PROPOSED REMODEL FOR:

PAN-ASIA SUPERMARKET

6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

PAN ASIA SUPERMARKET
11940 METCALF AVE
OVERLAND PARK, KANSAS 66213
ETHAN LIN P: 646.229.9303
PANASIASUPERMARKET.COM

ARCHITECT

MADISEN MAHER ARCHITECTS
133 W. PITTSBURGH AVE, SUITE 102
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WISCONSIN
SEAN M. MAHER
A-8000
Wauwatosa, WI
ARCHITECT
2-8-24

STRUCTURAL ENGINEER

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325 W. VINE STREET
MILWAUKEE, WI 53212
P: 414.263.5500
BARBERENGINEER.COM

WISCONSIN
LYNN A. BARBER
S2160
SHOREWOOD
WI
PROFESSIONAL ENGINEER
2-8-2024

MEP CONSULTANT

IBC ENGINEERING SERVICES, INC
N8 W22195 JOHNSON DRIVE, SUITE 180
WAUKESHA, WI 53186
P: 262.549.1620
IBCENGINEERING.COM

WISCONSIN
KEITH L ORLOWSKI
E-42349-6
CARY
IL
PROFESSIONAL ENGINEER
EXP 7/31/2024

PROJECT LOCATION

1 PROJECT LOCATION
N.T.S.

LANDLORD REQUIREMENTS

1. TENANT, TENANT CONTRACTOR AND ALL SUBCONTRACTORS SHALL FOLLOW THE REQUIREMENTS AS STATED IN THE TENANT MANUAL AS WELL AS ALL CODES AND ORDINANCES FOR THE CITY, STATE, AND FEDERAL JURISDICTIONS.
2. GENERAL CONTRACTOR MUST CONTACT LANDLORD AND SUPPLY A COPY OF THEIR CERTIFICATE OF INSURANCE AND COPIES OF ALL PERMITS BEFORE WORK BEGINS ON THE PREMISES. THE CERTIFICATE MUST INCLUDE "RPT REALTY LP" AND "RPT REALTY, INC" AS LISTED AS ADDITIONAL INSURED.
3. PROVIDE CONTRACTOR INFORMATION INCLUDING SITE SUPERINTENDANT NAME AND PHONE NUMBER.
4. PROVIDE A CONSTRUCTION SCHEDULE INCLUDING, BUT NOT LIMITED TO, START DATE AND PROPOSED COMPLETION DATE.
5. REQUESTS FOR A LANDLORD'S RESPONSE SHALL BE NOTIFIED WITH A MINIMUM OF 24 HOURS NOTICE. THIS INCLUDES FIRE ALARM TESTING, ACCESS TO MECHANICAL ROOMS, ETC
6. TENANT OR TENANT ARCHITECT IS TO PROVIDE LANDLORD WITH A PDF & CAD COPY OF THE PERMITTED SET OF PLANS WITH ALL REVISIONS AT COMPLETION OF THE PROJECT.
7. IF AN ELECTRICAL SHUTDOWN THAT WILL AFFECT THE SHOPPING CENTER IS NEEDED IN ORDER TO UPGRADE SERVICE, TENANT MUST GIVE LANDLORD 14 DAY NOTICE PRIOR TO SHUTDOWN.
8. MUST USE LANDLORD REQUIRED ROOFER FOR ALL ROOF PENETRATIONS.
9. TENANT OR TENANT CONTRACTOR SHALL SUPPLY THE FOLLOWING INFORMATION ON HVAC UNITS UPON PROJECT COMPLETION: MAKE, MODEL, SERIAL, TONNAGE, YEAR MANUFACTURED AND ALL WARRANTY INFORMATION.
10. IF HVAC UNITS ARE REPLACED AND THE CURB MUST BE REMOVED, THE ROOF MEMBRANE MUST BE RESTORED BY LANDLORD REQUIRED ROOFER.
11. IF TENANT ADDS ADDITIONAL EQUIPOMENT TO ROOF, TENANT MUST ADD LANDLORD APPROVED WALKING PADS.

LANDLORD REQUIRED VENDORS

FIRE ALARM SYSTEM
GUETZKE & ASSOCIATES, INC
P: 262-548-0100

ROOFER
LUTZ ROOFING
P: 586-739-1148

FIRE SPRINKLER
J.F. AHERN CO
P: 414-921-7580
P: 414-921-7339

HUSSMANN REFRIGERATION SCOPE OF WORK & INSTALLATION

HUSSMANN REFRIGERATION SCOPE OF WORK & INSTALLATION:

