THE LIGHTING.

Not for regulatory approval, permitting, or construction

05/01/26

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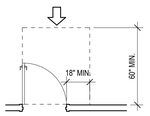
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FORMS + ENVIRONMENTS + IMAGES

CODE ANALYSIS & GEN. NOTES

Project No. 251203
N-Vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 | P: (512) 766-7888 | info@n-vizion.com
Registration: TX: A.E.F.-11229, TX-25498, LA: 9413 Mi: 1301069591 | NV: 8252, NC: 14883, OH: ARC-1917885

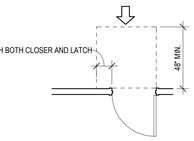
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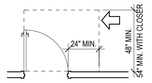
31 Front Approach

NTS



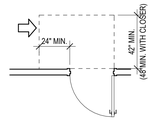
30 Front Approach

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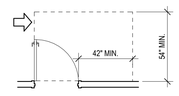
29 Latch Approach

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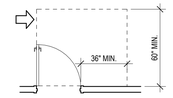
28 Latch Approach

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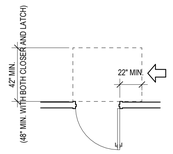
27 Hinge Approach

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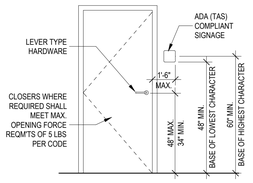
26 Hinge Approach

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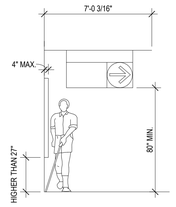
25 Hinge Approach

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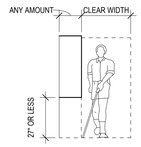
24 Accessible Door

NTS



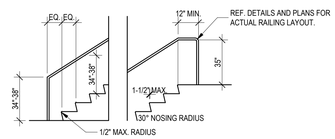
23 Protruding Objects

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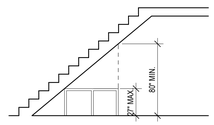
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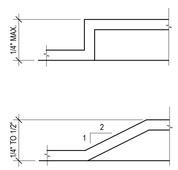
21 Accessible Stairs & Handrail

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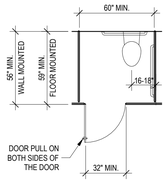
20 Cane Detection

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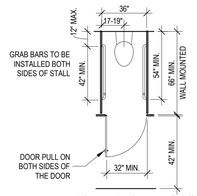
19 Accessible Transition

NTS



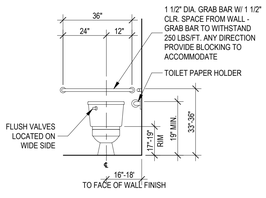
18 Accessible Toilet Stall

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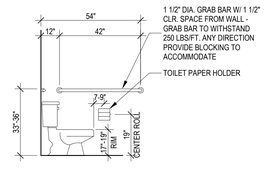
17 Accessible Ambulatory Stall

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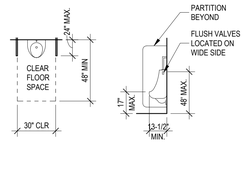
16 Accessible Toilet & Grab Bars

NTS



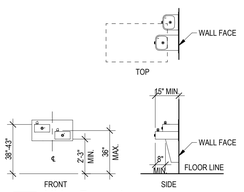
15 Accessible Toilet & Grab Bars

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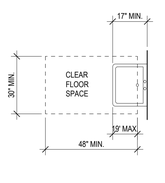
14 Accessible Urinal Dtls.

NTS



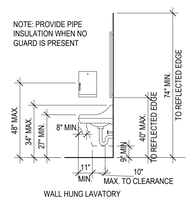
13 Hi Lo Fountain

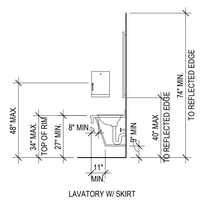
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12 Lavatory Clear Floor Space

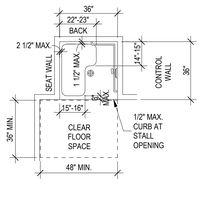
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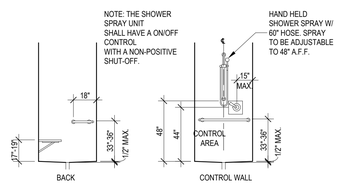
11 Lavatory Clearances

NTS



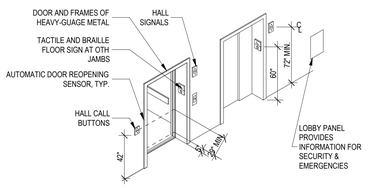
10 Accessible Shower

NTS



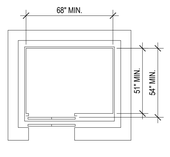
09 Accessible Shower

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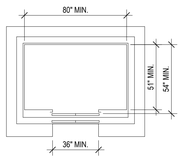
08 Accessible Elevators

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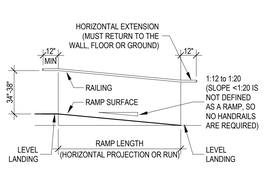
07 Elevator Off Center Door

NTS



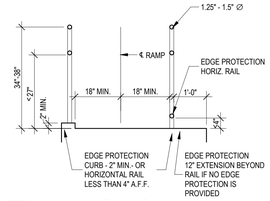
06 Centered Door Location

NTS



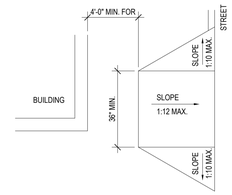
05 Accessible Ramp

NTS



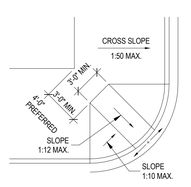
04 Accessible Ramp Section

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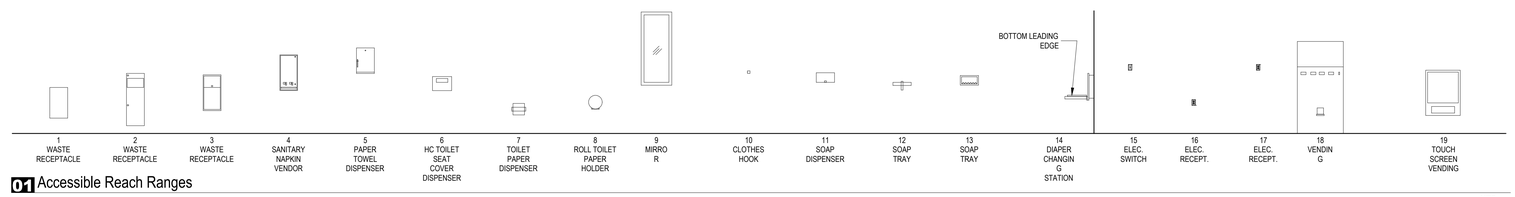
03 Accessible Curb Ramp

NTS



02 Accessible Corner Curb Ramp

NTS



01 Accessible Reach Ranges

NTS

Accessibility Notes

1. ALL WORK SHALL BE IN COMPLIANCE WITH LATEST A.D.A. & LOCAL ACCESSIBILITY REGULATORY AGENCIES, AND SHALL FACILITATE HANDICAPPED ACCESSIBILITY BY ELIMINATING ARCHITECTURAL BARRIERS. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING N-VIZION OF ANY DIMENSIONAL DISCREPANCIES OR ANY UNCLEAR ITEMS SO THAT N-VIZION MAY PROVIDE AN ACCEPTABLE SOLUTION OR ALTERNATIVE.

2. CIVIL ENGINEER IS RESPONSIBLE FOR ALL SITE RELATED ACCESSIBILITY DETAILS AND ISSUES.

3. MINIMUM WIDTH OF ALL ACCESSIBLE ROUTES INCLUDING BETWEEN TABLES AND FURNITURE SHALL BE 36" EXCEPT AT DOORS WHICH SHALL BE A MINIMUM OF 32" CLEAR AND SHALL HAVE A MINIMUM CLEAR HEIGHT OF 80".

4. MAX. THRESHOLD HEIGHT 1/2". RAISED THRESHOLD AND FLOOR LEVEL CHANGES SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2. THRESHOLDS AT DOORWAYS SHALL NOT EXCEED 1/2" IN DOORS.

5. PROTRUDING OBJECTS WITH LEADING EDGE 27" TO 80" A.F.F. SHALL NOT PROTRUDE MORE THAN 4" INTO WALKS AND CORRIDORS.

6. ALL ACCESSIBLE DOORS SHALL COMPLY WITH LOCAL ACCESSIBILITY REGULATORY AGENCY REQUIREMENTS INCLUDING BUT NOT LIMITED TO CLEARANCES, OPENING FORCE, HARDWARE REQUIREMENTS AND CLOSER TIMING.

7. MANEUVERING CLEARANCES AT ALL ACCESSIBLE DOORS SHALL COMPLY WITH APPLICABLE CODES.

8. DOUBLE DOORS SHALL HAVE AT LEAST ONE ACCESSIBLE DOOR LEAF IN ACCORDANCE WITH ACCESSIBILITY REQUIREMENTS. THIS IS TO BE THE ACTIVE LEAF.

9. ALL HANDLES, PULLS, OPERATING MECHANISMS, LATCHES AND LOCKS SHALL COMPLY WITH ALL A.D.A. & LOCAL ACCESSIBILITY REGULATORY AGENCY APPLICABLE CODES .

10. ALL DOOR CLOSURES SHALL MEET A.D.A. & LOCAL ACCESSIBILITY REGULATORY AGENCY STANDARDS.

11. ALL SIGNAGE TO BE COMPLIANT WITH A.D.A. & LOCAL ACCESSIBILITY REGULATORY AGENCIES. PROVIDE HANDICAP GRAPHICS PER A.D.A. & LOCAL ACCESSIBILITY REGULATORY AGENCY REQUIREMENTS.

12. LAV. AND WATER CLOSETS TO BE LEVER TYPE CONTROL. CONTROL SHALL BE OPERABLE W/ ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBF. WATER CLOSET FLUSH CONTROL TO BE ON WIDE SIDE OF TOILET.

13. HOT WATER AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT.

14. MIRRORS SHALL BE A MAXIMUM HEIGHT OF 40" TO BOTTOM OF MIRROR AND A MINIMUM OF 75" AT TOP EDGE.

15. GRAB BAR AND SEAT SHALL WITHSTAND AN IMPOSED LOAD OF NOT LESS THAN 250 LBS. APPLIED AT ANY POINT. PROVIDE SUFFICIENT BLOCKING AT EACH LOCATION TO WITHSTAND THESE LOADS.

16. PROVIDE 1 1/2" CLEARANCE BETWEEN GRAB BAR AND WALL.

17. HANDRAIL GRIPPING SURFACE SHALL BE 1-1/4" TO 1-1/2" OR PROVIDE EQUAL GRIPPING SURFACE.

18. IF CLOTHES HOOKS ARE PROVIDED ENSURE COMPLIANCE WITH A.D.A. & LOCAL ACCESSIBILITY REGULATORY AGENCY REQUIREMENTS.

19. PROVIDE AUDIO/VISUAL ALARMS WHERE ALARMS ARE PROVIDED. ALARMS SHALL COMPLY WITH A.D.A. & LOCAL ACCESSIBILITY REGULATORY AGENCY REQUIREMENTS.

20. WHEN OCCUPANTS ARE PRIMARILY CHILDREN INSTALL FIXTURES, GRAB BARS AND CONTROLS AT HEIGHTS REQUIRED BY A.D.A. & LOCAL ACCESSIBILITY REGULATORY AGENCIES.

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BONILLA LAW FIRM
BRADFORD ALAN LEGACY HOLDINGS LLC
1833 S I-35 Frontage Rd
Austin, TX 78741

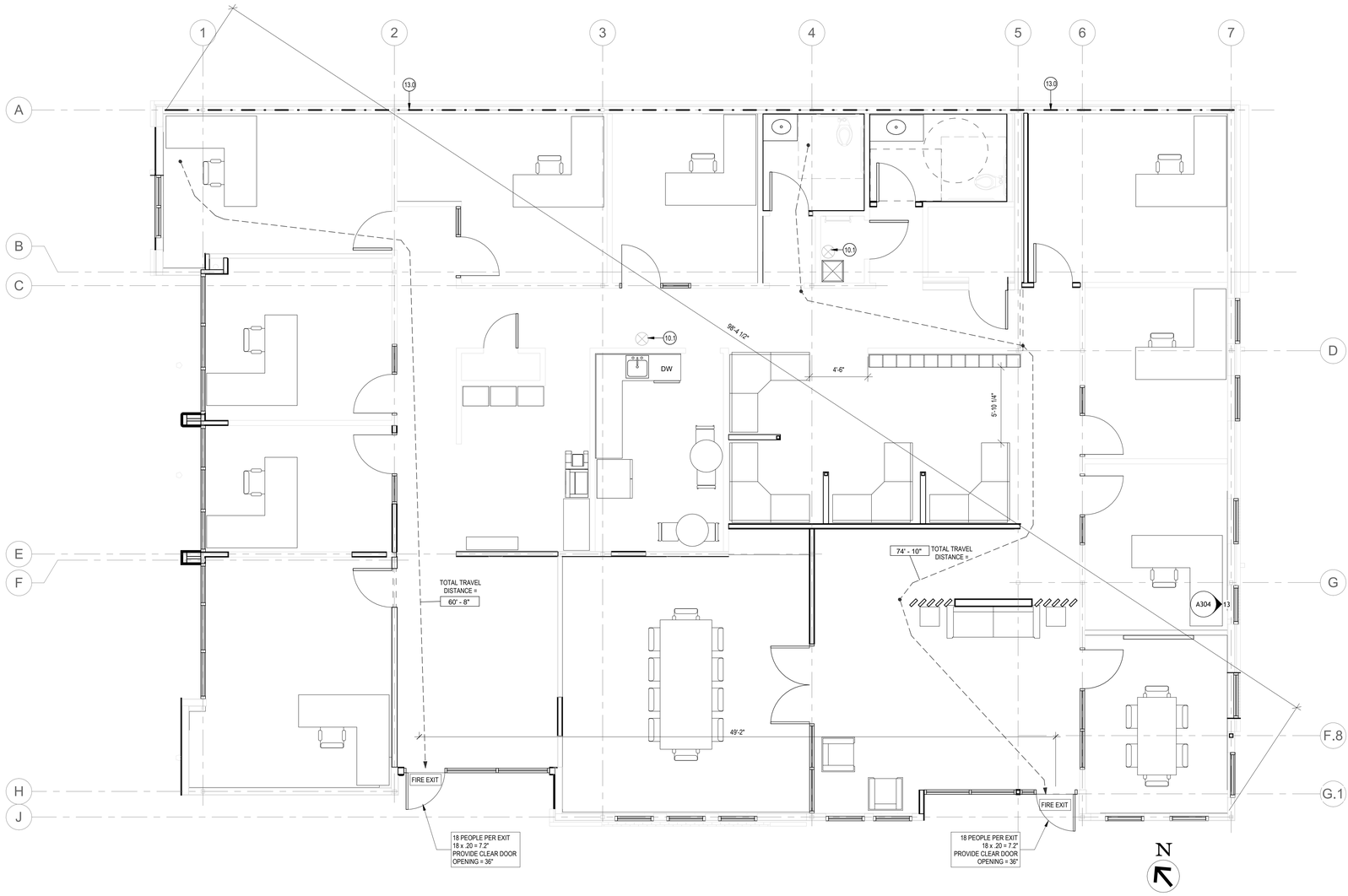
N-VIZION
FORMS • ENVIRONMENTS • IMAGES

ACCESSIBILITY DETAILS

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 - 512.779.7779 - info@n-vizion.com
Registered: TX: PE: F-12299, TX:25488, LA: 9413 MI: 1301069591, NV: 8232, NC: 14883, OH: ARC.1917885

Date:	Description:
05/05/26	BID SET

A010



01 Life Safety Plan

1/4" = 1'-0"

KEYNOTES

KEY	DESCRIPTION
10.1	FIRE EXTINGUISHER AND SEMI-RECESSED CABINET.
13.0	EXISTING FIRE RATED WALL.

FIRE PROTECTION LEGEND

FIRE EXIT	REQUIRED EXIT
	FIRE EXTINGUISHER
	TRAVEL DISTANCE
	CONCRETE WALL
	CMU WALL
	METAL STUD WALL
	1-HOUR FIRE RATED WALL
	2-HOUR FIRE RATED WALL
	3-HOUR FIRE RATED WALL

LIFE SAFETY GENERAL NOTES

1. AT ALL FIRE RATED PARTITIONS AND SMOKE PARTITIONS, SEAL ALL PENETRATIONS AND SILL-WALL AND HEAD-WALL WITH FIRESTOPPING.
2. ALL FIRE RATED PARTITIONS SHALL BE CONSTRUCTED IN STRICT CONFORMANCE TO U.L. TESTED ASSEMBLIES AS NOTED. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A COPY OF THE U.L. FIRE RESISTANCE DIRECTORY AND HAVING IT AVAILABLE AT THE SITE. THE MOST CURRENT U.L. FIRE RESISTANCE DIRECTORY TAKES PRECEDENCE OVER DETAILS PROVIDED IN THIS SET. WHERE DISCREPANCIES EXIST THE MOST CURRENT U.L. FIRE RESISTANCE DIRECTORY SHALL BE USED.
3. WHERE GYPSUM WALLBOARD IS NOT APPLIED TO BOTH SIDES OF PARTITION FRAMING, INSTALL HORIZONTAL BRIDGING.
4. BOTTOM OF STRUCTURE REFERS TO BOTTOM OF: METAL FLOOR DECK, METAL ROOF DECK, CONCRETE DECK, CONCRETE ROOF, OR WHICHEVER IS APPLICABLE.
5. BOTTOM OF STRUCTURAL FRAMING REFERS TO BOTTOM OF: STEEL BEAM, STEEL GIRDER, STEEL BAR JOIST, CONCRETE BEAM, CONCRETE TEE, WHICHEVER IS APPLICABLE.
6. ALL FINISH MATERIAL TO COMPLY W/ LOCALLY ADOPTED CODE. NOTE - ALL METAL STUD FRAMING TO BE SHEATHED W/ 5/8" SHEETROCK U.N.O. ALL SHEATHING TO BE APPLIED DIRECTLY TO STUDS MUST BE A COMPLYING NON-COMBUSTIBLE OR LIMITED COMBUSTIBLE MATERIAL AS ACCEPTED BY THE CODE.
7. WHERE REQUIRED, PROVIDE A FIRE ALARM SYSTEM IN ACCORDANCE W/ THE LOCALLY ADOPTED CODE - ALARM SYSTEM DRAWINGS TO BE APPROVED TO FIRE MARSHALL & N-VIZION PRIOR TO INSTALLATION. ALL NEW ALARM DEVICES INSTALLED IN PROJECT TO COMPLY WITH TAS INCLUDING BUT NOT LIMITED TO - ALL VISUAL ALARM DEVICES TO BE MOUNTED 80" ABOVE HIGHEST FINISH FLOOR HEIGHT OR 6" BELOW CEILING WHICHEVER IS LOWER.
8. ALL ELEVATED WOOD FLOORS ON SLEEPERS MUST COMPLY W/ THE LOCALLY ADOPTED CODE. THE FURRING SPACE SHALL BE FILLED WITH NON-COMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIAL OR SHALL BE FIREBLOCKED SO THAT THERE WILL BE NO OPEN SPACE OVER 100SQ FT IN AREA UNDER THE FLOORING. THE FURRING SPACE CREATED BY SLEEPERS SHALL BE FILLED SOLIDLY UNDER ALL PERMANENT PARTITIONS TO PREVENT SPREAD OF FIRE UNDER THE FLOORING.
9. WHERE REQUIRED, PROVIDE A SPRINKLER SYSTEM IN ACCORDANCE W/ THE LOCALLY ADOPTED CODE - ALARM SYSTEM DRAWINGS TO BE APPROVED TO FIRE MARSHALL & N-VIZION PRIOR TO INSTALLATION.

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LIFE SAFETY PLAN

Project No.: 251203
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Austin, TX 78730 | P: 512.277.8866 | E: info@n-vizion.com
Registered in: Texas, TX A.E.F.I.#: 22229; TX.P.E.F.I.#: 22229; LA: 9413 MI: 1301009591 | NV: 8252, NC: 14883, OH: ARC-1917885

Date:	Description:
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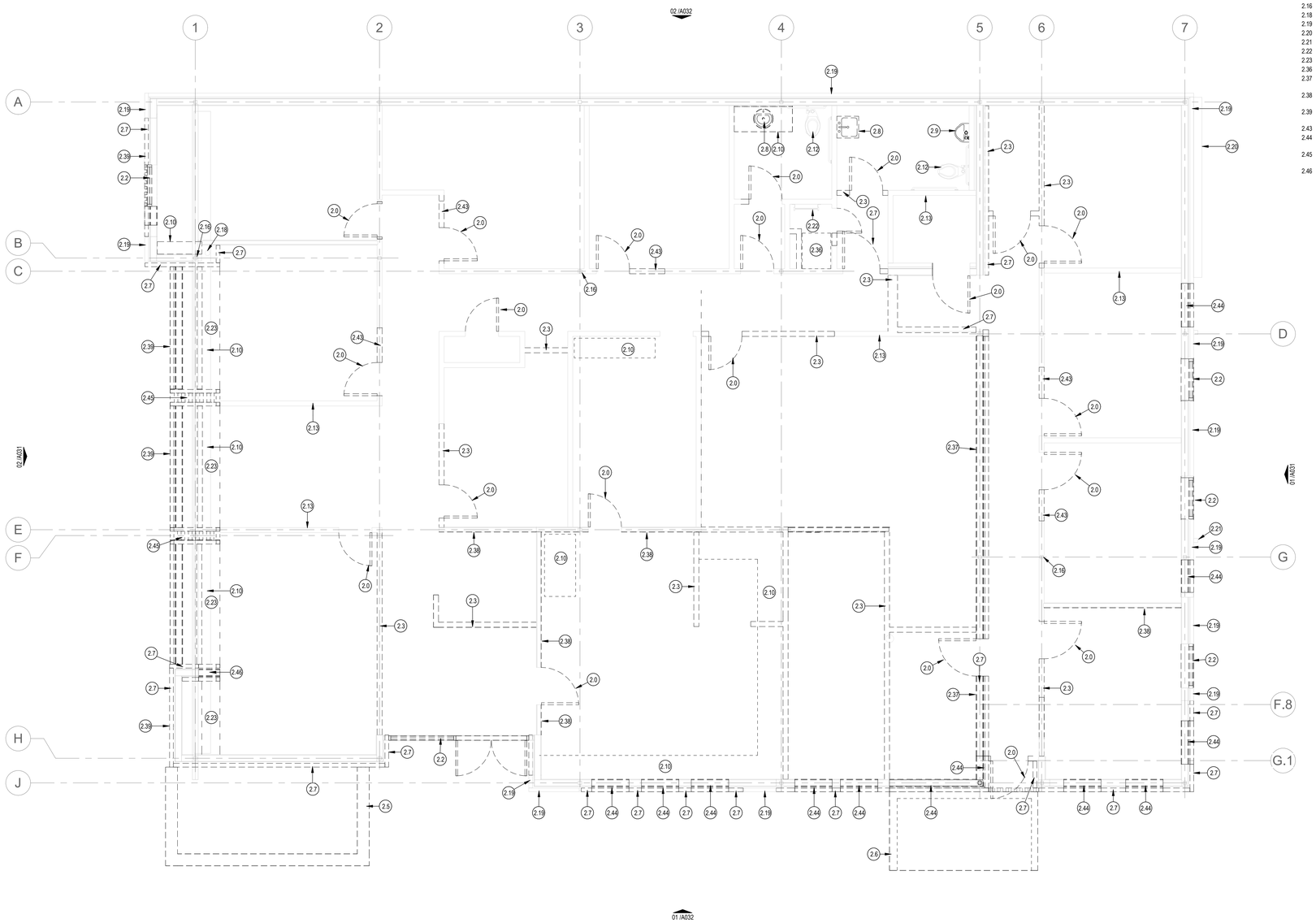
BONILLA LAW FIRM
BRADFORD ALAN LEGACY HOLDINGS LLC
1833 S I-35 Frontage Rd
Austin, TX 78741

KEYNOTES

KEY	DESCRIPTION
2.0	REMOVE EXISTING DOOR AND FRAME.
2.2	REMOVE EXISTING STOREFRONT OR WINDOW SYSTEM.
2.3	REMOVE EXISTING WALL OR WALL FURRING.
2.5	REMOVE CONCRETE LANDSCAPE WALL.
2.6	REMOVE EXISTING CONCRETE WALKWAY FOR NEW PAVERS - REF SITE PLAN.
2.7	REMOVE EXISTING BRICK, STUD WALL BEHIND BRICK TO REMAIN. FOR EXTERIOR WALLS PATCH & REPAIR WATER-RESISTIVE BARRIER AS NEEDED REF. DEMO ELEVATIONS & MATERIALS SCHEDULE.
2.8	REMOVE EXISTING LAVATORY.
2.9	REMOVE EXISTING URNINAL.
2.10	REMOVE EXISTING MILLWORK.
2.12	EXISTING TOILET TO REMAIN.
2.13	EXISTING PARTITION TO REMAIN.
2.16	EXISTING COLUMN TO REMAIN. REF. STRUCT.
2.18	EXISTING GAS LINE TO REMAIN.
2.19	EXISTING BRICK & WHERE PRESENT EXISTING STEEL LINTEL BELOW TO REMAIN.
2.20	EXISTING ELECTRICAL SERVICE REF. MEP.
2.21	EXISTING DOWNSPOUT AND SCUPPER TO REMAIN.
2.22	EXISTING ROOF LADDER TO REMAIN.
2.23	REMOVE EXISTING FURR DOWN CEILING.
2.36	REMOVE EXISTING SHOWER.
2.37	REMOVE EXISTING WALL AND BRICK VENEER UP TO EXISTING BEAM - EXISTING BRICK ABOVE BEAM TO REMAIN - SHORE AS REQUIRED AND REF STRUCTURAL FOR NEW LINTEL.
2.38	REMOVE EXISTING GYP. THIS SIDE OF WALL. REF FLOOR PLAN & MATERIALS SCHEDULE FOR NEW SHEATHING TYPE.
2.39	REMOVE EXISTING STEEL LINTEL AT BASE OF BRICK FOR THE PORTIONS OF BRICK TO BE REMOVED - PATCH AND REPAIR CONCRETE EDGE AS REQUIRED.
2.43	REMOVE PORTION OF EXISTING WALL FOR NEW DOOR SIDE LITE - REF. FLOOR PLAN AND WINDOW SCHEDULE.
2.44	REMOVE BRICK & STUD WALL BEHIND FOR NEW WINDOW - REF. ELEVATIONS AND WINDOW SCHEDULE FOR WINDOW SIZE & HDR HEIGHT.
2.45	REMOVE ALL EXISTING BRICK - INCLUDING INTERNAL COURSES, THERE IS NO STUD WALL HERE BEHIND THE BRICK.
2.46	REMOVE EXISTING BRICK & STUD WALL

DEMOLITION GENERAL NOTES

1. REFERENCE STRUCTURAL FOR DEMO OF LOAD-BEARING ELEMENTS. PROVIDE NECESSARY SHORING DURING DEMO PHASE.



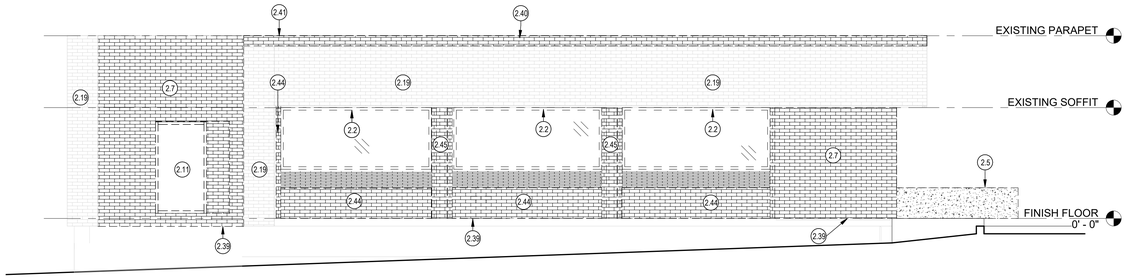
01 DEMOLITION PLAN
1/4" = 1'-0"

DEMOLITION PLAN

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, Texas 78730 (512) 795-9779 www.n-vizion.com
Registered Arch. Firm: TX: BE F-11299, TX-25498, LA: 9413 MI: 1301069591 - NV: 8252, NC: 14883, OH: ARC.1917885

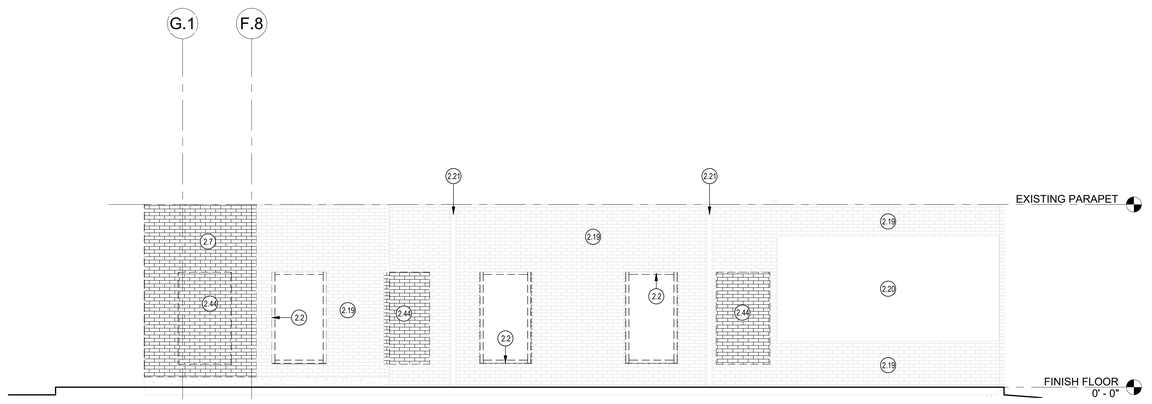
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A030



02 DEMO WEST ELEVATION

1/4" = 1'-0"



01 DEMO EAST ELEVATION

1/4" = 1'-0"

KEYNOTES

KEY	DESCRIPTION
2.2	REMOVE EXISTING STOREFRONT OR WINDOW SYSTEM.
2.5	REMOVE CONCRETE LANDSCAPE WALL.
2.11	REMOVE EXISTING WINDOW AND PORTION OF WALL FOR NEW WINDOW.
2.19	EXISTING BRICK & WHERE PRESENT EXISTING STEEL LINTEL BELOW TO REMAIN.
2.20	EXISTING ELECTRICAL SERVICE REF. MEP.
2.21	EXISTING DOWNSPOUT AND SCUPPER TO REMAIN.
2.39	REMOVE EXISTING STEEL LINTEL AT BASE OF BRICK FOR THE PORTIONS OF BRICK TO BE REMOVED - PATCH AND REPAIR CONCRETE EDGE AS REQUIRED.
2.40	REMOVE EXISTING SOLDIER COURSE.
2.41	REMOVE EXISTING PARAPET CAP.
2.44	REMOVE BRICK & STUD WALL BEHIND FOR NEW WINDOW - REF. ELEVATIONS AND WINDOW SCHEDULE FOR WINDOW SIZE & HDR HEIGHT.

DEMOLITION GENERAL NOTES

1. REFERENCE STRUCTURAL FOR DEMO OF LOAD-BEARING ELEMENTS. PROVIDE NECESSARY SHORING DURING DEMO PHASE.

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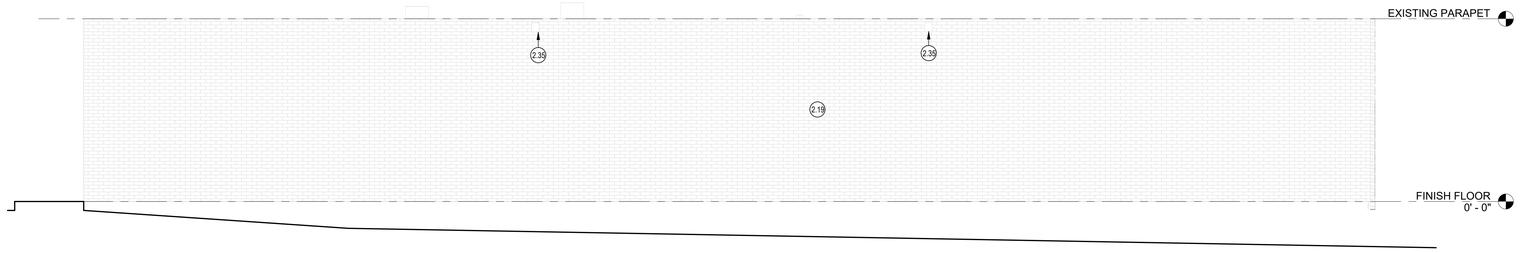
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DEMO ELEVATIONS

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 - P: 512.766.9464 - F: 512.766.9465
Registered in: Texas, TX P-F-12229; TX-25489; LA, 9413 MI; 1301069591; NV: 8252; NC: 14883; OH: ARC-1917885

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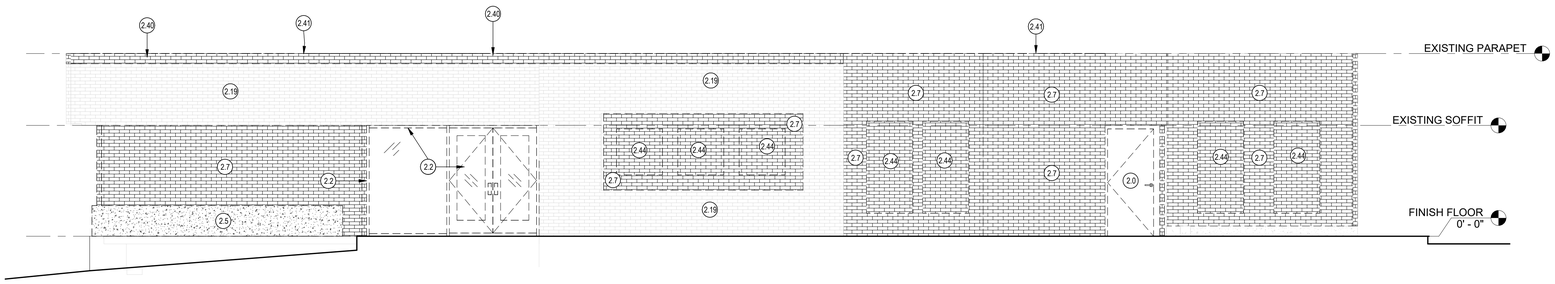


02 DEMO NORTH ELEVATION

1/4" = 1'-0"

KEYNOTES

KEY	DESCRIPTION
2.0	REMOVE EXISTING DOOR AND FRAME.
2.2	REMOVE EXISTING STOREFRONT OR WINDOW SYSTEM.
2.5	REMOVE CONCRETE LANDSCAPE WALL.
2.19	EXISTING BRICK & WHERE PRESENT EXISTING STEEL LINTEL BELOW TO REMAIN.
2.35	EXISTING SCUPPER. GC TO VERIFY AND REPAIR AS REQ'D.
2.40	REMOVE EXISTING SOLDIER COURSE.
2.41	REMOVE EXISTING PARAPET CAP.
2.44	REMOVE BRICK & STUD WALL BEHIND FOR NEW WINDOW - REF. ELEVATIONS AND WINDOW SCHEDULE FOR WINDOW SIZE & HDR HEIGHT.



01 DEMO SOUTH ELEVATION

1/4" = 1'-0"

DEMOLITION GENERAL NOTES

1. REFERENCE STRUCTURAL FOR DEMO OF LOAD-BEARING ELEMENTS. PROVIDE NECESSARY SHORING DURING DEMO PHASE.

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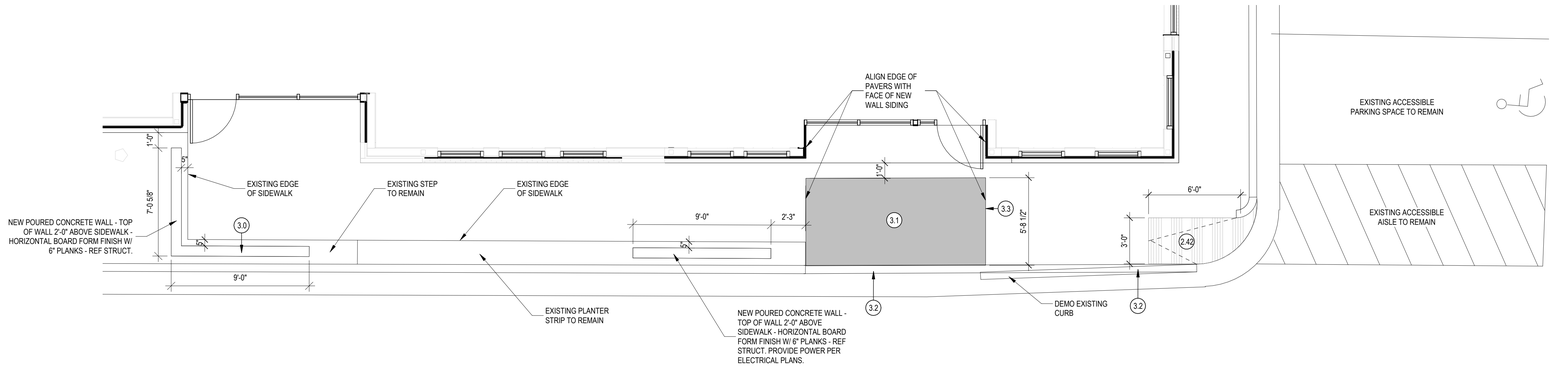
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DEMO ELEVATIONS

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Registered in: Texas, TX-F-11229; TX-25489; LA 9413 MI: 1301069591; NV: 8252; NC: 14883; OH: ARC-1917885

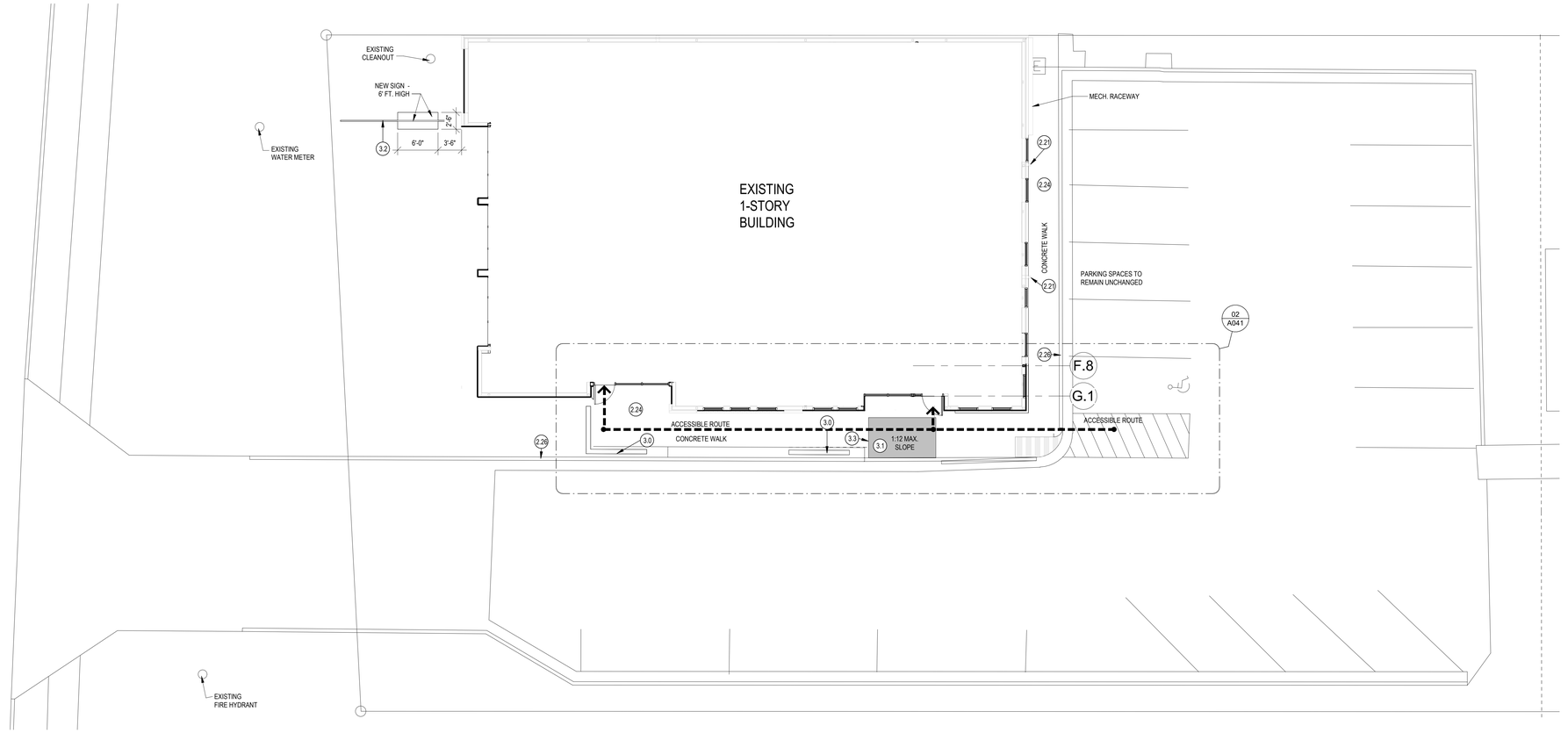
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A032



02 ENLARGED SITE PLAN

1/4" = 1'-0"



01 Architectural Site Plan

1/8" = 1'-0"

NOTE:
1. ALL ACCESSIBLE ROUTES TO HAVE MAX CROSS SLOPE OF 1:48. ALL RAMPS ON ACCESSIBLE ROUTE NOT TO EXCEED 1:20 SLOPE IN THE DIRECTION OF TRAVEL.
2. IF ADA SIGNS ARE PROVIDED, ENSURE PERMANENT SIGNAGE MEETS ALL REQUIREMENTS OF TAS 216.

KEYNOTES

KEY	DESCRIPTION
2.21	EXISTING DOWNSPOUT AND SCUPPER TO REMAIN.
2.24	EXISTING SIDEWALK TO REMAIN.
2.26	EXISTING CURB TO REMAIN.
2.42	EXISTING ACCESSIBLE CURB RAMP TO REMAIN.
3.0	NEW CONCRETE LANDSCAPE WALL. TOP OF WALL 2' ABOVE SIDEWALK
3.1	NEW PAVERS - FLUSH WITH SIDEWALK SURFACE
3.2	NEW CONCRETE CURB - PARALLEL TO BUILDING - MATCH EXISTING
3.3	NEW CONCRETE EXPANSION JOINT AT ALL 4 SIDES.

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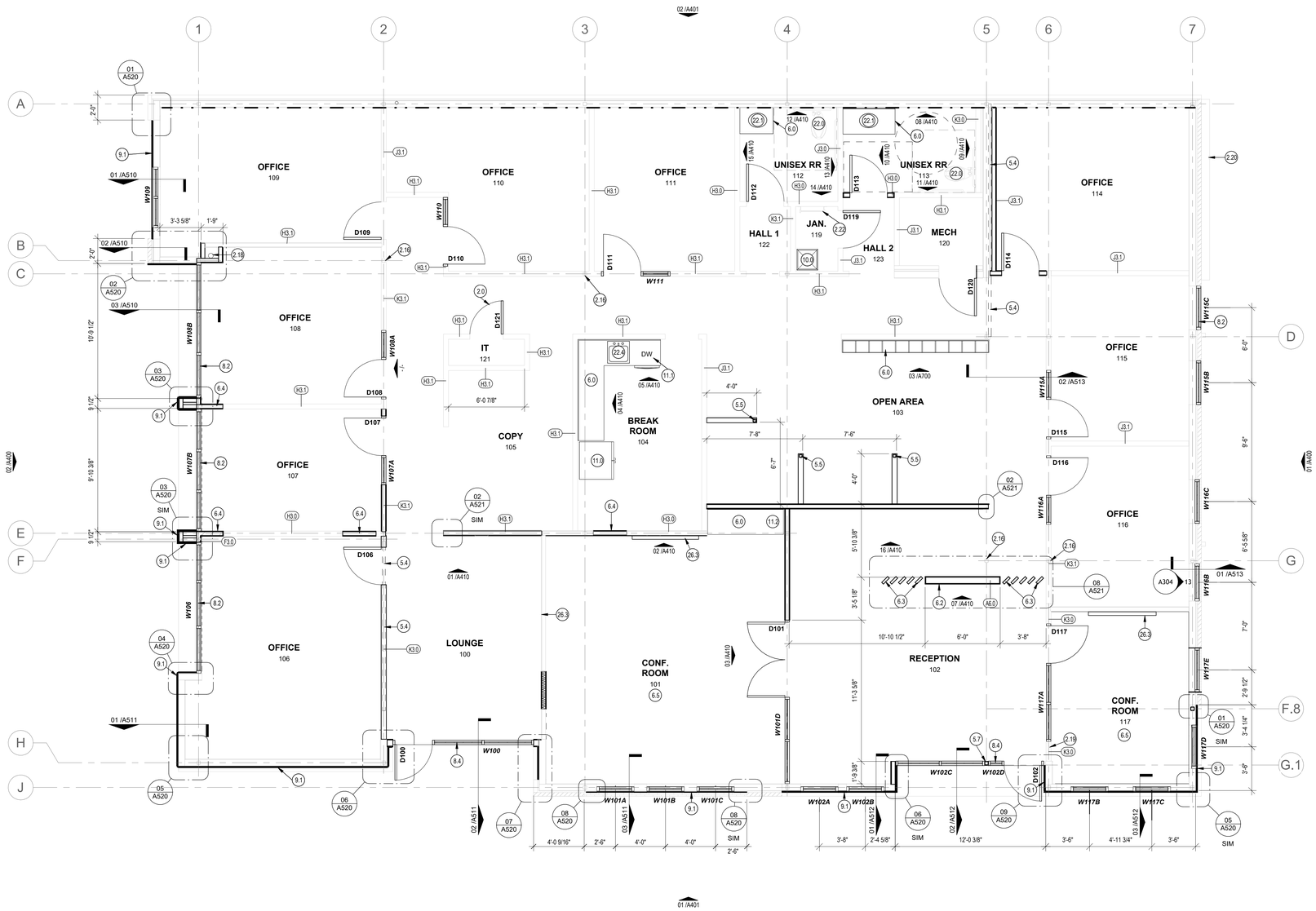
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ARCHITECTURAL SITE PLAN

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 - (512) 345-1999 - www.n-vizion.com
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A041



01 OVERALL FLOOR PLAN

1/4" = 1'-0"

KEYNOTES

KEY	DESCRIPTION
2.0	REMOVE EXISTING DOOR AND FRAME.
2.16	EXISTING COLUMN TO REMAIN. REF. STRUCT.
2.18	EXISTING GAS LINE TO REMAIN.
2.19	EXISTING BRICK & WHERE PRESENT EXISTING STEEL LINTEL BELOW TO REMAIN.
2.20	EXISTING ELECTRICAL SERVICE.REF. MEP.
2.22	EXISTING ROOF LADDER TO REMAIN.
5.4	NEW X-BRACE REF. STRUCT.
5.5	5'-0" HALF WALL BETWEEN CUBICLES. GYP BOARD ON EITHER SIDE. PROVIDE A 4'-6" TALL 3X3 STEEL POST INSIDE THE END OF THE WALL FRAMING ANCHOR BOLT TO CONC. FLOOR.
5.7	STRUCTURAL COLUMN TO BE WRAPPED IN BRAKE METAL TO MATCH STOREFRONT.
6.0	MILLWORK. REF. ELEVATIONS AND DETAILS.
6.2	NEW WALL TO DECK. REF. ELEVATION.
6.3	SCREEN WALL FINS. REF. ELEVATIONS AND DETAILS.
6.4	INFILL WALL OPENING. MATCH EXISTING WALL.
6.5	QUIET ROCK GYP. AT WALLS.
8.2	NEW STOREFRONT WINDOW.
8.4	NEW STOREFRONT ENTRY. REF. WINDOW ELEVATIONS.
9.1	NEW ALUM. SIDING REF. MATERIALS SCHEDULE.
10.0	MOP SINK. REF. MATER. SCHED.
11.0	REFRIGERATOR BY OWNER.
11.1	ADA HEIGHT DISHWASHER BY OWNER - MAX HEIGHT 32".
11.2	ADA HEIGHT UNDERCOUNTER REFRIGERATOR BY OWNER - MAX HEIGHT 32".
22.0	EXISTING ACCESSIBLE TOILET. PROVIDE GRAB BARS TO CODE. REFERENCE ACCESSIBILITY DETAILS SHEET A010. PROVIDE BLOCKING AS REQUIRED FOR GRAB BARS. MOVE TOILET AS NEEDED TO ACHIEVE 18" DISTANCE FROM FACE OF WALL TO CENTER OF WATER CLOSET.
22.1	NEW ACCESSIBLE LAVATORY. REFERENCE DETAILS & PROVIDE INSULATING SLEEVE OVER PLUMBING.
22.4	BREAK ROOM SINK. REFERENCE MEP.
26.3	TV BY OWNER. INSTALL BLOCKING AS REQ'D.

NOTE:
VERIFY INTERIOR PARTITIONS BETWEEN OFFICES HAVE INSULATION. ADD SPRAY INSULATION IF NOT PRESENT. REF. MATER. SCHED.

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OVERALL FLOOR PLAN

Project No.: 251203
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Austin, TX 78730 | P: (737) 296-5490 | F: (737) 296-5491
Registered in: Texas, TX # F-11222; Louisiana, LA # 9413 MI;
1301069591 | NV: 8252 | NC: 14883 | OH: ARC-1917885

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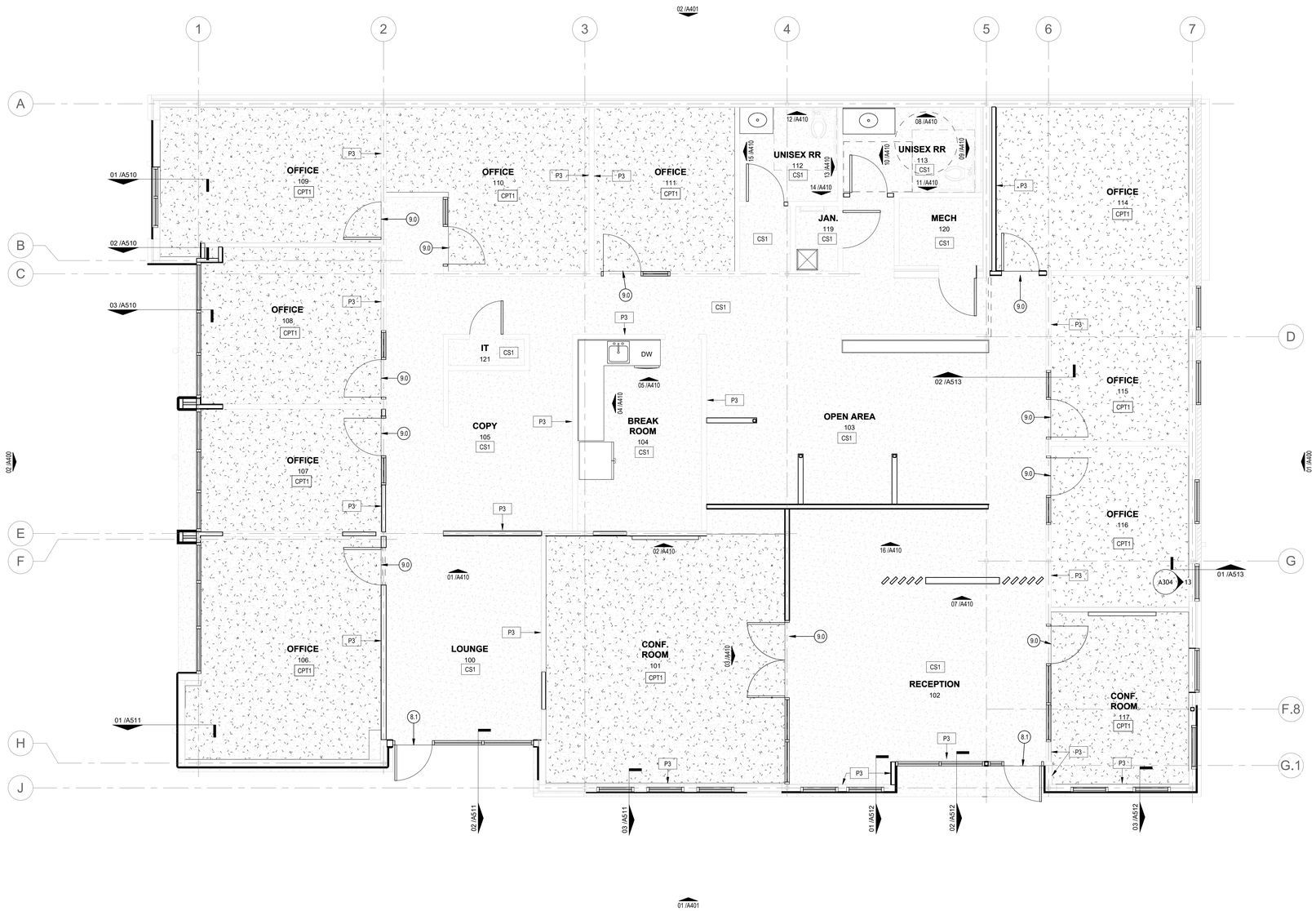
A100

PLAN NOTES

1. ALL EXPOSED STRUCTURAL ROOF FRAMING MEMBERS (EXCEPT BEAMS AND COLUMNS)TO BE PAINTED P2.
2. ALL EXPOSED STEEL COLUMNS & BEAMS TO BE PAINTED P4 FROM FLOOR TO BOTTOM OF ROOF FRAMING
3. ALL WALLS TO BE P2 U.N.O.
4. INSTALL SPRAY APPLIED INSULATION TO UNDERSIDE OF DECK - REF. MATERIALS SCHEDULE - IN2.
5. RUN CONDUIT TIGHT TO DECK IN EXPOSED ROOF DECK AREAS.
6. EXISTING ROOF DRAIN TO REMAIN - DRAIN TESTED POSITIVE FOR NON-FRIABLE ASBESTOS - DO NOT DISTURB PIPE DURING CONSTRUCTION.

KEYNOTES

KEY	DESCRIPTION
8.1	ACCESSIBLE THRESHOLD 1/4" MAX. DROP REFERENCE A010.
9.0	ACCESSIBLE FLOORING TRANSITION - TR3 - REFERENCE MATERIALS SCHEDULE



01 OVERALL FINISH PLAN
1/4" = 1'-0"

FINISH TYPES

REFERENCE MATERIAL SCHEDULE FOR MANUFACTURER AND PRODUCT DESCRIPTION

P = PAINT	CS = SEALED CONCRETE
T = TILE	VCT = VINYL FLOORING
CPT = CARPET	LT = LAY-IN CEILING
RB = RUBBER BASE	AL = ALUMINUM SIDING

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OVERALL FINISH PLAN

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 | 512.293.1111 | www.n-vizion.com
Registered in TX: TBPE Firm #F-12229; LA: 9413 MI:
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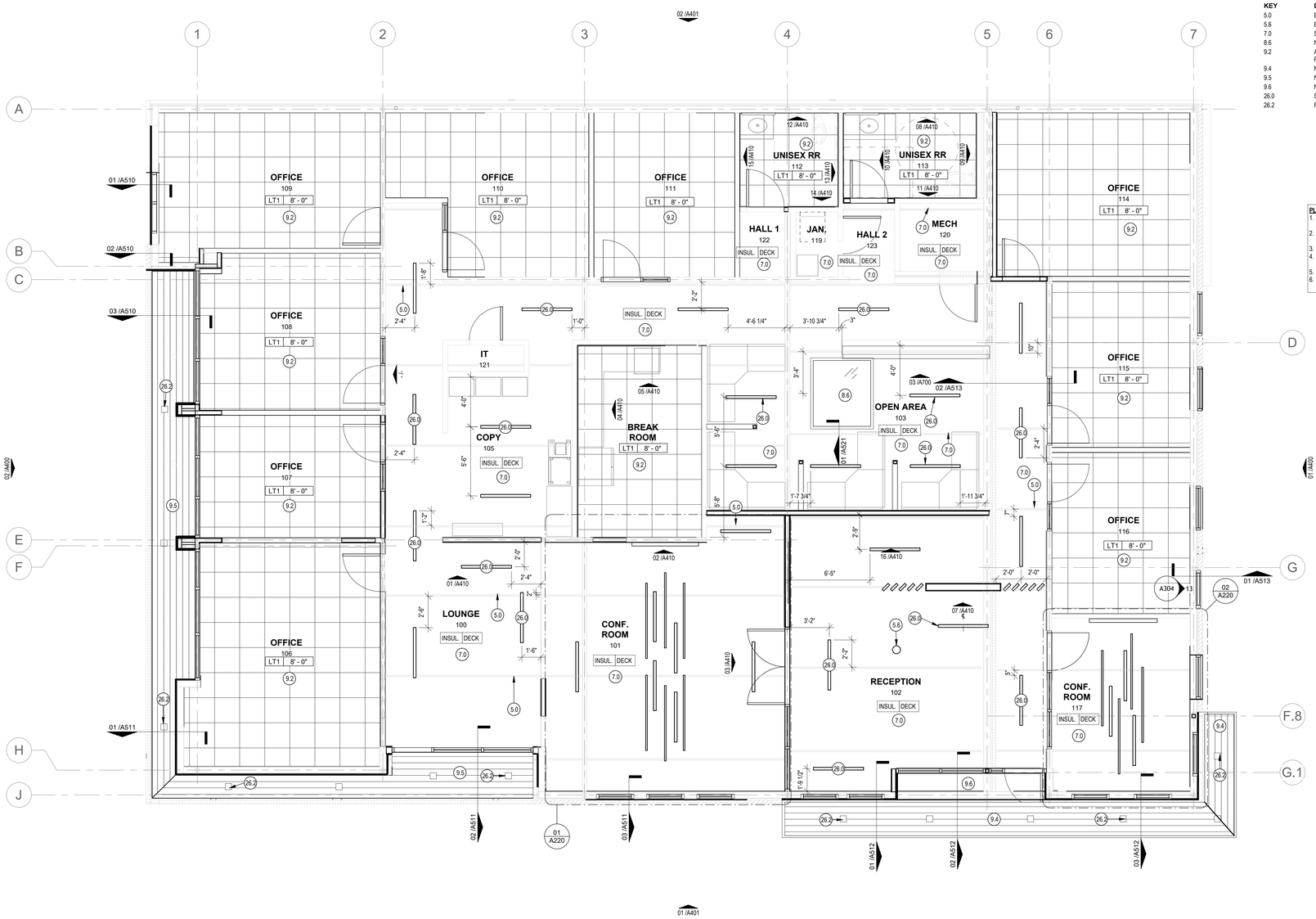
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1833 S I-35 Frontage Rd
Austin, TX 78741

KEYNOTES

KEY	DESCRIPTION
5.0	EXISTING STRUCTURAL STEEL COLUMN. REF. STRUCT.
5.6	EXISTING ATTIC VENT TO BE CLOSED WITH NEW DECKING TO MATCH EXISTING.
7.0	SPRAYED INSULATION AT DECK.REF. MATERIAL SCHEDULE.
8.6	NEW SKYLIGHT. REF. DETAILS.
9.2	ADD T-BARS TO CONVERT EXISTING 2X4 CEILING INTO A 2X2 2X2 CEILING GRID. REF. MATERIAL SCHED. REUSE EXISTING 2X4 LIGHT FIXTURES - REF. LIGHTING PLAN
9.4	NEW COMPOSITE SOFFIT PANELS AT NEW CANOPY. REF. MATER. SCHED.
9.5	NEW ALUMINUM SOFFIT PANELS AT EXISTING SOFFIT. REF. MATER. SCHED.
9.6	NEW ALUMINUM SOFFIT FINISH AT CANOPY. REF. MATER. SCHED.
26.0	SUSPENDED LIGHT FIXTURE. REF. MEP.
26.2	RECESSED SOFFIT LIGHT FIXTURE. REF. MEP.

PLAN NOTES

1. ALL EXPOSED STRUCTURAL ROOF FRAMING MEMBERS (EXCEPT BEAMS AND COLUMNS)TO BE PAINTED P2.
2. ALL EXPOSED STEEL COLUMNS & BEAMS TO BE PAINTED P4 FROM FLOOR TO BOTTOM OF ROOF FRAMING
3. ALL WALLS TO BE P2 U.N.O.
4. INSTALL SPRAY APPLIED INSULATION TO UNDERSIDE OF DECK - REF. MATERIALS SCHEDULE - IN2.
5. RUN CONDUIT TIGHT TO DECK IN EXPOSED ROOF DECK AREAS.
6. EXISTING ROOF DRAIN TO REMAIN - DRAIN TESTED POSITIVE FOR NON-FRIABLE ASBESTOS - DO NOT DISTURB PIPE DURING CONSTRUCTION.



01 OVERALL REFLECTED CEILING PLAN

1/4" = 1'-0"

OVERALL REFLECTED CEILING PLAN

Project No. 251203
N-Vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 | 512.298.9953 | www.n-vizion.net
Registered with: TX: PE Firm F-22705 | LA: 9413 MI: 1301069591 | NV: 8252 | NC: 14883 | OH: ARC.1917365

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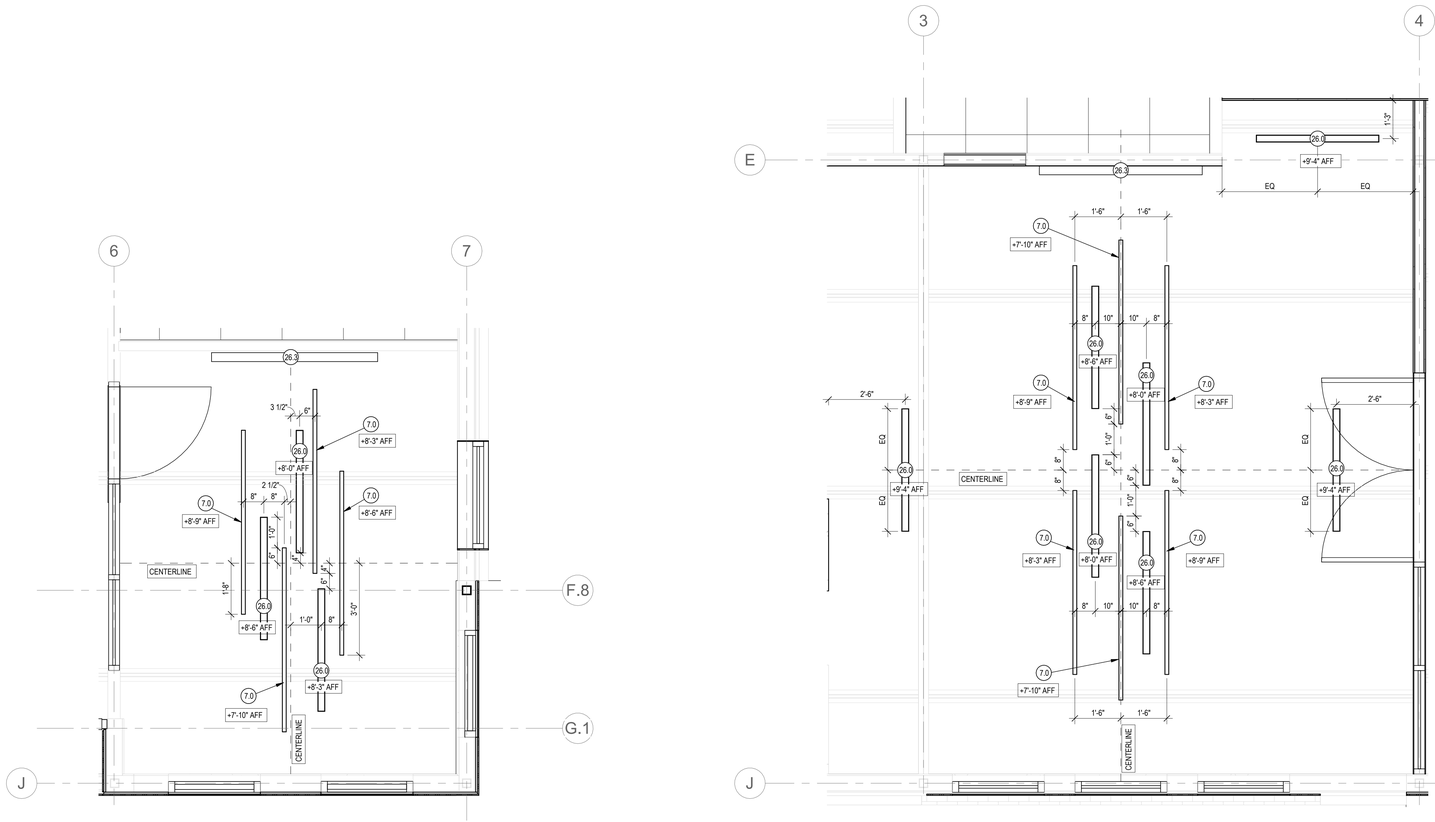
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Austin, TX 78741

KEYNOTES

KEY	DESCRIPTION
7.0	SPRAYED INSULATION AT DECK.REF. MATERIAL SCHEDULE.
26.0	SUSPENDED LIGHT FIXTURE. REF. MEP.
26.3	TV BY OWNER. INSTALL BLOCKING AS REQ'D.

PLAN NOTES
1. ALL EXPOSED STRUCTURAL ROOF FRAMING MEMBERS (EXCEPT BEAMS AND COLUMNS)TO BE PAINTED P2.
2. ALL EXPOSED STEEL COLUMNS & BEAMS TO BE PAINTED P4 FROM FLOOR TO BOTTOM OF ROOF FRAMING
3. ALL WALLS TO BE P2 U.N.O.
4. INSTALL SPRAY APPLIED INSULATION TO UNDERSIDE OF DECK - REF. MATERIALS SCHEDULE - INS.
5. RUN CONDUIT TIGHT TO DECK IN EXPOSED ROOF DECK AREAS.
6. EXISTING ROOF DRAIN TO REMAIN - DRAIN TESTED POSITIVE FOR NON-FRIABLE ASBESTOS - DO NOT DISTURB PIPE DURING CONSTRUCTION.



01 CONFERENCE ROOM 101 - CEILING
1/2" = 1'-0"

02 CONFERENCE ROOM 117 - CEILING
1/2" = 1'-0"

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ENLARGED CONFERENCE RCPS

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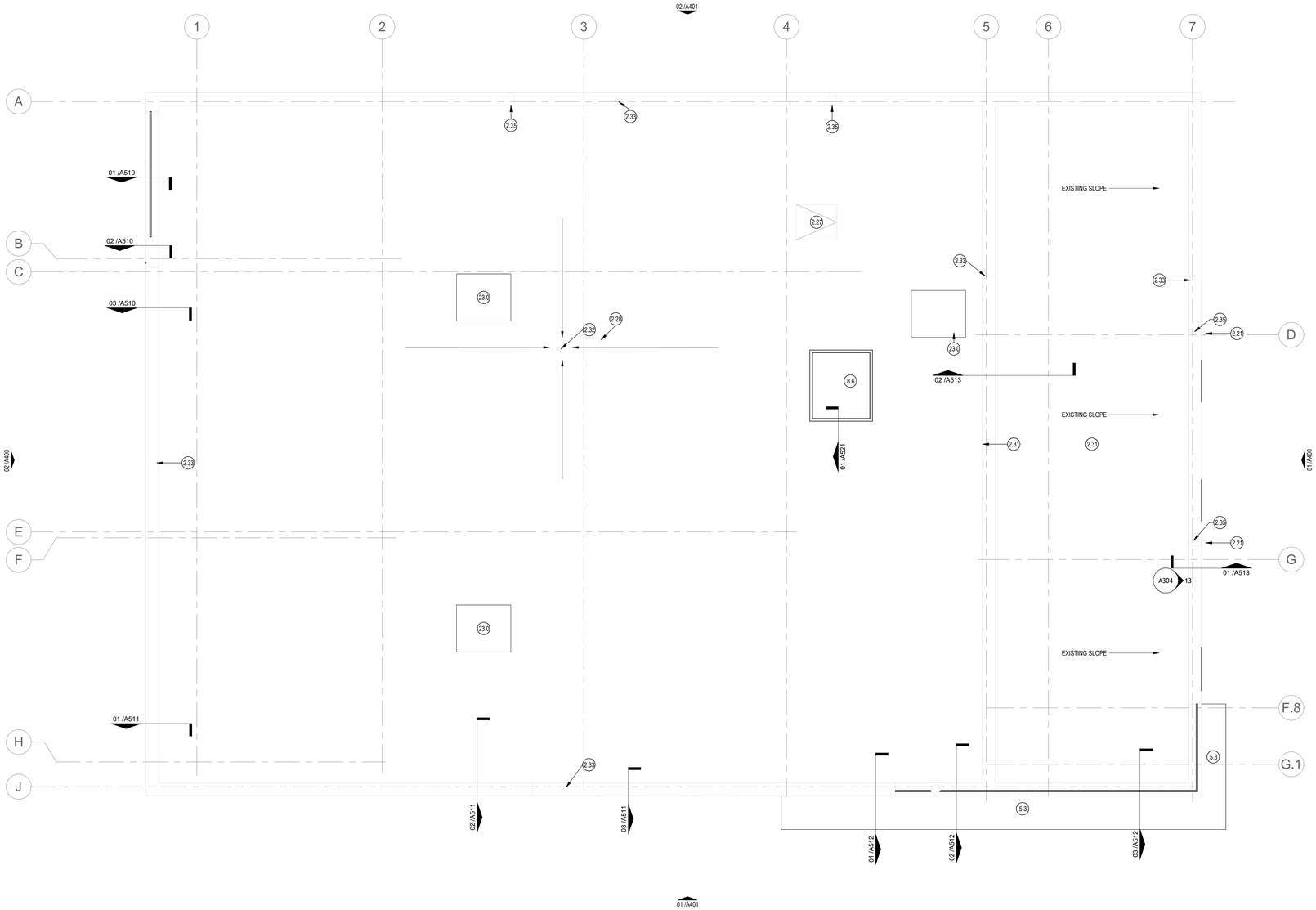
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1833 S I-35 Frontage Rd
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KEYNOTES

KEY	DESCRIPTION
2.21	EXISTING DOWNSPOUT AND SCUPPER TO REMAIN.
2.27	EXISTING ROOF HATCH.
2.28	EXISTING VTU.
2.31	EXISTING ROOF TO REMAIN.
2.32	EXISTING ROOF DRAIN.
2.33	EXISTING PARAPET.
2.35	EXISTING SCUPPER. GC TO VERIFY AND REPAIR AS REQ'D.
5.3	NEW SITE BUILT CANOPY. REF. WALL SECTIONS AND STRUCT.
8.6	NEW SKYLIGHT. REF. DETAILS.
23.0	NEW ROOF TOP UNIT. REF. MEP.



01 OVERALL ROOF PLAN
1/4" = 1'-0"

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OVERALL ROOF PLAN

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 - (512) 298-9953 - www.n-vizion.com
Registration No.: TX PE F-21229, TX-25498, LA: 9413 MI: 1301069591, NV: 8252, NC: 14883, OH: ARC.1917885

Date:	Description:
05/05/26	BID SET

A130

MATERIAL, FINISH AND EQUIPMENT SCHEDULE

DIVISION		ITEM	ID	MANUFACTURER	PRODUCT	FINISH/COLOR	DESCRIPTION
3	CONCRETE						
4	MASONRY						
5	METALS	STEEL BEAMS AND LINTELS					REF. STRUCTURAL ENGINEERS DRAWINGS
		INTERIOR WALL STUDS	ST1	CLARKDIETRICH	362PDS 125-15		3-5/8" 25 GA. REF.WALL TYPES
		INTERIOR WALL STUDS	ST2	CLARKDIETRICH	600PDS 125-15		6" 25 GA. REF. WALL TYPES
		EXTERIOR WALL STUDS	ST3	REF. STRUCT.	REF. STRUCT.		REF. STRUCT.
		EXTERIOR STUD TRACK	ST4	REF. STRUCT.	REF. STRUCT.		REF. STRUCT.
		MASONRY TIES					
		STEEL LINTELS					
		UNISTRUT					
6	WOOD AND PLASTICS						INSTALL AT ALL GRAB BARS AND WALL MOUNTED DEVICES. PROVIDE
		BLOCKING	PW2		FIRE RETARDANT TREATED 1/2" THICK		INSTALL AT BASKETBALL WALLS UP TO 12'
		MDF	MDF	WEYERHAEUSER	3/4" PANELS	UNFINISHED	REF. DETAILS
		FRP	FRP1	MARLITE	STANDARD FRP, S100G	SMOOTH WHITE	PROVIDE SEALANT AS NECESSARY FOR WET AREAS, INSTALL AROUND MOP SINK ON EACH WALL OF JANITOR CLOSET. SEAL CORNER AND PERIMETER.
7	THERMAL /MOISTURE	WALL CAVITY INSULATION	IN1	GREENFIBER	STABILIZED CELLULOSE	-	R-13. INSTALL AT EXTERIOR WALLS AS INDICATED PER MANUFACTURER'S RECOMMENDATIONS
		ROOF INSULATION	IN2	INTERNATIONAL CELLULOSE CORP.	K-13 HIGH-R SYSTEM	LIGHT GRAY	R-38. INSTALL AS RECOMMENDED BY MANUFACTURER
		WATER RESISTIVE BARRIER	WB1	TYVEC	DRAINAGE WRAP	-	
		GYPSUM WALL BOARD	GB1	USG	5/8" SHEETROCK BRAND	-	INSTALL PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE LEVEL 5 FINISH AT ALL WALLS EXCEPT STORAGE, MECHANICAL, ELECTRICAL OR JANITOR
		WATER RESIST. GYP. WALL BD.	GB2	USG	5/8" FIBEROCK BRAND AQUA - TOUGH	-	INSTALL AT PAINTED WET WALLS. PROVIDE LEVEL 5 FINISH AT ALL WALLS EXCEPT STORAGE, MECHANICAL, ELECTRICAL OR JANITOR.
		ACOUSTIC GYP WALL BOARD	GB3	PABCO	QUIETROCK 530	-	INSTALL PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE LEVEL 5 FINISH AT ALL WALLS EXCEPT STORAGE, MECHANICAL, ELECTRICAL OR JANITOR
		EXTERIOR WALL BOARD	GB4	GEORGIA PACIFIC	5/8" DENSGLASS	-	INSTALL PER MANUFACTURER'S RECOMMENDATIONS
		CEMENTITIOUS BACKER BOARD	CB1	USG	5/8" DUROCK	-	INSTALL AT ALL TILE WALLS.
		ALUMINUM SIDING	AL1	MAC	NORWOOD & NORWOOD MINI	BLACK WALNUT	INSTALL VERTICALLY WITH A MIX OF BOTH NORWOOD & NORWOOD MINI - REFERENCE DETAILS FOR PATTERN. INSTALL PER MANUFACTURER SPECIFICATIONS.
		COMPOSITE SOFFIT	WS1	NEWTECH WOOD	US09 ALL WEATHER - FLUSH PROFILE	PERUVIAN TEAK	INSTALL PER MANUFACTURER RECOMMENDATIONS. INSTALL PARALLEL TO EXTERIOR WALLS - MITER CORNER.
		METAL PARAPET CAP	PC1	PAC-CLAD	PAC-TITE COPING	BLACK	INSTALL PER MANUF. RECOMMENDATIONS
		TPO	TPO	JOHNS MANVILLE	JM TPO 60 MIL	-	INSTALL PER MANUF. RECOMMENDATIONS
		SOFFIT PANEL	SP1	MCELROY	FW CONCEALED PANEL	BLACK	
		AWNING ROOFING					
8	OPENINGS	STOREFRONT FRAMES	SF1	DHIVE	SINGLE PANE SYSTEM	BLACK ANODIZED	INTERIOR GLASS ASSEMBLIES, SEE STOREFRONT ELEVATIONS.
			SF2	OLDCASTLE	3000 SERIES THERMAL CENTER GLAZED	BLACK ANODIZED	EXTERIOR FRONT ENTRY ASSEMBLY. SCREW SPLINE STOREFRONT WITH 1" INSULATED GLAZING. PROVIDE SAFETY GLASS AS REQ'D. REF. WINDOW SCHED. & ELEVATIONS FOR LAYOUT
		GLAZING - EXTERIOR STOREFRONT	GZ1	PPG	1" INSULATED LOW E	CLEAR	MAX GLASS U-VALUE = 0.5 MAX. SHGC = 0.25, PROVIDE TEMPERED GLASS WHERE INDICATED, SEE WINDOW ELEVATIONS
		GLAZING - INTERIOR STOREFRONT	GZ2	PPG	1/4" GLASS	CLEAR	PROVIDE SAFETY GLASS AS REQ'D. REF. WINDOW SCHED. & ELEVATIONS FOR LAYOUT
		GLAZING MIRROR - UNISEX RR	GZ8	BRADLEY	ANGLE FRAME MIRROR - 24"X36"	SATIN FINISH STAINLESS STEEL FRAME	INSTALL PER MANUFACTURER'S SPECIFICATIONS. REF. INTERIOR ELEVATIONS FOR LOCATIONS AND HEIGHTS.
		SMART FILM	SFG1	SKYLINE	SDX SMART FILM	WHITE	INSTALL PER MANUF. RECOMMENDATIONS
		SKYLIGHT	SK1	VELUX	SKYMAX	BONE WHITE	INSTALL PER MANUF. RECOMMENDATIONS
9	FINISHES	CONC. SEALER	CS1	SIKA SCOFIELD	CURESEAL-W		APPLY IN ACCORDANCE WITH MANUF. RECOMMENDATIONS
		CARPET - OFFICE	CPT1	PATCRAFT	OPTIMIZE	STREAMLINE I0691	REF FLOOR FINISH PLAN FOR LOCATIONS - INSTALL PER PATCRAFT "RANDOM" PATTERN - REF MANUF SPECS - INSTALL PER MANUF. RECOMMENDATIONS
		PAINT	P1	BEHR	EXTERIOR - SATIN ENAMEL - SUITABLE FOR BRICK	MINIMALISTIC - PPU25-12	PROVIDE 4'X4' SAMPLE FOR CLIENT APPROVAL.
		PAINT	P2	BEHR	INTERIOR COMMERCIAL - EGGSHELL	FRENCH SILVER - PPU18-05	PROVIDE 4'X4' SAMPLE FOR CLIENT APPROVAL.
		PAINT	P3	BEHR	INTERIOR COMMERCIAL - EGGSHELL	FLINT GRAY - PPU26-05	PROVIDE 4'X4' SAMPLE FOR CLIENT APPROVAL.
		PAINT	P4	BEHR	INTERIOR DIRECT-TO-METAL PAINT - EGGSHELL	LIMOUSINE LEATHER - MQ5-05	PROVIDE SAMPLE ON COLUMN AND BEAM FOR CLIENT APPROVAL.
		TILE	T1	2STONE	BOARD FORM CONCRETE VENEER	6"X72"X1/2" TILE - STANDARD GRAY	INSTALL PATTERN - HORIZONTAL STAGGERED - 1/8" GROUT JOINTS - MITER CORNERS - USE TRANSITION TR1 ON NON-MITERED CORNER PER DETAILS - 2STONE REP: LISE BROWN, LISE@2STONE.CA, 403.818.7221
			T2	DALTILE	ENLITE	CLARITY EL62 15X30	INSTALL PATTERN - HORIZONTAL STAGGERED - 1/8" GROUT JOINTS - USE TRANSITION TR2 AT CORNERS AND EXPOSED TOP EDGES - REF DETAILS - INSTALL PER MANUF. RECOMMENDATIONS
		TILE THINSET	TS1	MAPEI	UNLTRAFLEX RS	GRAY	INSTALL PER MANUF. SPECS AND 2STONE TILE INSTALLATION GUIDE - NOTE THIS THINSET IS RECOMMENDED BY 2STONE FOR THE CONCRETE BOARD FORM VENEER (T1) - NO ALTERNATES WILL BE ACCEPTED
		TILE GROUT	TG1	MAPEI	KERACOLOR S SANDED GROUT	5027 SILVER	USE WITH TILE T1 ON FEATURE WALLS - INSTALL PER MANUF RECOMMENDATIONS. PROVIDE 1/8" GROUT JOINT.
			TG2	MAPEI	KERAPOXY CG	5027 SILVER	USE WITH TILE T2 IN RESTROOMS - INSTALL PER MANUF RECOMMENDATIONS. INSTALL 1/8" GROUT JOINT
		TRANSITION/EDGING	TR1	SCHLUTER	QUADEC	LIGHT ANTHRACITE	INSTALL PER MANUFACTURER'S RECOMMENDATIONS
			TR2	SCHLUTER	SCHIENE	LIGHT ANTHRACITE	PROVIDE AS TOP CAP ON WALL TILE BETWEEN TILE AND PAINTED GYP. SIZE OF SCHLUTER TO MATCH THICKNESS OF TILE. CAULK ALL JOINTS BETWEEN TRIM AND GYP WALL. USE PAINTABLE CAULK. INSTALL PER MANUF. SPECIFICATIONS.
			TR3	SCHLUTER	RENO-U 1/8 IN X 2 1/2 IN METAL REDUCER	SATIN ANODIZED	INSTALL PER MANUFACTURER'S RECOMMENDATIONS
		SOLID SURFACE	SS1	CORIAN	QUARTZ SOLID SURFACE 2CM	CARBON CEMENT - MATTE FINISH	MITER CORNERS FOR ALL TURN-DOWNS AT COUNTERTOPS
		LAMINATE	L1	FORMICA	HIGH PRESSURE LAMINATE	KONA 9288-43 - ARTISAN FINISH	APPLY PER MANUF. RECOMMENDATIONS
			L2	FENIX NTM	1.2 MM SOLID CORE	NERO INGO	APPLY PER MANUF. RECOMMENDATIONS
			L3	FORMICA	HIGHPRESSURE LAMINATE	BLACK SHALESTONE 9527-58 - MATTE FINISH	APPLY PER MANUF. RECOMMENDATIONS
		WALL BASE MOULDING	RB1	JOHNSONITE	DURACOVE 4"	40 BLACK	INSTALL PER MANUF. RECOMMENDATIONS.
		ACCOUSTICAL CLG TILE	LT1	USG	RADAR - 2X2 SHADOWLINE TAPERED - 2220	WHITE	
		ACCOUSTICAL CLG GRID	LG1	USG	DXL 15/16 GRID SYSTEM	MATCH EXISTING	INSTALL CROSS TEE'S TO CONVERT EXISTING 2X4 GRID INTO 2X2 GRID. INSTALL PER MANUFACTURER SPECS.
11	EQUIPMENT	REFRIGERATOR					UNDERCOUNTER REFRIGERATOR BY OWNER - MAX HEIGHT 32" FOR ACCESSIBLE COUNTER COMPLIANCE
		DISHWASHER					UNDERCOUNTER DISHWASHER BY OWNER - MAX HEIGHT 32" FOR ACCESSIBLE COUNTER COMPLIANCE
21	SUPPRESION	FIRE EXTINGUISHER CABINET		JL INDUSTRIES	ACADEMY SERIES 1027G10	FULL GLASS WITH PULL	SEMI-RECESSED, SEE LIFE SAFETY PLAN FOR LOCATIONS
22	PLUMBING	LAVATORY					REF. MEP
		BREAKROOM SINK					REF. MEP
		MOP SINK			-		REF. MEP
23	MECHANICAL	AIR CONDITIONING/HEATING	-	-	-		REF. MEP
		LOUVERS/VENTS	-	-	-		REF. MEP
26	ELECTRICAL	LIGHTING FIXTURES					

1. REFERENCE DETAILS FOR ADDITIONAL FIRE RATING INFORMATION
2. REFERENCE DETAILS AND SECTIONS FOR LOCATIONS OF FIRE RATED GYP. BOARD
3. OWNER AND CONTRACTOR TO VERIFY ALL SCHEDULES PRIOR TO ORDERING MATERIALS AND CONSTRUCTION
4. ALL HARDWARE AND THRESHOLDS TO BE TAS COMPLIANT
5. GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF ANY EXISTING CONDITIONS OR NEW WORK PRIOR TO PERFORMING ANY WORK OR ORDERING ANY MATERIALS. ANY DISCREPANCIES SHALL BE REPORTED TO ARCHITECT FOR CONSIDERATION PRIOR TO PROCEEDING WITH WORK. GC ASSUMES RESPONSIBILITY FOR UNREPORTED DISCREPANCIES.
6. ALTERNATIVES REQUIRE SUBMITTAL TO ARCHITECT AND OWNER FOR APPROVAL PRIOR TO ORDERING MATERIAL
7. CONTRACTOR TO VERIFY PROPER USE AND INSTALLATION OF MATERIALS WITH MANUFACTURER PRIOR TO CONSTRUCTION.
8. WHERE NO MATERIALS ARE SPECIFIED, CONSULT ARCHITECT AND OWNER PRIOR TO CONSTRUCTION.
9. ALL PRODUCTS INSTALLED PER MANUF. REQUIREMENTS
10. FULLY SHEATHED MEANS SHEATHING ON BOTH SIDES OF THE PARTITION FROM FINISHED FLOOR TO BOTTOM OF DECK.