- INSTALLATION OF (2) PROTOCOLS AND (2)CONDENSERS.
- INSTALLATION INCLUDES SETTING RACKS AND CONDENSERS AS SPECIFIED ON THE DRAWINGS.
- INSTALLATION INCLUDES SETTING REFRIGERATED CASES AND EVAPORATORS AS SPECIFIED ON THE DRAWINGS.
- RECEIVE AND INSTALL COOLERS AND FREEZERSASSPECIFIED IN THE DRAWINGS.
- REFRIGERATED PIPING AND CONDENSATE FROM FIXTURE TO HUB DRAIN OR FLOOR SINK.
- SUPPLY AND INSTALL UNDERGROUND BOXES AND CONNECTING PVC AS SPECIFIED IN THE DRAWINGS.
- SUPPLY REFRIGERATION PIPING, INSULATION, R-448A REFRIGERANT, RENTALS,AND PARTS AS SPECIFIED ON THE DRAWINGS.
- SUPPLY AND INSTALL ALL LOAD SIDE ELECTRICAL FOR THE REFRIGERATION SYSTEMS.
- SUPPLY AND INSTALL ALL EMS CABLING AND TERMINATION.
- LEAK CHECK,EVACUATE,AND START-UP PROTOCOLS A AND B.
- PIPE AND EQUIPMENT CURBS
- ROOF CURBS FOR THE CONDENSER ARE PROVIDED BY HUSSMANN AND INSTALLED BY GC
- MAIN SWITCH GEAR TO HAVE THE PROTOCOLS INCLUDED. HUSSMANN WILL RUN WIRES FROM THE BREAKER TO THEIR CASES.
- HUSSMAN WILL APPLY FOR A PERMIT FOR THEIR REFRIGERATION DRAWING.

HUSSMANN EXCLUSIONS:

- UNDERGROUND PLUMBING
- ALL DEMOLITION.
- STRUCTURAL STEEL ANALYSIS
- ROOFING
- ALL BUILDING ELECTRICAL

CODE ANALYSIS *IBC 2015, IEBC 2015*

OCCUPANCY CLASSIFICATION:
IBC 309 PRIMARY, MERCANTILE (M)
IBC 303 SECONDARY, ASSEMBLY (A-2)
IBC 311 SECONDARY, STORAGE (S-2)
IBC 304 SECONDARY, BUSINESS (B)

CLASS OF CONSTRUCTION: IIIB
IBC 507.4 UNLIMITED AREA BUILDING

ALTERATION LEVEL: 2
IEBC 801

FIRE PROTECTION: FULLY SPRINKLERED
NFPA 13

EXISTING BUILDING INFORMATION
NUMBER OF STORIES (ALLOW): 1 STORY (1)
BUILDING HEIGHT (ALLOW): 23'-9" (75'-0")

EXISTING BUILDING, GROSS: 85,000 SF
REMODELED AREA: 36,000 SF

OCCUPANT LOAD, TENANT AREA: 515 PERSONS
IBC TABLE 1004.1.2
MERCANTILE, 24,084 SF: 402
FOOD PREP, 2,918 SF: 15
CAFE SEATING, SHOWN: 56
OFFICE/STAFF AREAS, 329 SF: 4
STORAGE, 7,457 SF: 25
MECHANICAL, 429SF: 2
MEZZANINE STORAGE, 3,248SF: 11

FIRE RESISTANCE RATINGS REQUIRED :
IBC TABLE 601
PRIMARY STRUCTURAL FRAME: 0 HOURS
EXTERIOR BEARING WALLS: 2 HOURS
INTERIOR BEARING WALLS: 0 HOURS
INTERIOR PARTITIONS: 0 HOURS
FLOOR CONSTRUCTION: 0 HOURS
ROOF CONSTRUCTION: 0 HOURS

EGRESS WIDTH:
MEZZANINE STAIR WIDTH REQ'D (PROV): 36" (36")
IBC 1011.2 EXC. 1
IBC 1005.3.1 .2" / PERSON = 2.2"

OTHER EGRESS COMP. REQ'D (PROV): 103" (162")
.2" / PERSON
IBC 1006.3.1 3 EXITS REQUIRED (3 PROVIDED)

COMMON PATH OF EGRESS TRAVEL : 75'-0"
IBC TABLE 1006.2.1

EXIT TRAVEL DISTANCE: 250'-0"
IBC 1017.2

PLUMBING FIXTURES REQUIRED (PROVIDED) :
IBC TABLE 2902.1

WATER CLOSETS:
MEN: 2 (5)
WOMEN: 2 (4)
TOTAL: 4 (9)

LAVATORIES:
MEN: 1 (3)
WOMEN: 1 (2)
TOTAL: 2 (5)

DRINKING FOUNTAINS: 1 (2)

SERVICE SINK: 1 (2)

THIS PROJECT, AND THE ROUTE TO IT, IS ALREADY ACCESSIBLE TO INDIVIDUALS WITH DISABILITIES PER CURRENT CODE.