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05/01/26

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BONILLA LAW FIRM
BRADFORD ALAN LEGACY HOLDINGS LLC
1833 S I-35 Frontage Rd
Austin, TX 78741

N-VIZION
FORMS + ENVIRONMENTS + IMAGES

MATERIAL SCHEDULE

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 - P: 512.777.9555 - F: 512.777.9556
Registration: TX F-11220, TX-25489, LA 9413 MI
13010089591; NV: 6252, NC: 14883, OH: ARC-1917885

Date:	Description:
05/05/26	BID SET

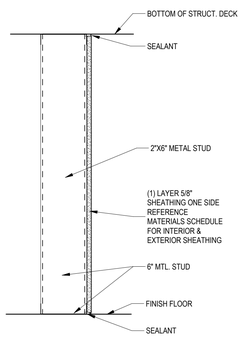
A300

ROOM FINISH SCHEDULE

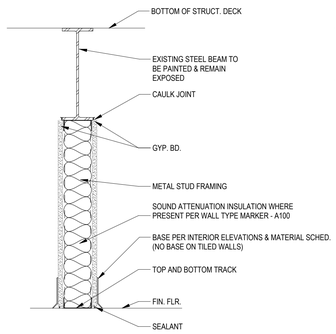
NO	ROOM NAME	FLOOR: CARPET	FLOOR: SEALED CONCRETE	BASE: RUBBER	WALL: GYPSUM BOARD	WALL: PAINT	WALL: WALL TILE	WALL: FRP	CEILING: LAY-IN CLG.	CEILING: EXPOSED DECK	CEILING: CEILING HEIGHT	ACCOUSTIC INSULATION	NO	REMARKS
100	LOUNGE		•	•	•	•	•			•	DECK		100	
101	CONF. ROOM	•		•	•	•	•			•	DECK	YES	101	
102	RECEPTION		•	•	•	•	•			•	DECK		102	
103	OPEN AREA		•	•	•	•				•	DECK		103	
104	BREAK ROOM		•	•	•	•			•		8' - 0"		104	
105	COPY		•	•	•	•				•	DECK		105	
106	OFFICE	•		•	•	•			•		8' - 0"		106	5
107	OFFICE	•		•	•	•			•		8' - 0"		107	5
108	OFFICE	•		•	•	•			•		8' - 0"		108	5
109	OFFICE	•		•	•	•			•		8' - 0"		109	5
110	OFFICE	•		•	•	•			•		8' - 0"		110	5
111	OFFICE	•		•	•	•			•		8' - 0"		111	5
112	UNISEX RR		•	•	•	•	•		•		8' - 0"		112	1,2,3,4
113	UNISEX RR		•	•	•	•	•		•		8' - 0"		113	1,2,3,4
114	OFFICE	•		•	•	•			•		8' - 0"		114	5
115	OFFICE	•		•	•	•			•		8' - 0"		115	5
116	OFFICE	•		•	•	•			•		8' - 0"		116	5
117	CONF. ROOM	•		•	•	•				•	DECK	YES	117	
119	JAN.		•	•	•	•		•		•	DECK		119	
120	MECH		•	•	•	•				•	DECK		120	
121	IT		•	•	•	•				•	DECK		121	
122	HALL 1		•	•	•	•				•	DECK		122	
123	HALL 2		•	•	•	•				•	DECK		123	

REMARKS:
1. REFER TO INTERIOR ELEVATIONS, FINISH PLANS AND REFLECTED CEILING PLANS FOR ROOMS WITH MULTIPLE FINISHES
2. GC TO VERIFY ACOUSTIC INSULATION IN OFFICE WALLS. PROVIDE SPRAY INSULATION WHERE REQUIRED

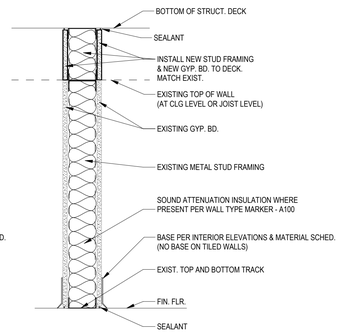
NOTES:
1. REFERENCE FIRE DETAILS AND FIRE, SHEET A020, FOR ADDITIONAL FIRE RATING INFORMATION
2. ALL FLOORING TRANSITIONS AND THRESHOLDS TO BE ACCESSIBLE REF. FLOOR FINISH PLAN AND ACCESSIBILITY DETAILS.
3. OWNER AND CONTRACTOR TO VERIFY ALL SCHEDULES PRIOR TO ORDERING MATERIALS AND STARTING CONSTRUCTION
4. GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF ANY EXISTING CONDITIONS AND/OR NEW WORK PRIOR TO PERFORMING ANY WORK OR ORDERING ANY MATERIALS. ANY DISCREPANCIES SHALL BE REPORTED TO ARCHITECT FOR CONSIDERATION PRIOR TO PROCEEDING WITH WORK. GC ASSUMES RESPONSIBILITY FOR UNREPORTED DISCREPANCIES.
5. ALTERNATES REQUIRE SUBMITTAL TO ARCHITECT AND OWNER FOR APPROVAL PRIOR TO ORDERING MATERIAL
6. ALL GYP. BOARD CORNERS TO BE FINISHED SQUARE



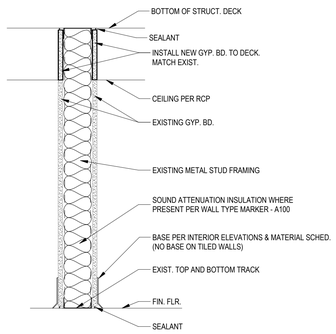
F3.0 PER DETAIL ABOVE
F3.1 SAME AS F6.0 WITHOUT INSULATION
F6.0 PER DETAIL ABOVE
F6.1 SAME AS F6.0 WITHOUT INSULATION



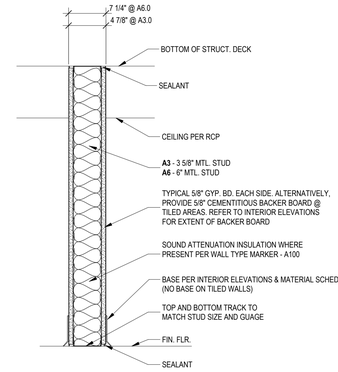
K3.0 PER DETAIL ABOVE
K6.0 PER DETAIL ABOVE
K3.1 SAME AS K3.0 WITHOUT INSULATION
K6.1 SAME AS K6.0 WITHOUT INSULATION



J3.0 PER DETAIL ABOVE
J6.0 PER DETAIL ABOVE
J3.1 SAME AS J3.0 WITHOUT INSULATION
J6.1 SAME AS J6.0 WITHOUT INSULATION



H3.0 PER DETAIL ABOVE
H6.0 PER DETAIL ABOVE
H3.1 SAME AS H3.0 WITHOUT INSULATION
H6.1 SAME AS H6.0 WITHOUT INSULATION



A3.0 PER DETAIL ABOVE
A6.0 PER DETAIL ABOVE
A3.1 SAME AS A3.0 WITHOUT INSULATION
A6.1 SAME AS A6.0 WITHOUT INSULATION

01 Wall Types
1 1/2" = 1'-0"

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N-VIZION
FORMS + ENVIRONMENTS + IMAGES

FINISH SCHEDULE & WALL TYPES

Project No.: 251203
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Austin, TX 78730 | 512.277.3500 | n-vizion.com
Registered: TX: A.E.F.#F-12229, TX-2540R5 | LA: 9413 MI
13010089591 | NV: 8252, NC: 14883, OH: ARC-1917885

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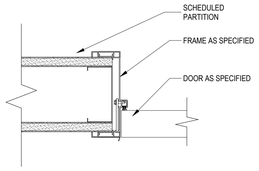
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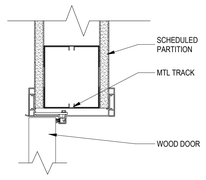
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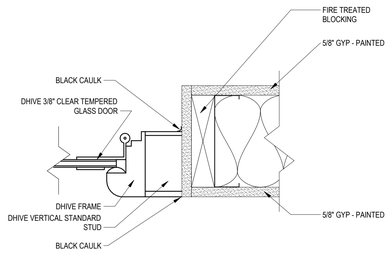
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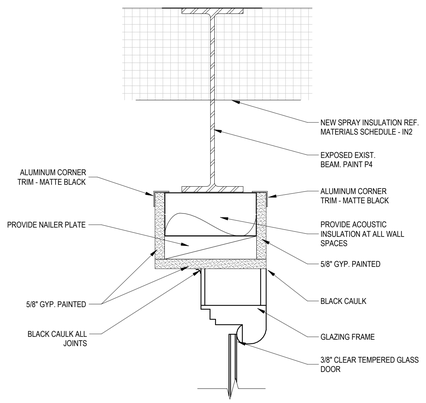
05 DOOR JAMB - RACO FRAMES
3" = 1'-0"



04 DOOR HEADER - RACO FRAMES
3" = 1'-0"



03 CONFERENCE ROOM DHIVE JAMB
3" = 1'-0"



02 CONFERENCE ROOM 101 HEADER
3" = 1'-0"

- CONFERENCE ROOM 117 SIMILAR WITHOUT BEAM

DOOR SCHEDULE

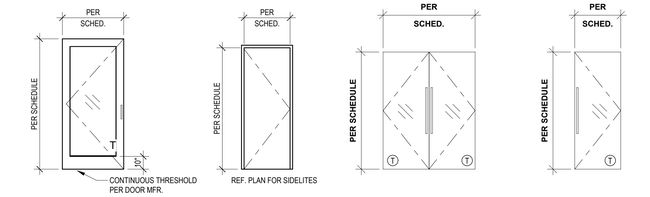
NO	ROOM	SOURCE	DOOR WIDTH	DOOR HEIGHT	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	FRAME MATERIAL	FRAME FINISH	HRDWR	MANUF. DOOR	MANUF. FRAME	NO	REMARKS
D100	LOUNGE	NEW	3' - 0"	7' - 3"	A	ALUMINUM	BLACK ANODIZED	ALUMINUM	BLACK ANODIZED	HW1	OLDCASTLE	OLDCASTLE	D100	1, 2, 3, 4
D101	CONF. ROOM	NEW	6' - 0"	8' - 10"	C	GLASS.	CLEAR	ALUMINUM	BLACK ANODIZED	HW6	DHIVE	DHIVE	D101	1, 2, 5
D102	RECEPTION	NEW	3' - 0"	7' - 0"	A	ALUMINUM	BLACK ANODIZED	ALUMINUM	BLACK ANODIZED	HW1	OLDCASTLE	OLDCASTLE	D102	1, 2, 3, 4
D106	OFFICE	NEW	3' - 0"	7' - 0"		WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW3	VT INDUSTRIES	RACO	D106	
D107	OFFICE	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D107	1, 2
D108	OFFICE	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D108	1, 2
D109	OFFICE	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D109	
D110	OFFICE	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D110	1, 2
D111	OFFICE	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D111	1,2
D112	UNISEX RR	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW2	VT INDUSTRIES	RACO	D112	
D113	UNISEX RR	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW2	VT INDUSTRIES	RACO	D113	
D114	OFFICE	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D114	
D115	OFFICE	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D115	1,2
D116	OFFICE	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D116	1, 2
D117	CONF. ROOM	NEW	3' - 0"	8' - 10"	D	GLASS.	CLEAR	ALUMINUM	BLACK ANODIZED	HW5	DHIVE	DHIVE	D117	1, 2
D119	JANITOR	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D119	
D120	MECH.	NEW	3' - 0"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D120	
D121	IT	NEW	2' - 8"	7' - 0"	B	WOOD	LAMINATE	ALUMINUM	BLACK ANODIZED	HW4	VT INDUSTRIES	RACO	D121	

REMARKS:

1 ALL GLAZING IN DOORS TO BE TEMPERED SAFETY GLASS
2 REF. WINDOW SCHEDULE AND INTERIOR ELEVATIONS FOR ATTACHED TRANSOM AND SIDELITE
3 EXTERIOR STOREFRONT DOORS - U-VALUE=0.77, SHGC=0.30
4 REF. WALL SECTIONS AND FIELD VERIFY HEIGHTS
5 SURFACE APPLIED SMART FILM - REFERENCE MATERIALS SCHEDULE

NOTES:

1 GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF ANY EXISTING CONDITIONS OR NEW WORK PRIOR TO PERFORMING ANY WORK OR ORDERING ANY MATERIALS. ANY DISCREPANCIES SHALL BE REPORTED TO ARCHITECT FOR CONSIDERATION PRIOR TO PROCEEDING WITH WORK. GC ASSUMES RESPONSIBILITY FOR UNREPORTED DISCREPANCIES.
2 OWNER AND CONTRACTOR TO VERIFY ALL SCHEDULES PRIOR TO ORDERING MATERIALS
3 ALTERNATES REQUIRE SUBMITTAL TO ARCHITECT AND OWNER FOR APPROVAL PRIOR TO ORDERING MATERIAL
4 ALL HARDWARE AND THRESHOLDS TO BE TAS COMPLIANT
5 REFERENCE DETAILS FOR ADDITIONAL FIRE RATING INFORMATION
6 REFERENCE DETAILS AND SECTIONS FOR LOCATIONS OF FIRE RATED GYP. BOARD
7 ALL WOOD DOORS TO BE SOLID CORE



A STOREFRONT ENTRANCE DOORS
B SOLID SLAB DOOR
C GLASS DOUBLE DOOR
D GLASS DOOR

01 Door Types
1/4" = 1'-0"

HARDWARE SETS

QTY/DESCRIPTION

HW1 - EXTERIOR STOREFRONT DOOR
ENTRANCE LOCK KEYED - PANIC WITH PULL TRIM - BLACK
1 CONTINUOUS HINGES
1 PANIC EXIT DEVICE
1 DOOR CLOSER PARALLEL ARM
1 CYLINDER
1 DOOR SWEEP
1 THRESHOLD
1 SET WEATHER STRIP
1 EXTERIOR HEAVY DUTY FLOOR-MOUNTED DOORSTOP

HW2 - INTERIOR WOOD DOOR - SINGLE
LEVER PRIVACY - BLACK
3 EA. HINGE 4 1/2" STD. WT.
1 LEVER PRIVACY W/ INDICATOR
SILENCER
1 FLOOR-MOUNTED DOORSTOP - OMNIA 7001 - BLACK

HW3- INTERIOR WOOD DOOR - SINGLE
LEVER LOCK - BLACK
3 HINGE 4 1/2 STD WT
1 LEVER WITH LOCK
SILENCER
1 FLOOR-MOUNTED DOORSTOP - OMNIA 7001 - BLACK

HW4- INTERIOR WOOD DOOR - SINGLE
LEVER PASSAGE - BLACK
3 HINGE 4 1/2 STD WT
1 LEVER W/ PASSAGE
SILENCER
1 FLOOR-MOUNTED DOORSTOP - OMNIA 7001 - BLACK

HW5- INTERIOR PLATE GLASS DOOR - SINGLE
PUSH-PULL - NO LATCH - BLACK
1 PAIR 36" BACK TO BACK LADDER STYLE PULL
HINGES & CLOSERS PER DHIVE MANUF.
1 DROP SEAL
1 FLOOR-MOUNTED DOORSTOP - OMNIA 7001 - BLACK

HW6- INTERIOR PLATE GLASS DOOR - DOUBLE
PUSH-PULL - NO LATCH - BLACK
2 PAIR 36" BACK TO BACK LADDER STYLE PULL
HINGES & CLOSERS PER DHIVE MANUF.
2 DROP SEAL
2 FLOOR-MOUNTED DOORSTOP - OMNIA 7001 - BLACK

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FORMS • ENVIRONMENTS • IMAGES

DOOR AND HARDWARE SCHEDULES

Project No.: 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 | 512.329.3434 | www.n-vizion.com
Registered in: TX: F-11222, TX-25498; LA: 9413 MI: 13010695911; NV: 8252, NC: 14883, OH: ARC-1917885

Date:	Description:
05/05/26	BID SET

A303

GLAZING AND FRAME SCHEDULE

NO.	ROOM	SOURCE	FRAME MATERIAL	FRAME FINISH	GLAZ TYPE	MANUF.	NO.	REMARKS
W100	LOUNGE	NEW	ALUMINUM	ANODIZED BLACK	x,y	OLDCASTLE	W100	1,2
W101A	CONF. ROOM	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W101A	2
W101B	CONF. ROOM	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W101B	2
W101C	CONF. ROOM	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W101C	2
W101D	CONF. ROOM	NEW	ALUMINUM	ANODIZED BLACK	x,y	DHIVE	W101D	1,3
W102A	RECEPTION	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W102A	2
W102B	RECEPTION	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W102B	2
W102C	RECEPTION	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W102C	2
W102D	RECEPTION	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W102D	1,2
W106	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W106	2
W107A	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x,y	RACO	W107A	1
W107B	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W107B	2
W108A	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x,y	RACO	W108A	1
W108B	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W108B	2
W109	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W109	2
W110	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x,y	RACO	W110	1
W111	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x,y	RACO	W111	1
W115A	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x,y	RACO	W115A	1
W115B	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W115B	2
W115C	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W115C	2
W116A	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x,y	RACO	W116A	1
W116B	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W116B	2
W116C	OFFICE	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W116C	2
W117A	CONF. ROOM	NEW	ALUMINUM	ANODIZED BLACK	x,y	DHIVE	W117A	1,3
W117B	CONF. ROOM	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W117B	2
W117C	CONF. ROOM	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W117C	2
W117D	CONF. ROOM	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W117D	2
W117E	CONF. ROOM	NEW	ALUMINUM	ANODIZED BLACK	x	OLDCASTLE	W117E	2

GLAZING TYPE:

x. CLEAR GLASS

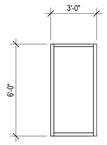
y. TEMPERED

REMARKS:

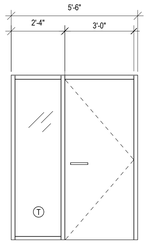
1. SIDE-LITE/DOOR FRAME ASSEMBLY. REF. DOOR SCHEDULE AND ELEVATIONS
2. EXTERIOR GLASS - U-VALUE=0.45, SHGC=0.25
3. SURFACE APPLIED SMARTFILM. REF. MATERIAL SCHEDULE.

NOTES:

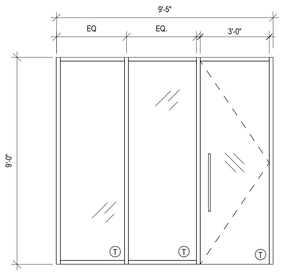
1. GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF ANY EXISTING CONDITIONS OR NEW WORK PRIOR TO PERFORMING ANY WORK OR ORDERING ANY MATERIALS. ANY DISCREPANCIES SHALL BE REPORTED TO ARCHITECT FOR CONSIDERATION PRIOR TO PROCEEDING WITH WORK. GC ASSUMES RESPONSIBILITY
2. OWNER AND CONTRACTOR TO VERIFY ALL SCHEDULES PRIOR TO ORDERING MATERIALS
3. ALTERNATES REQUIRE SUBMITTAL TO ARCHITECT AND OWNER FOR APPROVAL PRIOR TO ORDERING MATERIAL
4. ALL HARDWARE AND THRESHOLDS TO BE TAS COMPLIANT
5. INSTALL TEMPERED SAFETY GLAZING WHERE SHOWN AS WELL AS WHERE REQUIRED BY CODE



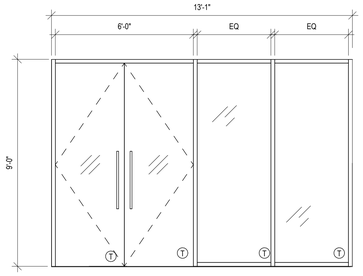
13 W116B
1/4" = 1'-0"



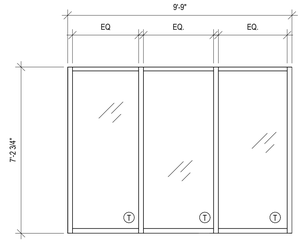
12 W107A,W108A,W110 W111, W115, W116A
3/8" = 1'-0"



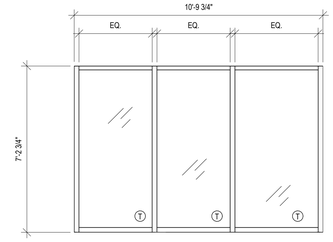
11 W117A
3/8" = 1'-0"



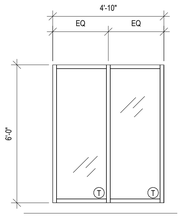
10 W101D
3/8" = 1'-0"



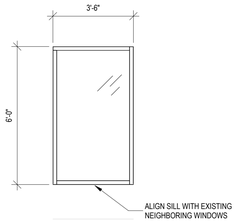
09 W107B
3/8" = 1'-0"



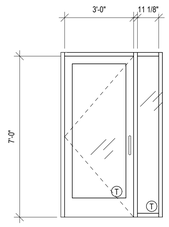
08 W108B
3/8" = 1'-0"



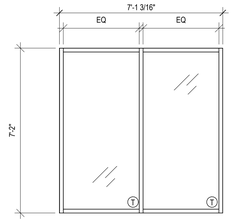
07 W109
3/8" = 1'-0"



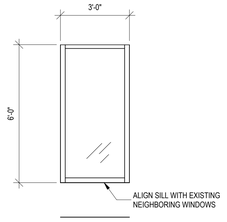
06 W117D, W117E, W116C W115B, W115C
3/8" = 1'-0"



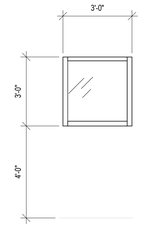
05 W102
3/8" = 1'-0"



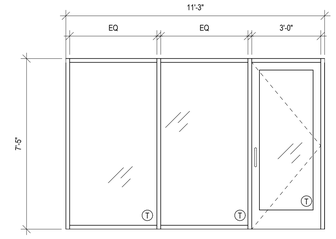
04 W102C
3/8" = 1'-0"



03 W102A, W102B, W117B, W117C
3/8" = 1'-0"



02 W101A,W101B,W101C
3/8" = 1'-0"



01 W100
3/8" = 1'-0"

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BONILLA LAW FIRM
BRADFORD ALAN LEGACY HOLDINGS LLC
1833 S I-35 Frontage Rd
Austin, TX 78741

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FORMS + ENVIRONMENTS + IMAGES

WINDOW SCHEDULE & WINDOW DETAILS

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 | 512.779.3454 | n-vizion.com
Registered: TX: A.E.F.m-F1.2229, TX-25489
13010695911; NV: 8252; NC: 14883; OH: ARC-1917885

Date:	Description:
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A304

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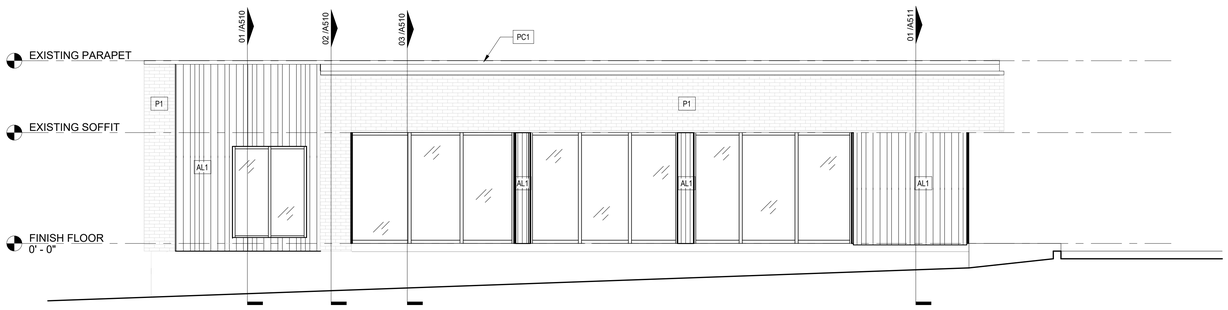
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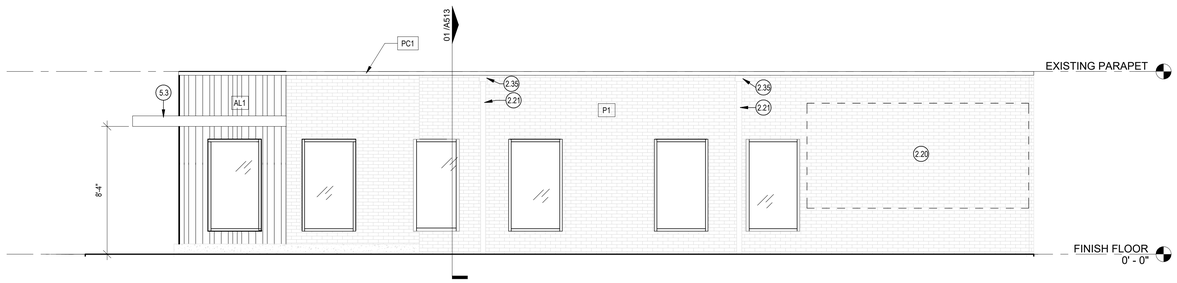
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BRADFORD ALAN LEGACY HOLDINGS LLC
1833 S I-35 Frontage Rd
Austin, TX 78741

KEYNOTES

KEY	DESCRIPTION
2.20	EXISTING ELECTRICAL SERVICE.REF. MEP.
2.21	EXISTING DOWNSPOUT AND SCUPPER TO REMAIN.
2.35	EXISTING SCUPPER. GC TO VERIFY AND REPAIR AS REQ'D.
5.3	NEW SITE BUILT CANOPY. REF. WALL SECTIONS AND STRUCT.



02 West Elevation
1/4" = 1'-0"



01 East Elevation
1/4" = 1'-0"

FINISH TYPES

REFERENCE MATERIAL SCHEDULE FOR MANUFACTURER AND PRODUCT DESCRIPTION

P = PAINT	CS = SEALED CONCRETE
T = TILE	VCT = VINYL FLOORING
CPT = CARPET	LT = LAY-IN CEILING
RB = RUBBER BASE	AL = ALUMINUM SIDING

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EXTERIOR ELEVATIONS

Project No.: 251203
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Austin, TX 78730 | P: 512.277.7555 | www.n-vizion.com
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Date:	Description:
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A400

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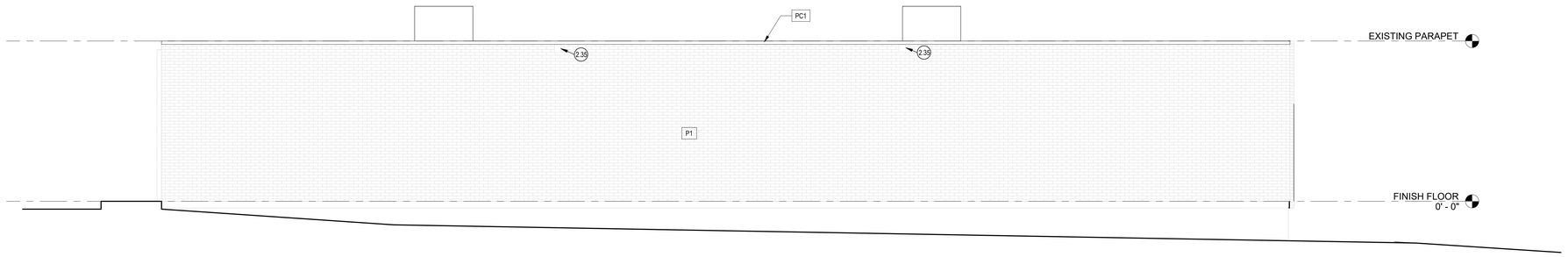
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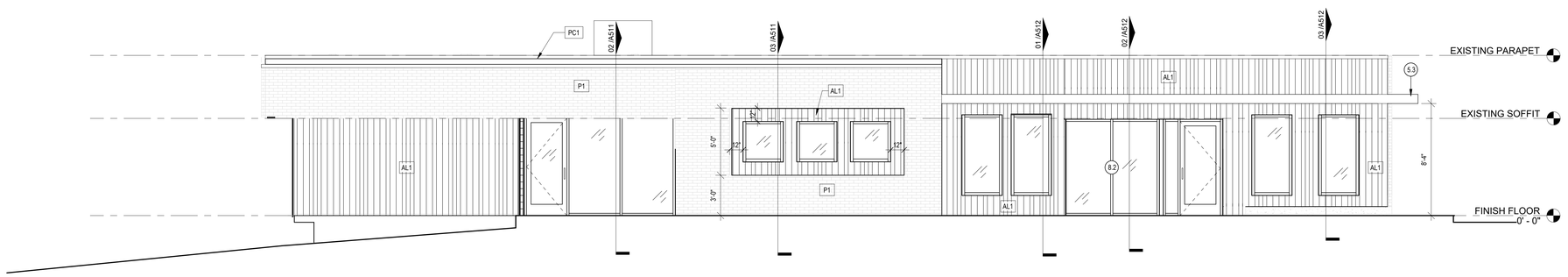
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BRADFORD ALAN LEGACY HOLDINGS LLC
1833 S I-35 Frontage Rd
Austin, TX 78741

KEYNOTES

KEY	DESCRIPTION
2.35	EXISTING SCUPPER. GC TO VERIFY AND REPAIR AS REQ'D.
5.3	NEW SITE BUILT CANOPY. REF. WALL SECTIONS AND STRUCT.
8.2	NEW STOREFRONT WINDOW.



02 North Elevation
1/4" = 1'-0"



01 South Elevation
1/4" = 1'-0"

FINISH TYPES

REFERENCE MATERIAL SCHEDULE FOR MANUFACTURER AND PRODUCT DESCRIPTION

P = PAINT	CS = SEALED CONCRETE
T = TILE	VCT = VINYL FLOORING
CPT = CARPET	LT = LAY-IN CEILING
RB = RUBBER BASE	AL = ALUMINUM SIDING

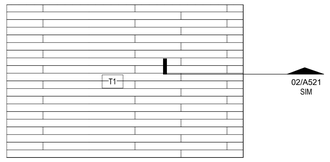
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EXTERIOR ELEVATIONS

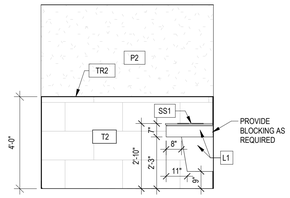
Project No.: 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 | P: 512.277.7999 | F: 512.277.7998
Registered in: TX: F-11229, TX-25489, LA: 9413 MI: 1301069591 | NV: 6252, NC: 14883, OH: ARC-1917885

Date:	Description:
05/05/26	BID SET

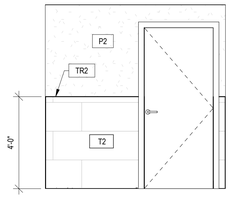
A401



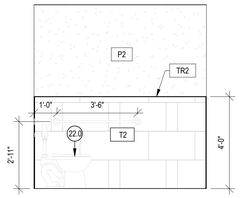
16 RECEPTION
1/4" = 1'-0"



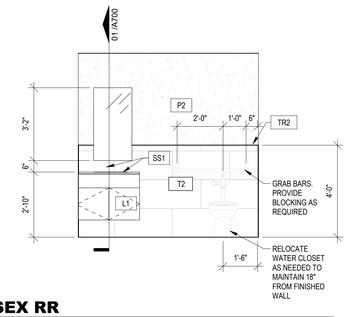
15 UNISEX RR
3/8" = 1'-0"



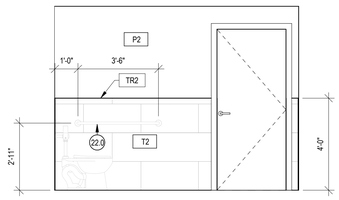
14 UNISEX RR
3/8" = 1'-0"



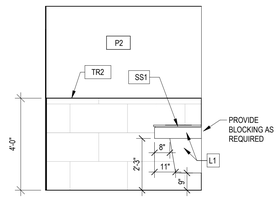
13 UNISEX RR
3/8" = 1'-0"



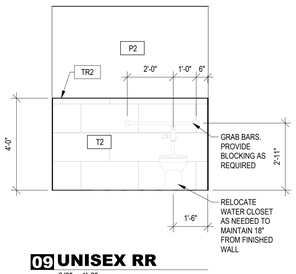
12 UNISEX RR
3/8" = 1'-0"



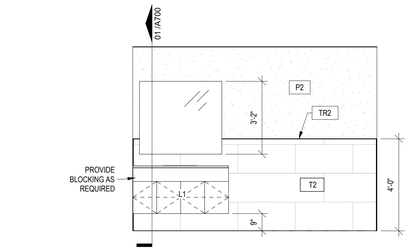
11 UNISEX RR
3/8" = 1'-0"



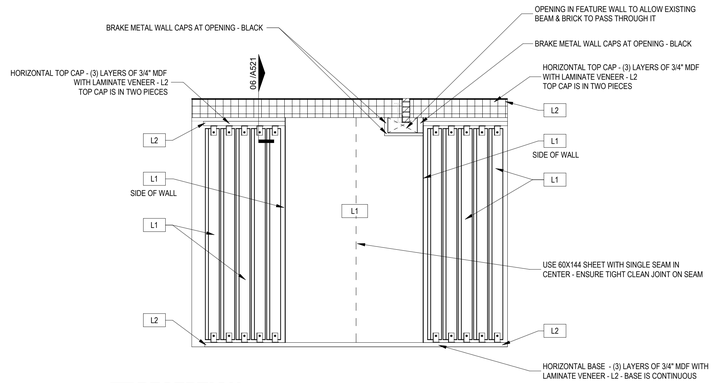
10 UNISEX RR
3/8" = 1'-0"



09 UNISEX RR
3/8" = 1'-0"

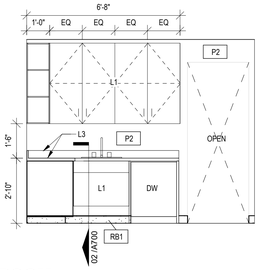


08 UNISEX RR
3/8" = 1'-0"

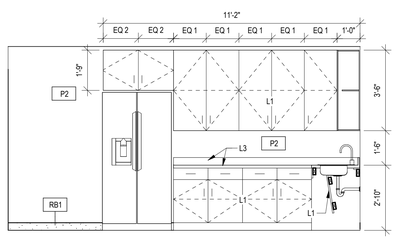


07 RECEPTION
3/8" = 1'-0"

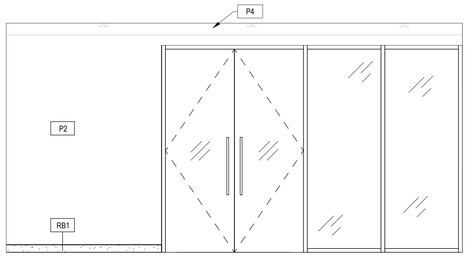
DETAIL 06
NOT USED



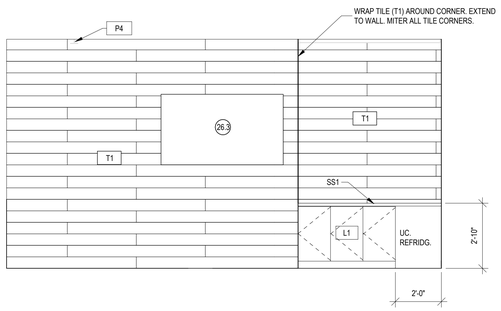
05 BREAK ROOM
3/8" = 1'-0"



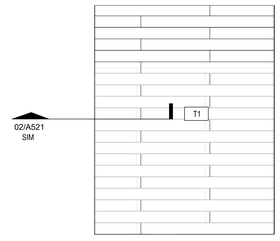
04 BREAK ROOM
3/8" = 1'-0"



03 CONF. ROOM
3/8" = 1'-0"



02 CONF. ROOM
3/8" = 1'-0"



01 LOUNGE
3/8" = 1'-0"

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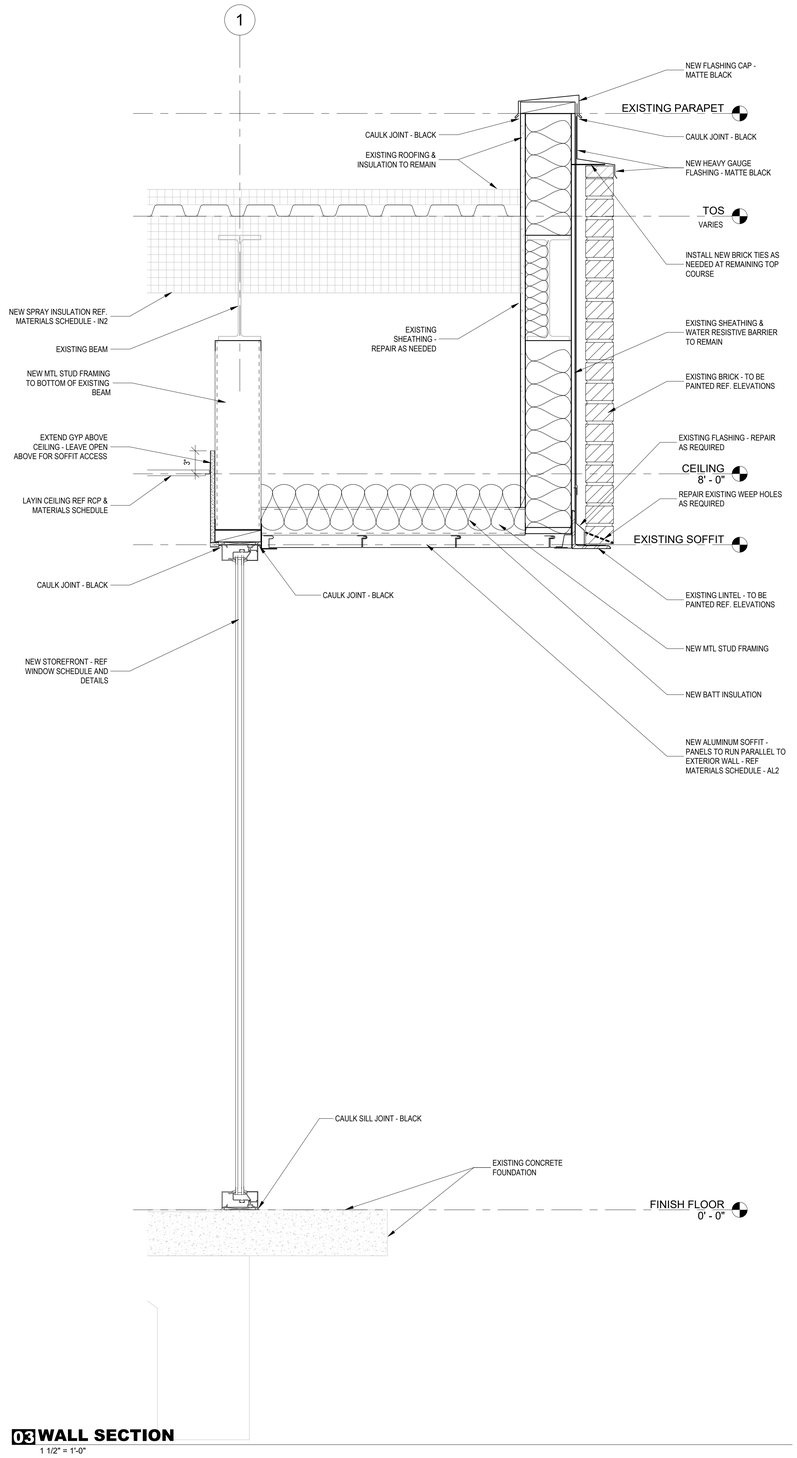
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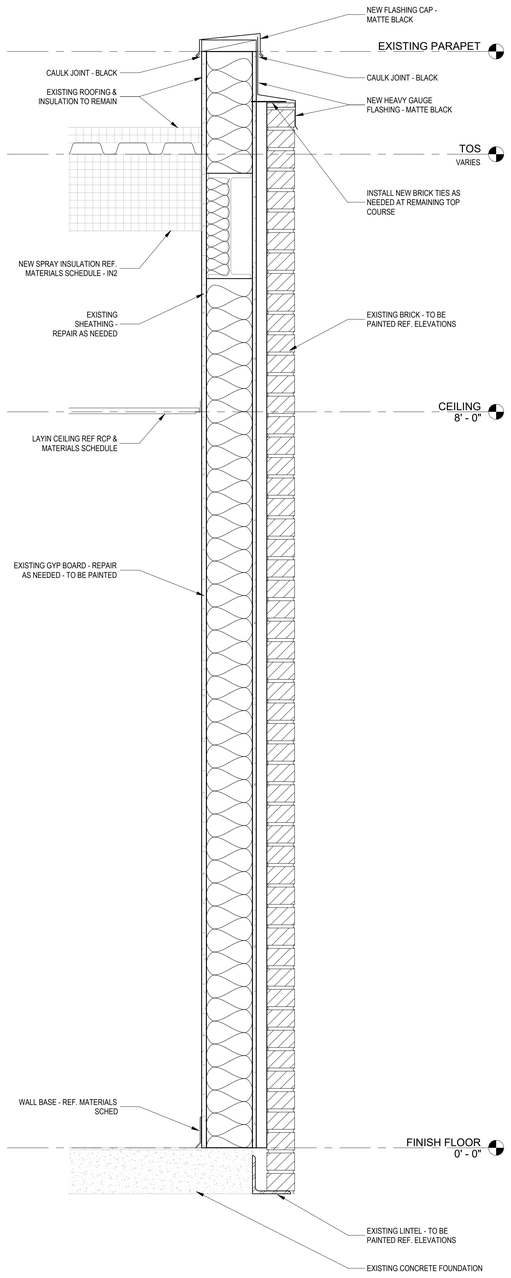
Project No.: 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 | 512.736.1554 | www.n-vizion.com
Registered: TX: A.E.P.I.: 12220, TX-25489
13010089591 | NV: 8252, NC: 14883, OH: ARC-1917885

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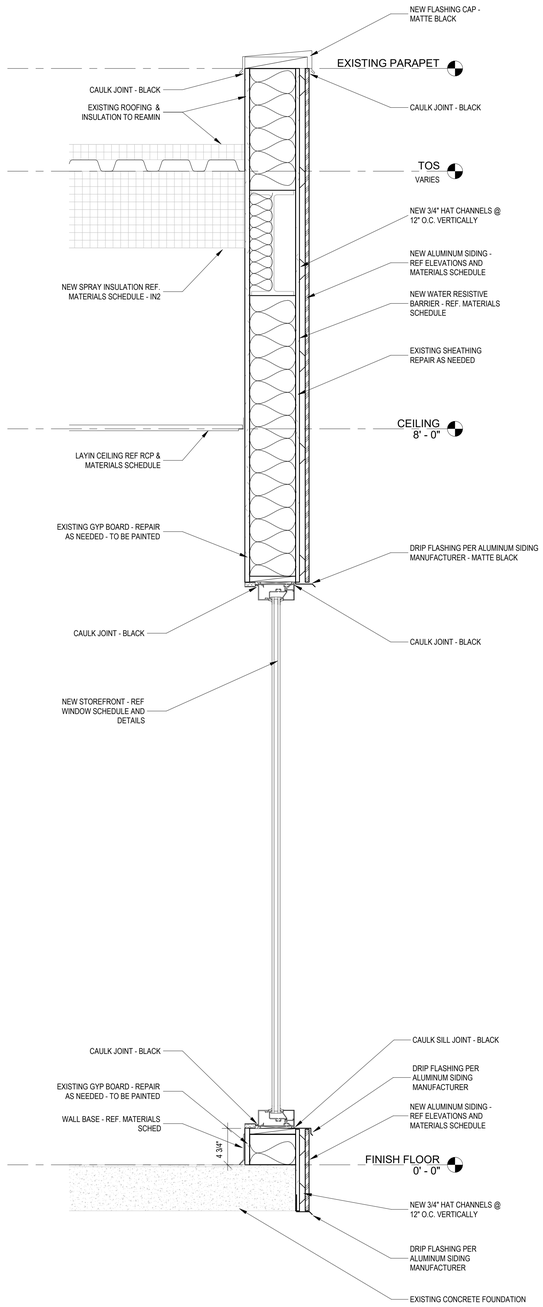
A410



03 WALL SECTION
1 1/2" = 1'-0"



02 WALL SECTION
1 1/2" = 1'-0"



01 WALL SECTION
1 1/2" = 1'-0"

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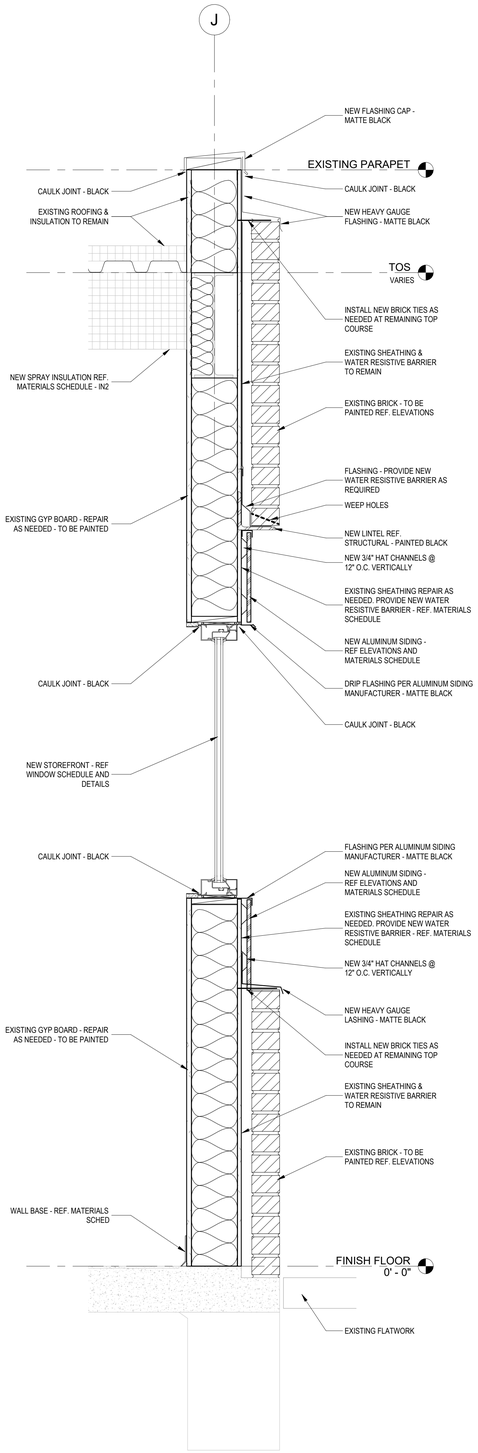
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WALL SECTIONS

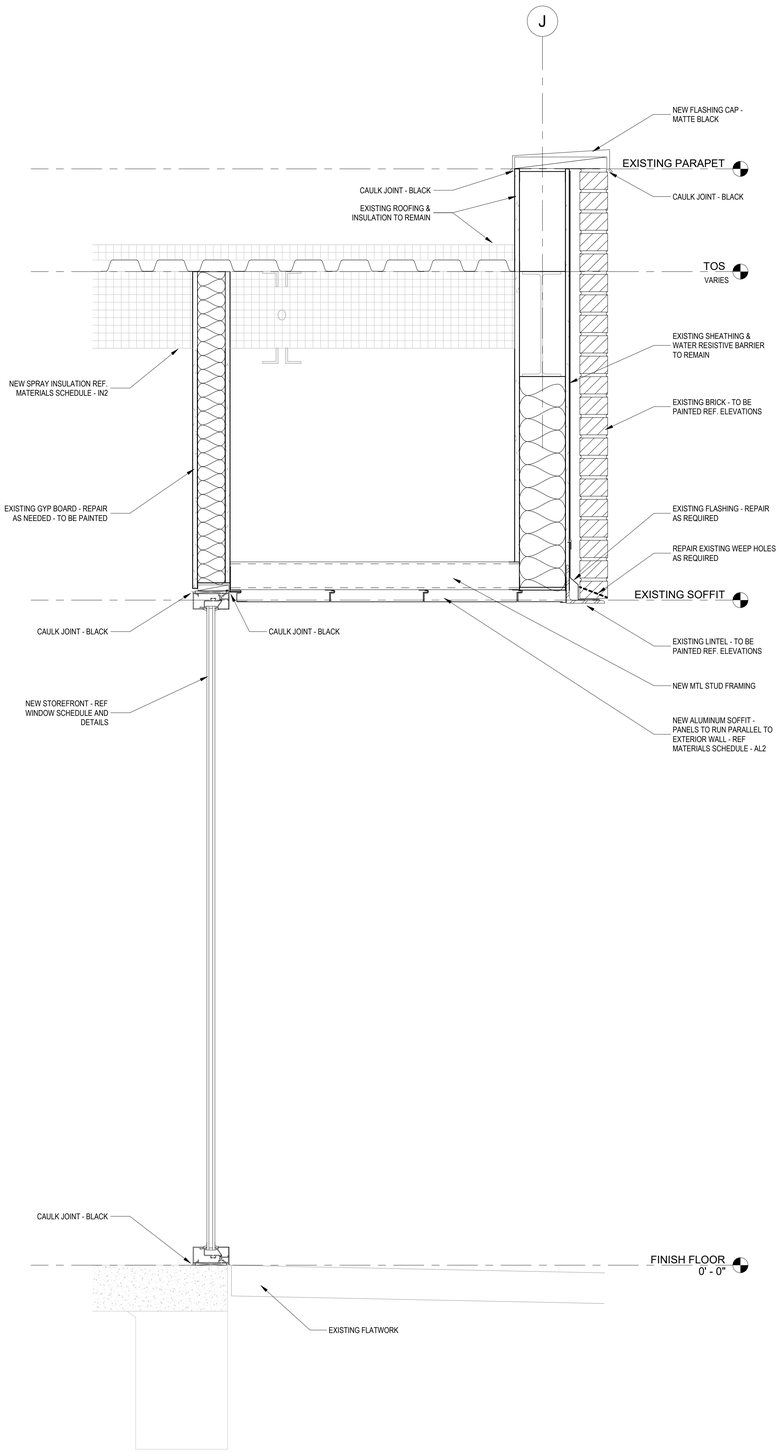
Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 p:512.327.3995 www.n-vizion.net
Arkansas, TN, TX, LA, FL, MS, NM, OK, CO, KS, IA, LA, 8413 MI:
130106959 1, NV: 8202, NC: 14883, OH: ARC.1917885

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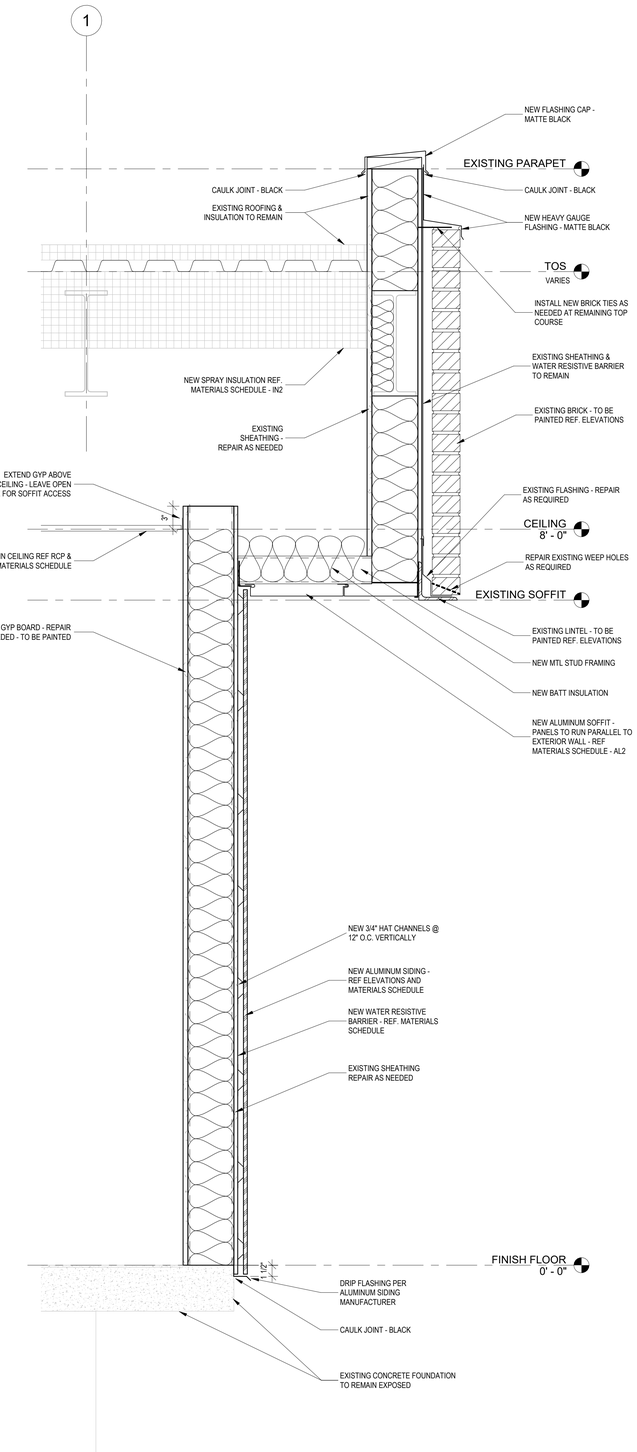
A510



03 WALL SECTION
1 1/2" = 1'-0"



02 WALL SECTION
1 1/2" = 1'-0"



01 WALL SECTION
1 1/2" = 1'-0"

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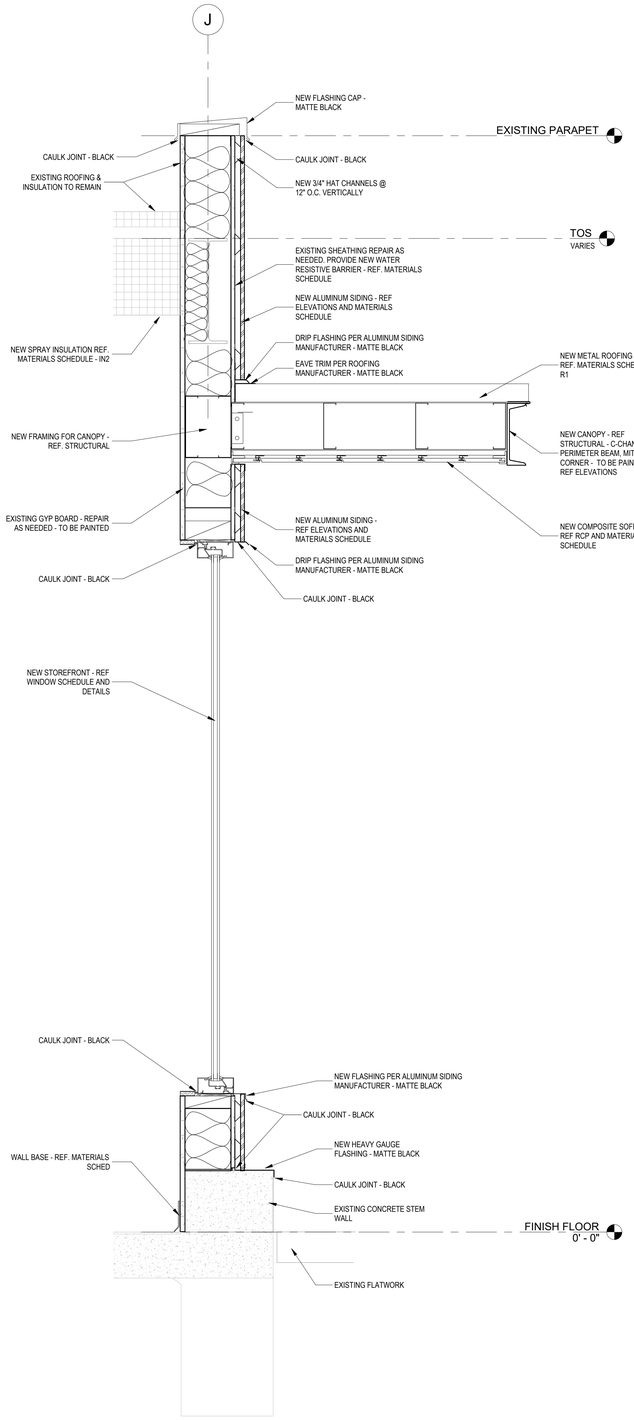
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WALL SECTIONS

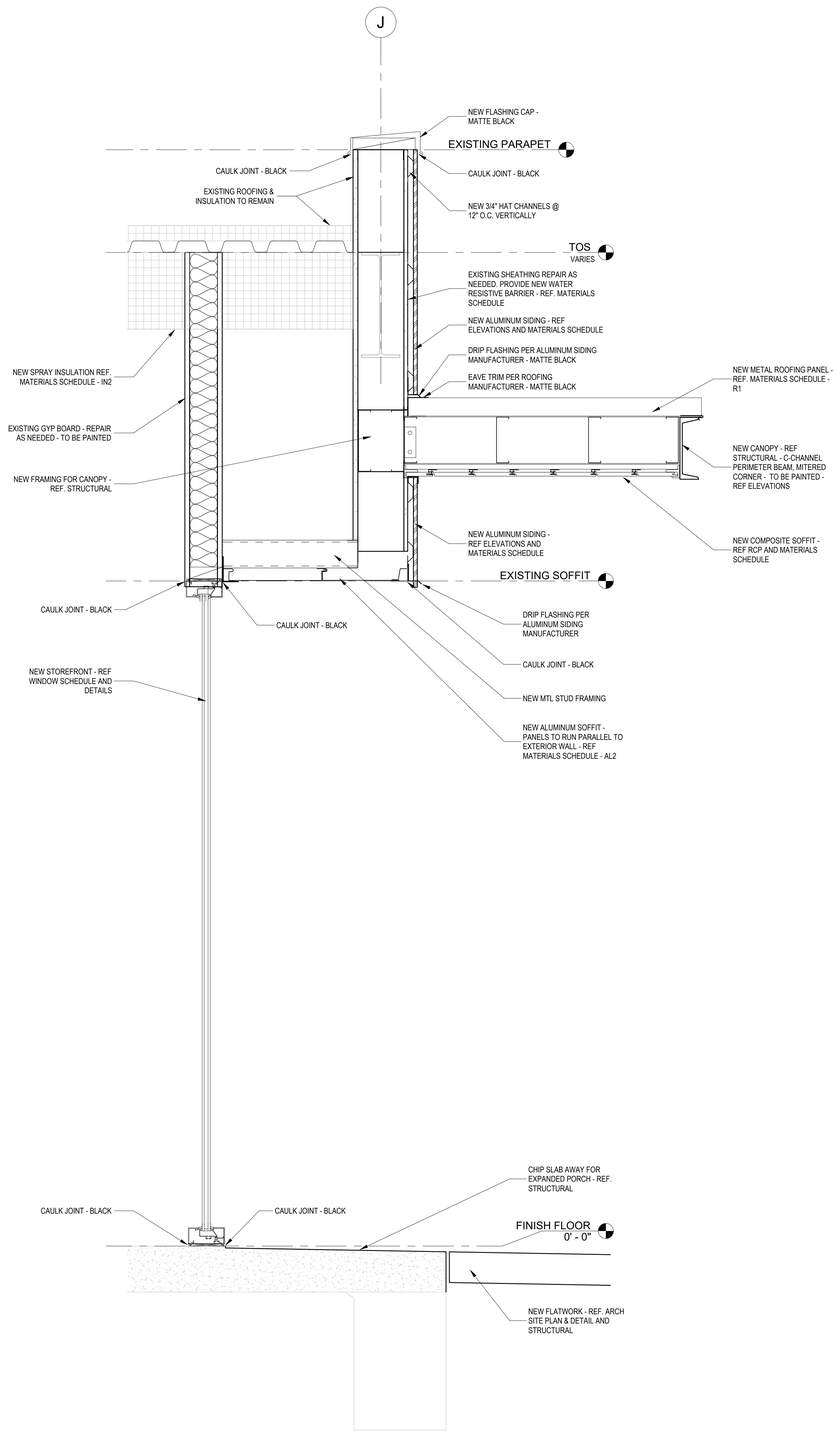
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N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 | 512.277.9555 | www.n-vizion.com
Registered: Texas, TX F-P1-22229; TX-25489; LA 9413 MI: 1301069591 | NV: 6252, NC: 14883, OH: ARC-1917885

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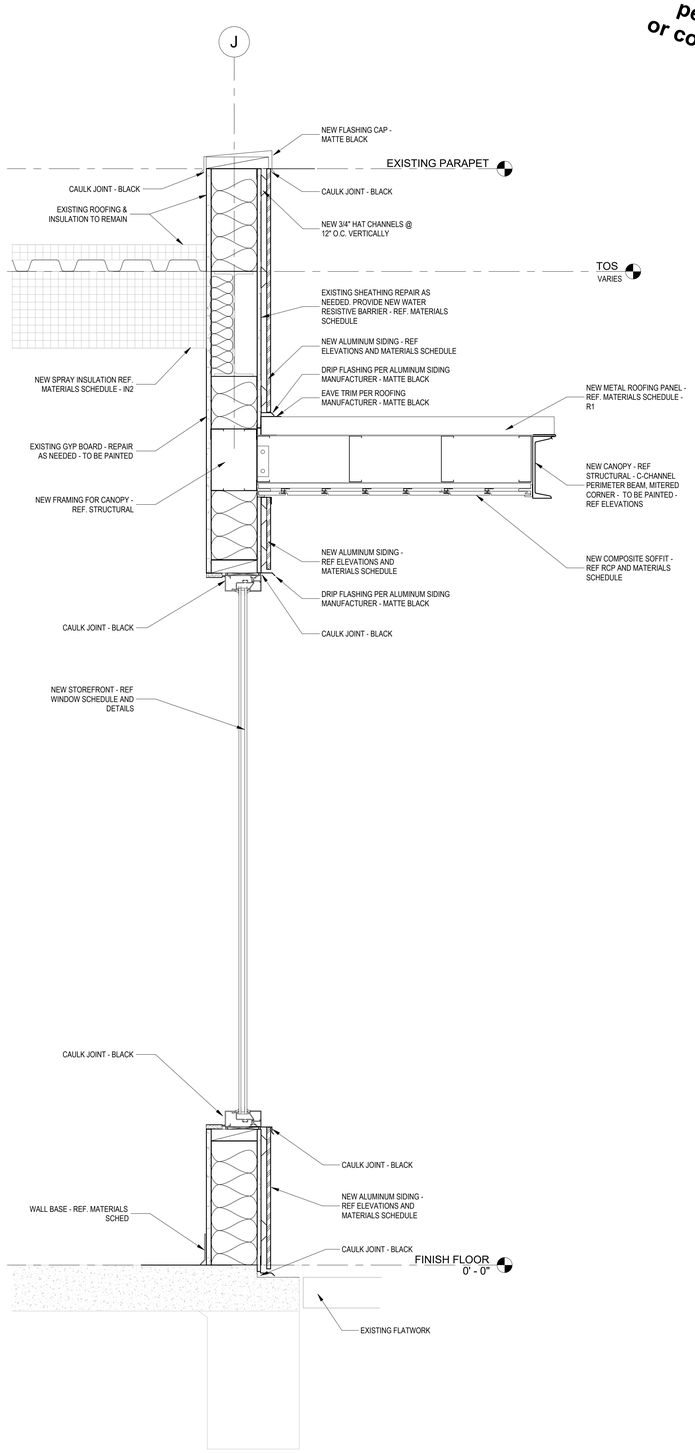
A511



03 WALL SECTION
1 1/2" = 1'-0"



02 WALL SECTION
1 1/2" = 1'-0"



01 WALL SECTION
1 1/2" = 1'-0"

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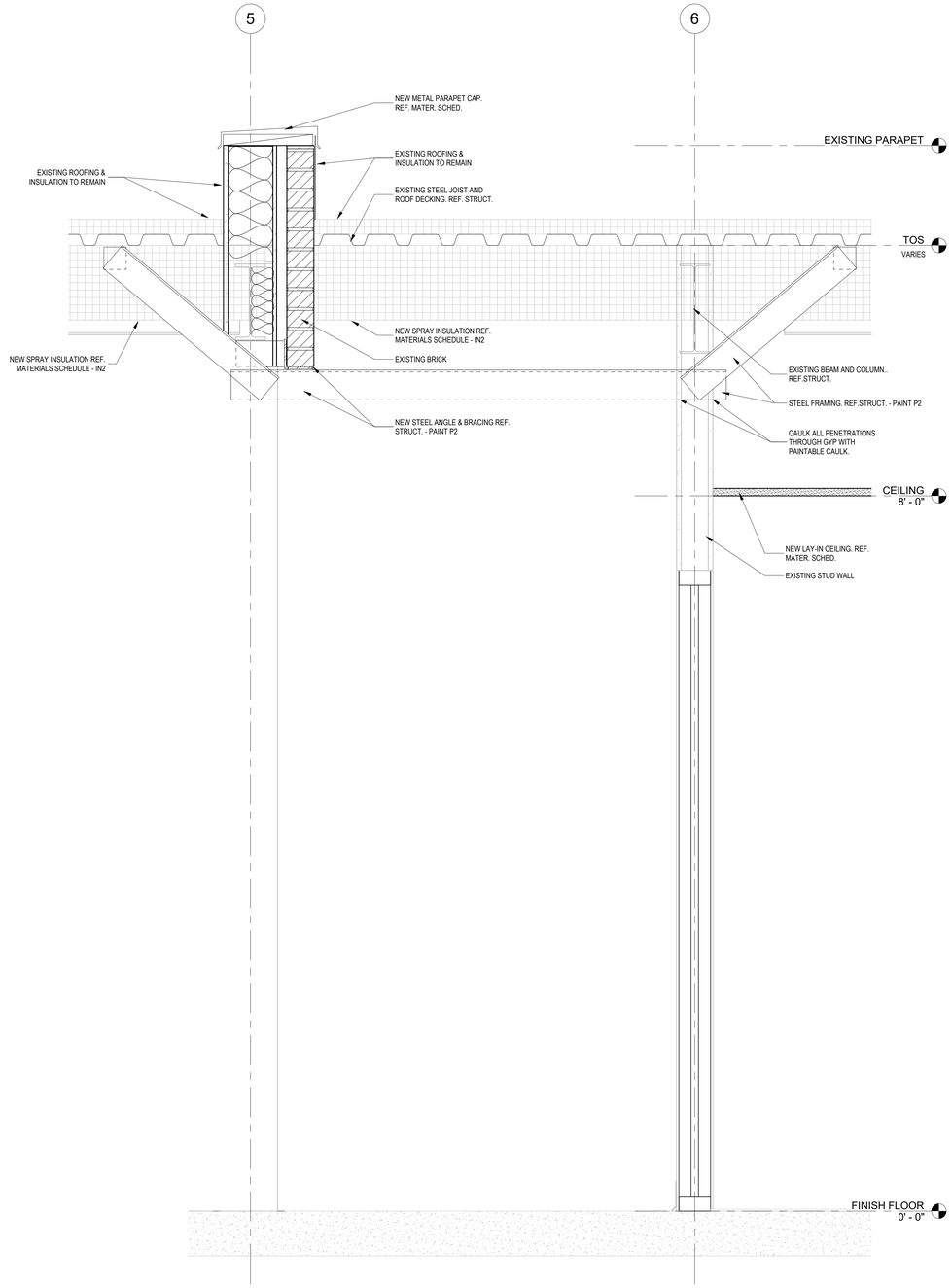
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WALL SECTIONS

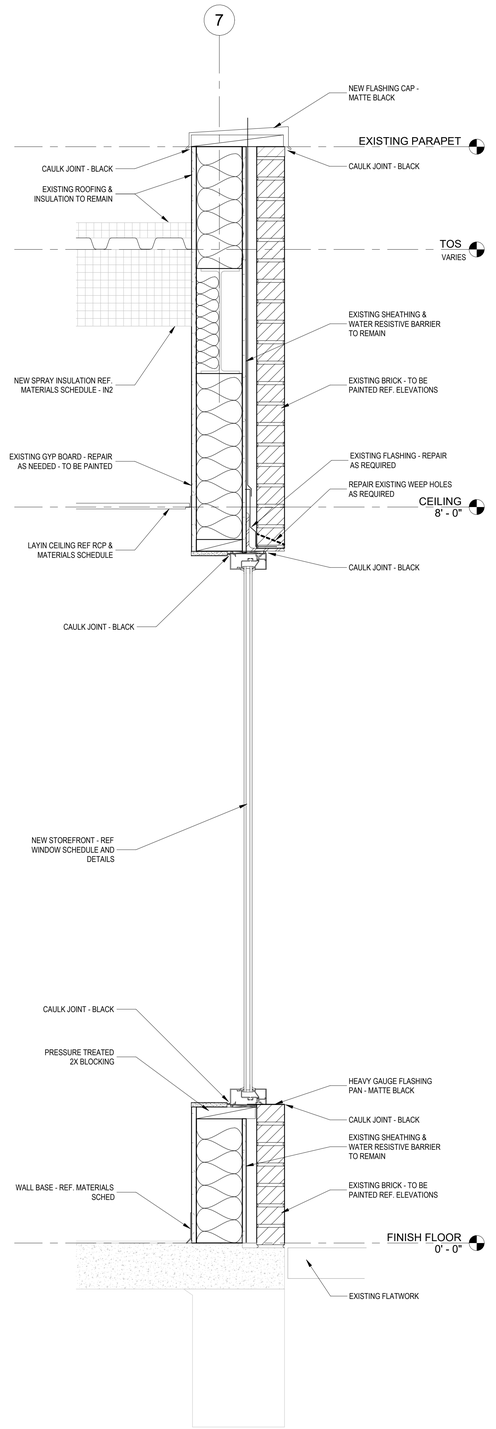
Project No. 251203
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Austin, TX 78730 | P: 512.277.7999 | F: 512.277.7998
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A512



02 SECTION
1 1/2" = 1'-0"



01 WALL SECTION
1 1/2" = 1'-0"

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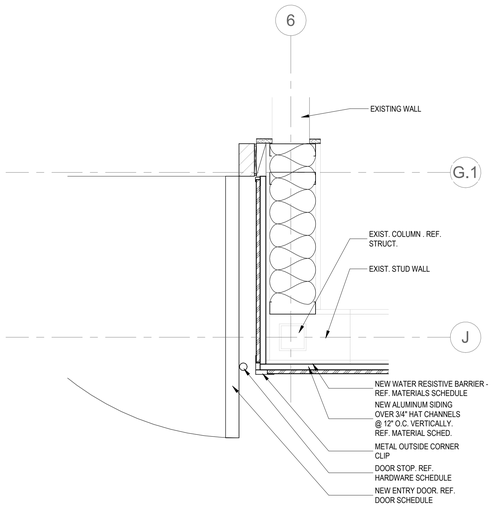
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WALL SECTIONS

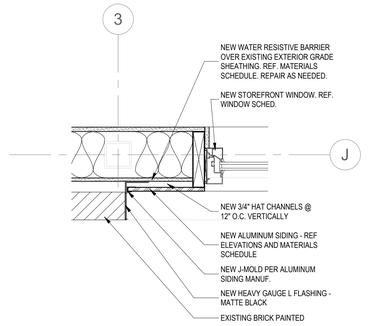
Project No.: 251203
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Austin, TX 78730 - P: 737.787.2500 - Firm #: 21220
Registered: Texas, TX; F-21220, TX-25489
1301069591; NV: 8252; NC: 14883; OH: ARC-1917885

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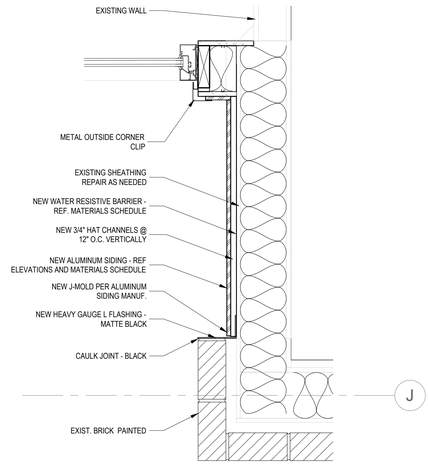
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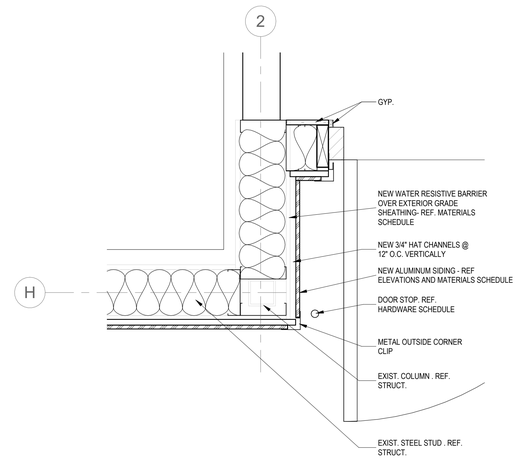
09 WALL DETAIL 9
1 1/2" = 1'-0"



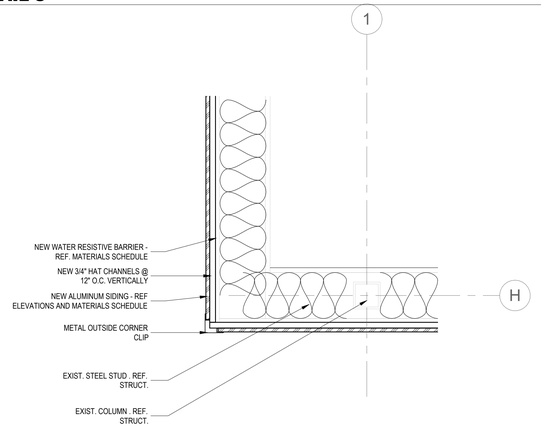
08 WALL DETAIL 8
1 1/2" = 1'-0"



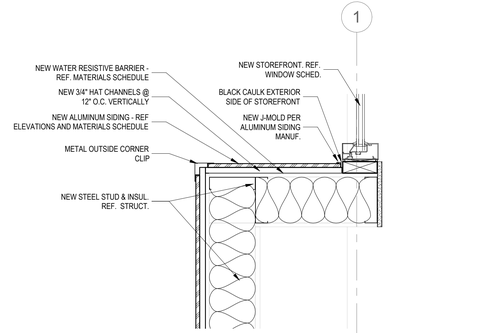
07 WALL DETAIL 7
1 1/2" = 1'-0"



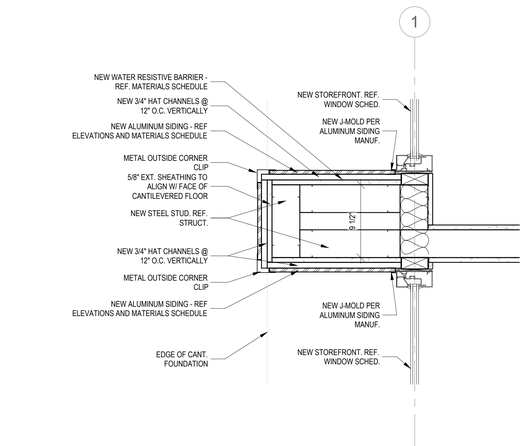
06 WALL DETAIL 6
1 1/2" = 1'-0"



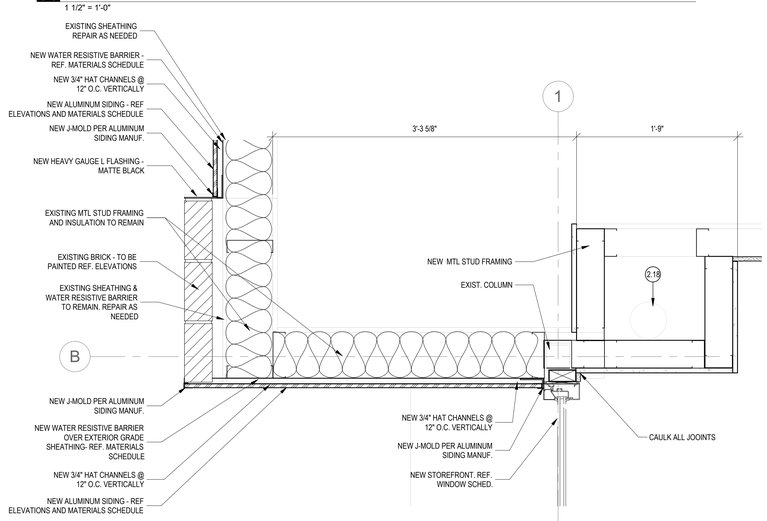
05 WALL DETAIL 5
1 1/2" = 1'-0"



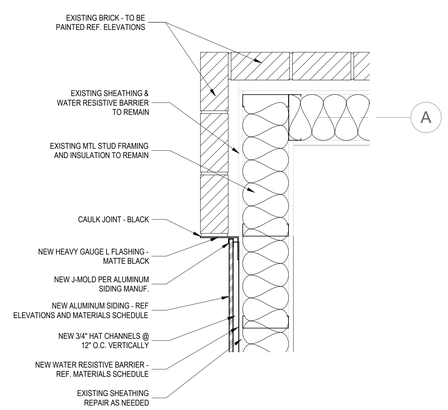
04 WALL DETAIL 4
1 1/2" = 1'-0"



03 WALL DETAIL 3
1 1/2" = 1'-0"



02 WALL DETAIL 2
1 1/2" = 1'-0"



01 WALL DETAIL 1
1 1/2" = 1'-0"

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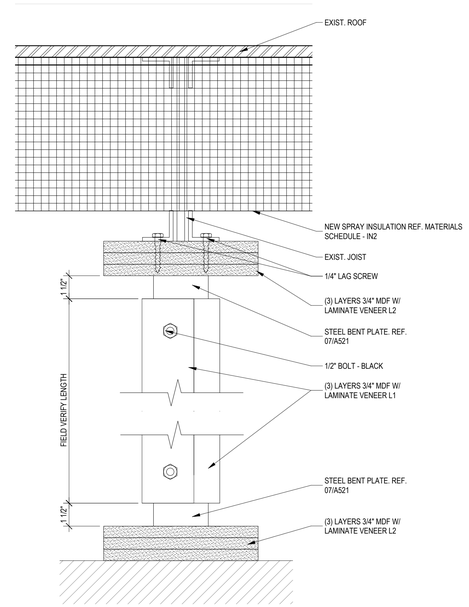
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ENLARGED WALL SECTIONS DETAILS

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 - (512) 298-2299 - TX# 24080
Registered in: TX: PE: 21299 - LA: 9413 Mi:
130106591 - NV: 8252 - NC: 14883 - OH: ARC.1917885

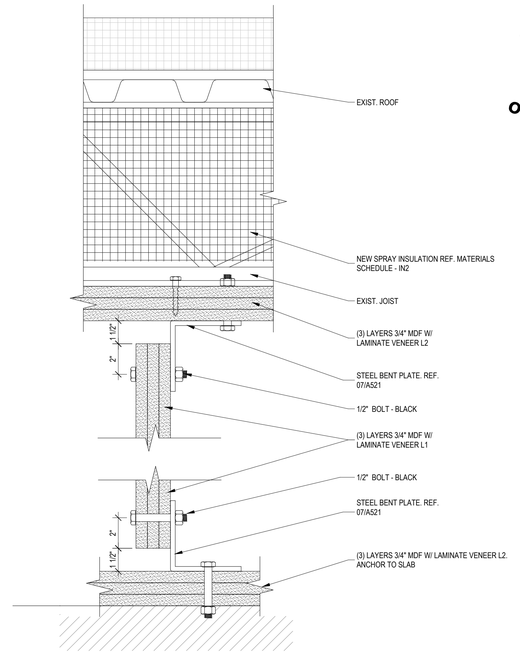
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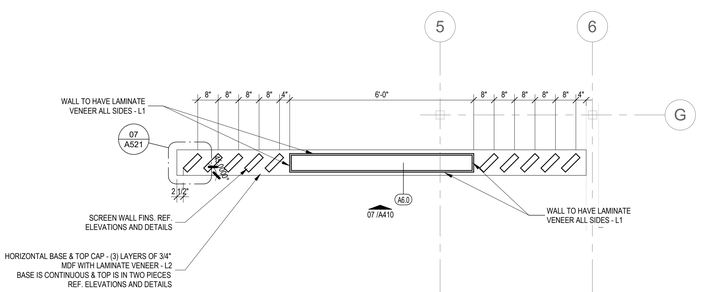
06 SCREENWALL FIN DETAIL - SIDE VIEW

3" = 1'-0"



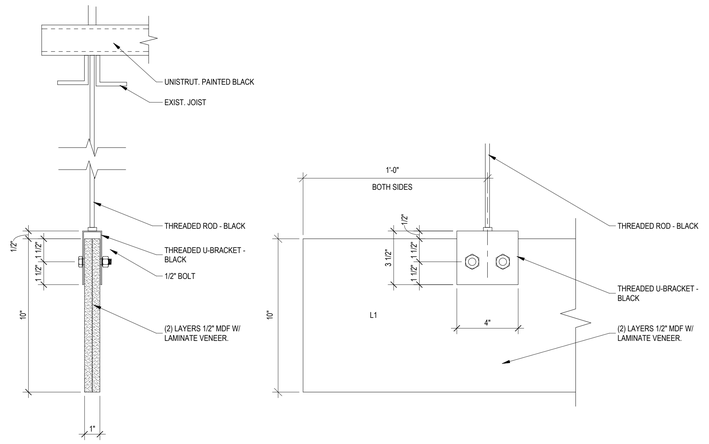
03 SCREENWALL FIN DETAIL - FRONT VIEW

3" = 1'-0"



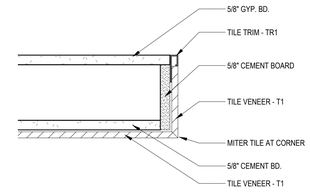
08 ENLARGED SCREEN WALL PLAN

1/2" = 1'-0"



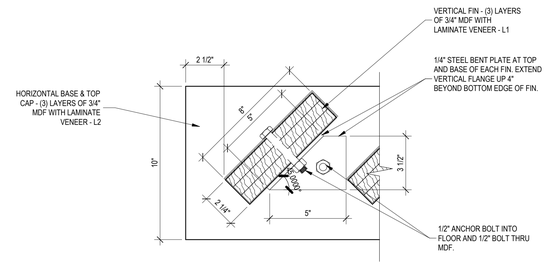
05 CEILING BAFFLE DETAIL

3" = 1'-0"



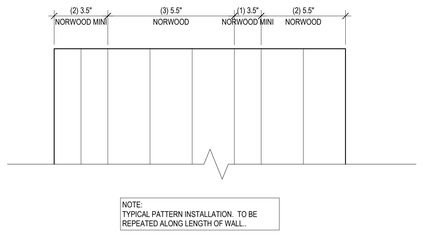
02 END OF TILE WALL DETAIL

3" = 1'-0"



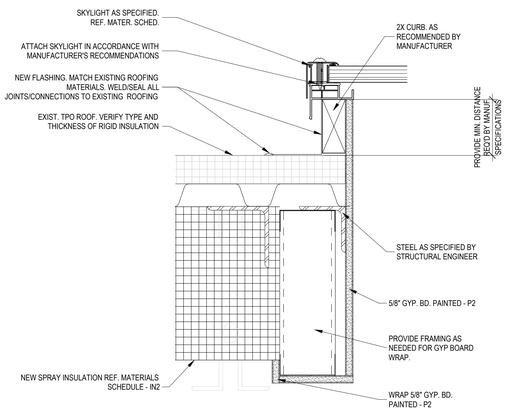
07 SCREEN WALL FIN DETAIL - BASE CONNECTION

3" = 1'-0"



04 NORWOOD AND NORWOOD MINI PANEL SEQUENCE DTL

1 1/2" = 1'-0"



01 SKYLIGHT SECTION DETAIL

3" = 1'-0"

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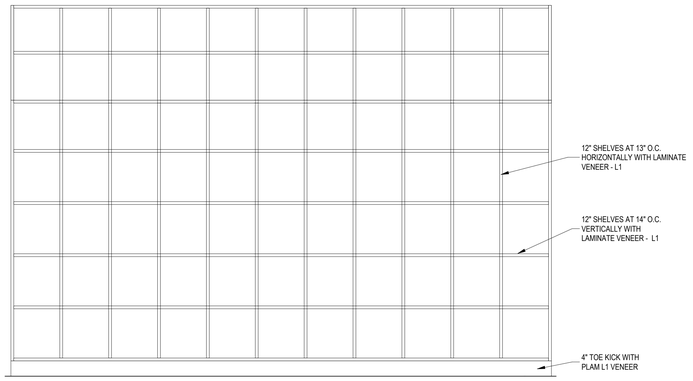
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Project No.: 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
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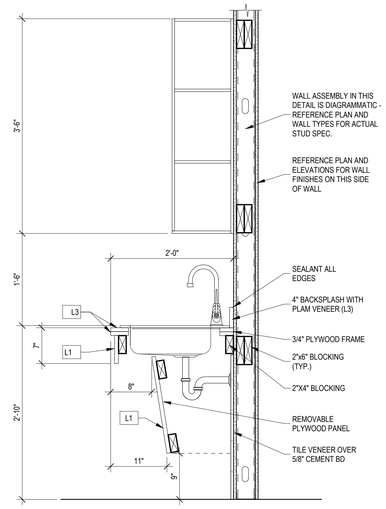
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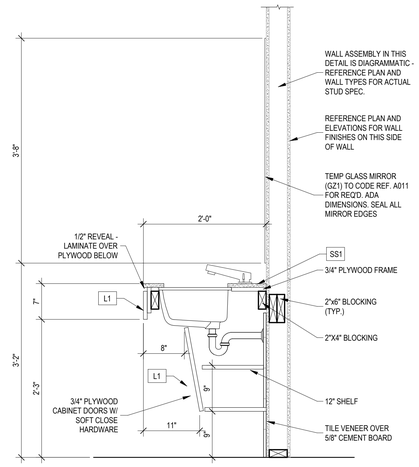
03 SHELVING ELEVATION

3/4" = 1'-0"



02 BREAK ROOM SINK SECTION

1" = 1'-0"



01 RR LAVATORY SECTION

1" = 1'-0"

Not for regulatory approval, permitting, or construction

05/01/26

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N-VIZION
FORMS + ENVIRONMENTS + IMAGES

MILLWORK DETAILS

Project No.: 251203
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Registered in: NCARB, TX, KS, FL, MS, TX PE Firm #: F-22229, TX-25498, LA, 9413 MI: 1301069591 | NV: 8252, NC: 14883, OH: ARC-1917885

Date:	Description:
05/05/26	BID SET

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GENERAL NOTES

GENERAL CONDITIONS AND COORDINATION

1. NOTES SHOWN ON GENERAL NOTES SHEET SHALL GOVERN THE MINIMUM STANDARDS FOR MATERIALS, WORKMANSHIP, AND GENERAL CONSTRUCTION PRACTICES UNLESS NOTED OTHERWISE IN SPECIFICATIONS OR ON DRAWINGS.
2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN AND DISTRIBUTE ALL CURRENT CONTRACT DOCUMENTS AND ADDENDA TO SUPPLIERS AND SUB-CONTRACTORS FOR THE USE OF SHOP DRAWING PRODUCTION AND FABRICATION PRIOR TO CONSTRUCTION.
3. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COMPARE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND OTHER DRAWINGS, AND REPORT ANY DISCREPANCIES AMONG OR WITHIN THE DRAWING SETS PRIOR TO FABRICATION OR CONSTRUCTION.
4. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERIFY ALL DIMENSIONS, FLOOR ELEVATIONS, DROPS, SLOPES, DRAINS, EMBEDDED ITEMS, ETC., PRIOR TO CONSTRUCTION.
5. THE DETAILS AND SECTIONS SHOWN ON STRUCTURAL DRAWINGS APPLY GENERALLY TO ALL AREAS OF SIMILAR OR LIKE CONDITIONS THROUGHOUT THE DRAWINGS.
6. STRUCTURAL DRAWINGS INDICATE TYPICAL AND INDIVIDUAL SPECIFIC CONDITIONS ONLY. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/SUB-CONTRACTOR TO PREPARE SHOP DRAWINGS DETAILING CONDITIONS IN ACCORDANCE WITH SPECIFIED STANDARDS AND SPECIFIC REQUIREMENTS OF THIS PROJECT AS INDICATED ON DRAWINGS.
7. THE USE OF THESE STRUCTURAL DRAWINGS BY ANY CONTRACTOR, SUB-CONTRACTOR, MATERIAL SUPPLIER, FABRICATOR, OR ERECTOR WITHOUT THE PREPARATION OF SHOP DRAWINGS REPRESENTS HIS ACCEPTANCE OF THESE DRAWINGS AS COMPLETE AND CORRECT. AS A RESULT, ANY EXPENSE ACQUIRED AS A RESULT OF ERRORS OCCURRING ON DRAWINGS IS THE RESPONSIBILITY OF THE INDIVIDUAL PARTY.
8. SHOP DRAWINGS MAY BE SUBMITTED TO ENGINEER FOR REVIEW FOR CORRECTNESS OF STRUCTURAL INTENT. CONTRACTOR, SUB-CONTRACTOR, MATERIAL SUPPLIER, FABRICATOR, OR ERECTOR SHOULD ANTICIPATE A MINIMUM 10 BUSINESS DAY REVIEW PERIOD BY ENGINEER.
9. THE DESIGN AND PROVISION FOR ALL TEMPORARY SUPPORTS OR FRAMING IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. TEMPORARY SUPPORTS SHALL NOT OVERSTRESS OR CAUSE DAMAGE TO THE PERMANENT STRUCTURAL ELEMENTS.
10. THE DESIGN AND PROVISION FOR SUPPORTS OF ALL NON-STRUCTURAL FRAMING, INCLUDING MECHANICAL EQUIPMENT, PLUMBING, ETC IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. SUPPORTS SHALL BE DESIGNED FOR ALL APPLICABLE LOADS IN ACCORDANCE WITH THE GOVERNING BUILDING CODE INCLUDING SEISMIC LOADING. SUPPORTS SHALL NOT OVERSTRESS OR CAUSE DAMAGE TO STRUCTURAL ELEMENTS. REFERENCE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ALL NON-STRUCTURAL FRAMING REQUIRED.
11. THE STRUCTURAL DRAWINGS AND ITEMS SHOWN HEREIN REPRESENT THE FINISHED STRUCTURE AND DO NOT NECESSARILY REPRESENT THE MEANS OR METHODS OF CONSTRUCTION. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SUPERVISING THE WORK, AND THE MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCES OF CONSTRUCTION.
12. THE STRUCTURE SHOWN HEREIN IS STRUCTURALLY SOUND WHEN ALL HORIZONTAL AND LATERAL PERMANENT BRACING INDICATED ON DRAWINGS IS INSTALLED IN THEIR ENTIRETY. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY SUPPORT OF ALL ELEMENTS TO RESIST GRAVITY, EARTH, WIND, SEISMIC, AND CONSTRUCTION LOADS DURING CONSTRUCTION.
13. ALL ELEVATIONS SHOWN ARE FOR STRUCTURAL REFERENCE PURPOSES ONLY. REFER TO CIVIL FOR DATUM ELEVATIONS.

DESIGN CODES/STANDARDS

1. GOVERNING BUILDING CODE: 2024 INTERNATIONAL BUILDING CODE.
2. DESIGN LOADS: MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-22.
3. CONCRETE: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, AMERICAN CONCRETE INSTITUTE, ACI 318-19.
4. CONCRETE MASONRY: BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, THE MASONRY SOCIETY , TMS 402-16.
5. STRUCTURAL STEEL: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS AND STEEL CONSTRUCTION MANUAL, AMERICAN INSTITUTE OF STEEL CONSTRUCTION, AISC 360-22 AND AISC 325-23.
7. LIGHT-GAUGE STEEL: NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, AMERICAN IRON AND STEEL INSTITUTE, S100-16.

LOADS AND DESIGN CRITERIA

1. DEAD LOADS
   - A. ROOF 15 PSF
2. LIVE LOADS
   - A. ROOF 20 PSF
3. SNOW LOADS
   - A. IMPORTANCE FACTOR 1.00
   - B. GROUND SNOW LOAD 5 PSF
4. WIND LOADS
   - A. RISK CATEGORY II
   - B. BASIC WIND SPEED 105 MPH
   - C. EXPOSURE CATEGORY B
   - D. C&C PRESSURES REF S1.01 FOR TYP CONFIGURATIONS

   EDGE DISTANCE 'a' 5.30 FT
   EDGE DISTANCE '0.6h' 6.45 FT

	10 SF (0.6W)	100 SF (0.6W + 0.6D)
ROOF EFFECTIVE AREA		
ROOF ZONE 1'	9.0 PSF	3.0 PSF NET
ROOF ZONE 1	15.3 PSF	3.0 PSF NET
ROOF ZONE 2	20.1 PSF	6.8 PSF NET
ROOF ZONE 3	27.4 PSF	9.8 PSF NET
ROOF ZONE 1&1'OH	21.1 PSF	13.0 PSF NET
ROOF ZONE 2OH	26.0 PSF	13.0 PSF NET
ROOF ZONE 3OH	33.3 PSF	16.0 PSF NET

	10 SF (0.6W)	28 SF (0.6W)
WALL EFFECTIVE AREA		
WALL ZONE 4	9.5 PSF	8.9 PSF
WALL ZONE 5	11.7 PSF	10.5 PSF

	10 SF (0.6W)	33 SF (0.6W)
PARAPET EFFECTIVE AREA		
PARAPET ZONE 4	26.9 PSF	22.4 PSF
PARAPET ZONE 5	36.9 PSF	27.2 PSF

5. SEISMIC LOADS
   - A. STRUCTURAL SYSTEM STEEL BRACES
   - B. ANALYSIS PROCEDURE STATIC LATERAL FORCE
   - C. IMPORTANCE FACTOR 1.00
   - D. SITE CLASS D
   - E. SEISMIC DESIGN CATEGORY A
   - F. MAPPED SRA Ss 0.064 g; S1 0.037 g
   - G. DESIGN SRA Sds 0.058 g; Sd1 0.056 g
   - H. RESPONSE MODIFICATION FACTOR, R 2
   - I. Cs 0.01
   - J. Vb = 0.7 x Cs x W 10.0 KIP
6. FOUNDATION DESIGN CRITERIA
   - A. ALLOWABLE BEARING 1,500 PSF @ MIN 18" BELOW FIN GRADE

SOIL AND SUBSURFACE CONDITIONS

1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO THOROUGHLY READ, UNDERSTAND THE DESIGN CRITERIA AND FOLLOW THE RELATED BUILDING PAD PREPARATION REQUIREMENTS SET FORTH IN THE GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT.
2. FOUNDATION DESIGN IS BASED ON GEOTECHNICAL REPORT, PROJECT # XXXX, PREPARED BY XXXX, DATED XX/XX/14.
3. BUILDING PAD PREPARATION SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS IN GEOTECHNICAL REPORT. REMOVE AND REPLACE 12" OF CLAY MATERIAL W/ WELL COMPACTED SELECT FILL IN ACCORDANCE W/ GEOTECHNICAL REPORT.
4. ANY FILL WORK WITHIN 10 FT OF BUILDING EXTENTS SHALL BE PROPERLY PLACED AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS DEFINED IN ASTM D698 STANDARD PROCTOR TEST.
5. POSITIVE DRAINAGE SHALL BE PROVIDED AND MAINTAINED AWAY FROM THE BUILDING DURING CONSTRUCTION AND PERMANENTLY. STORED EXCAVATION MATERIAL AND/OR CONSTRUCTION MATERIALS SHALL NOT DISRUPT POSITIVE DRAINAGE AWAY FROM BUILDING.
6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ANY REQUIRED BACK FILLING OF WALLS, PIERS, FOOTINGS, ETC., SUCH THAT SYMMETRICAL LOADING OCCURS. IN THE EVENT THAT CONDITIONS PREVENT SUCH SYMMETRICAL LOADING, TEMPORARY SHORING SHALL BE PROVIDED AND MAINTAINED UNTIL PERMANENT HORIZONTAL AND VERTICAL BRACING ELEMENTS ARE PLACED AND PROPERLY SET.
7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN STABILITY OF EXCAVATIONS UNTIL PROPERLY BACK FILLED. EXCAVATIONS SHALL REMAIN FREE OF LOOSE DEBRIS/MATERIAL, AND WATER. EXCAVATIONS SHALL BE DE-WATERED AND ALL WET MATERIAL REMOVED/REPLACED PRIOR TO CONCRETE PLACEMENT.
8. HEAVY EQUIPMENT NECESSARY FOR SPREADING AND COMPACTING BACK FILL MATERIAL SHALL NOT BE OPERATED CLOSER THAN A DISTANCE EQUAL TO THE HEIGHT OF BACK FILL MATERIAL ABOVE THE WALL, PIER, FOOTING, ETC. HAND TAMPING SHALL BE USED TO COMPACT THE REMAINING AREA.
9. EXCAVATED MATERIAL MAY BE USED AS BACKFILL IF FOUND TO BE ACCEPTABLE TO THE GEOTECHNICAL ENGINEER. OTHERWISE, PROVIDE SELECT FILL IN ACCORDANCE WITH GEOTECHNICAL REPORT AS BACKFILL MATERIAL.
10. BUILDING PAD PREPARATION SHALL BE SUCH THAT THE THICKNESS OF FOUNDATION SLAB-ON-GRADE SHALL NOT BE REDUCED BY MORE THAN 5 PERCENT OF DEPTH SHOWN ON DRAWINGS.

SLAB-ON-GRADE FOUNDATION

1. LOCATION OF TREES IN CLOSE PROXIMITY CAN EFFECT LONG-TERM PERFORMANCE OF THE FOUNDATION. TREES TO BE REMOVED SHALL BE REMOVED PRIOR TO CONSTRUCTION OF THE FOUNDATION. CONTRACTOR SHALL CONSULT WITH APPROPRIATE JURISDICTIONAL OFFICIALS PRIOR TO REMOVAL OF PROTECTED TREES.
2. FINAL GRADE SHALL BE MAINTAINED TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE FOUNDATION. FOUNDATION EXPOSURE AND SLOPE AWAY FROM FOUNDATION SHALL CONFORM WITH APPLICABLE CODE PROVISIONS. CONTRACTOR SHALL REFERENCE GRADING PLAN FOR FINISHED GRADE ELEVATIONS.
3. CONTRACTOR SHALL PROVIDE A 10 MIL POLY VAPOR BARRIER BENEATH ALL SLAB AREAS. BARRIER SHALL EXTEND A MINIMUM OF 12" DOWN BEAMS AND SHALL BE CUT OUT OF BOTTOM OF BEAM EXCAVATIONS TO FACILITATE FOUNDATION INSPECTIONS. CONTRACTOR SHALL PROVIDE A DOUBLE LAYER OF VAPOR BARRIER UNDER ALL CONSTRUCTION JOINTS. EXTENDING MIN 18" EACH SIDE OF THE JOINT. VAPOR BARRIER SHALL BE INSTALLED, LAPPED, AND TAPED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS OR MIN 6".
4. MATERIAL FOR CONCRETE EXPANSION JOINTS SHALL BE 1/2" THICK ASPHALT IMPREGNATED MATERIAL x DEPTH OF JOINT, TO SEPARATE CONCRETE PLACEMENTS. PROVIDE ELASTOMERIC JOINT SEALANT TO TOP OF JOINT WHEN CONCRETE HAS CURED.
5. WHERE SLAB BLOCK-OUTS ENCROACH INTO GRADE BEAMS, BEAM WIDTH SHALL BE INCREASED, TO MAINTAIN SPECIFIED MIN WIDTH EXCLUSIVE OF THE BLOCK-OUT, FOR THE FULL DEPTH OF THE BEAM. THE INCREASED BEAM WIDTH SHALL BE MAINTAINED AT MIN 30" EACH SIDE OF BLOCK-OUT. CONVENTIONAL REINFORCEMENT SHALL BE CONTINUOUS AROUND BLOCK-OUT.

CAST IN PLACE CONCRETE

1. CONCRETE WORK SHALL CONFORM TO THE FOLLOWING:
   - A. ACI 318 - REINFORCED CONCRETE
   - B. ACI 318.1 - PLAIN CONCRETE
   - C. ACI 306R - COLD WEATHER CONCRETING
   - D. ACI 305R - HOT WEATHER CONCRETING
   - E. ACI 117 - STANDARD SPECIFICATION FOR TOLERANCES
2. CONCRETE USED FOR STRUCTURAL APPLICATIONS AS SHOWN ON DRAWINGS SHALL BE STANDARD WEIGHT, WITH 28-DAY COMPRESSIVE STRENGTH AS NOTED BELOW. COMPRESSIVE STRENGTH TESTING SHALL BE IN ACCORDANCE WITH ASTM C39 "STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS."
3. CONCRETE SHALL HAVE A MAXIMUM SLUMP AS NOTED BELOW AND SLUMP SHALL BE DETERMINED IN ACCORDANCE WITH ASTM C143 "SLUMP OF PORTLAND CEMENT CONCRETE."
4. AGGREGATES USED FOR NORMAL WEIGHT CONCRETE SHALL HAVE A NOMINAL MAXIMUM COARSE AGGREGATE SIZE AS NOTED BELOW AND SHALL CONFORM TO ASTM C33 "SPECIFICATIONS FOR CONCRETE AGGREGATE."
5. CONCRETE SHALL BE PROPORTIONED TO MEET THE REQUIREMENTS OF ACI 318 CHAPTER 19. CONCRETE SHALL BE DESIGNED FOR EXPOSURE CLASS F0, S0, W0 AND C0 UNO.
6. CONCRETE MIX DESIGNS SHALL BE IN ACCORDANCE WITH THE REQS BELOW:

LOCATION	AIR ENTRAIN	MIN F'c	SLUMP	MAX AGG SIZE	EXPOSURE CLASS	MAX W/CM
FOOTINGS	1 1/2%	3000 PSI	4" +/- 1"	1 1/2"	C1, F0	NA
GRADE BEAMS	1 1/2%	3000 PSI	4" +/- 1"	1 1/2"	C1, F0	NA
4" MIN SLAB ON GRADE	1 1/2%	3000 PSI	4" +/- 1"	1 1/4"	C1, F0	NA

7. FLY ASH CONTENT SHALL BE MAX 25% OF CEMENT REPLACEMENT.
8. AIR ENTRAINMENT SHALL BE PROVIDED AS SHOWN IN THE CONCRETE MIX DESIGN REQUIREMENTS WITH A TOLERANCE OF ±1 1/2%. AIR ENTRAINMENT SHALL CONFORM TO ASTM C260 "AIR ENTRAINING ADMIXTURES FOR CONCRETE."
9. CONCRETE TESTING SHALL BE PROVIDED BY AN APPROVED AGENCY, AND IN ACCORDANCE WITH ASTM C31 "MAKING AND CURING CONCRETE TEST SPECIMENS IN THE FIELD."
10. CURING COMPOUNDS AND SURFACE HARDENERS SHALL BE APPROVED BY ENGINEER PRIOR TO USE. APPLICATION OF CURING COMPOUNDS AND SURFACE HARDENERS SHALL BE IN COMPLIANCE WITH MANUFACTURERS RECOMMENDATIONS.
11. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH SHALL BE PROTECTED BY WATERPROOFING AS DETAILED BY ARCHITECTURAL DRAWINGS.
12. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COORDINATE FOUNDATION BLOCKOUTS AND EMBEDDED ITEMS NECESSARY FOR ARCHITECTURAL, MEP, CIVIL, ETC.
13. THE CONTRACTOR SHALL PROVIDE A SUBMITTAL OF EMBEDDED CONDUITS, PIPES, AND SLEEVES WHICH ARE BEYOND THE SCOPE DETAILED IN THE STRUCTURAL DRAWINGS.
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PLACE AND FINISH CONCRETE SLABS WITH A MINIMUM FLATNESS OF Ff = 35 AND A MINIMUM LEVELNESS OF FL = 25. ANY DEVIATION FROM THIS TOLERANCE THAT REQUIRES CUTTING OR ADDITIONAL FINISHING IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
15. HORIZONTAL CONSTRUCTION JOINTS ARE NOT PERMITTED UNLESS SPECIFICALLY SHOWN AND DETAILED ON STRUCTURAL PLANS. VERTICAL CONSTRUCTION JOINT LOCATIONS, OTHER THAN THOSE SHOWN ON PLAN, SHALL BE SUBMITTED TO ARCHITECT/ENGINEER FOR REVIEW. ADDITIONAL DETAILING AND REINFORCING MAY BE REQUIRED AND SPECIFIED BY THE ENGINEER FOR UNSCHEDULED CONSTRUCTION JOINTS, AND IS THE RESPONSIBILITY OF THE CONTRACTOR.
16. SAW-CUT CONTROL JOINTS SHALL BE PROVIDED WHERE SHOWN ON THE DRAWINGS OR SO THAT THE TOTAL AREA ENCLOSED BY SUCH JOINTS DOES NOT EXCEED 250 SQUARE FEET. SAW-CUT JOINTS SHALL BE A MINIMUM OF 1/4 THE DEPTH OF THE SLAB.
17. WHERE WIDTH AND DEPTH OF GRADE BEAM VARIES AT INTERSECTIONS, EXTEND THE LARGER OF THE BEAMS 3'-0" MIN BEYOND INTERSECTION AND SLOPE REINFORCEMENT OF LARGER BEAM ALONG LAP LENGTH OF SMALLER BEAM.

METAL DECK

1. ROOF DECK SHALL BE VULCRAFT 0.6C-28 GA GR 50 OR EQUAL.
2. ROOF DECK SHALL BE FASTENED PER THE FOLLOWING:
   - A. AT PERPENDICULAR SUPPORTS - 5/8" ARC SPOT WELD IN 36/4 PATTERN.
   - B. AT PARALLEL SUPPORTS - 5/8" ARC SPOT WELD @ 8" OC
   - C. AT SIDE LAPS - (4) #12 FASTENER PER SPAN, EQUALLY SPACED.
   - D. AT ROOF ZONES 2 & 3 FASTEN IN 36/5 PATTERN.
5. PROVIDE MIN 2" BEARING AT PERPENDICULAR SUPPORTS AND MIN 1" BEARING AT PARALLEL SUPPORTS.
6. ALL METAL DECK SHALL BE G60 OR HAVE ONE SHOP COAT OF RUST INHIBITIVE PAINT.
7. ALL DECKING SHALL BE 3 SPAN MIN (EXCEPT AT STAIR LANDINGS).

CONCRETE REINFORCING

1. REINFORCING STEEL SHALL BE GRADE 60 DEFORMED STEEL BARS IN ACCORDANCE WITH ASTM A615.
2. REINFORCING STEEL DETAILING SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE DETAILING MANUAL. ALL HOOKS AND BENDS IN REINFORCING STEEL SHALL CONFORM TO ACI DETAILING STANDARDS, UNLESS NOTED OTHERWISE.
3. REINFORCING STEEL SUPPORT DEVICES SHALL BE IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
4. UNSCHEDULED BEAMS, SLABS, COLUMNS, AND WALLS, SHALL HAVE REINFORCING STEEL DETAILED IN ACCORDANCE WITH THE FOLLOWING:
   - C. MINIMUM LAP SPLICE FOR ALL REINFORCING BARS SHALL BE 48 TIMES THE BAR DIAMETER, UNLESS NOTED OTHERWISE.
   - D. LAP TOP REINFORCING BARS AT MID SPAN
   - E. LAP BOTTOM REINFORCING BARS AT SUPPORTS.
   - F. LAP VERTICAL BARS IN WALLS AND COLUMNS AT FLOOR LINES ONLY, UNLESS NOTED OTHERWISE.
   - G. PROVIDE CORNER BARS, OF SAME SIZE, FOR ALL HORIZONTAL BARS AT THE INSIDE AND OUTSIDE FACES OF INTERSECTING BEAMS OR WALLS.
5. PROVIDE MINIMUM (2) #4 x 8'-0" BARS AT 45° AT ALL REENTRANT CORNERS IN SLAB ON GRADE AND ELEVATED SLABS.
6. REINFORCING STEEL INTERRUPTED BY OPENINGS OR EMBEDDED ITEMS IN SLABS OR WALLS, SHALL BE COMPENSATED FOR BY REPLACING AN EQUAL AMOUNT OF REINFORCING BARS AT THE SIDES OF THE OPENING, PARALLEL TO UNINTERRUPTED STEEL. COMPENSATION STEEL SHALL EXTEND BEYOND THE EDGE OF OPENING OR EMBED A MINIMUM OF 48 TIMES THE BAR DIAMETER.
7. WELDING OF REINFORCING BARS IS NOT PERMITTED, AND HEAT SHALL NOT BE PERMITTED IN THE FABRICATION OR INSTALLATION OF REINFORCEMENT.
8. WELDED STEEL WIRE FABRIC USED FOR CONCRETE REINFORCING SHALL BE INSTALLED IN FLAT SHEETS, AND SHALL CONFORM TO ASTM A185.
9. MINIMUM CONCRETE COVERAGE FOR REINFORCING STEEL SHALL CONFORM TO THE FOLLOWING:
   - A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
   - B. CONCRETE EXPOSED TO EARTH OR WEATHER:
     - #6 BAR OR LARGER 2"
     - #5 BAR OR SMALLER 1 1/2"
   - C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT W/ GROUND:
     - SLABS, WALLS, JOISTS 3/4"
     - BEAMS, COLUMNS 1 1/2"

CONCRETE AND CMU ANCHORS

1. ANCHOR BOLTS AND THREADED ROD SHALL BE ASTM F1554 GRADE 36 FURNISHED WITH STD WASHER AND HEAVY HEX NUT, UNO.
2. ANCHOR BOLTS SPECIFIED AS ASTM F1554 GRADE 55 SHALL CONFORM TO SUPPLEMENT 1.
3. EXPANSION ANCHORS SHALL BE:
   - A. SIMPSON STRONG-BOLT 2
   - B. DEWALT POWER-STUD + SD4/SD6
   - C. APPROVED EQUIVALENT
4. ADHESIVE ANCHOR SYSTEM IN CONCRETE SHALL BE:
   - A. SIMPSON SET-3G
   - B. SIMPSON AT-3G
   - C. DEWALT AC200+
   - D. APPROVED EQUIVALENT
5. ADHESIVE ANCHOR SYSTEM IN CMU SHALL BE:
   - A. SIMPSON SET-3G
   - B. SIMPSON AT-3G
   - C. DEWALT AC100+
   - D. APPROVED EQUIVALENT
6. HEADED STUD ANCHORS SHALL CONFORM TO ASTM A108 ULTIMATE TENSILE STRENGTH 65 KSI. ALL ANCHORS SHALL BE 3/4"Ø NELSON STUD OR EQUAL AND BE FULLY WELDED TO THE BASE METAL.
7. POWDER ACTUATED FASTENERS SHALL BE AS SPECIFIED IN THE CONSTRUCTION DOCUMENTS.
8. POST-INSTALLED ANCHORS SHALL BE INSTALLED PER MFR SPECIFICATIONS.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL REINFORCING AND EMBEDDED ITEMS THROUGH NON-DESTRUCTIVE METHODS PRIOR TO POST-INSTALLED ANCHOR INSTALLATION. NO REINFORCEMENT OR EMBEDDED ITEMS SHALL BE CUT. POST-INSTALLED ANCHOR LOCATIONS SHALL BE RELOCATED WITH ENGINEERS APPROVAL WHERE CONFLICTS OCCUR.
10. POST INSTALLED ANCHORS IN CMU SHALL BE IN GROUTED CELLS.
11. POST-INSTALLED ANCHORS EXPOSED TO WEATHER OR PRESSURE TREATED LUMBER SHALL BE GALVANIZED OR STAINLESS STEEL.
12. FILL ABANDONED HOLES WITH EPOXY, FLEXIBLE JOINT SEALER OR GROUT.
13. INSTALLATION OF POST-INSTALLED ANCHORS SHALL BE INSPECTED BY THE TESTING AGENCY IN ACCORDANCE WITH THE GOVERNING BUILDING CODE.
14. ADHESIVE ANCHORS INSTALLED IN A HORIZONTAL TO VERTICAL OVERHEAD ORIENTATION TO SUPPORT SUSTAINED TENSION LOADS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH ACI/CRSI. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE EOR FOR APPROVAL PRIOR TO COMMENCEMENT OF INSTALLATION.
15. ADHESIVE ANCHORS NOT TO BE INSTALLED IN CONCRETE AGED LESS THAN 21 DAYS.
16. DRILLED HOLES FOR ANCHORS SHALL BE OF SIZE & DEPTH AS RECOMMENDED BY THE ANCHOR MANUFACTURER.
17. MINIMUM EDGE DISTANCE FOR POWDER ACTUATED FASTENERS SHALL BE 3 1/2" INTO CONCRETE AND 5" INTO MASONRY.
18. MINIMUM SPACING FOR POWDER ACTUATED FASTENERS SHALL BE 5" OC INTO CONCRETE & MASONRY.

CONCRETE MASONRY

1. CONCRETE MASONRY UNITS SHALL BE HOLLOW LOAD BEARING TYPE N-1 UNITS WITH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI UNITS SHALL CONFORM TO ASTM C90.
2. COMPRESSIVE PRISM STRENGTH OF MASONRY (f'm) SHALL BE 2000 PSI, MINIMUM, AT 28 DAY TESTING.
3. MORTAR SHALL CONFORM TO ASTM C270, TYPE M OR S, WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C780.
4. COARSE MASONRY GROUT SHALL CONFORM TO ASTM C476, WITH A MAXIMUM AGGREGATE SIZE OF 1/2", AND A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI. NORMAL WEIGHT CONCRETE WITH A MAXIMUM AGGREGATE SIZE OF 1/2", AND A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI MAY BE USED IN LIEU OF GROUT.
5. GROUT LIFTS SHALL BE MAX 4'-8" WITH 2" DEEP KEYWAY AT THE TOP OF EACH LIFT. LAP VERTICAL REINFORCING AND PROVIDE BAR POSITIONERS ABOVE THE TOP OF EACH LIFT.
6. GROUT SHALL BE MECHANICALLY CONSOLIDATED WITH MAX 3/4" Ø HEAD VIBRATOR TO AVOID SEGREGATION.
7. HORIZONTAL JOINT REINFORCEMENT SHALL CONSIST OF LADDER TYPE, HOT DIPPED GALVANIZED, COLD-DRAWN STEEL CONFORMING TO ANSI/ASTM A1064. REINFORCEMENT SHALL HAVE NO. 9 GAUGE, OR 3/16" SIDE RODS, WITH NO. 9 GAUGE CROSS RODS. JOINT REINFORCEMENT SHALL BE SPACED AT 16" OC, LAPPED MINIMUM 14" AT SPLICES, AND CONTINUOUS AROUND CORNERS. DISCONTINUE JOINT REINFORCEMENT AT VERTICAL CONTROL AND EXPANSION JOINTS. SPACE HORIZONTAL JOINT REINFORCEMENT AT 8" OC BELOW GRADE AND AT PARAPETS.
8. PROVIDE REINFORCED AND GROUTED CELLS AT 32" OC, UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS. ADDITIONALLY, PROVIDE REINFORCED AND GROUTED CELLS AT ENDS OF WALLS, AND CORNERS. REINFORCEMENT SHALL BE A #5 BAR, MINIMUM.
9. PROVIDE REINFORCED AND GROUTED CELLS AT EACH SIDE OF OPENINGS. REINFORCEMENT SHALL BE #5 MINIMUM, AND GROUTED CELL SHALL BE FULL HEIGHT OF WALL.
10. BOND BEAMS SHALL BE LOCATED AT ROOF BEARING ELEVATION, TOP OF WALLS, AT EACH FLOOR LEVEL, AND OTHER LOCATIONS AS SHOWN ON DRAWINGS. BOND BEAMS SHALL BE CONTINUOUSLY REINFORCED AND GROUTED. REINFORCEMENT SHALL CONSIST OF MIN (1) #5 BOTTOM BAR FOR 8" BLOCK, AND (2) #5 BOTTOM BARS FOR 12" BLOCK, UNO ON PLANS.
11. CONTRACTOR SHALL COORDINATE LOCATIONS FOR CONTRACTION AND EXPANSION JOINTS WITH ARCHITECTURE. JOINTS SHALL OCCUR WITHIN TWO FEET OF ONE SIDE OF EACH CORNER AND AT THE LESSER OF 30 FT OC, OR THREE TIMES THE WALL HEIGHT.
12. REFER TO ARCH FOR GLAZED FINISH ON CMU WHERE REQUIRED.

LIGHT GAUGE FRAMING

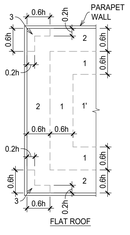
1. LIGHT GAUGE STUDS SHALL BE CLARK, DIETRICH OR APPROVED ALTERNATE.
2. SUBMIT THE FOLLOWING ITEMS TO THE ENGINEER PRIOR TO ERECTION OF FRAMING MEMBERS: PRODUCT DATA, PROOF OF MANUFACTURER QUALIFICATIONS, MILL CERTIFICATES SIGNED BY FRAMING MEMBER/ACCESSORY MANUFACTURER CERTIFYING COMPLIANCE WITH MATERIAL REQUIREMENTS.
3. THE MINIMUM YIELD STRENGTH OF ALL MEMBERS LESS THAN 54 MIL SHALL BE 33 KSI AND 54 MIL AND THICKER SHALL BE 50 KSI.
4. FABRICATION AND ERECTION OF ALL FRAMING SHALL BE IN ACCORDANCE WITH AISI - STANDARD FOR COLD-FORMED STEEL FRAMING AND MFG REQUIREMENTS.
5. ALL MEMBERS SHALL BE FASTENED W/ MIN (2) #10 FASTENER TO EACH SUPPORTING ELEMENT.
6. HORIZONTAL BRIDGING SHALL BE PROVIDED @ 4'-0" MAX, UNO.
7. CUT MEMBERS BY SHEARING OR SAWING. ALL VERTICAL MEMBERS SHALL BE CUT PRIOR TO SITE DELIVERY.
8. INSTALL MEMBERS IN SINGLE PIECE LENGTHS EXCEPT THAT TRACKS MAY BE SPLICED, BUTT-WELDED, OR EACH LENGTH ANCHORED TO A COMMON BUILDING FRAME ELEMENT.
9. TOLERANCES:
   - A. VARIATION FROM PLUMB, LEVEL AND TRUE TO LINE: 1/8 INCH IN 10 FT (1:960).
   - B. MEMBER SPACING: NOT MORE THAN +/- 1/8 INCH FROM SPACING INDICATED.
10. TRUSSES TO BE DESIGNED IN ACCORDANCE WITH AISI "DESIGN GUIDE FOR COLD-FORMED STEEL TRUSSES, PUBLICATION RG-9518." TRUSSES SHALL BE DESIGNED BY A STATE LICENSED REGISTERED PROFESSIONAL ENGINEER.
11. FASTENERS SHALL BE SIZE 12-14 WHERE NOTED #12 AND 10-16 WHERE NOTED #10. FASTENERS SHALL BE:
    - A. HILTI SELF-DRILLING SCREWS IN ACCORDANCE WITH ESR 2196.
    - B. ELCO DRILIT SELF-DRILLING SCREWS IN ACCORDANCE WITH ESR 3294.
    - C. APPROVED EQUIVALENT.
12. ALL FASTENERS SHALL BE CORROSION RESISTANT COATED W/ PAN OR HEX WASHER HEAD.
13. DESIGN, DETAILING, AND INSTALLATION OF LIGHT GAUGE FRAMING NOT SPECIFICALLY SHOWN IN THESE PLANS IS THE RESPONSIBILITY OF THE CONTRACTOR.

STRUCTURAL STEEL JOISTS

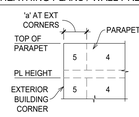
1. STEEL JOIST FABRICATION AND ERECTION SHALL CONFORM TO THE SPECIFICATIONS & STANDARDS OF THE STEEL JOIST INSTITUTE.
2. JOIST BRIDGING SHALL BE INSTALLED IN ACCORDANCE W/ MANUFACTURER'S RECOMMENDATIONS.
3. ALL JOISTS TO BE VULCRAFT OR AN APPROVED EQUAL.
4. HORIZONTAL BRIDGING TO BE 1 1/4 x 1 1/4 x 0.109 ANGLE, MINIMUM, UNLESS NOTED OTHERWISE ON DRAWINGS.
5. DIAGONAL BRIDGING TO BE 1 x 1 x 0.109 ANGLE, MINIMUM, UNLESS NOTED OTHERWISE ON DRAWINGS.
6. WHERE HORIZONTAL BRIDGING IS MADE DISCONTINUOUS DUE TO OBSTRUCTIONS, X-TYPE BRIDGING SHALL BE PLACED EITHER SIDE OF THE OBSTRUCTION.
7. ALL STEEL JOISTS, GIRDERS, AND ACCESSORIES SHALL BE PAINTED WITH ONE SHOP COAT OF RUST INHIBITIVE PAINT. TDI ALSO RECOMMENDS PAINTING THE JOISTS ONCE INSTALLED TO INHIBIT OXIDATION OF THE BASE METAL IN EXPOSED AREAS.
8. JOISTS DESIGNATED WITH THE TERM "ADDL LOAD" SHALL BE DESIGNED BY THE JOIST MANUFACTURER TO SUPPORT THE CONCENTRATED LOADS INDICATED ON THE ROOF FRAMING PLAN, LOCATED ANYWHERE ALONG THE JOIST, IN ADDITION TO THE DEAD, LIVE, A

GENERAL NOTES

ROOF SHEATHING PLANS / ROOF PRESSURE ZONES



WALL SHEATHING PLANS / WALL PRESSURE ZONES



1. DIAGRAM FOR USE WITH SCHEDULE 1.
2. REF LOADS AND DESIGN CRITERIA FOR ROOF PRESSURES AND 'a' DISTANCE.
3. ROOF PLANS ARE SCHEBOTIC ONLY, REF ROOF FRAMING PLANS FOR ACTUAL ROOF LAYOUT.

ROOF SHEATHING SCHEDULE OVER LG FRAMING

LOCATION	MIN THICK	PANEL GRADE	SPAN RATING	BOND CLASS	BLOCKING	FASTENERS		
						SIZE	EDGE	FIELD
TYPICAL (ZONE 1)	7/16"	FIRE TREATED APA OR PS 2 RATED SHEATHING	32/16	EXP 1	NONE	#10 FASTENER	6"	12"
EDGE (ZONE 2)	7/16"	FIRE TREATED APA OR PS 2 RATED SHEATHING	32/16	EXP 1	NONE	#10 FASTENER	6"	12"
EDGE (ZONE 2 OH)	7/16"	FIRE TREATED APA OR PS 2 RATED SHEATHING	32/16	EXP 1	NONE	#10 FASTENER	6"	11"
CORNER (ZONE 3)	7/16"	FIRE TREATED APA OR PS 2 RATED SHEATHING	32/16	EXP 1	NONE	#10 FASTENER	6"	9"
CORNER (ZONE 3 OH)	7/16"	FIRE TREATED APA OR PS 2 RATED SHEATHING	32/16	EXP 1	NONE	#10 FASTENER	6"	6"

1. INSTALL PANELS WITH LONG DIMENSION PERPENDICULAR TO FRAMING.
2. NO FASTENERS SHALL BE CLOSER THAN 3/8" FROM PANEL EDGE.
3. DRIVE FASTENERS FLUSH. DO NOT PENETRATE THE SURFACE OF THE SHEATHING.
4. WSP SHALL HAVE A EFFECTIVE G OF 0.50 MIN.
5. SHEATH CONTINUOUSLY BELOW ALL ROOF OVERBUILDS.

LIGHT GAUGE STUD SCHEDULE

LEVEL	EXTERIOR NON-BEARING			INTERIOR NON-LOAD BEARING		
	TOP TRACK	STUD	BTM TRACK	TOP TRACK	STUD	BTM TRACK
LEVEL 1	600T125-43	600S162-43	600T125-43	362T125-33	362S162-33	362T125-33

1. WHERE STUDS ARE CUT OR NOTCHED, ADDITIONAL STUD SHALL BE ADDED.
2. SCREW BUILT-UP STUDS TOGETHER W/ (2) #12 FASTENER @ 12" OC.
3. ALL STUDS SHALL BE CONTINUOUS TO FOUNDATION OR BEAM BELOW.
4. ALL STUDS SHALL BE SPACED @ 16" OC UNO.

WALL SHEATHING SCHEDULE OVER LG FRAMING

SW MARK	MIN THICK	PANEL GRADE	SPAN RATING	BOND CLASS	FRM @ JOINTS		FASTENERS		
					VERT	HORZ	SIZE	EDGE	FIELD
W	1/2" MIN. REF ARCH FOR 5/8" LOCATIONS	GYPSUM WALL BOARD	-	-	WALL STUD	NONE	#8 FASTENER	8"	12"
6	15/32"	APA OR PS 2 RATED SHEATHING	32/16	EXP 1	WALL STUD	150-33 FLAT STRAP	#8 FASTENER	6"	12"

1. WALL SHEATHING SHALL BE IN ACCORDANCE WITH ARCHITECTURAL REQUIREMENTS. CONTRACTOR TO COORDINATE.
2. EXTERIOR AND INTERIOR WALLS SHALL BE W BOTH SIDES UNO.
3. NO FASTENERS SHALL BE CLOSER THAN 3/8" FROM PANEL EDGE.
4. DRIVE FASTENERS FLUSH, DO NOT PENETRATE THE SURFACE OF THE SHEATHING.
5. WHERE SHEET STEEL IS REQUIRED AND ARCH REQUIRES GYPSUM WALL BOARD FOR FIRE RATING, INSTALL GYPSUM OVER SHEET STEEL.
6. WHERE SW IS CONTINUOUS ACROSS WALL FURRING, SHEATHING SHALL BE CONTINUOUS BEHIND WALL FURRING.
7. PROVIDE T125-33 EA END OF WALL ATTACHED TO EXIST HSS POST W/ PAF @ 24" OC.
8. FASTEN BUILT-UP STUDS TOGETHER W/ (2) #10 FASTENER @ 6" OC.
9. HORIZONTAL BLOCKING AT GYPSUM MAY BE 150-33 FLAT STRAPPING EXCEPT AT FIRST STUD SPACE EA END OF WALL.

LIGHT GAUGE OPENING SCHEDULE

INT/EXT	LOCATION	MAX WIDTH	JAMB	HEAD	SILL	HEAD CONNECTION	SILL CONNECTION	TOP JAMB CONNECTION	BTM JAMB CONNECTION
EXTERIOR	1-STORY EXTERIOR	3'-7"	(2) WALL STUDS	(2) 600S162-33 W/ (2) 600T125-33	(1) 600T125-33	(2) L2x2x16GA x 0'-5" W/ (4) #10 FASTENER EA LEG	L2x2x16GA x 0'-5" W/ (3) #10 FASTENER EA LEG	ATTACH TRACK W/ (2) HILTI X-U 27 @ CONC, (1) HILTI X-U 19 @ STEEL WITH 6" OC JAMB	ATTACH TRACK W/ (2) HILTI X-U 27 @ CONC, (1) HILTI X-U 19 @ STEEL WITH 6" OC JAMB
		12'-0"		(2) 600S162-33 W/ (2) 600T125-43	(1) 600T125-43				
INTERIOR	1-STORY INTERIOR	3'-0"	(2) WALL STUDS	(2) 600S162-33 W/ (2) 600T125-33	(1) 600T125-33				
		6'-0"							

1. WALL STUDS SHALL MATCH STUD SCHEDULE.
2. FASTEN BUILT-UP STUDS W/ (2) #10 FASTENER @ 6" OC @ EA PLY.
3. ALL BUILT-UP JAMBS SHALL BE CONT TO THE FND OR BM BLW.
4. WHERE JAMB STUDS ARE LOCATED ABOVE, PROVIDE JAMB STUDS BELOW REGARDLESS OF PRESENCE OF OPENING.
5. IF OPENINGS ARE OFFSET VERTICALLY, PROVIDE JAMB STUDS TO TOP OF HDR BELOW AND THEN SCHEDULED JAMB STUDS EITHER SIDE OF OPENING BELOW.
6. REF DETAIL 13 FOR BOX BEAM.
7. REF DETAIL 10 FOR JAMB CONNECTION AT FOUNDATION W/ ANCHOR BOLT.
8. REF DETAIL 11 FOR HEAD/SILL CONNECTION.
9. USE HEAD SIZE ON PLAN WHERE NOTED.

LIGHT GAUGE BEAM SCHEDULE

MARK	BEAM	NOTES
B1	(2) 600S162-33 W/ 600T125-33 T/B	-
B2	(2) 600S200-43 W/ 600T125-33 T/B	-
B3	(2) 600S162-54 W/ 600T125-43 T/B	-
B4	(2) 600S300-97 W/ 600T125-68 T/B	-
B5	(2) 600S200-68 W/ 600T125-54 T/B	-
B6	(3) 1200S200-97 W/ 600T125-97 T/B	-
B7	(2) 800S200-97 W/ (2) 600T125-68 T/B	-
B8	(2) 800S250-97 W/ 600T125-68 T/B	-
B9	(2) 1000S250-97 W/ 600T125-68 T/B	-
B10	(2) 600S200-54 W/ 600T125-54 T/B	-
B11	(2) 600S300-68 W/ 600T125-54 T/B	-
B12	(2) 800S250-54 W/ 600T125-54 T/B	-
B13	(2) 800S300-68 W/ 600T125-54 T/B	-
B14	(2) 800S300-54 W/ 600T125-54 T/B	-
B15	(2) 600S300-54 W/ 600T125-54 T/B	-
B16	(2) 1200S200-97 W/ 600T125-68 T/B	-
B17	(2) 1200S162-54 W/ 600T125-68 T/B	-
B18	(2) 1200S300-54 W/ 600T125-54 T/B	-
B19	(2) 1200S200-54 W/ (2) 600T125-54 T/B	-

1. REF DETAIL 13 FOR TYPICAL BEAM CONFIGURATIONS.
2. PROVIDE B1 OVER OPENINGS IN INTERIOR NON-LOAD BEARING WALLS.
3. UNLESS NOTED OTHERWISE, PROVIDE B3 OVER OPENINGS IN INT & EXT LOAD BEARING WALLS.
4. DROPPED BEAMS IN PARALLEL WALLS SHALL BE SUPPORTED IN ACCORDANCE WITH THE JAMB SCHEDULE.
5. FLUSH BEAMS SHALL BE SUPPORTED BY BUILT-UP POST COMPRISING THE FULL AREA OF THE BEAM BEARING.

SCHEDULE 8 - STEEL COLUMN

MARK	COLUMN SIZE	BASE PLATE (TxLxW)	ANCHOR BOLT Ø, EMBEDMENT, MATERIAL & GRADE	NOTES
C1	HSS 4x4x1/4	1/2x5x0'-10"	(2) 1/2"Ø x 6" HILTI KWIK BOLT	-

1. REF 7/SS.00 FOR TYPICAL BASE PLATE AND ANCHOR INFORMATION. UNO ON PLAN.
2. REF BRACE FRAME ELEVATIONS FOR BASE PLATE AND ANCHOR INFORMATION, UNO ON PLAN.
3. COLUMN SPLICES, IF REQUIRED OR SHOWN ON PLANS, SHALL OCCUR 48" ABOVE FF HEIGHT, UNO.

LG BUILT-UP POST SCHEDULE

MARK	QUANTITY
A'	2
B'	3
C'	4
D'	5
E'	(2) 600S162-68
F'	(4) 600S162-68
G'	(2) 600S162-54 W/ (2) 600T150-54
H'	(2) 362S200-68 W/ (2) 362T125-68

1. STUDS SHALL MATCH STUD WALL FRAMING, UNO.
2. FASTEN W/ (2) #10 FASTENER @ 8" OC EA PLY.
3. TRUSSES SHALL BE SUPPORTED BY BUILT-UP POST COMPRISING THE FULL WIDTH OF THE TRUSS BEARING (MIN).
4. BUILT-UP POSTS SHALL BE CONTINUOUS TO THE FOUNDATION OR BEAM BELOW.
5. BUILT-UP POST SIZES REPRESENT MINIMUM. REQUIRED POST SIZE MAY BE LARGER IN ACCORDANCE WITH NOTE 3.
6. BUILT-UP POSTS AT INTERIOR LOCATIONS SHALL USE INTERIOR BEARING WALL STUDS, UNO.
7. REF DETAIL 11 FOR CONNECTION, UNO.
   (2) PL6x4x16GA W/ (8) #10 FASTENER TO JAMB
   & (3) #10 FASTENER TO EACH STUD.

ABBREVIATIONS LIST

ABBREVIATION	DEFINITION
AAC	AUTOCLAVE AERATED CONCRETE
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
ADJ	ADJACENT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
APPROX	APPROXIMATE, APPROXIMATELY
ARCH	ARCHITECTURAL, ARCHITECT
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BBE	BEAM BY ENGINEER OF RECORD
BM	BEAM
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DECK
BOF	BOTTOM OF FOOTING
BRG	BEARING
BTM	BOTTOM
BTWN	BETWEEN
CANT	CANTILEVER
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
C&C	COMPONENTS AND CLADDING
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CJ	CONSTRUCTION JOINT
CONT	CONTINUOUS
CONV	CONVENTIONAL
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
DBL	DOUBLE
DEMO	DEMOLITION, DEMOLISH
DET, DTL	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
EA	EACH
EE	EACH END
EF	EACH FACE
EJ	EXPANSION JOINT
ELEV	ELEVATION, ELEVATOR
EOR	ENGINEER OF RECORD
EQ	EQUAL
ES	EACH SIDE
EXIST	EXISTING
EXT	EXTERIOR
FND, FDN	FOUNDATION
FF	FINISHED FLOOR
FIN	FINISHED
FRP	FIBER REINFORCEMENT POLYMER
FV	FIELD VERIFY
GA	GAUGE
GALV	GALVANIZED
GT	GIRDER TRUSS
GYP	GYPSUM BOARD
HCP	HOLLOW CORE PLANK
HD	HOLDOWN
HORZ, HRIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
IBC	INTERNATIONAL BUILDING CODE
ICF	INSULATED CONCRETE FORM
INT	INTERIOR

ABBREVIATIONS LIST

ABBREVIATION	DEFINITION
JB	JOIST BEARING
KSI	KIPS PER SQUARE INCH
LG	LIGHT GAUGE
LBS	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LVL	LEVEL, LAMINATED VENEER LUMBER
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL & PLUMBING
MFR, MFG	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MWFRS	MAIN WIND FORCE RESISTING SYSTEM
NA	NOT APPLICABLE
NP	NOT PERMITED
NTS	NOT TO SCALE
OC	ON CENTER
OCEW	ON CENTER EACH WAY
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OSB	ORIENTED STRAND BOARD
PAF	POWDER ACTUATED FASTENER
PCI	PRECAST CONCRETE INSTITUTE
PERP	PERPENDICULAR
PJ	PANEL JOINT
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POST-TENSION
PTI	POST-TENSIONING INSTITUTE
REF	REFERENCE
REINF	REINFORCING, REINFORCEMENT
REQD	REQUIRED
REQS	REQUIREMENTS
SCHED	SCHEDULE
SCL	STRUCTURAL COMPOSITE LUMBER
SIM	SIMILAR
SJI	STEEL JOIST INSTITUTE
SPA	SPACE
SPECS	SPECIFICATIONS
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SW	SHEARWALL
TBM	TRUSS BY MANUFACTURER
T/B	TOP AND BOTTOM
TDI	TDI ENGINEERING, LLC
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOP	TOP OF PARAPET,TOP OF PANEL,TOP OF PIER
TOS	TOP OF STEEL
TOW	TOP OF WALL
TPL	TRIPLE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UWA	UNDER WALL ABOVE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
WSP	WOOD STRUCTURAL PANEL (PLYWOOD OR OSB)
WT	WEIGHT

PLAN LEGEND

MARK	ITEM
X SECTION SHEET	SECTION CUT
TOC = X'-X"	ELEVATION MARKER
X'-X"	FOUNDATION STEP
	EXIST CMU WALL
	EXIST BEARING WALL
	EXIST WALL
	EXIST OPENING INFILL
EXIST BEAM	EXIST BEAM
	CMU WALL
	EXTERIOR OR BEARING WALL, REF SCHEDULE
HEADER SIZE	HEADER IN LOAD BEARING WALL
BEAM SIZE	BEAM
X	EXTERIOR OR BEARING WALL W/ STUDS @ X" OC
XK, YJ	X KING STUDS AND Y JACK STUDS
X	BUILT-UP POST, REF SCHEDULE
X	SHEAR WALL, REF SCHEDULE

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*THINK DESIGN innovate, integrate, implement...

TDi ENGINEERING

STATE OF TEXAS
ELIZABETH E. LEDY
132471
LICENSED PROFESSIONAL ENGINEER
04/30/2026
FIRM REG. # F-8601

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N-VISION DESIGN, LLC

GENERAL NOTES

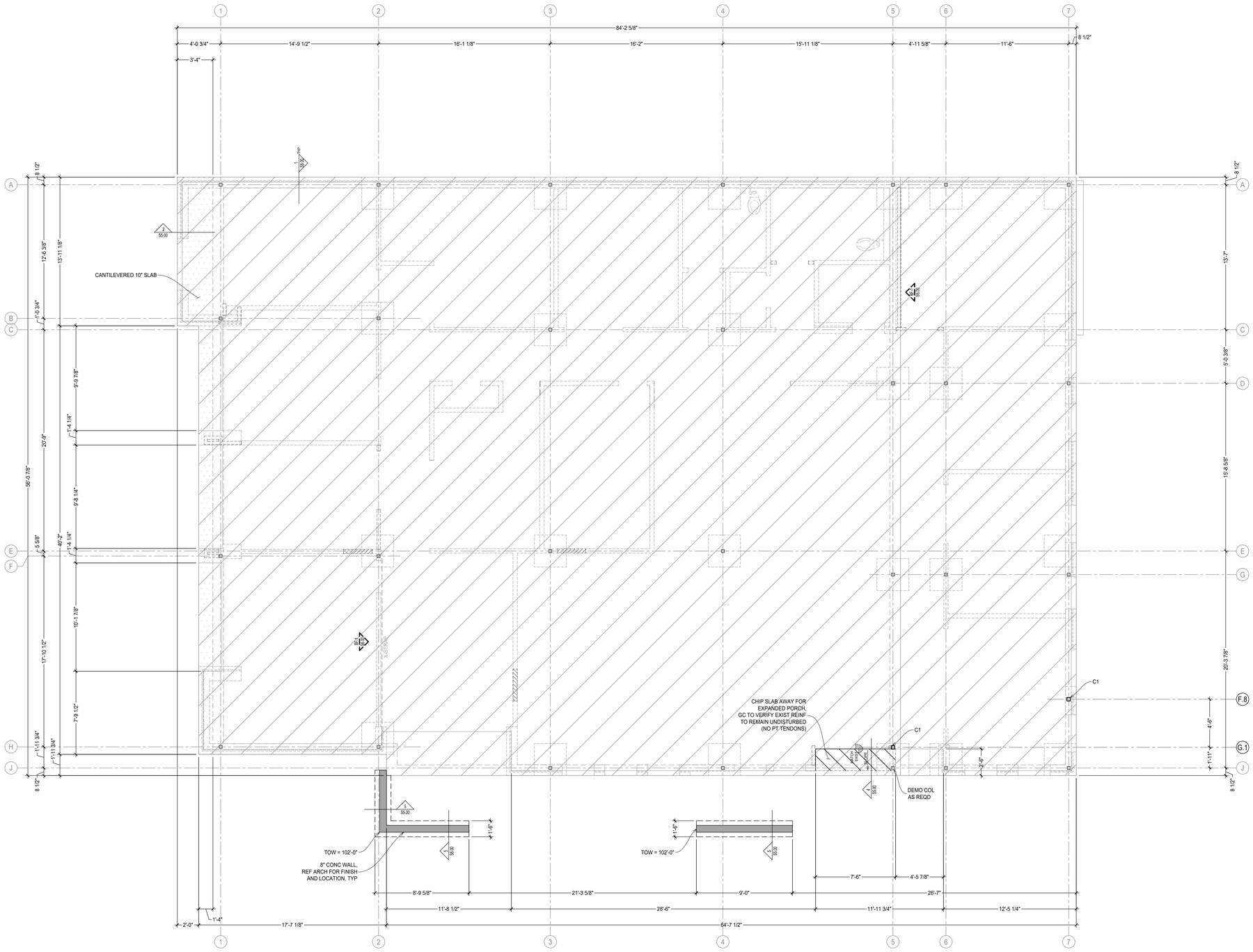
PROJECT # 1038-125

ISSUE DATE 04/30/2026

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FOUNDATION PLAN NOTES
1. VERIFY ALL DIMENSIONS, DROPS, SLOPES, ETC WITH ARCH PRIOR TO CONSTRUCTION.
2. ALL ELEVATIONS ARE RELATIVE TO TOP OF CONC AT 1ST FLOOR = 100'-0".
3. SLAB THICKNESS IS ASSUMED TO BE 4" MIN WITH #3 @ 14" OC EW UNO.
4. GRADE BEAM WIDTH IS ASSUMED TO BE 12" MIN AND DEPTH TO BE 24" MIN, UNO.
5. NEW SPREAD FOOTINGS SHALL BEAR 18" MIN BELOW FINISHED GRADE, UNO.
6. REF DETAIL "A" REFERS TO THE DETAIL ON THE FOUNDATION DETAIL SHEETS.
7. REF DETAIL "C" FOR ADDL REINF AT FOOTING AND WALL CORNERS.
8. REF DETAIL "G" FOR ADDL REINF AT PLUMBING PENETRATIONS.
9. REF DETAIL "B" FOR WALL ANCHOR BOLTS.
10. REF DETAIL "H" FOR HOLDOWN ANCHOR BOLTS.



FOUNDATION PLAN

1/4" = 1'-0"

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FOUNDATION PLAN

PROJECT # 1038-125

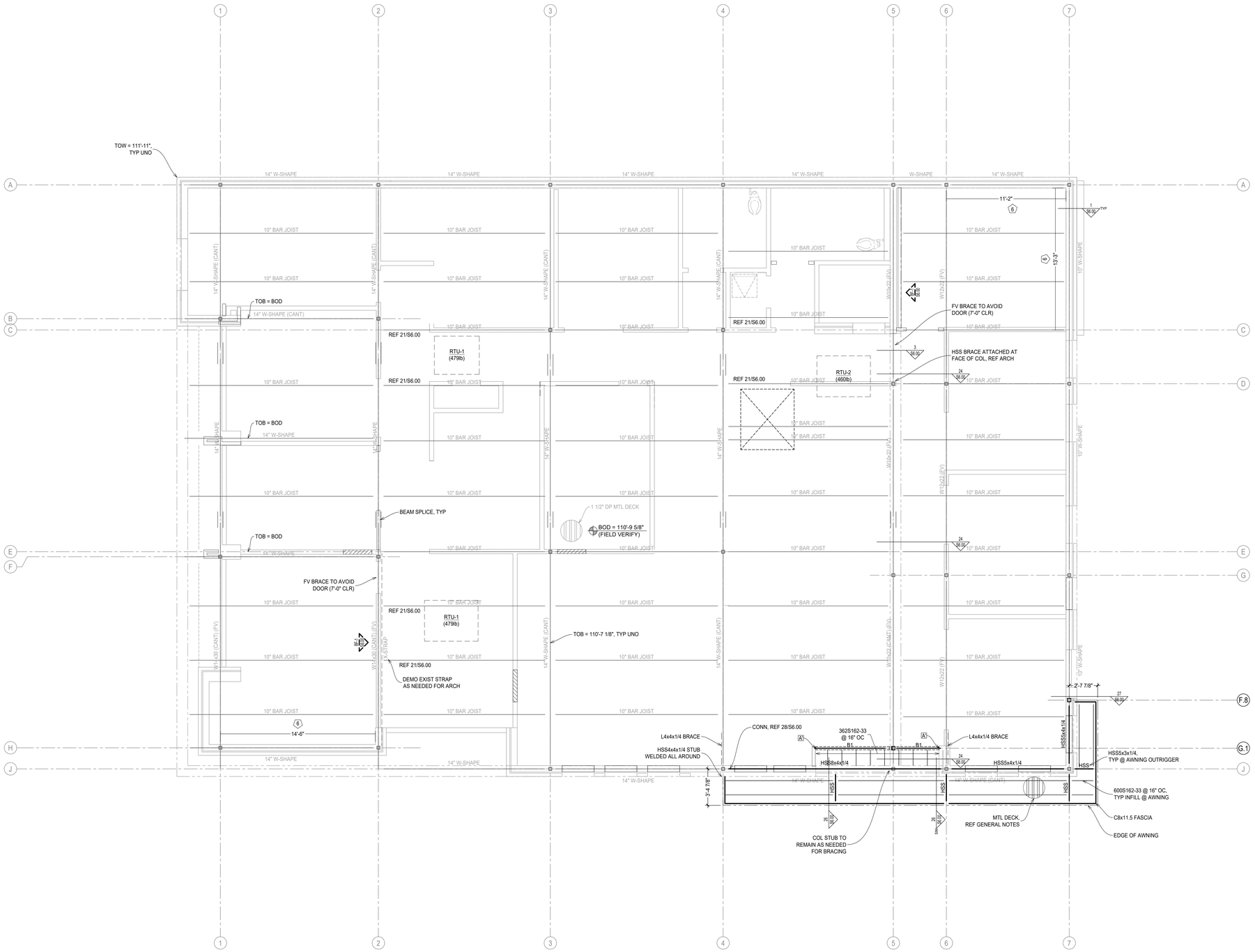
ISSUE DATE 04/30/2026

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FRAMING PLAN NOTES

1. VERIFY ALL DIMENSIONS, DROPS, SLOPES, ETC WITH ARCH PRIOR TO CONSTRUCTION.
2. ALL ELEVATIONS ARE RELATIVE TO TOP OF CONC AT 1ST FLOOR = 100'-0".
3. ALL OPENINGS IN DECK LARGER THAN 10"Ø OR SQUARE MUST BE FRAMED PER 23/S6.00.
4. BOD INDICATES BOTTOM OF DECK.
5. ALL BEAM END REACTIONS SHOWN ARE LRFD FACTORED END REACTIONS.
6. (xx.xx) DESIGNATES ASD AXIAL WIND LOAD IN JOIST TOP CHORD.
7. HATCHED AREA ON PLAN DENOTES ALLOWABLE LOCATIONS FOR ROOF TOP UNITS. RTU'S SHALL BE LIMITED TO WEIGHT SHOWN ON PLAN. RTU'S MUST BE SUPPORTED BY A MINIMUM OF (2) JOISTS AND NO JOIST SHALL SUPPORT MORE THAN ONE RTU. FRAME ALL OPENINGS PER 23/S6.00.
8. (B) INDICATES BOTTOM FLANGE BRACE. REF 25/S6.00.
9. REF DETAIL "X" REFERS TO THE DETAIL ON THE FRAMING DETAIL SHEETS.
10. (V) DENOTES SHEAR WALL REQUIRED. DIMENSION SHOWN IS LENGTH OF SHEAR WALL. HOLDOWNS SPECIFIED SHALL BE LOCATED AT ENDS OF WALL AND IN ACCORDANCE W/ DETAIL "H".



FRAMING PLAN

1/4" = 1'-0"

TDi ENGINEERING
CIVIL & STRUCTURAL ENGINEERING
AUSTIN / HOUSTON
TDI Engineering, LLC
5906 Old Fredericksburg Road, Suite 300
Austin, TX 78749
512-301-3389 | www.tdi-llc.net

*THINK DESIGN innovate, integrate, implement...

STATE OF TEXAS
ELIZABETH E. LEDY
132471
LICENSED PROFESSIONAL ENGINEER
04/30/2026
FIRM REG. # F-8601

BONILLA LAW FIRM
1833 S I-35 FRONTAGE RD
AUSTIN, TX 78741

N-VISION DESIGN, LLC

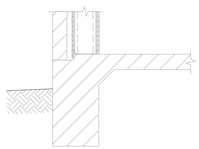
FRAMING PLAN

PROJECT # 1038-125

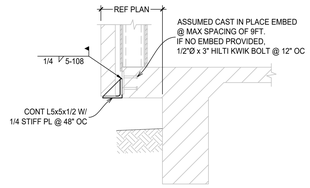
ISSUE DATE 04/30/2026

SHEET S3.00

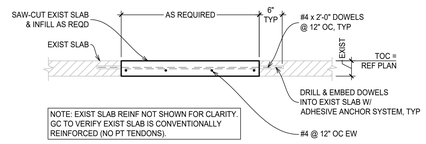
2026/04/30 - LAST SAVED BY: GABESHEBESTA - PLOTTED BY: GABESHEBESTA



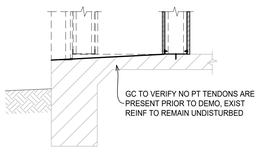
1 EXIST EXTERIOR GRADE BEAM
NTS



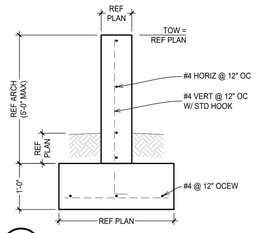
2 EXIST CANTILEVERED SLAB
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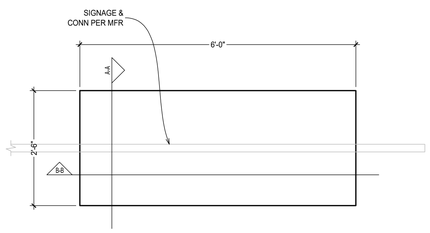
3 SLAB FILL
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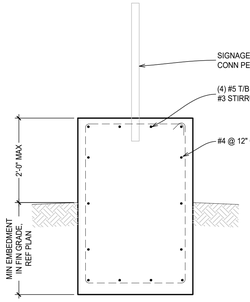


4 EXTERIOR FOUNDATION AT ENTRY
NTS

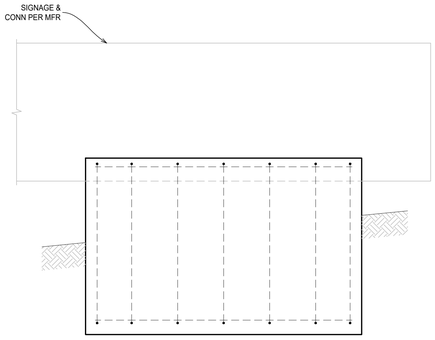


5 CONCRETE WALL FOOTING
NTS



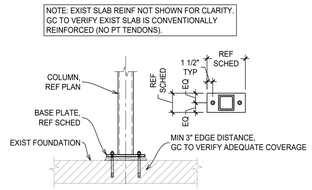


SECTION 'A-A'

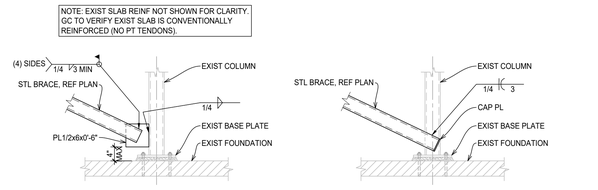


SECTION 'B-B'

6 MONUMENT SIGN
NTS

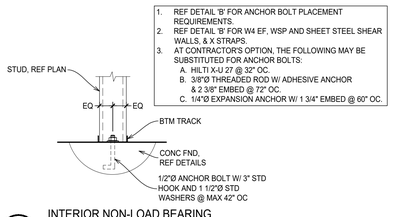


7 BASEPLATE AT NEW COLUMN
NTS

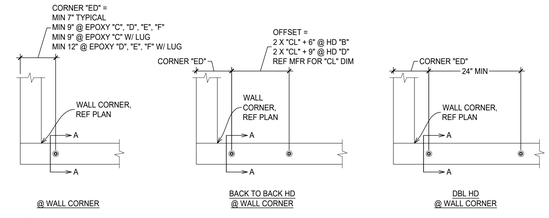


AT OPTION
ATTACH AT FACE

8 LATERAL BRACE AT EXISTING STEEL COLUMN
NTS



B1 INTERIOR NON-LOAD BEARING
LG BTM TRACK ATTACHMENT
NTS

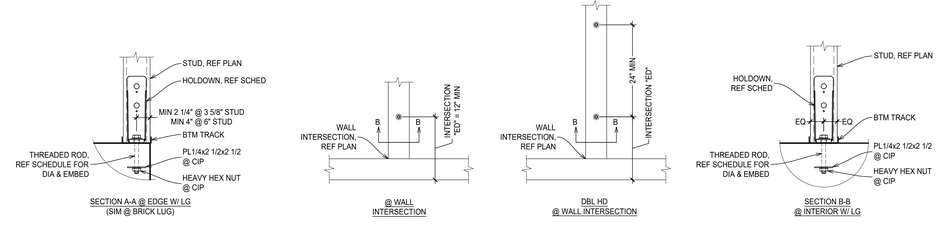


@ WALL CORNER

BACK TO BACK HD
@ WALL CORNER

DBL HD
@ WALL CORNER

H HOLDOWN ANCHOR BOLTS
NTS



SECTION A-A @ EDGE W/ LG
(SIM @ BRICK LUG)

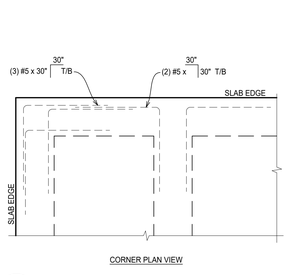
@ WALL
INTERSECTION

DBL HD
@ WALL INTERSECTION

SECTION B-B
@ INTERIOR W/ LG

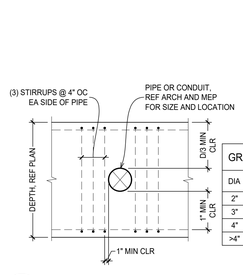
GRADE BEAM STIRRUPS	
DIA	ADDITIONAL WIDTH IN LIEU OF STIRRUPS
2"	1"
3"	2"
4"	3"
>4"	STIRRUPS REQUIRED

NOTES:
1. FOR PIPES < 1"Ø, NO STIRRUPS REQUIRED.
2. IN LIEU OF STIRRUPS, WIDEN AND/OR DEEPEN BEAM TO REPLACE CONCRETE SECTION AREA LOST DUE TO PIPE. EXTEND WIDENED/DEEPENED AREA 12" EACH SIDE OF PIPE.
3. OUTSIDE Ø OF CONDUITS, PIPES AND SLEEVES SHALL NOT BE > THAN 1/3 THE THICKNESS OF THE WALL OR BEAM.
4. CONDUITS, PIPES AND SLEEVES SHALL NOT BE SPACED < THAN 3X Ø.
5. CONDUITS, PIPES AND SLEEVES SHALL BE FABRICATED FROM UNCOATED OR GALVANIZED IRON OR STEEL NOT THINNER THAN STD SCHED 40 STEEL PIPE.
6. PLUMBING SHALL INTERSECT BEAMS AT NO LESS THAN 45° ANGLE.
7. PLUMBING PENETRATING BEAMS SHALL BE LOCATED TO MAINTAIN 6" MIN CONCRETE COVER ABOVE AND BELOW.
8. FULL BEAM DEPTH SHALL BE MAINTAINED WHERE PLUMBING PASSES BELOW BEAMS.
9. PLUMBING SHALL BE LOCATED SUCH THAT ONLY ONE PIPE PENETRATES THE BEAM AT ANY SINGLE LOCATION.
10. CHAIRS OR OTHER MEANS SHALL BE USED TO MAINTAIN CLEARANCE BTWN PIPES AND REINF.

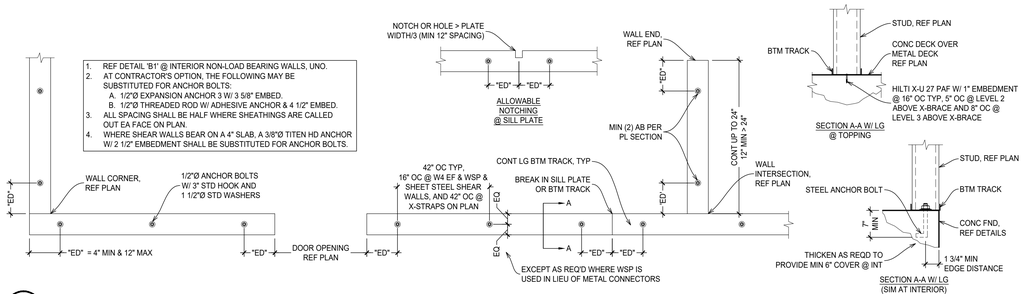


CORNER PLAN VIEW

C CORNER BARS
NTS



G GRADE BEAM PENETRATIONS
NTS



B LIGHT GAUGE BTM TRACK ATTACHMENT
NTS

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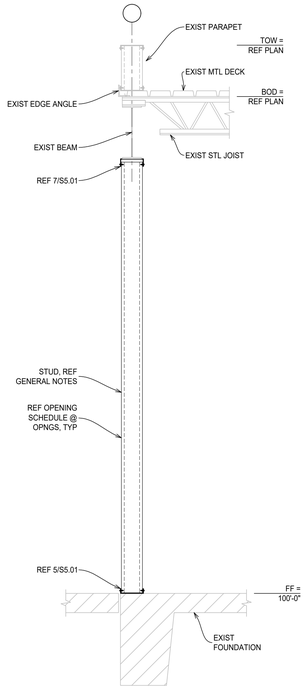
FOUNDATION DETAILS

PROJECT # 1038-125

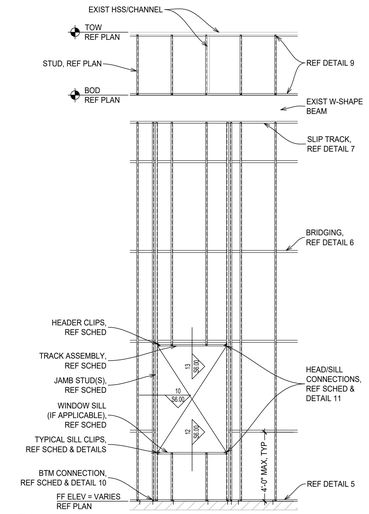
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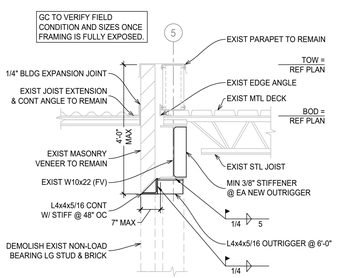
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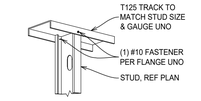
1 WALL SECTION
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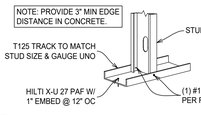
2 TYP WALL FRAMING ELEVATION
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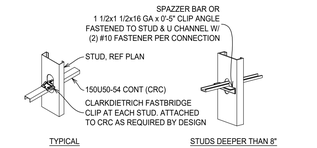
3 EXIST PARAPET REINFORCING
NTS



4 STUD TO TRACK
NTS

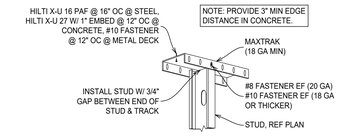


5 STUD TO TRACK TO CONCRETE
NTS

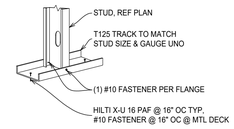


NOTES:
1. PROVIDE WALL STUD ORIENTED IN PLANE OF WALL @ INTERSECTIONS AND MAX 12'-0" OC. ATTACH BRIDGING TO STUD WITH (4) #10 FASTENER. ATTACH STUD TO TOP AND BOTTOM TRACK WITH MIN (4) #10 FASTENER (2 ES) FROM FLANGE TO FLANGE UTILIZING PIECE OF TRACK ROTATED 90 DEGREES INSIDE MAIN TRACK WITH (4) #10 FASTENER FROM WEB TO WEB.
2. PROVIDE L2x2x14 GA x 0'-4" W/ (6) #10 FASTENER EA LEG BETWEEN BRIDGING AND ROTATED STUDS.

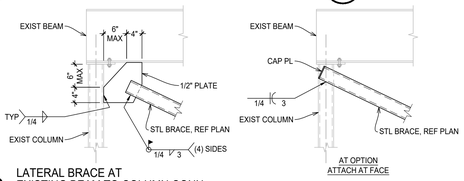
6 BRIDGING DETAIL
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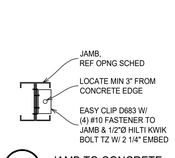
7 TOP OF STUD @ SLP TRACK
NTS



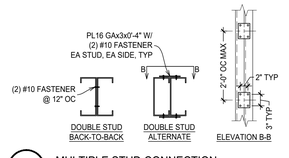
9 STUD TO TRACK TO STEEL
NTS



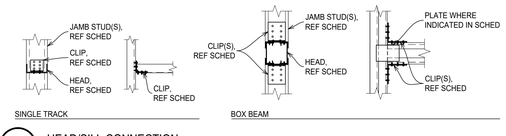
8 LATERAL BRACE AT EXISTING BEAM TO COLUMN CONN
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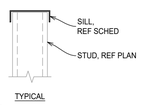
10 JAMB TO CONCRETE
NTS



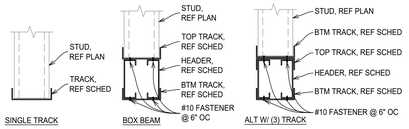
10A MULTIPLE STUD CONNECTION
NTS



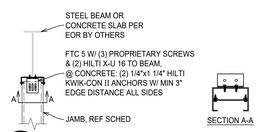
11 HEAD/SILL CONNECTION
NTS



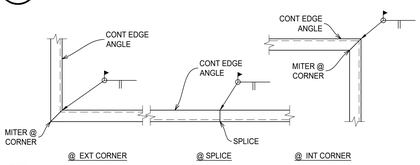
12 SILL
NTS



13 HEAD
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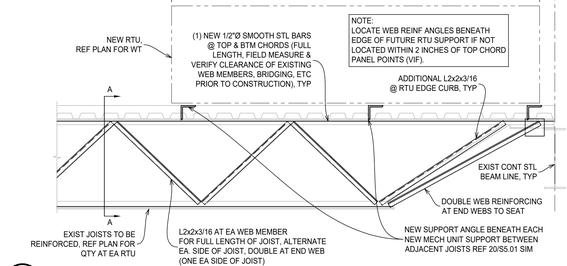


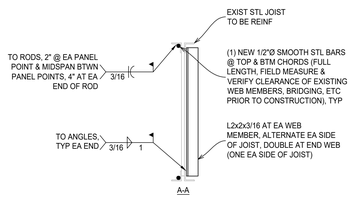
14 JAMB TO BEAM
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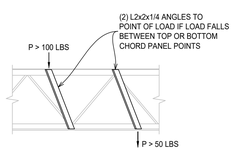
15 EDGE ANGLE SPLICE
NTS

20 NOTE USED
NTS



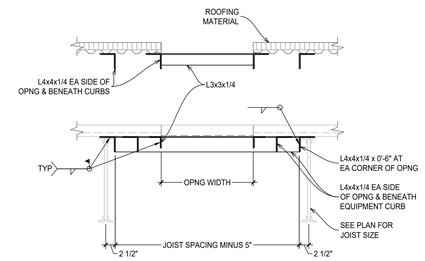


21 JOIST REINF DETAILS
NTS



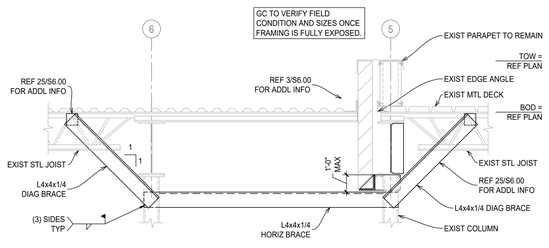
NOTE:
PROVIDE JOIST REINFORCEMENT WHERE LOADS IN EXCESS OF 100 LBS. ARE NOT LOCATED WITHIN 6 INCHES OF A TOP CHORD PANEL POINT, OR WHERE LOADS IN EXCESS OF 50 LBS ARE NOT LOCATED WITHIN 6 INCHES OF A BOTTOM CHORD PANEL POINT.

22 JOIST REINFORCING
NTS

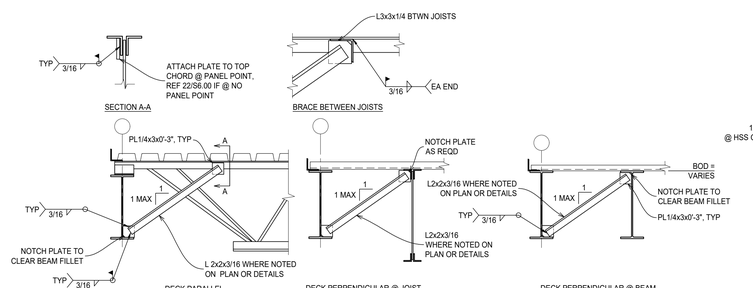


NOTE:
APPLIES TO ALL OPENINGS WITH A WIDTH GREATER THAN 10"Ø OR SQUARE.

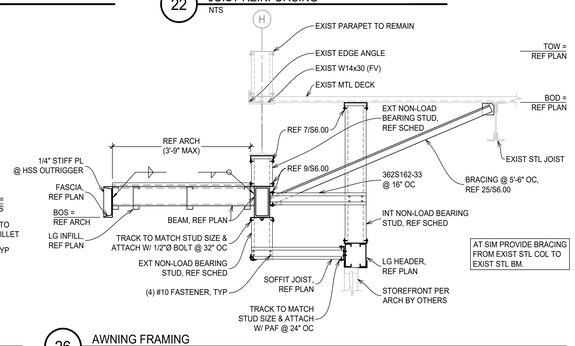
23 ROOF OPENING
NTS



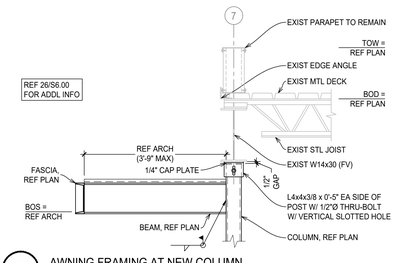
24 EXIST PARAPET REINFORCING
NTS



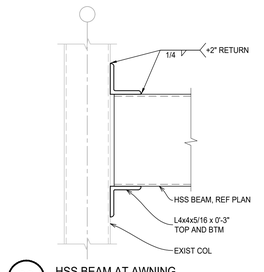
25 BOTTOM FLANGE BRACE
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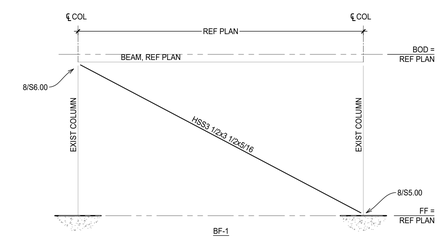
26 AWNING FRAMING
NTS



27 AWNING FRAMING AT NEW COLUMN
NTS



28 HSS BEAM AT AWNING
NTS



BF BRACE FRAME ELEVATION(S)
NTS

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512.744.4400 main - 512.744.4444 fax
www.eeace.com

EEA Project No. 20266411
State of registration TX
Firm Registration No. F-2497

GENERAL MECHANICAL NOTES:

1. COORDINATE LOCATION OF AIR DEVICES WITH ARCHITECTURAL REFLECTED CEILING PLANS. TO ACHIEVE THE BEST COMBINATION OF PERFORMANCE AND AESTHETICS, THE FINAL LOCATIONS OF AIR DEVICES SHALL BE DETERMINED FROM THE ARCHITECTURAL REFLECTED CEILING PLANS. NO CHANGES TO AIR DEVICE LOCATIONS SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE ARCHITECT AND ENGINEER. SPRAY PAINT INTERIOR OF DUCTWORK BEHIND OR ABOVE AIR DEVICES TO 12" INSIDE DUCTWORK OPENING WITH FLAT BLACK PAINT TO OBSCURE DUCT INTERIOR. LOCATE LOUVERED RETURN GRILLE BLADES SUCH THAT VISION INTO DUCT INTERIOR IS RESTRICTED.
2. ALL DUCT SIZES ARE INSIDE CLEAR DIMENSIONS IN INCHES.
3. BALANCING DAMPERS ARE REQUIRED AT ALL SUPPLY, RETURN, AND EXHAUST BRANCH CONNECTIONS. REMOTE DAMPER OPERATOR FOR ALL DAMPERS LOCATED ABOVE HARD OR INACCESSIBLE CEILINGS.
4. FLEX DUCT AND ROUND CONNECTIONS TO MAIN DUCT OR BRANCH DUCTS SHALL BE MADE VIA SPIN-IN OR DOVE-TAILED CONICAL TAPS WITH DAMPERS. ALL RECTANGULAR DUCT BRANCHES TAP TO BE MADE WITH 45 DEG SMACNA TAP FITTING.
5. ROUTE ALL SUPPLY AIR DUCT TIGHT TO STRUCTURE UNLESS OTHERWISE NOTED. MAKE TRANSITIONS FLAT ON TOP.
6. FURNISH AND INSTALL ALL MITERED ELBOWS WITH TURNING VANES. RADIUS RECTANGULAR ELBOWS SHALL HAVE CENTER LINE RADIUS TO WIDTH RATIO (R/W) OF 1.5 UNLESS OTHERWISE SPECIFIED. ALL ROUND ELBOWS SHALL HAVE A CENTERLINE RADIUS TO DIAMETER RATIO (R/D) OF 1.5 UNLESS SHORT RADIUS ELBOWS ARE CALLED FOR ON THE PLANS IN WHICH CASE THE R/D RATIO SHALL BE 1.0.
7. FLEXIBLE DUCTS SHALL NOT EXCEED 5' IN LENGTH. DUCT SHALL HAVE AN INTERNAL DIMENSION EQUAL TO THE CONNECTING ROUND DUCT DIMENSION.
8. INSULATE EXTERIOR OF ALL SUPPLY AIR DIFFUSERS.
9. FLEXIBLE COLLARS SHALL BE FURNISHED AND INSTALLED AT ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT (FANS, AIR HANDLERS, ROOFTOP UNITS, ETC.) AND DUCTS OR CASINGS. ALSO FURNISH AND INSTALL FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS.
10. LINED RETURN AIR TRANSFER BOOTS SHALL BE INSTALLED THROUGH WALLS AS REQUIRED TO PROVIDE A CONTINUOUS RETURN AIR PATH TO THE AIR HANDLING UNITS.
11. PROVIDE FIRE DAMPERS, SMOKE DAMPERS, AND COMBINATION FIRE/SMOKE DAMPERS WHERE SHOWN ON THE PLANS AND WHERE DUCTWORK PENETRATES FLOORS, FIRE WALLS AND HVAC CHASES REQUIRING PROTECTION IF NOT OTHERWISE SHOWN. ALL FIRE DAMPERS SHALL HAVE A 1.5 HOUR RATING UNLESS NOTED OTHERWISE. ENDS OF DAMPER SHAFTS SHALL BE SCORED TO INDICATE OPEN/CLOSED POSITION. PROVIDE FSD'S WITH OPTIONAL NO-FLOW RATED DUCT SMOKE DETECTOR. INSTALL FD'S, SD'S AND FSD'S IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS IN ORDER TO MAINTAIN THEIR UL LISTING. PROVIDE, INSTALL AND LABEL MINIMUM 14" X 14" DUCT ACCESS DOORS WITHIN 12" OF ALL FD, SD, AND FSD LOCATIONS.
12. INSTALL WALL LOUVERS AND CONNECTING DUCTWORK PER MANUFACTURER'S INSTRUCTIONS. PITCH BOTTOM OF CONNECTING DUCT OR PLENUM TO OUTSIDE WHERE IT CONNECTS TO THE LOUVER SO THAT ANY MOISTURE CARRYOVER WILL DRAIN TO OUTSIDE. INSTALL 12" WIDE ACCESS DOOR HALF THE HEIGHT OF THE DUCT, MINIMUM 12" HIGH, WITHIN 6" OF THE LOUVER UNLESS NOTED OTHERWISE ON THE PLANS.
13. DUCTWORK AND ROOFTOP EQUIPMENT ACCESSORIES SHALL BE SECURED TO STRUCTURE TO WITHSTAND THE SAME WIND LOADING REQUIREMENTS AS THE ROOF CURB AND EQUIPMENT.
14. INSTALL A NEW SET OF AIR FILTERS ON ALL APPLICABLE EQUIPMENT AT COMPLETION OF PROJECT.
15. PROVIDE SECONDARY CONDENSATE DRAIN PAN AND FLOAT SWITCH FOR EQUIPMENT WITH COOLING COILS SUSPENDED ABOVE CEILING, WITH FLOAT SWITCH WIRED TO SHUT OFF UNIT.
16. A NEBB, TABB, OR ABC CERTIFIED CONTRACTOR SHALL BALANCE ALL AIRSIDE AND WATERSIDE SYSTEMS, INCLUDING ROOM PRESSURE CASCADE DIFFERENTIAL PRESSURES, TO WITHIN +10%/-5% OF THE QUANTITIES AND FLOW RATES SHOWN ON THE DRAWINGS. FURNISH A CERTIFIED TESTING AND BALANCING REPORT TO THE ENGINEER FOR REVIEW AND APPROVAL.
17. PROVIDE AND INSTALL A LABEL ON THE CEILING GRID OR WALL DIRECTLY UNDER OR ADJACENT TO ALL CONCEALED MECHANICAL EQUIPMENT, ISOLATION VALVES, AND CONTROL DEVICES. THE LABEL SHALL CONTAIN EQUIPMENT TAG NUMBER AND POWER SOURCE (IF APPLICABLE), ISOLATION VALVE SIZE AND SYSTEM, OR CONTROL ELEMENT IDENTIFICATION NUMBER.