SHEET INDEX

NO.	NAME	REV#
A0.00	TITLE SHEET	
A0.02	LIFE SAFETY PLAN	
A0.21	MOUNTING HEIGHTS	
A0.31	WALL TYPES AND PARTITION DETAILS	
A0.41	SITE PLAN	
A0.42	SITE DETAILS	
A0.51	DEMO FIRST FLOOR PLAN	
A0.52	DEMO MEZZANINE PLAN	
A1.11	FIRST FLOOR PLAN	
A1.11A	EAST ENLARGED PLAN	
A1.11B	WEST ENLARGED PLANS	
A1.12	MEZZANINE PLAN	
A1.13	ROOF PLAN	
A1.21	1ST FLOOR REFLECTED CEILING PLAN	
A1.31	FIRST FLOOR FINISH PLAN	
A1.40	ROOM FINISH SCHEDULE & DETAILS	
A1.51	EQUIPMENT PLAN & SCHEDULE	
A1.51A	ENLARGED EQUIPMENT PLANS	
A1.51B	ENLARGED EQUIPMENT PLANS	
A2.01	INTERIOR ELEVATIONS AT CAFE	
A2.02	INTERIOR ELEVATIONS AT MEAT & SEAFOOD	
A2.03	INTERIOR ELEVATIONS	
A3.00	DOOR AND WINDOW SCHEDULES	
A4.00	EXTERIOR ELEVATIONS	
A5.00	BUILDING SECTIONS	
A5.10	WALL SECTIONS	
A5.20	SECTION DETAILS	
S1.00	FOUNDATION PLAN	
S1.12	MEZZANINE FRAMING PLAN	
S1.13	ROOF FRAMING PLAN	
S5.00	NOTES	
S5.10	DETAILS	
S5.20	DETAILS	
P0.00	PLUMBING NOTES, LEGEND, ABBREVIATIONS	
P0.50	UNDERGROUND PLUMBING DEMO PLAN	
P0.51	FIRST FLOOR PLUMBING DEMO PLAN	
P0.52	MEZZANINE PLUMBING DEMO PLAN	
P0.53	ROOF PLUMBING DEMO PLAN	
P1.10	UNDERGROUND PLUMBING PLAN	
P1.11	FIRST FLOOR PLUMBING PLAN	
P1.11A	EAST ENLARGED PLUMBING PLAN	
P1.11B	WEST ENLARGED PLUMBING PLAN	
P1.12	MEZZANINE PLUMBING PLAN	
P1.13	ROOF PLUMBING PLAN	
P8.00	PLUMBING SPECIFICATIONS	
P9.00	WATER & VENT RISER DIAGRAMS	
P9.01	WASTE & VENT RISER DIAGRAMS	
P9.10	DOMESTIC RISER DIAGRAM	
P9.20	GAS RISER DIAGRAM	
M0.00	MECHANICAL NOTES, LEGENDS, ABBREVIATIONS	
M0.51	FIRST FLOOR MECHANICAL DEMO PLAN	
M0.52	MEZZANINE MECHANICAL DEMO PLAN	
M0.53	ROOF MECHANICAL DEMO PLAN	
M1.11	FIRST FLOOR MECHANICAL PLAN	
M1.11A	EAST ENLARGED MECHANICAL PLAN	
M1.11B	WEST ENLARGED MECHANICAL PLAN	
M1.12	MEZZANINE MECHANICAL PLAN	
M1.13	ROOF MECHANICAL PLAN	
M5.00	MECHANICAL DETAILS	
M6.00	HVAC SCHEDULES	
M8.00	MECHANICAL SPECIFICATIONS	

SHEET INDEX

NO.	NAME	REV#
E0.00	ELECTRICAL NOTES, LEGENDS, ABBREVIATIONS	
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E0.52	MEZZANINE ELECTRICAL DEMO PLAN	
E0.53	ROOF ELECTRICAL DEMO PLAN	
E1.11	FIRST FLOOR LIGHTING PLAN	
E1.11A	EAST ENLARGED LIGHTING PLAN	
E1.11B	WEST ENLARGED LIGHTING PLANS	
E1.12	MEZZANINE LIGHTING PLAN	
E1.21	FIRST FLOOR POWER & SYSTEMS PLAN	
E1.21A	EAST ENLARGED POWER & SYSTEMS PLAN	
E1.21B	WEST ENLARGED POWER & SYSTEMS PLAN	
E1.22	MEZZANINE POWER & SYSTEMS PLAN	
E1.23	ROOF POWER & SYSTEMS PLAN	
E5.00	ELECTRICAL DETAILS	
E5.01	ELECTRICAL DETAILS	
E6.00	ELECTRICAL SCHEDULES	
E6.01	ELECTRICAL SCHEDULES	
E6.02	ELECTRICAL SCHEDULES	
E6.03	ELECTRICAL SCHEDULE	
E7.00	ELECTRICAL RISER DIAGRAM	
E8.00	ELECTRICAL SPECIFICATIONS	
E8.01	ELECTRICAL SPECIFICATIONS	
1	KITCHEN HOOD SCHEDULES	
2	KITCHEN HOOD PLAN	
3	KITCHEN HOOD SECTIONS	
4	KITCHEN HOOD SECTIONS	
5	KITCHEN FIRE SUPPRESSION	
6	KITCHEN HOOD DRAWINGS	
7	KITCHEN HOOD SCHEDULES	
8	KITCHEN EXHAUST DRAWINGS	
9	KITCHEN EXHAUST DRAWINGS	
10	KITCHEN MAKEUP AIR UNIT DRAWINGS	
11	KITCHEN EXHAUST DIAGRAMS	
12	KITCHEN EXHAUST DIAGRAMS	
13	KITCHEN ELECTRICAL DIAGRAMS	
14	KITCHEN ELECTRICAL DIAGRAMS	
15	KITCHEN ELECTRICAL DIAGRAMS	
16	KITCHEN ELECTRICAL DIAGRAMS	
17	KITCHEN ELECTRICAL DIAGRAMS	
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19	KITCHEN VENTILATION CONTROL PANEL	
20	KITCHEN DUCTWORK SCHEDULES	
21	KITCHEN DUCTWORK SPECIFICATIONS	
22	KITCHEN DUCTWORK DRAWINGS	
23	KITCHEN DUCTWORK DRAWINGS	
24	KITCHEN DUCTWORK DRAWINGS	
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GENERAL NOTES