GENERAL MECHANICAL DEMO NOTES:

1. EXISTING EQUIPMENT, DUCTWORK & PIPING LOCATIONS AND SIZES HAVE BEEN OBTAINED FROM ORIGINAL CONSTRUCTION DRAWINGS AND FIELD INVESTIGATIONS AND ARE SCHEMATIC IN NATURE. FIELD VERIFY LOCATIONS AND SIZES.
2. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN. ITEMS SHOWN BOLD AND DASHED ARE EXISTING TO BE REMOVED.
3. DEMOLITION OF ALL PIPING AND DUCTWORK SHALL INCLUDE ALL SUPPORTS, HANGERS, INSULATION, THERMOSTATS, AND FIRE DAMPERS UNLESS OTHERWISE NOTED.
4. REMOVE ALL HVAC, IN THEIR ENTIRETY, INCLUDING MATERIALS AND APPURTENANCES, UNLESS NOTED OTHERWISE ON THE PLANS. WHERE CONTRACT DRAWINGS INDICATE SPECIFIC MATERIALS OR DEVICES TO BE REMOVED, THIS IS TO BE UNDERSTOOD AS AN AID IN IDENTIFYING MECHANICAL SYSTEMS, NOT A LIMIT TO THE SCOPE.
5. REMOVE MECHANICAL EQUIPMENT AND RETURN TO OWNER FOR RIGHT OF FIRST REFUSAL. DELIVER ACCEPTED ITEMS TO OWNER DESIGNATED LOCATION. ITEMS NOT KEPT BY OWNER SHALL BE STORED AND DISPOSED OF OFF SITE ACCORDING TO LOCAL REGULATIONS.
6. REFER TO ELECTRICAL DRAWINGS FOR INFORMATION ON ELECTRICAL DEMO.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND FINISHES NOT BEING REPLACED OR REMOVED.

PROJECT ELEVATION: 650 FEET ABOVE MSL

GENERAL MECHANICAL SYMBOLS

- 1 — REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE NEW CONNECTS TO EXISTING
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- 1 — KEYNOTE
- CONTINUATION SYMBOL
- Room / 5 — ROOM NAME AND NUMBER
- ITEM TO BE DEMOLISHED
- AREA NOT IN CONTRACT
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE / 2" — PIPE SLOPE TAG
- BELOW GROUND PIPING
- INVERT: -105' - 0 127/128" — PIPE INVERT ELEVATION TAG
- (E) — EXISTING PIPE TAG
- PIPING BEING DEMOLISHED

ABBREVIATIONS

Ø	ROUND	LAT	LEAVING AIR TEMPERATURE
ABV	ABOVE	LBS	POUND
AC	AIR CONDITIONING	LB/HR	POUNDS PER HOUR
AD	AREA DRAIN	LP	LOW PRESSURE
ADD	ADDENDUM	LPG	LIQUEFIED PETROLEUM GAS
AFF	ABOVE FINISHED FLOOR	LRH	LEAVING RELATIVE HUMIDITY
AFMS	AIRFLOW MEASURING STATION	LVR	LOUVER
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	LWT	LEAVING WATER TEMPERATURE
ALT	ALTERNATE	MA	MIXED AIR
AP	ACCESS PANEL	MAX	MAXIMUM
APD	AIR PRESSURE DROP	MBH	ONE THOUSAND BTU PER HOUR
ARCH	ARCHITECT/ARCHITECTURAL	MCF	ONE THOUSAND CUBIC FEET
BFF	BELOW FINISHED FLOOR	MD	MOTORIZED DAMPER
BHP	BREAK HORSE POWER	MECH	MECHANICAL
BLW	BELOW	MFR	MANUFACTURER
BOD	BOTTOM OF DUCT	MIN	MINIMUM
BOP	BOTTOM OF PIPE	MISC	MISCELLANEOUS
BOS	BOTTOM OF STRUCTURE	MOD	MODULATING
BTU	BRITISH THERMAL UNITS	MTR	MOTOR
BTUH	BRITISH THERMAL UNITS PER HOUR	MUA	MAKE-UP AIR
CA	COMBUSTION AIR	NC	NOISE CRITERIA
CAP	CAPACITY	N.C.	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CEA	CONDENSATE EXHAUST AIR	NO	NUMBER
CFM	CUBIC FEET PER MINUTE	N.O.	NORMALLY OPEN
CLG	CEILING	NTS	NOT TO SCALE
CO	CLEAN OUT	O	OXYGEN
COND.	CONDENSER	OA	OUTSIDE AIR
CONN.	CONNECTION	ORD	OVERFLOW ROOF DRAIN
CTRL	CONTROL	PD	PRESSURE DROP
CW	COLD WATER	PIV	POST INDICATOR VALVE
CWS	CONDENSING WATER SUPPLY	PLBG	PLUMBING
CWR	CONDENSING WATER RETURN	PRESS	PRESSURE
C.V.	VALVE FLOW COEFFICIENT	PRV	PRESSURE REDUCING VALVE
D	DEGREE	PSI	POUNDS PER SQUARE INCH
DB	DRY BULB	PSIG	POUNDS PER SQUARE INCH GAUGE
DIA	DIAMETER	PWR	POWER
DN	DOWN	R	DUCT RISER
DW	DISTILLED WATER	RA	RETURN AIR
EA	EXHAUST AIR	RCP	RADIANT CEILING PANEL
EAT	ENTERING AIR TEMPERATURE	RD	ROOF DRAIN
ELEC	ELECTRICAL	REA	RELIEF AIR
ELEV.	ELEVATION	REC	RECESSED
EFF.	EFFICIENCY	RED	REDUCER
EQUIP	EQUIPMENT	REF	REFRIGERANT
ERH	ENTERING RELATIVE HUMIDITY	RH	RELATIVE HUMIDITY
EWC	ELECTRIC WATER COOLER	RM	ROOM
EWT	ENTERING WATER TEMPERATURE	RLA	RUNNING LOAD AMPS
EXIST	EXISTING	RPM	REVOLUTIONS PER MINUTE
F	DEGREES FAHRENHEIT	RW	RAIN WATER
FCO	FLOOR CLEAN OUT	SA	SUPPLY AIR
FD	FLOOR DRAIN	SAN	SANITARY
FDC	FIRE DEPARTMENT CONNECTION	SEA	SMOKE EXHAUST AIR
FEG	FAN EFFIENCY GRADE	SF	SQUARE FOOT
FL	FLOOR	SD	SMOKE DAMPER
FLUE	EXHAUST GAS FLUE	SM	SURFACE MOUNT
FO	FUEL OIL	SOA	CONDITIONED OUTSIDE AIR
FOV	FUEL OIL VENT	SP	STANDPIPE
FOR	FUEL OIL RETURN	SP	STATIC PRESSURE
FOS	FUEL OIL SUPPLY	STM	STEAM
FPM	FEET PER MINUTE	T	THERMOSTAT
FS	FLOOR SINK	TA	TRANSFER AIR
FT	FOOT/FEET	TD	TEMPERATURE DROP
FTR	FIN TUBE RADIATION	TDR	TRENCH DRAIN
GAL	GALLON	TEMP	TEMPERATURE
GEA	GREASE EXHAUST AIR	TOD	TOP OF DUCT
GF	GAS-FIRED	TOP	TOP OF PIPE
GC	GENERAL CONTRACTOR	TYP	TYPICAL
GPM	GALLONS PER MINUTE	UG	UNDERGROUND
GW	GREASE WASTE	VAC	VACUUM
HB	HOSE BIB	V	VENT
HD	HEAD	VAV	VARIABLE AIR VOLUME
HP	HORSE POWER	VENT	VENTILATION
HTG	HEATING	VTR	VENT THROUGH ROOF
HTR	HEATER	W	WATTS
HW	HOT WATER	WB	WET BULB
HYD	HYDRANT	WC	WATER COLUMN
ID	INDIRECT	WCO	WALL CLEAN OUT
IN.	INCH	WG	WATER GAUGE
INV	INVERT	WH	WALL HYDRANT

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	ET	EXPANSION TANK
ACCU	AIR COOLING CONDENSING UNIT	EWH	ELECTRIC WATER HEATER
AHU	AIR HANDLING UNIT	FCU	FAN COIL UNIT
AS	AIR SEPARATOR	FP	FIRE PUMP
B	BOILER	GI	GREASE INTERCEPTOR
CH	CHILLER	GRV	GRAVITY ROOF VENTILATOR
CT	COOLING TOWER	GWH	GAS FIRED WATER HEATER
CUH	CABINET UNIT HEATER	HWP	HEATING WATER PUMP
CHWP	CHILLED WATER PUMP	HRU	HEAT RECOVERY UNIT
CWP	CONDENSER WATER PUMP	PRV	POWER ROOF VENTILATOR
DBP	DOMESTIC WATER BOOSTER PUMP	RE	RETURN/EXHAUST FAN
DC	DUCT MOUNTED COIL	RTU	ROOFTOP UNIT
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	VAV	VARIABLE AIR VOLUME TERMINAL UNIT
		WH	WATER HEATER

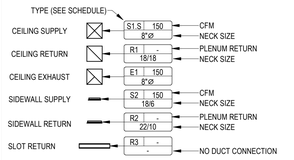
* NOTE *

ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

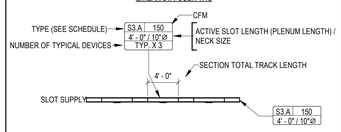
HVAC SYMBOLS

- 18/12 — SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
- 18/12FO — OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
- 18"Ø — ROUND DUCT SIZE TAG (DIAMETER)
- (E) — EXISTING DUCT TAG
- DUCT BEING DEMOLISHED
- DROP — RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — ROUND SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — RECTANGULAR RETURN/TRANSFER AIR DUCT RISE
- DROP — ROUND RETURN/TRANSFER AIR DUCT RISE
- DROP — RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE
- DROP — ROUND EXHAUST/RELIEF AIR DUCT RISE

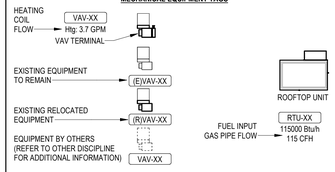
GRILLES, REGISTERS & DIFFUSERS TAG



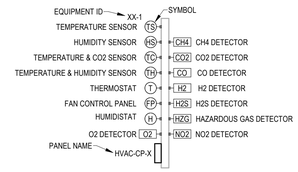
LINEAR DIFFUSER TAG



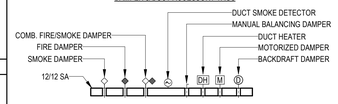
MECHANICAL EQUIPMENT TAGS



DATA DEVICE TAGS



DAMPER & DUCT ACCESSORY TAGS



PROJECT DESIGN CODES:

1. THE CODES APPLICABLE TO THE DESIGN ARE AS FOLLOWS:
   - 2024 INTERNATIONAL BUILDING CODE (IBC)
   - 2024 INTERNATIONAL FIRE CODE (IFC)
   - 2024 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
   - 2024 UNIFORM MECHANICAL CODE (UMC)
   - 2024 UNIFORM PLUMBING CODE (UPC)
   - 2023 NATIONAL ELECTRICAL CODE (NEC)

HVAC SHEET INDEX

M001	MECHANICAL GENERAL NOTES & LEGENDS
M002	MEP GENERAL NOTES
M003	MECHANICAL SPECIFICATIONS
M004	MECHANICAL SPECIFICATIONS
M0101	MECHANICAL DEMOLITION PLAN - LVL1
M0102	MECHANICAL DEMOLITION PLAN - ROOF
M0101	MECHANICAL PLAN - LVL1
M0102	MECHANICAL PLAN - ROOF
M601	MECHANICAL SCHEDULES
M602	MECHANICAL SCHEDULES
M701	MECHANICAL DETAILS
M901	MECHANICAL CALCULATIONS

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N-VIZION
FORMS + ENVIRONMENTS + IMAGES

MECHANICAL GENERAL NOTES & LEGENDS

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Date:	Description:

M001

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EEA Project No. 20266411
State of registration TX
Firm Registration No. F-2497

MEP GENERAL CONDITIONS:

1. IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE AN INSTALLATION COMPLETE IN EVERY RESPECT. WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL INCLUDE ALL LABOR, MATERIALS, AND SUPERVISION ESSENTIAL TO PROVIDE COMPLETE FUNCTIONING SYSTEMS AS DESCRIBED IN THE CONTRACT DOCUMENTS. IN THE EVENT THAT ADDITIONAL DETAILS OR SPECIAL CONSTRUCTION IS REQUIRED FOR WORK INDICATED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SAME AS WELL AS TO PROVIDE MATERIAL AND EQUIPMENT USUALLY FURNISHED WITH SUCH SYSTEMS OR REQUIRED TO COMPLETE THE INSTALLATION AT NO EXPENSE TO THE OWNER.
2. DEVIATIONS TO THE INTENDED DESIGN OR THE SCOPE OF THE WORK MUST BE APPROVED BY THE ENGINEER PRIOR TO COMMENCING WORK. FAILURE TO DO SO MAY RESULT IN THE WORK TO BE REMOVED AT NO COST TO THE OWNER
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL CODES, STANDARDS, AND AMENDMENTS AND/OR OTHER AUTHORITIES THAT MAY HAVE JURISDICTION PERTAINING TO THE WORK. IN ADDITION, ALL WORK SHALL CONFORM TO THE STANDARDS AND PRACTICES OF THE OWNER.
4. ALL EQUIPMENT INSTALLED ON THIS PROJECT SHALL BE NEW AND UNUSED UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL REMOVE ALL SHIPPING LABELS, DIRT, PAINT SPOTS, GREASE, AND STAINS FROM ALL EQUIPMENT. DEBRIS SHALL BE REMOVED AS IT ACCUMULATES. UPON COMPLETION OF HIS WORK, THE CONTRACTOR SHALL CLEAN ALL EQUIPMENT. NO LOOSE PARTS OR SCRAPS OF EQUIPMENT SHALL BE LEFT ON THE PREMISES.
5. ALL MATERIALS SALVAGED FOR THE OWNER SHALL BE STORED BY CONTRACTOR UNTIL END OF PROJECT THEN RETURNED TO THE OWNER.
6. ALL WORK SHALL BE GUARANTEED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE AS DEFINED BY THE CONTRACT. THE CONTRACTOR SHALL REPAIR OR REPLACE, AT HIS/HER OWN EXPENSE WHEN ORDERED TO DO SO, ALL WORK THAT MAY DEVELOP DEFECTS IN MATERIAL OR WORKMANSHIP WITHIN SAID PERIOD OF TIME. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR SERVICE INTENDED, AS INTERPRETED BY THE ENGINEER. THE INSTALLATION OF ALL EQUIPMENT SHALL BE MADE BY EXPERIENCED CRAFTSMAN IN A NEAT, WORKMANLIKE MANNER. ALL MATERIALS, TOOLS, COSTS, AND SERVICES NECESSARY TO COMPLETELY INSTALL ALL WORK SHALL BE PROVIDED BY THE CONTRACTOR.
7. ALL SAFETY EXPOSURES OR VIOLATIONS SHALL BE RECTIFIED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROTECTION OF PERSONS AND PROPERTY, PROVIDING SAFE WORKING CONDITIONS THROUGHOUT THE WORK PROGRESS, PROVIDING TEMPORARY COVERINGS FOR OPENINGS THROUGH WALLS OR FLOORS, AND PROVIDING TEMPORARY BARRIERS, PARTITIONS AND/OR DUST BARRIERS WHERE REQUIRED TO MAINTAIN OSHA AND THE OWNER'S SAFETY STANDARDS AND TO PREVENT DAMAGE TO PROPERTY. ALL AREAS ADJACENT TO THE CONSTRUCTION AREA OR AFFECTED BY THE CONSTRUCTION MUST BE PROTECTED FROM DAMAGE, CLEANED, AND RESTORED TO THE ORIGINAL CONDITION AT NO ADDITIONAL EXPENSE TO THE OWNER. THE CONTRACTOR SHALL PROVIDE PROTECTIVE CLOTHING AND EYEWEAR FOR ALL PERSONNEL WHO ARE REQUIRED TO HANDLE HAZARDOUS CHEMICAL PRODUCTS OR WORK IN HAZARDOUS LOCATIONS.
8. DO NOT DISTURB ASBESTOS CONTAINING MATERIALS (ACM) IF ACM ARE ENCOUNTERED OR SUSPECTED DURING THE COURSE OF WORK, THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE OWNER AND ACCOMMODATE FURTHER NECESSARY ABATEMENT BY THE OWNER. ASBESTOS ABATEMENT SHALL OCCUR PRIOR TO CONTRACTOR COMMENCING OR CONTINUING DEMOLITION OR CONSTRUCTION OPERATIONS.
9. CONTRACTOR SHALL DIRECT ALL QUESTIONS TO THE OWNER. THE CONTRACTOR SHALL VERIFY ALL WORKING CONDITIONS SUCH AS STARTING TIME, NOISE AND VIBRATION LIMITATIONS, CONFINED SPACE, ETC. THROUGH THE OWNER AND APPROVAL SHALL BE RECEIVED TO START WORK.
10. THE CONTRACTOR SHALL VISIT THE JOBSITE AND VERIFY THE SCOPE OF WORK REQUIRED INCLUDING ALL EXISTING CONDITIONS, LOCATIONS, DIMENSIONS, AND QUANTITIES AS SHOWN AND NOTED ON THE DRAWINGS AND THE EXTENT AND EFFECT OF EXISTING SYSTEMS. NOTIFY THE OWNER IF ANY OF THE WORK CANNOT BE SAFELY ACCESSED.
11. THE CONTRACTOR SHALL ENSURE FULL COORDINATION WITH OTHER TRADES AND CONTRACTORS TO ACCOMPLISH THE WORK AS SHOWN AND NOTED IN THESE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL COMPARE THE DRAWINGS OF OTHER TRADES AND REPORT ANY DISCREPANCIES TO THE OWNER.
12. NOT ALL EXISTING UTILITIES ARE SHOWN FOR CLARITY OF THE DRAWING. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND SHALL PERFORM FIELD MEASUREMENTS PRIOR TO FABRICATION AND/OR PURCHASE OF ANY MATERIAL. CONTACT THE OWNER SHOULD EXISTING CONDITIONS BE DIFFERENT FROM THE DESIGN DRAWINGS. CONFLICTS ARISING DUE TO LACK OF COORDINATION SHALL BE THE RESPONSIBILITY AND AT THE EXPENSE OF THE CONTRACTOR.
13. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, LICENSES, CLEARANCES AND CERTIFICATES FROM THE OWNER AND LOCAL AUTHORITIES HAVING JURISDICTION AS REQUIRED PRIOR TO THE COMMENCEMENT OF THE WORK.
14. THE CONTRACTOR SHALL TRAIN HIS/HER EMPLOYEES AND SUBCONTRACTORS AS REQUIRED BY THE OWNER, IN THE RECOGNITION AND AVOIDANCE OF UNSAFE CONDITIONS, AND IN THE REGULATIONS AND HAZARDS WHICH APPLY TO THE AREA IN WHICH THE WORK WILL TAKE PLACE.
15. ANY REQUIRED CHANGES TO THE DRAWINGS RESULTING FROM THE ACCEPTANCE OF ALTERNATIVES AND/OR SUBSTITUTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.
16. SUBMITTALS:
    - A. ALL SUBMITTALS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO SUBMITTING TO THE ENGINEER. ALL SUBMITTALS NOT REVIEWED BY THE CONTRACTOR WILL BE RETURNED WITHOUT REVIEW. AFTER REVIEW HAS BEEN COMPLETED, SUBMIT A COPY OF EACH SUBMITTAL TO THE OWNER WITH THE APPROVAL SEAL OF THE ENGINEER AND THE CONTRACTOR. SUBMITTALS SHALL BE APPROVED PRIOR TO STARTING ANY WORK.
    - B. SUBMIT MATERIAL SAFETY DATA SHEETS AND MANUFACTURER'S CURRENT RECOMMENDED METHOD OF INSTALLATION TO THE OWNER FOR ALL MATERIALS USED TO PERFORM THE WORK INDICATED BY THESE DOCUMENTS. ALL CHEMICALS OR CHEMICAL COMPOUNDS PROPOSED FOR USE ON THE PROPERTY INCLUDING, BUT NOT LIMITED TO PAINT THINNERS, SOLVENTS, ADHESIVES, SEALANTS, CLEANING COMPOUNDS, EPOXIES, ETC. MUST BE APPROVED BY THE OWNER.
    - C. PROVIDE PRODUCT DATA SUBMITTALS ON ALL MAJOR EQUIPMENT, COMPONENTS, AND MATERIALS SPECIFIED IN THESE PLANS FOR ENGINEER'S AND OWNER'S REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION. SUBMIT CATALOG DATA SHOWING MANUFACTURER'S NAME AND CONTACT INFORMATION, ALL STANDARD FEATURES, AMPERAGE, VOLTAGE, A/C RATINGS, DIMENSIONS, WEIGHTS, LISTINGS & PRODUCT LABELS, MATERIAL TYPES, FINISHES AND CLEARLY INDICATING WHICH OPTIONAL FEATURES WILL BE PROVIDED. EACH SUBMITTAL SHALL INCLUDE A COPY OF THE RELEVANT EQUIPMENT OR MATERIALS SCHEDULE ON THE PLANS ***AND SPECIFICATION SECTION*** WITH EACH LINE ITEM MARKED COMPLIES OR DOES NOT COMPLY WITH THE REQUIREMENTS.
    - C1. WHERE MULTIPLE SIZES ARE LISTED, INDICATE SIZES TO BE USED.
    - C2. WHERE MULTIPLE PRODUCTS ARE SHOWN ON THE SAME PAGE, INDICATE WHICH PRODUCTS TO BE USED.
    - C3. INCLUDE ALL RELEVANT ELECTRICAL DIAGRAMS INCLUDING SCHEMATIC AND INTERCONNECTION DIAGRAMS FOR POWER, SIGNAL, AND CONTROL WIRING.
    - D. PROVIDE SHOP DRAWINGS SHOWING ALL DUCTWORK, PIPING AND CONDUIT 2" AND ABOVE, AND ALL MAJOR EQUIPMENT AND HOUSEKEEPING PADS. THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR OR MATERIAL SUPPLIER, IN LIEU OF THE PREPARATION OF SHOP DRAWINGS IS FORBIDDEN. SHOP DRAWINGS RECEIVED BEARING THE ENGINEER'S TITLE AND SEAL SHALL BE PROMPTLY REJECTED. DO NOT PURCHASE MATERIALS OR BEGIN WORK UNTIL SHOP DRAWINGS ARE SUBMITTED, REVIEWED, AND CORRECTED (IF NECESSARY).
    - E. ALL SUBMITTALS SHALL BE PROVIDED IN PDF FORMAT.
17. SHOULD ANY ERRORS, OMISSIONS, CONFLICTS, OR AMBIGUITIES EXIST IN THE DRAWINGS, THE CONTRACTOR SHALL BRING THESE TO THE ATTENTION OF THE OWNER IMMEDIATELY FOR ADJUSTMENT IN WRITING BEFORE SIGNING THE CONTRACT OR PROCEEDING WITH THE WORK. OTHERWISE, HE/SHE SHALL AT HIS/HER OWN EXPENSE, SUPPLY THE PROPER MATERIALS AND LABOR TO MAKE GOOD ANY DAMAGE OR DEFECT CAUSED BY SUCH UNINTENTIONAL ERROR.

MEP GENERAL CONDITIONS (CONT.):

18. CONTRACTOR SHALL CHECK ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY, AND CONFIRM THAT THE WORK IS BUILDABLE AS SHOWN AND MEETS ALL APPLICABLE CODES BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE OWNER BEFORE PROCEEDING WITH THE WORK IN QUESTION OR RELATED WORK.
19. THE CONTRACTOR SHALL NOT FABRICATE OR INSTALL ITEMS AS SHOWN ON THE DRAWINGS IF THERE ARE DISCREPANCIES OR CONFLICTS BETWEEN THE EXISTING CONDITIONS AND THE INFORMATION SHOWN ON THE DRAWINGS UNTIL SUCH DISCREPANCIES HAVE BEEN RESOLVED. PRIOR TO FABRICATION OR INSTALLATION, THE CONTRACTOR SHALL IMMEDIATELY CALL SUCH DISCREPANCIES OR CONFLICTS TO THE ATTENTION OF THE OWNER AND THE ENGINEER.
20. ALL WORK NOTED "NIC" OR "NOT IN CONTRACT" IS TO BE ACCOMPLISHED BY ANOTHER CONTRACTOR AND IS NOT TO BE PART OF THE CONSTRUCTION AGREEMENT.
21. IN CASES OF A DIFFERENCE BETWEEN THE MINIMUM REQUIREMENTS OF THE VARIOUS LAWS, CODES, AUTHORITIES, AND THE DOCUMENTS; THE WORK SHALL MEET THE GREATER OR MORE STRINGENT REQUIREMENTS.
22. THE SEQUENCE OF CONSTRUCTION AND ANY SERVICE OUTAGES SHALL BE SCHEDULED AND COORDINATED WITH THE OWNER.
23. WORK AREAS SHALL BE KEPT CONTINUOUSLY, AT ALL TIMES, FREE OF DEBRIS AND NON-HAZARDOUS MATERIAL TO THE SATISFACTION OF THE OWNER. ALL EXISTING PIPING AND CONDUITS SHALL HAVE TEMPORARY PROTECTION DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE STORAGE OF MATERIALS, PARKING OF VEHICLES, AND RESTRICTIONS OF WORK WITH THE OWNER. AFTER PROJECT COMPLETION, THE SITE SHALL BE CLEANED UP AND RESTORED TO ITS ORIGINAL CONDITION OR BETTER PRIOR TO THE START OF THE PROJECT TO THE SATISFACTION OF THE OWNER.
24. THE DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT GIVE FULLY DIMENSIONED LOCATIONS OF VARIOUS ELEMENTS OF WORK OR INDICATE ALL OFFSETS THAT MAY BE REQUIRED. DETERMINE EXACT LOCATIONS FROM FIELD MEASUREMENTS. MAKING ADJUSTMENTS TO FIELD CONDITIONS IS CONSIDERED A PART OF THE WORK REQUIRED.
25. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
26. CONTRACT CLOSEOUT: INCLUDE THE FOLLOWING:
    - A. RECORD DRAWINGS
    - A.1. THE CONTRACTOR SHALL MAINTAIN TWO SETS OF CONSTRUCTION DRAWINGS ON SITE AT ALL TIMES SO THAT ALL CHANGES BETWEEN THE DRAWINGS AND THE ACTUAL CONSTRUCTION CAN BE NOTED ON THE DRAWINGS. THIS INCLUDES ALL DEVIATIONS FROM THE ORIGINAL CONTRACT. THE CONTRACTOR SHALL INDICATE ALL CHANGES FROM THE ORIGINAL PLANS MADE DURING THE INSTALLATION OF THE WORK IN RED INK ON TWO SETS OF PRINTS. AT THE END OF CONSTRUCTION, THE CONTRACTOR SHALL SIGN AND DATE THE DRAWINGS CERTIFYING THAT THEY ARE AN ACCURATE REFLECTION OF THE ACTUAL CONSTRUCTION.
    - A.2. DELIVER RECORD DRAWINGS REFLECTING THE FINAL AS-BUILT CONDITION TO THE OWNER IN AUTOCAD OR REVIT FORMAT AFTER PROJECT COMPLETION. NOTE THAT THE FINAL INVOICE FOR THE CONTRACT WILL NOT BE PAID BY THE OWNER UNTIL RECORD DRAWINGS ARE RECEIVED. ***RECORD DRAWINGS WILL BE NOT BE PAID BY THE OWNER UNTIL AS-BUILT MARKUPS ARE RECEIVED.***
    - B. OPERATIONS AND MAINTENANCE DATA: SUBMIT O&M DATA IN PDF FORMAT WITH COVER PAGE AND INDEX. INCLUDE THE FOLLOWING FOR EACH PIECE OF
    - C. TEST & BALANCE REPORTS IN PDF FORMAT.
27. ALL STRUCTURAL ENGINEERING AS IT PERTAINS TO ATTACHING MEP ELEMENTS INCLUDING BUT NOT LIMITED TO EQUIPMENT, PIPE, DUCTWORK AND/OR CONDUIT TO THE BUILDING STRUCTURE AND ROOF SHALL BE PROVIDED BY THE CONTRACTOR'S STRUCTURAL ENGINEER UNLESS NOTED OTHERWISE. DESIGN SHALL INCLUDE SUPPORTS AND WIND-LOADING ***AND SEISMIC*** RESTRAINTS FOR ALL MEP ELEMENTS INSTALLED ON THE ROOF. DESIGN SHALL ALSO INCLUDE DESIGN OF SEISMIC RESTRAINTS FOR ALL HANGERS AND SUPPORTS OF MEP ELEMENTS. CONTRACTOR SHALL SUBMIT DESIGN REACTION FORCES TO THE PROJECT STRUCTURAL ENGINEER FOR REVIEW.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING WORK AS REQUIRED TO INSTALL THE SYSTEMS AS SHOWN ON THE DRAWINGS. ANY CUTTING THRU STRUCTURAL MEMBERS OR FLOORS SHALL FIRST BE APPROVED BY THE OWNER AND STRUCTURAL ENGINEER. ALL PATCHING AT WALLS SHALL BE THE SAME MATERIAL AS THE WALL AND TOUCHED UP WITH PAINT. ALL NEW WALL AND FLOOR PENETRATIONS SHALL BE MADE AT 90 DEGREE ANGLES. THERE SHALL BE NO DRILLING INTO THE FLOOR FROM ABOVE OR BELOW WITHOUT FIRST CONTACTING THE OWNER, AND STRUCTURAL ENGINEER.
29. PRIOR TO ANY CUTTING OR TRENCHING, VERIFY WITH OWNER, UTILITY COMPANIES, AND LANDLORD THAT ALL AVAILABLE INFORMATION IS KNOWN REGARDING UNDERGROUND OBSTRUCTIONS. TAKE CAUTION WHEN TRENCHING NOT TO DISTURB ANY EXISTING UTILITIES. NOTIFY OWNERS REPRESENTATIVE IMMEDIATELY UPON UNCOVERING UNKNOWN UTILITIES FOR FURTHER DIRECTION. ***REFER TO CIVIL-SITE DRAWINGS FOR BURIED PIPE TRENCHING AND BACKFILL SPECIFICATIONS AND DETAILS.***
30. CONTRACTOR TO PROVIDE START-UP ***AND COMMISSIONING SUPPORT SERVICES*** FOR ALL NEW SYSTEMS AND EQUIPMENT, AS WELL AS TRAINING SERVICES FOR THE OWNER'S MAINTENANCE PERSONNEL IN THE USE OF THESE SYSTEMS AND EQUIPMENT. CONTRACTOR SHALL ALSO ASSIST TEST & BALANCE CONTRACTOR ***AND THE COMMISSIONING AGENT*** AS REQUIRED.
31. CONTRACTOR TO COORDINATE FINAL INSPECTION OF THE WORK WITH THE OWNER AND ENGINEER, AND DEMONSTRATE PROPER FUNCTIONALITY OF ALL NEW SYSTEMS.
32. CONTRACTOR TO COORDINATE ALL SYSTEM OUTAGES WITH THE OWNER; PROVIDE MINIMUM TWO WEEKS NOTICE.

MEP GENERAL NOTES:

1. ALL NEW OPENINGS THROUGH FLOORS, ROOF, STRUCTURAL WALLS, AND STRUCTURAL MEMBERS (WHERE APPROVED BY THE OWNER) AND INSTALLATION OF ROOF-MOUNTED EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECT AND DESIGNED BY THE STRUCTURAL ENGINEER. PENETRATIONS THROUGH SHEAR WALLS ARE PROHIBITED.
2. DUCT, PIPE AND CONDUIT ROOF PENETRATIONS:
    - 2.A. ALL DUCT, PIPE, AND CONDUIT ROOF PENETRATIONS SHALL BE THROUGH AN INSULATED, FACTORY-MANUFACTURED FULLY-WELDED GALVANIZED STEEL ROOF CURBS. CURBS MUST EXTEND 14" ABOVE THE FINISHED SURFACE OF THE ROOF AND SHALL BE SLOPED TO MATCH ROOF, SHALL MATCH ROOF MANUFACTURER'S REQUIREMENTS, AND SHALL BE INSTALLED TO MAINTAIN ROOF WARRANTY. ATTACH CURB TO ROOF PER STRUCTURAL ENGINEER'S DESIGN. IF DESIGN IS NOT INCLUDED IN PROJECT STRUCTURAL ENGINEER'S SCOPE, THE DESIGN SHALL BE PERFORMED BY THE CONTRACTOR'S LICENSED STRUCTURAL ENGINEER.
    - 2.B. ENTIRE ASSEMBLY SHALL BE DESIGNED TO WITHSTAND ALL IBC AND ASCE-7 WINDLOADING REQUIREMENTS FOR BUILDINGS LESS THAN 60' HIGH (revise if >60' high) . THIS SPECIFICALLY APPLIES TO THE ATTACHMENT TO THE ROOF AND THE REQUIRED RESTRAINTS NECESSARY TO COMPLY WITH IBC AND ASCE-7, AS WELL AS ASSOCIATED DUCTWORK, PIPING, AND EQUIPMENT PLATFORMS ABOVE THE ROOF.
    - 2.C. CONTRACTOR SHALL PROVIDE STAINLESS STEEL FLASHING TO SEAL BETWEEN THE DUCT / PIPE AND THE ROOF CURB
    - 2.D. FLUES AND VENT STACKS SHALL MAINTAIN CLEARANCE FROM COMBUSTIBLE CONSTRUCTION AND INSULATED ASSEMBLIES IN ACCORDANCE WITH THE VENT MANUFACTURER'S INSTRUCTIONS. TOP WITH BIRD-PROOF FLUE CAP.
    - 2.E. THE WEIGHT OF ALL DUCTS PENETRATING THE ROOF SHALL BE SUPPORTED FROM BELOW-ROOF STRUCTURE, NOT AT THE ROOF CURB.
    - 2.F. COORDINATE LOCATIONS OF EXISTING AND NEW ROOF PENETRATIONS TO MINIMIZE NUMBER OF OPENINGS. ELECTRICAL AND REFRIGERANT LINES ARE TO USE THE SAME PENETRATIONS WHERE POSSIBLE.
    - 2.G. COORDINATE ALL ROOF WORK WITH OWNERS ROOFING CONTRACTOR TO MAINTAIN THE WARRANTY.
3. PIPE AND CONDUITS PENETRATING FIRE-RATED FLOORS AND WALLS:
    - 3.A. A UL-RATED FIRESTOP SYSTEM SHALL BE INSTALLED AT ALL PIPE PENETRATIONS THROUGH SMOKE AND/OR FIRE-RATED FLOORS AND WALLS. FIRESTOP SYSTEM SHALL BE SUITABLE FOR THE FLOOR AND WALL TYPE, MATERIALS OF CONSTRUCTION, AND PIPE MATERIALS; RATINGS SHALL MATCH FIRE BARRIER RATINGS. ONLY PRODUCTS BY A SINGLE MANUFACTURER SHALL BE USED ON THIS PROJECT; APPROVED MANUFACTURERS ARE STI, 3M AND HILTI. INSTALLERS SHALL BE CERTIFIED BY THE FIRESTOP SYSTEM MANUFACTURER. CONTRACTOR SHALL PROVIDE INVENTORY OF ALL PENETRATIONS.
    - 3.B. PIPE WEIGHT SHALL BE SUPPORTED AT THE FLOOR OR FROM HANGERS TO EITHER SIDE OF THE WALL OR FLOOR; PIPE WEIGHT SHALL NOT BE SUPPORTED BY THE WALL.
    - 3.C. INSULATION AND VAPOR BARRIER SHALL BE CONTINUOUS THROUGH THE PENETRATION.
    - 3.D. FLOOR PENETRATIONS SHALL BE SEALED WATER TIGHT AT THE TOP OF THE FLOOR.
4. PIPE AND CONDUITS PENETRATING NON-FIRE RATED FLOORS AND WALLS INCLUDING SLAB ON GRADE:
    - 4.A. WEIGHT SHALL BE SUPPORTED AT THE FLOOR OR FROM HANGERS ABOVE OR BELOW THE FLOOR. PIPE WEIGHT SHALL NOT BE SUPPORTED BY THE WALL.
    - 4.B. INSULATION AND VAPOR BARRIER SHALL BE CONTINUOUS THROUGH THE FLOOR.
    - 4.C. FLOOR PENETRATIONS SHALL BE SLEEVED WITH MINIMUM 16 GA. GALVANIZED STEEL EXTENDING 2" ABOVE THE SLAB AND SEALED WATER TIGHT.
    - 4.D. WHERE FLOOR OR WALL PENETRATIONS ARE EXPOSED IN OCCUPIED SPACES, ESCUTCHEON PLATES SHALL BE INSTALLED TO COVER THE OPENING.
    - 4.E. PENETRATIONS THROUGH EXTERIOR WALLS TO BE SEALED WATERTIGHT.
5. NO ASBESTOS CONTAINING MATERIALS SHALL BE USED IN ANY OF THE NEW CONSTRUCTION.
6. ALL INSULATING MATERIALS AND ALL MATERIALS USED IN PLENUMS SHALL BE PLENUM RATED AND SHALL CONFORM TO ASTM E 84, HAVING A MAXIMUM FLAME SPREAD OF <25 AND A MAXIMUM SMOKE DEVELOPED RATING OF <50.
7. EQUIPMENT SCHEDULED ON THE DRAWINGS IS BASED UPON EQUIPMENT OF MANUFACTURER NOTED. EQUIPMENT FROM ANOTHER MANUFACTURER MAY BE USED PROVIDED THAT THE CONTRACTOR SUBMIT PROOF THAT THE EQUIPMENT TO BE USED IS EQUAL TO OR BETTER THAN THAT SCHEDULED ON THE DRAWINGS AND IS APPROVED BY THE OWNER AND ENGINEER. PRICE SPECIFIED ITEM AS WELL AS PROPOSED SUBSTITUTION.
8. INVERTER READY MOTORS SHALL BE PROVIDED WITH AEGIS SHAFT GROUNDING RING, COOLBLUE INDUCTIVE ASSORBERS, OR CERAMIC BEARINGS AND CLASS F 105° C RISE INSULATION. REFERENCE NEMA MG1 PART 31.
9. PROVIDE TEFC MOTORS FOR ALL WET LOCATIONS AND ALL OUTDOOR LOCATIONS.
10. LOCATION OF NEW EQUIPMENT IS APPROXIMATE WHERE SHOWN. IF THERE IS A CONFLICT WITH AN EQUIPMENT LOCATION SHOWN ON THE PLANS, DO NOT PROCEED UNTIL THE ENGINEER APPROVES A NEW LOCATION.
11. INSTALL ALL NEW EQUIPMENT WITH MANUFACTURER-RECOMMENDED CLEARANCES ON ALL SIDES FOR SERVICE AND MAINTENANCE AS WELL AS REMOVAL OF INDIVIDUAL COMPONENTS WITHOUT REMOVING THE ENTIRE UNIT. PROVIDE NEC-REQUIRED CLEARANCE IN FRONT OF LINE VOLTAGE CONTROL PANELS; MINIMUM 3'.
12. DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON EACH PLAN IS RUN ABOVE THE CEILING ON THE FLOOR WHERE IT IS SHOWN UNLESS OTHERWISE NOTED.
13. DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON DRAWINGS SHALL BE COORDINATED WITH AIR DISTRIBUTION DEVICES, SPECIAL CEILING, FLOOR, AND STRUCTURE CONSTRUCTION, ETC. PROVIDE ADDITIONAL RISES AND DROPS TO THOSE INDICATED ON THE DRAWINGS AS REQUIRED TO COORDINATE WITH ARCHITECTURAL, STRUCTURAL OR MEP ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS. ALL UTILITIES SHALL BE ROUTED IN AN ORDERLY MANNER, GROUPED TOGETHER WHEREVER POSSIBLE, AND LOCATED SO AS TO CONSERVE BUILDING SPACE.
14. COORDINATION OF ALL TRADES IN CEILING SPACES TO ALLOW AN 8-INCH CLEAR PLANE FOR LOCATION OF LIGHTS IS OF UTMOST IMPORTANCE TO MAXIMIZE FUTURE FLEXIBILITY. REALIZING THAT THIS IS NOT POSSIBLE IN ALL CASES, DUE TO CEILING ELEVATION AND STRUCTURAL LIMITATIONS, MAXIMUM EFFORT SHALL BE GIVEN TO MAINTAINING THE 8-INCH LIGHTING PLANE UNLESS NOTED OTHERWISE.
15. MAINTAIN MINIMUM VERTICAL CLEARANCE OF 7'-6" FROM THE FLOOR TO THE BOTTOM OF DUCTWORK , PIPING, AND ASSOCIATED HANGERS AND SUPPORTS UNLESS NOTED OTHERWISE ON THE PLANS.
16. POWDER ACTUATED FASTENERS ARE NOT ALLOWED.
17. PROVIDE AND INSTALL MINIMUM 2 1/2" LONG X 3/4" WIDE ENGRAVED PHENOLIC PLASTIC EQUIPMENT TAGS, BLACK LETTERS ON WHITE BACKGROUND, FOR ALL EQUIPMENT TO MATCH TAGS INDICATED ON PLANS. IF EXISTING TAGS ARE PRESENT EITHER FROM THE MANUFACTURER OR EXISTING CONDITIONS, COVER OR PAINT OVER THE OLD TAG AS REQUIRED TO ELIMINATE CONFLICTING TAG NAMES. LABEL THERMOSTATS TO MATCH UNIT DESIGNATION. INDICATE ELECTRICAL PANEL AND CIRCUIT BREAKER NUMBER IDENTIFICATION ON NAMEPLATE IN SMALLER LETTERS IN PARENTHESES.
18. U.N.O, PROVIDE CONCRETE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED MEP EQUIPMENT, INCLUDING EQUIPMENT MOUNTED ON VIBRATION ISOLATORS, BASE RAILS AND CONCRETE INERTIA BASES. CONTRACTOR TO COORDINATE LOCATIONS AND SIZES. REFER TO DETAIL ON THIS SHEET.
19. THE CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, MECHANICAL, AND OTHER DRAWINGS RELATED TO THIS PROJECT FOR ADDITIONAL WORK TO BE PROVIDED.

DEMOLITION NOTES:

EACH CONTRACTOR SHALL VERIFY DEMOLITION SCOPE OF WORK WITH THE GENERAL CONTRACTOR AND OWNER PRIOR TO REMOVAL OF ANY EXISTING MEP ELEMENTS SHOWN ON THE PLANS TO BE REMOVED. ROOF, WALLS, AND FLOORS AFFECTED BY DEMOLITION ARE TO BE PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE. PIPES, DUCTS, OR CONDUIT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL. CONFIRM THE EXTENT OF DEMOLITION WITH THE GENERAL CONTRACTOR PRIOR TO BID AND INCLUDE IN BID PROPOSAL AS DIRECTED.OWNER WILL DECONTAMINATE ALL EQUIPMENT, DUCTWORK, PIPING AND ASSOCIATED COMPONENTS, WHERE REQUIRED, PRIOR TO CONTRACTOR CUTTING AND REMOVING THESE MATERIALS.

MEP RESPONSIBILITY MATRIX

	FURNISH	INSTALL	POWER	CONTROL
			120V & UP	24V
HANGERS & SUPPORTS, INCLUDING DESIGN	ALL	ALL		
DUCT SMOKE DETECTORS	MC	MC	EC	CC/FA
STARTERS, DISCONNECTS - FWE	FWE	FWE	EC	CC
STARTERS, DISCONNECTS - NOT FWE	EC	EC	EC	CC
DAMPERS - FWE - PACKAGED EQUIPMENT	FWE	FWE		FWE
DAMPERS - FWE - AHU'S	FWE	FWE		CC
DAMPERS - SEPARATE FROM EQUIPMENT	CC	MC		CC

NOTES:
1. FOLLOW THE RESPONSIBILITIES SHOWN ABOVE UNLESS NOTED OTHERWISE ON THE PLANS.
2. ABBREVIATIONS:
    - FWE: FURNISHED WITH EQUIPMENT
    - ALL: ALL CONTRACTORS, BY DISCIPLINE
    - FA: FIRE ALARM CONTRACTOR
    - MC: MECHANICAL CONTRACTOR
    - EC: ELECTRICAL CONTRACTOR
    - CC: CONTROLS CONTRACTOR

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MEP GENERAL NOTES

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23 00 00 - GENERAL MECHANICAL REQUIREMENTS

1. GENERAL

1.1. SUMMARY

SECTION INCLUDES:

GENERAL REQUIREMENTS.
DEFINITIONS.
CONTRACTOR QUALIFICATIONS.
SAFETY.
QUALITY CONTROL.
SUBMITTALS.
SUBSTITUTIONS.
SUSTAINABLE DESIGN.
DELIVERY, STORAGE, AND HANDLING.
SEQUENCING AND SCHEDULING.
UTILITY CONNECTIONS AND PERMITS.
COMPLETION OF WORK.
GUARANTEE AND WARRANTIES.
MAINTENANCE AND SERVICE.
PROJECT RECORD DOCUMENTS.
MAINTENANCE DOCUMENTS AND INSTRUCTIONS.
DIELECTRIC FITTINGS.
ASBESTOS.
DEMOLITION.
ROUGH-IN.
MECHANICAL INSTALLATIONS.
CUTTING AND PATCHING.
EARTHWORK.

1.2. GENERAL REQUIREMENTS

1.2.1. IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE AN INSTALLATION COMPLETE IN EVERY RESPECT. WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL INCLUDE ALL LABOR, MATERIALS, AND SUPERVISION ESSENTIAL TO PROVIDE COMPLETE FUNCTIONING SYSTEMS AS DESCRIBED IN THE CONTRACT DOCUMENTS.

1.2.2. CONFLICT RESOLUTION: WHERE CONFLICTS MAY EXIST BETWEEN THE MINIMUM REQUIREMENTS OF VARIOUS LAWS, CODES, AUTHORITIES, AND/OR WITHIN THE CONTRACT DOCUMENTS, THE HIGHER QUALITY, GREATER QUANTITY, MORE RESTRICTIVE AND/OR MORE EXPENSIVE REQUIREMENT SHALL BE THE BASIS OF CONTRACTOR PRICING AND THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR THE RESOLUTION OF THE ISSUE PRIOR TO EXECUTING THE WORK IN QUESTION.

1.2.3. SHOULD ANY ERRORS, OMISSIONS, CONFLICTS, OR AMBIGUITIES EXIST IN THE DRAWINGS, THE CONTRACTOR SHALL BRING THESE TO THE ATTENTION OF THE ENGINEER/OWNER IMMEDIATELY FOR ADJUSTMENT IN WRITING BEFORE SIGNING THE CONTRACT OR PROCEEDING WITH THE WORK. OTHERWISE, HE SHALL AT HIS OWN EXPENSE, SUPPLY THE PROPER MATERIALS AND LABOR TO MAKE GOOD ANY DAMAGE OR DEFECT CAUSED BY SUCH UNINTENTIONAL ERROR.

1.2.4. CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY, AND CONFIRMING THAT THE WORK IS BUILDABLE AS SHOWN AND MEETS ALL APPLICABLE CODES BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER/OWNER BEFORE PROCEEDING WITH THE WORK IN QUESTION OR RELATED WORK.

1.2.5. FIELD CONDITIONS: THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE JOBSITE AND VERIFYING THE SCOPE OF WORK REQUIRED INCLUDING ALL EXISTING CONDITIONS, LOCATIONS, DIMENSIONS, AND QUANTITIES AS SHOWN AND NOTED ON THE DRAWINGS AND THE EXTENT AND EFFECT OF EXISTING SYSTEMS.

1.2.6. DEVIATIONS TO THE INTENDED DESIGN OR THE SCOPE OF THE WORK MUST BE APPROVED BY THE PROJECT ENGINEER PRIOR TO COMMENCING WORK. FAILURE TO DO SO MAY RESULT IN THE WORK TO BE REMOVED AT NO COST TO THE OWNER.

1.2.7. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL CODES, STANDARDS, AND AMENDMENTS AND/OR OTHER AUTHORITIES THAT MAY HAVE JURISDICTION PERTAINING TO THE WORK. IN ADDITION, ALL WORK SHALL CONFORM TO THE STANDARDS AND PRACTICES OF THE OWNER.

1.2.8. COORDINATION:

1.2.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING FULL COORDINATION WITH OTHER TRADES AND CONTRACTORS TO ACCOMPLISH THE WORK AS SHOWN AND NOTED IN THESE CONTRACT DOCUMENTS.

1.2.10. THE CONTRACTOR SHALL NOT PURCHASE, FABRICATE OR INSTALL ITEMS AS SHOWN ON THE DRAWINGS IF THERE ARE DISCREPANCIES OR CONFLICTS BETWEEN THE EXISTING CONDITIONS AND THE INFORMATION SHOWN ON THE DRAWINGS UNTIL SUCH DISCREPANCIES HAVE BEEN RESOLVED.

1.2.11. DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON DRAWINGS SHALL BE COORDINATED WITH AIR DISTRIBUTION DEVICES, SPECIAL CEILING, FLOOR, AND STRUCTURE CONSTRUCTION, ETC. PROVIDE ADDITIONAL RISES AND DROPS TO THOSE INDICATED ON THE DRAWINGS AS REQUIRED TO COORDINATE WITH ARCHITECTURAL, STRUCTURAL, OR MEP ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS. ALL UTILITIES SHALL BE ROUTED IN AN ORDERLY MANNER, GROUPED TOGETHER WHEREVER POSSIBLE, AND LOCATED SO AS TO CONSERVE BUILDING SPACE. DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON EACH PLAN IS RUN ABOVE THE CEILING ON THE FLOOR WHERE IT IS SHOWN UNLESS OTHERWISE NOTED.

1.2.12. COORDINATE LOCATIONS OF NEW AND EXISTING ROOF PENETRATIONS TO MINIMIZE NUMBER OF OPENINGS. ROOF PENETRATIONS SHALL BE MADE WITHIN ROOF CURB. ELECTRIC AND REFRIGERANT LINES TO USE SAME PENETRATIONS WHERE POSSIBLE.

1.2.13. RECORD DRAWINGS: THE CONTRACTOR SHALL MAINTAIN THEIR SET OF CONSTRUCTION DRAWINGS ON SITE AT ALL TIMES SO THAT ALL CHANGES BETWEEN THE DRAWINGS AND THE ACTUAL CONSTRUCTION CAN BE NOTED ON THE DRAWINGS. THIS INCLUDES ALL DEVIATIONS FROM THE ORIGINAL CONTRACT. AT THE END OF CONSTRUCTION, THE CONTRACTOR SHALL SIGN AND DATE THE DRAWINGS CERTIFYING THAT THEY ARE AN ACCURATE REFLECTION OF THE ACTUAL CONSTRUCTION. RECORD DRAWINGS ARE TO BE DELIVERED TO THE OWNER. NOTE THAT THE FINAL INVOICE FOR THE CONTRACT WILL NOT BE PAID BY THE OWNER UNTIL FINAL RECORD DRAWINGS ARE RECEIVED.

1.2.14. ALL WORK NOTED "N/C" OR "N/C" IN CONTRACT" IS TO BE ACCOMPLISHED BY ANOTHER CONTRACTOR AND IS NOT TO BE PART OF THE CONSTRUCTION AGREEMENT.

1.3. CONTRACTOR QUALIFICATIONS

1.3.1. GENERAL: THE FIRM THAT PERFORM THE INSTALLATION OF THE WORK UNDER THIS DIVISION OF SPECIFICATIONS SHALL BE THE FIRM THAT MAINTAINS AN ESTABLISHED, EXPERIENCED ORGANIZATION WITH A PERMANENT, MANNED OFFICE WITHIN A RADIUS OF 150 MILES OF THE PROJECT LOCATION.

1.3.2. CONTRACTOR'S PROFICIENCY: THE FIRM'S PROFICIENCY IN THE INSTALLATION, START_UP, ADJUSTMENT AND MAINTENANCE OF SPECIFIED SYSTEMS SHALL HAVE BEEN DEMONSTRATED BY THE SUCCESSFUL PERFORMANCE OF WORK ON AT LEAST THREE SYSTEMS AS SPECIFIED HEREIN IN THE LAST THREE YEARS.

1.3.3. SAFETY

1.3.4. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY STANDARDS INCLUDING, BUT NOT LIMITED TO OSHA STANDARDS AND OWNER'S REQUIREMENTS.

1.3.5. WORK AREAS SHALL BE KEPT CONTINUOUSLY, AT ALL TIMES, FREE OF DEBRIS, HAZARDOUS, AND NON-HAZARDOUS MATERIAL TO THE SATISFACTION OF THE GENERAL CONTRACTOR/OWNER. AFTER PROJECT COMPLETION, THE SITE SHALL BE CLEANED UP AND RESTORED TO ITS CONDITION OR BETTER PRIOR TO THE START OF THE PROJECT TO THE SATISFACTION OF THE GENERAL CONTRACTOR/OWNER.

1.4. QUALITY CONTROL

1.4.1. COMPLY WITH MANUFACTURERS' INSTRUCTIONS, INCLUDING EACH STEP IN SEQUENCE.

1.4.2. SHOULD MANUFACTURERS' INSTRUCTIONS CONFLICT WITH CONTRACT DOCUMENTS, REQUEST CLARIFICATION FROM ENGINEER BEFORE PROCEEDING.

1.5. SUBMITTALS

1.5.1. CONTRACTOR SHALL PROVIDE PRODUCT DATA SUBMITTALS, IN .PDF FORMAT, ON ALL MAJOR EQUIPMENT, COMPONENTS, AND MATERIALS SPECIFIED IN THESE PLANS FOR ENGINEER'S AND OWNER'S REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION.

1.5.2. EACH SUBMITTAL SHALL INCLUDE THE PROJECT TITLE, ARCHITECT, ENGINEER, CONTRACTOR'S NAMES, SPECIFICATION SECTION NUMBER AND TITLE. SUBMITTAL NUMBER FOR TRACKING AND SHALL BE LIMITED TO A SINGLE DIVISION 23 SPECIFICATION SECTION.

1.5.3. CONTRACTOR REVIEW: THE CONTRACTOR SHALL CHECK DATA CAREFULLY TO ENSURE COMPLIANCE WITH THESE SPECIFICATIONS PRIOR TO SUBMITTING.

1.5.4. SUBMITTAL DATA FOR SECTION 23 00 00 - GENERAL MECHANICAL REQUIREMENTS:

1.5.5. SHOP DRAWINGS: THE CONTRACTING TEAM SHALL CREATE SHOP DRAWINGS NECESSARY TO INSTALL THE MECHANICAL SYSTEMS PER THE CONTRACT DOCUMENTS. SHOP DRAWINGS SHALL BE SUBMITTED TO THE AE TEAM FOR REVIEW PRIOR TO PURCHASING OR INSTALLATION OF MATERIALS. INDICATE ASSEMBLY, UNIT DIMENSIONS, WEIGHT LOADING, REQUIRED CLEARANCES, CONSTRUCTION DETAILS, FIELD CONNECTION DETAILS, AND ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.

1.5.6. SUBMITTAL DATA FOR OTHER DIVISION 23 SPECIFICATION SECTIONS SHALL INCLUDE:

1.5.7. COMPLIANCE DATA: INDICATING THE PRODUCT'S COMPLIANCE WITH STANDARDS REFERENCED IN THESE SPECIFICATIONS.

1.5.8. PUBLISHED LITERATURE: CLEARLY INDICATE MAKE, MODEL, OPTIONS, DIMENSIONS, WEIGHTS, CAPACITIES, RATINGS, HORSEPOWER, GAGES, AND FINISHES OF MATERIALS, AND ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.

1.5.9. PERFORMANCE DATA: PERFORMANCE DATA INCLUDING FAN CURVES, PUMP CURVES, AND EQUIPMENT OUTPUT CAPACITIES COMPLETE WITH RATING CONDITIONS AS SCHEDULED ON CONTRACT DRAWINGS.

1.5.10. SOUND POWER LEVEL DATA: EQUIPMENT SOUND POWER LEVEL AT 63, 125, 250, 500, 1000, 2000, 4000, AND 8000 HZ OCTAVE BAND CENTER FREQUENCIES PLUS DB A WEIGHTED SOUND LEVEL.

1.5.11. ELECTRICAL REQUIREMENTS: POWER SUPPLY WIRING INCLUDING WIRING DIAGRAMS FOR INTERLOCK AND CONTROL WIRING, CLEARLY INDICATING FACTORY-INSTALLED AND FIELD-INSTALLED WIRING.

1.5.12. MANUFACTURER'S INSTRUCTIONS: INCLUDE INSTALLATION INSTRUCTIONS.

1.5.13. CALCULATIONS: DESIGN AND/OR DESIGN CALCULATIONS WHERE REQUIRED IN OTHER DIVISION 23 SECTIONS.

1.6. SUBSTITUTIONS

1.6.1. BASIS OF DESIGN: MODEL NUMBERS INDICATED ON THE DRAWINGS ARE THE BASIS OF DESIGN. THE CONTRACTOR MAY REQUEST SUBSTITUTION OF EQUAL EQUIPMENT FROM ALTERNATE MANUFACTURERS PROVIDED SAID EQUIPMENT MEETS ALL REQUIREMENTS OF THE PLANS AND SPECIFICATIONS, HAS LIKE ELECTRICAL CHARACTERISTICS (E.G., SAME VOLTAGE, PHASE, FUSING/CIRCUIT BREAKER REQUIREMENTS, SINGLE OR MULTIPLE POINTS OF CONNECTION AS INDICATED ON THE ELECTRICAL DRAWINGS), AND WILL FIT IN THE AVAILABLE SPACES IN THE BUILDING AS SHOWN.

1.6.2. IF THE CONTRACTOR CHOOSES TO PROVIDE EQUIPMENT WHICH MEETS ALL REQUIREMENTS, BUT HAS DIFFERENT CONNECTION SIZES AND/OR LOCATIONS, DIFFERENT WEIGHT OR FOOTPRINT, OR ELECTRICAL CHARACTERISTICS, ETC., THEY SHALL BEAR ALL COSTS ASSOCIATED WITH THE INSTALLATION OF THAT SUBSTITUTION INCLUDING AE TEAM LABOR TO MODIFY THE DESIGN DOCUMENTS. ALL REQUIRED MODIFICATIONS SHALL BE COORDINATED WITH THE ENGINEER, THE GENERAL CONTRACTOR (G.C.), AND AFFECTED SUBCONTRACTORS OF OTHER TRADES.

1.6.3. SUBSTITUTIONS: **SUBSTITUTIONS OF SPECIFIED ITEMS WILL BE CONSIDERED UNTIL 10 DAYS PRIOR TO BID OPENING**.

1.7. DELIVERY, STORAGE, AND HANDLING

1.7.1. PACKING AND SHIPPING: DELIVER PRODUCTS TO THE PROJECT IN MANUFACTURER'S ORIGINAL, SHIPPING PACKAGING, PROPERLY IDENTIFIED WITH ALL INFORMATION NEEDED FOR IDENTIFICATION.

1.7.2. STORAGE AND PROTECTION: DURING CONSTRUCTION MAINTAIN ALL DELIVERED MATERIALS AND EQUIPMENT IN AN ORDERLY MANNER AND PROTECT FROM DAMAGE.

1.8. SEQUENCING AND SCHEDULING

1.8.1. CAREFULLY EXAMINE THE SITE, CIVIL, STRUCTURAL, ARCHITECTURAL, PLUMBING, HVAC, CONTROLS, FIRE PROTECTION, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS. COORDINATE ALL WORK WITH OTHER DISCIPLINES TO AVOID CONFLICTS AND DELAY OF INSTALLATION SCHEDULE.

1.9. UTILITY CONNECTIONS AND PERMITS

1.9.1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING AND PAYING FOR ALL PERMITS, LICENSES, CLEARANCES AND CERTIFICATES FROM THE OWNER AND LOCAL AUTHORITIES HAVING JURISDICTION AS REQUIRED PRIOR TO THE COMMENCEMENT OF THE WORK.

1.9.2. PRIOR TO ANY CUTTING OR TRENCHING, VERIFY WITH OWNER, UTILITY COMPANIES, AND LANDLORD THAT ALL AVAILABLE INFORMATION IS KNOWN REGARDING UNDERGROUND OBSTRUCTIONS. TAKE CAUTION WHEN TRENCHING NOT TO DISTURB ANY EXISTING UTILITIES. NOTIFY OWNERS REPRESENTATIVE IMMEDIATELY UPON UNCOVERING UNKNOWN UTILITIES FOR FURTHER DIRECTION.

1.10. COMPLETION OF WORK

1.10.1. EXECUTE FINAL CLEANING PRIOR TO FINAL INSPECTION.

1.10.2. REMOVE WASTE AND SURPLUS MATERIALS, RUBBISH, AND CONSTRUCTION FACILITIES FROM THE SITE.

1.10.3. CONTRACTOR TO PROVIDE START-UP AND COMMISSIONING SERVICES FOR ALL NEW SYSTEMS AND EQUIPMENT, AS WELL AS TRAINING SERVICES FOR THE OWNER'S MAINTENANCE PERSONNEL IN THE USE OF THESE SYSTEMS AND EQUIPMENT. ADJUST OPERATING PRODUCTS AND EQUIPMENT TO ENSURE SMOOTH AND CORRECT OPERATION.

1.10.4. AT THE COMPLETION, AN INSPECTION SHALL BE MADE AND THE ENTIRE SYSTEM SHALL BE SHOWN TO BE IN SPECIFIED WORKING CONDITION. A TEST AND BALANCE REPORT APPROVED BY THE ENGINEER AND A SET OF SPECIFICATIONS AND DRAWINGS WITH ALL FIELD MARKUPS WILL BE AVAILABLE DURING THE INSPECTION.

1.11. GUARANTEE AND WARRANTIES

1.11.1. ALL DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC) WARRANTY PERIODS BEGIN AT SUBSTANTIAL COMPLETION, OR THE DATE SPECIFIED IN THE OWNER-CONTRACTOR AGREEMENT.

1.11.2. WARRANTIES: PROVIDE MANUFACTURER'S EQUIPMENT WARRANTIES PRIOR TO FINAL INSPECTION. LENGTH OF WARRANTY PERIOD SHALL BE AS SPECIFIED IN INDIVIDUAL DIVISION 23 SPECIFICATION SECTIONS.

1.11.3. GUARANTEE: ALL EQUIPMENT AND MATERIALS FURNISHED AND ALL WORK PERFORMED UNDER THIS DIVISION OF SPECIFICATIONS SHALL BE GUARANTEED TO BE FREE OF DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE SPECIFIED IN A ABOVE. UPON NOTICE FROM THE OWNER OF FAILURE OF ANY PART OF THE GUARANTEED EQUIPMENT DURING THE GUARANTEE PERIOD, THE AFFECTED PART OR PARTS SHALL BE PROMPTLY REPLACED WITH NEW PARTS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. ALL LABOR REQUIRED TO PERFORM GUARANTEE SHALL BE INCLUDED AS PART OF THE COMPLETE GUARANTEE WARRANTY.

1.12. MAINTENANCE AND SERVICE

1.12.1. MAINTENANCE: THE CONTRACTOR SHALL MAINTAIN ALL SYSTEMS INSTALLED UNDER THIS SECTION OF SPECIFICATIONS FOR ONE YEAR FROM DATE OF OCCUPANCY CERTIFICATE.

1.13. PROJECT RECORD DOCUMENTS

1.13.1. MAINTAIN ON SITE ONE SET OF THE FOLLOWING RECORD DOCUMENTS; RECORD ACTUAL REVISIONS TO THE WORK:

1.13.2. DRAWINGS.

1.13.3. SPECIFICATIONS.

1.13.4. ADDENDA.

1.13.5. CHANGE ORDERS AND OTHER MODIFICATIONS TO THE CONTRACT.

1.13.6. REVIEWED SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

1.13.7. MANUFACTURER'S INSTRUCTION FOR ASSEMBLY, INSTALLATION, AND ADJUSTING.

1.13.8. CONTRACT CLOSE_OUT RECORD DOCUMENTS: PREPARE CONSTRUCTION RECORD DOCUMENTS, IN AUTOCAD OR REVIT FILES PROVIDED BY THE ENGINEER, TO INCLUDE ALL ADDENDA AND CHANGE ORDERS.

1.14. MAINTENANCE DOCUMENTS AND INSTRUCTIONS

1.14.1. MAINTENANCE TRAINING: AFTER PLACING SYSTEMS IN OPERATION, PROVIDE 2 MEMBERS OF OWNER'S MAINTENANCE STAFF WITH 16 HOURS OF OPERATION AND MAINTENANCE TRAINING FOR ALL SYSTEMS INCLUDED IN THIS SECTION OF SPECIFICATIONS.

1.14.2. MAINTENANCE MANUALS: ONE HARD COPY AND ONE .PDF BOUND AND INDEXED OPERATING AND MAINTENANCE MANUALS SHALL BE PREPARED BY THE CONTRACTOR AND DELIVERED TO OPERATING PERSONNEL.

2. PRODUCTS

3. EXECUTION

3.1. ASBESTOS

3.1.1. NO ASBESTOS CONTAINING MATERIALS SHALL BE USED IN ANY OF THE NEW CONSTRUCTION.

3.2. DEMOLITION

3.2.1. GENERAL: PROVIDE DEMOLITION OF EXISTING MECHANICAL WORK IN REMODELED AREAS OF THE EXISTING BUILDING AND AS DESCRIBED ON THE DRAWINGS. DISPOSE OF REMOVED EQUIPMENT AND MATERIALS IN A WAY TO MAXIMIZE RECYCLING CONTENT.

3.2.2. SALVAGE EQUIPMENT AND MATERIALS: EXISTING EQUIPMENT AND MATERIALS DESIGNATED FOR SALVAGE BACK TO THE OWNER OR REINSTALLATION SHALL BE TESTED FOR PROPER OPERATION PRIOR TO REMOVAL FROM ITS INSTALLED LOCATION.

3.2.3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE DEMOLITION OF EXISTING WORK AND THE DEMOLITION PROVIDED BY THE G.C.

3.2.4. CONTRACTOR SHALL COORDINATE WITH THE G.C. ANY EXISTING EQUIPMENT REQUIRED TO BE LEFT INTACT.

3.2.5. EACH CONTRACTOR SHALL VERIFY SCOPE OF WORK WITH THE G.C. FOR THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, ETC. AND ASSOCIATED ROOF CURBS NOT BEING REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE.

3.2.6. THE CONTRACTOR MUST VERIFY WITH THE LANDLORD ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, AND EQUIPMENT PRIOR TO REMOVAL.

3.2.7. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF NOT APPLICABLE TO THE NEW WORK MUST BE REMOVED AND ALL ROOFS, WALLS, AND FLOORS AFFECTED BY DEMOLITION SHALL BE PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE.

3.2.8. EXISTING ABANDONED PIPES, DUCTS, OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE SHALL BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY SHALL NOT BE REUSED IN THIS PROJECT. IF REQUIRED BY LANDLORD OR CODES, ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION WITH THE G.C. PRIOR TO BID AND INCLUDE IN BID PROPOSAL AS DIRECTED BY THE G.C.

3.3. MECHANICAL INSTALLATIONS

3.3.1. GENERAL: INSTALLATION SHALL BE AS SPECIFIED IN INDIVIDUAL DIVISION 23 SPECIFICATION SECTIONS AND IN ACCORDANCE WITH APPROVED MANUFACTURER'S INSTALLATION INSTRUCTIONS. CONFLICT BETWEEN MANUFACTURER'S PRINTED INSTRUCTIONS AND THESE SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

3.3.2. EQUIPMENT: ALL EQUIPMENT INSTALLED ON THIS PROJECT SHALL BE NEW AND UNUSED UNLESS NOTED OTHERWISE. LABEL EACH UNIT WITH PLAN NUMBER, NOMINAL AIRFLOW, AND MAXIMUM AND MINIMUM FACTORY-SET AIRFLOWS.

3.3.3. INSTALLATION: INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT TO CONFORM TO APPROVED SUBMITTAL DATA, INCLUDING COORDINATION DRAWINGS, TO GREATEST EXTENT POSSIBLE. CONFORM TO ARRANGEMENTS INDICATED BY THE CONTRACT DOCUMENTS, RECOGNIZING THAT PORTIONS OF THE WORK ARE SHOWN ONLY IN DIAGRAMMATIC FORM. WHERE COORDINATION REQUIREMENTS CONFLICT WITH INDIVIDUAL SYSTEM REQUIREMENTS, REFER CONFLICT TO THE ENGINEER.

3.3.3.1. WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE.

3.3.3.2. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT GIVING RIGHT_OF_WAY PRIORITY TO SYSTEMS REQUIRED TO BE INSTALLED AT A SPECIFIED SLOPE.

3.3.3.3. COORDINATE CONNECTION OF MECHANICAL SYSTEMS WITH EXTERIOR UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES. COMPLY WITH REQUIREMENTS OF GOVERNING REGULATIONS, FRANCHISED SERVICE COMPANIES, AND CONTROLLING AGENCIES. PROVIDE REQUIRED CONNECTION FOR EACH SERVICE.

3.3.3.4. INSTALL MECHANICAL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE, AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.

3.3.4. CLEANING:

3.3.4.1. UPON COMPLETION OF INSTALLATION, PIPING, DUCTS, AND EQUIPMENT SHALL BE THOROUGHLY CLEARED OF DIRT, GREASE, RUST AND OIL, PRIMED WHERE NECESSARY, AND LEFT READY FOR PAINTING. VACUUM CLEAN THE INSIDE AND OUTSIDE OF PLENUMS AND EQUIPMENT CABINETS.

3.3.5. PAINTING AND FINISHING:

3.3.5.1. CONTRACTOR SHALL CLEAN, SPOT PRIME, AND ENTIRELY REPAINT, WITH ORIGINAL COLOR ANY FACTORY FINISHED EQUIPMENT WHICH HAS RUSTED OR BEEN DAMAGED.

3.3.5.2. WHEN PAINTING OR REPAINTING EQUIPMENT, DO NOT PAINT OVER ANY MANUFACTURER'S NAMEPLATES AND/OR LABELS.

3.3.6. LUBRICATION AND PACKING:

3.3.6.1. LUBRICATE EQUIPMENT WITH CORRECT GRADE, TYPE, AND QUANTITY OF LUBRICATION BEFORE PLACING EQUIPMENT INTO SERVICE. DAMAGES CAUSED BY NOT PROVIDING PROPER LUBRICATION SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.

3.3.7. FILTERS.

3.3.7.1. NEW, CLEAN AIR FILTERS TO BE INSTALLED AFTER TESTING AND BEFORE DELIVERY TO OWNER.

END OF SECTION 23 00 00

23 33 00 - AIR DUCT ACCESSORIES

1. GENERAL

1.1. SUMMARY

SECTION INCLUDES:

BACKDRAFT AND PRESSURE RELIEF DAMPERS.
MANUAL VOLUME DAMPERS.
TURNING VANES.
FLEXIBLE CONNECTORS.
DUCT ACCESSORY HARDWARE.

1.2. ACTION SUBMITTALS

1.2.1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.

1.3. CLOSEOUT SUBMITTALS

1.3.1. OPERATION AND MAINTENANCE DATA: FOR AIR DUCT ACCESSORIES TO INCLUDE IN OPERATION AND MAINTENANCE MANUALS.

1.4. MAINTENANCE MATERIAL ATTICKSTOCK

1.4.1. FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.

1.4.2. FUSIBLE LINKS: FURNISH QUANTITY EQUAL TO 10 PERCENT OF AMOUNT INSTALLED.

2. PRODUCTS

2.1. PERFORMANCE REQUIREMENTS

2.1.1. COMPLY WITH NFPA 90A AND NFPA 90B.

2.1.2. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESSES, AND DUCT CONSTRUCTION METHODS UNLESS OTHERWISE INDICATED. SHEET METAL MATERIALS SHALL BE FREE OF PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS.

2.2. BACKDRAFT AND PRESSURE RELIEF DAMPERS - GENERAL COMMERCIAL DUTY

2.2.1. DESCRIPTION: GRAVITY BALANCED, 24 GA. GALV. FRAME, SINGLE PIECE BLADES W/SEALS, 6" THINK MAX., PARALLEL OPERATION., ADJUSTABLE TENSION RETURN SPRING, AND SYNTHETIC PIVOT BUSHINGS.

2.2.2. PERFORMANCE:

2.2.2.1. MAXIMUM AIR VELOCITY: 1500 FPM.

2.2.2.2. MAXIMUM SYSTEM PRESSURE: 2 INCHES WG.

2.2.2.3. AMCA CERTIFICATION: TEST AND RATE IN ACCORDANCE WITH AMCA 511.

2.2.2.4. LEAKAGE:

2.2.2.4.1. CLASS I: LEAKAGE SHALL NOT EXCEED 4 CFM/SQ. FT. AGAINST 1-INCH WG DIFFERENTIAL STATIC PRESSURE.

2.2.3. ACCESSORIES:

2.2.3.1. ADJUSTMENT DEVICE TO PERMIT SETTING FOR VARYING DIFFERENTIAL STATIC PRESSURE.

2.2.3.2. COUNTERWEIGHTS AND SPRING-ASSIST KITS FOR VERTICAL AIRFLOW INSTALLATIONS.

2.2.3.3. SCREEN MOUNTING:

2.2.3.3.1. FRONT OR REAR MOUNTED IN SLEEVE.

2.2.3.3.1.1. SLEEVE THICKNESS: 20 GAUGE MINIMUM.

2.2.3.3.1.2. SLEEVE LENGTH: 6 INCHES MINIMUM.

2.2.3.4. SCREEN MATERIAL: ALUMINUM.

2.2.3.5. SCREEN TYPE: BIRD.

2.2.3.6. 90-DEGREE STOPS.

2.3. MANUAL VOLUME DAMPERS

2.3.1. STANDARD, STEEL, MANUAL VOLUME DAMPERS:

2.3.1.1. PERFORMANCE:

2.3.1.1.1. LEAKAGE RATING CLASS III: LEAKAGE NOT EXCEEDING 40 CFM/SQ. FT. AGAINST 1-INCH WG DIFFERENTIAL STATIC PRESSURE.

2.3.1.2. CONSTRUCTION:

2.3.1.2.1. LINKAGE OUT OF AIRSTREAM.

2.3.1.2.2. SUITABLE FOR HORIZONTAL OR VERTICAL AIRFLOW APPLICATIONS.

2.3.1.3. FRAMES:

2.3.1.3.1. HAT-SHAPED, 16-GAUGE-THICK, GALVANIZED SHEET STEEL.

2.3.1.3.2. MITERED AND WELDED CORNERS.

2.3.1.3.3. FLANGES FOR ATTACHING TO WALLS AND FLANGELESS FRAMES FOR INSTALLING IN DUCTS.

2.3.1.4. BLADES:

2.3.1.4.1. MULTIPLE OR SINGLE BLADE.

2.3.1.4.2. PARALLEL- OR OPPOSED-BLADE DESIGN.

2.3.1.4.3. STIFFEN DAMPER BLADES FOR STABILITY.

2.3.1.4.4. GALVANIZED STEEL; 16 GAUGE THICK.

2.3.1.5. BLADE AXLES: GALVANIZED STEEL.

2.3.1.6. BEARINGS:

2.3.1.6.1. MOLDED SYNTHETIC.

2.3.1.6.2. DAMPERS MOUNTED WITH VERTICAL BLADES TO HAVE THRUST BEARING AT EACH END OF EVERY BLADE.

2.3.1.7. TIE BARS AND BRACKETS: GALVANIZED STEEL.

2.3.1.8. LOCKING DEVICE TO HOLD DAMPER BLADES IN A FIXED POSITION WITHOUT VIBRATION.

2.4. TURNING VANES

2.4.1. MANUFACTURED TURNING VANES FOR METAL DUCTS: FABRICATE CURVED BLADES OF GALVANIZED SHEET STEEL; SUPPORT WITH BARS PERPENDICULAR TO BLADES SET; SET INTO VANE RUNNERS SUITABLE FOR DUCT MOUNTING.

2.4.2. GENERAL REQUIREMENTS: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE", FIGURE 4-3, "VANES AND VANE RUNNERS," AND FIGURE 4-4, "VANE SUPPORT IN ELBOWS."

2.4.3. VANE CONSTRUCTION:

2.4.3.1. SINGLE WALL FOR DUCTS UP TO 48 INCHES WIDE AND DOUBLE WALL FOR LARGER DIMENSIONS.

2.5. REMOTE DAMPER OPERATORS

2.5.1. DESCRIPTION: CABLE SYSTEM DESIGNED FOR REMOTE MANUAL DAMPER ADJUSTMENT, SS CABLE, RECESSED WALL BOX W/COVER PLATE, OR CONCEALED CABLE TUCKED INTO AIR DEVICE.

2.6. FLEXIBLE CONNECTORS

2.6.1. FIRE-PERFORMANCE CHARACTERISITICS: ADHESIVES, SEALANTS, FABRIC MATERIALS, AND ACCESSORY MATERIALS SHALL HAVE FLAME-SPREAD INDEX NOT EXCEEDING 25 AND SMOKE-DEVELOPED INDEX NOT EXCEEDING 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84. MATERIALS FLAME-RETARDANT OR NONCOMBUSTIBLE FABRICS, COATINGS AND ADHESIVES: COMPLY WITH UL 181, CLASS 1.

2.7. MATERIALS

2.7.1. GALVANIZED SHEET STEEL: COMPLY WITH ASTM A653/A653M.

2.7.1.1. GALVANIZED COATING DESIGNATION: G90.

2.7.1.2. EXPOSED-SURFACE FINISH: MILL PHOSPHATIZED.

2.7.2. STAINLESS STEEL SHEETS: COMPLY WITH ASTM A480/A480M, TYPE 304, AND HAVING A NO. 2 FINISH.

2.7.3. ALUMINUM SHEETS: COMPLY WITH ASTM B209, AL

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END OF SECTION 23 31 13

23 33 46 - FLEXIBLE DUCTS

1. GENERAL
1.1. SUMMARY
SECTION INCLUDES:
NON-INSULATED FLEXIBLE DUCTS.
INSULATED FLEXIBLE DUCTS.

1.2. SUBMITTALS
1.2.1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.

2. PRODUCTS - SEE DUCT SCHEDULE
2.1. ASSEMBLY DESCRIPTION
2.1.1. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESSES, AND DUCT CONSTRUCTION METHODS UNLESS OTHERWISE INDICATED. SHEET METAL MATERIALS SHALL BE FREE OF PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS.

3. EXECUTION
3.1. INSTALLATION
3.1.1. INSTALL FLEXIBLE DUCTS ACCORDING TO APPLICABLE DETAILS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR METAL DUCTS AND IN NAIMA AH116, "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS," FOR FIBROUS-GLASS DUCTS.
3.1.2. INSTALL IN INDOOR APPLICATIONS ONLY. FLEXIBLE DUCTWORK SHOULD NOT BE EXPOSED TO UV LIGHTING.
3.1.3. CONNECT TERMINAL UNITS TO SUPPLY DUCTS WITH MAXIMUM 12-INCH LENGTHS OF FLEXIBLE DUCT. DO NOT USE FLEXIBLE DUCTS TO CHANGE DIRECTIONS.
3.1.4. CONNECT DIFFUSERS OR LIGHT TROFFER BOOTS TO DUCTS DIRECTLY OR WITH MAXIMUM 60-INCH LENGTHS OF FLEXIBLE DUCT.
3.1.5. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH CLAMPS OR ADHESIVE PLUS SHEET METAL SCREWS.
3.1.6. INSTALLATION:
3.1.6.1. INSTALL DUCTS FULLY EXTENDED.
3.1.6.2. DO NOT BEND DUCTS ACROSS SHARP CORNERS.
3.1.6.3. BENDS OF FLEXIBLE DUCTING SHALL NOT EXCEED A MINIMUM OF ONE DUCT DIAMETER.
3.1.6.4. AVOID CONTACT WITH METAL FIXTURES, WATER LINES, PIPES, OR CONDUITS.
3.1.6.5. INSTALL FLEXIBLE DUCTS IN A DIRECT LINE, WITHOUT SAGS, TWISTS, OR TURNS.
3.1.7. SUPPORTING FLEXIBLE DUCTS:
3.1.7.1. SUSPEND FLEXIBLE DUCTS WITH BANDS 1-1/2 INCHES WIDE OR WIDER AND SPACED A MAXIMUM OF 48 INCHES APART. MAXIMUM CENTERLINE SAG BETWEEN SUPPORTS SHALL NOT EXCEED 1/2 INCH PER 12 INCHES.
3.1.7.2. INSTALL EXTRA SUPPORTS AT BENDS PLACED APPROXIMATELY ONE DUCT DIAMETER FROM CENTER LINE OF THE BEND.
3.1.7.3. DUCTS MAY REST ON CEILING JOISTS OR TRUSS SUPPORTS. SPACING BETWEEN SUPPORTS SHALL NOT EXCEED THE MAXIMUM SPACING PER MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
3.1.7.4. VERTICALLY INSTALLED DUCTS SHALL BE STABILIZED BY SUPPORT STRAPS AT A MAXIMUM OF 72 INCHES O.C.

END OF SECTION 23 33 46

23 37 13.13 - AIR DIFFUSERS

1. GENERAL
1.1. SUMMARY
SECTION INCLUDES:
AIR DIFFUSERS.

1.2. ACTION SUBMITTALS
1.2.1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
1.2.2. DATA SHEET: INDICATE MATERIALS OF CONSTRUCTION, FINISH, AND MOUNTING DETAILS; AND PERFORMANCE DATA INCLUDING THROW AND DROP, STATIC-PRESSURE DROP, AND NOISE RATINGS.
1.2.3. DIFFUSER SCHEDULE: INDICATE DRAWING DESIGNATION, ROOM LOCATION, QUANTITY, MODEL NUMBER, SIZE, AND ACCESSORIES FURNISHED.

2. PRODUCTS
2.1. AIR DIFFUSERS - SEE AIR DEVICE SCHEDULE

3. EXECUTION
3.1. INSTALLATION
3.1.1. INSTALL DIFFUSERS LEVEL AND PLUMB.
3.1.2. CEILING-MOUNTED OUTLETS AND INLETS: DRAWINGS INDICATE GENERAL ARRANGEMENT OF DUCTS, FITTINGS, AND ACCESSORIES. AIR OUTLET AND INLET LOCATIONS HAVE BEEN INDICATED TO ACHIEVE DESIGN REQUIREMENTS FOR AIR VOLUME, NOISE CRITERIA, AIRFLOW PATTERN, THROW, AND PRESSURE DROP. MAKE FINAL LOCATIONS WHERE INDICATED, AS MUCH AS PRACTICAL. FOR UNITS INSTALLED IN LAY-IN CEILING PANELS, LOCATE UNITS IN THE CENTER OF PANEL. WHERE ARCHITECTURAL FEATURES OR OTHER ITEMS CONFLICT WITH INSTALLATION, NOTIFY ARCHITECT AND ENGINEER FOR A DETERMINATION OF FINAL LOCATION.
3.1.3. INSTALL DIFFUSERS WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO ALLOW SERVICE AND MAINTENANCE OF DAMPERS, AIR EXTRACTORS, AND FIRE DAMPERS.

3.2. ADJUSTING
3.2.1. AFTER INSTALLATION, ADJUST DIFFUSERS TO AIR PATTERNS INDICATED, OR AS DIRECTED, BEFORE STARTING AIR BALANCING.

END OF SECTION 23 3 713.13

23 37 13.23 - REGISTERS AND GRILLES

4. GENERAL
4.1. SUMMARY
SECTION INCLUDES:
REGISTERS AND GRILLES.

4.2. ACTION SUBMITTALS
4.2.1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
4.2.1.1. DATA SHEET: INDICATE MATERIALS OF CONSTRUCTION, FINISH, AND MOUNTING DETAILS; AND PERFORMANCE DATA INCLUDING THROW AND DROP, STATIC-PRESSURE DROP, AND NOISE RATINGS.
4.2.1.2. REGISTER AND GRILLE SCHEDULE: INDICATE DRAWING DESIGNATION, ROOM LOCATION, QUANTITY, MODEL NUMBER, SIZE, AND ACCESSORIES FURNISHED.

5. PRODUCTS
5.1. REGISTERS AND GRILLES - SEE AIR DEVICE SCHEDULE

6. EXECUTION
6.1. INSTALLATION
6.1.1. INSTALL REGISTERS AND GRILLES LEVEL AND PLUMB.
6.1.2. OUTLETS AND INLETS LOCATIONS: DRAWINGS INDICATE GENERAL ARRANGEMENT OF DUCTS, FITTINGS, AND ACCESSORIES. AIR OUTLET AND INLET LOCATIONS HAVE BEEN INDICATED TO ACHIEVE DESIGN REQUIREMENTS FOR AIR VOLUME, NOISE CRITERIA, AIRFLOW PATTERN, THROW, AND PRESSURE DROP. MAKE FINAL LOCATIONS WHERE INDICATED, AS MUCH AS PRACTICAL. FOR UNITS INSTALLED IN LAY-IN CEILING PANELS, LOCATE UNITS IN THE CENTER OF PANEL. WHERE ARCHITECTURAL FEATURES OR OTHER ITEMS CONFLICT WITH INSTALLATION, NOTIFY ARCHITECT AND ENGINEER FOR A DETERMINATION OF FINAL LOCATION.
6.1.3. INSTALL REGISTERS AND GRILLES WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO ALLOW SERVICE AND MAINTENANCE OF DAMPERS, AIR EXTRACTORS, AND FIRE DAMPERS.

6.2. ADJUSTING
6.2.1. AFTER INSTALLATION, ADJUST REGISTERS AND GRILLES TO AIR PATTERNS INDICATED, OR AS DIRECTED, BEFORE STARTING AIR BALANCING.