1. ALL CONSTRUCTION WORK SHALL BE DONE IN STRICT COMPLIANCE W/ THE ADA AND THE LATEST EDITION OF THE STANDARD BUILDING CODE AS AMENDED BY THE APPLICABLE STATE, AND ALL OTHER CODES AND BUILDING REQUIREMENTS WHICH APPLY, AS WELL AS, MEET ALL APPLICABLE STANDARDS. IN INSTANCES WHERE SEVERAL DIFFERENT STANDARDS ARE APPLICABLE, THE STRICTEST STANDARD SHALL APPLY UNLESS PROHIBITED BY APPLICABLE CODES.
2. GENERAL CONTRACTOR TO SUPPLY ALL SUBCONTRACTORS WITH A FULL SET OF CONSTRUCTION DOCUMENTS. ALL ADDITIONAL DRAWINGS AND SPECIFICATIONS REQUIRED FOR PERMITS TO BE SUPPLIED BY CONTRACTOR AND SUBCONTRACTORS.
3. GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO STARTING WORK. THE GENERAL CONTRACTOR IS TO VERIFY EXISTENCE OF ASBESTOS-CONTAINING MATERIAL (ACM) AND IS RESPONSIBLE FOR REMOVAL OF SUBSTANCE. GENERAL CONTRACTOR REPRESENTS THAT CONTRACTOR AND ITS EMPLOYEES ARE QUALIFIED IN ASBESTOS REMOVAL WITH FULL KNOWLEDGE OF, AND COMPLIANCE WITH, ALL APPLICABLE FEDERAL, STATE, AND LOCAL RULES, REGULATIONS, AND GUIDELINES GOVERNING ASBESTOS REMOVAL. CONTRACTOR MUST FURNISH ALL PERMITS, LABOR, MATERIAL, SERVICES, INSURANCE, TOOLS, EQUIPMENT, AND NOTIFICATIONS IN ACCORDANCE WITH EPA, OSHA, STATE, AND ALL OTHER APPLICABLE AGENCIES TO COMPLETE REMOVAL OF ACM.
4. BIDDING CONTRACTORS AND SUBCONTRACTORS SHALL CAREFULLY EXAMINE THE SITE AND THE APPLICABLE CONSTRUCTION DOCUMENTS. DISCREPANCIES IN THE EXISTING FIELD CONDITIONS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE SUBMISSION OF THE BID. FAILURE TO DO SO ON THE PART OF THE CONTRACTOR DOES NOT RELIEVE SAID CONTRACTOR OF THE RESPONSIBILITY TO PROVIDE A CORRECT AND FINISHED PRODUCT.
5. THE GENERAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL CONSTRUCTION/DEVELOPMENT RELATED FEES, INCLUDING BUT NOT LIMITED TO BUILDING PERMIT FEES, HEALTH DEPARTMENT FEES, SEWER AND WATER TAP FEES, ENVIRONMENTAL IMPACT FEES, ETC. THE SELECTED QUALIFIED BIDDER WILL BE REQUIRED TO PROVIDE A COMPLETE LINE-ITEM LIST OF ALL FEES INCLUDED IN HIS BID AND SUBSTANTIATE HOW HE ARRIVED AT THOSE AMOUNTS.
6. GENERAL CONTRACTOR SHALL PAY FOR ALL UTILITIES, (INCLUDING TELEPHONE, FAX, AND MODEM LINES) USED DURING THE CONSTRUCTION PERIOD UNTIL SUCH TIME THAT THE OWNER/TENANT TAKES OCCUPANCY.
7. GENERAL CONTRACTOR SHALL PROVIDE AND PAY FOR A DUMPSTER AND TEMPORARY TOILET FACILITIES (IF TOILET FACILITIES ARE NOT ALREADY ON SITE) FOR HIS AND HER SUBCONTRACTORS USE.
8. GENERAL CONTRACTOR SHALL KEEP THE AREA OF WORK FREE OF GARBAGE AND DEBRIS ON A DAILY BASIS.
9. GENERAL CONTRACTOR'S EMPLOYEES AND SUBCONTRACTORS SHALL PICK UP AND DISPOSE OF DEBRIS ON A DAILY BASIS, INCLUDING ALL ACCESS AREAS.
10. OWNER SHALL NOT BE RESPONSIBLE FOR TOOLS OR MATERIALS STOLEN OR DAMAGED ON SITE.
11. UPON THE COMPLETION OF WORK, GENERAL CONTRACTOR SHALL THOROUGHLY CLEAN THE PREMISES AND WASH THE INSIDE & OUTSIDE OF ALL WINDOWS SO THAT THE SPACE IS READY FOR OCCUPANCY BY OWNER/TENANT. THIS INCLUDES VACUUMING, SWEEPING, DUSTING, AND PICKING UP ALL THE TRASH AND DEBRIS LEFT FROM CONSTRUCTION.
12. GENERAL CONTRACTOR SHALL WARRANTY ALL PARTS, LABOR, EQUIPMENT AND MATERIAL PROVIDED UNDER THIS CONTRACT FOR A MINIMUM PERIOD OF ONE (1) YEAR, OR AS REQUIRED BY LAW, WHICHEVER IS GREATER.
13. NO SUBSTITUTIONS ARE ALLOWED FOR PRODUCTS WITH A SPECIFIC MANUFACTURER AND MODEL NUMBER UNLESS APPROVED BY OWNER AND ARCHITECT.
14. SUBMIT ANY SHOP DRAWINGS FOR REVIEW BY GENERAL CONTRACTOR FIRST THEN ARCHITECT SECOND.
15. GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES SUCH AS: SANITARY AND STORM SEWER, WATER, NATURAL GAS AND ELECTRICAL LINES. CONTRACTOR SHALL VERIFY EXISTING ELECTRICAL SERVICE AND SHALL PROVIDE ADDITIONAL SERVICE AS REQUIRED.
16. MATERIALS SPECIFIED BY THEIR BRAND NAMES ARE TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE. REQUESTS FOR SUBSTITUTION SHALL BE SUBMITTED FOR APPROVAL TO OWNER AND ARCHITECT.
17. ALL WORK LISTED, SHOWN OR IMPLIED ON THE CONSTRUCTION DOCUMENTS SHALL BE SUPPLIED AND INSTALLED BY THE GENERAL CONTRACTOR EXCEPT WHERE OTHERWISE NOTED. THE GENERAL CONTRACTOR SHALL CLOSELY COORDINATE HIS WORK WITH THAT OF OTHER CONTRACTORS OR VENDORS TO ASSURE THAT ALL SCHEDULES ARE MET AND THAT ALL WORK IS DONE IN CONFORMANCE TO MANUFACTURER REQUIREMENTS.
18. DETAILS ARE INTENDED TO SHOW THE INTENT OF THE DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT THE FIELD DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS A PART OF THE WORK OF THE CONTRACTOR.
19. ALL WOOD TRIM OR OTHER PRE FINISHED ITEMS SHALL BE TRIMMED TO FIT AND RAW EXPOSED SURFACES SHALL BE STAINED AND FINISHED TO MATCH.
20. ALL DIMENSIONS ARE TO THE FACE OF GYPSUM BOARD (U.N.O.) OR FINISHED MATERIAL OR CENTER LINE OF OBJECT AS SPECIFICALLY NOTED. CONTRACTOR IS RESPONSIBLE FOR LOCATING STUD WALLS ACCORDINGLY.
21. ALL WOOD BLOCKING AND BACKING MATERIALS SHALL BE FIRE RETARDANT TREATED WHEN REQUIRED BY CODE.
22. ALL FINISH MATERIALS SHALL BE CLASS A FLAME SPREAD RATED IN PUBLIC AREAS.
23. GENERAL CONTRACTOR ACCEPTS DELIVERIES OF ALL ITEMS NOTED ON PLANS, WHETHER OR NOT IN CONTRACT, AND IS RESPONSIBLE FOR THE LOSS/DAMAGE OF THESE ITEMS. ADDITIONALLY, GENERAL CONTRACTOR IS TO RECEIVE, UNPACK, INSPECT AND VERIFY QUANTITY, AND CONDITION OF FOIC ITEMS. CONTRACTOR IS TO NOTIFY OWNER OF ANY DISCREPANCIES IN QUANTITY, AND MATERIAL DAMAGE. FAILURE TO DO SO PLACES RESPONSIBILITY FOR ALL ITEMS ON THE GENERAL CONTRACTOR.
24. UPON COMPLETION OF WORK, GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE RETURN OF ALL MASTER KEY ORIGINALS OR SHALL PAY EXPENSES REQUIRED TO RE-KEY BUILDING.
25. ALL FINISH MATERIALS TO BE PER FINISH SCHEDULE.
26. GIVE ALL SURPLUS PAINT MATERIALS TO OWNER/OWNER/TENANT. DO NOT POUR PAINT DOWN DRAIN, CATCH BASINS, OR IN LANDSCAPING.
27. ALL GYPSUM WALL BOARD TO BE MIN. OF 5/8" THICK AND SHALL BE SCREWED TO MIN. 2 1/2" METAL STUDS OR 1 1/2" METAL FURRING @ 24" O.C.,. ALL GWB SURFACES TO BE PAINTED SHALL BE TAPED AND SANDED TO A LEVEL 5 FINISH PER ASTM C-840 AND FREE OF ANY DEFECTS PRIOR TO PAINT APPLICATION. ALL GWB SURFACES THAT SHALL BE CONCEALED BEHIND PANELS OR ABOVE THE CEILING SHALL BE LEVEL 2 PER ASTM C-840.
28. APPLICATION OF MATERIALS BY A SUBCONTRACTOR TO EXISTING SURFACES OR PROVIDED UNDER THIS CONTRACT, SHALL IMPLY ACCEPTANCE AND SUITABILITY OF EXISTING CONDITIONS. SUCH SUBCONTRACTOR SHALL BE HELD RESPONSIBLE FOR DAMAGE AND IRREGULARITIES TO HIS WORK PRODUCT AS A RESULT OF PREVIOUS CONDITIONS.
29. INSTALL INSULATION IN WALLS U.N.O. ALL THERMAL INSULATION SHALL COMPLY WITH STANDARD BUILDING CODE. AS A MINIMUM, VAPOR BARRIERS SHALL HAVE A FLAME-SPREAD RATING NOT TO EXCEED 25 AND A SMOKE DEVELOPMENT NOT TO EXCEED 450 OR BETTER AS REQUIRE BY CODE. OCCUPANCY AND CONSTRUCTION TYPE. ONE PERM VAPOR BARRIERS SHALL BE INSTALLED ON THE WARM SIDE IN ALL WALLS AND CEILINGS AS REQUIRED.
30. PROVIDE DRAFT/FIRE STOPS AS REQUIRED BY GOVERNING CODES AND OFFICIALS.
31. GENERAL CONTRACTOR TO PROVIDE MECHANICAL AND ELECTRICAL AS-BUILTS, ALL WARRANTIES, AND OPERATING MANUALS, TO LANDLORD, OWNER/TENANT WITHIN TWO (2) WEEKS OF COMPLETION OF WORK.
32. PLUMBING, ELECTRICAL, AND HVAC SUBCONTRACTORS SHALL BE CITY AND STATE LICENSED. THE ABOVE SUBCONTRACTORS SHALL OBTAIN THEIR OWN PERMITS.
33. PROVIDE SMOKE DETECTORS, FIRE SPRINKLER SYSTEMS, AND FIRE EXTINGUISHERS PER LOCAL FIRE MARSHAL'S AND CODE REQUIREMENTS.
34. PROVIDE AND INSTALL ALL REQUIRED CEILING MOUNTED EXIT SIGNS ABOVE ALL REQUIRED EXITS.
35. ALL FURNITURE, FIXTURES, EQUIPMENT ARE TO BE PROVIDED BY THE OWNER/TENANT UNLESS NOTED.
36. PROVIDE ALL "HANDICAP" RELATED SIGNAGE AS REQUIRED PER APPLICABLE CODES AND LAWS.