END OF SECTION 23 37 13.23

23 74 16.11 - PACKAGED, SMALL-CAPACITY, ROOFTOP AIR-CONDITIONING UNITS

1. GENERAL
1.1. SUMMARY
1.1.1. SECTION INCLUDES PACKAGED, SMALL-CAPACITY (25 TONS AND UNDER), DX ROOFTOP AIR-CONDITIONING UNITS (RTUS):

1.2. ACTION SUBMITTALS
1.2.1. PRODUCT DATA: FOR EACH RTU.
1.2.1.1. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES.
1.2.1.2. INCLUDE RATED CAPACITIES, DIMENSIONS, REQUIRED CLEARANCES, CHARACTERISTICS, AND FURNISHED SPECIALTIES AND ACCESSORIES.
1.2.1.3. INCLUDE UNIT DIMENSIONS AND WEIGHT.
1.2.1.4. INCLUDE CABINET MATERIAL, METAL THICKNESS, FINISHES, INSULATION, AND ACCESSORIES.
1.2.1.5. FANS:
1.2.1.5.1. INCLUDE CERTIFIED FAN-PERFORMANCE CURVES WITH SYSTEM OPERATING CONDITIONS INDICATED.
1.2.1.5.2. INCLUDE CERTIFIED FAN-SOUND POWER RATINGS.
1.2.1.5.3. INCLUDE FAN CONSTRUCTION AND ACCESSORIES.
1.2.1.5.4. INCLUDE MOTOR RATINGS, ELECTRICAL CHARACTERISTICS, AND MOTOR ACCESSORIES.
1.2.1.6. INCLUDE CERTIFIED COIL-PERFORMANCE RATINGS WITH SYSTEM OPERATING CONDITIONS INDICATED.
1.2.1.7. INCLUDE FILTERS WITH PERFORMANCE CHARACTERISTICS.
1.2.1.8. INCLUDE GAS FURNACES WITH PERFORMANCE CHARACTERISTICS.
1.2.1.9. INCLUDE DAMPERS, INCLUDING HOUSINGS, LINKAGES, AND OPERATORS.
1.2.2. SHOP DRAWINGS: INCLUDE RTU'S IN DUCT SHOP DRAWING SUBMITTAL.

1.3. INFORMATIONAL SUBMITTALS
1.3.1. MANUFACTURER'S WARRANTY: SOURCE QUALITY-CONTROL REPORTS, SYSTEM STARTUP REPORTS, AND FIELD QUALITY-CONTROL REPORTS.

1.4. CLOSEOUT SUBMITTALS
1.4.1. OPERATION AND MAINTENANCE DATA: FOR RTUS TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS.

1.5. WARRANTY
1.5.1. WARRANTY: PROVIDE MANUFACTURER'S STANDARD WARRANTY, UNLESS STATED OTHERWISE IN SCHEDULE.

2. PRODUCTS
2.1. PERFORMANCE REQUIREMENTS
2.1.1. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY AN NRTL, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
2.1.2. UL COMPLIANCE: COMPLY WITH UL 1995.

2.2. CAPACITIES AND CHARACTERISTICS
2.2.1. UNIT CONFIGURATION, CAPACITIES, AND CHARACTERISTICS ARE SCHEDULED ON THE PLANS. INCLUDING REQUIREMENTS FOR CASINGS, FANS, DRIVES, AND MOTORS, ROTARY HEAT EXCHANGERS, COILS, REFRIGERANT CIRCUIT COMPONENTS, AIR FILTRATION, GAS FURNACES, DAMPERS, ELECTRICAL POWER CONNECTIONS, CONTROLS, ROOF CURBS, AND ACCESSORIES.

2.3. SOURCE QUALITY CONTROL
2.3.1. AHRI COMPLIANCE:
2.3.1.1. COMPLY WITH AHRI 210/240 FOR TESTING AND RATING ENERGY EFFICIENCIES FOR RTUS.
2.3.1.2. COMPLY WITH AHRI 340/360 FOR TESTING AND RATING ENERGY EFFICIENCIES FOR RTUS. (UNITS LARGER THAN 65MBH)
2.3.1.3. COMPLY WITH AHRI 270 FOR TESTING AND RATING SOUND PERFORMANCE FOR RTUS.
2.3.1.4. COMPLY WITH AHRI 1060 FOR TESTING AND RATING PERFORMANCE FOR AIR-TO-AIR EXCHANGER.
2.3.2. AMCA COMPLIANCE:
2.3.2.1. COMPLY WITH AMCA 11 AND BEAR THE AMCA-CERTIFIED RATINGS SEAL FOR AIR AND SOUND PERFORMANCE ACCORDING TO AMCA 211 AND AMCA 311.
2.3.2.2. DAMPER LEAKAGE TESTED ACCORDING TO AMCA 500-D.
2.3.2.3. OPERATING LIMITS: CLASSIFY ACCORDING TO AMCA 99.

3. EXECUTION
3.1. EXAMINATION
3.1.1. EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF RTUS.
3.1.2. EXAMINE ROUGHING-IN FOR RTUS TO VERIFY ACTUAL LOCATIONS OF PIPING AND DUCT CONNECTIONS BEFORE EQUIPMENT INSTALLATION.
3.1.3. EXAMINE ROOFS FOR SUITABLE CONDITIONS WHERE RTUS WILL BE INSTALLED.
3.1.4. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

3.2. INSTALLATION
3.2.1. ROOF CURB: INSTALL ON ROOF STRUCTURE, LEVEL AND SECURE, ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND THESE SPECIFICATIONS. INSTALL RTUS ON CURBS AND COORDINATE ROOF PENETRATIONS AND FLASHING WITH ROOF CONSTRUCTION, ARCHITECT, AND GENERAL CONTRACTOR (G.C.). SECURE RTUS TO UPPER CURB RAIL, AND SECURE CURB BASE TO ROOF FRAMING AS DESIGNED BY THE STRUCTURAL ENGINEER. COORDINATE SIZES AND LOCATIONS OF ROOF CURBS WITH ACTUAL EQUIPMENT PROVIDED. COORDINATE ROOF CURB INSTALLATION WITH ROOFING CONTRACTOR.
3.2.2. DO NOT OPERATE FAN SYSTEM UNTIL FILTERS (TEMPORARY OR PERMANENT) ARE IN PLACE. REPLACE TEMPORARY FILTERS USED DURING CONSTRUCTION AND TESTING WITH NEW, CLEAN FILTERS.

3.3. PIPING CONNECTIONS
3.3.1. PIPING INSTALLATION REQUIREMENTS ARE SPECIFIED IN OTHER SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENT OF PIPING, FITTINGS, AND SPECIALTIES.
3.3.2. WHERE INSTALLING PIPING ADJACENT TO RTU, ALLOW SPACE FOR SERVICE AND MAINTENANCE.
3.3.3. CONNECT PIPING TO UNIT MOUNTED ON VIBRATION ISOLATORS WITH FLEXIBLE CONNECTORS.
3.3.4. CONNECT CONDENSATE DRAIN PANS USING ASTM B88, TYPE M COPPER TUBING.
3.3.5. GAS PIPING: COMPLY WITH APPLICABLE REQUIREMENTS IN SECTION 221114 "FACILITY NATURAL-GAS PIPING."
3.3.5.1. CONNECT GAS PIPING TO BURNER, FULL SIZE OF GAS TRAIN INLET, AND CONNECT WITH UNION, PRESSURE REGULATOR, AND SHUTOFF VALVE WITH SUFFICIENT CLEARANCE FOR BURNER REMOVAL AND SERVICE.
3.3.5.2. INSTALL AGA-APPROVED FLEXIBLE CONNECTORS.

3.4. DUCT CONNECTIONS
3.4.1. COMPLY WITH DUCT INSTALLATION REQUIREMENTS SPECIFIED IN OTHER HVAC SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENT OF DUCTS. THE FOLLOWING ARE SPECIFIC CONNECTION REQUIREMENTS:
3.4.1.1. INSTALL DUCTS TO TERMINATION AT TOP OF ROOF CURB.
3.4.1.2. REMOVE ROOF DECKING ONLY AS REQUIRED FOR PASSAGE OF DUCTS. DO NOT CUT OUT DECKING UNDER ENTIRE ROOF CURB.
3.4.1.3. INSTALL RETURN-AIR DUCT CONTINUOUSLY THROUGH ROOF STRUCTURE.

3.5. ELECTRICAL CONNECTIONS
3.5.1. CONNECT ELECTRICAL WIRING ACCORDING TO SECTION 260519 "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES."
3.5.2. GROUND EQUIPMENT ACCORDING TO SECTION 260526 "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS."
3.5.3. INSTALL ELECTRICAL DEVICES FURNISHED BY MANUFACTURER, BUT NOT FACTORY MOUNTED, ACCORDING TO NFPA 70 AND NECA 1.
3.5.4. INSTALL NAMEPLATE FOR EACH ELECTRICAL CONNECTION, INDICATING ELECTRICAL EQUIPMENT DESIGNATION AND CIRCUIT NUMBER FEEDING CONNECTION.
3.5.4.1. NAMEPLATE SHALL BE LAMINATED ACRYLIC OR MELAMINE PLASTIC SIGNS AS LAYERS OF BLACK WITH ENGRAVED WHITE LETTERS AT LEAST 1/2 INCH HIGH.
3.5.4.2. LOCATE NAMEPLATE WHERE EASILY VISIBLE.

3.6. CONTROL CONNECTIONS
3.6.1. INSTALL CONTROL AND ELECTRICAL POWER WIRING TO FIELD-MOUNTED CONTROL DEVICES.

3.7. FIELD QUALITY CONTROL
3.7.1. MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TEST AND INSPECT COMPONENTS, ASSEMBLIES, AND EQUIPMENT INSTALLATIONS, INCLUDING CONNECTIONS.
3.7.2. TESTS AND INSPECTIONS:
3.7.2.1. AFTER INSTALLING RTUS AND AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, TEST UNITS FOR COMPLIANCE WITH REQUIREMENTS.
3.7.2.2. INSPECT FOR AND REMOVE SHIPPING BOLTS, BLOCKS, AND TIE-DOWN STRAPS.
3.7.2.3. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.
3.7.2.4. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
3.7.3. RTU WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.
3.7.4. PREPARE TEST AND INSPECTION REPORTS.
3.8. STARTUP SERVICE
3.8.1. ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO PERFORM STARTUP SERVICE.
3.8.1.1. COMPLETE INSTALLATION AND STARTUP CHECKS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
3.8.1.2. INSPECT FOR VISIBLE DAMAGE TO UNIT CASING.
3.8.1.3. INSPECT FOR VISIBLE DAMAGE TO FURNACE COMBUSTION CHAMBER.
3.8.1.4. INSPECT FOR VISIBLE DAMAGE TO COMPRESSOR, COILS, AND FANS.
3.8.1.5. INSPECT INTERNAL INSULATION.
3.8.1.6. VERIFY THAT LABELS ARE CLEARLY VISIBLE.
3.8.1.7. VERIFY THAT CLEARANCES HAVE BEEN PROVIDED FOR SERVICING.
3.8.1.8. VERIFY THAT CONTROLS ARE CONNECTED AND OPERABLE.
3.8.1.9. VERIFY THAT FILTERS ARE INSTALLED.
3.8.1.10. CLEAN CONDENSER COIL AND INSPECT FOR CONSTRUCTION DEBRIS.
3.8.1.11. CLEAN FURNACE FLUE AND INSPECT FOR CONSTRUCTION DEBRIS.
3.8.1.12. CONNECT AND PURGE GAS LINE.
3.8.1.13. REMOVE PACKING FROM VIBRATION ISOLATORS.
3.8.1.14. INSPECT OPERATION OF BAROMETRIC RELIEF DAMPERS.
3.8.1.15. VERIFY LUBRICATION ON FAN AND MOTOR BEARINGS.
3.8.1.16. INSPECT FAN-WHEEL ROTATION FOR MOVEMENT IN CORRECT DIRECTION WITHOUT VIBRATION AND BINDING.
3.8.1.17. ADJUST FAN BELTS TO PROPER ALIGNMENT AND TENSION.
3.8.1.18. START UNIT ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
3.8.1.18.1. START REFRIGERATION SYSTEM.
3.8.1.18.2. DO NOT OPERATE BELOW RECOMMENDED LOW-AMBIENT TEMPERATURE.
3.8.1.18.3. COMPLETE STARTUP SHEETS AND ATTACH COPY WITH CONTRACTOR'S STARTUP REPORT.
3.8.1.19. INSPECT AND RECORD PERFORMANCE OF INTERLOCKS AND PROTECTIVE DEVICES; VERIFY SEQUENCES.
3.8.1.20. OPERATE UNIT FOR AN INITIAL PERIOD AS RECOMMENDED OR REQUIRED BY MANUFACTURER.
3.8.1.21. PERFORM THE FOLLOWING OPERATIONS FOR BOTH MINIMUM AND MAXIMUM FIRING. ADJUST BURNER FOR PEAK EFFICIENCY:
3.8.1.21.1. MEASURE GAS PRESSURE ON MANIFOLD.
3.8.1.21.2. INSPECT OPERATION OF POWER VENTS.
3.8.1.21.3. MEASURE COMBUSTION-AIR TEMPERATURE AT INLET TO COMBUSTION CHAMBER.
3.8.1.21.4. MEASURE FLUE-GAS TEMPERATURE AT FURNACE DISCHARGE.
3.8.1.21.5. PERFORM FLUE-GAS ANALYSIS. MEASURE AND RECORD FLUE-GAS CARBON DIOXIDE AND OXYGEN CONCENTRATION.
3.8.1.21.6. MEASURE SUPPLY-AIR TEMPERATURE AND VOLUME WHEN BURNER IS AT MAXIMUM FIRING RATE AND WHEN BURNER IS OFF. CALCULATE USEFUL HEAT TO SUPPLY AIR.
3.8.1.22. CALIBRATE THERMOSTATS.
3.8.1.23. ADJUST AND INSPECT HIGH-TEMPERATURE LIMITS.
3.8.1.24. INSPECT OUTDOOR-AIR DAMPERS FOR PROPER STROKE AND INTERLOCK WITH RETURN-AIR DAMPERS.
3.8.1.25. START REFRIGERATION SYSTEM AND MEASURE AND RECORD THE FOLLOWING WHEN AMBIENT IS A MINIMUM OF 15 DEG F ABOVE RETURN-AIR TEMPERATURE:
3.8.1.25.1. COIL LEAVING-AIR, DRY- AND WET-BULB TEMPERATURES.
3.8.1.25.2. COIL ENTERING-AIR, DRY- AND WET-BULB TEMPERATURES.
3.8.1.25.3. OUTDOOR-AIR, DRY-BULB TEMPERATURE.
3.8.1.25.4. OUTDOOR-AIR-COIL, DISCHARGE-AIR, DRY-BULB TEMPERATURE.
3.8.1.26. INSPECT CONTROLS FOR CORRECT SEQUENCING OF HEATING, MIXING DAMPERS, REFRIGERATION, AND NORMAL AND EMERGENCY SHUTDOWN.
3.8.1.27. MEASURE AND RECORD THE FOLLOWING MINIMUM AND MAXIMUM AIRFLOWS. PLOT FAN VOLUMES ON FAN CURVE.
3.8.1.27.1. SUPPLY-AIR VOLUME.
3.8.1.27.2. RETURN-AIR VOLUME.
3.8.1.27.3. RELIEF-AIR VOLUME.
3.8.1.27.4. OUTDOOR-AIR INTAKE VOLUME.
3.8.1.28. SIMULATE MAXIMUM COOLING DEMAND AND INSPECT THE FOLLOWING:
3.8.1.28.1. COMPRESSOR REFRIGERANT SUCTION AND HOT-GAS PRESSURES.
3.8.1.28.2. SHORT CIRCUITING OF AIR THROUGH CONDENSER COIL OR FROM CONDENSER FANS TO OUTDOOR-AIR INTAKE.
3.8.1.29. VERIFY OPERATION OF REMOTE PANEL INCLUDING PILOT-LIGHT OPERATION AND FAILURE MODES. INSPECT THE FOLLOWING:
3.8.1.29.1. HIGH-TEMPERATURE LIMIT ON GAS-FIRED HEAT EXCHANGER.
3.8.1.29.2. LOW-TEMPERATURE SAFETY OPERATION.
3.8.1.29.3. FILTER HIGH-PRESSURE DIFFERENTIAL ALARM.
3.8.1.29.4. ECONOMIZER TO MINIMUM OUTDOOR-AIR CHANGEOVER.
3.8.1.29.5. RELIEF-AIR FAN OPERATION.
3.8.1.29.6. SMOKE AND FIRESTAT ALARMS.
3.8.1.30. AFTER STARTUP AND PERFORMANCE TESTING AND PRIOR TO SUBSTANTIAL COMPLETION, REPLACE EXISTING FILTERS WITH NEW FILTERS.

3.9. ADJUSTING
3.9.1. ADJUST DAMPER LINKAGES FOR PROPER DAMPER OPERATION.
3.9.2. COMPLY WITH REQUIREMENTS IN SECTION 230593 "TESTING, ADJUSTING, AND BALANCING FOR HVAC" FOR AIR-HANDLING SYSTEM TESTING, ADJUSTING, AND BALANCING.

3.10. CLEANING
3.10.1. AFTER COMPLETING SYSTEM INSTALLATION AND TESTING, ADJUSTING, AND BALANCING RTUS AND AIR-DISTRIBUTION SYSTEMS, CLEAN RTUS INTERNALLY TO REMOVE FOREIGN MATERIAL AND CONSTRUCTION DIRT AND DUST. CLEAN FAN WHEELS, CABINETS, DAMPERS, COILS, AND FILTER HOUSINGS, AND INSTALL NEW, CLEAN FILTERS.

3.11. DEMONSTRATION
3.11.1. ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN RTUS.

END OF SECTION 23 74 16.11

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MECHANICAL SPECIFICATIONS

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Registered in TX: TBPE: F-21295; TBAE: TX-25481; LA: 9413 MI: 1301069591-1, NV: 8252, NC: 14883, OH: ARC.1917885

Date:	Description:

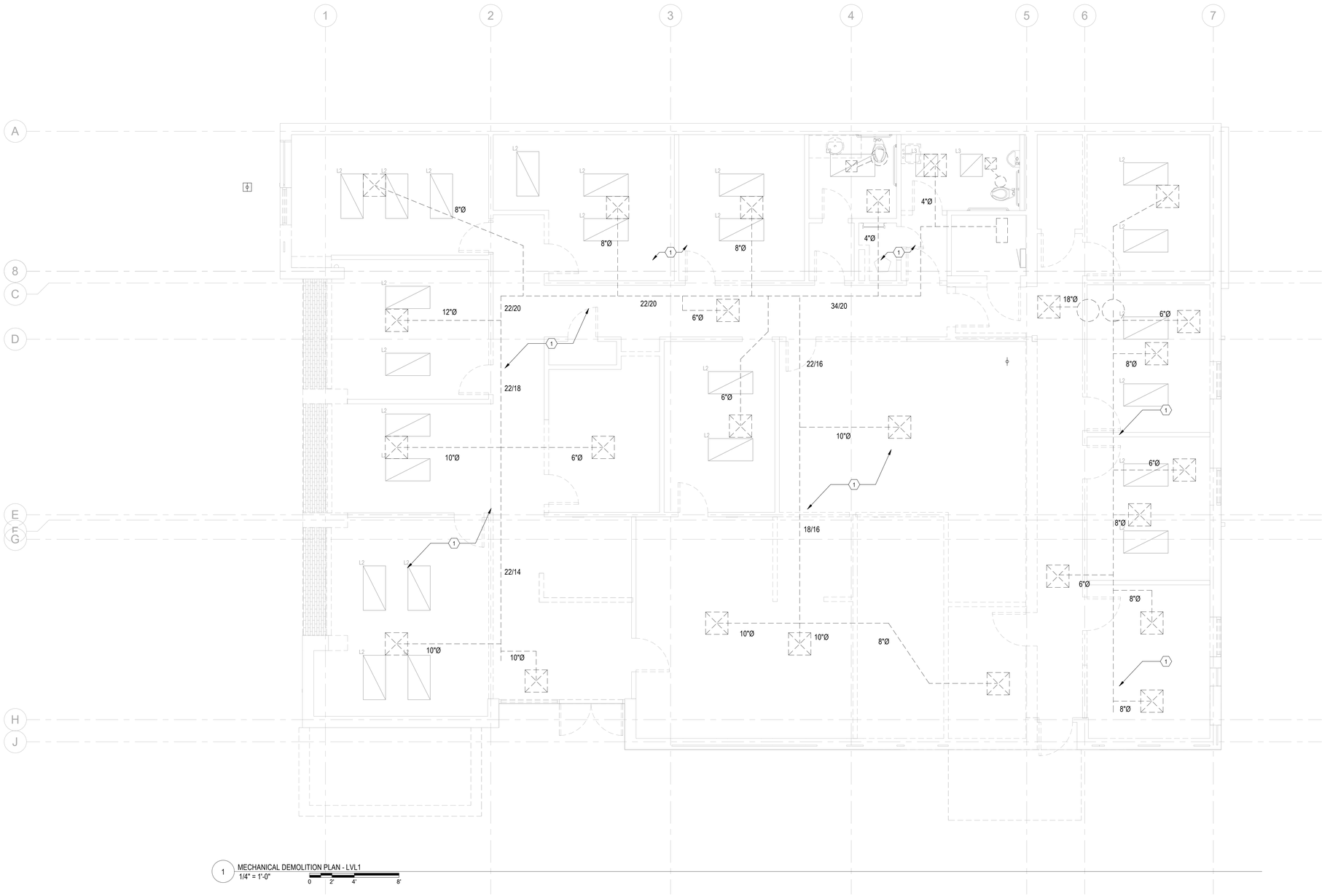
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State of registration TX
Firm Registration No. F-2497

KEYNOTES

1 CONTRACTOR TO REMOVE EXISTING DUCTING AND DIFFUSERS.



1 MECHANICAL DEMOLITION PLAN - LVL1
1/4" = 1'-0"
0 2' 4' 8'

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MECHANICAL DEMOLITION PLAN - LVL1

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Date:	Description:

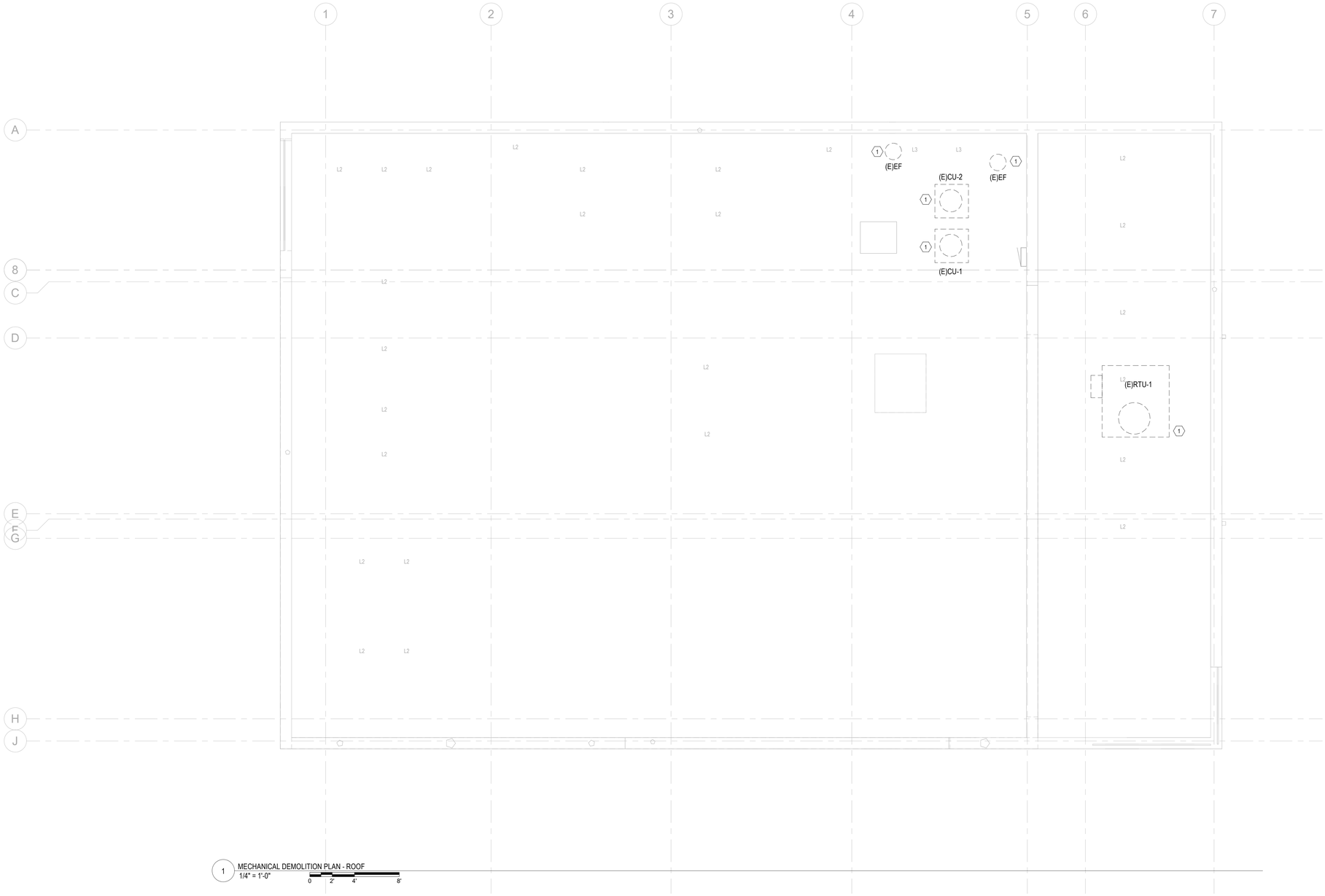
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KEYNOTES

1 CONTRACTOR TO REMOVE EXISTING UNIT, ASSOCIATED DUCTWORK,WIRING, AND PIPING.



1 MECHANICAL DEMOLITION PLAN - ROOF
1/4" = 1'-0"
0 2' 4' 8'

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MECHANICAL DEMOLITION PLAN - ROOF

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KEYNOTES

1 ROUTE 3/4" CONDENSATE DOWN TO SINK TAILPIECE.

2 PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT. PROVIDE THERMOSTAT WITH CLEAR PLASTIC GUARD TO GIVE COMPLETE ENCLOSURE PROTECTION. IT SHOULD HAVE AIR CIRCULATING PORTS ON ALL SIDES TO ENSURE AMPLE AIR CIRCULATION FOR PROPER THERMOSTAT OPERATION. PROVIDE WITH INSULATED BACKPLATE.

3 PROVIDE DUCT SMOKE DETECTOR INSTALLED ON SUPPLY AIR SIDE OF UNIT. PROVIDE WITH REMOTE PILOTED KEYED, TEST, RESET STATION LOCATED AT POSITION AS DIRECTED BY ARCHITECT.

4 EXHAUST DUCT UP THROUGH ROOF AND TERMINATE INTO ROOF CAP EQUIVALENT TO GREENHECK MODEL NUMBER GRSR-8. PROVIDE WITH 14" TALL FACTORY FABRICATED CURB.

5 OUTSIDE AIR DUCT UP THROUGH ROOF AND TERMINATE INTO ROOF CAP EQUIVALENT TO GREENHECK MODEL NUMBER GRSI-8. PROVIDE WITH 14" TALL FACTORY FABRICATED INSULATED CURB. PROVIDE WITH BACKDRAFT AND MOTORIZED DAMPER. MOTORIZED DAMPER SHALL BE INTERLOCK WITH THE FAN.

6 PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT. PROVIDE THERMOSTAT WITH CLEAR PLASTIC GUARD TO GIVE COMPLETE ENCLOSURE PROTECTION. IT SHOULD HAVE AIR CIRCULATING PORTS ON ALL SIDES TO ENSURE AMPLE AIR CIRCULATION FOR PROPER THERMOSTAT OPERATION.

7 ROUTE 1" INSULATED COPPER CONDENSATE DRAIN DOWN THE WALL AND DISCHARGE 1" ABOVE THE RIM OF MOP SINK.

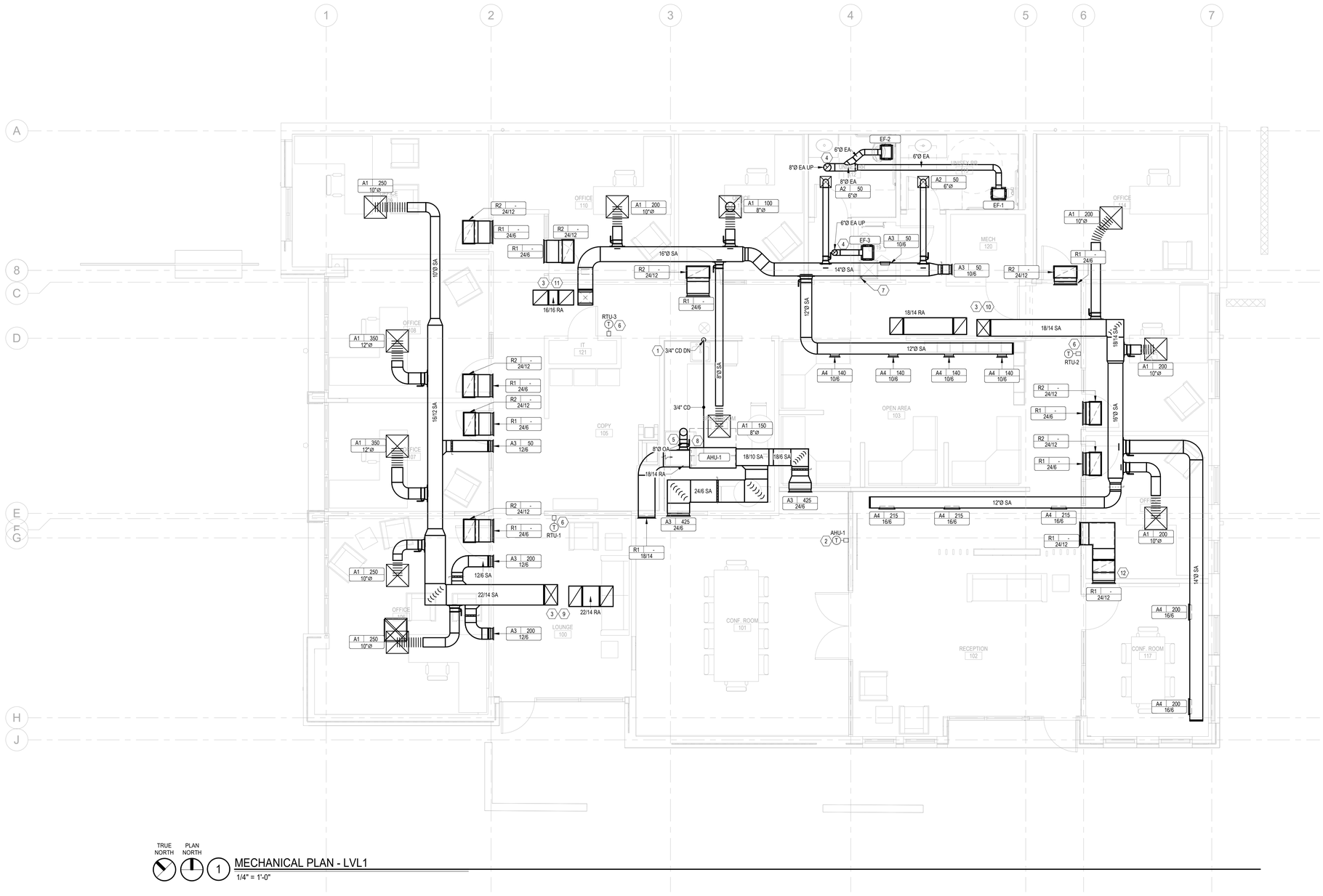
8 PROVIDE AIR HANDLING UNIT AS SPECIFIED ON SCHEDULE. SUSPEND AHU FROM THE STRUCTURE ABOVE WITH ALL-THREAD AND VIBRATION ISOLATORS. INSTALL RETURN AIR PLENUM FULL SIZE OF UNIT OPENING AND CONNECT OUTSIDE AIR AND RETURN AIR DUCTWORK AS SHOWN. ROUTE 3/4" INSULATED COPPER CONDENSATE DRAIN LINE TRAPPED AND INSULATED TO WASTE RECEPTACLE INDICATED ON PLAN. SIZE AND INSULATE REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS AND ROUTE TO ASSOCIATED CONDENSING UNIT. PROVIDE WITH SECONDARY DRAIN PAN BELOW UNIT AND FLOAT SWITCH TO SHUT OFF THE UNIT UPON DETECTION OF WATER.

9 ROUTE SUPPLY AND RETURN AIR DUCT UP THRU ROOF TO RTU-1 ON ROOF. PROVIDE TRANSITION AS NECESSARY.

10 ROUTE SUPPLY AND RETURN AIR DUCT UP THRU ROOF TO RTU-2 ON ROOF. PROVIDE TRANSITION AS NECESSARY.

11 ROUTE SUPPLY AND RETURN AIR DUCT UP THRU ROOF TO RTU-3 ON ROOF. PROVIDE TRANSITION AS NECESSARY.

12 INTERNAL DUCT INSULATION WITH 2" DUCT LINER.



TRUE NORTH / PLAN NORTH

1 MECHANICAL PLAN - LVL1
1/4" = 1'-0"

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N-VIZION
FORMS + ENVIRONMENTS + IMAGES

MECHANICAL PLAN - LVL1

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Registered in Texas: TX PE: 22299 | TX#23480 | LA: 9413 MI: 1301069591 | NV: 8252, NC: 14883, OH: ARC.1917885

Date:	Description:

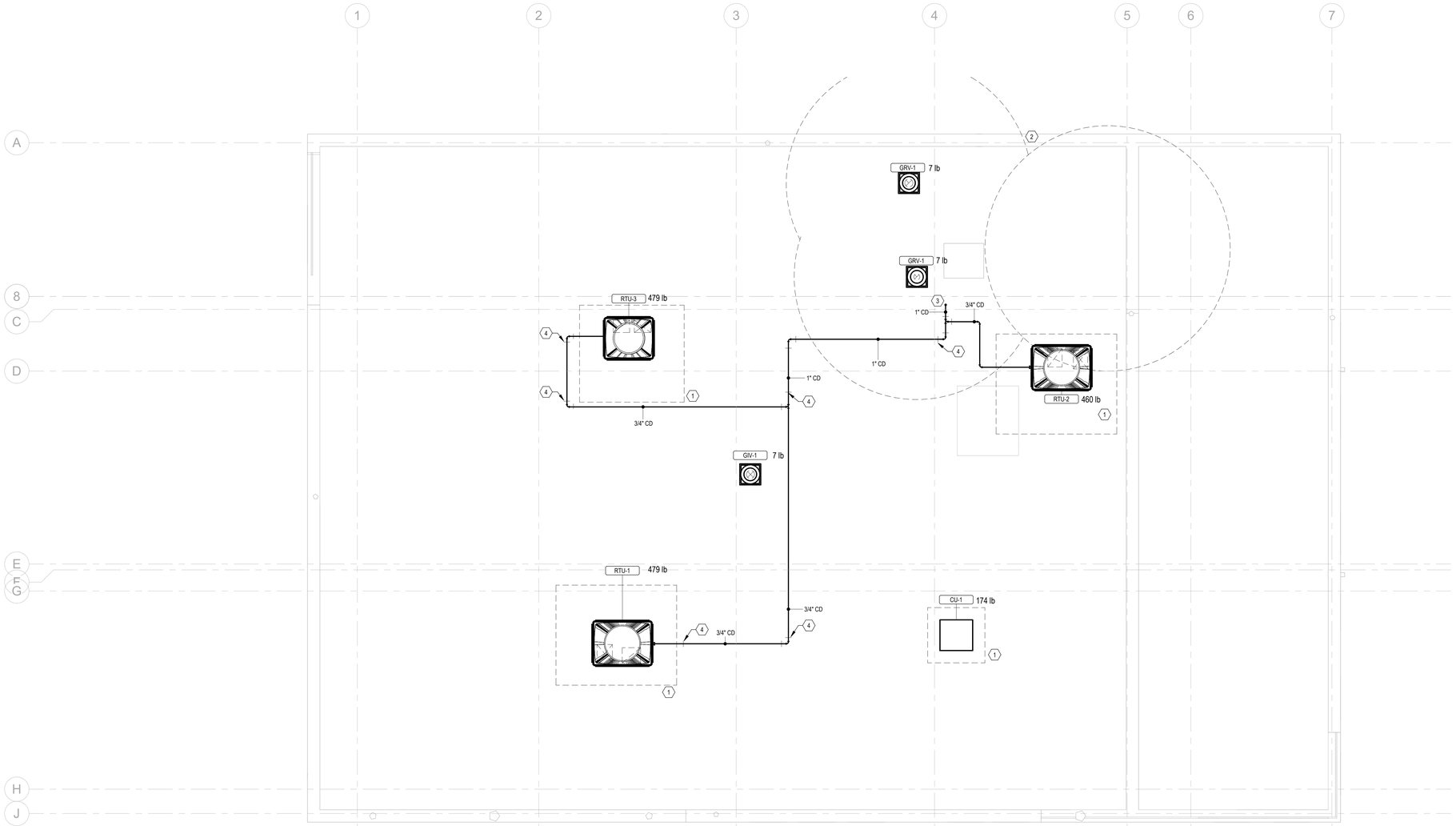
M101

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Firm Registration No. F-2497

KEYNOTES

1. DASHED LINE AROUND HVAC EQUIPMENT REPRESENTS MANUFACTURER'S RECOMMENDED CLEARANCES FOR EQUIPMENT MAINTENANCE. IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO MAINTAIN SERVICE CLEARANCES THE FULL HEIGHT OF THE UNIT IN THIS AREA AND TO PROVIDE ACCESS TO THESE AREAS.
2. DASHED CIRCLE INDICATES 10' CLEARANCE ZONE REQUIRED AROUND ROOF EXHAUST.
3. ROUTE INSULATED COPPER CONDENSATE DRAIN PIPE DOWN.
4. PROVIDE EQUIPMENT SUPPORT EQUIVALENT TO MIRO INDUSTRIES MODEL HD.



TRUE NORTH / PLAN NORTH

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

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MECHANICAL PLAN - ROOF

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Date:	Description:

M102

FAN SCHEDULE

		EF-1	EF-2	EF-3
GENERAL	MANUFACTURER	GREENHECK	GREENHECK	GREENHECK
	MODEL	SP-A90	SP-A90	SP-A90
	TYPE	CEILING MOUNT	CEILING MOUNT	CEILING MOUNT
	SERVICE	RESTROOM EXHAUST	RESTROOM EXHAUST	JANITOR
	TOTAL AIRFLOW (ACFM)	70	70	70
	ELEVATION (FT ABOVE MSL)	650	650	650
	UNIT WEIGHT (LBS)	12	12	12
PERFORMANCE	FAN ENTERING AIR TEMP (F)	70	70	70
	RPM	900	900	900
	STATIC PRESSURE (IN. W.C.)	0.30	0.30	0.30
	BHP	0.01	0.01	0.01
	ROTATION / ARRANGEMENT	DIRECT	DIRECT	DIRECT
	MAX SONES	0.5	0.5	0.5
MOTOR	POWER (HP)	0.01	0.01	0.01
	SPEED (RPM)	900	900	900
	V / PH	115/60	115/60	115/60
	MCA (AMPS)	0.2	0.2	0.2
	MOP (AMPS)	15	15	15
	MIN EFFICIENCY (%)	80%	80%	80%
	DRIVE TYPE	DIRECT	DIRECT	DIRECT
	MOTOR TYPE	ECM	ECM	ECM
	INVERTER DUTY MOTOR	NO	NO	NO

NOTES:

1. PROVIDE MAKE AND MODEL SPECIFIED OR ENGINEER APPROVED EQUAL.
2. REFER TO THE DRAWING FOR UNIT CONFIGURATION.
3. PROVIDE CEILING FANS WITH THE FOLLOWING OPTIONS.

   A. INTEGRAL DAMPER

   B. EF 1 & 2 SHALL BE CONTROLLED BY A LIGHT SWITCH WITH 5 MIN. TIME DELAY (ADJ)

   C. EF 3 SHALL RUN CONTINUOUSLY WHILE BUILDING IS OCCUPIED

   D. ISOLATION HANGING KIT IN ACCORDANCE WITH THE VIBRATION ISOLATION SCHEDULE.

   E. ALUMINUM GRILLE.

4. FURNISH ALL INDOOR FANS WITH FACTORY SUPPLIED AND MOUNTED NEMA 1 DISCONNECT SWITCH.
5. FURNISH AND INSTALL FLEXIBLE DUCT CONNECTION AT THE CONNECTIONS TO THE UNIT. TRANSITION DUCTWORK FROM FULL SIZE UNIT OPENING TO THE DUCTWORK DIMENSIONS SHOWN ON THE PLANS.
6. ALL MOTORS SHALL BE PREMIUM HIGH EFFICIENCY RATING.
7. MOTORS 1HP AND LESS SHALL BE ECM OR HAVE MINIMUM EFFICIENCY OF 70%. ALL MOTORS SHALL HAVE THE MEANS TO ADJUST (LOCALLY OR REMOTELY, FIELD SWAPPABLE) FAN SPEED FOR BALANCING OR REMOTE CONTROL.

DX SPLIT SYSTEM SCHEDULE

			AHU-1
INDOOR UNIT	TAG		
	GENERAL	MANUFACTURER	TRANE
		MODEL	5TAM5B01AC21
		TYPE	MULTI-SPEED HORIZONTAL
		SERVICE	CONF. ROOM
		ORIENTATION	HORIZONTAL
		TOTAL AIRFLOW (CFM)	850
		OUTSIDE AIRFLOW (CFM)	150
		% OUTSIDE AIR	18%
		ELEVATION (FT ABOVE MSL)	650
		UNIT WEIGHT (LBS)	120
	FILTER	TYPE	THROWAWAY
		MEDIA	1 - 16" X 20"
		FINAL PRESSURE DROP (IN. W.C.)	0.1
	COOLING	ENTERING AIR (DB)	80.0
		ENTERING AIR (WB)	67.0
		LEAVING AIR (DB)	58.4
		LEAVING AIR (WB)	57.1
		TOTAL CAPACITY (MBH)	18.1
		SENSIBLE CAPACITY (MBH)	13.4
	HEAT PUMP	TOTAL CAPACITY (MBH)	12.4
		ENTERING AIR (DB)	70.0
		LEAVING AIR (DB)	89.2
	SUPPLY FAN	TYPE	FWD CURVED
		POSITION	DRAW THRU
		DRIVE	DIRECT DRIVE
		EXTERNAL STATIC (IN. WG.)	0.5
		MOTOR TYPE	ECM
	ELECTRICAL DATA	VOLTS / PHASE	208/1
		MIN. CIRCUIT AMPS	3.0
		MAX. OVERCURRENT PROTECTION	15
OUTDOOR UNIT	TAG		CU-1
	GENERAL	MAKE	TRANE
		MODEL	5TWR4018A1
		SERVICE	AHU-1
		TYPE	AC
		CAPACITY AHRI (MBH)	19.1
		MIN. # OF COMPRESSOR STAGES	1-STAGE ROTARY
		MIN. EFFICIENCY RATING: SEER2	14
		CASE 1 COND. ENTERING AIR (DB)	105.0
		UNIT WEIGHT (LBS)	174
	ELECTRICAL DATA	VOLTS / PHASE	208/1
		MIN. CIRCUIT AMPS	12.0
		MAX. OVERCURRENT PROTECTION	20

NOTES:

1. PROVIDE THE MAKE AND MODEL SPECIFIED OR AN ENGINEER APPROVED EQUAL.
2. THE TOTAL AND SENSIBLE COOLING COIL CAPACITIES ARE TO BE BASED UPON THE SCHEDULED ENTERING EVAPORATOR AND CONDENSER CONDITIONS.
3. PROVIDE DX SPLIT SYSTEMS WITH CONTROLS INCLUDING WALL MOUNTED ELECTRONIC, 7-DAY PROGRAMMABLE THERMOSTATS WITH AUTOMATIC HEAT/COOL SWITCH-OVER CAPABILITY.
4. COOLING COIL DRAIN PANS SHALL BE SLOPED FOR COMPLETE DRAINAGE WITH NO STANDING WATER (IAQ PANS).
5. PROVIDE ALL INDOOR AND OUTDOOR UNITS WITH SINGLE POINT ELECTRICAL CONNECTION.
6. PROVIDE ALL INDOOR SUPPLY FANS WITH ADJUSTABLE FAN SHEAVES.
7. PROVIDE ALL UNITS WITH STANDARD SIZE (LOCALLY STOCKED) PLEATED FILTERS. FILTERS WITH CUSTOM DIMENSIONS ARE NOT ACCEPTABLE.
8. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL REFRIGERATION PIPING IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND REQUIREMENTS, INCLUDING DISTANCE AND ELEVATION LIMITS. INSULATE BOTH LINES FOR HEAT PUMP SYSTEMS.
9. ALL MOTORS SHALL BE PREMIUM HIGH EFFICIENCY RATING.
10. MOTORS 1HP AND LESS SHALL BE ECM. ALL MOTORS SHALL HAVE THE MEANS TO ADJUST FAN SPEED FOR BALANCING OR REMOTE CONTROL.
11. CONTROL PANEL SHORT CIRCUIT CAPACITY TO MATCH FEEDER KAIC OR PROVIDE WIRING FOR SEPARATE 120V FEED.

PACKAGED DX ROOFTOP UNIT SCHEDULE

		RTU-1	RTU-2	RTU-3
GENERAL	MANUFACTURER	TRANE	TRANE	TRANE
	MODEL	IMPACK ROOFTOP	IMPACK ROOFTOP	IMPACK ROOFTOP
	NOMINAL TONS (ARI STD. COND.)	5	4	3
	NUMBER OF COMPRESSORS	1	1	1
	COMPRESSOR STAGES (EACH)	1	1	1
	TOTAL AIRFLOW (CFM)	1,900	1,650	1,200
	OUTSIDE AIRFLOW (CFM)	200	240	210
	% OUTSIDE AIR	11%	15%	19%
	ELEVATION (FT ABOVE MSL)	650	650	650
	UNIT WEIGHT (LBS)	479	460	379
FILTERS	TYPE	THROWAWAY	THROWAWAY	THROWAWAY
	MEDIA	1 - 18"X20", 1 - 18"X18"	1 - 18"X20", 1 - 18"X18"	1 - 18"X20", 1 - 18"X18"
	FINAL PRESSURE DROP (IN. W.G.)	0.1	0.1	0.1
COOLING	EVAP. ENTERING AIR (DB)	77.0	78.0	78.0
	EVAP. ENTERING AIR (WB)	65.0	64.0	64.0
	EVAP. LEAVING AIR (DB)	55.0	55.0	55.0
	EVAP. LEAVING AIR (WB)	55.0	55.0	55.0
	COND. ENTERING AIR (DB)	105.0	105.0	105.0
	TOTAL CAPACITY (MBH)	54.0	41.4	32.2
	SENSIBLE CAPACITY (BTUH)	41.6	33.3	26.0
	MIN. EFFICIENCY RATING (SEER2/EER2)	13.40/11.00	13.40/11.00	13.80/11.00
GAS FURNACE	ENTERING AIR (DB)	65.0	65.0	65.0
	LEAVING AIR (DB)	100.5	98.9	112.7
	INPUT CAPACITY (MBH)	90.0	70.0	70.0
	OUTPUT CAPACITY (MBH)	72.9	56.7	56.7
	MIN AFUE (%)	80.0%	80.0%	80.0%
SUPPLY FAN	DRIVE	DIRECT	DIRECT	DIRECT
	DISCHARGE CONFIGURATION	DOWNFLOW	DOWNFLOW	DOWNFLOW
	EXTERNAL STATIC (IN. WG.)	0.75	0.75	0.75
	MOTOR HP	0.75	0.75	0.75
ELECTRICAL	MIN. CIRCUIT AMPS	41.0	36.0	28.0
	MAX. OVERCURRENT PROTECTION	60	50	40
	VOLTS / PHASE	208-230/1	208-230/1	208-230/1
	AUX. POWER CIRCUIT AMPS/VOLTS	20A/120V	20A/120V	20A/120V

NOTES:

1. PROVIDE THE MAKE AND MODEL SPECIFIED OR AN ENGINEER APPROVED EQUAL.
2. REFER TO THE DRAWING FOR UNIT CONFIGURATION.
3. UNITS WITH GAS-FIRED FURNACE SHALL HAVE THE FAN IN THE BLOW-THRU CONFIGURATION SO THAT THERE IS POSITIVE PRESSURE ON THE OUTSIDE OF THE HEAT EXCHANGER.
4. THE TOTAL AND SENSIBLE COOLING COIL CAPACITIES ARE TO BE BASED UPON THE SCHEDULED EVAPORATOR ENTERING AND LEAVING AIR CONDITIONS AND CONDENSER ENTERING AIR CONDITION.
5. DRAIN PANS SHALL BE NON-CORROSIVE MATERIAL AND SLOPED FOR COMPLETE DRAINAGE WITH NO STANDING WATER (IAQ PANS).
6. PROVIDE ROOFTOP UNITS WITH INSULATED, FACTORY MANUFACTURED FULLY WELDED GALVANIZED STEEL ROOF CURB. CONTRACTOR'S STRUCUTURAL ENGINEER SHALL DESIGN THE CURB ATTACHMENT TO ROOF. COORDINATE ROOF CURB INSTALLATION WITH ROOFING CONTRACTOR.

   A. CURB MUST MUST EXTEND 14" ABOVE THE FINISHED SURFACE OF THE ROOF.CONTRACTOR TO COORDIDNATE THE ROOF SLOPE AND ADDITIONAL CURB HEIGHT TO ACCOMMODATE THE ROOFING INSULATION THICKNESS.

   B. ROOFTOP EQUIPMENT BASE RAIL SHALL REST ON CURB SUCH THAT THE BASE OVERHANGS THE CURB. THE OVERHANG IS TO ENHANCE THE WATER PROTECTION AT THE CURB. OTHER METHODS MUST RECEIVE PRIOR APPROVAL.

   C. ENTIRE ASSEMBLY SHALL BE DESIGNED TO WITHSTAND ALL IBC AND ASCE-7 WINDLOADING REQUIREMENTS FOR BUILDINGS LESS THAN 60' HIGH. THIS SPECIFICALLY APPLIES TO THE EQUIPMENT / CURB INTERFACE AND THE REQUIRED RESTRAINTS NECESSARY TO COMPLY WITH IBC AND ASCE-7.

   D. FAN MANUFACTURER AND CURB MANUFACTURER TO COORDINATE AND SUBMIT COMPLIANCE WITH THE ABOVE REQUIREMENTS. CONTRACTOR SHALL STATE ON THE ROOF CURB SUBMITTAL THE SLOPE AND TOTAL ROOF INSULATION THICKNESS AT THE LOCATION OF THE CURB.
7. PROVIDE ROOFTOP UNITS WITH THE FOLLOWING:

   A. ALL DX AND HEATER CONTROLS INCLUDING WALL-MOUNTED ELECTRONIC 7-DAY PROGRAMMABLE THERMOSTATS WITH AUTOMATIC HEAT/COOL SWITCH-OVER CAPABILITY.

   B. ECONOMIZER CYCLE CONTROLS AND MOTORIZED RETURN, RELIEF AND OUTSIDE AIR DAMPERS. (RTU-1, RTU2 & RTU-3)

   C. STANDARD SIZE (LOCALLY STOCKED) FILTERS. FILTERS WITH CUSTOM DIMENSIONS ARE NOT ACCEPTABLE.

   D. FACTORY MOUNTED 20A, 120V, GFCI DUPLEX CONVENIENCE OUTLET. PROVIDE J-BOX FOR FIELD CONNECTION OF SEPARATE RECEPTACLE POWER CIRCUIT.

   E. SINGLE POINT ELECTRICAL CONNECTION WITH NEMA 3R DISCONNECT SWITCH FOR ALL LOADS OVER 120V.

   F. CONDENSATE OVERFLOW SWITCH.

   G. CONDENSER HAIL GUARDS.
8. ROOFTOP UNITS SHALL BE VERTICAL DISCHARGE ARRANGEMENT WITH SUPPLY AND RETURN AIR ROUTED THROUGH ROOF CURB UNLESS NOTED OTHERWISE.
9. FURNISH AND INSTALL FLEXIBLE DUCT CONNECTIONS AT THE SUPPLY AND RETURN CONNECTIONS TO THE UNIT. TRANSITION DUCTWORK FROM FULL SIZE UNIT OPENING TO THE DUCTWORK DIMENSIONS SHOWN ON THE PLANS.
10. ALL MOTORS SHALL BE PREMIUM HIGH EFFICIENCY RATING.
11. CONTROL PANEL SHORT CIRCUIT CAPACITY SHALL MATCH FEEDER KAIC OR PROVIDE WIRING FOR SEPARATE 120V FEED.
12. WARRANTY: INSTALLING CONTRACTOR TO PROVIDE 1 YEAR PARTS & LABOR WARRANTY FOR THE RTU'S AND 5 YEAR PARTS WARRANTY FOR THE COMPRESSORS. WARRANTY MUST BE PROVIDED THRU THE MANUFACTURER, THIRD PARTY AND/OR MANUFACTURER'S REPS WARRANTIES ARE NOT ALLOWED.

AIR DEVICES SCHEDULE

MARK	GROUP	TYPE / PATTERN	BORDER / MOUNT	CONSTRUCTION	MANUFACTURER MODEL	NOTES
A1	24" X 24" CEILING SUPPLY AIR	360 DEGREE HORIZONTAL	LAY-IN CEILING	ALUMINUM, PAINTED WHITE	TITUS OMNI	NECK SIZES AS SHOWN ON DRAWINGS.
A2	12" X 12" CEILING SUPPLY AIR	4-WAY	CEILING (SURFACE MOUNT)	ALUMNIUM, PAINTED WHITE	TITUS PSS	NECK SIZES AS SHOWN ON DRAWINGS.
A3	SUPPLY GRILLE	SIDEWALL SUPPLY	SIDEWALL	ALUMNIUM, PAINTED WHITE	TITUS 300FL	NECK SIZES AS SHOWN ON DRAWINGS.
A4	SUPPLY GRILLE	SIDEWALL SUPPLY	SPIRAL DUCT MOUNTED	ALUMINIUM, PAINTED	TITUS S300FL	PROVIDE WITH AIR SCOOP DAMPER
R1	RETURN GRILLE	LOUVERED GRILLE 3/4" BLADE SPACING BLADES PARALLEL TO LONG DIMENSION	SIDEWALL	ALUMNIUM, PAINTED WHITE	TITUS 350ZFL	NECK SIZES AS SHOWN ON DRAWINGS.
R2	RETURN GRILLE	LOUVERED GRILLE 3/4" BLADE SPACING BLADES PARALLEL TO LONG DIMENSION	LAY-IN CEILING	ALUMNIUM, PAINTED WHITE	TITUS 350ZFL	NECK SIZES AS SHOWN ON DRAWINGS.

NOTES:

1. PROVIDE MAKE AND MODEL SPECIFIED OR ENGINEER APPROVED SUBSTITUTE.
2. COORDINATE AIR DEVICE COLOR SELECTION WITH ARCHITECT.
3. ALL CEILING-MOUNTED SUPPLY AND RETURNS IN GYP OR PLASTER CEILINGS SHALL BE INSTALLED WITH A LAY-IN PLASTER FRAME EQUAL TO PRICE MODEL SPF.

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Date:	Description:

M601

PIPE INSULATION SCHEDULE

INSULATION SYSTEM DESIGNATION	INSULATION					REMARKS
	DESCRIPTION	PRODUCTS	K	SERVICE TEMPERATURES		
				MIN	MAX	
CF	FLEXIBLE ELASTOMERIC CELLULAR, ASTM C534	ARMACELL ARMAFLEX ULTIMA	0.27	-297	220	LISTED AND LABELED PER UL723

PIPE JACKET SCHEDULE

JACKET SYSTEM DESIGNATION	JACKET		REMARKS
	DESCRIPTION	MANUFACTURER	
ASJ	ALL SERVICE JACKET - JACKET IS TO CONSIST OF A WHITE KRAFT PAPER FACING WITH AN ALUMINUM FOIL SUBSTRATE. WATER VAPOR PERMEANC...	OWENS-CORNING SSL II SELF-SEALING LAP...	
ALJ	ALUMINUM JACKET - JACKET IS TO BE 0.016 INCH THICK, TYPE 3003-H-14 ALUMINUM WITH A STUCCO EMBOSSED FINISH AND FACTORY APPLIED...	CHILDERS / PREMETCO	

NOTES:

1. K-FACTOR UNITS ARE BTU*IN/HR*FT2*OF TESTED AT 75 OF
2. PROVIDE PRODUCT LISTED OR ENGINEER PRE-APPROVED EQUAL, APPLIES TO ALL PRODUCTS LISTED IN SCHEDULE.
3. INSTALL ALL PRODUCTS PER THE MANUFACTURER'S RECOMMENDATIONS.
4. ALL INSULATING MATERIALS SHALL CONFORM TO ASTM E 84, HAVING A MAXIMUM FLAME SPREAD RATING OF 25 AND A MAXIMUM SMOKE DEVELOPMENT RATING OF 50.
5. FURNISH AND INSTALL PIPE LABELS ON ALL PIPING PER ASME AND ANSI A13.1.
6. INSULATION PRODUCTS THAT COME IN CONTACT WITH STAINLESS STEEL SHALL HAVE A LEACHABLE CHLORIDE CONTENT OF LESS THAN 50 PPM WHEN TESTED ACCORDING TO ASTM C871. INSULATION MATERIALS FOR USE ON AUSTENITIC STAINLESS STEEL SHALL BE QUALIFIED AS ACCEPTABLE ACCORDING TO ASTM C795.

DUCT SCHEDULE

DUCT WORK ID	SERVICE	MATERIAL TYPE, PRESSURE CLASS	JOINT TYPE	SEAL CLASS	INSULATION - JACKET TYPE			REMARKS
					INTERIOR CONCEALED	INTERIOR EXPOSED	INTERIOR UNCOND.	
SA (RECT)	SUPPLY AIR RECTANGULAR DUCT	GALVANIZED SHEET METAL PER SMACNA +2" W.G.	PER SMACNA	A	DWF-FSK R ≥ 6.0	NA - ROUND OR LINED DUCT ONLY	DWCCF R ≥ 8.0	
SA (ROUND)	SUPPLY AIR ROUND DUCT	GALVANIZED SHEET METAL PER SMACNA +2" W.G.	PER SMACNA	A	DWF-FSK R ≥ 6.0	DUCT TYPE DWI	DWCCF R ≥ 8.0	
RA (RECT)	RETURN AIR RECTANGULAR DUCT	GALVANIZED SHEET METAL PER SMACNA -3" W.G.	PER SMACNA	A	DWF-FSK R ≥ 6.0	INSULATION NOT REQ'D	DWCCF R ≥ 8.0	
SA/RA (FLEX)	FINAL AIR DEVICE CONNECTIONS	PREINSULATED FLEXIBLE ROUND DUCT	N / A	A	R >6.0	R >6.0	N/A	FLEXIBLE DUCT RUNS SHALL BE A MAXIMUM OF 5 FEET, 12 INCH MAX FOR PRIMARY DUCT CONN. TO TERMINAL UNITS. MATCH PRESSURE RATING OF ASSOCIATED DUCTWORK.
OA	UNCONDITIONED OUTSIDE AIR	GALVANIZED SHEET METAL PER SMACNA +2" W.G.	PER SMACNA	A	DWF-FSK R > 6.0	DUCT TYPE DWI	DWCCF R ≥ 6.0	INSULATION NOT REQUIRED FOR STAIRWELL PRESSURIZATION IN THE EVENT OF A FIRE.
EA	GENERAL EXHAUST DUCT	GALVANIZED SHEET METAL PER SMACNA -3" W.G.	PER SMACNA	A	NONE	NONE	DWCCF R ≥ 4.3	INSULATE EXHAUST DUCT WHERE CALLED FOR ONLY WHEN EXHAUSTING HUMIDIFIED SPACES. EXTEND INSULATION TO 2' INSIDE OF THE CONDITIONED SPACE FROM EXT. WALL OR ROOF.

NOTES:

1. ALL DUCT SIZES INDICATE INSIDE CLEAR DIMENSIONS IN INCHES.
2. ALL METAL DUCT SHALL BE CONSTRUCTED PER SMACNA STANDARDS. METAL TAPE SHALL NOT BE ALLOWED AS METAL DUCT SEALANT UNLESS SPECIFICALLY NOTED OTHERWISE. SEAL ALL DUCTS IN ACCORDANCE WITH SMACNA SEAL CLASS A, INCLUDING ALL JOINTS, SEAMS, AND ALL APPLICABLE WALL PENETRATIONS UNLESS NOTED OTHERWISE. SEALANT SHALL BE WATER BASED UNLESS SUSCEPTIBLE TO CONDENSATION OR WATER EXPOSURE. SOLVENT BASED SEALANT SHALL BE USED IN THAT CASE.
3. PROVIDE PRODUCTS LISTED OR ENGINEER PRE-APPROVED EQUAL, APPLIES TO ALL PRODUCTS LISTED IN SCHEDULE.
4. INSULATION:

   A. INSULATION ABREVIATIONS: DWF- FLEXIBLE DUCT WRAP, DWR - RIGID DUCT WRAP, DLF - FLEXIBLE DUCT LINER, DWCCF - CLOSED CELL FOAM DUCT WRAP. REFER TO DUCT INSULATION SCHEDULE FOR DETAILED INFORMATION.

   B. JACKET ABBREVIATIONS: FSK - FOIL SCRIM KRAFT JACKET. REFER TO DUCT INSULATION SCHEDULE FOR DETAILED INFORMATION.

   C. DUCT LINER SHALL BE USED FOR NOISE REDUCTION ONLY, IN DUCTS WITH VELOCITIES < 1500 FPM, AND FOR A MAXIMUM 10' LENGTH UNLESS NOTED OTHERWISE ON THE PLANS. DUCT LINER SHALL NOT BE USED ON DUCT CONNECTED TO FAN DISCHARGE OR DUCTS IN INTERIOR UNCONDITIONED SPACES OR EXTERIOR DUCT.

   D. INSULATION R-VALUES ARE INSTALLED R-VALUES.

   E. INSULATION PRODUCTS THAT COME IN CONTACT WITH STAINLESS STEEL SHALL HAVE A LEACHABLE CHLORIDE CONTENT OF LESS THAN 50 PPM WHEN TESTED ACCORDING TO ASTM C871. INSULATION MATERIALS FOR USE ON AUSTENITIC STAINLESS STEEL SHALL BE QUALIFIED AS ACCEPTABLE ACCORDING TO ASTM C795.
5. INSTALLATION: ALL DUCT SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND MANUFACTURER'S RECOMMENDATIONS. ALL FACTORY-FABRICATED DUCTS MUST BE INSTALLED BY INSTALLERS CERTIFIED BY THE MANUFACTURER TO DO SO.
6. ALL MATERIALS USED IN PLENUMS SHALL CONFORM TO ASTM E84, HAVING A MAXIMUM FLAME SPREAD RATING OF 25 AND A MAXIMUM DEVELOPED SMOKE RATING OF 50.
7. FURNISH AND INSTALL ALL MITERED ELBOWS WITH TURNING VANES. RADIUSED RECTANGULAR ELBOWS SHALL HAVE CENTER LINE RADIUS TO WIDTH RATIO (R/W) OF 1.5 UNLESS OTHERWISE SPECIFIED. ALL ROUND ELBOWS SHALL HAVE A CENTERLINE RADIUS TO DIAMETER RATIO (R/D) OF 1.5 UNLESS SHORT RADIUS ELBOWS ARE CALLED FOR ON THE PLANS IN WHICH CASE THE R/D RATIO SHALL BE 1.0.
8. SPACE CLASSIFICATIONS

   A. INTERIOR CONCEALED REFERS TO CONDITIONED UNOCUPPIED SPACES AND RETURN AIR PLENUMS.

   B. INTERIOR EXPOSED REFERS TO CONDITIONED OCCUPIED SPACES.

   C. INTERIOR UNCONDITIONED SPACES INCLUDES ABOVE CEILING SPACES IN DUCTED RETURN APPLICATIONS, VENTILATED ATTICS, CRAWL SPACES, MECHANICAL AND ELECTRICAL ROOMS, ETC.
9. ALL DUCT SUPPORTS SHALL BE FURNISHED AND INSTALLED PER SMACNA HVAC DUCT CONTRUCTION STANDARDS. POWDER-ACTUATED FASTENERS ARE NOT ALLOWED.
10. ALL DUCTWORK DESIGNED FOR 3" W.C AND ABOVE AND ALL DUCTWORK LOCATED OUTDOORS SHALL BE LEAK TESTED IN ACCORDANCE WITH THE SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL. REPRESENTATIVE SECTIONS TOTALLING NO LESS THAN 25% OF THE TOTAL INSTALLED DUCT AREA FOR THE DESIGNATED PRESSURE CLASS, SELECTED BY THE BUILDING OWNER OR THE ENGINEER, SHALL BE TESTED. POSITIVE PRESSURE LEAKAGE TESTING IS ACCEPTABLE FOR NEGATIVE PRESSURE DUCTWORK.

DUCTWORK INSULATION SCHEDULE

SYSTEM DESIGNATION	DESCRIPTION	PRODUCTS	K	SERVICE TEMPERATURES		NOMINAL THICKNESS	INSTALLED R-VALUE	REMARKS
				MIN (DEG. F)	MAX (DEG. F)			
DWF	FLEXIBLE DUCT WRAP GLASS FIBER ASTM C1290, TYPE III	OWENS CORNING SOFTR DUCT WRAP TYPE 75	0.30	0	250	2.2	6.0	
						3.0	8.3	
DWCCF	CLOSED-CELL ELASTOMERIC FOAM DUCT WRAP ASTM C534, TYPE II	ARMACELL AP ARMAFLEX FS	0.25	-20	220	2.0	8.0	

DUCTWORK JACKET SCHEDULE

SYSTEM...	DESCRIPTION	MANUFACTURER	REMARKS
FSK	ALUMINUM-FOIL, FIBERGLASS-REINFORCED SCRIM WITH KRAFT-PAPER OR POLYETHYLENE (FSP) BACKING. WATER VAPOR PERMEANCE = 0.02...	OWENS-CORNING FSK-25	

NOTES:

1. K-FACTOR UNITS ARE BTU*IN/HR*FT2*°F TESTED AT MEAN TEMPERATURE 75 °F
2. PROVIDE PRODUCT LISTED OR ENGINEER PRE-APPROVED EQUAL, APPLIES TO ALL PRODUCTS LISTED IN SCHEDULE.
3. ALL PRODUCTS TO BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
4. ALL INSULATING MATERIALS SHALL CONFORM TO ASTM E 84, HAVING A MAXIMUM FLAME SPREAD RATING OF 25 AND A MAXIMUM SMOKE DEVELOPMENT RATING OF 50.
5. FIBERGLASS NOMINAL THICKNESS IS OUT OF BOX THICKNESS. REQUIRED R-VALUE SHALL BE INSTALLED R-VALUE.
6. INSULATION PRODUCTS THAT COME IN CONTACT WITH STAINLESS STEEL SHALL HAVE A LEACHABLE CHLORIDE CONTENT OF LESS THAN 50 PPM WHEN TESTED ACCORDING TO ASTM C871. INSULATION MATERIALS FOR USE ON AUSTENITIC STAINLESS STEEL SHALL BE QUALIFIED AS ACCEPTABLE ACCORDING...

MECHANICAL PIPE SCHEDULE

PIPING ID	SERVICE	SIZE	DESIGN PRESSURE	MATERIAL TYPE	FITTING TYPE	JOINT TYPE	INSULATION TYPE	VALVES	REMARKS
REF	REFRIGERANT	ALL		TYPE ACR COPPER TUBING ASTM B 280, CLEAN, DRY & CAPPED	WROUGHT COPPER FITTINGS PER ASME B16.22	BRAZE- AWS A5.8 BCuP5 SILVER/PHOSPHORUS/Cu ALLOY MELTING RANGE 1190-1480 DEG F	1" CF FOR SUCTION LINE (BOTH LINES FOR HEAT PUMPS) 1-1/2" CF FOR HOT GAS HEAT RECOVERY AND VRF 3RD LINE		ARMAFLEX SHIELD PRODUCT TO BE USED FOR DIRECT BURIED REF. PIPING OR PIPING IS EXPOSED TO DIRECT SUNLIGHT.
COND	CONDENSATE (HVAC)	ALL		TYPE L COPPER HARD DRAWN TUBING ASTM B88	WROUGHT COPPER FITTINGS PER ASME B16.22	SOLDER 95% TIN, 5% SILVER PER ASTM B32 OR VIEGA PROPRESS	1/2" CF TO PREVENT CONDENSATION		VIEGA PROPRESS OR EQUAL ALLOWED FOR CU PIPING 4" AND BELOW; EPDM O-RINGS
				SCHEDULE 40 PVC - ASTM D 1785	SCHEDULE 40 PVC - ASTM D 2466	PRIMER AND SOLVENT CEMENT			CONDENSATE PIPING TO BE SLOPED 1/8" PER FOOT TOWARDS DRAIN.

NOTES:

1. INSULATION TYPE: CF - FLEXIBLE ELASTOMERIC CELLULAR FOAM
2. INSULATION JACKET TYPE:

   A. INTERIOR CONCEALED LOCATIONS: ALL SERVICE JACKET (ASJ)

   B. INTERIOR EXPOSED LOCATIONS, INCLUDING MECHANICAL ROOMS: PVC ABOVE 8' AFF, ALUMINUM (ALJ) BELOW 8' AFF

   C. EXTERIOR LOCATIONS: ALUMINUM (ALJ)
3. INSULATION PRODUCTS THAT COME IN CONTACT WITH STAINLESS STEEL SHALL HAVE A LEACHABLE CHLORIDE CONTENT OF LESS THAN 50 PPM WHEN TESTED ACCORDING TO ASTM C871. INSULATION MATERIALS FOR USE ON AUSTENITIC STAINLESS STEEL SHALL BE QUALIFIED AS ACCEPTABLE ACCORDING TO ASTM C795.
4. PROVIDE PRODUCT LISTED OR ENGINEER PRE-APPROVED EQUAL, APPLIES TO ALL PRODUCTS LISTED IN SCHEDULE.
5. INSTALL ALL PRODUCTS PER THE MANUFACTURERS RECOMMENDATIONS.
6. ALL PIPING IS TO BE SUPPORTED PER ANSI B31.9, ASME B31.1, MSS SP-58, AND MSS SP-69 AND MANUFACTURER'S INSTRUCTIONS.
7. LABEL ALL PIPING IN ACCORDANCE WITH ASME A13.1.
8. PIPING SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE APPLICABLE CODES AND LOCAL AHJ.
9. WHEN JOINING DISSIMILAR METALS USE DIELECTRIC NIPPLES OR COUPLINGS, OR DIELECTRIC FLANGE KITS ON LARGER PIPING. DIELECTRIC UNIONS ARE NOT ALLOWED.
10. CLEAN AND FLUSH ALL NEWLY INSTALLED PIPING AND STRAINER / FILTERS WITH SYSTEM APPROPRIATE MATERIAL PRIOR TO PUTTING SYSTEM INTO OPERATION.

EEA CONSULTING ENGINEERS
7300 Ranch Road 2222, Bldg II, Ste. 100
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512.744.4400 main · 512.744.4444 fax
www.eeace.com

EEA Project No. 20266411
State of registration TX
Firm Registration No. F-2497

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BONILLA LAW FIRM
BONILLA LAW FIRM
1833 S I-35 Frontage Rd.
Austin, TX 78741

N-VIZION
FORMS + ENVIRONMENTS + IMAGES

MECHANICAL SCHEDULES

Project No. 251203
N-vizion Design, LLC - 6900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 (512) 214-2978 www.n-vizion.com
Registered with the States of Texas, LA: 9413 MI:
1301069591 , NV: 8252, NC: 14883, OH: ARC.1917885

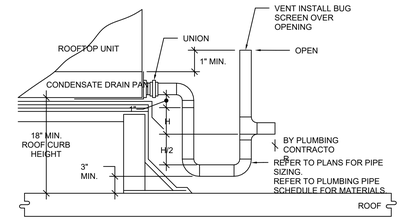
Date:	Description:

M602

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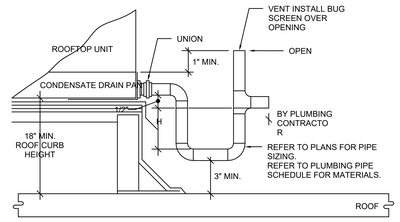
EEA Project No. 20266411
State of registration TX
Firm Registration No. F-2497

DESIGNER NOTE:
USE THIS DETAIL ONLY IF AHJ ALLOWS CONDENSATE TO ROOF DRAIN



DRAW-THROUGH UNIT DRAIN

NOTE: H = FAN INLET PRESSURE (IN. WC.)

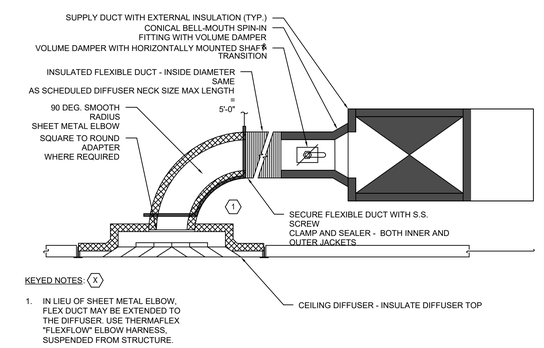


BLOW-THROUGH UNIT DRAIN

NOTE: H = FAN OUTLET PRESSURE (IN. WC.)

1 ROOFTOP UNIT CONDENSATE DRAIN

N.T.S.



KEYED NOTES: (X)

1. IN LIEU OF SHEET METAL ELBOW, FLEX DUCT MAY BE EXTENDED TO THE DIFFUSER. USE THERMAFLEX "FLEXFLOW" ELBOW HARNESS, SUSPENDED FROM STRUCTURE.

2 CEILING DIFFUSER CONNECTION

N.T.S.

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N-VIZION
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MECHANICAL DETAILS

Project No.: 251203
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Austin, TX 78730 | 512.266.4566 | www.n-vizion.com
Registered in: TX: F-21277; TX-25489; LA: 9413 MI: 1301009591; NV: 6252; NC: 14883; OH: ARC-1917885

Date:	Description:

M701

Uniform Mechanical Code-2024
ASHRAE Standard 62.1 – Ventilation for Acceptable Indoor Air Quality

Minimum Ventilation Rates in Breathing Zone

SPACE TYPE	Rp (CFM/PER)	Ra (CFM/SF)	OCCUPANT DENSITY (SQ.FT / PERSON)
CONFERENCE/MEETING	5	0.06	20
CORRIDORS	0	0.06	0
RECEPTION AREAS	5	0.06	33.33
OFFICE SPACE	5	0.06	200
BREAK ROOM	5	0.12	20

*ACTUAL OCCUPANT DENSITY VARIES BASED ON FURNITURE LAYOUT IN PLANS

PROCEDURE:
Vbz = RpPz + RaAz
Voz = Vbz/Ez

Ez = 1 Clg Supply/Return of Warm Air
1 Clg Supply/Return of Cold Air

ROOM DESIGNATION	Rp	Pz	Ra	Az	Vbz	Voz
01-OFFICE 106*	5	5	0.06	263	40.8	49
02-LOUNGE 100	5	6	0.06	200	42.0	50
03-CONF.ROOM 101	5	20	0.06	385	123.1	148
04-RECEPTION 102	5	12	0.06	377	82.6	99
05-CONF.ROOM 117	5	8	0.06	150	49.0	59
06-OFFICE 116*	5	2	0.06	141	18.5	22
07-OFFICE 115*	5	2	0.06	145	18.7	22
08-OPEN AREA 103	5	4	0.06	346	40.8	49
09-BREAK ROOM 104	5	8	0.12	150	58.0	70
10-COPY 105	5	0	0.06	127	7.6	9
11-OFFICE 109(CORRIDOR)	5	0	0.06	470	28.2	34
12-OFFICE 107*	5	2	0.06	140	18.4	22
13-OFFICE 108*	5	2	0.06	177	20.6	25
14-OFFICE-1 109-1*	5	3	0.06	194	26.6	32
15-OFFICE 110*	5	2	0.06	180	20.8	25
16-OFFICE 111*	5	2	0.06	147	18.8	23
17-UNISEX RR 112	0	0	0	59	0.0	0
18-JAN 119	0	0	0	18	0.0	0
19-UNISEX RR 113	0	0	0	75	0.0	0
20-MECH 120	5	0	0.06	36	2.2	3
21-OFFICE 114*	5	2	0.06	201	22.1	26
22-IT 121	0	0	0	13	0.0	0
				TOTAL OA CFM	638.7	766.5

*ACTUAL OCCUPANT DENSITY VARIES BASED ON FURNITURE LAYOUT IN PLANS

TOTALS	
Total CFM Required	800 CFM

ID	OA CFM
RTU-1	200 CFM
RTU-2	240 CFM
RTU-3	210 CFM
AHU-1	150 CFM

Minimum Exhaust Rates

SPACE TYPE	EXHAUST RATE (CFM/UNIT)	EXHAUST RATE (CFM/SQ.FT)
JANITOR CLOSETS		1.0
TOILETS - PRIVATE	25/50	_

ROOM DESIGNATION	EXHAUST RATE (CFM/UNIT)	EXHAUST RATE (CFM/SQ.FT)	AREA FT	SQ EXHAUST	CFM
17-UNISEX RR 112	50	_	59	50	
18-JAN 119	_	1.0	18	18	
19-UNISEX RR 113	50	_	75	50	
			TOTAL EXHAUST RATE	118	

System Checksums
By avatara

RTU-1 — System 4 - 2007/2010 - Packaged Rooftop Heat Pump

COOLING COIL PEAK — Peaked at Time: Mo/Hr: 8 / 17; Outside Air: OADB/WB/HR: 99 / 72 / 78

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	2,893	2,893	6
Glass Solar	21,158	0	21,158	43
Glass/Door Cond	3,619	0	3,619	7
Wall Cond	2,473	720	3,193	6
Partition/Door	0	0	0	0
Floor	0	0	0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	0	0	0	0
Sub Total ==>	27,250	3,614	30,863	63
Internal Loads				
Lights	3,004	0	3,004	6
People	8,100	0	8,100	16
Misc	0	0	0	0
Sub Total ==>	11,104	0	11,104	22
Ceiling Load	3,502	-3,502	0	0
Ventilation Load	0	0	7,391	15
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage			0	0
Grand Total ==>	41,856	111	49,358	100.00

CLG SPACE PEAK — Mo/Hr: 8 / 18; OADB: 97

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	23,581	60
Glass/Door Cond	2,751	7
Wall Cond	2,449	6
Partition/Door	0	0
Floor	0.00	0.00
Adjacent Floor	0.00	0.00
Infiltration	0	0
Sub Total ==>	28,781	73
Internal Loads		
Lights	3,004	8
People	4,500	11
Misc	0	0
Sub Total ==>	7,504	19
Ceiling Load	3,235	8
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Dehumid. Ov Sizing		0
Ov/Undr Sizing	0	0
Exhaust Heat		0
Sup. Fan Heat		0
Ret. Fan Heat		0
Duct Heat Pkup		0
Underflr Sup Ht Pkup		0
Supply Air Leakage		0
Grand Total ==>	39,520	100.00

HEATING COIL PEAK — Mo/Hr: Heating Design; OADB: 26

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,494	3.81
Glass Solar	0	0	0.00
Glass/Door Cond	-7,060	-7,060	18.00
Wall Cond	-1,824	-2,336	5.96
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0.00	0.00	0.00
Infiltration	0	0	0.00
Sub Total ==>	-8,885	-10,891	27.76
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-2,006	0	0.00
Ventilation Load	0	-9,593	24.45
Adj Air Trans Heat	0	0	0.00
Ov/Undr Sizing	-18,749	-18,749	47.79
Exhaust Heat		0	0.00
RA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-29,640	-39,233	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	85.0
Ra Plenum	84.9	64.3
Return	75.0	70.0
Ret/OA	77.7	65.2
Fn Mn/TD	0.0	0.0
Fn Bld/TD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	1,813	1,813
Terminal	1,813	1,813
Main Fan	1,813	1,813
Sec Fan	0	0
Nom Vent	200	200
AHU Vent	200	200
Infil	0	0
Min/Stop/Rh	0	0
Return	1,813	1,813
Exhaust	200	200
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	11.0	11.0
cfm/ft²	1.63	1.63
cfm/ton	440.70	
ft²/ton	270.84	
Btu/hr·ft²	44.31	-35.22
No. People	18	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	4.1	49.4	43.0	1,813	77.7	62.3	61.5	55.0	52.9	57.7
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	4.1	49.4								

AREAS

	Gross Total ft²	Glass ft²	(%)
Floor	1,114		
Part	0		
Int Door	1		
ExFlr	0		
Roof	1,114	0	0
Wall	1,056	362	34
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-39.2	1,813	65.2	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-39.2			

Project Name: 202666xx
Dataset Name: 202666xxBonilla.trc

TRACE® 700 v6.3.5 calculated at 11:57 AM on 04/23/2026
Alternative - 1 System Checksums Report Page 2 of 4

System Checksums
By avatara

RTU-2 — System 4 - 2007/2010 - Packaged Rooftop Heat Pump

COOLING COIL PEAK — Peaked at Time: Mo/Hr: 8 / 12; Outside Air: OADB/WB/HR: 97 / 75 / 98

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,605	1,605	4
Glass Solar	13,531	0	13,531	30
Glass/Door Cond	2,236	0	2,236	5
Wall Cond	2,659	371	3,030	7
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	0		0	0
Sub Total ==>	18,426	1,976	20,402	46
Internal Loads				
Lights	2,734	0	2,734	6
People	10,700	0	10,700	24
Misc	0	0	0	0
Sub Total ==>	13,434	0	13,434	30
Ceiling Load	1,878	-1,878	0	0
Ventilation Load	0	0	10,040	22
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			838	2
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage			0	0
Grand Total ==>	33,738	98	44,714	100.00

CLG SPACE PEAK — Mo/Hr: 9 / 12; OADB: 89

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	16,973	55
Glass/Door Cond	852	3
Wall Cond	2,544	8
Partition/Door	0	0
Floor	0.00	0.00
Adjacent Floor	0.00	0.00
Infiltration	0	0
Sub Total ==>	20,368	66
Internal Loads		
Lights	2,734	9
People	6,400	21
Misc	0	0
Sub Total ==>	9,134	30
Ceiling Load	1,311	4
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	-14,033	40.53
Exhaust Heat	0	0.00
OA Preheat Diff.		0.00
RA Preheat Diff.		0.00
Additional Reheat		0.00
Underflr Sup Ht Pkup		0.00
Supply Air Leakage		0.00
Grand Total ==>	30,813	100.00

HEATING COIL PEAK — Mo/Hr: Heating Design; OADB: 26

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,380	3.98
Glass Solar	0	0	0.00
Glass/Door Cond	-5,432	-5,432	15.69
Wall Cond	-1,997	-2,266	6.54
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0.00	0.00	0.00
Infiltration	0	0	0.00
Sub Total ==>	-7,429	-9,077	26.22
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-1,648	0	0.00
Ventilation Load	0	-11,512	33.25
Adj Air Trans Heat	0	0	0.00
Ov/Undr Sizing	-14,033	-14,033	40.53
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-23,110	-34,621	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	85.0
Ra Plenum	80.8	64.9
Return	75.0	70.0
Ret/OA	78.7	62.5
Fn Mn/TD	0.1	0.0
Fn Bld/TD	0.1	0.0
Fn Frict	0.4	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	1,413	1,413
Terminal	1,413	1,413
Main Fan	1,413	1,413
Sec Fan	0	0
Nom Vent	240	240
AHU Vent	240	240
Infil	0	0
Min/Stop/Rh	0	0
Return	1,413	1,413
Exhaust	240	240
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	17.0	17.0
cfm/ft²	1.39	1.39
cfm/ton	379.29	
ft²/ton	272.13	
Btu/hr·ft²	44.10	-34.14
No. People	26	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	3.7	44.7	35.5	1,413	78.7	63.8	67.0	54.5	53.1	59.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	3.7	44.7								

AREAS

	Gross Total ft²	Glass ft²	(%)
Floor	1,014		
Part	0		
Int Door	1		
ExFlr	0		
Roof	1,014	0	0
Wall	941	279	30
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-34.6	1,413	62.5	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-34.6			

Project Name: 202666xx
Dataset Name: 202666xxBonilla.trc

TRACE® 700 v6.3.5 calculated at 11:57 AM on 04/23/2026
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System Checksums
By avatara

RTU-3 — System 4 - 2007/2010 - Packaged Rooftop Heat Pump

COOLING COIL PEAK — Peaked at Time: Mo/Hr: 8 / 15; Outside Air: OADB/WB/HR: 101 / 74 / 88

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	3,291	3,291	13
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	1,187	210	1,397	5
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	0		0	0
Sub Total ==>	1,187	3,500	4,687	18
Internal Loads				
Lights	3,993	0	3,993	15
People	7,700	0	7,700	29
Misc	0	0	0	0
Sub Total ==>	11,693	0	11,693	45
Ceiling Load	3,457	-3,457	0	0
Ventilation Load	0	0	9,332	36
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	21		21	0
Exhaust Heat		0	0	0
Sup. Fan Heat			377	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage			0	0
Grand Total ==>	16,357	44	26,109	100.00

CLG SPACE PEAK — Mo/Hr: 7 / 17; OADB: 99

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	-1,842
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	-1,470	-1,763
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0.00	0.00
Infiltration	0	0
Sub Total ==>	-1,470	-3,605
Internal Loads		
Lights	0	0
People	0	0
Misc	0	0
Sub Total ==>	0	0
Ceiling Load	-2,135	0
Ventilation Load	0	-10,073
Adj Air Trans Heat	0	0
Ov/Undr Sizing	-6,790	-6,790
Exhaust Heat		0
OA Preheat Diff.		0
RA Preheat Diff.		0
Additional Reheat		0
Underflr Sup Ht Pkup		0
Supply Air Leakage		0
Grand Total ==>	-10,396	-20,468

HEATING COIL PEAK — Mo/Hr: Heating Design; OADB: 26

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,842	9.00
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-1,470	-1,763	8.61
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0.00	0.00	0.00
Infiltration	0	0	0.00
Sub Total ==>	-1,470	-3,605	17.61
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-2,135	0	0.00
Ventilation Load	0	-10,073	49.21
Adj Air Trans Heat	0	0	0.00
Ov/Undr Sizing	-6,790	-6,790	33.18
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-10,396	-20,468	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	85.0
Ra Plenum	82.4	65.5
Return	75.0	70.0
Ret/OA	83.6	55.5
Fn Mn/TD	0.1	0.0
Fn Bld/TD	0.1	0.0
Fn Frict	0.4	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	636	636
Terminal	636	636
Main Fan	636	636
Sec Fan	0	0
Nom Vent	210	210
AHU Vent	210	210
Infil	0	0
Min/Stop/Rh	0	0
Return	636	636
Exhaust	210	210
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	33.0	33.0
cfm/ft²	0.43	0.43
cfm/ton	292.20	
ft²/ton	680.67	
Btu/hr·ft²	17.63	-13.82
No. People	18	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	2.2	26.1	19.4	636	83.6	66.7	73.6	54.5	53.3	60.2
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.2	26.1								

AREAS

	Gross Total ft²	Glass ft²	(%)
Floor	1,481		
Part	0		
Int Door	1		
ExFlr	0		
Roof	1,334	0	0
Wall	517	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-20.5	636	55.5	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-20.5			

Project Name: 202666xx
Dataset Name: 202666xxBonilla.trc

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System Checksums
By avatara

AHU-1 — Fan Coil

COOLING COIL PEAK — Peaked at Time: Mo/Hr: 8 / 14; Outside Air: OADB/WB/HR: 100 / 75 / 91

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	917	0	917	5
Glass Solar	828	0	828	5
Glass/Door Cond	302	0	302	2
Wall Cond	842	0	842	5
Partition/Door	0	0	0	0
Floor	0	0	0	0
Adjacent Floor	0.00	0.00	0.00	0.00
Infiltration	0	0	0	0
Sub Total ==>	2,889	0	2,889	16
Internal Loads				
Lights	1,038	0	1,038	6
People	8,000	0	8,000	44
Misc	0	0	0	0
Sub Total ==>	9,038	0	9,038	49
Ceiling Load	0	0	0	0
Ventilation Load	0	0	6,277	34
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			152	1
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage			0	0
Grand Total ==>	11,927	0	18,356	100.00

CLG SPACE PEAK — Mo/Hr: Sum of ; OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	914	10
Glass Solar	1,245	13
Glass/Door Cond	221	2
Wall Cond	1,007	11
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0.00	0.00
Infiltration	0	0
Sub Total ==>	3,386	36
Internal Loads		
Lights	1,038	11
People	4,900	53
Misc	0	0
Sub Total ==>	5,938	64
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat	0	0
OA Preheat Diff.		0
RA Preheat Diff.		0
Additional Reheat		0
Underflr Sup Ht Pkup		0
Supply Air Leakage		0
Grand Total ==>	9,324	100.00

HEATING COIL PEAK — Mo/Hr: Heating Design; OADB: 26

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	-593	-593	4.18
Glass Solar	0	0	0.00
Glass/Door Cond	-527	-527	3.71
Wall Cond	-652	-652	4.59
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0.00	0.00	0.00
Infiltration	0	0	0.00
Sub Total ==>	-1,771	-1,771	12.48
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	-527	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-7,195	50.71
Adj Air Trans Heat	0	0	0.00
Ov/Undr Sizing	-5,222	-5,222	36.81
Exhaust Heat	0	0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-6,993	-14,188	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	85.0
Ra Plenum	75.0	70.0
Return	75.0	70.0
Ret/OA	83.9	54.6
Fn Mn/TD	0.0	0.0
Fn Bld/TD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	428	428
Terminal	428	428
Main Fan	428	428
Sec Fan	0	0
Nom Vent	150	150
AHU Vent	150	150
Infil	0	0
Min/Stop/Rh	0	0
Return	428	428
Exhaust	150	150
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	35.1	35.1
cfm/ft²	1.11	1.11
cfm/ton	279.60	
ft²/ton	251.69	
Btu/hr·ft²	47.68	-36.85
No. People	20	

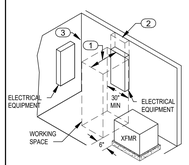
COOLING COIL SELECTION

| | Total Capacity ton | Total Capacity MBh | Sens Cap. MBh | Coil Airflow cfm | Enter DB °F | Enter WB °F | Enter H

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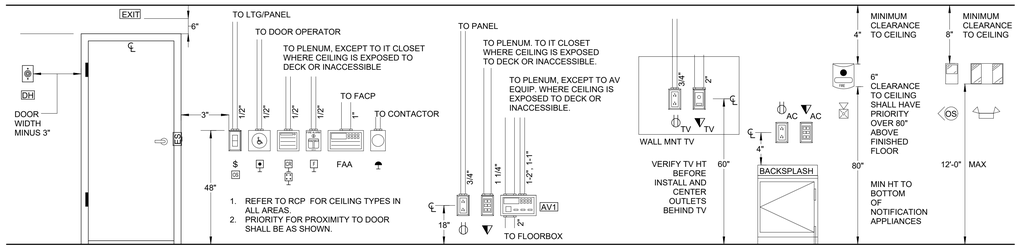
EEA Project No. 20266411
State of registration TX
Firm Registration No. F-2497

ELECTRICAL EQUIPMENT CLEARANCE REQUIREMENTS



KEYED NOTES:

1. 3' (0-150V TO GND), 3.5' (151V-600V TO GND), 4' (OVER 150V WITH EXPOSED LIVE PARTS ON OTHER SIDE).
2. DEDICATED EQUIPMENT SPACE SHALL BE KEPT CLEAR TO 6FT ABOVE EQUIPMENT OR TO STRUCTURE OF ALL BUT CONDUIT SERVING EQUIPMENT.
3. MIN OFFSET SHALL BE DEPTH OF EQUIPMENT ON PERPENDICULAR WALL



ELECTRICAL SHEET INDEX

E001	ELECTRICAL SYMBOLS AND LEGENDS
E002	ELECTRICAL SPECIFICATIONS
E003	ELECTRICAL SPECIFICATIONS
ED101	ELECTRICAL DEMOLITION PLAN
E101	LIGHTING PLAN
E201	POWER PLAN
E202	HVAC POWER PLAN
E601	ELECTRICAL SCHEDULES

ELECTRICAL ABBREVIATIONS LIST

A	AMPERE	LOTO	LOCK OUT TAG OUT
AC	ABOVE COUNTER	LTG	LIGHT OR LIGHTING
AFF	ABOVE FINISHED FLOOR	MCB	MAIN CIRCUIT BREAKER
AIC	AMP INTERRUPTING CAPACITY	MC	MOTOR CONTROL CENTER
A/V	AUDIO VISUAL	MCP	MOTOR CIRCUIT PROTECTOR
ATS	AUTOMATIC TRANSFER SWITCH	MIN	MINIMUM
BLDG	BUILDING	MH	METAL HALIDE
C	CONDUIT	MLO	MAIN LUGS ONLY
CKT	CIRCUIT	MNS	MASS NOTIFICATION SYSTEM
CM	CONTROL MODULE	MRS	MOTOR RATED SWITCH
CONN	CONNECT OR CONNECTION	MSB	MAIN SWITCH BOARD
CT	CURRENT TRANSFORMER	MTD	MOUNTED
DIM	DIMENSION	MTS	MANUAL TRANSFER SWITCH
EA	EACH	MV	MEDIUM VOLTAGE
EC	ELECTRICAL CONTRACTOR	N.I.C.	NOT IN CONTRACT
EF	EXHAUST FAN	NL	NIGHT LIGHT (UNSWITCHED)
ELEC	ELECTRIC, ELECTRICAL	NTS	NOT TO SCALE
EMER	EMERGENCY	Ø	PHASE
EPO	EMERGENCY POWER OFF	OL	OVERLOAD
EWC	ELECTRIC WATER COOLER	OE	OVER HEAD ELECTRIC
FACP	FIRE ALARM CONTROL PANEL	PS	PULL STRING
FLA	FULL LOAD AMPS	RECPT	RECEPTACLE
FS	FLOW SWITCH	RGS	RIGID GALVANIZED STEEL
FSD	FIRE SMOKE DAMPER	SPD	SURGE PROTECTION DEVICE
GC	GENERAL CONTRACTOR	TS	TAMPER SWITCH
GFI	GROUND FAULT INTERRUPTER	TYP.	TYPICAL
GND	GROUND	UG	UNDERGROUND
HOA	HAND-OFF-AUTO	UNO	UNLESS NOTED OTHERWISE
HP	HORSEPOWER	V	VOLTAGE
HPS	HIGH PRESSURE SODIUM	WH	WATER HEATER
HTR	HEATER	WP	WEATHER PROOF
J-BOX	JUNCTION BOX	WR	WEATHER RATED
KCM	THOUSAND CIRCULAR MILLS	XFMR	TRANSFORMER

NAMEPLATE REQUIREMENTS

ELECTRICAL PANELS

PANEL L1
208/120V, 3PH, 4W
225A, FED FROM H1
VIA XFMR T-L1

EQUIPMENT CONTROLS

CWP-VFD
208/120V, 3PH, 4W
5HP, FED FROM L1

RECEPTACLES J-BOXES



PWR	IT	FIRE
L1#1 120V	COM	FA NAC
NO PAINT	ORANGE COVER	RED COVER

SPECIFICATIONS
1. NAMEPLATE: 1/16" PHENOLIC PLASTIC LAMINATE, TWO FLAT HEAD SCREWS
2. FINISHED AREA WIRING DEVICES: ADHESIVE LABELS, CLEAR W/ BLACK TEXT
3. J-BOXES: USE PERMANENT INK MARKER AND PAINT AS NOTED
4. OUTDOOR AND HARSH ENVIRO WIRING DEVICES: MARKER ON INSIDE OF COVER
5. IN PUBLIC AREAS SUCH AS LOBBIES, CONF. ROOMS, ETC, LABEL INSIDE OF RECEPTACLE COVERS AND EXPOSED JBOX COVERS USING MARKER. PLACE A DOT OF PAINT ON OUTSIDE OF SPECIAL SYSTEMS BOXES.