MADISEN MAHER

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133 W. PITTSBURGH AVE, SUITE 102
MILWAUKEE, WI 53204
P: 414.277.8000
MADISENMAHER.COM

PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT
ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE THE PROPERTY OF MADISEN MAHER ARCHITECTS, WHETHER THE WORK FOR WHICH THEY ARE MADE BE EXECUTED OR NOT AND ARE NOT TO BE USED OR COPIED ON OTHER WORK EXCEPT BY WRITEN AGREEMENT WITH MADISEN MAHER ARCHITECTS.

DATE	REV	ISSUE
08/28/23	#	PROJECT START
09/29/23		SD | PLAN COMMISSION
10/12/23		PLAN COMMISSION COMMENTS
10/19/23		SD | PLAN COMMISSION
11/06/23		DD | PROGRESS
11/20/23		DD | OWNER REVIEW SET
12/21/23		DD | PROGRESS
01/29/24		CD | LANDLORD REVIEW SET
02/08/24		CD | PERMIT & BID SET

PROJECT NUMBER	23-044
START DATE	08/28/23
DRAWN BY	JS
CHECKED BY	SM

PERMIT & BID SET

TITLE SHEET

A0.00

2/8/2024 11:22:20 AM

LIFE SAFETY LEGEND

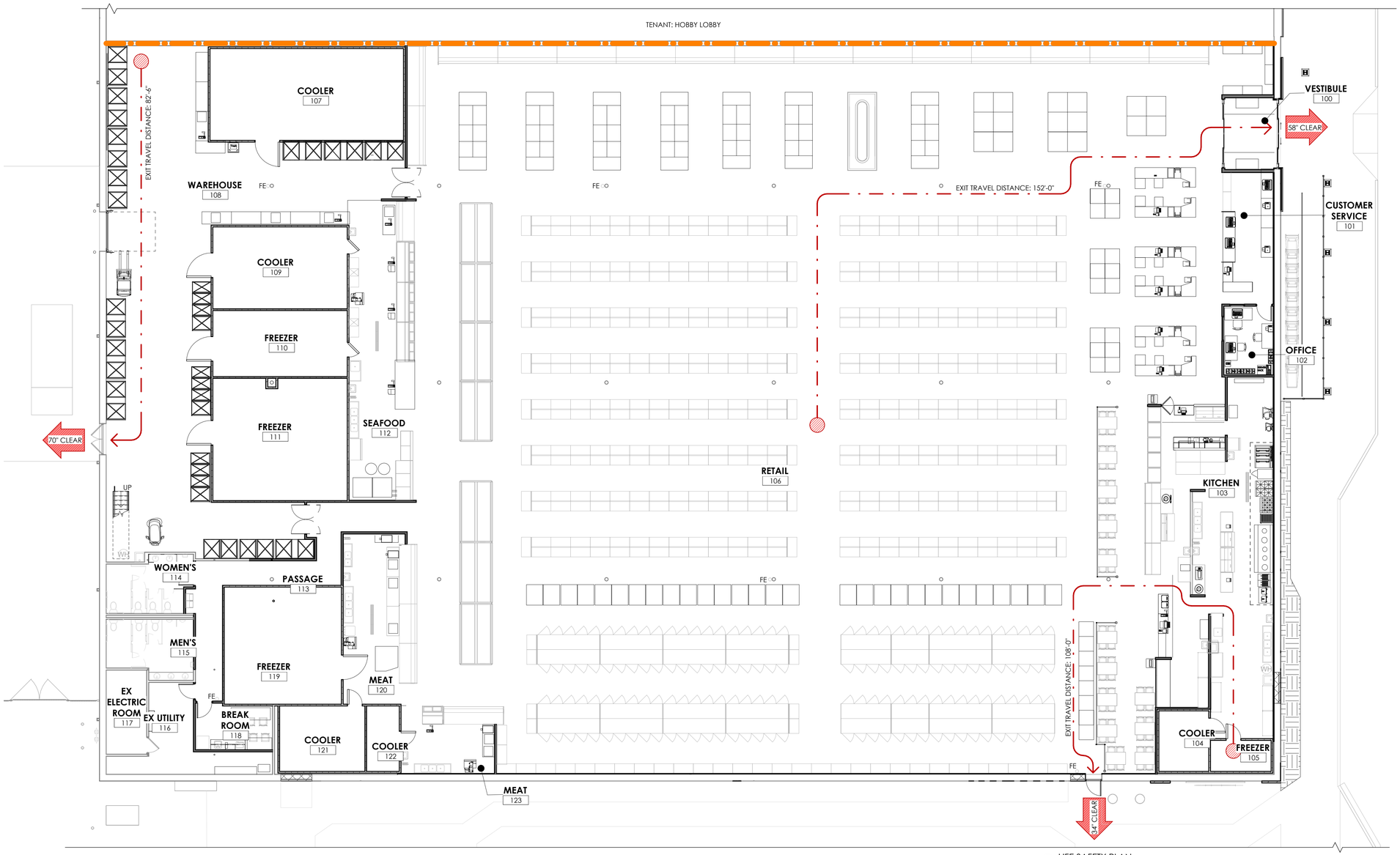
UNENCLOSED STAIRWAY

FE — FIRE EXTINGUISHER (FE)

LOCATION INCLUDING 75'-0" RADIUSED COVERAGE AREA