POWER DEVICE LEGEND

- SINGLE RECEPTACLE
- DUPLEX RECEPTACLE
- FLOOR MOUNTED DUPLEX RECEPTACLE
- CEILING DUPLEX RECEPTACLE
- QUADPLEX RECEPTACLE
- FLOOR MOUNTED QUADPLEX RECEPTACLE
- SPECIAL RECEPTACLE
- USB RECEPTACLE
- SPLIT CONTROLLED DUPLEX RECEPTACLE
- CONTROLLED DUPLEX RECEPTACLE
- WALL MOUNTED JUNCTION BOX
- CEILING MOUNTED JUNCTION BOX
- MULTIOUTLET ASSEMBLY
- SAFETY DISCONNECT SWITCH (NON-FUSED)
- SAFETY DISCONNECT SWITCH (FUSED)
- COMBINATION MOTOR STARTER (FUSED)
- MOTOR RATED TOGGLE SWITCH
- EMERGENCY POWER OFF BUTTON
- POWER POLE (OPEN OFFICE STYLE)
- UTILITY SERVICE POWER POLE
- FB1 FLOORBOX (SEE FLOORBOX SCHEDULE)
- T30 TRANSFORMER. THE TRANSFORMER TYPE IS INDICATED BY A NUMBER INDICATING KVA RATING FOLLOWING THE UPPER CASE LETTER "T"
- ELECTRICAL PANELBOARD
- FLOOR CLEARANCE AREA

ELECTRICAL ONE LINE SYMBOLS

- MOLDED CASE/ THERMAL MAGENTIC CIRCUIT BREAKER
- DRAWOUT CIRCUIT BREAKER, AIR TYPE
- DRAWOUT CIRCUIT BREAKER, VAC TYPE
- THERMAL OVERLOAD
- NON-FUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- FUSE, HOLDER & PULLER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- UTILITY METER
- SPD SURGE PROTECTION DEVICE
- GROUND
- MOTOR, "X" INDICATING HORSE POWER
- AUTOMATIC TRANSFER SWITCH
- ST SHUNT TRIP (K=KIRK KEY INTERLOCK, RT=REMOTE TRIP)
- K KIRK-KEY

LIGHTING CONTROLS LEGEND

- WALL CONTROL (SEE LIGHTING CONTROL MATRIX)
- OS CEILING MOUNTED OCCUPANCY SENSOR
- WALL MOUNTED OCCUPANCY SENSOR
- DS CEILING MOUNTED DAYLIGHT SENSOR
- WALL MOUNTED DAYLIGHT SENSOR
- PC CEILING MOUNTED PHOTOCELL
- WALL MOUNTED PHOTOCELL
- TCS TOUCHSCREEN CONTROL STATION
- A ROOM LIGHTING CONTROL TAG (SEE LIGHTING CONTROL MATRIX)
- * FIXTURE IS IN PRIMARY DAYLIGHT ZONE
- ** FIXTURE IS IN SECONDARY DAYLIGHT ZONE

SPECIAL SYSTEMS DEVICES

- TELEPHONE OUTLET
- 1V2D VOICE/DATA OUTLET
  # OF VOICE AND # OF DATA OUTLETS. EXAMPLE: 1V2D = 1 VOICE, 2 DATA
- CLNG CEILING VOICE/DATA OUTLET
- 2 DATA OUTLET
  # OF DATA OUTLETS
- CLNG CEILING OUTLET
- TV TV DATA OUTLET
- AV1 AUDIO VIDEO INPUT JACK BOX
- WIRELESS ACCESS POINT
- AUTO PUSH DOOR BUTTON
- ES ELECTRIC STRIKE
- ML MAGNETIC LOCK
- CR CARD READER
- KP KEYSECURITY KEYPAD

FIRE ALARM DEVICES

- 15 FIRE ALARM STROBE
- F FIRE ALARM PULL STATION
- FF FIRE ALARM BELL
- FH FIRE ALARM HORN W/STROBE
- FS FIRE ALARM SPEAKER W/STROBE
- SPRINKLER FLOW SWITCH
- SPVS SPRINKLER VALVE TAMPER SWITCH
- THERMAL DETECTOR
- CEILING SMOKE DETECTOR
- CEILING CARBON MONOXIDE DETECTOR
- CEILING FIRE ALARM HORN W/STROBE
- CEILING FIRE ALARM SPEAKER W/STROBE
- CEILING FIRE ALARM STROBE
- FACP FIRE ALARM CONTROL PANEL
- FAA FIRE ALARM REMOTE ANNUNCIATOR PANEL

ELECTRICAL SYMBOL NOTES

AC GFI

SPECIFICATION NOTES:
GFI = INTEGRAL GROUND FAULT TRIP MODULE
IG = ISOLATED GROUND
MG = MARINE GRADE
TL = TWIST-LOCK
TR = TAMPER-RESISTANT
WP = WEATHER RESISTANT RECEPTACLE WITH METAL WEATHERPROOF WHILE IN USE COVER

MOUNTING REQUIREMENTS
48" = MOUNT AT 48 INCHES ABOVE FINISHED FLOOR
AC = MOUNT ABOVE COUNTER 4" ABOVE BACK-SPLASH
(MOUNT AT 18 INCHES ABOVE FINISH FLOOR U.N.O.)

a 3

SPECIFICATION NOTES:
(BLANK) = SEE LIGHTING CONTROL MATRIX*
3 = THREE WAY
4 = FOUR WAY
D = DIMMER
EP = EXPLOSION PROOF
K = KEY OPERATED
P = PILOT LIGHT
T = TIMER

SWITCHING INSTRUCTIONS
LOWER CASE LETTER DESIGNATES LIGHTING ZONE. LETTER WILL BE SHOWN NEXT TO EACH FIXTURE CONTROLLED BY SWITCH

*MATRIX WILL HAVE ADDITIONAL SWITCH FEATURES. SEE SCHEDULE SHEET(S).

A a P1#1
- FIXTURE TYPE ID (SEE LIGHT FIXTURE SCHEDULE)
- FIXTURE IS IN DAYLIGHTING ZONE (SEE LIGHTING CONTROLS SECTION)
- LOWERCASE LETTER INDICATING LIGHTING ZONE (WHERE APPLICABLE)
- PANEL NAME & CIRCUIT NUMBER

AE
d
P1#1
DIAGONAL HATCH INDICATES EMERGENCY/EGRESS LIGHTING AND/OR TAGGED WITH "E" (AS IN "AE")

EXIT LIGHTS. STEM INDICATES WALL MOUNTING. NO STEM INDICATES CEILING MOUNTING. SHADED AREA INDICATES ILLUMINATED FACE(S). ARROW INDICATES DIRECTIONAL ARROW ON ILLUMINATED FACE(S).

- CONDUIT IN CEILING, FLOOR OR WALL AS REQUIRED BY FIELD CONDITIONS
- CONDUIT IN FLOOR
- 1 REVISION NUMBER - SHOWN ON PLANS
- NUMBER OF DETAIL ON SHEET
- NUMBER OF SHEET WHERE DETAIL APPEARS
- 1 KEYED NOTE (SEE SCHEDULE)
- Room 6 ROOM NAME AND NUMBER

GRAPHICAL REPRESENTATION OF PHASING, TYPICAL FOR ALL SYMBOLS.
- EXISTING TO REMAIN
- EXISTING TO BE REMOVED/RELOCATED — ITEM TO BE REMOVED
- NEW

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ELECTRICAL SYMBOLS AND LEGENDS

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26 00 00 - ELECTRICAL GENERAL CONDITIONS

CODE REQUIREMENTS

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF LAWS, RULES, REGULATIONS, CODES STANDARDS, AND ORDINANCES OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION, AND ALL EQUIPMENT AND MATERIALS SHALL COMPLY WITH SAID AUTHORITIES WHETHER INDICATED ON THE CONTRACT DOCUMENTS OR NOT.
2. ALL WORK SHALL BE PERFORMED PER:
   - 2.1. 2024 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) - WITH LOCAL CITY AMENDMENTS.
   - 2.2. THE LATEST EDITION OF AUSTIN ENERGY POWER COMPANY DESIGN CRITERIA MANUAL ENERGY AS OF PERMITTING DATE.
   - 2.3. 2023 NATIONAL ELECTRICAL CODE - NEC WITH LOCAL CITY OF AUSTIN, TEXAS AMENDMENTS.
   - 2.4. NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
3. THE PUBLICATIONS AND STANDARDS OF THE FOLLOWING AUTHORITIES, IN ADDITION TO THOSE SPECIFIED IN RELATED PROJECT DOCUMENTS, SHALL BE OBSERVED DURING CONSTRUCTION AND ARE REFERENCED IN THE DOCUMENTATION BY THE ABBREVIATIONS NOTED:
   - 3.1. UNITED STATES OF AMERICA STANDARDS INSTITUTE - USASI
   - 3.2. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS - IEEE
   - 3.3. NATIONAL ELECTRICAL CODE - NEC
   - 3.4. NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
   - 3.5. UNDERWRITER'S LABORATORY - UL
   - 3.6. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION - NEMA
   - 3.7. CERTIFIED BALLAST MANUFACTURERS - CBM
   - 3.8. AMERICAN SOCIETY FOR TESTING AND MATERIALS - ASTM
   - 3.9. OCCUPATIONAL SAFETY AND HEALTH ACT - OSHA
   - 3.10. INTERNATIONAL CODES BY THE INTERNATIONAL CODE COUNCIL
     - 3.10.1. INTERNATIONAL BUILDING CODE - IBC
     - 3.10.2. INTERNATIONAL ENERGY CODE - IECC
4. UNLESS NOTED OTHERWISE, EQUIPMENT AND DEVICES SHALL BE MOUNTED PER ADA AND TAS REQUIREMENTS.
   - 4.1. OPERABLE DEVICES (SWITCHES, CARD READERS, ETC) AT OR BELOW 48" AFF.
   - 4.2. RECEPTACLES, TELEPHONE AND DATA OUTLETS AT 18" AFF (15" MIN TO BOTTOM OF DEVICE), UNO.

SCOPE OF WORK

1. THE SCOPE OF WORK SHALL INCLUDE COMPLETE PROVISIONS FOR ELECTRICAL POWER DISTRIBUTION TO ALL LIGHTING, DEVICES, APPLIANCES, AND EQUIPMENT SHOWN ON THE CONSTRUCTION DOCUMENTS.
   - 1.1. PROVISIONS INCLUDE, BUT ARE NOT LIMITED TO, ALL SUPPLIES, MATERIALS, EQUIPMENT, TOOLS AND LABOR.
   - 1.2. PROVISIONS ALSO INCLUDE ALL MISCELLANEOUS MATERIALS REQUIRED TO COMPLETE THE WORK SHOWN INCLUDING, BUT NOT LIMITED TO, SUPPORTS, HANGERS, RACEWAYS, BOXES, SLEEVES, SEALS, EQUIPMENT PADS, WIRING CONNECTORS, TERMINALS, LABELS, SIGNS, AND MARKERS.
   - 1.3. THE CONSTRUCTION DOCUMENTS INCLUDE ALL PLANS, ELEVATIONS, DETAILS, DIAGRAMS, SCHEDULES, AND NOTES ON THE DRAWINGS.
   - 1.4. WHERE USED ON THE PLANS AND IN THE SPECIFICATIONS AND WHERE NOT SPECIFICALLY NOTED OTHERWISE, THE TERM "PROVIDE" AND THE TERM "INSTALL" SHALL MEAN FURNISH, INSTALL, CONNECT AND TEST.
   - 1.5. UNLESS EXPLICITLY NOTED "BY OTHERS" OR "EXISTING", ALL ITEMS SHOWN GRAPHICALLY OR SPECIFIED BY NOTES AND DETAILS ON THE PLANS SHALL BE FURNISHED, INSTALLED, CONNECTED, AND TESTED AS NEEDED. "BY OTHERS" IS IMPLIED TO BE OTHER SUB-CONTRACTORS.
2. ADDITIONALLY, THE SCOPE OF WORK SHALL INCLUDE
   - 2.1. APPLICATION FOR TEMPORARY AND PERMANENT ELECTRICAL SERVICE, PERMITTING, INSPECTION, AND PAYMENT OF ALL ASSOCIATED FEES.
   - 2.2. TESTING AND COMMISSIONING OF ELECTRICAL SYSTEMS.
   - 2.3. EQUIPMENT RENTAL.
   - 2.4. TEMPORARY CONSTRUCTION POWER AND LIGHTING.
   - 2.5. PROVISIONS FOR MAINTAINING THE FUNCTIONALITY OF EXISTING TO REMAIN BUILDING COMMUNICATIONS, FIRE ALARM, SECURITY/ACCESS CONTROL, PUBLIC ADDRESS, AND BELL SYSTEMS THAT WILL BE AFFECTED BY THE WORK.
   - 2.6. COMPUTER BASED SHORT CIRCUIT COORDINATION STUDY AND ARC FLASH HAZARD ANALYSIS SHALL BE PERFORMED BY A STATE REGISTERED PROFESSIONAL ENGINEER AND PROVIDED BY PANEL MANUFACTURER THROUGH THE ELECTRICAL CONTRACTOR. STUDY TO INCLUDE AT A MINIMUM, EXECUTIVE SUMMARY OF FINDINGS, TIME CURRENT CURVES, ONE-LINE MODEL, ELECTRICAL DISTRIBUTION RECOMMENDATIONS, AND ARC FLASH WARNING LABELS.
     - 2.6.1. SHORT CIRCUIT STUDY TO COMPLY WITH IEEE 399 AND IEEE 551.
     - 2.6.2. COORDINATION STUDY TO COMPLY WITH IEEE 242 AND IEEE 399.
     - 2.6.3. ARC FLASH ANALYSIS TO COMPLY WITH IEEE 1584 AND NFPA 70E.

SUBMITTALS

1. PRODUCT DATA: SUBMIT CATALOG DATA SHOWING MANUFACTURER'S NAME AND CONTACT INFORMATION, ALL STANDARD FEATURES, AMPERAGE, VOLTAGE, AIC RATINGS, DIMENSIONS, WEIGHTS, LISTINGS & PRODUCT LABELS, MATERIAL TYPES, FINISHES AND CLEARLY INDICATING WHICH OPTIONAL FEATURES WILL BE PROVIDED.
   - 1.1. WHERE MULTIPLE SIZES ARE LISTED, INDICATE SIZES TO BE USED.
   - 1.2. WHERE MULTIPLE PRODUCTS ARE SHOWN ON THE SAME PAGE, INDICATE WHICH PRODUCTS TO BE USED.
2. SHOP DRAWINGS (WHERE APPLICABLE): MANUFACTURER OR CONTRACTOR PREPARED DRAWINGS SHOWING ALL RELEVANT DIMENSIONS, WEIGHTS, ELECTRICAL & MECHANICAL CONNECTION REQUIREMENTS, CONDUIT ENTRY POINTS, ASSEMBLY REQUIREMENTS, LIFTING REQUIREMENTS, LIFTING POINTS, REQUIRED CLEARANCES. INCLUDE PLAN VIEWS & ELEVATIONS.
   - 2.1. INCLUDE ALL RELEVANT ELECTRICAL DIAGRAMS INCLUDING SCHEMATIC AND INTERCONNECTION DIAGRAMS FOR POWER, SIGNAL, AND CONTROL WIRING.

COORDINATION

1. THE CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL AND OTHER DRAWINGS RELATED TO THIS PROJECT FOR ADDITIONAL WORK TO BE PROVIDED.
2. ALL POWER OUTAGES SHALL BE COORDINATED IN WRITING WITH OWNER ONE (1) WEEK (MIN) PRIOR TO THE OUTAGE.
3. COOPERATE FULLY WITH THE OWNER OR HIS REPRESENTATIVE DURING CONSTRUCTION OPERATIONS TO MINIMIZE CONFLICTS AND TO FACILITATE OWNER USAGE SO AS NOT TO INTERFERE WITH THE OWNER'S OPERATIONS.
4. THE DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW SWITCHES, POWER AND DATAOUTLETS, SPECIAL SYSTEMS COMPONENTS (FA, ACCESS CONTROL, A/V, ETC), ELECTRICAL EQUIPMENT, EQUIPMENT CONNECTIONS, REQUIRED RACEWAY, ETC. IN THEIR EXACT DIMENSIONED LOCATIONS. THE CONTRACTOR MUST CAREFULLY REVIEW THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, AND SPECIAL SYSTEMS PLANS TO IDENTIFY CONFLICTS AND AREAS THAT REQUIRE COORDINATION.
5. COORDINATE ELECTRICAL AND SPECIAL SYSTEMS EQUIPMENT ROUGH-IN WITH FURNITURE, MILLWORK, SIGNS, MECHANICAL AND PLUMBING SYSTEMS, SPRINKLER SYSTEMS, ARCHITECTURAL AND STRUCTURAL ELEMENTS, AND THE OWNER'S REPRESENTATIVE. MINOR CHANGES IN ELECTRICAL EQUIPMENT LOCATIONS AND LAYOUT THAT ARE REQUIRED BY SITE CONDITIONS OR ORDERED BY THE DESIGN TEAM PRIOR TO PERFORMANCE OF WORK SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGES TO THE OWNER.
6. MAINTAIN REQUIRED NEC WORKING SPACE AND DEDICATED EQUIPMENT SPACE AROUND ALL ELECTRICAL EQUIPMENT, CONTROLS PANELS, ETC THAT ARE SUBJECT TO MAINTENANCE, TESTING, OR USER INTERFACE. COORDINATE WITH OTHER TRADES. IF CLEARANCE CANNOT BE PROVIDED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO ROUGH-IN.
7. COORDINATE COLOR SELECTIONS FOR LUMINAIRES AND ALL DEVICE PLATES WITH ARCHITECT.
8. COORDINATE POWER REQUIREMENTS FOR HVAC CONTROLS, FIRE ALARM, SECURITY, AND OTHER SPECIAL SYSTEMS TO MAKE SURE THAT ALL WORK IS COVERED IN THE BID.

26 00 00 - ELECTRICAL GENERAL CONDITIONS (CONT.)

DELIVERY AND STORAGE

1. STORE ALL ELECTRICAL/SPECIAL SYSTEMS EQUIPMENT/MATERIALS IN CLEAN, DRY SPACE LOCATED ABOVE GRADE. PROTECT FROM DIRT, WATER, CONSTRUCTION DEBRIS, TRAFFIC, FREEZE, AND DETERIORATION FROM SUN LIGHT.
2. MAINTAIN FACTORY WRAPPING OR PROVIDE APPROPRIATE COVER FOR ALL LARGE ELECTRICAL EQUIPMENT. FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR HUMIDITY AND MAX/MIN TEMPERATURES FOR STORING ELECTRICAL EQUIPMENT.

QUALIFICATIONS

1. MANUFACTURER: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SHOWN ON THE CONSTRUCTION DOCUMENTS WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.
2. INSTALLER: A STATE LICENSED ELECTRICIAN WITH DOCUMENTED EXPERIENCE INSTALLING ALL EQUIPMENT SPECIFIED HERE IN SHALL DIRECTLY SUPERVISE ALL WORK. WHERE NOTED IN THE SPECIFICATIONS, REQUIRED BY CODE, OR REQUIRED BY THE MANUFACTURER, INSTALLER SHALL BE A MANUFACTURER TRAINED AND/OR CERTIFIED INSTALLER OF THE SPECIFIC PRODUCT TO BE INSTALLED.
3. WHERE TESTING IS REQUIRED BY THE CONSTRUCTION DOCUMENTS, EQUIPMENT MANUFACTURER, OR CODE; TESTING SHALL BE PERFORMED BY AN AGENCY WITH DOCUMENTED EXPERIENCE AND PROPERLY CALIBRATED, FULLY FUNCTIONING EQUIPMENT, THAT IS A MEMBER OF THE INTERNATIONAL ELECTRICAL TESTING ASSOCIATION, MANUFACTURER CERTIFIED, OR IS A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL), AND IS ACCEPTABLE TO THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).

QUALITY ASSURANCE

1. UNLESS OTHERWISE APPROVED, ALL EQUIPMENT SHALL BE NEW, PROPERLY DESIGNED, FROM A REPUTABLE MANUFACTURER MEETING THE SPECIFICATION QUALIFICATIONS, IN COMPLIANCE WITH THE SPECIFICATION REQUIREMENTS, AND IN FULL WORKING ORDER.
2. WHERE TWO OR MORE ITEMS OF THE SAME CLASS OF EQUIPMENT ARE REQUIRED, THESE ITEMS SHALL BE PRODUCTS OF A SINGLE MANUFACTURER; HOWEVER, THE COMPONENT PARTS OF THE ITEM NEED NOT BE THE PRODUCTS OF THE SAME MANUFACTURER UNLESS STATED IN THE TECHNICAL SECTION.
3. LISTING AND LABELING: WHERE REQUIRED, ALL ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO LOCAL AUTHORITIES HAVING JURISDICTION AND MARKED FOR THE INTENDED USE. TESTING AGENCY SHALL BE UL UNLESS NOTED OTHERWISE OR PRE-APPROVED BY OWNER AND LOCAL A.H.J.
4. ALL EQUIPMENT USED FOR TESTING SHALL BE IN FULL WORKING ORDER AND CALIBRATED PER THE MANUFACTURER'S RECOMMENDATIONS.
5. IF CONFLICTS BETWEEN THE SPECIFICATIONS AND DRAWINGS OCCUR, THE HIGHER QUALITY OR QUANTITY SHALL BE PROVIDED AND INSTALLED. WHEN CONFLICTS EXIST, CONTRACTOR SHALL PROVIDE A WRITTEN REQUEST FOR CLARIFICATION FROM THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL EXPENSES INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO OBTAIN CLARIFICATION.

INSTALLATION

1. THE CONTRACTOR SHALL PROVIDE CONCRETE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. THE CONCRETE SHALL PROTRUDE AT LEAST 3" PAST THE EDGE OF THE ELECTRICAL EQUIPMENT ON ALL SIDES. THE CONCRETE PAD SHALL BE 6" TALL AND CONTAIN A 1/2" CHAMFER ON ALL SIDES. PROVIDE A MINIMUM OF 3000PSI CONCRETE AND #4 REBAR OR AS RECOMMENDED BY THE STRUCTURAL ENGINEER.
2. NO FOREIGN SYSTEMS SUCH AS PIPING, DUCT WORK, ETC SHALL BE INSTALLED ABOVE ELECTRICAL EQUIPMENT.
3. PROVIDE SLEEVES FOR PENETRATIONS THROUGH WALLS/FLOORS. SEAL ALL OPENINGS. USE FIRE-RATED SEALANT FOR OPENINGS IN RATED FLOORS AND WALLS.

26 05 19 - CONDUCTORS AND CABLES (600V AND LESS)

GENERAL REQUIREMENTS

1. ALL BUILDING WIRING (THHN/THWN) SHALL BE INSULATED COPPER CONDUCTORS RUN FROM LOAD TO SOURCE INSIDE RACEWAY OR NM CABLE ROUTED THROUGH WOODEN MEMBERS AS ALLOWED BY NEC ARTICLE 334, CONTINUOUS (WITHOUT SPLICES) BETWEEN JUNCTION AND PULL BOXES.
2. ALL SINGLE POLE CIRCUITS SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR ROUTED TO THE SOURCE PANEL.
3. FIELD VERIFY WHETHER A NEUTRAL IS REQUIRED FOR ALL TWO AND THREE POLE CIRCUITS. FOR ALL LOADS EXCEPT MOTORS, A NEUTRAL IS ASSUMED TO BE REQUIRED UNLESS FIELD DETERMINED TO BE UNNECESSARY.
4. ALL POWER & CONTROL WIRING ROUTED THROUGH RETURN AIR PLENUMS SHALL BE PLENUM RATED.
5. UP TO 3-20A CIRCUITS MAY SHARE A RACEWAY FOR HOMERUNS WHERE SUITABLE & PER NEC CONDUIT FILL RULES.
6. 120V, 20A. HOME RUNS LONGER THAN 100' AND 277V, 20A. HOME RUNS LONGER THAN 150' SHALL BE #10 MIN.
7. PROVIDE COLOR CODING FOR ALL WIRING IN ACCORDANCE WITH LOCAL ADOPTED CODE OR OWNER'S REQUIREMENTS. IF THIS PROJECT DOES NOT HAVE LOCAL REQUIREMENTS OR OWNER STANDARDS, ALL WIRING SHALL BE COLOR-CODED AS FOLLOWS:

	208Y/120 VOLT SYSTEM	480/277 VOLT SYSTEM
NEUTRAL:	WHITE	GRAY
PHASE A OR L1	RED	BROWN
PHASE B OR L2	BLACK	YELLOW
PHASE C OR L3	BLUE	PURPLE
GROUND	GREEN	GREEN
ISOLATED GROUND	GREEN W/YELLOW TRACER	GREEN W/YELLOW TRACER

BUILDING WIRE

1. CONDUCTOR: SOFT DRAWN COPPER, 98% CONDUCTIVITY.
2. INSULATION RATING: 600V, 90°C
3. INSULATION MATERIAL: NM CABLE WHERE ALLOWED BY NEC ARTICLE 334. IN SPACES WHERE NM CABLE IS NOT ALLOWED, USE THHN,THWN IN CONDUIT. USE XHHW CONDUCTORS IN CONDUIT WHERE INSTALLED IN UNDERGROUND AND ON ALL LOAD SIDE CONDUCTORS OF A VFD.
4. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED.
5. CONDUCTORS #10 AWG SHALL BE SOLID OR STRANDED. FINAL CONNECTION SHALL BE MADE WITH WIRE TYPE CONSISTENT WITH UL LISTING AND MANUFACTURER REQUIREMENTS FOR EQUIPMENT, FIXTURE, AND/OR DEVICE.
6. CONDUCTORS #12 SHALL BE SOLID.
7. FEEDER CONDUCTORS #1/0 AND LARGER ARE ALLOWED TO BE ALUMINUM WITH ENGINEER'S APPROVAL.

METAL CLAD CABLE

1. CONDUCTOR: SOFT DRAWN COPPER, 98% CONDUCTIVITY.
2. INSULATION: 600V, 90°C, THHN/THWN U.N.O.
3. ARMOR: STEEL OR ALUMINUM; INTERLOCKED METAL TAPE.
4. ALL HOME RUNS SHALL BE IN CONDUIT (NOT MC CABLE) FROM PANEL TO FIRST WIRING DEVICE, OR TO JUNCTION BOX LOCATED IN ACCESSIBLE CEILING SPACE ABOVE FIRST WIRING DEVICE.
5. ALL SWITCH BOXES SHALL BE PROVIDED WITH CONDUIT TO JUNCTION BOX ABOVE ACCESSIBLE CEILING TO ALLOW FOR FUTURE MODIFICATION.
6. MC CABLE SHALL NOT BE USED FOR CONNECTING TO DEDICATED RECEPTACLES OR PIECES OF EQUIPMENT.
7. NO EXPOSED MC CABLE WILL BE ALLOWED.

CONNECTORS AND TERMINATIONS

1. PROVIDE FACTORY-FABRICATED, METAL CONNECTOR OF THE SIZE, RATING, MATERIAL, TYPE AND CLASS REQUIRED BY EQUIPMENT MANUFACTURER AND THE NEC.
2. CONNECTORS SHALL BE INSULATED TO 600V AND CONDUCTING COMPONENTS SHALL MATCH MATERIAL OF WIRING (COPPER U.N.O.)
3. TERMINAL LUGS FOR WIRES #6 AWG AND SMALLER SHALL BE SOLDERLESS, COMPRESSION TYPE COPPER.
4. TERMINAL LUGS FOR #4 AWG AND LARGER SHALL BE COMPRESSION TYPE COPPER WITH INSULATING SEALING COLLARS.
5. ALL TERMINALS, LUGS AND BUS JOINTS SHALL BE TIGHTENED PER THE MANUFACTURER'S TORQUE REQUIREMENTS. PROVIDE TORQUE LOG AS PART OF THE PROJECT CLOSEOUT SUBMITTALS.

26 05 26 - GROUNDING AND BONDING

GENERAL REQUIREMENTS

1. ALL RACEWAYS AND CIRCUITS SHALL BE PROVIDED WITH A NEC 250 COMPLIANT GREEN GROUND CONDUCTOR.
2. ALL EQUIPMENT SHALL BE PROPERLY BONDED.
3. UPON COMPLETION OF THE WORK, ALL FEEDERS OF THE ELECTRICAL INSTALLATION SHALL BE MEGGER TESTED AND PROVED TO BE FREE OF UNWANTED GROUNDS AND OTHER DEFECTS.
4. INSTALL BRANCH CIRCUITS FEEDING ISOLATED GROUND RECEPTACLES WITH SEPARATE INSULATED GROUNDING CONDUCTOR, CONNECTED ONLY AT ISOLATED GROUND RECEPTACLE, GROUND TERMINALS, AND GROUND BUS OF SERVING PANEL.

PRODUCTS

1. ROD ELECTRODES: 10 FOOT, 3/4" DIAMETER, COPPER. EXOTHERMIC WELDED CONNECTION.
2. GROUNDING AND BONDING WIRE: 600V, STRANDED COPPER; SOLID COPPER MAY BE USED FOR #8 AWG AND SMALLER. MATCH BUILDING WIRE INSULATION EXCEPT WHERE NOTED AS BARE.
3. MECHANICAL CONNECTORS: BRONZE CONNECTORS, SUITABLE FOR GROUNDING AND BONDING APPLICATIONS. LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCEPTABLE TO THE A.H.J.
4. GROUND BUS: RECTANGULAR ANNEALED COPPER, MIN. 12" LONG, 1/4" BY 2" IN CROSS SECTION U.N.O. PRE-DRILLED WITH 9/32" HOLES SPACED 1" APART WITH STANDOFF INSULATORS. ALL TERMINATION LUGS SHALL BE 2 HOLE TYPE.

SERVICE ENTRANCE GROUNDING ELECTRODE SYSTEM

1. ALL RACEWAYS AND CIRCUITS SHALL BE PROVIDED WITH A NEC 250 COMPLIANT GREEN GROUND CONDUCTOR.
2. AT A MINIMUM, A GROUNDING ELECTRODE CONDUCTOR, SIZED PER NEC ARTICLE 250, SHALL BE CONNECTED FROM THE GROUND BUS OF THE SERVICE ENTRANCE DISCONNECT TO A 3/4"x10' COPPER CLAD STEEL GROUND ROD, TO THE BUILDING METAL COLD WATER AND GAS PIPING AT THE POINT OF ENTRANCE INTO THE BUILDING, STRUCTURAL STEEL, 20' OF BARE COPPER ENCASED IN THE SLAB, AND ANY OTHER AVAILABLE ELECTRODES AS DEFINED BY NEC 250.52(A). ADDITIONAL GROUNDING REQUIREMENTS MAY BE SPECIFIED ON THE PLANS TO ACHIEVE A MINIMUM GROUND RESISTANCE OF 5 OHMS.
3. ROUTING OF GROUNDING ELECTRODE CONDUCTORS SHALL BE IN METAL CONDUIT IN ALL LOCATIONS THAT ARE SUBJECT TO PHYSICAL ABUSE OR ENVIRONMENTAL DETERIORATION SUCH AS EXTERIOR MOUNTED, EXPOSED BELOW LAY IN CEILING, ETC.
4. PROVIDE A #4 GROUND FROM THE SERVICE ENTRANCE GROUND BUS TO ALL TELEPHONE SERVICE BOARDS AND COMMUNICATIONS EQUIPMENT ROOMS AND TERMINATE AT A GROUND BUS.
5. GROUNDING SYSTEM RESISTANCE SHALL BE 5 OHMS MAXIMUM. SYSTEM SHALL BE TESTED IN ACCORDANCE WITH IEEE 142. PROVIDE ADDITIONAL GROUNDING ELECTRODES AS REQUIRED TO ACHIEVE SPECIFIED RESISTANCE.

26 05 29 - HANGERS AND SUPPORTS

1. SUPPORT RACEWAYS USING GALVANIZED STEEL OR MALLEABLE IRON STRAPS; CHANNEL OR PIPE CLAMPS AS APPROPRIATE.
2. PROVIDE ALL RACKS WITH 25% SPARE CAPACITY.
3. ALL RACKS SHALL BE DEDICATED TO ELECTRICAL DEVICES AND NOT OTHER SYSTEMS.
4. PROVIDE SUPPORTS AT ALL BOXES, ELEC. EQUIP., LOADS, AND AT CODE REQUIRED INTERVALS ALONG RACEWAYS.

26 05 33 - RACEWAYS AND BOXES

GENERAL REQUIREMENTS

1. POWER, LIGHTING, COMMUNICATIONS, FIRE ALARM, ACCESS CONTROL/SECURITY, CONTROLS, AND OTHER SPECIAL SYSTEMS MAY BE RUN EXPOSED WHERE PROPERLY SUPPORTED AND PROTECTED.
2. PROVIDE RACEWAY AND BOXES FOR ALL EQUIPMENT; LIGHTING; WIRING DEVICES; COMMUNICATIONS EQUIPMENT AND OUTLETS; FIRE ALARM EQUIPMENT, APPLIANCES, AND DEVICES; ACCESS CONTROL/SECURITY POINTS; CONTROLS POINTS; AND OTHER SPECIAL SYSTEMS SHOWN ON PLANS TO ABOVE CEILING.
3. PROVIDE RACEWAY BOXES AT OTHER LOCATIONS AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, AND COMPLIANCE WITH REGULATORY REQUIREMENTS. RACEWAY AND BOXES ARE SHOWN IN APPROXIMATE LOCATIONS UNLESS DIMENSIONED. PROVIDE RACEWAY TO COMPLETE WIRING SYSTEM.
4. ALL BOXES SHALL BE LOCATED IN AN ACCESSIBLE SPACE AS DEFINED BY THE NEC.
5. DO NOT INSTALL RACEWAYS WITH MORE THAN THE EQUIVALENT OF THREE NINETY DEGREE BENDS BETWEEN PULL POINTS.
6. ROUTE ALL RACEWAYS PARALLEL AND PERPENDICULAR TO WALLS, FLOORS, AND CEILINGS.
7. ALL EXPOSED CONDUIT SHALL BE RUN PARALLEL AND TIGHT TO STRUCTURAL ELEMENTS. FOLLOW ALL SURFACE CONTOURS; DO NOT ROUTE IN FREE AIR FROM POINT TO POINT.
8. INSTALL RACEWAYS SO THAT IT DRAINS TO JUNCTION AND PULL BOXES TO AVOID MOISTURE TRAPS AT LOW POINTS.
9. ALL SPARE CONDUITS SHALL BE PROVIDED WITH PULL STRING, LABELED, AND CAPPED AT BOTH ENDS.
10. CLOSE ENDS AND UNUSED OPENINGS IN SURFACE RACEWAYS, WIREWAY, BOXES, AND ENCLOSURES.
11. WHERE POSSIBLE, ALL CONDUIT ROUTED THROUGH ROOF STRUCTURE SHALL SHARE COMMON PENETRATIONS AS MECHANICAL DUCTWORK OR PIPING. COORDINATE WITH MECHANICAL CONTRACTOR.
12. ALL ROOF AND WALL PENETRATIONS SHALL BE FLASHED AND SEALED TO MAINTAIN THE FIRE RATING AND WATERPROOFING OF THE STRUCTURE PER THE MANUFACTURER OF THE MATERIAL'S RECOMMENDED PRACTICES.

CONDUIT

1. CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUITS SERVING ALL EQUIPMENT, INCLUDING BUT NOT LIMITED TO, LIGHTING, RECEPTACLES, HEATING, AIR CONDITIONING, PLUMBING EQUIPMENT, TELEPHONE, DATA, SPEAKERS, AND ELECTRICAL EQUIPMENT. WHEN NM CABLE IS USED, CONDUIT IS NOT REQUIRED.
2. CONDUIT TYPES ALLOWED ARE SUMMARIZED IN THE TABLE BELOW. CONTRACTOR SHALL ONLY INSTALL CONDUIT LISTED WITHIN UNLESS OTHERWISE SPECIFIED IN SPECIFICATIONS OR ON DRAWINGS. ALL CONDUIT IS TO BE UL LABELED. EMT CONNECTORS SHALL BE STEEL COMPRESSION. SET SCREW CONNECTORS ARE NOT PERMITTED.
3. MINIMUM SIZE OF CONDUIT SHALL BE 3/4" AND 1" FOR ALL UNDERGROUND CONDUIT.
4. WHEN USING CONDUIT, IT SHALL BE CONCEALED EXCEPT FOR UNFINISHED AREAS, SUCH AS EQUIPMENT ROOMS. EXPOSED CONDUIT SHALL BE ALLOWED ONLY AS NOTED ON PLAN AND AS APPROVED BY THE G.C.'S CONSTRUCTION MANAGER. PAINTING OF CONDUITS, NOTED ON DRAWINGS OR SPECIFICATIONS WILL BE BY THE G.C. AND APPROVED BY THE ARCHITECT.
5. WHERE EXPOSED, CONDUIT SHALL BE RMC OR IMC BELOW 10', AND RMC, IMC, OR EMT ABOVE 10'. PROVIDE RMC IN ALL LOCATIONS WHERE SUBJECT TO PHYSICAL DAMAGE.
6. SUPPORT ALL CONDUIT, INCLUDING SEISMIC AND SWAY BRACING, IN ACCORDANCE WITH THE NEC AND LOCAL CODES.
7. ALL CONDUITS MUST BE SIZED PER NEC AND LOCAL CODES.
8. ALL CONDUITS THAT TRAVERSE EXPANSION JOINTS SHALL HAVE EXPANSION FITTINGS LISTED FOR THE USE. OZ GEDNEY TYPE TX OR EQUIVALENT. PROVIDE EXTERNAL BONDING JUMPER.
9. ALL CONDUIT SHALL HAVE INSULATED THROAT CONNECTOR OR BUSHING IN PLACE PRIOR TO PULLING CONDUCTORS.
10. ALL CONNECTIONS TO MOTORS, INSTRUMENTS, MACHINES, AND EQUIPMENT SUBJECT TO MOVEMENT OR VIBRATION SHALL BE MADE USING LIQUID-TIGHT, FLEXIBLE METAL CONDUIT (LFMC), WITH A MAXIMUM LENGTH OF 36".
11. PROVIDE WRAPPED RIGID STEEL CONDUIT WHERE ENTERING/EXITING SLABS OR GRADE AND FOR ELBOWS 1" AND LARGER.
12. PROVIDE RIGID STEEL CONDUIT WITHIN 5' OF BUILDING FOUNDATIONS.
13. ANY EXPOSED RNC CONDUIT SHALL BE SCHEDULE 80 PVC.
14. RNC IS PROHIBITED FROM INDOOR INSTALLATIONS UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.

LOCATION	RACEWAYS ALLOWED
UNDERGROUND	RMC, RNC, IMC
IN CONCRETE	RMC, RNC, IMC
EXTERIOR ABOVE GRADE	RMC
EXTERIOR, WET/DAMP	RMC, IMC, RNC, LFMC
DRY, CONCEALED	RMC, IMC, EMT, FMC
DRY, EXPOSED	<10' AFF: RMC, IMC >10' AFF: EMT, IMC, LFMC, FMC
SLAB ON GRADE	RMC, IMC, RNC

OUTLET BOXES

1. ALL OUTLET BOXES SHALL BE GALVANIZED PRESSED STEEL OF THE STANDARD KNOCKOUT TYPE. NO ROUND OUTLET BOXES SHALL BE PERMITTED, EXCEPT AS SPECIFICALLY NOTED ON DRAWINGS. CONCEALED BOXES SHALL NOT BE LESS THAN 4" SQUARE AND 1-1/2" DEEP, WITH PLASTER RINGS.
2. USE MULTI-GANG BOXES IN ALL POSSIBLE LOCATIONS.
3. ALL KNOCKOUT BOXES, UPON WHICH LIGHTING FIXTURES ARE TO BE INSTALLED, SHALL BE EQUIPPED WITH 3/8" FIXTURE STUDS.
4. EXTERIOR BOXES SHALL BE CAST RUST-RESISTING METAL WITH GASKETED COVERS.
5. INSTALL BOXES RIGIDLY FROM BUILDING STRUCTURE AND SUPPORT INDEPENDENTLY OF THE CONDUIT SYSTEM. ALSO PROVIDE SUITABLE BOX EXTENSIONS TO EXTEND BOXES TO FINISHED FACES OF FLOORS, CEILINGS, WALLS, ETC. ALL OUTLET BOXES SHALL BE PROVIDED WITH CADDY "QUICK-MOUNT BOX SUPPORT" TO MINIMIZE THE DEFLECTION THAT OCCURS WHEN PLUGGING/UNPLUGGING INTO THESE DEVICES.
6. USE CONCRETE TIGHT, MASONRY RATED BOXES AND FITTINGS WHERE INSTALLED IN CONCRETE, STONE, BRICK, OR CMU.
7. EXTERIOR OUTLET BOXES SHALL BE CAST METAL, GASKETED, AND RATED NEMA 3R MIN.
8. ALL LUMINARIE OR FAN OUTLET BOXES SHALL BE RATED FOR 50LBS. FOR GREATER THAN 50LB, BOXES MUST BE MARKED FOR MAXIMUM ALLOWABLE WEIGHT LIMIT.

JUNCTION AND PULL BOXES

1. THE PLANS INDICATE ONLY SCHEMATIC ROUTINGS FOR CONDUIT RUNS. CONTRACTOR SHALL FURNISH AND INSTALL ADDITIONAL BOXES WHERE REQUIRED BY FIELD CONDITIONS OR BY CODE.
2. BOXES AND COVERS SHALL BE GALVANIZED STEEL OF CODE GAUGE SIZE.
3. INSTALL BOXES RIGIDLY SUPPORTED FROM THE BUILDING STRUCTURE AND SUPPORTED INDEPENDENT OF THE CONDUIT SYSTEM.
4. ARRANGE CIRCUITS TO AVOID THE USE OF JUNCTION BOXES IN INACCESSIBLE LOCATIONS. THE USE OF JUNCTION BOXES ABOVE DRYWALL CEILINGS SHOULD BE IN LOCATIONS NEAR ACCESS FRAMES USED FOR DIFFUSERS AND RETURN AIR GRILLES OR ACCESS PANELS AS LOCATED ON PLANS.
5. JUNCTION AND PULL BOXES MUST BE LABELED WITH CIRCUIT NUMBER IDENTIFICATION AND SYSTEM TYPE ON COVER WITH AN INDELIBLE MARKER.
6. PROVIDE BOXES FOR UTILITY SERVICE CONDUIT(S) OR CABLING PER UTILITY PROVIDER'S SPECIFICATIONS.
7. NONMETALLIC HANDHOLES MAY BE USED FOR SITE LIGHTING AND CONTROLS CIRCUITS. ALL HANDHOLES SHALL HAVE RATED COVERS FOR THEIR LOCATION.
8. USE CONCRETE TIGHT, MASONRY RATED BOXES AND FITTINGS WHERE INSTALLED IN CONCRETE, STONE, BRICK, OR CMU.
9. EXTERIOR BOXES SHALL BE CAST METAL, GASKETED, AND RATED NEMA 3R MIN.
10. ALL ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE 16 GAUGE S

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7. SWITCHES SHALL BE SPECIFICATION GRADE AS MANUFACTURED BY HUBBEL, P&S, OR LEVITON.
8. PROVIDE NEMA CONFIGURATION 5-20R DUPLEX 125 VOLT GROUNDING TYPE RECEPTACLES RATED FOR 20 AMPERES UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
9. RECEPTACLES SHALL BE SPECIFICATION GRADE AS MANUFACTURED BY HUBBELL, P&S OR LEVITON.
10. INSTALL GROUND PIN UP FOR VERTICALLY MOUNTED RECEPTACLES AND LEFT FOR HORIZONTALLY MOUNTED RECEPTACLES.
11. SPECIALTY RECEPTACLES:
    - 11.1. TAMPER-RESISTANT RECEPTACLES SHALL BE LISTED AS "TR" WITH INTEGRAL SHUTTER AND INSTALLED IN ALL LOCATIONS REQUIRED BY NEC 406.12 AND ELSEWHERE NOTED ON THE PLANS.
    - 11.2. USB RECEPTACLES SHALL BE A 5-20R DUPLEX RECEPTACLE WITH ONE TYPE A USB AND ONE TYPE C USEB 3.0 OUTLETS RATED FOR AT LEAST 3 AMPS.
    - 11.3. GFCI RECEPTACLES SHALL HAVE AN INTEGRAL TEST & RESET WITH LED INDICATOR LIGHT.
12. PROVIDE COVER OR DEVICE PLATES FOR OUTLET BOXES AS FOLLOWS UNLESS OTHERWISE NOTED:
    - 12.1. FINISHED AREAS: THERMOPLASTIC - COLOR TO MATCH DEVICE.
    - 12.2. UNFINISHED AREAS: ZINC COATED SHEET METAL, ALUMINUM, OR CAST METAL AS APPROPRIATE FOR THE TYPE OF BOX.
    - 12.3. EXTERIOR AREAS: COPPER FREE ALUMINUM WITH GRAY, POWDER EPOXY FINISH, GASKET, WEATHERPROOF, CROUSE-HINDS "WLRD" FOR DUPLEX RECEPTACLES AND WLRS FOR SINGLE RECEPTACLES OR EQUAL.
    - 12.4. TELEPHONE, COMMUNICATION, AND SIGNAL OUTLET PLATES, SHALL MATCH THOSE USED FOR RECEPTACLES AND SWITCHES. ALL OUTLET AND/OR JUNCTION BOXES SHALL BE COMPLETE WITH A COVER PLATE BY THIS CONTRACTOR.
    - 12.5. WHERE DEVICES ARE GANGED, THEY SHALL BE INSTALLED UNDER A COMMON COVERPLATE.

26 28 16 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

1. SAFETY SWITCHES SHALL BE THE ENCLOSED HEAVY-DUTY TYPE (TYPE HD) WITH QUICK-MAKE, QUICK-BREAK MECHANISM AND EXTERNAL PAD LOCKABLE OPERATING HANDLE.
2. SAFETY SWITCHES SHALL BE RATED FOR 240 OR 600 VOLTS AS APPLICABLE. THEY SHALL BE HORSEPOWER RATED WHEN USED IN MOTOR CIRCUITS.
3. SAFETY SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE 2; 3, OR 4 POLE AS INDICATED ON THE DRAWINGS.
4. SAFETY SWITCHES SHALL BE SINGLE THROW UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
5. ENCLOSURES SHALL BE NEMA 1 INDOORS AND NEMA 3R OUTDOORS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
6. MANUFACTURER SHALL BE SCHNEIDER ELECTRIC, SIEMENS, ABB, OR EATON. ALL SAFETY SWITCHES SHALL BE BY ONE MANUFACTURER.

26 29 16 - ENCLOSED CONTROLLERS

1. COMPLY WITH NEMA ICS 2 AND NEMA 250.
2. PROVIDE MOTOR STARTERS (FUSED OR NON-FUSED COMBINATION TYPE AS INDICATED ON DRAWINGS) AND CONTROL DEVICES REQUIRED FOR THIS PROJECT. STARTERS SHALL BE PROVIDED WITH CONTROL COILS, OVERLOADS, CONTROL TRANSFORMER WITH FUSED SECONDARY CONTROL CIRCUIT, (2) N.O. AND (2) N.C. AUXILIARY CONTACTS, HAND-OFF-AUTO SELECTOR SWITCH AND RUNNING PILOT LIGHT, UNLESS OTHERWISE NOTED. PROVIDE AND INSTALL INTERLOCK WIRING CONTROL DEVICES. ALL FUSES SHALL BE DUAL ELEMENT TYPE. PROVIDE "BLOWNFUSE" INDICATOR LAMPS IN COVER.
3. STARTERS SHALL BE SCHNEIDER ELECTRIC, ABB, EATON, OR SIEMENS.
4. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT NUMBER OF NORMALLY OPEN AND NORMALLY CLOSE AUXILIARY CONTACTS AND CONTROL VOLTAGE REQUIREMENTS FOR EACH STARTER WITH THE TEMPERATURE CONTROL CONTRACTOR PRIOR TO ORDERING STARTERS.
5. REFER TO MECHANICAL CONSTRUCTION DOCUMENTS FOR ELECTRICAL CHARACTERISTICS OF EQUIPMENT. STARTERS SHALL BE REQUIRED FOR ALL MOTORS, UNLESS SPECIFICALLY NOTED ON THE MECHANICAL CONSTRUCTION DOCUMENTS AS BEING FURNISHED INTEGRAL TO THE EQUIPMENT.
6. LIGHTING CONTACTORS SHALL BE ELECTRICALLY OPERATED, MECHANICALLY HELD AND HAVE 20A MINIMUM RATING PER POLE. PROVIDE WITH HOA SWITCH, HINGED METAL ENCLOSURE, SCREW TERMINALS, QTY POLES PLUS ADDITIONAL 25% SPARE CAPACITY. CONTROL VOLTAGE AS NOTED IN THE DRAWINGS.

26 28 13 - FUSES

1. THE CONTRACTOR SHALL FURNISH A COMPLETE SET OF FUSES FOR ALL SWITCHES, PLUS FUSIBLE EQUIPMENT FURNISHED BY OTHER TRADES. UNLESS INDICATED OTHERWISE ON PLANS, THE FUSES SHALL BE OF THE FOLLOWING TYPES:
   - A. FUSES 601 TO 6000 AMPS SHALL BE UL CLASS. TRADE TYPE SHALL BE KRP-C AS MANUFACTURED BY THE BUSSMANN COMPANY.
   - B. FUSES 1/10 TO 600 AMPS SHALL BE UL CLASS RK1. TRADE TYPE SHALL BE LOW PEAK LPS-RK (600V) AND LPN-RK (250V) AS MANUFACTURED BY THE BUSSMANN COMPANY.
   - C. ALL OTHER FUSES SHALL BE DUAL-ELEMENT CURRENT-LIMITING TYPE WITH 200,000 AMPERES SYMMETRICAL INTERRUPTING CAPACITY.
2. FUSES SHALL BE MANUFACTURED BY BUSSMANN, GOULD-SHAWMUTT, OR RELIANCE.
3. SPARE FUSES AMOUNTING TO A DUPLICATE SET OF EACH SIZE INSTALLED SHALL BE TURNED OVER TO THE OWNER UPON COMPLETION OF THE PROJECT. PROVIDE AND PLACE IN A SPARE FUSE CABINET SIMILAR TO BUSSMANN # SFC.
4. THIS CONTRACTOR SHALL REPLACE ALL FUSES BLOWN DURING CONSTRUCTION.
5. INSTALL LABELS ORIENTED SUCH THAT MANUFACTURER INFORMATION IS EASILY READ WITHOUT REMOVING FUSE.

26 24 20 - SURGE PROTECTIVE DEVICES

1. ALL SURGE PROTECTION DEVICES (SPD) SHALL BE TYPE 2 UNO AND ANSI/UL 1449 5TH EDITION LISTED.
2. SPDS SHALL BE EXTERNAL TO THE DEVICE IT PROTECTS AND BE ELECTRICALLY ISOLATED WITH PANEL CIRCUIT BREAKER.
3. EACH SURGE SUPPRESSION ELEMENT SHALL BE INDIVIDUALLY FUSED SO THAT A FAILURE OF ONE ELEMENT SHALL NOT AFFECT OTHER SUPPRESSION ELEMENTS. DEVICES THAT ACCOMPLISH THIS RATING BY PROVIDING ADDITIONAL FUSING TO THE SPD SYSTEM WILL NOT BE ACCEPTED.
4. SPD SHALL HAVE A SHORT CIRCUIT CURRENT RATING OF 200KAIC.
5. ACCEPTABLE MANUFACTURERS ARE ASCO OR THE SELECTED GEAR MANUFACTURER.
6. THE SPD SHALL BE MOUNTED AS CLOSE AS POSSIBLE TO THE EQUIPMENT IT IS PROTECTING. CONDUCTORS AND CIRCUIT BREAKER SHALL BE PER MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

26 51 00 - LIGHTING

GENERAL REQUIEMENTS

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LIGHT FIXTURE LOCATIONS AND QUANTITIES.
2. EXAMINE THE AREA OF INSTALLATION TO VERIFY ADEQUATE SPACE AND MOUNTING PROVISIONS ARE PROVIDED FOR THE SPECIFIED LUMINAIRE PRIOR TO ORDERING LUMINAIRES.
3. VERIFY THAT LUMINAIRES WILL NOT INTERFERE WITH REQUIRED CLEARANCES FOR EQUIPMENT INCLUDING FILTER PULL SPACE, NEC WORKING SPACE IN FRONT OF DISCONNECTS, CONTROL PANELS, ETC.
4. COORDINATE EXIT LIGHT LOCATIONS WITH STRUCTURE AND BUILDING SYSTEMS TO INSURE EXIT SIGNS ARE VISIBLE.
5. PROVIDE GROUND WIRE AND ONE NEUTRAL CONDUCTOR PER CIRCUIT IN ALL LIGHTING CONDUIT.
6. LABEL ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING.
7. UNO, ALL EXIT SIGNS, EMERGENCY EGRESS PATHWAY LIGHT FIXTURES, LIGHTS NOTED "nE", AND LIGHTS SHOWN CROSS HATCHED SHALL BE CONNECTED TO THE SWITCHED AREA LIGHTING CIRCUIT FOR NORMAL OPERATION AND AN UNSWITCHED CIRCUIT FROM THE SAME OCPD TO AUTOMATICALLY CONTROL POWER TRANSFER TO AN INTEGRAL BATTERY SYSTEM (INVERTER OR BATTERY PACK) FOR 90 MINUTES OF EMERGENCY OPERATION WHEN LOSS OF NORMAL POWER IS SENSED ON THE UNSWITCHED CIRCUIT. PROVIDE A BATTERY STATUS INDICATOR NEAR BATTERY PACK OR LIGHTING INVERTER.
8. INSTALL FIXTURES PLUMB, SQUARE AND LEVEL WITH CEILINGS AND WALLS AND SECURE FIXTURES PER MANUFACTURER'S PRINTED INSTRUCTIONS.
9. ADJUST AIMABLE FIXTURES, CLEAN, AND PROVIDED ALL FIXTURES WITH LAMPS PRIOR TO OWNER OCCUPANCY.
10. LUMINAIRE WHIPS SHALL BE FLEXIBLE METAL CONDUIT, 6FT MAX. SECURE TO STRUCTURE WITH LISTED SUPPORTS.

LIGHTING CONTROL REQUIREMENTS

1. U.N.O., LIGHTING SWITCHES IN ROOMS SHALL CONTROL ONLY FIXTURES IN THAT ROOM.
2. WHEN MORE THAN ONE(1) LIGHTING SWITCH IS SHOWN AT A LOCATION THEY SHALL BE GANGED TOGETHER.
3. ALL SENSORS SHALL BE DUAL TECHNOLOGY (PIR AND ULTRASONIC) VACANCY TYPE U.N.O. SENSOR OFF DELAY SHALL BE SET BY EC AT END OF PROJECT TO 15 MINUTES. AMBIENT LIGHT OVERRIDE SHALL BE SET SUCH THAT THE LUMINAIRES ARE SWITCHED OFF WHEN APPROPRIATE FC LEVEL IS MEASURED ON THE FLOOR (REGARDLESS OF THE FOOTCANDLES MEASURED AT THE SENSOR). REFER TO LIGHTING CONTROL MATRIX FOR EACH ROOM'S CONTROL.
4. INSTALL SWITCHES ON THE LOAD SIDE OF SENSORS AND OTHER CONTROLS.
5. IF LOW VOLTAGE LIGHTING CONTROL SYSTEM IS NOT PROVIDED, ALL EXTERIOR LIGHTING SHALL BE CONTROLLED AUTOMATICALLY AND OPERATE PER THE ADOPTED ENERGY CODE. PROVIDE LIGHTING CONTACTOR TO CONTROL ALL EXTERIOR LIGHTING CIRCUITS BY A SINGLE PHOTOCELL AND/OR ASTRONOMICAL TIME CLOCK WITH HOLIDAY PROGRAMING AND BATTERY BACKUP. PHOTOCELL SHOULD FACE NORTH AND BE ROOF MOUNTED. COORDINATE MOUNTING LOCATION WITH ARCHITECT.

LOW VOLTAGE NETWORKED LIGHTING CONTROLS

1. BASIS OF DESIGN IS ACUITY NLIGHT.
2. SYSTEM SHALL BE WIRED AND NOT USE WIRELESS COMMUNICATION TO CONTROL DEVICES UNLESS SPECIFICALLY STATED.
3. REFER TO LIGHTING CONTROL MATRIX FOR LOCATIONS OF SENSORS, WALL STATIONS, DIMMING, RECEPTACLE CONTROL, AND DAYLIGHTING CONTROL ZONES.
4. EMERGENCY FIXTURES SHALL BE CONTROLLED LIKE NORMAL FIXTURES WITHIN THE SPACE AND UTILIZE UL924 DEVICES TO BRING BRIGHTNESS TO 100% UPON ALARM INPUT.
5. LIGHTING CONTROL ZONES SHALL BE CAPABLE OF PROVIDING AUTOMATIC CONTROL FROM SENSORS (OCCUPANCY AND/OR PHOTOCELL) AND MANUAL CONTROL FROM LOCAL WALLSTATIONS WITHOUT REQUIRING CONNECTION TO A HIGHER LEVEL SYSTEM BACKBONE.
6. ELECTRICAL CONTRACTOR SHALL ENGAGE LOCAL LIGHTING REPRESENTATIVE TO PRODUCE SHOP DRAWINGS SHOWING ALL COMPONENTS OF THE NETWORK LIGHTING CONTROL SYSTEM FOR APPROVAL.
7. SERVICE AGREEMENT SHALL INCLUDE SOFTWARE SUPPORT AND UPGRADES FOR A PERIOD OF 1 YEAR.
8. TRAINING SHALL BE MADE AVAILABLE TO OWNER'S MAINTENANCE PERSONNEL BY A FACTORY AUTHORIZED SERVICE REPRESENTATIVE.

LUMINAIRES

1. ALL LIGHT FIXTURES/LAMPS SHALL BE APPROVED BY AN OSHA APPROVED LISTING AGENCY AND CONFORM TO ALL APPLICABLE UL, ANSI AND NFPA STANDARDS.
2. REFER TO LUMINAIRE SCHEDULE FOR FIXTURE SPECIFICATIONS. SUBSTITUTIONS MUST BE APPROVED PRIOR TO BID.

28 00 00 - SPECIAL SYSTEMS

GENERAL REQUIREMENTS

1. SPECIAL SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO, TELECOMMUNICATIONS, FIRE ALARM, AUDIO/VIDEO, ACCESS CONTROL SYSTEMS.
2. FOR SPECIAL SYSTEMS EQUIPMENT AND DEVICES SHOWN ON THE CONSTRUCTION DOCUMENTS, OR EQUIPMENT AND DEVICES THAT CAN BE REASONABLY IMPLIED AS REQUIRED TO OPERATE ITEMS SHOWN, ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR POWER, RACEWAY/BOX/ENCLOSURES ROUGH-IN, AND INFRASTRUCTURE PROVISION EVEN IF SAID SPECIAL SYSTEMS ARE PROVIDED BY A SPECIALIST CONTRACTOR, OWNER'S AGENT, OR UNDER SEPARATE CONTRACT.
3. TELECOMMUNICATIONS: IT CABLING, JACKS, EQUIPMENT RACKS, NETWORKING EQUIPMENT, AND PATCH PANELS WILL BE PROVIDED AND INSTALLED BY TELECOM CONTRACTOR. ALL OTHER WORK BY ELEC. CONTRACTOR
4. FIRE ALARM: CONTROL PANELS, MODULES, NOTIFICATION APPLIANCES, INITIATING DEVICES, WIRING, BATTERIES, AND MISC. MATERIALS SHALL BE PROVIDED BY SPECIALIST FIRE ALARM CONTRACTOR UNDER THIS CONTRACT.
5. AUDIO/VIDEO: COORDINATE SCOPE WITH OWNER PRIOR TO BID
6. ACCESS CONTROL (SECURITY): COORDINATE SCOPE WITH OWNER PRIOR TO BID
7. COORDINATE REQUIREMENTS FOR DATA ROOMS WITH OWNER'S INFORMATION TECHNOLOGIES REPRESENTATIVE (IT REP).
8. AT MINIMUM, THE FOLLOWING GENERAL PROVISIONS SHALL BE PROVIDED BY THE CONTRACTOR. ADDITIONAL ITEMS SPECIFIED ELSEWHERE ON THE CONSTRUCTION DOCUMENTS:
   - 8.1. 3/4", FIRE RATED, PLYWOOD SHEETS ON ALL WALLS OF IT CLOSETS UNLESS DIRECTED OTHERWISE BY IT REP. PAINT TO MATCH WALL TO WHICH BOARD IS ATTACHED.
   - 8.2. SERVICE CONDUITS BURIED IN SAND AT 18" WITH PULL STRING FROM SERVICE DEMARC TO MAIN TELECOM ROOM. COORDINATE DEMARC LOCATION WITH SERVICE PROVIDER AND TERMINATION POINT WITH COMMUNICATIONS CONTRACTORS. REFER TO SITE PLANS TO DETERMINE CONDUIT RUN LENGTHS AND ROUTING.
   - 8.3. FOUR(4) 4" CONDUIT SLEEVES BETWEEN EACH FLOOR FOR TELECOM, FA, AND ACCESS CONTROL
   - 8.4. DOUBLE GANG DEVICE BOX WITH SINGLE GANG REDUCER (AS NEEDED) AT EACH LOCATION SHOWN ON PLANS. NOTE THAT SOME SPECIAL SYSTEMS EQUIPMENT MAY REQUIRE A DIFFERENT SIZE BOX. COORDINATE LOCATIONS AND SIZES FOR BOXES WITH RESPECTIVE SPECIALIST CONTRACTORS PRIOR TO ROUGH-IN.
   - 8.5. CONDUIT WITH PULL STRINGS FROM SOURCE (TELEPHONE BACKBOARD, SECURITY PANEL, FACP, ETC) OR ACCESSIBLE CEILING SPACE TO ALL DEVICE LOCATIONS SHOWN ON THESE PLANS. HOMERUN CONDUITS MAY BE COMBINED WHERE APPROVED BY SPECIALIST CONTRACTOR. COORDINATE CONDUIT SIZES WITH RESPECTIVE SPECIALIST CONTRACTORS PRIOR TO INSTALLATION.
   - 8.6. ALL ALARM PANELS (GAS, CHEMICAL, FIRE, SECURITY, ETC) SHOWN ON THE MEP PLANS SHALL BE PROVIDED WITH A MIN. OF THREE(3)-1" CONDUITS ROUTED FROM THE PANEL TO ABOVE CEILING AND A 20A, 120V CIRCUIT AT THE PANEL. COORDINATE ROUTING AND ADDITIONAL REQUIREMENTS WITH SPECIALIST CONTACTOR.
9. POWER LIMITED AND NON POWER LIMITED CABLE SHALL NOT SHARE COMMON RACEWAYS OR ENTER JUNCTION BOXES THROUGH THE SAME OPENING.

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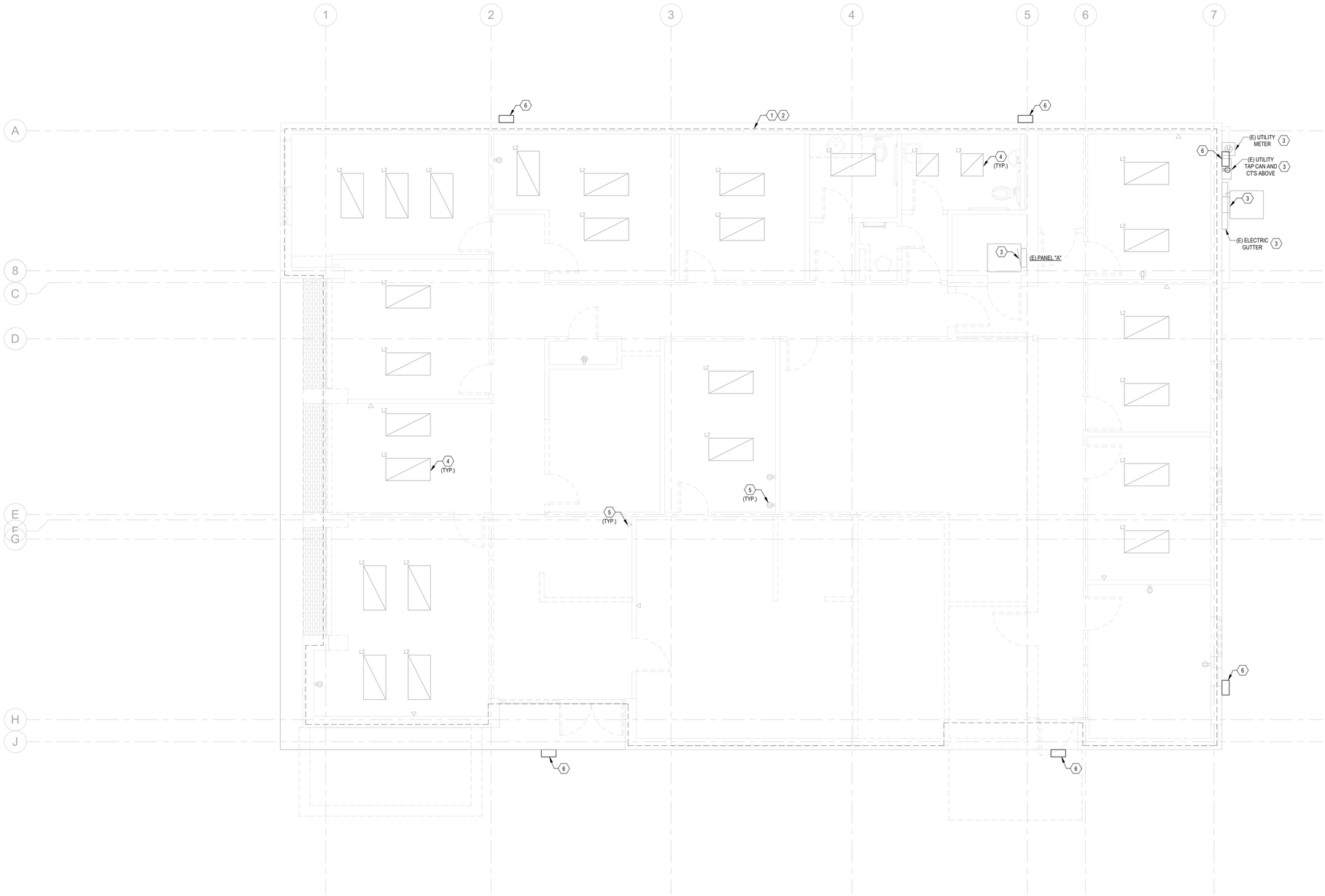
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ELECTRICAL SPECIFICATIONS

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Date:	Description:

E003



1 ELECTRICAL DEMOLITION PLAN
1/4" = 1'-0"
0 2' 4' 8'

DEMO GENERAL NOTES

A. THE CONTRACTOR SHOULD COORDINATE WITH THE ENGINEER OR OWNER FOR THE DISPOSITION OF ANY EQUIPMENT NOT MENTIONED ON THESE PLANS THAT IS FOUND IN THE FIELD THAT WILL BE AFFECTED BY OR SHOULD BE DEMOLISHED ALONG WITH THE OTHER DEMOLITION WORK REQUIRED FOR THIS PROJECT.

B. ALL CONDUIT EMBEDDED IN CONCRETE OR BURIED SHALL BE ABANDONED IN PLACE. THE ABANDONED CONDUIT SHALL BE CUT OFF FLUSH WITH SURFACE AND CAPPED.

C. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL DEMOLISHED EQUIPMENT. DISPOSAL OF ALL DEMOLISHED EQUIPMENT NOT REQUESTED BY THE OWNER SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

D. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE DISPOSAL OF HAZARDOUS MATERIALS SUCH AS PCBs AND MERCURY CONTAINING FLUORESCENT LAMPS FOLLOWING ALL LOCAL, STATE, AND FEDERAL GUIDELINES AND PROVIDE DOCUMENTATION OF DISPOSAL TO THE OWNER.

E. ANY EXISTING EQUIPMENT THAT IS CALLED OUT ON THE PLANS TO BE REUSED BUT IS FIELD DETERMINED TO BE DAMAGED IN ANY WAY SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

F. ALL ELECTRICAL EQUIPMENT SUCH AS CONDUIT, CONDUCTORS, DISCONNECTS, SUPPORTS, ETC. THAT IS ASSOCIATED WITH OTHER EQUIPMENT SUCH AS RECEPTACLES, LIGHTING, HVAC EQUIPMENT, ETC THAT IS SHOWN ON THESE PLANS TO BE REMOVED SHALL ALSO BE REMOVED FROM THE ELECTRICAL PANEL TO THE LOAD SERVED UNLESS NOTED TO BE USED FOR NEW EQUIPMENT OR ALSO SERVING EXISTING TO REMAIN LOADS.

G. PATCH AND FIRE SEAL AS REQUIRED ALL PENETRATIONS IN STRUCTURES MADE BY ELECTRICAL EQUIPMENT SUCH AS CONDUIT AND CABLE TRAY THAT IS BEING REMOVED

H. EXISTING TO REMAIN EQUIPMENT IS SHOWN GRAY SCALED ON THESE PLANS FOR REFERENCE. EQUIPMENT TO BE DEMOLISHED IS SHOWN BOLD AND/OR DASHED.

I. ALL MATERIALS SALVAGED TO OWNER SHALL BE STORED BY CONTRACTOR FOR REUSE UNTIL END OF PROJECT THEN RETURNED TO THE OWNER.

J. REFER TO MECHANICAL AND PLUMBING DEMOLITION PLANS FOR EQUIPMENT THAT REQUIRES ELECTRICAL SERVICE TO BE REMOVED FROM LOAD TO SOURCE.

K. ALL CONDUIT FOR ITEMS REMOVED MAY BE REUSED IF DETERMINED IN THE FIELD TO BE IN GOOD CONDITION.

KEYNOTES

1 U.N.O. WITHIN DASHED LINE REMOVE ALL LIGHT FIXTURES AND CONTROLS DEVICES. PATCH AND REPAIR WALL AS REQUIRED, REMOVE CONDUIT AND CONDUCTORS BACK TO PANEL. REFER TO ARCHITECTURAL DEMOLITION PLAN FOR MORE INFORMATION.

2 U.N.O. WITHIN DASHED LINE REMOVE ALL ELECTRICAL AND DATA DEVICES. PATCH AND REPAIR WALL AS REQUIRED, REMOVE CONDUIT AND CONDUCTORS BACK TO PANEL. REFER TO ARCHITECTURAL DEMOLITION PLAN FOR MORE INFORMATION.

3 EXISTING TO REMAIN ELECTRICAL EQUIPMENT.

4 EXISTING TO REMAIN LIGHT FIXTURE. PROTECT LIGHT FIXTURE DURING CONSTRUCTION. ALL EXISTING LIGHT FIXTURES SHOWN SHADED-BACK ON PLAN ARE TO REMAIN.

5 EXISTING TO REMAIN ELECTRICAL / DATA FIXTURE. ALL ELECTRICAL DEVICES SHOWN SHADED-BACK ON PLAN ARE TO REMAIN.

6 REMOVE AND PROPERLY DISPOSE OF EXISTING EXTERIOR LIGHT FIXTURE. REMOVE CONDUIT AND CONDUCTORS BACK TO NEAREST J-BOX. CIRCUIT TO BE REUSED. PATCH AND REPAIR WALL AS REQUIRED.

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ELECTRICAL DEMOLITION PLAN

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Date:	Description:

ED101

LIGHTING FIXTURE SCHEDULE

TYPE	PRODUCT MFR	PRODUCT MODEL	CONSTRUCTION DESCRIPTION	CONSTRUCTION MOUNTING	LIGHT SOURCE LAMP	LUMENS	CCT	CRI	DIMMING TYPE	ELECTRICAL WATTS	VOLTAGE	KEYNOTE
L1	COOPER LIGHTING	S122DP-C865D840-C4JBB-4F0-1-U-DD-F-B	4' LINEAR PENDANT DIRECT LIGHT	PENDANT	LED	865 lm/ft	4000K	80	0-10V	35 W	120 V	
L1E	COOPER LIGHTING	S122DP-C865D840-C4JBB-4F0-1B3-U-DD-F-B	4' LINEAR PENDANT DIRECT LIGHT W/ EMERGENCY	PENDANT	LED	865 lm/ft	4000K	80	0-10V	35 W	120 V	
L2	SIGMA LUMINOUS	SLTR-01-24-35W-UNV-40K	EXISTING 2'X4' TROFFER	LAY-IN	LED	EXISTING	4000K	-	VERIFY	35 W	120 V	
L3	SIGMA LUMINOUS	SLTR-02-22-28W-UNV-40K	EXISTING 2'X2' TROFFER	LAY-IN	LED	EXISTING	4000K	-	VERIFY	28 W	120 V	
L4	COOPER LIGHTING	2SNLED-LD5-26SL-LN-UNV-L840-CD-1-U	2' ROUND LENSED STRIP LIGHT	SURFACE	LED	2667	4000K	80	0-10V	21 W	120 V	
L5E	COOPER LIGHTING	4SNLED-LD5-26SL-LN-UNV-EL14W-L840-CD-1-U	4' ROUND LENSED STRIP LIGHT W/ EMERGENCY	SURFACE	LED	2620	4000K	80	0-10V	18 W	120 V	
L6	COOPER LIGHTING	S122DP-C865D840-C4JBB-2F0-1-U-DD-F-B	2' LINEAR PENDANT DIRECT LIGHT	PENDANT	LED	865 lm/ft	4000K	80	0-10V	18 W	120 V	
L7	LITHONIA LIGHTING	LDNSGQ-40/20-LS6-BR-LD-TRBL-MVOLT-GZ1	6" SQUARE DOWNLIGHT	RECESSED	LED	1892	4000K	80	0-10V	23 W	120 V	
L7E	LITHONIA LIGHTING	LDNSGQ-40/20-LS6-BR-LD-TRBL-MVOLT-GZ1-EL10WCP	6" SQUARE DOWNLIGHT W/ EMERGENCY	RECESSED	LED	1892	4000K	80	0-10V	23 W	120 V	
W1	COOPER LIGHTING	ENC-SA1D-740-U-SL3-BK-EBP	ARCHITECTURAL WALL LUMINAIRE W/ EMERGENCY	SURFACE	LED	5539	4000K	70	-	50 W	120 V	
X1	COOPER LIGHTING	SCX70R	EXIT SIGN, EDGE-LIT, 1-SIDED OR 2-SIDED / SEE PLAN	CEILING / WALL	LED	-	-	-	-	4 W	120 V	1

SCHEDULE GENERAL NOTES:

A. WHETHER INDICATED IN CATALOG NUMBER OR NOT, CONTRACTOR TO PROVIDE ALL NECESSARY ACCESSORIES AND MOUNTING HARDWARE REQUIRED FOR A COMPLETE INSTALLATION.
B. COORDINATE FIXTURE COLOR SELECTION WITH ARCHITECT PRIOR TO PURCHASE.
C. LEDs SHALL MEET THE FOLLOWING MIN SPECS IN ADDITION TO THE REQUIREMENTS SHOWN ELSEWHERE:
   a. 50,000 HOUR RATED, MIN CRI = 80, 1 TO 10V DIMMABLE
   b. LAMP CCT SHALL CONFORM TO ANSI C78.377A COLOR BINNING AND UTILIZE 4 STEP MACADAM ELLIPSE ALGORITHM BINNING PROCESS
D. EXIT SIGNS WITH BACKWARD LETTERING SHALL NOT BE PERMITTED ANYWHERE. SINGLE-SIDED EXIT SIGNS SHALL HAVE A BLANK OR OPAQUE BACK SIDE AS SPECIFIED BY THE ARCHITECT. DOUBLE-SIDED EXIT SIGNS SHALL HAVE ENGLISH LETTERS "E X I T" THAT READ FROM LEFT-TO-RIGHT ON EACH SIDE.
E. LED DRIVERS SHALL MEET THE FOLLOWING MIN SPECS IN ADDITION TO THE REQUIREMENTS SHOWN ELSEWHERE:
   a. THD LESS THAN 10% POWER FACTOR GREATER THAN 90%
F. SUBSTITUTIONS ONLY ALLOWED WITH OWNER AND DESIGN TEAM APPROVAL PRIOR TO BID. SUBSTITUTION REQUEST MUST INCLUDE LINE ITEM PRICING BREAKDOWN AND FULL PHOTOMETRIC CALCULATIONS.