X" CLEAR — EXIT DISCHARGE
X = CLEAR WIDTH OF OPENING IN INCHES

1 HOUR FIRE RATED PARTITION



1 LIFE SAFETY PLAN
3/32" = 1'-0"

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01/29/24		CD | LANDLORD REVIEW SET
02/08/24		CD | PERMIT & BID SET

PROJECT NUMBER	23-044
START DATE	08/28/23
DRAWN BY	JS
CHECKED BY	SM

PERMIT & BID SET

LIFE SAFETY PLAN

A0.02

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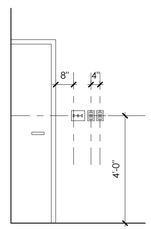
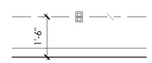
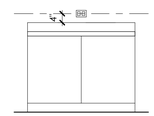


LIGHT SWITCHES



ELECTRICAL OUTLET



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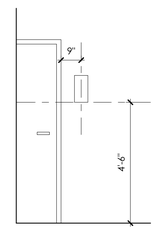
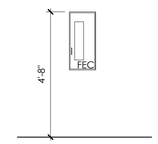
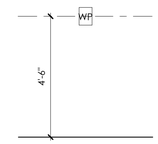


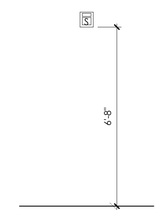
ROOM SIGN, TYP.



FIRE EXTINGUISHER CABINET



WALL PHONE



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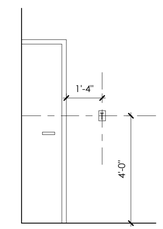
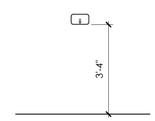
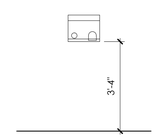