SCHEDULE KEYNOTES:

1. LED EXIT SIGN, EDGE LIT, MIRRORED, DIRECTION ARROWS AND MOUNTING AS REQUIRED. PROVIDE WITH SELF-DIAGNOSTICS.

LIGHTING CONTROL MATRIX

ID	ROOM TYPE	LOCAL CONTROL FUNCTIONS	SENSOR MOUNTING	LIGHTING AUTO ON LEVEL	OCCUPANCY SHUTOFF	TIMECLOCK CONTROL	DIMMABLE	DAYLIGHT CONTROL	RECEPTACLE CONTROL	KEYNOTE
A	RECEPTION	ON/OFF/DIM	CEILING	100%	20 MIN	NO	YES	YES	NO	
B	LOUNGE	ON/OFF/DIM	CEILING	100%	20 MIN	NO	YES	NO	YES	
C	CORRIDOR	N/A	CEILING	100%	SEE KEYNOTE	YES	YES	NO	NO	1,2
D	OFFICES / CONF. / COPY	ON/OFF/DIM	CEILING	0%	20 MIN	NO	YES	NO	YES	
F	RESTROOM (SINGLE)	ON/OFF	WALL (INTEGRAL)	100%	20 MIN	NO	NO	NO	NO	
G	IT / JANITOR	ON/OFF	WALL (INTEGRAL)	0%	20 MIN	NO	NO	NO	NO	
H	BREAKROOM	ON/OFF/DIM	CEILING	0%	20 MIN	NO	YES	NO	YES	
I	CONF. ROOM 117	ON/OFF/DIM	CEILING	0%	20 MIN	NO	YES	YES	YES	
J	MECH / ELEC ROOM	ON/OFF	N/A	N/A	N/A	NO	NO	NO	NO	3
K	OPEN AREA	ON/OFF/DIM	CEILING	100%	20 MIN	NO	YES	YES	YES	

SCHEDULE GENERAL NOTES:

A. PROVIDE ALL POWER PACKS, RELAYS, PHOTOCELLS, TIME CLOCKS, CONTROLLERS, AND BRIDGING DEVICES AS REQUIRED FOR A FUNCTION CONTROL SYSTEM.
B. OCCUPANCY SENSORS TO BE PLACED PER MANUFACTURER RECOMMENDATIONS.
C. CONTRACTOR TO PROVIDE SHOP DRAWING INDICATING LOCATIONS OF ALL CONTROL DEVICES AS PART OF THE LIGHTING SUBMITTAL FOR APPROVAL PRIOR TO INSTALLATION.
D. AUTO ON LEVEL : 0% = MANUAL ON.
E. REFER TO LIGHTING PLANS FOR ROOM TYPE DESIGNATIONS PER THE ID COLUMN ABOVE.
F. ALL EMERGENCY LIGHTING CONTROLLED BY AUTOMATIC MEANS SHALL BE CONTROL THROUGH A LISTED UL924 CONTROL DEVICES THAT BRINGS LIGHTS TO FULL OUTPUT UPON LOSS OF NORMAL BRANCH POWER. SIGNAL FROM FIRE ALARM SYSTEM, OR SIGNAL FROM OTHER DESIGNATED CONTROL PANEL.
G. DAYLIGHTING CONTROL IN DAYLIGHTING AREAS ONLY. SEE CODED NOTE ON PLAN FOR LOCATIONS.
H. MANUAL OFF: WHEN LIGHTS ARE MANUALLY TURNED OFF, THEY ARE TO REMAIN OFF UNTIL THEY ARE MANUALLY TURNED ON, THEN AUTO-ON/OFF CONTROL WILL TAKE OVER.
I. ALL ROOMS TO BE TIED TO THE LOW VOLTAGE CONTROL SYSTEM UNLESS NOTED OTHERWISE.
J. ALL WALL MOUNTED OCCUPANCY SENSORS SHALL HAVE INTEGRAL ON/OFF BUTTONS, AND UP/DOWN DIMMING BUTTONS WHERE APPLICABLE.
K. ALL ROOMS WITH AUTOMATIC DAYLIGHT CONTROL SHALL ADJUST ONCE THE LIGHT LEVELS REACH 50% AT 36" AFF.
L. LIGHTING CONTROL ZONES: LIGHTS TO BE CONTROLLED TOGETHER, PER LOWER-CASE LETTER.
M. WHERE INDICATED AS "DIMMABLE" THE PROVIDED CONTROLS SHALL BE COMPATIABLE WITH THE FIXURE SHOWN IN THE LUMINAIRE SCHEDULE.

SCHEDULE KEYNOTES:

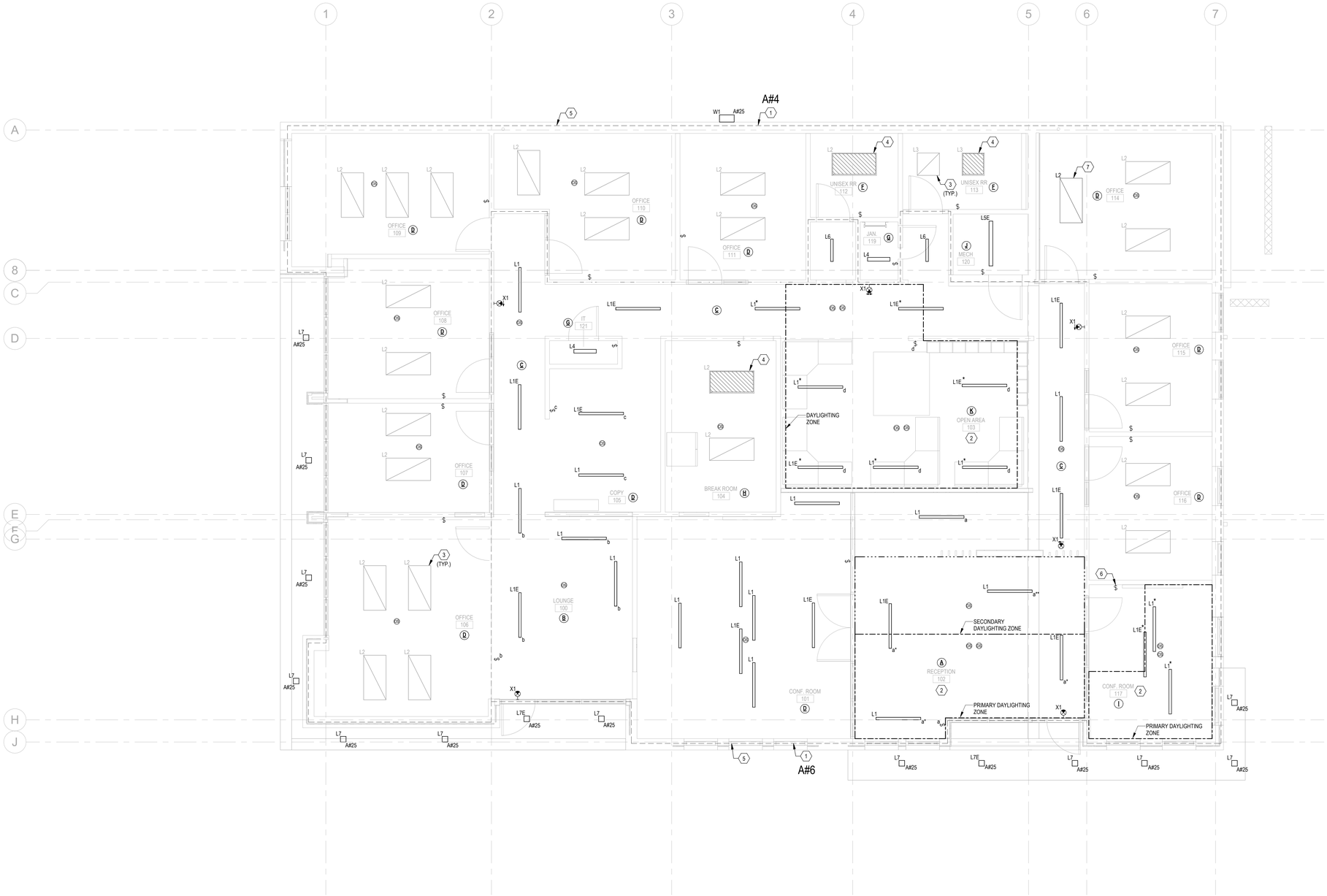
1. BUSINESS HOURS: LIGHTS DIM TO 50% 20 MIN AFTER AREA IS UNOCCUPIED. AFTER HOURS: LIGHTS OFF WHEN AREA IS UNOCCUPIED.
2. MANUAL CONTROL NOT REQUIRED PER IECC C405.2.1.1.
3. AUTOMATIC SHUTOFF WOULD ENDANGER OCCUPANT SAFETY OR SECURITY, THEREFORE IS EXEMPT FROM OCCUPANT SENSOR CONTROLS AND TIME-SWITCH CONTROLS PER IECC C405.2.2.

LIGHTING SHEET NOTES

A. REFER TO SPECIFICATIONS, SCHEDULES, DETAILS AND GENERAL NOTES SHEET FOR ADDITIONAL LIGHTING INSTALLATION REQUIREMENTS.
B. CONTRACTOR SHALL COORDINATE LUMINAIRE LOCATIONS WITH THE ARCHITECTURAL ELEVATIONS AND RCP PRIOR TO INSTALLATION. VERIFY LOCATIONS AND MOUNTING METHODS AND MATERIALS THAT ARE UNCLEAR PRIOR TO ORDERING OR INSTALLING LUMINAIRES.
C. CIRCUIT NUMBER AND FIXTURE TAG SHOWN ADJACENT TO EACH LUMINAIRE.
D. CIRCUIT EXIT SIGNS (UNSWITCHED) WITH THE ADJACENT LIGHTING IN THE ROOM.
E. EMERGENCY LIGHTS IN CORRIDORS AND STAIRS TO BE UNSWITCHED. EMERGENCY LIGHTING IN ALL OTHER SPACES TO BE SWITCHED WITH ROOM LIGHTING.
F. ALL DEVICE AND EQUIPMENT LOCATIONS SHALL MEET CURRENT LOCAL ACCESSIBILITY STANDARDS.
G. LOWER CASE LETTER ADJACENT TO FIXTURE CORRESPONDS TO CONTROL SWITCH.

KEYNOTES

1 U.N.O. LIGHTS WITHIN DASHED LINE TO BE CONNECTED TO CIRCUIT SHOWN.
2 DAYLIGHTING CONTROLS REQUIRED IN THIS ROOM. * = PRIMARY DAYLIGHTING ZONE. ** = SECONDARY DAYLIGHTING ZONE.
3 EXISTING TO REMAIN LIGHT FIXTURE. PROTECT LIGHT FIXTURE DURING CONSTRUCTION.
4 PROVIDE EMERGENCY BATTERY BACK-UP FOR EXISTING LIGHT FIXTURE. MYERS MICRO INVERTER CAT. LVU-5.
5 U.N.O. WITHIN DASHED LINE PROVIDE NEW LIGHTING CONTROLS FOR EXISTING LIGHT FIXTURES AND NEW LIGHT FIXTURES.
6 COORDINATE FINAL LOCATION OF LIGHT SWITCH WITH ARCHITECTS.
7 RELOCATED EXISTING LIGHT FIXTURE. REUSE ONE OF THE REMOVED LIGHT FIXTURES FROM BUILDING. COORDINATE WITH ARCHITECTS FOR EXACT LIGHT FIXTURE TO BE REUSED.



1 LIGHTING PLAN
1/4" = 1'-0"
0 2' 4' 8'

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EEA Project No. 20266411
State of registration TX
Firm Registration No. F-2497

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LIGHTING PLAN

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Austin, TX 78730 (512) 345-2000 www.n-vizion.com
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Date:	Description:

E101

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State of registration TX
Firm Registration No. F-2497

FLOOR BOX SCHEDULE

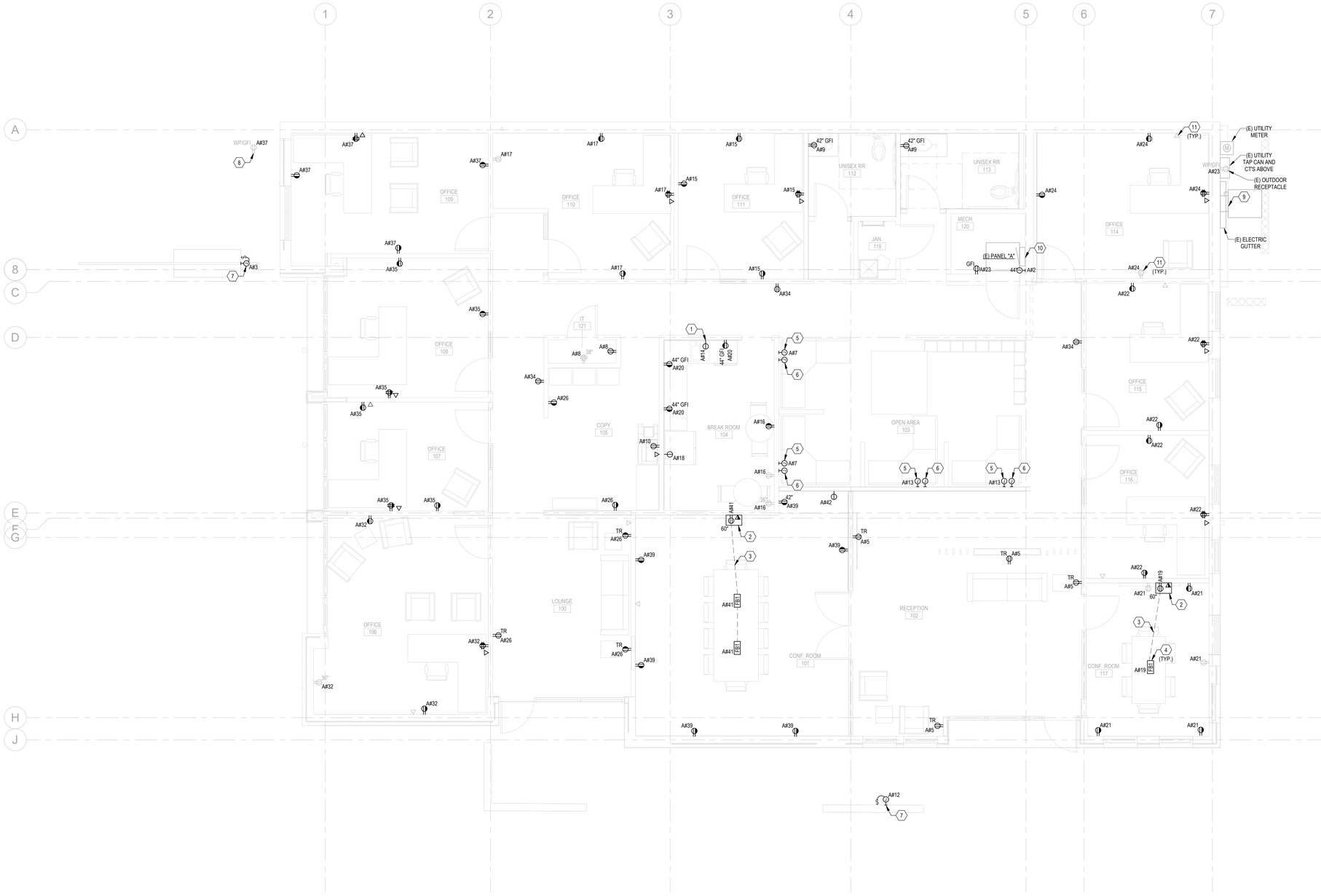
TYPE	MANUFACTURER	MODEL	FINISH	COVER	IT CONDUITS	POWER OUTLETS	DATA OUTLETS	AV DEVICES	DESCRIPTION	KEYNOTE
FB1	LEGRAND	RFBA4R30OG	TBD	FPCTCX	ONE (1) 2"	(1) DUPLEX, (1) DUPLEX SWITCHED	SEE IT	SEE AV	FLUSH, RECTANGULAR, FLANGED COVER, 4 GANG AND 2HUB ACCESSORIE.	

SCHEDULE GENERAL NOTES:

A. WHERE ON GROUND LEVEL, PROVIDE ON GRADE MODEL (-OG) OR APPROPRIATE VAPOR BARRIER.
B. COORDINATE SETTING BOXES ON CONCRETE WITH MANUFACTURER'S REPRESENTATIVE TO INSURE PROPER, FLUSH INSTALLATION.
C. WHERE INSTALLED IN EXPOSED CONCRETE, USE PROVIDED MUD CAP AND BLOCKING AS REQUIRED TO INSURE LID IS FLUSH WITH TOP OF CONCRETE POUR.
D. ALL BOXES SHALL BE UL SCRUB RATED OR WATERPROOF, SHEET METAL, CAST IRON, OR CAST ALUMINUM, SELF LEVELING .
E. VERIFY COVER TYPE - FLUSH OR INSET FOR CARPET INSERT-PRIOR TO ORDER.

SCHEDULE KEYNOTES:

1. NOT USED.



1 POWER PLAN
1/4" = 1'-0"
0 2' 4' 8'

POWER SHEET NOTES

A. REFER TO SPECIFICATIONS, SCHEDULES, DETAILS AND GENERAL NOTES SHEET FOR ADDITIONAL ELECTRICAL EQUIPMENT AND SYSTEM INSTALLATION REQUIREMENTS.

B. SPECIAL REQUIREMENTS SUCH AS MOUNTING ABOVE COUNTER (AC), GROUND FAULT CIRCUIT INTERRUPTERS (GFI), AND WEATHERPROOF ENCLOSURES (WP) ARE NOTED ADJACENT TO RECEPTACLES.

C. REFER TO ELECTRICAL EQUIPMENT SCHEDULE FOR DISCONNECT AND CONTROLS REQUIREMENTS.

D. CONTRACTOR SHALL PROVIDE POWER TO ALL ITEMS SHOWN FROM THE PANEL AND CIRCUIT NUMBERS THAT ARE SHOWN ADJACENT TO THE LOAD (RECEPTACLE, DISCONNECT, JBOX, EQUIPMENT CONNECTION POINT, ETC). SIZE CIRCUIT PER PANEL SCHEDULE. PROVIDE NEUTRAL AND GROUND, U.N.O.

E. LABEL ALL J-BOXES, RECEPTACLES, AND OUTLETS WITH PANEL CIRCUIT NUMBERS.

F. ALL DEVICE AND EQUIPMENT LOCATIONS SHALL MEET CURRENT LOCAL ACCESSIBILITY STANDARDS.

G. DO NOT INSTALL OUTLETS BACK TO BACK. SEE ARCH WALL TYPE.

H. ALL RECEPTACLES IN AREAS DEFINED BY NEC 406.12 SHALL BE TAMPER RESISTANT.

I. RUN ALL OVERHEAD WIRING IN EXPOSED ROOF DECK ROOMS IN CONDUIT AS HIGH AS POSSIBLE AND IN A NEAT AND ORGANIZED MANNER.

KEYNOTES

1 RECEPTACLE FOR DISHWASHER SHALL BE ACCESSIBLE AND LOCATED IN CABINET ADJACENT TO DISHWASHER UNDER SINK.

2 RECEPTACLE AND DATA FOR TV, CONFIRM FINAL MOUNTING HEIGHT AND LOCATION WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.

3 PROVIDE (1) 3/4" CONDUIT TO WALL FOR POWER AND (1) 1 1/2" CONDUIT FROM FLOOR BOX TO BOX BEHIND TV WITH PULL STRINGS.

4 SEE FLOOR BOX SCHEDULE IN THIS SHEET.

5 WALL MOUNTED JUNCTION BOX FOR CONNECTION TO FURNITURE SYSTEM POWER FEED. VERIFY EXACT JUNCTION BOX LOCATION AND WIRING REQUIREMENTS WITH FURNITURE CONTRACTOR. CONTRACTOR SHALL CONFIRM WIRING CONFIGURATION IN WRITING WITH ARCHITECT PRIOR TO START OF CONSTRUCTION AND INSTALLATION OF CIRCUITRY. UTILIZE #12 AWG MINIMUM. PROVIDE CIRCUIT IN THIS GROUP AS "SWITCHED" WITH THE OCCUPANCY SENSOR. CIRCUIT SHALL BE PERMANENTLY LABELED PER NEC 406.3(F).

6 SQ WALL MOUNTED JUNCTION BOX FOR CONNECTION TO FURNITURE SYSTEM COMMUNICATION FEED. ROUTE (1) 1 1/4" EMT CONDUITS FROM JUNCTION BOX TO ACCESIBLE CEILING. COORDINATE EXACT LOCATION WITH FURNITURE CONTRACTOR.

7 EC SHALL PROVIDE 120V, 20A POWER CONNECTION TO EXTERIOR SIGNAGE. SIGNAGE SHALL BE CONNECTED TO LIGHTING CONTROL SYSTEM AS INDICATED ON DETAIL 2, SHEET E601. COORDINATE FINAL LOCATION, MOUNTING HEIGHT AND REQUIREMENTS WITH GC AND APPROVED SIGNAGE PACKAGE PRIOR TO ROUGH-IN. PROVIDE SIGNAGE DISCONNECT AS REQUIRED BY NEC AT COORDINATED LOCATION WITH ARCHITECTS.

8 PROVIDE WEATHER PROOF COVER TO EXISTING RECEPTACLE LOCATED NEXT TO GAS METER.

9 EXISTING MAIN DISCONNECT SWITCH. REFER TO ONE-LINE DIAGRAM FOR SIZES.

10 PROVIDE ENGRAVED LABEL ON ENCLOSURE FOR PANEL NAME (PANEL "A"). RELABEL ALL CIRCUITS NUMBERS AS NOTED IN PANEL SCHEDULE.

11 EXISTING TO REMAIN ELECTRICAL / DATA FIXTURE.

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POWER PLAN

Project No. 251203
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Registered: TX: F-27999, TX-25489, LA: 9413 MI: 1301069591; NV: 8252; NC: 14885; OH: ARC-1917885

Date:	Description:

E201

ELECTRICAL EQUIPMENT SCHEDULE

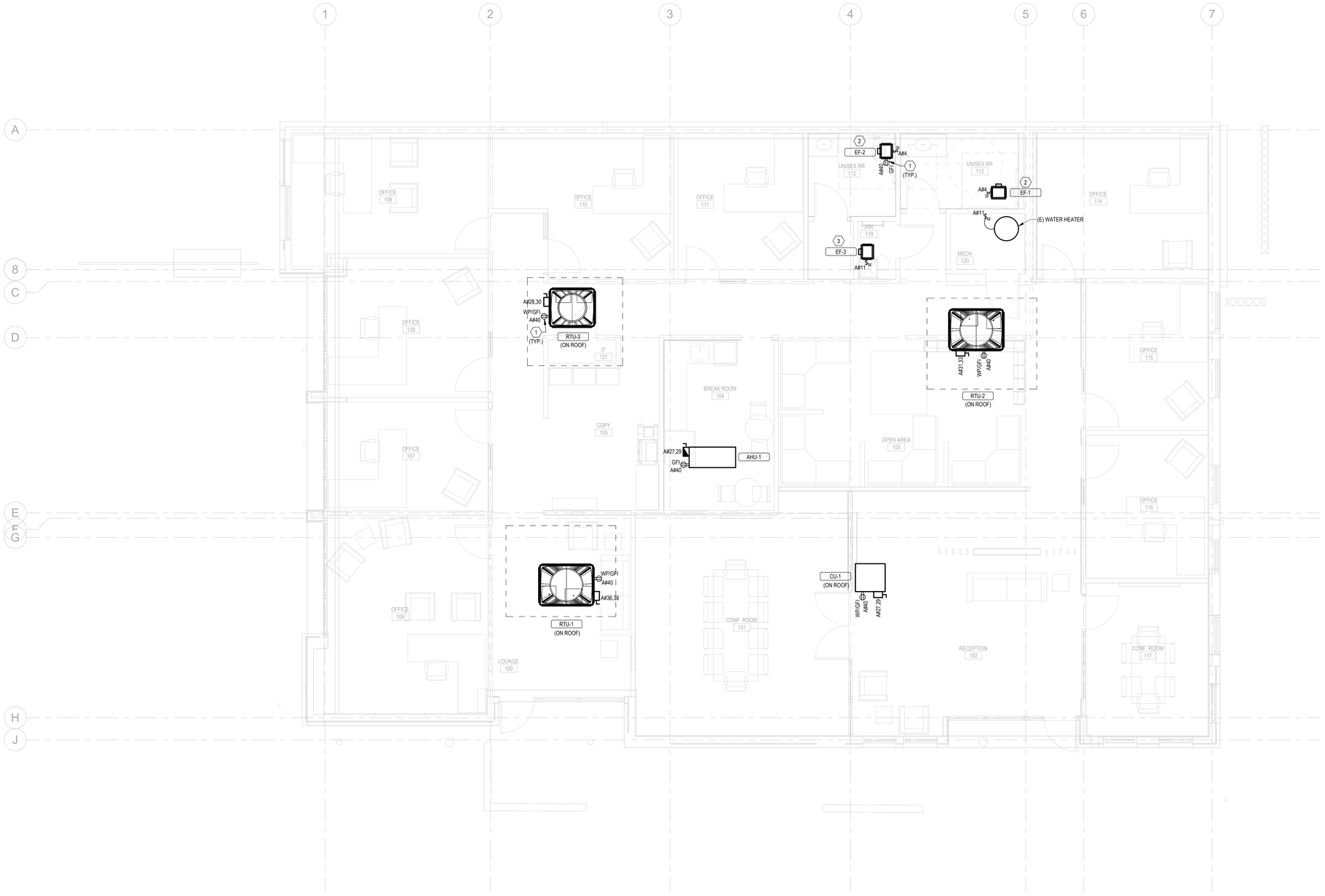
ID	VOLTAGE	PHASE	DISC. AMP RATING	DISCONNECT TYPE	FUSING	ENCLOSURE RATING	FEEDER OR BRANCH WIRE SIZE	KEYNOTE
(E) GWH	120 V	1	20 A	N/A	N/A	NEMA 1	2 #12, 1#12 G, 3/4" C.	PROVIDE DISCONNECT SWITCH
AHU-1	240 V	1	30 A	GENERAL DUTY	15A FUSED	NEMA 1	2 #12, 1#12 G, 3/4" C.	PROVIDE DISCONNECT SWITCH
CU-1	240 V	1	30 A	GENERAL DUTY	NON-FUSED	NEMA 3R	2 #12, 1#12 G, 3/4" C.	PROVIDE DISCONNECT SWITCH
EF-1	120 V	1	20 A	MOTOR RATED SWITCH	N/A	NEMA 1	2 #12, 1#12 G, 3/4" C.	PROVIDE DISCONNECT SWITCH
EF-2	120 V	1	20 A	MOTOR RATED SWITCH	N/A	NEMA 1	2 #12, 1#12 G, 3/4" C.	PROVIDE DISCONNECT SWITCH
EF-3	120 V	1	20 A	MOTOR RATED SWITCH	N/A	NEMA 1	2 #12, 1#12 G, 3/4" C.	PROVIDE DISCONNECT SWITCH
RTU-1	240 V	1	60 A	GENERAL DUTY	NON-FUSED	NEMA 3R	2 #4, 1#10 G, 1" C.	PROVIDE DISCONNECT SWITCH
RTU-2	240 V	1	60 A	GENERAL DUTY	NON-FUSED	NEMA 3R	2 #6, 1#10 G, 3/4" C.	PROVIDE DISCONNECT SWITCH
RTU-3	240 V	1	60 A	GENERAL DUTY	NON-FUSED	NEMA 3R	2 #8, 1#10 G, 3/4" C.	PROVIDE DISCONNECT SWITCH

SCHEDULE GENERAL NOTES:

A. PROVIDE ALL DISCONNECTS WITH LOCK OUT TAG OUT PROVISIONS.
B. MOUNT DISCONNECTS TO STRUCTURE ADJACENT TO EQUIPMENT. DO NOT MOUNT TO EQUIPMENT.
C. REFER TO GENERAL NOTES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
D. EC SHALL INSTALL ALL DISCONNECTS, STARTERS, VFDs, & MAKE ELECTRICAL TERMINATIONS. HVAC CONTROL WIRING & TERMINATIONS BY CONTROLS CONTRACTOR.

SCHEDULE KEYNOTES:

1. NOT USED.



1 HVAC POWER PLAN
1/4" = 1'-0"
0 2' 4' 8'

POWER SHEET NOTES

A. REFER TO SPECIFICATIONS, SCHEDULES, DETAILS AND GENERAL NOTES SHEET FOR ADDITIONAL ELECTRICAL EQUIPMENT AND SYSTEM INSTALLATION REQUIREMENTS.

B. SPECIAL REQUIREMENTS SUCH AS MOUNTING ABOVE COUNTER (AC), GROUND FAULT CIRCUIT INTERRUPTERS (GFI), AND WEATHERPROOF ENCLOSURES (WP) ARE NOTED ADJACENT TO RECEPTACLES.

C. REFER TO ELECTRICAL EQUIPMENT SCHEDULE FOR DISCONNECT AND CONTROLS REQUIREMENTS.

D. CONTRACTOR SHALL PROVIDE POWER TO ALL ITEMS SHOWN FROM THE PANEL AND CIRCUIT NUMBERS THAT ARE SHOWN ADJACENT TO THE LOAD (RECEPTACLE, DISCONNECT, JBOX, EQUIPMENT CONNECTION POINT, ETC). SIZE CIRCUIT PER PANEL SCHEDULE. PROVIDE NEUTRAL AND GROUND, U.N.O.

E. LABEL ALL J-BOXES, RECEPTACLES, AND OUTLETS WITH PANEL CIRCUIT NUMBERS.

F. ALL DEVICE AND EQUIPMENT LOCATIONS SHALL MEET CURRENT LOCAL ACCESSIBILITY STANDARDS.

G. DO NOT INSTALL OUTLETS BACK TO BACK. SEE ARCH WALL TYPE.

H. ALL RECEPTACLES IN AREAS DEFINED BY NEC 406.12 SHALL BE TAMPER RESISTANT.

I. RUN ALL OVERHEAD WIRING IN EXPOSED ROOF DECK ROOMS IN CONDUIT AS HIGH AS POSSIBLE AND IN A NEAT AND ORGANIZED MANNER.

KEYNOTES

1 PROVIDE RECEPTACLE MOUNTED TO STRUCTURE OR HVAC UNIT FOR SERVICING OF HVAC EQUIPMENT.

2 EXHAUST FAN SHALL BE CIRCUITED AND CONTROLLED TOGETHER WITH THE LIGHTING FIXTURES.

3 EXHAUST FAN TO RUN CONTINUOSLY DURING OCCUPIED HOURS.

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EEA Project No. 20266411
State of registration TX
Firm Registration No. F-2497

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HVAC POWER PLAN

Project No. 251203
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 | P: 512.777.7777 | F: 512.777.7778
Registered: TX: F-21220, TX-25489, LA: 9413 MI: 1301069591; NV: 8252; NC: 14885; OH: ARC-1917885

Date:	Description:

E202

COMcheck-Web™

Compliance Certificate

Project Information

Energy Code:	2024 IECC
Project Title:	BONILLA LAW OFFICE
Location:	Austin, Texas
Climate Zone:	2a
Project Type:	Alteration
Project No:	104915
Project Sub Type:	Other Alteration
All Electric:	false
Is Renewable:	false
Has Battery:	false
Has Charger:	false
Has Heat Pump	true

Construction Site:
1833 S I-35 Frontage Rd.
Austin , Texas 78741

Owner/Agent:
BONILLA LAW FIRM
Texas

Designer/Contractor:
7300 Ranch Road 2222, Bldg. II, Ste. 100
EEA Consulting Engineers
Austin , Texas 78730
5127444400

Notes:

Renewable energy

Number of Floors:	1
Area of Three Largest Floors:	0
Proposed Capacity:	0
Required Capacity:	0
Proposed Off-site Energy:	0
Required Off-site Energy:	0
Exception:	None

Renewables Pass

Building Area

Description	Floor Area
1-Office (Office) : Nonresidential	4734

Interior Lighting Compliance Certificate

Project Information

Energy Code:	2024 IECC
Project Title:	BONILLA LAW OFFICE
Location:	Austin, Texas
Climate Zone:	2a
Project Type:	Alteration

Construction Site:
1833 S I-35 Frontage Rd.
Austin , Texas 78741

Owner/Agent:
BONILLA LAW FIRM
Texas

Designer/Contractor:
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Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-OFFICE 106 (Common Space Types:Office - enclosed)	259	0.73	
2-OFFICE 107 (Common Space Types:Office - enclosed)	136	0.73	
3-OFFICE 108 (Common Space Types:Office - enclosed)	173	0.73	
4-OFFICE 109 (Common Space Types:Office - enclosed)	196	0.73	
5-OFFICE 110 (Common Space Types:Office - enclosed)	173	0.73	
6-OFFICE 111 (Common Space Types:Office - enclosed)	147	0.73	
7-OFFICE 114 (Common Space Types:Office - enclosed)	201	0.73	
8-OFFICE 115 (Common Space Types:Office - enclosed)	145	0.73	
9-OFFICE 116 (Common Space Types:Office - enclosed)	141	0.73	
10-CONF. ROOM 117 (Common Space Types:Conference/meeting/multipurpose room)	152	0.88	
11-CONF. ROOM 101 (Common Space Types:Conference/meeting/multipurpose room)	381	0.88	
12-RESTROOM 112 (Common Space Types:Restrooms)	59	0.74	
13-RESTROOM 113 (Common Space Types:Restrooms)	72	0.74	
14-JANITOR 119 (Common Space Types:Storage room <50 sq.ft.)	17	0.35	
15-IT 121 (Common Space Types:Storage room <50 sq.ft.)	13	0.35	
16-MECH 120 (Common Space Types:Electrical/mechanical room)	36	0.71	
17-BREAK ROOM 104 (Common Space Types:Lounge/breakroom)	152	0.55	
18-COPY 105 (Common Space Types:Copy/print room)	140	0.56	
19-CORRIDOR 118 (Common Space Types:Corridor <8 ft wide)	522	0.44	
20-RECEPTION 102 (Common Space Types:Lobby)	295	0.8	
21-LOUNGE 100 (Common Space Types:Lounge/breakroom)	202	0.55	
22-OPEN AREA 103 (Common Space Types:Office - open plan)	332	0.56	
Total Allowed Watts:			2935

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B # of Fixture	C Fixture Watt.	D (B X C)
1-OFFICE 106 (Common Space Types:Office - enclosed)\			
L2: L2: LED:	4	35	140
2-OFFICE 107 (Common Space Types:Office - enclosed)\			
L2: L2: LED:	2	35	70
3-OFFICE 108 (Common Space Types:Office - enclosed)\			
L2: L2: LED:	2	35	70
4-OFFICE 109 (Common Space Types:Office - enclosed)\			
L2: L2: LED:	3	35	105
5-OFFICE 110 (Common Space Types:Office - enclosed)\			
L2: L2: LED:	3	35	105
6-OFFICE 111 (Common Space Types:Office - enclosed)\			
L2: L2: LED:	2	35	70
7-OFFICE 114 (Common Space Types:Office - enclosed)\			
L2: L2: LED:	3	35	105
8-OFFICE 115 (Common Space Types:Office - enclosed)\			
L2: L2: LED:	2	35	70
9-OFFICE 116 (Common Space Types:Office - enclosed)\			
L2: L2: LED:	2	35	70
10-CONF. ROOM 117 (Common Space Types:Conference/meeting/multipurpose room)\			
L1, L1E: L1, L1E: LED:	3	35	105
11-CONF. ROOM 101 (Common Space Types:Conference/meeting/multipurpose room)\			
L1, L1E: L1, L1E: LED:	7	35	245
12-RESTROOM 112 (Common Space Types:Restrooms)\			
L2: L2: LED:	1	35	35
13-RESTROOM 113 (Common Space Types:Restrooms)\			
L3: L3: LED:	2	28	56
14-JANITOR 119 (Common Space Types:Storage room <50 sq.ft.)\			
L4: L4: LED:	1	21	21
15-IT 121 (Common Space Types:Storage room <50 sq.ft.)\			
L4: L4: LED:	1	21	21
16-MECH 120 (Common Space Types:Electrical/mechanical room)\			
L5E: L5E: LED:	1	18	18
17-BREAK ROOM 104 (Common Space Types:Lounge/breakroom)\			
L2: L2: LED:	2	35	70
18-COPY 105 (Common Space Types:Copy/print room)\			
L1, L1E: L1, L1E: LED:	2	35	70
19-CORRIDOR 118 (Common Space Types:Corridor <8 ft wide)\			
L1, L1E: L1, L1E: LED:	10	35	350
L6: L6: LED:	2	18	36
20-RECEPTION 102 (Common Space Types:Lobby)\			
L1, L1E: L1, L1E: LED:	4	35	140
21-LOUNGE 100 (Common Space Types:Lounge/breakroom)\			
L1, L1E: L1, L1E: LED:	3	35	105
22-OPEN AREA 103 (Common Space Types:Office - open plan)\			
L1, L1E: L1, L1E: LED:	5	35	175
Total Proposed Watts:			2252

Proposed Interior Lighting Controls

Fixture	Lighting Control
1-OFFICE 106 (Common Space Types:Office - enclosed)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
2-OFFICE 107 (Common Space Types:Office - enclosed)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
3-OFFICE 108 (Common Space Types:Office - enclosed)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
4-OFFICE 109 (Common Space Types:Office - enclosed)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
5-OFFICE 110 (Common Space Types:Office - enclosed)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
6-OFFICE 111 (Common Space Types:Office - enclosed)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
7-OFFICE 114 (Common Space Types:Office - enclosed)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
8-OFFICE 115 (Common Space Types:Office - enclosed)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
9-OFFICE 116 (Common Space Types:Office - enclosed)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
10-CONF. ROOM 117 (Common Space Types:Conference/meeting/multipurpose room)\	
L1, L1E: L1, L1E: LED:	Occupancy Sensor, Manual Control
11-CONF. ROOM 101 (Common Space Types:Conference/meeting/multipurpose room)\	
L1, L1E: L1, L1E: LED:	Occupancy Sensor, Manual Control
12-RESTROOM 112 (Common Space Types:Restrooms)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
13-RESTROOM 113 (Common Space Types:Restrooms)\	
L3: L3: LED:	Occupancy Sensor, Manual Control
14-JANITOR 119 (Common Space Types:Storage room <50 sq.ft.)\	
L4: L4: LED:	Occupancy Sensor, Manual Control
15-IT 121 (Common Space Types:Storage room <50 sq.ft.)\	
L4: L4: LED:	Occupancy Sensor, Manual Control
16-MECH 120 (Common Space Types:Electrical/mechanical room)\	
L5E: L5E: LED:	Manual Control
17-BREAK ROOM 104 (Common Space Types:Lounge/breakroom)\	
L2: L2: LED:	Occupancy Sensor, Manual Control
18-COPY 105 (Common Space Types:Copy/print room)\	
L1, L1E: L1, L1E: LED:	Occupancy Sensor, Manual Control
19-CORRIDOR 118 (Common Space Types:Corridor <8 ft wide)\	
L1, L1E: L1, L1E: LED:	Occupancy Sensor
L6: L6: LED:	Occupancy Sensor
20-RECEPTION 102 (Common Space Types:Lobby)\	
L1, L1E: L1, L1E: LED:	Occupancy Sensor, Manual Control
21-LOUNGE 100 (Common Space Types:Lounge/breakroom)\	
L1, L1E: L1, L1E: LED:	Occupancy Sensor, Manual Control
22-OPEN AREA 103 (Common Space Types:Office - open plan)\	
L1, L1E: L1, L1E: LED:	Occupancy Sensor, Manual Control

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2024 IECC requirements in COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

OTNIEL TORRES		04-29-2026
Name - Title	**Signature**	**Date**

ONE-LINE DIAGRAM GENERAL NOTES

A. PROVIDE EMT FOR ALL CABLING ROUTED THROUGH AREAS WITH EXPOSED STRUCTURAL CEILINGS AND THROUGH INACCESSIBLE CEILINGS, COORDINATE CONDUIT SIZE REQUIREMENTS WITH CABLE INSTALLER.

B. ALL EXPOSED CONDUIT SHALL BE CONCEALED TO THE GREATEST EXTENT POSSIBLE, AND SHALL BE INSTALLED PARALLEL AND CLOSE TO STRUCTURAL MEMBERS. PAINT CONDUIT TO MATCH ADJACENT FINISHES.

C. PROVIDE PULLCORD FOR ALL CONDUIT INSTALLED FOR CABLE.

D. PROVIDE PULLBOXES AS REQUIRED BY CABLE INSTALLER FOR RUNS EXCEEDING MAXIMUM PULL DISTANCE, AS INDENTIFIED BY CABLE INSTALLER.

E. FOR ALL FREELY RUN ARMORED METALLIC FIBER OPTIC CABLING, CONTRACTOR SHALL GROUND CABLING ARMOR TO THE NEAREST PBB OR SBB.

F. PROVIDE SLEEVES AND CONDUIT BETWEEN FLOORS FOR ROUTING OF CABLE. COORDINATE CONDUIT SIZE WITH CABLE INSTALLER. COORDINATE LOCATION OF RACEWAY WITH ARCHITECT AND CABLE INSTALLER.

G. ALL CONDUIT AND CABLING IN CRAWL SPACE IS TO BE SUPPORTED BY AND TIGHT TO STRUCTURE ABOVE WHERE CONDUIT TRANSITION FROM BEING SUPPORTED BY STRUCTURE INTO SOIL. ADD LOOP AND/OR FLEXIBLE CONDUIT FOR ANTICIPATED SOIL MOVEMENT.

H. NOTE THAT ALL UNDERGROUND CONDUIT BENDS ARE TO BE GALVANIZED RIGID CONDUIT. UNDERGROUND CONDUIT EXTENDING ABOVE SLAB IS ALSO TO BE GALVANIZED RIGID CONDUIT. REFER TO SPECIFICATIONS FOR FULL CONDUIT REQUIREMENTS.

PANEL SCHEDULE GENERAL NOTES :

A. ELECTRICAL PANELS SHALL BE CLEARLY AND PERMANENTLY LABELED IN ACCORDANCE WITH THE REGULATIONS MANUAL AND ALL APPLICABLE ELECTRICAL CODE REQUIREMENTS.

B. THE CONTRACTOR SHALL VERIFY ALL MANUFACTURER EQUIPMENT CUT-SHEETS AND CONFIRM THE REQUIRED ELECTRICAL CIRCUIT CAPACITY, VOLTAGE, AND PHASE PRIOR TO ORDERING ANY MATERIALS OR INSTALLING ASSOCIATED ELECTRICAL WORK.

BRANCH PANEL: A

BUS RATING 225 A
MAIN RATING: MLO
VOLTAGE: 120/240
PHASE: 1
WIRES: 3

A.I.C. RATING: EXISTING
BUSSING: COPPER
MOUNTING: SURFACE
NEMA ENCLOSURE: NEMA 1

CB OPT: ST - SHUNT TRIP
SS - SOLID STATE
GF - GROUND FAULT CIRCUIT INTERRUPTER
(E) - EXISTING TO REMAIN
L - HANDLE PADLOCKING DEVICE
HC - HANDLE CLAMP TO HOLD CIRCUIT ON
EP - EQUIPMENT GROUND FAULT (30mA)
N - NEW CB, MATCH EXISTING MANUFACTURER & AIC RATING

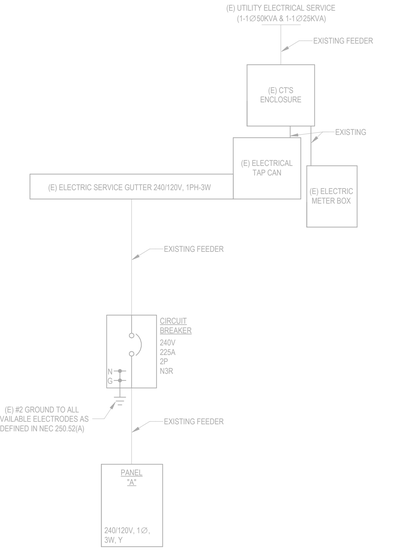
PANEL OPTIONS:
EXISTING PANEL

CCT	CIRCUIT DESCRIPTION	LOAD TYPE	CB OPT	CB AMP	POLE	A (VA)		B (VA)		POLE	CB AMP	CB OPT	LOAD TYPE	CIRCUIT DESCRIPTION	CCT
1	**SPARE**	–	(E)	20	1	0	180			1	20	(E)	**MIS**	**LTG CONTROL TIMECLOCK**	2
3	**LTG - WEST EXTERIOR SIGN**	**LTS**	(E)	20	1			1000	1081	1	20	(E)	**LTS; MTR**	**LTG - OFF. / RR/ JAN./ MECH/...**	4
5	**REC - RECEPTION**	**REC**	(E)	20	1	720	1216			1	20	(E)	**LTS**	**LTG - CENTER AREA ROOMS**	6
7	**REC - OPEN AREA STATIONS 1,2**	**REC**	(E)	20	1			1800	540	1	20	(E)	**REC**	**REC - IT CLOSET**	8
9	**REC - RESTROOMS**	**REC**	(E)	20	1	360	800			1	20	(E)	**MIS**	**REC - COPIER**	10
11	**(E) GWH / EF-3**	**MIS; MTR**	(E)	20	1			600	1000	1	20	(E)	**LTS**	**LTG - SOUTH EXTERIOR SIGN**	12
13	**REC - OPEN AREA STATIONS 3,4**	**REC**	(E)	20	1	1800	1200			**1**	**20**	**GF,N**	**MIS**	**REC - DISHWASHER**	14
15	**REC - OFFICE 111**	**REC**	(E)	20	1			900	540	1	20	(E)	**REC**	**REC - BREAK ROOM**	16
17	**REC - OFFICE 110**	**REC**	(E)	20	1	900	1000			**1**	**20**	**GF,N**	**MIS**	**REC - REFRIGERATOR**	18
19	**REC - CONF. RM 117 TV / FLOOR**	**REC**	(E)	20	1			540	540	1	20	(E)	**REC**	**REC - BREAK ROOM COUNTER**	20
21	**REC - CONFERENCE ROOM 117**	**REC**	(E)	20	1	900	1440			1	20	(E)	**REC**	**REC - OFFICE 115, 116**	22
23	**REC - ELEC PANEL**	**REC**	(E)	20	1			360	900	1	20	(E)	**REC**	**REC - OFFICE 114**	24
25	**LTG - EXTERIOR LIGHTS**	**LTS**	(E)	20	1	372	900			**1**	**20**	**N**	**REC**	**REC - LOUNGE / COPY RMS**	26
27	**CU-1 & AHU-1**	**MTR**	(E)	20	2			1512	2760						28
29						1512	2760			2	40	(E)	**MTR**	**RTU-3**	30
31	**RTU-2**	**MTR**	(E)	50	2			3360	900	1	20	(E)	**REC**	**REC - OFFICE 106**	32
33						3360	540			**1**	**20**	**N**	**REC**	**REC - CORRIDOR**	34
35	**REC - OFFICE 107 & 108**	**REC**	(E)	20	1			1440	4320						36
37	**REC - OFFICE 109 / EXTERIOR REC**	**REC**	(E)	20	1	1080	4320			**2**	**60**	**N**	**MTR**	**RTU-1**	38
39	**REC - CONFERENCE ROOM 101**	**REC**	(E)	20	1			1080	1080	**1**	**20**	**N**	**REC**	**REC - HVAC SERVICE**	40
41	**REC - CONF. RM 101 TV / FLOOR**	**REC**	(E)	20	1	900	500			1	20		MIS	REC - UC REF. CONF. RM 101	42
						TOTAL LOAD PER PHASE:		26760 VA		26253 VA					
						TOTAL AMPS PER PHASE:		223 A		219 A					

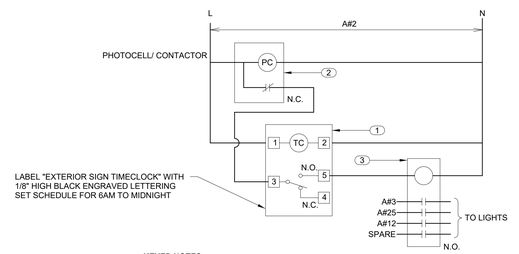
LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	NEC DEMAND	PANEL TOTALS
LTS	4628 VA	125.00%	5785 VA	
MIS	3680 VA	100.00%	3680 VA	**TOTAL CONNECTED LOAD:** 53013 VA
Motor	500 VA	125.00%	625 VA	**TOTAL NEC LOAD:** 51375 VA
REC	20160 VA	74.80%	15080 VA	**TOTAL CONNECTED AMPERAGE:** 221 A
EXISTING LOAD				**TOTAL NEC AMPERAGE:** 214 A

(1) RECEPTACLE (REC) LOADS NEC DEMAND FACTOR PER ARTICLE 220.44
(2) MOTOR LOADS NEC DEMAND FACTOR PER ARTICLE 220.50

NOTES:



1 ELECTRICAL ONE-LINE DIAGRAM
NOT TO SCALE



KEYED NOTES:
1. TORK MODEL #EW120BC, 7 DAY DIGITAL TIME CLOCK WITH SKIP-A-DAY FEATURE IN A NEMA 1 ENCLOSURE, WITH ONE N.O. 20 AMP AND ONE N.C. 10 AMP RATED CONTACTS.
2. TORK MODEL #2001 PHOTOCELL, 120VAC RATED N.C. CONTACT. INSTALL PHOTOCELL FACING NORTH AND AWAY FROM ANY LIGHTING SOURCE.
3. ELECTRONICALLY HELD LIGHTING CONTACTOR WITH 120V COIL, AND 4 NORMALLY OPEN, 30A, 600V CONTACTS.

2 EXTERIOR LIGHTING CONTROLS
NOT TO SCALE

EEA CONSULTING ENGINEERS
7300 Ranch Road 2222, Bldg II, Ste. 100
Austin, TX 78730-3204 USA
512.744.4400 main - 512.744.4444 fax
www.eeace.com

EEA Project No 20266411
State of registration TX
Firm Registration No. F-2497

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BONILLA LAW FIRM
BONILLA LAW FIRM
1833 S I-35 Frontage Rd.
Austin , TX 78741

N-VIZION
FORMS + ENVIRONMENTS + IMAGES

ELECTRICAL SCHEDULES

Project No. 251203
N-vizion Design, LLC - 2900 Shepherd Mountain Cove, Ste. 2-250
Austin, TX 78730 - (512) 298-5478 - TX#24861
Registered in TX, FL, PE; GA, NC, SC, VA, WV, PA, MD, DE, NY, LA: 9413 MI:
13010695911, NY: 8252, NC: 14883, OH: ARC.1917885

Date:	Description:

E601

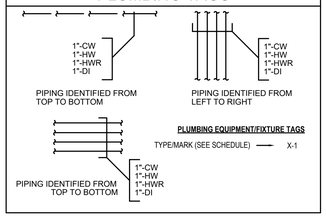
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EEA Project No. 20266411
State of registration TX
Firm Registration No. F-2497

PIPING SPECIALITIES

- AIR SEPARATOR
- AIR VENT, AUTOMATIC W/SERVICE VALVE
- AIR VENT, AUTOMATIC W/SERVICE VALVE
- AIR VENT, MANUAL
- ALIGNMENT GUIDE (PIPE SLEEVE)
- AQUASTAT
- ANCHOR
- BACKWATER VALVE — BWV
- EXPANSION JOINT
- EXPANSION LOOP
- FILTER
- FLEX CONNECTION
- FLOWMETER, ORIFICE
- FLOW SWITCH
- FLOW METER, INSERTION — FM
- FLOW METER, VENTURI
- HOSE BIBB / WALL HYDRANT / ROOF HYDRANT
- METER
- PITCH OF PIPE, RISE (R) OR DROP (D)
- PRESSURE GAUGE AND COCK
- PRESSURE SWITCH
- PUMP, CIRCULATING
- PUMP SUCTION DIFFUSER — PSD
- STRAINER, WYE
- STRAINER W/ BLOW DOWN
- STRAINER, DUPLEX
- TEST PLUG
- THERMOMETER
- THERMOMETER IN WELL
- THERMOMETER WELL ONLY
- THRUST BLOCK — TB
- WATER HAMMER ARRESTER
- PNEUMATIC THERMOSTAT
- VACUUM BREAKER
- PURGE PORT

PLUMBING TAGS



PIPE FITTINGS

- CAPPED TEE
- BLIND FLANGE
- PIPE CAP
- INDICATES TIE-IN BETW. EXIST. AND NEW
- ELBOW, TURN-DOWN
- ELBOW, TURN-UP
- FLANGE JOINT
- REDUCER, CONCENTRIC
- REDUCER, ECCENTRIC
- UNION, SCREWED
- UNION, FLANGED
- VCR FITTING WITH CAP
- BALL JOINT
- PLUGGED PIPE
- COUPLING (JOINT)
- CROSSING — HIGHER PIPE / LOWER PIPE
- TEE
- TEE, OUTLET DOWN
- TEE, OUTLET UP
- P-TRAP

PLUMBING VALVES

- ANGLE GATE
- ANGLE GLOBE
- BALANCING
- BALL
- BELLOWS SEAL GLOBE
- BUTTERFLY
- DIAPHRAGM
- GAS COCK
- GAUGE COCK
- GATE
- GLOBE
- NEEDLE
- PLUG
- PRESSURE REDUCING
- PRESSURE RELIEF
- PRESSURE-TEMPERATURE RELIEF
- QUICK OPENING
- CHECK
- ALARM CHECK
- SPRING CHECK
- SWING CHECK
- BALL CHECK
- BACK FLOW PREVENTER, DOUBLE CHECK TYPE — BFP
- BACK FLOW PREVENTER, REDUCED PRESSURE ZONE TYPE — RPZ

GENERAL PLUMBING SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE NEW CONNECTS TO EXISTING
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- KEYNOTE
- CONTINUATION SYMBOL
- Room 6 — ROOM NAME AND NUMBER
- ITEM TO BE DEMOLISHED
- AREA NOT IN CONTRACT
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE — PIPE SLOPE TAG
- BELOW GROUND PIPING
- INVERT: -105'- 0" 127/128" — PIPE INVERT ELEVATION TAG
- (E) — EXISTING PIPE TAG
- PIPING BEING DEMOLISHED

PLUMBING DRAINS

- FLOOR DRAIN - ROUND TOP
- FLOOR DRAIN - SQUARE TOP
- PRIMARY ROOF DRAIN
- SECONDARY ROOF DRAIN
- FLOOR SINK
- TRENCH DRAIN
- AREA DRAIN
- ROOF RECEPTOR
- HUB DRAIN
- FLOOR CLEAN OUT
- WALL CLEANOUT
- YARD CLEANOUT
- DOUBLE YARD CLEANOUT

PLUMBING PIPE TYPES

SYSTEM TYPE	ABBV	LINE TYPE
WATER SYSTEMS		
DOMESTIC COLD WATER	DCW	
HARD DOMESTIC COLD WATER	H-CW	
SOFT DOMESTIC COLD WATER	S-CW	
FILTERED DOMESTIC COLD WATER	F-CW	
REVERSE OSMOSIS DOMESTIC COLD WATER	RO	
DOMESTIC HOT WATER	DHW	
140° DOMESTIC HOT WATER	DHW140	
HOT WATER RECIRCULATION	DHWR	
HOT WATER RECIRCULATION 140°	DHWR140	
SOLAR HOT WATER RETURN	SHWR	
SOLAR HOT WATER SUPPLY	SHWS	
WASTE SYSTEMS		
COMBINATION WASTE & VENT	SHWS	
GREASE WASTE	GW	
INDIRECT WASTE	IW	
OIL WASTE	OW	
PUMP DISCHARGE	PD	
SANITARY SEWER	SS	
VENT SYSTEMS		
FUEL OIL VENT	FOV	
GREASE VENT	GV	
GASOLINE VENT	FOV	
OIL VENT	OV	
SANITARY VENT	V	
STORM DRAINAGE SYSTEMS		
OVERFLOW STORM DRAINAGE	SSD	
STORM DRAINAGE	SD	
SUB-SURFACE STORM DRAIN	SUB	
FUEL & LUBRICANT SYSTEMS		
FUEL OIL SUPPLY	FOS	
GASOLINE	RG	
LUBRICATING OIL	LO	
NATURAL GAS LOW PRESSURE	G	
NATURAL GAS MEDIUM PRESSURE	MG	
NATURAL GAS HIGH PRESSURE	HG	

PROCESS SYSTEMS

SYSTEM TYPE	ABBV	LINE TYPE
STEAM		
CLEAN STEAM	CS	
CLEAN STEAM CONDENSATE	CSC	
HIGH PRESSURE CONDENSATE	HPC	
HIGH PRESSURE STEAM SUPPLY	HPS	
LOW PRESSURE CONDENSATE	LPC	
LOW PRESSURE STEAM SUPPLY	LPS	
MEDIUM PRESSURE CONDENSATE	MPC	
MEDIUM PRESSURE STEAM SUPPLY	MPS	
PURIFIED STEAM	PS	
PROCESS WASTE		
ACID WASTE	AW	
ACID WASTE VENT	AWV	
AMMONIA WASTE	AMW	
BIO WASTE	BW	
COPPER WASTE	CUW	
PROCESS WASTE VENT	PDV	
INDUSTRIAL WASTE	IWW	
INDUSTRIAL WASTE VENT	IWV	
LABORATORY WASTE	LW	
LABORATORY WASTE VENT	LWV	
SOLVENT WASTE	SOLW	
SOLVENT WASTE VENT	SOLV	
PROCESS LIQUID		
CLEAN IN PLACE	CIP	
DEIONIZED WATER RETURN	DIR	
DEIONIZED WATER SUPPLY	DIS	
DISTILLED WATER	DIST	
HOT SOFT WATER	HSW	
NON POTABLE WATER	NPW	
PROCESS CHILLED WATER RETURN	CHWR	
PROCESS CHILLED WATER SUPPLY	CHWS	
PROCESS COOLING WATER RETURN	PCWR	
PROCESS COOLING WATER SUPPLY	PCWS	
REVERSE OSMOSIS REJECTION WATER	RORW	
REVERSE OSMOSIS WATER	ROW	
RECLAIM WATER	RECW	
TEMPERED WATER RETURN	TWR	
TEMPERED WATER SUPPLY	TWS	
ULTRAPURE WATER RETURN	UPWR	
ULTRAPURE WATER SUPPLY	UPWS	
WATER FOR INJECTION	WFI	
PROCESS GAS		
ARGON	Ar	
COMPRESSED AIR	CA	
COMPRESSED DRY AIR	CDA	
DUST COLLECTION VACUUM	DVAC	
GENERAL NITROGEN	GN2	
HOUSE CLEANING VACUUM	CVAC	
HOUSE KEEPING VACUUM	HKV	
LIQUID NITROGEN	LN2	
LIQUID OXYGEN	LOX	
NITROGEN	N2	
PROCESS VACUUM	PVAC	
PROCES SPEC GAS		
ACETYLENE	C2H2	
AMMONIA	NH3	
BORON TRICHLORIDE	BCl3	
CARBON DIOXIDE	CO2	
CARBON TETRAFLUORIDE	CF4	
CHLORINE	Cl2	
FORMING GAS	4% H2/N2	
HELIUM	He	
HIGH PURITY ARGON	HPAr	
HIGH PURITY NITROGEN	HPN2	
HYDROGEN	H2	
METHANE	CH4	
OXYGEN	O2	
SILANE	SiH4	
SULFUR HEXAFLUORIDE	SF6	
TRIFLUOROMETHANE	CHF3	
ZERO AIR	ZA	
MEDICAL GAS		
MEDICAL VACUUM (AIR)	MVAC	
MEDICAL AIR	MA	
MEDICAL COMPRESSED AIR	MCA	
MEDICAL OXYGEN	OXY	
PROCESS CHEMICALS		
CAUSTIC SUPPLY	CAUSTIC	

PLUMBING ABBREVIATIONS

DESCRIPTION	AAB	DESCRIPTION	AAB
ABOVE CEILING	A/C	LAVATORY	LAV
ABOVE FINISHED FLOOR	AFF	MAN HOLE	MH
ABOVE GRADE. GROUND	AG	MAXIMUM	MAX
ACCESS PANEL	AP	MECHANICAL	MECH
ACRYLONITRILE BUTADIENE STYTENE	ABS	MINIMUM	MIN
AIR ADMITTANCE VALVE	AAV	MIXING VALVE	MV
ARCHITECT	ARCH	MOP SINK	MS
AUTHORITY HAVING JURISDICTION	AHJ	NORMALLY CLOSED	NC
BACKFLOW PREVENTER	BFP	NORMALLY OPEN	NO
BELOW FINISHED FLOOR	BFF	NOT IN CONTRACT	NIC
BELOW FLOOR	B/F	NOT TO SCALE	NTS
BELOW GRADE/ GROUND	BG	EXISTING TO BE PROTECTED IN PLACE	(P)
BELOW SLAB	B/S	POLYETHYLENE	PE
BOTTOM OF PIPE	BOP	POLYETHYLENE CROSS-LINKED	PEX
BRAKE HORSEPOWER	BHP	POLYVINYL CHLORIDE	PVC
BRITISH THERMAL UNIT	BTUH	POLYVYLIDENE FLOURIDE/ DIOFLOURIDE	PVDF
BTUH (THOUSANDS)	MBH	POUND	LB
CAST IRON	CI	POUNDS PER SQUARE INCH	PSI
CELCIUS	C	POUNDS PER SQUARE INCH ABSOLUTE	PSIA
CHILLED WATER RETURN	CHWR	POUNDS PER SQUARE INCH GAUGE	PSIG
CHILLED WATER SUPPLY	CHWS	PRESSURE DROP	PD
CHLORINATED POLYVINYL CHLORIDE	CPVC	PRESSURE REDUCING VALVE	PRV
CLEANOUT	CO	PUMP, BOOSTER	BP
CLEANOUT, FLOOR	FCO	PUMP, CHILLED WATER	CHWP
CLEANOUT, GRADE	GCO	PUMP, CIRCULATION	CP
CLEANOUT, GRADE TWO-WAY	DGCO	PUMP, HOT WATER	HWP
CLEANOUT, WALL	WCO	REDUCED PRESSURE ZONE	RPZ
CLEANOUT, YARD	YCO	EXISTING TO BE RELOCATED	(R)
CLEANOUT, YARD TWO-WAY	DYCO	REVOLUTION PER MINUTE	RPM
CONDENSER RETURN	CWR	SCHEDULE	SCH
CONDENSER SUPPLY	CWS	SHOWER	SH
COPPER	CU	SINK	SK
CUBIC FEET	CF	SQUARE FEET	SF
CUBIC FEET PER HOUR	CFH	STRUCTURAL	STRUC
CUBIC FEET PER MINUTE	CFM	TEMPERATURE	TEMP
EXISTING TO BE DEMOLISHED/ REMOVED	(D)	TEMPERATURE, ENTERING WATER	EWT
DEGREE	D	TEMPERATURE, LEAVING WATER	LWT
DIAMETER	DIA	THERMOSTATIC MIXING VALVE	TMV
DRAIN, AREA	AD	TOP OF PIPE	TOP
DRAIN, FLOOR	FD	TRAP PRIMER	TP
DRAIN, ROOF PRIMARY	RD	TYPICAL	TYP
DRAIN, ROOF SECONDARY	SRD	ULTRAVIOLET	UV
ELECTRICAL	ELEC	UNDERGROUND	UG
ELEVATION	ELEV	UNIT, AIR HANDLING	AHU
EXISTING	EXIST, (E)	UNIT, FAN COIL	FC
FAHRENHEIT	F	UNLESS NOTED OTHERWISE	UNO
FAT, OIL, AND GAS	FOG	UP/ DOWN	UP/DN
FOOT/ FEET	FT	VACUUM BREAKER	VB
FEET PER MINUTE	FPM	VALVE FLOW COEFFICIENT	CV
FEET PER SECOND	FPS	VENT THRU ROOF	VTR
FIXTURE UNIT	FU	WATER GAUGE	WG
FLEXIBLE	FLEX	WATER CLOSET	WC
FLOOR	FLR	WATER HAMMER ARRESTOR	WHA
FLOOR SINK	FS	WATER, OIL, AND GAS	WOG
FUTURE	(F)		
GALLON	GAL	ELECTRICAL	
GALLONS PER HOUR	GPH	VOLTAGE	V, VOLT
GALLONS PER MINUTE	GPM	WATTAGE	W, WATT
HEAD IN FEET	FTHD	KILOWATT	KW
HEAD IN INCHES WATER COLUMN	INWC	PHASE	PH
HEATING HOT WATER RETURN	HWR	AMPERE	A, AMP
HEATING HOT WATER SUPPLY	HWS		
HEATING, VENTILATION, AIR CONDITIONING	HVAC		
HORSEPOWER	HP		
HOUR	HR		
HUB DRAIN	HD		
INCHES PER HOUR	IN/HR		
INDIRECT DRAIN/ RECEPTOR	ID		
INDIRECT WASTE	IW		
INVERT ELEVATION	IE		

CODE AND REGULATORIES ABBREVIATIONS

DESCRIPTION	AAB	DESCRIPTION	AAB
AMERICAN NATIONAL STANDARDS	ANSI	NATIONAL ELECTRICAL CODE	NEC
AMERICAN SOCIETY OF CIVIL ENGINEERS	ASCE	NATIONAL FIRE PROTECTION ASSOCIATION	NFPA
AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS	ASHRAE	UNIFORM BUILDING CODE	UBC
AMERICAN SOCIETY OF MECHANICAL ENGINEERS	ASME	UNIFORM FIRE CODE	UFC
AMERICAN SOCIETY OF PLUMBING ENGINEERS	ASPE	UNIFORM PLUMBING CODE	UPC
AMERICAN SOCIETY OF SANITARY ENGINEERING	ASSE	UNDERWRITERS LABORATORIES	UL
AMERICAN SOCIETY OF TESTING AND MATERIALS	ASTM		
AMERICAN WATER WORKS ASSOCIATION	AWWA		
CAST IRON SOIL PIPE INSTITUTE	CISPI		
FACTORY MUTAL	FM		
INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS	IEEE		
INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS	IAPMO		
INTERNATIONAL BUILDING CODE	IBC		
INTERNATIONAL ENERGY CONSERVATION CODE	IECC		
INTERNATIONAL FIRE CODE	IFC		
INTERNATIONAL FUEL GAS CODE	IFGC		
INTERNATIONAL MECHANICAL CODE	IMC		
INTERNATIONAL PLUMBING CODE	IPC		
INTERNATIONAL RESIDENTIAL CODE	IRC		

GENERAL PLUMBING NOTES:

1. **CONTRACTOR SHALL REVIEW AND ADHERE TO ALL NOTES LOCATED IN THE MEP SHEET SET.**
2. PROVIDE PIPING MATERIALS AND FACTORY-FABRICATED PIPING PRODUCTS OF SIZES, TYPES, PRESSURE RATINGS, AND CAPACITIES AS INDICATED. WHERE NOT INDICATED, PROVIDE PROPER SELECTION AS DETERMINED BY INSTALLER TO COMPLY WITH INSTALLATION REQUIREMENTS. PROVIDE SIZES, AND TYPES MATCHING PIPING AND EQUIPMENT CONNECTIONS; PROVIDE FITTINGS OF MATERIALS WHICH MATCH PIPE MATERIALS USED IN SOIL, AND VENT PIPING SYSTEMS.
3. NOT ALL PIPE SIZES ARE SHOWN ON PLANS FOR CLARITY. REFER TO RISER DIAGRAMS FOR PIPING SIZES.
4. COORDINATE FIRE ALARM CONNECTIONS TO FIRE PROTECTION SYSTEM WITH FIRE PROTECTION CONTRACTOR.
5. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
6. SLEEVE FOUNDATION BEAM PENETRATIONS WITH SCH. 40 STEEL PIPE SLEEVE OF 2" LARGER DIAMETER.
7. DOMESTIC WATER SYSTEMS:
   a. STOP VALVES SHALL BE **TWO OR THREE PIECE** BRONZE BALL VALVES WITH STAINLESS STEEL BALLS AND TEFLON PACKING AND GASKETS.
   b. HANGERS SHALL BE B-LINE MODEL B3104 FOR STEEL PIPE OR B-LINE MODEL B3104CT FOR COPPER TUBE.
   c. ALL PLUMBING EQUIPMENT CONNECTIONS SHALL BE MADE WITH UNIONS/FLANGES AND VALVES SO THAT THE CONNECTED EQUIPMENT CAN BE REMOVED WITHOUT OBSTRUCTION.
   d. INSTALL SHUT-OFF VALVES AT EACH BRANCH SERVING A RESTROOM OR FIXTURE GROUPING. INSTALL HOT AND COLD WATER SHUT-OFF VALVES AND SHOCK ARRESTORS ACCESSIBLY AT EACH FIXTURE BATTERY. COORDINATE ACCESS PANEL LOCATIONS WITH ARCHITECT.
   e. POTABLE WATER SYSTEMS SHALL BE DISINFECTED PRIOR TO USE PER CODE.
   f. UPON COMPLETION OF A SECTION OR OF THE ENTIRE WATER SUPPLY SYSTEM, IT SHALL BE TESTED AND PROVED TIGHT UNDER A WATER PRESSURE OF 125 PSIG FOR 2 HOURS. THE WATER USED FOR THE TEST SHALL BE OBTAINED FROM A POTABLE SOURCE OF SUPPLY.
8. SANITARY WASTE AND VENT SYSTEMS:
   a. HANGERS FOR HORIZONTAL SANITARY PIPING SHALL BE EXPANSION RING OR CLEVIS TYPE SPACED NO MORE THAN 5 FEET APART. VERTICAL PIPE PASSING THROUGH SLABS SHALL BE SUPPORTED WITH B-LINE MODEL B3373 FOR STEEL PIPE OR B-LINE MODEL B3373CT FOR COPPER TUBE. EACH HORIZONTAL JOINT IS ADEQUATELY SUPPORTED ON ONE SIDE OF THE JOINT WITHIN 12" OF THE JOINT. HANGERS ARE INSTALLED ON BOTH SIDES OF EACH NO HUB JOINT WITHIN 12" OF THE JOINTS AND OFFSETS ARE RESTRAINED IN AN APPROVED MANNER. (ABOVE SLAB ONLY)
   b. UNIFORM PLUMBING CODE: BUILDING DRAIN PIPING 4" DIAMETER AND LARGER SHALL BE RUN AT A MINIMUM SLOPE OF 1/8" PER LINEAR FOOT. BUILDING DRAIN PIPING LESS THAN 4" DIAMETER SHALL BE RUN AT A MINIMUM SLOPE OF 1/4" PER LINEAR FOOT.
   c. INTERNATIONAL PLUMBING CODE: BUILDING DRAIN PIPING 8" DIAMETER AND LARGER SHALL BE RUN AT A MINIMUM SLOPE OF 1/16" PER LINEAR FOOT. BUILDING DRAIN PIPING 3" THROUGH 6" DIAMETER SHALL BE RUN AT A MINIMUM SLOPE OF 1/8" PER FOOT. BUILDING DRAIN PIPING 2-1/2" DIAMETER AND LESS SHALL BE RUN AT A MINIMUM SLOPE OF 1/4" PER LINEAR FOOT.
   d. PROVIDE TRAP PRIMER ON ALL FLOOR DRAINS. LOCATE TRAP PRIMERS EXPOSED IN MECHANICAL ROOMS, OR IN WET WALL OF RESTROOMS. PROVIDE TRAP PRIMER ACCESS PANEL IN WALL OF A COLOR TO MATCH WALL. COORDINATE LOCATION WITH PLUMBING FIXTURES AND TILE PATTERNS.
   e. INSULATE EXPOSED LAVATORY P-TRAPS TO MEET ADA REQUIREMENTS.
   f. PLUMBING CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR ON FLOOR CONSTRUCTION FOR RECEIVING DRAINS TO REQUIRED INVERT ELEVATIONS AND PROPER FLOOR SLOPE TO DRAIN LOCATIONS.
9. GAS PIPING:
   a. FURNISH AND INSTALL A GAS COCK, DIRT LEG, AND UNION CONNECTION AT EACH PIECE OF EQUIPMENT.
   b. SUPPORT PIPING EVERY 5 FEET, AS REQUIRED BY OWNER, AS DETAILED ON DRAWINGS, OR BY STANDARD INDUSTRY PRACTICE, WHICHEVER IS MORE STRINGENT.
   c. TESTING AND PURGING OF GAS PIPING SHALL BE DONE PER THE REQUIREMENTS OF THE LOCAL GAS COMPANY, LOCAL CODES, AND APPLICABLE NFPA 54 CODES.
   d. GAS PIPING INSTALLED IN RETURN AIR PLENUMS OR BURIED BELOW BUILDING INTERIOR CONCRETE SLABS SHALL BE SLEEVED AND VENTED TO ATMOSPHERE IN ACCORDANCE WITH ALL CODES.
   e. GAS PIPING EXPOSED TO EXTERIOR SHALL BE PAINTED WITH 2 COATS OF YELLOW BITUMINOUS BASED RUST-INHIBITING PAINT.
   f. ALL BUILDING INTERIOR MOUNTED PRESSURE REGULATOR SHALL BE OPD TYPE AND VENTED TO ATMOSPHERE. UTILIZE MAXITROL; 325-L SERIES LINE PRESSURE REGULATORS WITH OPD.

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PLUMBING GENERAL NOTES & LEGENDS

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P001

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PLUMBING SPECIFICATIONS

22 00 00 - PLUMBING GENERAL REQUIREMENTS

1. CODE REQUIREMENTS
   - 1.1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF LAWS, RULES, REGULATIONS, CODES, STANDARDS, AND ORDINANCES OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION, AND ALL EQUIPMENT AND MATERIALS SHALL COMPLY WITH SAID AUTHORITIES WHETHER INDICATED ON THE CONTRACT DOCUMENTS OR NOT.
   - 1.2. ALL WORK SHALL BE PERFORMED PER:
     - 1.2.1. **2024 UNIFORM PLUMBING CODE (WITH CITY OF AUSTIN AMENDMENTS)**
     - 1.2.2. **2024 INTERNATIONAL BUILDING CODE (WITH CITY OF AUSTIN AMENDMENTS)**
     - 1.2.3. **2024 UNIFORM MECHANICAL CODE (WITH CITY OF AUSTIN AMENDMENTS)**
     - 1.2.4. **2024 INTERNATIONAL FIRE CODE (WITH CITY OF AUSTIN AMENDMENTS)**
   - 1.3. THE PUBLICATIONS AND STANDARDS OF THE FOLLOWING AUTHORITIES, IN ADDITION TO THOSE SPECIFIED IN RELATED SUPPLEMENTARY CONDITIONS, SHALL BE OBSERVED DURING CONSTRUCTION AND ARE REFERENCED IN THE DOCUMENTATION BY THE ABBREVIATIONS NOTED:
     - 1.3.1. AMERICAN NATIONAL STANDARDS - ANSI
     - 1.3.2. AMERICAN SOCIETY OF CIVIL ENGINEERS - ASCE
     - 1.3.3. AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS - ASHRAE
     - 1.3.4. AMERICAN SOCIETY OF MECHANICAL ENGINEERS - ASME
     - 1.3.5. AMERICAN SOCIETY OF PLUMBING ENGINEERS - ASPE
     - 1.3.6. AMERICAN SOCIETY OF SANITARY ENGINERINGS - ASSE
     - 1.3.7. AMERICAN SOCIETY FOR TESTING AND MATERIALS - ASTM
     - 1.3.8. AMERICAN WATER WORKS ASSOCIATION - AWWA
     - 1.3.9. AMERICANS WITH DISABILITIES ACT - ADA
     - 1.3.10. CAST IRON SOIL PIPE INSTITUTE - CISPI
     - 1.3.11. FACTORY MUTUAL - FM
     - 1.3.12. INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS - IEEE
     - 1.3.13. INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS - IAPMO
     - 1.3.14. NATIONAL ELECTRICAL CODE - NEC
     - 1.3.15. NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
     - 1.3.16. UNDERWRITER'S LABORATORY - UL
     - 1.3.17. OCCUPATIONAL SAFETY AND HEALTH ACT - OSHA
2. GENERAL REQUIREMENTS
   - 2.1. CONFLICT RESOLUTION: WHERE CONFLICTS MAY EXIST BETWEEN THE MINIMUM REQUIREMENTS OF VARIOUS LAWS, CODES, AUTHORITIES, AND/OR WITHIN THE CONSTRUCTION DOCUMENTS, THE HIGHER QUALITY, GREATER QUANTITY, MORE RESTRICTIVE AND/OR MORE EXPENSIVE REQUIREMENT SHALL BE THE BASIS OF CONTRACTOR PRICING AND THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AND OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE ISSUE PRIOR TO EXECUTING WORK IN QUESTION.
   - 2.2. SHOULD ANY ERRORS, OMISSIONS, OR AMBIGUITIES EXIST IN THE DRAWINGS, THE CONTRACTOR SHALL BRING THESE TO THE ATTENTION OF THE ENGINEER IMMEDIATELY FOR ADJUSTMENT IN WRITING BEFORE SIGNING THE CONTRACT OR PROCEEDING WITH WORK. OTHERWISE, HE SHALL AT HIS OWN EXPENSE, SUPPLY THE PROPER MATERIALS AND LABOR TO MAKE GOOD ANY DAMAGE OR DEFECT CAUSED BY SUCH UNINTENTIONAL ERROR.
   - 2.3. CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY, AND CONFIRMING THAT THE WORK IS BUILDABLE AS SHOWN AND MEETS ALL APPLICABLE CODES BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK IN QUESTION OR RELATED WORK.
   - 2.4. CONTRACTOR SHALL DIRECT ALL QUESTIONS TO THE OWNER'S PROJECT COORDINATOR. THE CONTRACTOR SHALL VERIFY ALL WORKING CONDITIONS SUCH AS START TIMES, NOISE AND VIBRATION LIMITATIONS, CONFINED SPACE, ETC. THROUGH THE PROJECT COORDINATOR AND APPROVAL SHALL BE RECEIVED TO START WORK.
   - 2.5. DEVIATION TO THE INTENDED DESIGN OR THE SCOPE OF WORK MUST BE APPROVED BY THE PROJECT ENGINEER PRIOR TO COMMENCING WORK. FAILURE TO DO SO MAY RESULT IN THE WORK TO BE REMOVED AT NO COST TO THE OWNER.
   - 2.6. DISPOSE OF DEBRIS, TRASH, AND HAZARDOUS MATERIALS IN ACCORDANCE WITH ALL APPLICABLE CODES.
   - 2.7. WORK AREAS SHALL BE KEPT CONTINUOUSLY, AT ALL TIMES, FREE OF DEBRIS AND NON-HAZARDOUS MATERIAL TO THE SATISFACTION OF THE PROJECT COORDINATOR. ALL EXISTING PIPING AND CONDUITS SHALL HAVE TEMPORARY PROJECTION DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE STORAGE OF MATERIALS, PARKING OF VEHICLES, AND RESTRICTIONS OF WORK WITH THE PROJECT COORDINATOR. AFTER PROJECT COMPLETION, THE SITE SHALL BE CLEANED UP AND RESTORED TO ITS CONDITION OR BETTER PRIOR TO THE START OF THE PROJECT TO THE SATISFACTION OF THE PROJECT COORDINATOR.
3. SCOPE OF WORK
   - 3.1. THE SCOPE OF WORK SHALL INCLUDE COMPLETE PROVISIONS FOR PLUMBING SYSTEMS TO FIXTURES, DEVICES, APPLIANCES, AND EQUIPMENT SHOWN ON THE CONSTRUCTION DOCUMENTS.
     - 3.1.1. PROVISIONS INCLUDE, BUT ARE NOT LIMITED TO, ALL SUPPLIES, MATERIALS, EQUIPMENT, TOOLS AND LABOR.
     - 3.1.2. PROVISIONS ALSO INCLUDE ALL MISCELLANEOUS MATERIALS REQUIRED TO COMPLETE THE WORK SHOWN INCLUDING, BUT NOT LIMITED TO, SUPPORTS, HANGERS, ANGLE STOPS, VALVES, SLEEVES, SEALS, EQUIPMENT PADS, WAX CONNECTIONS, GRIDS, STRAINER, P-TRAPS, TAGS, LABELS, SIGNS, AND MARKERS.
     - 3.1.3. THE CONSTRUCTION DOCUMENTS INCLUDE ALL PLANS, ELEVATIONS, DETAILS, DIAGRAMS, SCHEDULES, AND NOTES ON THE DRAWINGS AND THE WRITTEN SPECIFICATIONS INCLUDING ANY ITEMS MENTIONED IN EITHER THE SPECIFICATIONS OR ON THE DRAWINGS BUT NOT IN THE OTHER.
     - 3.1.4. WHERE USED ON THE PLANS AND IN THE SPECIFICATIONS AND WHERE NOT SPECIFICALLY NOTED OTHERWISE, THE TERM "PROVIDE" AND THE TERM "INSTALL" SHALL MEAN FURNISH, INSTALL, CONNECT AND TEST.
     - 3.1.5. UNLESS EXPLICITLY NOTED "BY OTHERS" OR "EXISTING", ALL ITEMS SHOWN GRAPHICALLY OR SPECIFIED BY NOTES AND DETAILS ON THE PLANS SHALL BE FURNISHED, INSTALLED, CONNECTED, AND TESTED AS NEEDED.
   - 3.2. ADDITIONALLY, THE SCOPE OF WORK SHALL INCLUDE
     - 3.2.1. APPLICATION FOR TEMPORARY AND PERMANENT PLUMBING SYSTEMS, PERMITTING, INSPECTION, AND PAYMENT OF ALL ASSOCIATED FEES.
     - 3.2.2. TESTING AND COMMISSIONING OF PLUMBING SYSTEMS.
     - 3.2.3. EQUIPMENT RENTAL
     - 3.2.4. TEMPORARY CONSTRUCTION WATER SUPPLY AND DEWATERING.
     - 3.2.5. PROVISIONS FOR MAINTAINING THE FUNCTIONALITY OF EXISTING TO REMAIN BUILDING COLD WATER, HOT WATER AND HOT WATER RETURN, SANITARY SEWER AND VENT, PRIMARY AND SECONDARY STORM DRAIN, PLUMBING FIXTURES AND EQUIPMENT SYSTEMS THAT WILL BE AFFECTED BY THE WORK.
4. SUBMITTALS
   - 4.1. PRODUCT DATA: SUBMIT CATALOG DATA SHOWING MANUFACTURER'S NAME AND CONTACT INFORMATION, ALL STANDARD FEATURES, PLUMBING CONNECTION SIZES, LOCATIONS, FLOW REQUIREMENTS, PRESSURE REQUIREMENTS, WATER QUALITY REQUIREMENTS, ELECTRICAL AMPERAGE, VOLTAGE, POWER, DIMENSIONS, CLEARANCES, WEIGHTS, LISTINGS & PRODUCT LABELS, MATERIAL TYPES, FINISHES AND CLEARLY INDICATING WHICH OPTIONAL FEATURES WILL BE PROVIDED.
   - 4.2. WHERE MULTIPLE SIZES ARE LISTED, INDICATE SIZES TO BE USED.
   - 4.3. WHERE MULTIPLE PRODUCTS ARE SHOWN ON THE SAME PAGE, INDICATE WHICH PRODUCTS TO BE USED.
   - 4.4. WHERE MULTIPLE ACCESSORIES/OPTIONS ARE SHOWN, INDICATE ALL APPLICABLE ACCESSORIES/OPTIONS.
   - 4.5. EQUIPMENT DRAWINGS: MANUFACTURER OR CONTRACTOR PREPARED DRAWINGS SHOWING ALL RELEVANT DIMENSIONS, WEIGHTS, ELECTRICAL, MECHANICAL & PLUMBING CONNECTION REQUIREMENTS, CONDUIT ENTRY POINTS, ASSEMBLY REQUIREMENTS, LIFTING REQUIREMENTS, LIFTING POINTS, REQUIRED CLEARANCES. INCLUDE PLAN VIEWS & ELEVATIONS.
   - 4.6. INCLUDE ALL RELEVANT PLUMBING DIAGRAMS INCLUDING SCHEMATIC DIAGRAMS FOR COLD WATER, HOT WATER AND HOT WATER RETURN, NATURAL GAS, SANITARY SEWER AND VENT SYSTEMS, SIGNAL, AND CONTROL WIRING.
5. COORDINATION
   - 5.1. THE CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, FIRE PROTECTION, ELECTRICAL AND OTHER DRAWINGS RELATED TO THIS PROJECT FOR ADDITIONAL WORK TO BE PROVIDED.
   - 5.2. ALL PLUMBING SYSTEM SHUTDOWNS SHALL BE COORDINATED IN WRITING WITH OWNER ONE (1) WEEK (MIN) PRIOR TO THE SHUTDOWN.
   - 5.3. COOPERATE FULLY WITH THE OWNER OR HIS REPRESENTATIVE DURING CONSTRUCTION OPERATIONS TO MINIMIZE CONFLICTS AND TO FACILITATE OWNER USAGE SO AS NOT TO INTERFERE WITH THE OWNER'S OPERATIONS.
   - 5.4. THE DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW ALL PIPING, FITTINGS, VALVES, ACCESSORIES, FIXTURES AND EQUIPMENT IN THEIR EXACT DIMENSIONED LOCATIONS AND/OR ELEVATIONS. THE CONTRACTOR MUST CAREFULLY REVIEW THE ARCHITECTURAL, STRUCTURAL MECHANICAL, ELECTRICAL, FIRE PROTECTION, AND SPECIAL SYSTEMS PLANS TO IDENTIFY CONFLICTS AND AREAS THAT REQUIRE COORDINATION.
   - 5.5. PRIOR TO COMMENCE OF ANY WORK THE PLUMBING CONTRACTOR SHALL PRODUCE SHOP DRAWINGS.
     - 5.5.1. SHOP DRAWINGS ARE REQUIRED TO SHOW EXACT LOCATIONS AND ELEVATIONS OF ALL PIPING, VALVES AND ACCESSORIES.
     - 5.5.2. CONSTRUCTION DOCUMENTS SHALL NOT BE CONSIDERED SHOP DRAWINGS.
     - 5.5.3. SHOP DRAWINGS SHALL BE FULLY COORDINATED WITH ALL DISCIPLINES ON THE PROJECT.
   - 5.6. COORDINATE PLUMBING SYSTEMS EQUIPMENT ROUGH-IN WITH FURNITURE, MILLWORK, SIGNS, MECHANICAL, ELECTRICAL AND FIRE PROTECTION SYSTEMS, ARCHITECTURAL AND STRUCTURAL ELEMENTS, AND THE OWNER'S REPRESENTATIVE. MINOR CHANGES IN PLUMBING EQUIPMENT LOCATIONS AND LAYOUT THAT ARE REQUIRED BY SITE CONDITIONS OR ORDERED BY THE DESIGN TEAM PRIOR TO PERFORMANCE OF WORK SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGES TO THE OWNER.
   - 5.7. MAINTAIN REQUIRED NEC WORKING SPACE AND DEDICATED EQUIPMENT SPACE AROUND ALL PLUMBING EQUIPMENT, CONTROLS PANELS, ETC THAT ARE SUBJECT TO MAINTENANCE, TESTING, OR USER INTERFACE. COORDINATE WITH OTHER TRADES. IF CLEARANCE CANNOT BE PROVIDED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO ROUGH-IN.
   - 5.8. COORDINATE COLOR SELECTIONS FOR ACCESS PANELS AND ALL DEVICE PLATES WITH ARCHITECT.
6. DELIVERY AND STORAGE
   - 6.1. STORE ALL PLUMBING SYSTEMS EQUIPMENT/MATERIALS IN CLEAN, DRY SPACE LOCATED ABOVE GRADE. PROTECT FROM DIRT, WATER, CONSTRUCTION DEBRIS, TRAFFIC, FREEZE, AND DETERIORATION FROM SUN LIGHT.
   - 6.2. MAINTAIN FACTORY WRAPPING OR PROVIDE APPROPRIATE COVER FOR ALL LARGE PLUMBING EQUIPMENT. FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR HUMIDITY AND MAX/MIN TEMPERATURES FOR STORING PLUMBING EQUIPMENT.
7. QUALIFICATIONS
   - 7.1. MANUFACTURER: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SHOWN ON THE CONSTRUCTION DOCUMENTS WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE
   - 7.2. INSTALLER: A STATE LICENSED PLUMBER WITH DOCUMENTED EXPERIENCE INSTALLING ALL EQUIPMENT SPECIFIED HERE IN SHALL DIRECTLY SUPERVISE ALL WORK. WHERE NOTED IN THE SPECIFICATIONS, REQUIRED BY CODE, OR REQUIRED BY THE MANUFACTURER, INSTALLER SHALL BE A MANUFACTURER TRAINED AND/OR CERTIFIED INSTALLER OF THE SPECIFIC PRODUCT TO BE INSTALLED.
   - 7.3. WHERE TESTING IS REQUIRED BY THE CONSTRUCTION DOCUMENTS, EQUIPMENT MANUFACTURER, OR CODE; TESTING SHALL BE PERFORMED BY AN AGENCY WITH DOCUMENTED EXPERIENCE AND PROPERLY CALIBRATED, FULLY FUNCTIONING EQUIPMENT, AND IS ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.
8. QUALITY ASSURANCE
   - 8.1. UNLESS OTHERWISE APPROVED, ALL EQUIPMENT SHALL BE NEW, PROPERLY DESIGNED, FROM A REPUTABLE MANUFACTURER MEETING THE SPECIFICATION QUALIFICATIONS, IN COMPLIANCE WITH THE SPECIFICATION REQUIREMENTS, AND IN FULL WORKING ORDER.
   - 8.2. WHERE TWO OR MORE ITEMS OF THE SAME CLASS OF EQUIPMENT ARE REQUIRED, THESE ITEMS SHALL BE PRODUCTS OF A SINGLE MANUFACTURER; HOWEVER, THE COMPONENT PARTS OF THE ITEM NEED NOT BE THE PRODUCTS OF THE SAME MANUFACTURER UNLESS STATED IN THE TECHNICAL SECTION.
   - 8.3. LISTING AND LABELING: WHERE REQUIRED, ALL ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION AND MARKED FOR THE INTENDED USE. TESTING AGENCY SHALL BE UL UNLESS NOTED OTHERWISE OR PRE-APPROVED BY OWNER AND AHJ.
   - 8.4. ALL EQUIPMENT USED FOR TESTING SHALL BE IN FULL WORKING ORDER AND CALIBRATED PER THE MANUFACTURER'S RECOMMENDATIONS.
9. IDENTIFICATION
   - 9.1. 9PROVIDE APPROPRIATE TAGS, LABELS AND WARNING SIGNS FOR ALL FIXTURES, EQUIPMENT, PIPING, FITTINGS, VALVES, AND ACCESSORIES. PROVIDE BURIED WARNING LABEL FOR ALL UNDERGROUND PIPING. WARNING LABELS SHALL BE DETECTABLE FOR ALL NON METALLIC PIPING.
10. GENERAL REQUIREMENTS - PIPING
    - 10.1. VERIFY LOCATION AND ELEVATIONS FOR ALL EXISTING PLUMBING PIPING PRIOR START OF ANY WORK. NOTIFY OWNER, ARCHITECT, ENGINEER OF ANY DISCREPANCIES FROM CONSTRUCTION DOCUMENTS AND FIELD VERIFICATION.
    - 10.2. DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT IS INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.
    - 10.3. PVC SHALL NOT TO BE USED IN THE FOLLOWING LOCATIONS:
      - 10.3.1. HVAC PLENUMS OR IN EXTERIOR LOCATIONS WHERE EXPOSED TO SUNLIGHT; COATINGS OR WRAPS ARE NOT ALLOWED IN THESE LOCATIONS.
      - 10.3.2. DOMESTIC WATER SUPPLY SYSTEMS INSIDE OF THE BUILDING.
    - 10.4. ALL EXTERIOR PLUMBING PIPING SHALL BE INSTALLED BELOW THE FROST LEVEL WITH MINIMUM COVER OF 24 INCHES, A MINIMUM 24 INCHES OF COVER SHALL BE PROVIDED UNLESS OTHERWISE INDICATED.
    - 10.5. ALL TRENCHES SHALL BE BACKFILLED TO A POINT AT LEAST 12 INCHES ABOVE TOP OF PIPE WITH SAND. ALL BACKFILL ABOVE SAND SHALL NOT HAVE CLODS OF EARTH OR STONE LARGER THAN 1 1/2" DIAMETER.
    - 10.6. TRENCHES SHALL BE BACKFILLED IN ONE FOOT LAYERS, MOISTENED AND TAMPED.
    - 10.7. ROUTE PIPING IN ORDERLY MANNER AND MAINTAIN GRADIENT. ROUTE PARALLEL AND PERPENDICULAR TO WALLS.
    - 10.8. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
    - 10.9. INSTALL PIPING TO MAINTAIN HEADROOM WITHOUT INTERFERING WITH USE OF SPACE OR TAKING MORE SPACE THAN NECESSARY.
    - 10.10. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
    - 10.11. PROVIDE CLEARANCE IN HANGERS AND FROM STRUCTURE AND OTHER EQUIPMENT FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
    - 10.12. ACCESS PANELS SHALL BE PROVIDED FOR ALL NON ACCESSIBLE VALVES. COORDINATE LOCATION, SIZE, COLOR WITH OWNER/ARCHITECT.
    - 10.13. INSTALL FIRE STOPPING AT FIRE RATED CONSTRUCTION PERIMETERS AND OPENINGS CONTAINING PENETRATING SLEEVES AND PIPING.
    - 10.14. INSTALL UNIONS DOWNSTREAM OF VALVES AND AT EQUIPMENT OR APPARATUS CONNECTIONS.
    - 10.15. INSTALL NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
    - 10.16. INSTALL SLEEVE PIPES PASSING THROUGH PARTITIONS, WALLS AND FLOORS.
    - 10.17. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.
    - 10.18. PROTECT PIPING SYSTEMS FROM ENTRY OF FOREIGN MATERIALS BY TEMPORARY COVERS, COMPLETING SECTIONS OF THE WORK, AND ISOLATING PART OF COMPLETED SYSTEM.
    - 10.19. INSTALL PIPING PENETRATING ROOFED AREAS TO MAINTAIN INTEGRITY OF ROOF ASSEMBLY.

22 05 16 - EXPANSION FITTINGS AND LOOPS

1. GENERAL
   - 1.1. CODE REFERENCES
     - 1.1.1. AMERICAN SOCIETY OF MECHANICAL ENGINEERS:
       - 1.1.1.1. ASME B31.9 - BUILDING SERVICES PIPING.
       - 1.1.1.2. ASME SECTION IX - BOILER AND PRESSURE VESSEL CODE - WELDING AND BRAZING QUALIFICATIONS.
   - 1.2. AMERICAN WELDING SOCIETY:
     - 1.2.1. AWS D1.1 - STRUCTURAL WELDING CODE - STEEL.
   - 1.3. DESIGN REQUIREMENTS
     - 1.3.1. PROVIDE STRUCTURAL WORK AND EQUIPMENT REQUIRED FOR EXPANSION AND CONTRACTION OF PIPING. VERIFY ANCHORS, GUIDES, AND EXPANSION JOINTS PROVIDE AND ADEQUATELY PROTECT SYSTEM.
     - 1.3.2. EXPANSION COMPENSATION DESIGN CRITERIA:
       - 1.3.2.1. INSTALLATION TEMPERATURE: 70 DEGREES F.
       - 1.3.2.2. DOMESTIC HOT WATER: 140 DEGREES F.
       - 1.3.2.3. SAFETY FACTOR: 30 PERCENT.
2. PRODUCTS
   - 2.1. FLEXIBLE PIPE CONNECTORS
     - 2.1.1. STEEL PIPING: STAINLESS STEEL INNER HOSE, DOUBLE BRAIDED STAINLESS STEEL EXTERIOR SLEEVE, 200 PSIG WOG AND 250 DEGREES F, FLANGED, THREADED WITH UNION OR WELDED JOINTS. MAXIMUM OFFSET 1 INCH ON EACH SIDE OF INSTALLED CENTER LINE.
     - 2.1.2. COPPER PIPING: BRONZE INNER HOSE, BRAIDED BRONZE EXTERIOR SLEEVE, 200 PSIG WOG AND 250 DEGREES F, FLANGED, THREADED WITH UNION OR WELDED JOINTS. MAXIMUM OFFSET 1 INCH ON EACH SIDE OF INSTALLED CENTER LINE.
   - 2.2. EXPANSION JOINTS
     - 2.2.1. STAINLESS STEEL BELLOWS TYPE: 3 INCH AND SMALLER STEEL PIPE, PRESSURE RATING 200 PSIG WOG AND 250 DEGREES F, MAXIMUM COMPRESSION 3 INCH, MAXIMUM EXTENSION 1/4 INCH, FLANGED, THREADED OR WELDED JOINTS.
     - 2.2.2. EXTERNAL RING CONTROLLED STAINLESS STEEL BELLOWS TYPE: STEEL PIPING 3 INCH AND LARGER, 200 PSIG WOG AND 250 DEGREES F, 1-1/4 INCH MAXIMUM COMPRESSION, 3/8 INCH MAXIMUM EXTENSION, 5/16 INCH MAXIMUM OFFSET, FLANGED JOINT WITH INTERNAL FLOW LINER.
     - 2.2.3. DOUBLE SPHERE, FLEXIBLE COMPENSATORS: STEEL PIPING 2 INCH AND LARGER TEFLON BODY, WORKING PRESSURE 150 PSI, 225 DEGREES F, MAXIMUM COMPRESSION 1-1/8 INCH, MAXIMUM ELONGATION 7/8 INCH, MAXIMUM OFFSET 7/8 INCH, MAXIMUM ANGULAR MOVEMENT 45 DEGREES, TAPPED STEEL FLANGES, GALVANIZED FLANGES OR GALVANIZED UNIONS. CONTROL RODS.
     - 2.2.4. TWO-PLY BRONZE BELLOWS TYPE: COPPER PIPING 2 INCH AND SMALLER, BRONZE WITH ANTI-TORQUE DEVICE, LIMIT STOPS, INTERNAL GUIDES PRESSURE RATING 200 PSI WOG AND 250 DEGREES, MAXIMUM COMPRESSION 3 INCHES, MAXIMUM EXTENSION 1/4 INCH, SOLDERED JOINTS.
     - 2.2.5. LOW PRESSURE COMPENSATORS WITH TWO-PLY BRONZE BELLOWS: COPPER OR STEEL PIPING 2 INCH AND SMALLER. WORKING PRESSURE 80 PSIG, MAXIMUM TEMPERATURE 250 DEGREES F, MAXIMUM COMPRESSION 1/2 INCH, MAXIMUM EXTENSION 5/32 INCH, SOLDERED JOINTS.
     - 2.2.6. COPPER WITH PACKED SLIDING SLEEVE: COPPER OR STEEL PIPING 2 INCH AND LARGER, MAXIMUM TEMPERATURE 225 DEGREES F, FLANGED OR THREADED JOINTS,
   - 2.3. ACCESSORIES
     - 2.3.1. PIPE ALIGNMENT GUIDES: TWO PIECE WELDED STEEL WITH ENAMEL PAINT, BOLTED, WITH SPIDER TO FIT STANDARD PIPE, FRAME WITH FOUR MOUNTING HOLES, CLEARANCE FOR MINIMUM 1 INCH THICK INSULATION, MINIMUM 3 INCH TRAVEL.
     - 2.3.2. SWIVEL JOINTS: FABRICATED STEEL, BRONZE, DUCTILE IRON OR CAST STEEL BODY, DOUBLE BALL BEARING RACE, FIELD LUBRICATED, WITH RUBBER OR BUNA-N O-RING SEALS.
3. EXECUTION
   - 3.1. INSTALLATION
     - 3.1.1. INSTALL WORK IN ACCORDANCE WITH ASME B31.9.
     - 3.1.2. INSTALL FLEXIBLE PIPE CONNECTORS ON PIPES CONNECTED TO EQUIPMENT SUPPORTED BY VIBRATION ISOLATION. PROVIDE LINE SIZE FLEXIBLE CONNECTORS.
     - 3.1.3. INSTALL FLEXIBLE CONNECTORS AT RIGHT ANGLES TO DISPLACEMENT. INSTALL ONE END IMMEDIATELY ADJACENT TO ISOLATED EQUIPMENT AND ANCHOR OTHER END. INSTALL IN HORIZONTAL PLANE UNLESS INDICATED OTHERWISE.
     - 3.1.4. RIGIDLY ANCHOR PIPE TO BUILDING STRUCTURE. PROVIDE PIPE GUIDES TO DIRECT MOVEMENT ONLY ALONG AXIS OF PIPE. ERECT PIPING SO STRAIN AND WEIGHT IS NOT ON CAST CONNECTIONS OR APPARATUS.
     - 3.1.5. PROVIDE SUPPORT AND ANCHORS FOR CONTROLLING EXPANSION AND CONTRACTION OF PIPING. PROVIDE LOOPS, PIPE OFFSETS, AND SWING JOINTS, OR EXPANSION JOINTS [WHERE REQUIRED] [AS INDICATED ON DRAWINGS]. REFER TO SECTION 220529 FOR PIPE HANGER INSTALLATION REQUIREMENTS.
     - 3.1.6. PROVIDE GROOVED PIPING SYSTEMS WITH MINIMUM ONE JOINT PER INCH PIPE DIAMETER INSTEAD OF FLEXIBLE CONNECTOR SUPPORTED BY VIBRATION ISOLATION. GROOVED PIPING SYSTEMS NEED NOT BE ANCHORED.
     - 3.1.7. PROVIDE EXPANSION LOOPS AS INDICATED ON DRAWINGS.
     - 3.1.8. FURNISH INSPECTION SERVICES BY FLEXIBLE PIPE MANUFACTURER'S REPRESENTATIVE FOR FINAL INSTALLATION AND CERTIFY INSTALLATION IS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND CONNECTORS ARE PERFORMING SATISFACTORILY.

22 05 23 - GENERAL DUTY VALVE FOR PLUMBING

1. GENERAL
   - 1.1. ASTM INTERNATIONAL
     - 1.1.1. ASTM D1785 - STANDARD SPECIFICATION FOR POLY VINYL CHOLORIDE (PVC) PLASTIC PIPE, SCHEDULES 40, 80 AND 120.
     - 1.1.2. ASTM D4101 - STANDARD SPECIFICATION FOR PROPYLENE INJECTION AND EXTRUSION MATERIALS.
   - 1.2. MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTING INDUSTRY:
     - 1.2.1. MSS SP 67 - BUTTERFLY VALVES
     - 1.2.2. MSS SP 70 - CAST IRON GATE VALVES, FLANGED AND THREADED ENDS
     - 1.2.3. MSS SP 71 - CAST IRON SWING CHECK VALVES, FLANGED AND THREADED ENDS
     - 1.2.4. MSS SP 78 - CAST IRON PLUG VALVES, FLANGED AND THREADED ENDS
     - 1.2.5. MSS SP 80 - BRONZE GATE, GLOBE, ANGLE AND CHECK VALVES.
     - 1.2.6. MSS SP 110 - BALL LVES THREADED, SOCKET-WELDING, SOLDER JOINT, GROOVED AND FLARED ENDS.
2. PRODUCTS
   - 2.1. GATE VALVES
     - 2.1.1. 2 INCHES AND SMALLER: MSS SP 80, CLASS 125, BRONZE BODY, BRONZE TRIM, THREADED BONNET, NON-RISING STEM, HAND-WHEEL, INSIDE SCREW, SOLID WEDGE DISC, ALLOY SEAT RINGS, SOLDER OR THREADED ENDS.
     - 2.1.2. 2-1/2 INCHES AND LARGER: MSS SP 70, CLASS 125, CAST IRON BODY, BRONZE TRIM, BOLTED BONNET, NON-RISING STEM, HAND-WHEEL, OUTSIDE SCREW AND YOKE, SOLID WEDGE DISC WITH BRONZE SEAT RINGS, FLANGED ENDS. FURNISH CHAIN-WHEEL OPERATORS FOR VALVES 6 INCHES AND LARGER MOUNTED OVER 8 FEET ABOVE FLOOR.
   - 2.2. BALL VALVES
     - 2.2.1. 2 INCHES AND SMALLER: MSS SP 110, CLASS 150, BRONZE, TWO PIECE BODY, TYPE 316 STAINLESS STEEL BALL, FULL PORT, TEFLON SEATS, BLOW-OUT PROOF STEM, SOLDER OR THREADED ENDS WITH UNION, LEVER HANDLE.
     - 2.2.2. 2 INCHES AND SMALLER: 150 PSI AT 73 DEGREES F WATER TEMPERATURE, MAXIMUM SERVICE TEMPERATURE: 140 DEGREES F ASTM D1785 PVC BODY AND BALL, DOUBLE LEVER HANDLE, EPDM SEALS, TEFLON SEATS, FULL PORT, DOUBLE UNION TYPE WITH SOCKET OR THREADED ENDS.
     - 2.2.3. 2 INCHES AND SMALLER: 150 PSI AT 73 DEGREES F WATER TEMPERATURE, MAXIMUM SERVICE TEMPERATURE: 210 DEGREES F, ASTM D1785 CPVC BODY AND BALL, DOUBLE LEVER HANDLE, EPDM SEALS, TEFLON SEATS, FULL PORT, DOUBLE UNION TYPE WITH SOCKET OR THREADED ENDS.
     - 2.2.4. 2 INCHES AND SMALLER: 150 PSI AT 73 DEGREES F WATER TEMPERATURE, MAXIMUM SERVICE TEMPERATURE: 180 DEGREES F, ASTM D4101 BLACK POLYPROPYLENE BODY AND BALL, DOUBLE LEVER HANDLE, EPDM SEALS, TEFLON SEATS, FULL PORT, DOUBLE UNION TYPE WITH SOCKET OR THREADED ENDS.
   - 2.3. PLUG VALVES
     - 2.3.1. 2 INCHES AND SMALLER: MSS SP 78, CLASS 150, SEMI-STEEL CONSTRUCTION, ROUND PORT, FULL PIPE AREA, PRESSURE LUBRICATED, TEFLON PACKING, THREADED ENDS. FURNISH ONE PLUG VALVE WRENCH FOR EVERY TEN PLUG-VALVES WITH MINIMUM OF ONE WRENCH.
     - 2.3.2. 2-1/2 INCHES AND LARGER: MSS SP 78, CLASS 150, SEMI-STEEL CONSTRUCTION, ROUND PORT, FULL PIPE AREA, PRESSURE LUBRICATED, TEFLON PACKING, FLANGED ENDS. FURNISH WRENCH-OPERATED OR WORM GEAR-OPERATED.
   - 2.4. BUTTERFLY VALVES
     - 2.4.1. 2-1/2 INCHES AND LARGER: MSS SP 67, CLASS 150, BODY: CAST OR DUCTILE IRON,[WAFER LUG OR GROOVED ENDS, STAINLESS STEEL STEM, EXTENDED NECK, STAINLESS STEEL DISC, EPDM SEAT, INFINITE POSITION LEVER HANDLE WITH MEMORY STOP, HAND-WHEEL AND GEAR DRIVE, FURNISH GEAR OPERATORS FOR VALVES 8 INCHES AND LARGER, AND CHAIN-WHEEL OPERATORS FOR VALVES MOUNTED OVER 8 FEET ABOVE FLOOR.
     - 2.4.2. 2 INCHES THROUGH 10 INCHES: 150 PSI AT 73 DEGREES F WATER TEMPERATURE, MAXIMUM SERVICE TEMPERATURE: 140 DEGREES F, [TWO] PIECE BODY, ASTM D1785 PVC, LUG TYPE FLANGE FACING, DISC ENCAPSULATED WITH EPDM, STAINLESS STEEL INSERT, LOCKING LEVER HANDLE.
     - 2.4.3. 2 INCHES THROUGH 10 INCHES: 150 PSI AT 73 DEGREES F WATER TEMPERATURE, MAXIMUM SERVICE TEMPERATURE 210 DEGREES F, [ONE] [TWO] PIECE BODY, ASTM D1785 CPVC, LUG TYPE FLANGE FACING, DISC ENCAPSULATED WITH EPDM, STAINLESS STEEL SHAFT, LOCKING LEVER HANDLE.
   - 2.5. HORIZONTAL SWING CHECK VALVES:
     - 2.5.1. 2 INCHES AND SMALLER: MSS SP 80, CLASS 150, BRONZE BODY AND CAP, BRONZE SEAT, TEFLON DISC, SOLDER OR THRE

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2.4.5.2.2. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.

2.4.5.3. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, UNTIL SATISFACTORY RESULTS ARE OBTAINED.

2.4.5.4. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

3. STORM DRAIN

3.1. TEST STORM DRAINAGE PIPING ACCORDING TO PROCEDURES OF AUTHORITIES HAVING JURISDICTION OR, IN ABSENCE OF PUBLISHED PROCEDURES, AS FOLLOWS:

3.1.1. TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED.

3.1.1.1. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF PIPING TESTED.

3.1.2. LEAVE UNCOVERED AND UNCONCEALED NEW, ALTERED, EXTENDED, OR REPLACED STORM DRAINAGE PIPING UNTIL IT HAS BEEN TESTED AND APPROVED.

3.1.2.1. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED.

3.1.3. TEST PROCEDURE:

3.1.3.1. TEST STORM DRAINAGE PIPING, EXCEPT OUTSIDE LEADERS,] ON COMPLETION OF ROUGHING-IN.

3.1.3.2. CLOSE OPENINGS IN PIPING SYSTEM AND FILL WITH WATER TO POINT OF OVERFLOW, BUT NOT LESS THAN 10-FOOT HEAD OF WATER. FROM 15 MINUTES BEFORE INSPECTION STARTS UNTIL COMPLETION OF INSPECTION, WATER LEVEL MUST NOT DROP. INSPECT JOINTS FOR LEAKS.

3.1.4. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, UNTIL SATISFACTORY RESULTS ARE OBTAINED.

3.1.5. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

3.2. TEST FORCE-MAIN PIPING ACCORDING TO PROCEDURES OF AUTHORITIES HAVING JURISDICTION OR, IN ABSENCE OF PUBLISHED PROCEDURES, AS FOLLOWS:

3.2.1. LEAVE UNCOVERED AND UNCONCEALED NEW, ALTERED, EXTENDED, OR REPLACED FORCE-MAIN PIPING UNTIL IT HAS BEEN TESTED AND APPROVED.

3.2.1.1. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED.

3.2.2. CAP AND SUBJECT PIPING TO STATIC-WATER PRESSURE OF 50 PSIG ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS.

3.2.2.1. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.

3.2.3. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, UNTIL SATISFACTORY RESULTS ARE OBTAINED.

3.2.4. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

3.3. PIPING WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.

3.4. PREPARE TEST AND INSPECTION REPORTS. SUBMIT FOR ENGINEER REVIEW AND APPROVAL.

4. NATURAL GAS

4.1. COMPLY WITH NFPA 54 FOR INSTALLATION AND PURGING OF NATURAL-GAS PIPING.

4.2. INSTALL PRESSURE GAGE UPSTREAM AND DOWNSTREAM OF EACH SERVICE REGULATOR.

4.3. VERIFY FINAL EQUIPMENT LOCATIONS FOR ROUGHING-IN.

4.4. COMPLY WITH REQUIREMENTS IN SECTIONS SPECIFYING GAS-FIRED APPLIANCES AND EQUIPMENT FOR ROUGHING-IN REQUIREMENTS.

4.5. DRIPS AND SEDIMENT TRAPS: INSTALL DRIPS AT POINTS WHERE CONDENSATE MAY COLLECT, INCLUDING SERVICE-METER OUTLETS. LOCATE WHERE ACCESSIBLE TO PERMIT CLEANING AND EMPTYING. DO NOT INSTALL WHERE CONDENSATE IS SUBJECT TO FREEZING.

4.5.1. CONSTRUCT DRIPS AND SEDIMENT TRAPS USING TEE FITTING WITH BOTTOM OUTLET PLUGGED OR CAPPED. USE NIPPLE A MINIMUM LENGTH OF 3 PIPE DIAMETERS, BUT NOT LESS THAN 3 INCHES LONG AND SAME SIZE AS CONNECTED PIPE. INSTALL WITH SPACE BELOW BOTTOM OF DRIP TO REMOVE PLUG OR CAP.

4.6. EXTEND RELIEF VENT CONNECTIONS FOR SERVICE REGULATORS, LINE REGULATORS, AND OVERPRESSURE PROTECTION DEVICES TO OUTDOORS AND TERMINATE WITH WEATHERPROOF VENT CAP.

4.7. CONCEAL PIPE INSTALLATIONS IN WALLS, PIPE SPACES, UTILITY SPACES, ABOVE CEILINGS, BELOW GRADE OR FLOORS, AND IN FLOOR CHANNELS UNLESS INDICATED TO BE EXPOSED TO VIEW.

4.8. CONCEALED LOCATION INSTALLATIONS: EXCEPT AS SPECIFIED BELOW, INSTALL CONCEALED NATURAL-GAS PIPING AND PIPING INSTALLED UNDER THE BUILDING IN CONTAINMENT CONDUIT CONSTRUCTED OF STEEL PIPE WITH WELDED JOINTS AS DESCRIBED IN PART 2. INSTALL A VENT PIPE FROM CONTAINMENT CONDUIT TO OUTDOORS AND TERMINATE WITH WEATHERPROOF VENT CAP.

4.8.1. ABOVE ACCESSIBLE CEILINGS: NATURAL-GAS PIPING, FITTINGS, VALVES, AND REGULATORS MAY BE INSTALLED IN ACCESSIBLE SPACES WITHOUT CONTAINMENT CONDUIT.

4.8.2. IN FLOORS: INSTALL NATURAL-GAS PIPING WITH WELDED OR BRAZED JOINTS AND PROTECTIVE COATING IN CAST-IN-PLACE CONCRETE FLOORS. COVER PIPING TO BE CAST IN CONCRETE SLABS WITH MINIMUM OF 1-1/2 INCHES OF CONCRETE. PIPING MAY NOT BE IN PHYSICAL CONTACT WITH OTHER METALLIC STRUCTURES SUCH AS REINFORCING RODS OR ELECTRICALLY NEUTRAL CONDUCTORS. DO NOT EMBED PIPING IN CONCRETE SLABS CONTAINING QUICK-SET ADDITIVES OR CINDER AGGREGATE.

4.8.3. IN FLOOR CHANNELS: INSTALL NATURAL-GAS PIPING IN FLOOR CHANNELS. CHANNELS MUST HAVE COVER AND BE OPEN TO SPACE ABOVE COVER FOR VENTILATION.

4.8.4. IN WALLS OR PARTITIONS: PROTECT TUBING INSTALLED INSIDE PARTITIONS OR HOLLOW WALLS FROM PHYSICAL DAMAGE USING STEEL STRIKER BARRIERS AT RIGID SUPPORTS.

4.8.4.1. EXCEPTION: TUBING PASSING THROUGH PARTITIONS OR WALLS DOES NOT REQUIRE STRIKER BARRIERS.

4.8.5. PROHIBITED LOCATIONS:

4.8.5.1. DO NOT INSTALL NATURAL-GAS PIPING IN OR THROUGH CIRCULATING AIR DUCTS, CLOTHES OR TRASH CHUTES, CHIMNEYS OR GAS VENTS (FLUES), VENTILATING DUCTS, OR DUMBWAITER OR ELEVATOR SHAFTS.

4.8.5.2. DO NOT INSTALL NATURAL-GAS PIPING IN SOLID WALLS OR PARTITIONS.

4.9. USE ECCENTRIC REDUCER FITTINGS TO MAKE REDUCTIONS IN PIPE SIZES. INSTALL FITTINGS WITH LEVEL SIDE DOWN.

4.10. CONNECT BRANCH PIPING FROM TOP OR SIDE OF HORIZONTAL PIPING.

4.11. INSTALL UNIONS IN PIPES NPS 2 AND SMALLER, ADJACENT TO EACH VALVE, AT FINAL CONNECTION TO EACH PIECE OF EQUIPMENT. UNIONS ARE NOT REQUIRED AT FLANGED CONNECTIONS.

4.12. DO NOT USE NATURAL-GAS PIPING AS GROUNDING ELECTRODE.

4.13. INSTALL STRAINER ON INLET OF EACH LINE-PRESSURE REGULATOR AND AUTOMATIC OR ELECTRICALLY OPERATED VALVE.

4.14. VALVE INSTALLATION

4.14.1. INSTALL MANUAL GAS SHUTOFF VALVE FOR EACH GAS APPLIANCE AHEAD OF CORRUGATED STAINLESS-STEEL TUBING, ALUMINUM, OR COPPER CONNECTOR.

4.14.2. INSTALL UNDERGROUND VALVES WITH VALVE BOXES.

4.14.3. INSTALL REGULATORS AND OVERPRESSURE PROTECTION DEVICES WITH MAINTENANCE ACCESS SPACE ADEQUATE FOR SERVICING AND TESTING.

4.14.4. INSTALL EARTHQUAKE VALVES ABOVEGROUND OUTSIDE BUILDINGS ACCORDING TO LISTING.

4.14.5. INSTALL ANODE FOR METALLIC VALVES IN UNDERGROUND PE PIPING.

22 30 00 - PUMPS

1. GENERAL

1.1. PROVIDE SHOP DRAWINGS FOR BOOSTER PUMPS

1.1.1. INCLUDE PLANS, ELEVATIONS, SECTION AND MOUNTING/ATTACHMENT DETAILS.

1.1.2. INCLUDE DETAILS FOR EQUIPMENT ASSEMBLIES. INDICATE WEIGHTS, LOADS, REQUIRED CLEARANCES, METHOD OF FIELD ASSEMBLY, COMPONENTS, AND LOCATION AND SIZE OF EACH FIELD CONNECTION.

1.1.3. INCLUDE DIAGRAMS FOR POWER, SIGNAL, AND CONTROL DRAWINGS.

1.2. COORDINATE SIZES AND LOCATIONS OF CONCRETE BASES WITH ACTUAL EQUIPMENT PROVIDED.

2. PRODUCTS

2.1. SEE PLUMBING SCHEDULES FOR PRODUCT INFORMATION.

3. EXECUTION

3.1. INSTALL PUMPS ON CAST-IN-PLACE CONCRETE EQUIPMENT BASE(S) AS SHOWN ON DRAWINGS.

3.2. COMPLY WITH VIBRATION ISOLATION AND SEISMIC CONTROL DEVICES.

3.3. SUPPORT CONNECTED WATER PIPING SO WEIGHT OF PIPING IS NOT SUPPORTED BY PUMPS.

3.4. ENGAGE A FACTORY AUTHORIZED SERVICE REPRESENTATIVE TO PERFORM START UP SERVICE.

3.5. ENGAGE A FACTORY AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONAL TO ADJUST, OPERATE, AND MAINTAIN PUMPS.

22 30 00 - WATER HEATERS

1. GENERAL

1.1. CONFORM TO ASME SECTION VIII FOR CONSTRUCTION OF WATER HEATERS. PROVIDE BOILERS REGISTERED WITH NATIONAL BOILER AND PRESSURE VESSEL INSPECTORS.

1.2. WATER HEATER EQUIPMENT EFFICIENCY SHALL AT A MINIMUM MEET ASHRAE 90.1.

1.3. WATER HEATER MANUFACTURER SHALL PROVIDE VERIFICATION OF MINIMUM 3 YEARS EXPERIENCE IN MANUFACTURING PRODUCTS AND WITH SERVICE FACILITIES WITHIN 100 MILES OF PROJECT.

1.4. INSTALLING COMPANY SHALL HAVE MINIMUM 3 YEARS DOCUMENTED EXPERIENCE IN PERFORMING WATER HEATER INSTALLATION WORK.

1.5. WATER HEATER SHALL BE ACCEPTED ON SITE IN ORIGINAL LABELED CARTONS AND INSPECTED FOR DAMAGE.

1.6. PROTECT TANKS WITH TEMPORARY INLET AND OUTLET CAPS. MAINTAIN CAPS IN PLACE UNTIL INSTALLATION.

1.7. MINIMUM 5 YEARS MANUFACTURER WARRANTY FOR DOMESTIC WATER HEATER AND STORAGE TANKS.

2. PRODUCTS

2.1. SEE PLUMBING SCHEDULES FOR PRODUCT INFORMATION.

3. EXECUTION

3.1. INSTALLATION

3.1.1. MAINTAIN MANUFACTURER'S RECOMMEND CLEARANCES AROUND AND OVER WATER HEATERS.

3.1.2. INSTALL WATER HEATERS ON CONCRETE HOUSEKEEPING PAD, MINIMUM 4 INCHES HIGH AND 6 INCHES LARGER THAN WATER HEATER BASE ON EACH SIDE.

3.1.3. REFER TO WATER HEATER DETAILS FOR ALL REQUIRED PIPING ACCESSORIES TO BE INSTALLED WITH WATER HEATER.

3.1.4. INSTALL DISCHARGE PIPING FROM RELIEF VALVES AND DRAIN VALVES TO NEAREST FLOOR DRAIN.

3.1.5. INSTALL WATER HEATER TRIM AND ACCESSORIES FURNISHED LOOSE FOR FIELD MOUNTING.

3.1.6. INSTALL ELECTRICAL DEVICES FURNISHED LOOSE FOR FIELD MOUNTING.

3.1.7. INSTALL CONTROL WIRING BETWEEN WATER HEATER CONTROL PANEL AND FIELD MOUNTED CONTROL DEVICES.

3.1.8. CONNECT NATURAL GAS PIPING ACCORDING TO NFPA 54.

3.1.9. CONNECT PROPANE PIPING ACCORDING TO NFPA 58.

3.1.10. CONNECT FUEL OIL PIPING ACCORDING TO NFPA 31.

22 40 00 - PLUMBING FIXTURES

1. GENERAL

1.1. INSTALL LEVEL AND PLUMB ACCORDING TO ROUGHING-IN DRAWINGS

1.2. INSTALL ALL HANDICAPPED/ELDERLY ACCESSIBLE PLUMBING FIXTURES AT MOUNTING HEIGHT ACCORDING TO ICC/ANSI A117.1.

1.3. OPERATE AND ADJUST ALL PLUMBING FIXTURE CONTROLS. ADJUST WATER PRESSURE TO PRODUCE PROPER FLOW.

1.4. INSTALL FRESH BATTERIES IN BATTERY-POWERED, ELECTRONIC-SENSOR MECHANISMS.

1.5. CLEAN ALL PLUMBING FIXTURES AND FITTINGS WITH MANUFACTURERS RECOMMENDED CLEANING METHODS AND MATERIALS.

1.6. INSTALL PROTECTIVE COVERING ON ALL PLUMBING FIXTURES DURING CONSTRUCTION.

1.7. DO NOT ALLOW USE OF PLUMBING FIXTURES FOR TEMPORARY FACILITIES UNLESS APPROVED IN WRITING BY OWNER.

2. PRODUCTS

2.1. SEE PLUMBING SCHEDULES FOR PRODUCT INFORMATION

3. EXECUTION

3.1. INSTALLATION

3.1.1. WATER-CLOSET

3.1.1.1. INSTALL FLOOR MOUNTED WATER CLOSETS ON BOWL TO DRAIN CONNECTING FITTINGS TO ATTACHMENTS TO PIPING OR BUILDING SUBSTRATE.

3.1.1.2. INSTALL ACCESSIBLE, WALL MOUNTED WATER CLOSETS AT MOUNTING HEIGHT FOR HANDICAPPED/ELDERLY, ACCORDING TO ICC/ANSI A117.1.

3.1.2. URINALS

3.1.2.1. INSTALL WALL HUNG, BACK OUTLET URINAL ONTO WASTE FITTINGS SEALS AND ATTACHED TO SUPPORTS.

3.1.2.2. INSTALL WALL HUNG, BACK-OUTLET URINALS WITH TUBULAR WASTE PIPING ATTACHED TO SUPPORTS.

3.1.2.3. INSTALL TRAP-SEAL LIQUID IN WATERLESS URINALS.

3.1.3. LAVATORIES

3.1.3.1. INSTALL SUPPORTS, AFFIXED TO BUIDLING SUBSTRATE, FOR ALL WALL MOUNTED LAVATORIES.

3.1.3.2. INSTALL WALL FLANGES OR ESCUTCHEONS AT PIPING WALL PENETRATIONS IN EXPOSED, FINISHED LOCATIONS. USE DEEP-PATTERN ESCUTCHEONS IF REQUIRED TO CONCEAL PROTRUDING FITTINGS.

3.1.3.3. SEAL JOINTS BETWEEN LAVATORIES, COUNTERS, AND WALLS USING SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR.

3.1.3.4. INSTALL PROTECTIVE SHIELDING PIPE COVERS AND ENCLOSURES ON EXPOSED SUPPLIES AND WASTE PIPING OF ACCESSIBLE LAVATORIES.

3.1.4. SINKS

3.1.4.1. INSTALL SUPPORTS, AFFIXED TO BUILDING SUBSTRATE, FOR WALL-HUNG SINKS.

3.1.4.2. SET FLOOR-MOUNTED SINKS IN LEVELING BED OF CEMENT GROUT.

3.1.4.3. INSTALL WATER-SUPPLY PIPING WITH STOP ON EACH SUPPLY TO EACH SINK FAUCET.

3.1.4.3.1. EXCEPTION: USE BALL OR GATE VALVES IF SUPPLY STOPS ARE NOT SPECIFIED WITH SINK.

3.1.4.3.2. INSTALL STOPS IN LOCATIONS WHERE THEY CAN BE EASILY REACHED FOR OPERATION.

3.1.4.4. INSTALL WALL FLANGES OR ESCUTCHEONS AT PIPING WALL PENETRATIONS IN EXPOSED, FINISHED LOCATIONS. USE DEEP-PATTERN ESCUTCHEONS IF REQUIRED TO CONCEAL PROTRUDING FITTINGS.

3.1.4.5. SEAL JOINTS BETWEEN SINKS AND COUNTERS, FLOORS, AND WALLS USING SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR.

3.1.4.6. INSTALL PROTECTIVE SHIELDING PIPE COVERS AND ENCLOSURES ON EXPOSED SUPPLIES AND WASTE PIPING OF ACCESSIBLE SINKS.

3.1.5. SHOWERS

3.1.5.1. ASSEMBLE SHOWER COMPONENTS ACCORDING TO MANUFACTURERS' WRITTEN INSTRUCTIONS.

3.1.5.2. INSTALL WATER-SUPPLY PIPING WITH STOP ON EACH SUPPLY TO EACH SHOWER FAUCET.

3.1.5.2.1. EXCEPTION: USE BALL OR GATE VALVES IF SUPPLY STOPS ARE NOT SPECIFIED WITH SHOWER.

3.1.5.2.2. INSTALL STOPS IN LOCATIONS WHERE THEY CAN BE EASILY REACHED FOR OPERATION.

3.1.5.3. INSTALL SHOWER FLOW-CONTROL FITTINGS WITH SPECIFIED MAXIMUM FLOW RATES IN SHOWER ARMS.

3.1.5.4. SET SHOWER RECEPTORS IN LEVELING BED OF CEMENT GROUT.

3.1.5.5. INSTALL WALL FLANGES OR ESCUTCHEONS AT PIPING WALL PENETRATIONS IN EXPOSED, FINISHED LOCATIONS. USE DEEP-PATTERN ESCUTCHEONS IF REQUIRED TO CONCEAL PROTRUDING FITTINGS.

3.1.5.6. SEAL JOINTS BETWEEN SHOWERS AND FLOORS AND WALLS USING SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT SILICONE SEALANT.

3.1.6. DRINKING FOUNTAINS

3.1.6.1. INSTALL AT HEIGHT REQUIRED BY AUTHORITIES HAVING JURISDICTION.

3.1.6.2. SET PEDESTAL DRINKING FOUNTAINS ON FLOOR.

3.1.6.3. INSTALL OFF-THE-FLOOR CARRIER SUPPORTS, AFFIXED TO BUILDING SUBSTRATE, FOR WALL-MOUNTED FIXTURES.

3.1.6.4. INSTALL WATER-SUPPLY PIPING WITH SHUTOFF VALVE ON SUPPLY TO EACH FIXTURE TO BE CONNECTED TO DOMESTIC-WATER DISTRIBUTION PIPING. USE BALL OR GATE VALVE. INSTALL VALVES IN LOCATIONS WHERE THEY CAN BE EASILY REACHED FOR OPERATION.

3.1.6.5. INSTALL TRAP AND WASTE PIPING ON DRAIN OUTLET OF EACH FIXTURE TO BE CONNECTED TO SANITARY DRAINAGE SYSTEM.

3.1.6.6. INSTALL WALL FLANGES OR ESCUTCHEONS AT PIPING WALL PENETRATIONS IN EXPOSED, FINISHED LOCATIONS. USE DEEP-PATTERN ESCUTCHEONS WHERE REQUIRED TO CONCEAL PROTRUDING FITTINGS.

3.1.6.7. SEAL JOINTS BETWEEN FIXTURES AND WALLS USING SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT, SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR.

3.1.6.8. ADJUST FIXTURE FLOW REGULATORS FOR PROPER FLOW AND STREAM HEIGHT.

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PLUMBING SPECIFICATIONS

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EEA Project No. 20266411
State of registration TX
Firm Registration No. F-2497

GENERAL NOTES

A. NO AS-BUILT DRAWINGS WERE PROVIDED TO INFORM THE DESIGN. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.

B. EXISTING PLUMBING EQUIPMENT & PIPING LOCATIONS AND SIZES HAVE BEEN OBTAINED FROM FIELD INVESTIGATIONS AND ARE SCHEMATIC IN NATURE. THIS PLAN SHALL NOT BE SCALED TO DETERMINE LOCATION OR DIMENSION OF THE WORK. FIELD VERIFY EXISTING CONDITIONS, LOCATIONS AND SIZES PRIOR TO COMMENCEMENT OF WORK.

C. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN. ITEMS SHOWN BOLD AND/OR DASHED ARE EXISTING TO BE REMOVED AS DENOTED.

D. REMOVED PLUMBING EQUIPMENT SHALL BE RETURNED TO OWNER FOR RIGHT OF FIRST REFUSAL. ITEMS NOT KEPT BY OWNER SHALL BE STORED AND PROPERLY DISPOSED OF OFF SITE ACCORDING TO LOCAL REGULATIONS.

E. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND FINISHES NOT BEING REPLACED OR REMOVED.

F. COORDINATE WITH STRUCTURAL PRIOR TO ANY SAW CUTTING OR PENETRATING THE SLAB. PERFORM X-RAY IF NECESSARY.

KEYNOTES

1 DEMOLISH EXISTING PLUMBING FIXTURE ONLY. EXISTING DOMESTIC WATER, SANITARY, AND VENT PIPING APPURTENANCES TO REMAIN FOR RECONNECTION TO NEW FIXTURE; REFER TO NEW PLAN. FIELD PROTECT AND TEMPORARY CAP PIPING AS REQUIRED TO MAINTAIN SYSTEM INTEGRITY.

2 DEMOLISH EXISTING PLUMBING FIXTURE AND ALL PIPING APPURTENANCES BACK TO MAIN. CAP AT MAIN.

3 EXISTING GAS WATER HEATER TO REMAIN. PROTECT IN PLACE DURING CONSTRUCTION. MAINTAIN ALL EXISTING PIPING, APPURTENANCES, AND CONNECTIONS IN FULL OPERATION.

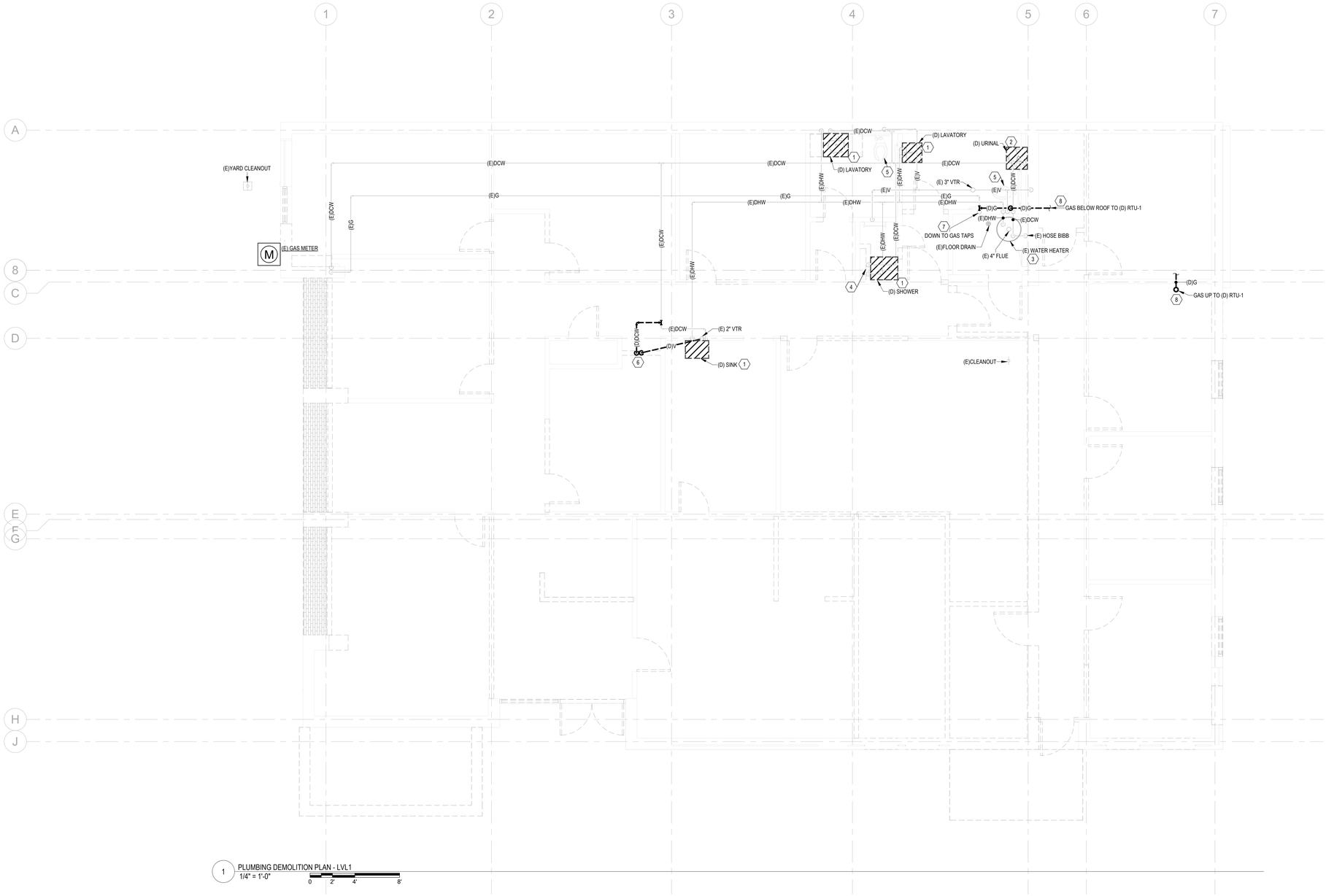
4 RELOCATE EXISTING PLUMBING PIPING FROM WITHIN FURR-OUT TO FACE OF EXISTING WALL TO ACCOMMODATE NEW FIXTURE LOCATION; REFER TO NEW PLAN. PROTECT EXISTING PIPING DURING CONSTRUCTION. FIELD VERIFY ALL CONDITIONS PRIOR TO RECONNECTION IN NEW WORK.

5 EXISTING PLUMBING FIXTURE TO REMAIN. PROTECT IN PLACE DURING CONSTRUCTION.

6 DEMOLISH DOMESTIC WATER AND VENT DEAD LEGS BACK TO MAIN AND AND VTR, RESPECTIVELY AND CAP AT MAIN. FIELD VERIFY EXACT LOCATION.

7 DEMOLISH EXISTING GAS TAPS TO AHUs BACK TO 1-1/4" GAS MAIN AND CAP. FIELD VERIFY EXACT LOCATION.

8 DEMOLISH EXISTING 3/4" GAS PIPING LINE TO (D) RTU-1 BACK TO 1-1/4" MAIN. REPLACE AND UPSIZE WITH NEW 1-1/4" GAS PIPING TO ROOF FOR NEW GAS LOAD IN NEW WORK; REFER TO NEW PLAN. CAP AND SECURE EXISTING GAS MAIN AS REQUIRED. FIELD VERIFY EXISTING CONDITIONS PRIOR TO INSTALLATION.



1 PLUMBING DEMOLITION PLAN - LVL1
1/4" = 1'-0"
0 2' 4' 8'

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State of registration TX
Firm Registration No. F-2497

PLUMBING SANITARY NOTES

A. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.

B. THIS PLAN IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED TO DETERMINE LOCATION OR DIMENSION OF THE WORK. CONTRACTOR SHALL VERIFY EXACT LOCATION OF PIPING AND PENETRATIONS.

C. ALL WALL MOUNTED ACCESS PANELS SHALL BE LOCKABLE TYPE.

D. NOT ALL PIPING SIZES ARE SHOWN FOR CLARITY. REFER TO PIPING RISER DIAGRAMS FOR MORE INFORMATION.

E. COORDINATE WITH STRUCTURAL PRIOR TO ANY SAW CUTTING OR PENETRATING THE SLAB. PERFORM X-RAY IF NECESSARY.

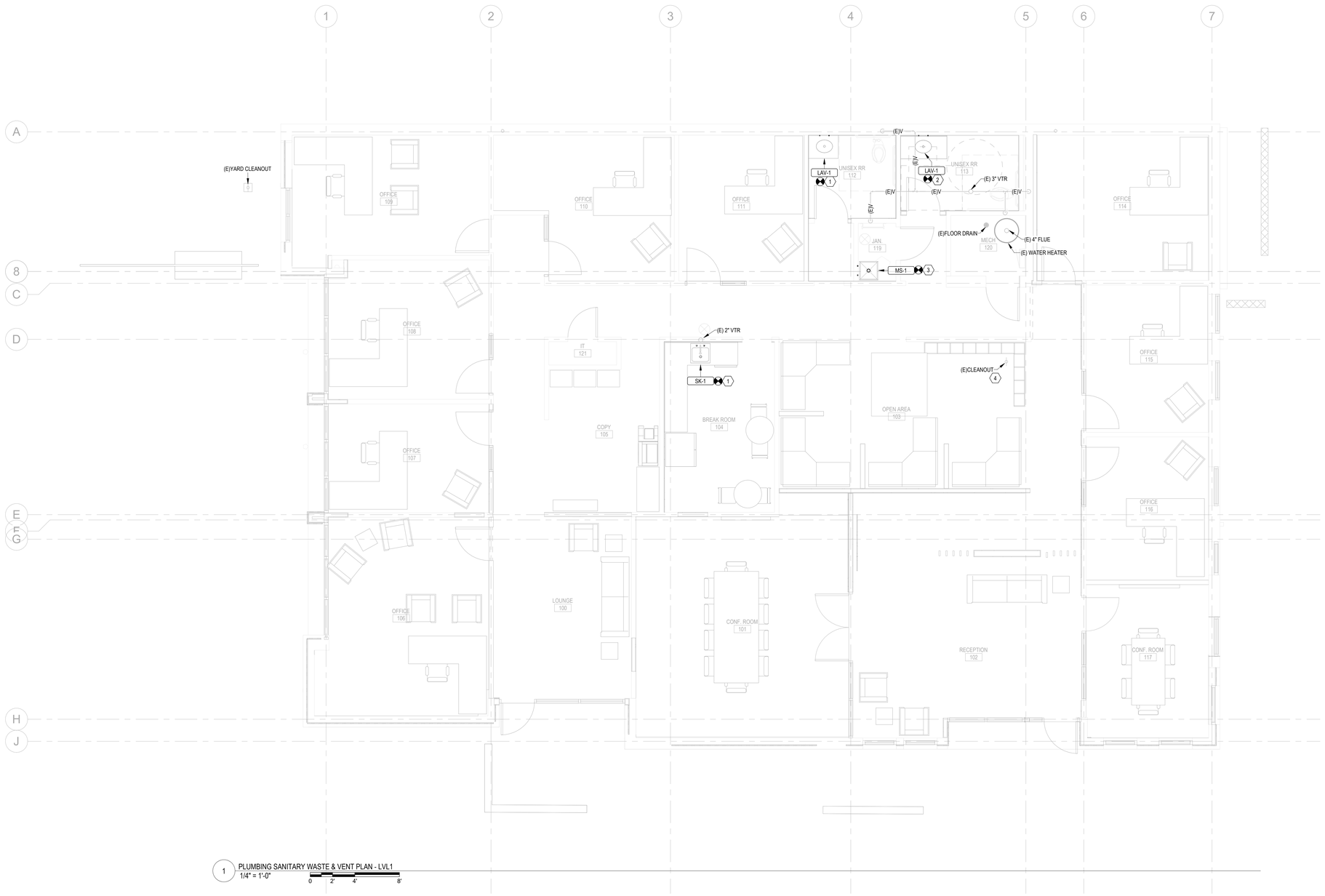
KEYNOTES

1 RECONNECT NEW FIXTURE TO EXISTING SANITARY AND VENT PIPING AT EXISTING ROUGH-IN LOCATIONS. FIELD VERIFY EXACT LOCATION AND ALL EXISTING CONDITIONS PRIOR TO INSTALLATION. INTALL PER UPC.

2 EXTEND EXISTING SANITARY AND VENT PIPING IN ADJACENT WALL TO NEW LAVATORY LOCATION. UTILIZE EXISTING CONNECTION POINTS. FIELD VERIFY EXACT LOCATION AND ALL EXISTING CONDITIONS PRIOR TO INSTALLATION. INSTALL PER UPC.

3 CONNECT NEW MOP SINK TO RELOCATED EXISTING SANITARY AND VENT PIPING AT WALL FACE. FIELD VERIFY EXACT LOCATION AND CONDITIONS PRIOR TO INSTALLATION.

4 MAINTAIN ACCESS TO EXISTING FLOOR CLEANOUT. RELOCATE AS REQUIRED TO AVOID CONFLICT WITH NEW WORK AND TO MAINTAIN ACCESS FOR SERVICE.



1 PLUMBING SANITARY WASTE & VENT PLAN - LVL1
1/4" = 1'-0"
0 2' 4' 8'

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PLUMBING SANITARY WASTE & VENT PLAN

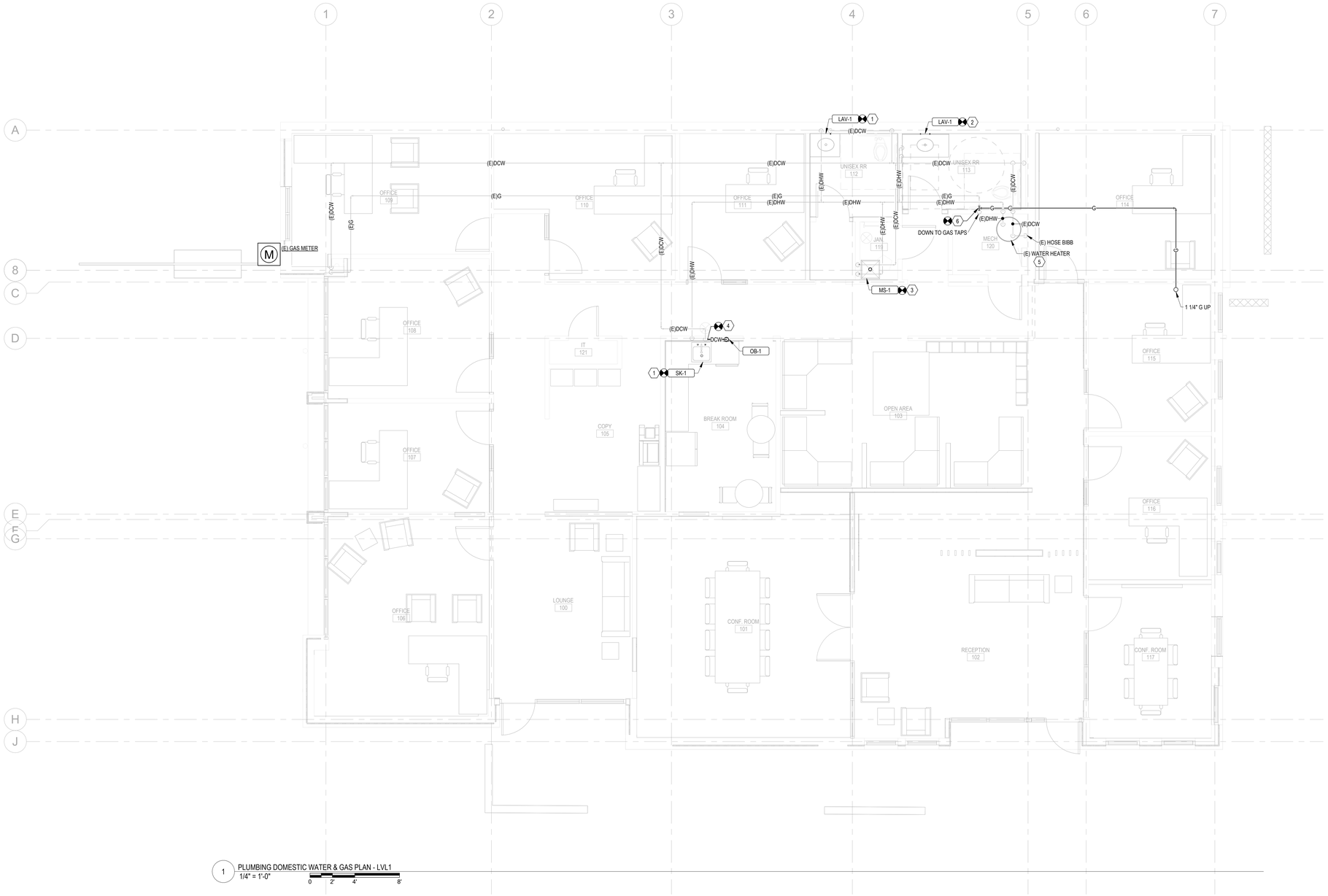
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PLUMBING ROOF NOTES

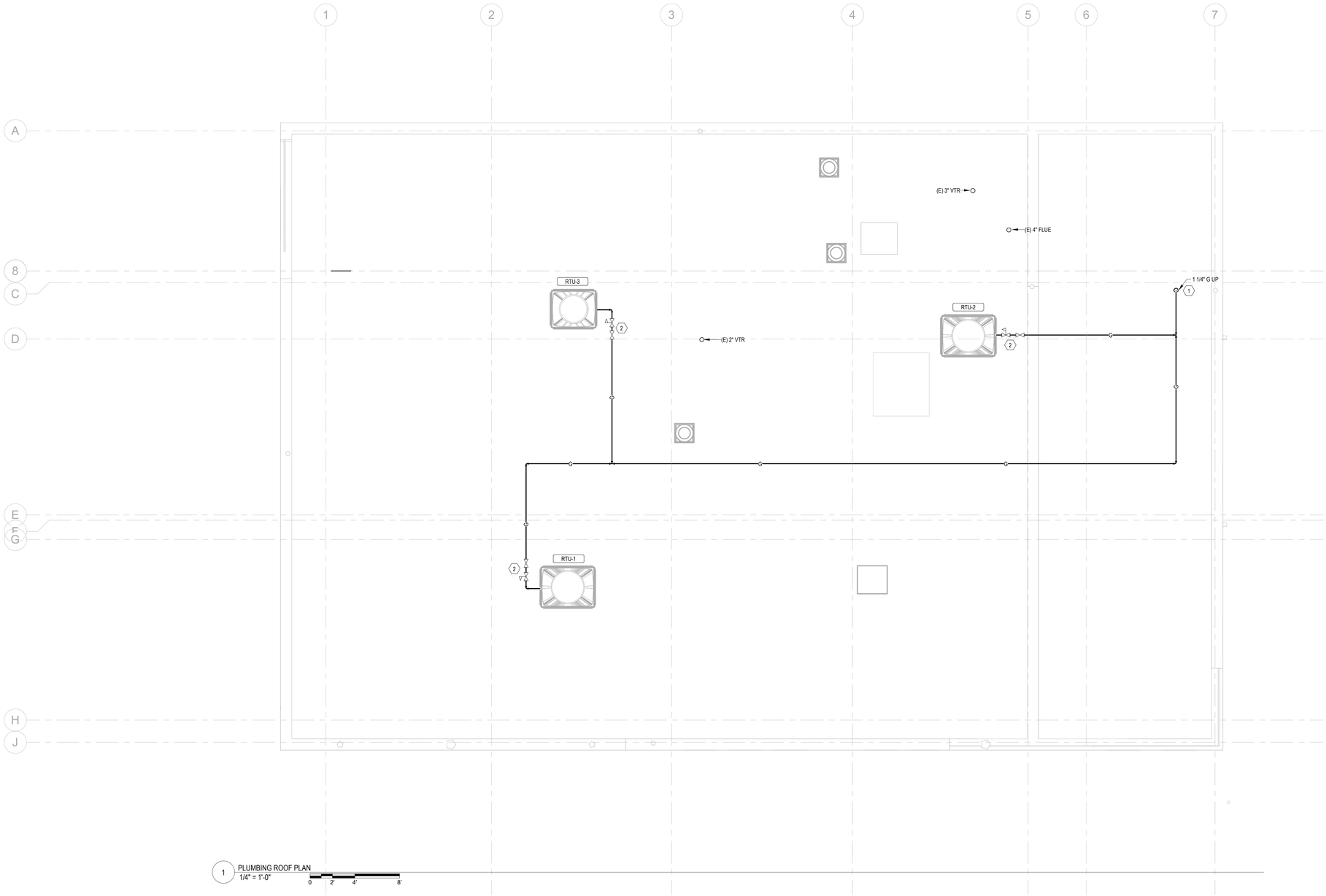
A. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.

B. THIS PLAN IS DIAGRAMMATIC IN NATURE AND SHALL NOT BE SCALED TO DETERMINE LOCATION OR DIMENSION OF THE WORK. CONTRACTOR SHALL VERIFY EXACT LOCATION OF PIPING AND EQUIPMENT.

KEYNOTES

1 ROUTE NEW GAS PIPING UP THROUGH ROOF TO NEW RTUs. GAS SIZING IS BASED ON A TOTAL DEVELOPED LENGTH OF 200 FT AND AN ASSUMED PRESSURE OF LESS THAN 2.0 PSI WITH 0.5 IN. W.C. PRESSURE DROP AT GAS METER. FIELD VERIFY PRESSURE OUTPUT AT GAS METER AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

2 PROVIDE GAS REGULATOR EQUIVALENT TO MAXITROL IF EXISTING PRESSURE IS HIGHER THAN 14 IN.W.C. CONTRACTOR SHALL FIELD VERIFY THE DELIVERY PRESSURE IN LINE. SET REGULATOR TO 9.0 IN.W.C. W/0.5 IN.W.C. PRESSURE DROP.



1 PLUMBING ROOF PLAN
1/4" = 1'-0"
0 2' 4' 8'

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PLUMBING ROOF PLAN

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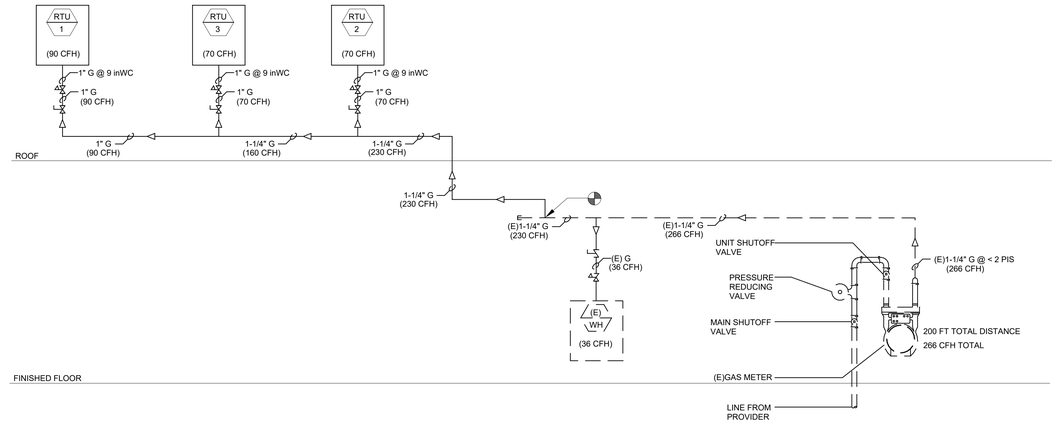
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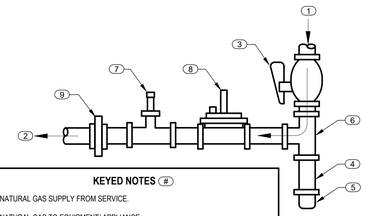
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TABLE 1215.2(1) 2024 UNIFORM PLUMBING CODE SCHEDULE 40 METALLIC PIPE GAS: NATURAL INLET PRESSURE: LESS THAN 2 PSI PRESSURE DROP: 0.5 inWC			
TOTAL DEVELOPED LENGTH:	200-LF		
PIPE SIZE (INCHES)	MAXIMUM FLOW (CFH)		
1/2	34		
3/4	71		
1	134		
1-1/4	275		
1-1/2	412		
2	794		
2-1/2	1,270		
3	2,240		
4	4,560		
TOTAL HORIZONTAL PIPING =		135	FT
TOTAL VERTICAL PIPING =		30	FT
SUBTOTAL PIPING LENGTH =		165	FT
ADD FOR FITTINGS=	20%	33	FT
TOTAL DEVELOPED LENGTH =		198	FT



NOTE: 1, SIZING BASED ON TOTAL DEVELOPED LENGTH OF 200'-0" AND AN ASSUMED PRESSURE OF LESS THAN 2.0 PSI AT GAS METER W/0.5 IN.W.C IN PRESSURE DROP ACCORDING TO 2024 UPC TABLE 1215.2(1). VERIFY PRESSURE OUTPUT AT GAS METER AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

1 PLUMBING GAS RISER DIAGRAM
NOT TO SCALE



KEYED NOTES (#)

1. NATURAL GAS SUPPLY FROM SERVICE.
2. NATURAL GAS TO EQUIPMENT/ APPLIANCE.
3. MANUAL GAS SHUT-OFF VALVE. VALVE OPERATION SHALL ISOLATE EQUIPMENT/ APPLIANCE, DIRT LEG, TEST PORT, AND PRESSURE REDUCING VALVE FROM NATURAL GAS SERVICE.
4. DIRT LEG MINIMUM 6-INCH IN LENGTH
5. CAP ON DIRT LEG
6. TEE
7. PETE'S PLUG TEST PORT
8. PRESSURE REDUCING VALVE
9. UNION

2 GAS PIPING CONNECTION DETAIL
NOT TO SCALE

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PLUMBING RISERS

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PLUMBING FIXTURE SCHEDULE

ID	DESCRIPTION	REMARKS	POWER REQUIRED
LAV-1	UNDERMOUNT LAVATORY	FIXTURE: KOHLER "LADENA" #K-2214-0; WHITE; VITREOUS CHINA; RECTANGULAR UNDERMOUNT INSTALLATION; SINGLE FAUCET HOLE (CENTERED); INTEGRAL OVERFLOW; ADA COMPLIANT WHEN MOUNTED AT CORRECT HEIGHT; OVERALL DIMENSIONS 20-7/8" L × 14-3/8" W × 8-1/8" D; BASIN DIMENSIONS 18-5/8" L× 12-1/4" W; 6-9/16"D. FAUCET: KOHLER "ELATE" #K-35048-4N; SINGLE-HANDLE LEVER; LEAD-FREE; POLISHED CHROME FINISHT; DECK-MOUTED, PEDESTAL STYLE; SINGLE HOLE; LAMINAR FLOW 0.5 GPM; ADA COMPLIANT, LEAD-FREE; SPOUTH REACH 4-13/16". POINT-OF-USE MIXING VALVE: LEONARD LF-270, BELOW-DECK INSTALLATION, ASSE 1070 COMPLIANT; PRESET TO 110 °F. P-TRAP: ZURN Z8700-PC; CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT 1-1/4-INCH x 1-1/4-INCH. ANGLE STOPS: ZURN Z8800 SERIES; LEAD FREE, CHROME PLATED SOLID BRASS, QUARTER TURN STOP WITH ROUND WHEEL AND BRAIDED STAINLESS STEEL SUPPLY FOR BOTH HOT AND COLD WATER CONNECTIONS. INSULATION: ZURN Z8946-NT; SATIN WHITE PVC RESIN, ANTIMICORBIAL, KIT INCLUDES ONE P-TRAP AND ONE HOT AND ONE COLD ANGLE STOP PROTECTER.	No
MS-1	MOP SINK	FIXTURE: ZURN Z5850-D3-RG; ENAMELED CAST IRON CORNER FLOOR MOUNTED SINK, 28-INCH x 28-INCH WITH 8-INCH HIGH CURB, REMOVABLE VINYL-COATED RIM GUARD WITH 3-INCH GRID DRAIN. FAUCET: ZURN #Z843M4-XL-CS-HCT-WHI-SH; POLISHED CHROME PLATED AST BRASS FAUCET, QUARTER TURN INLETS WITH CHECK STOPS, HOT/COLD INDEXES, WALL HUNG, VACUUM BREAKER, PAIL HOOK, WALL HOOK BRAKCET, 5-FOOT HOSE AND WALL SUPPORT.	No
OB-1	WATER OUTLET BOX (REFRIGERATOR)	FIXTURE: OATEY #39140; 20 GAUGE STEEL; METAL WATER OUTLET BOX WITH 1/4 TURN VALVE AND INTEGRAL WATER HAMMER ARRESTOR.	No
SK-1	BREAKROOM STAINLESS STEEL SINK	FIXTURE: ELKAY "LUSTERSTONE" #LRAD252260 (1-HOLE PUNCH COORDINATED WITH FAUCET); GAUGE #18; 304 STAINLESS STEEL; LUSTROUS SATIN FINISH; SINGLE BOWL; DROP-IN; REAR CENTER DRAIN; OVERALL DIMENSIONS 19-1/2" x 19" x 8"; BOWL DIMENSIONS 16" x 13-1/2" x 6-3/8". INCLUDED WITH ELKAY #LKPD1 "PERFECT DRAIN AND STRAINER". FAUCET: AMERICAN STANDARD "RENATE" 9319310.002; LEAD FREE, POLISHED CHROME FINISH; DECK MOUNTED, SINGLE HOLE, SWIVEL SPOUT, TWO FUNCTION SPRAY HEAD; ADA SINGLE METAL LEVER HANDLE; 1.5 GPM FLOW, 8-5/8" OFFSET AND 10-1/2" ABOVE RIM. (2) 1/2"x3/8" ANGLE STOPS, (2) 20" RIGID CHROME SUPPLY TUBES, 17 GAUGE 1-1/2" P-TRAP WITH CLEANOUT PLUG, CHROME BOX ESCUTCHEON.	No

PLUMBING PIPING SCHEDULE

PIPING ID	SERVICE	SIZE	MATERIAL TYPE	FITTING TYPE	JOINT TYPE	INSULATION TYPE	VALVES	REMARKS
COLD WATER - DOMESTIC	ABOVE GRADE	ALL	TYPE "L" COPPER HARD DRAWN TUBING ASTM B88	WROUGHT COPPER FITTINGS PER ASME B16.22	SOLDER 95% TIN, 5% SILVER PER ASTM B32, LEAD FREE	1/2 INCH CF TO PREVENT CONDENSATION	2" AND BELOW: BA-1 2-1/2" AND LARGER: BF-1	LEAD-FREE VIEGA PROPRESS OR EQUAL ALLOWED FOR COPPER PIPING 4-INCH AND BELOW, EDPM O-RINGS.
		3-INCH AND UNDER (INDOOR ONLY)	ENGEL-METHOD CROSS LINKED POLYETHYLENE (PEX-a) ASTMF876/877	ENGINEERED POLYMER ASTM F1960 OR LEAD-FREE BRASS	COLD EXPANSION WITH PEX REINFORCING RING	N/A		SEE PEX NOTES BELOW.
	BELOW GRADE (WITHIN 5-FEET OF BUILDING)	ALL	TYPE "K" COPPER HARD DRAWN TUBING ASTM B88	WROUGHT COPPER FITTINGS PER ASME B16.22	SOLDER 95% TIN, 5% SILVER PER ASTM B32, LEAD FREE	1/2 INCH CF TO PREVENT CONDENSATION		WRAP WITH 2-INCH, 20 MIL VINYL TAPE, WITH 50% OVERLAP; NO INSULATION REQUIRED.
		3-INCH AND UNDER (INDOOR ONLY)	ENGEL-METHOD CROSS LINKED POLYETHYLENE (PEX-a) ASTMF876/877	ENGINEERED POLYMER ASTM F1960 OR LEAD-FREE BRASS	COLD EXPANSION WITH PEX REINFORCING RING	N/A		SEE PEX NOTES BELOW.
HOT WATER - DOMESTIC HOT WATER RETURN - DOMESTIC UP TO 140 DEGREE F	ABOVE GRADE	ALL	TYPE "L" COPPER HARD DRAWN TUBING ASTM B88	WROUGHT COPPER FITTINGS PER ASME B16.22	SOLDER 95% TIN, 5% SILVER PER ASTM B32, LEAD FREE	1-1/2 INCH GF < 1-1/2 INCH PIPE 2 INCH GF 1-1/2 INCH & LARGER EXTERIOR PIPING: CF INSULATION, SAME THICKNESS	2" AND BELOW: BA-1 2-1/2" AND LARGER: BF-1	LEAD-FREE VIEGA PROPRESS OR EQUAL ALLOWED FOR COPPER PIPING 4-INCH AND BELOW, EDPM O-RINGS.
		3-INCH AND UNDER (INDOOR ONLY)	ENGEL-METHOD CROSS LINKED POLYETHYLENE (PEX-a) ASTMF876/877	ENGINEERED POLYMER ASTM F1960 OR LEAD-FREE BRASS	COLD EXPANSION WITH PEX REINFORCING RING			SEE PEX NOTES BELOW.
	BELOW GRADE (WITHIN 5-FEET OF BUILDING)	ALL	TYPE "K" COPPER HARD DRAWN TUBING ASTM B88	WROUGHT COPPER FITTINGS PER ASME B16.22	SOLDER 95% TIN, 5% SILVER PER ASTM B32, LEAD FREE	1-1/2 INCH GF < 1-1/2 INCH PIPE 2 INCH GF 1-1/2 INCH & LARGER EXTERIOR PIPING: CF INSULATION, SAME THICKNESS		WRAP WITH 2-INCH, 20 MIL VINYL TAPE, WITH 50% OVERLAP; INSULATION REQUIRED.
		3-INCH AND UNDER (INDOOR ONLY)	ENGEL-METHOD CROSS LINKED POLYETHYLENE (PEX-a) ASTMF876/877	ENGINEERED POLYMER ASTM F1960 OR LEAD-FREE BRASS	COLD EXPANSION WITH PEX REINFORCING RING			SEE PEX NOTES BELOW.
SANITARY SEWER AND SANITARY SEWER VENT	ABOVE GRADE	8 INCH AND SMALLER	HUBLESS CAST-IRON SOIL PIPE MEETING CISPI 301 AND ASTM A 74 SERVICE CLASS	HUBLESS, CAST-IRON SOIL PIPE FITTINGS CISPI 301	HEAVY DUTY, FM APPROVED TYPE 304 STAINLESS STEEL ASTM C 1277 W/ ASTM C564 RUBBER GASKET AND STOP	1/2 INCH CF TO PREVENT CONDENSATION		ALL AIR HANDLER MECHANICAL ROOMS FLOOR DRAIN PIPING TO BE INSULATED TO NEAREST VERTICAL MAIN TO PREVENT CONDENSATION. 1 INCH GF - ASJ CONCEALED 1 INCH GF - PVC EXPOSED
		10 INCH AND LARGER	HUB AND SPIGOT CAST-IRON SOIL PIPE MEETING CISPI 301 AND ASTM A 74 SERVICE CLASS	HUB AND SPIGOT CAST IRON MEETING CISPI 301 AND ASTM A 74 STANDARDS	NEOPRENE GASKETS C-564	N/A		
		ALL	SOLID CORE SCHEDULE 40 PVC ASTM D 1785 & ASTM D 2665	SOLID CORE SCHEDULE 40 PVC ASTM D 2665 & ASTM F 1866	PRIMER AND SOLVENT CEMENT			
	BELOW GRADE (WITHIN 5-FEET OF BUILDING)	ALL	HUB AND SPIGOT CAST-IRON SOIL PIPE MEETING CISPI 301 AND ASTM A 74 SERVICE CLASS	HUB AND SPIGOT CAST IRON MEETING CISPI 301 AND ASTM A 74 STANDARDS	NEOPRENE GASKETS C-564	N/A		
			SOLID CORE SCHEDULE 40 PVC ASTM D 1785 & ASTM D 2665	SOLID CORE SCHEDULE 40 PVC ASTM D 2665 & ASTM F 1866	PRIMER AND SOLVENT CEMENT			FIRST TEN FEET OF SANITARY SEWER PIPING SEEING DISCHARGE TEMPERATURE AT 120F OR ABOVE SHALL BE HUB AND SPIGOT.
NATURAL GAS (5 PSI OR LESS)	ABOVE GRADE	2-INCH AND SMALLER	STANDARD WEIGHT CARBON STEEL ASTM A53 GRADE B, TYPE E OR S	CLASS 150 MALLEABLE IRON ASTM A197, ASME B16.3	THREADED	N/A	BA-2	
		3-INCH AND LARGER		BUTTWELD: STANDARD WEIGHT CARBON STEEL ASTM A234, ASME B16.9	BUTWELD PER ASME B31.9 FOR BUILDING SERVICE PIPING		GA-1	
	BELOW GRADE (WITHIN BUILDING)	ALL	STANDARD WEIGHT CARBON STEEL ASTM A53 GRADE B, TYPE E OR S	BUTTWELD: STANDARD WEIGHT CARBON STEEL ASTM A234, ASME B16.9	BUTWELD PER ASME B31.9 FOR BUILDING SERVICE PIPING	N/A	GA-1	AWWA C105 POLYETHYLENE JACKET OR WRAP IN DOUBLE LAYER WITH 10 MIL POLYETHELENE TAPE.
	BELOW GRADE (EXTERIOR OF BUILDING)	ALL	POLYETHYLENE PIPE ASTM D 2513 SDR 11	POLYETHYLENE FITTING ASTM D2683 SOCKET FUSION: ASTM D2683 BUTT-FUSHION: ASTM D3261	FUSHION	N/A	GA-1	ALL UNDERGROUND PIPING SHALL BE PROVIDED WITH TRACER WIRE AND INSTALLED MINIMAL JOINTS AND FITTINGS.

VALVES:

BA-1 BALL VALVE: 600 PSI WOG TWO PIECE LEAD-FREE BRASS OR BRONZE, FULL PORT BALL VALVE, ASTM B584, THREADED ENDS, STAINLESS STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, BLOWOUT PROOF STEM (EXTENDED STEM FOR INSULATED LINES). APOLLO 77 SERIES OR EQUAL.

BA-2 BALL VALVE: 600 PSI WOG TWO PIECE BRONZE FULL PORT BALL VALVE, ASTM B584, THREADED ENDS, STAINLESS STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, BLOWOUT PROOF STEM, UL-RATED FOR NATURAL GAS AND FLAMMABLE LIQUIDS. APOLLO 80-100 SERIES OR EQUAL.

BF-1 BUTTERFLY VALVE: 200 PSI BI-DIRECTIONAL DEAD-END SERVICE WITHOUT A DOWNSTREAM FLANGE REQUIRED, LEAD-FREE DUCTILE IRON LUG BODY, ALUMINUM BRONZE DISC, EPDM SEAT, 10-POSITION LEVER HANDLE (GEAR OPERATOR FOR VALVES LARGER THAN 8"), EXTENDED NECK FOR INSULATED LINES. NIBCO LD-2000 OR EQUAL.

GA-1 GATE VALVE: CL. 150 CARBON STEEL GATE VALVE, RISING STEM, FLANGE END, ASTM A216 GR. WCB, UL-RATED FOR NATURAL GAS AND FLAMMABLE LIQUIDS SHUT OFF.

NOTES:

1. INSULATION TYPE: GF - GLASS FIBER, CG - CELLULAR GLASS, CF - FLEXIBLE ELASTOMERIC CELLULAR FOAM.
2. INSULATION JACKET TYPE:
   A. INTERIOR CONCEALED LOCATIONS: ALL SERVICE JACKET (ASJ)
   B. INTERIOR EXPOSED LOCATIONS: PVC ABOVE 8 FEET ABOVE FINISH FLOOR, ALUMINUM (ALJ) 8 FEET ABOVE FINISHED FLOOR
   C. EXTERIOR LOCATIONS: ALUMINUM (ALJ)
3. ALL PLUMBING MATERIALS TO MEET PLUMBING CODE REQUIREMENTS. ALL DOMESTIC WATER SUPPLY PIPING, FITTINGS AND COMPONENTS TO MEET NSF 14 REQUIREMENTS.
4. PROVIDE SELF-REGULATING HEAT TRACING SYSTEM AND CONTROLS FOR FREEZE PROTECTION OF PIPING AND ACCESSORIES IN EXTERIOR AND INTERIOR UNCONDITIONED SPACES WHERE SHOWN ON THE PLANS. INSULATE PER MANUFACTURER'S INSTRUCTIONS BUT NOT LESS THAN THICKNESS SHOWN ON THE SCHEDULE.
5. PROVIDE PRODUCT LISTED OR ENGINEER PRE-APPROVED EQUAL, APPLIES TO ALL PRODUCTS LISTED IN SCHEDULE.
6. ALL MATERIALS USED IN POTABLE WATER SYSTEMS SHALL MEET THE REQUIREMENTS OF NSF/ANSI 14 AND NSF/ANSI 61 AS APPLICABLE.
7. INSTALL ALL PRODUCTS PER THE MANUFACTURERS RECOMMENDATIONS.
8. ALL PIPING IS TO BE SUPPORTED PER ANSI B31.9, ASME B31.1, MSS SP-58 AND MSS SP-69 AND MANUFACTURER'S INSTRUCTIONS.
9. CLEAN AND FLUSH ALL NEWLY INSTALLED PIPING AND STRAINER / FILTERS WITH SYSTEM APPROPRIATE MATERIAL PRIOR TO PUTTING SYSTEM INTO OPERATION. DISINFECT POTABLE WATER SYSTEMS PER CODE.
10. PEX PIPING:
    A. ALL PEX PIPING TO BE UPONOR OR EQUAL
    B. PEX SHALL NOT BE EXPOSED OR STORED IN DIRECT SUNLIGHT, NEAR SEALING COMPOUNDS OR PETROLEUM BASED PROCDUCTS. MAX WATER TEMP IS 180ºF
    C. INSTALL AND SUPPORT PER MANUFACTURER'S INSTRUCTIONS.
    D. INSTALL PEX WITH COPPER STUB-OUTS FOR FIXTURE CONNECTIONS.
    E. USE PRESSURE-SENSITIVE ACRYLIC ADHESIVE PIPE LABELS ON PEX PIPING.
    F. WHERE CALLED FOR ON THE PLANS, HEAT TRACING FOR DHW TEMPERATURE MAINTENANCE SHALL HAVE AUTOMATIC THERMOSTATIC CONTROL TO LIMIT TEMPERATURE TO 140F MAX. SECURE HEAT TRACING TO PEX PIPING WITH CABLE TIES; ADHESIVE TAPE IS NOT PERMITTED.
11. PVC, CPVC AND CAST IRON PIPE AND FITTINGS SHALL BE BY CHARLOTTE PIPE OR EQUAL.
12. PVC SHALL NOT TO BE USED IN THE FOLLOWING LOCATIONS:
    A. HVAC PLENUMS OR IN EXTERIOR LOCATIONS WHERE EXPOSED TO SUNLIGHT; COATINGS OR WRAPS ARE NOT ALLOWED IN THESE LOCATIONS.
    B. DOMESTIC WATER SUPPLY SYSTEMS INSIDE OF THE BUILDING.
13. PIPING SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE APPLICABLE CODES AND LOCAL AHJ.
14. WHEN JOINING DISIMILAR METALS USE DIELECTRIC NIPPLES OR COUPLINGS, OR DIELECTRIC FLANGE KITS ON LARGER PIPING. DIELCTRIC UNIONS ARE NOT ALLOWED.

DOMESTIC EXPANSION TANK SCHEDULE

MARK	MANUFACTURER	MODEL NO.	SERVICE	SYSTEM CONNECTION (INCHES)	SYSTEM CHARGE (PSIG)	TANK				WEIGHT (LBS)	REMARKS
						NOMINAL VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	DIAMETER (INCHES)	HEIGHT (INCHES)	SHIPPING	
ET-1	AMTROL	THERM-X-TROL ST-12C-DD	STORAGE	3/4"	55.0	6.4	3.2	1' - 0"	1' - 8"	17	1,2,3

NOTES:

1. TANK IS FACTORY PRE-CHARGED AND SHALL BE FIELD ADJUSTED TO MEET REQUIREMENTS OF THE PROJECT.
2. MUST BE STAMPED WITH A MINIMUM WORKING PRESSURE OF 150 PSI.
3. LEAD-FREE CONSTRUCTION COMPLIANCE

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PLUMBING SCHEDULES

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