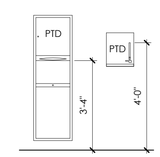
THERMOSTAT



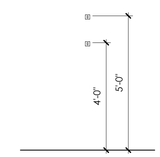
SURFACE-MOUNT SOAP DISPENSER



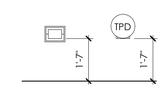
HAND DRYER



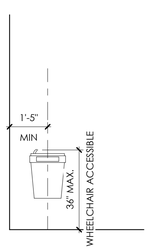
PAPER TOWEL DISPENSER



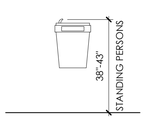
COAT HOOKS



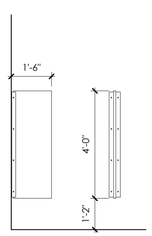
TOILET PAPER DISPENSER



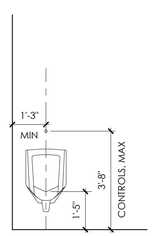
ELECTRIC WATER COOLER, ADA



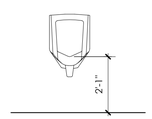
ELECTRIC WATER COOLER, TYP



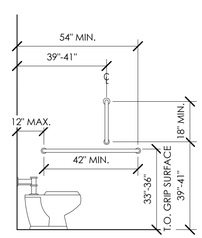
URINAL SCREEN



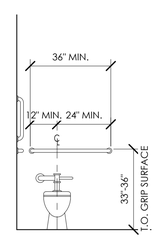
WALL-MOUNT URINAL, ADA

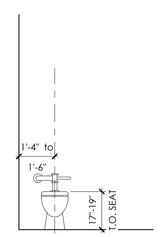


WALL-MOUNT URINAL



TOILET GRAB BARS, ADA





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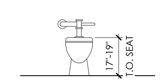

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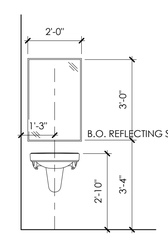
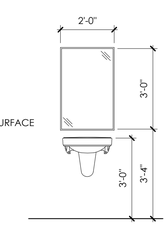


SINK, ADA AND MIRROR



SINK, TYP. AND MIRROR

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02/08/24		CD | PERMIT & BID SET

PROJECT NUMBER	23-044
START DATE	08/28/23
DRAWN BY	JS
CHECKED BY	SM

MOUNTING HEIGHTS

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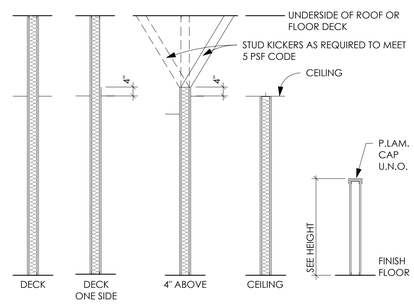
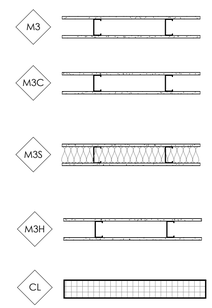
PARTITION KEY



WALL TYPES



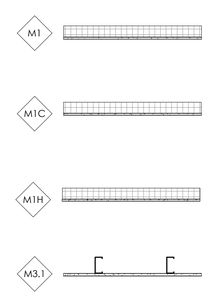
INTERIOR PARTITION
5/8" GWB EACH SIDE OF 3-5/8" METAL STUDS AT 16" O.C.

INTERIOR PARTITION - CEILING
5/8" GWB EACH SIDE OF 3-5/8" METAL STUDS AT 16" O.C. EXTEND PARTITION TO 4" ABOVE FINISH CEILING

INTERIOR SOUND PARTITION
5/8" GWB EACH SIDE OF 3-5/8" METAL STUDS AT 16" O.C. FILL VOIDS WITH SOUND BATT INSULATION

INTERIOR HALF HEIGHT PARTITION
5/8" GWB EACH SIDE OF 3-5/8" METAL STUDS AT 16" O.C.
EXTEND PARTITION TO HEIGHT NOTED ON PLAN & INTERIOR ELEVATIONS

COOLER/FREEZER WALL
4" INSULATED COOLER PANELS
BY OTHERS

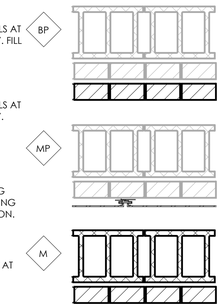


INTERIOR FURRING
1/2" GWB OVER 1 1/2" Z FURRING CHANNELS AT 16" O.C. ATTACHED TO EXISTING MASONRY. FILL VOIDS WITH RIGID INSULATION.
SEE FINISH PLAN FOR FINISH LAYER.

INTERIOR FURRING - CEILING
1/2" GWB OVER 1 1/2" Z FURRING CHANNELS AT 16" O.C. ATTACHED TO EXISTING MASONRY. EXTEND TO 4" ABOVE FINISH CEILING
SEE FINISH PLAN FOR FINISH LAYER.

INTERIOR FURRING AT HOOD
1/2" CEMENT BOARD OVER 1 1/2" Z FURRING CHANNELS AT 16" O.C. ATTACHED TO EXISTING MASONRY. FILL VOIDS WITH RIGID INSULATION.
SEE FINISH PLAN FOR FINISH LAYER.

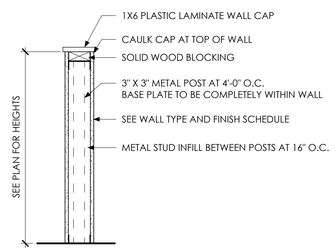
INTERIOR FURRING
5/8" GWB ONE SIDE OF 3-5/8" METAL STUDS AT 16" O.C.



BRICK OVER EXISTING MASONRY
NEW BRICK WITH 1" AIR GAP ATTACHED TO EXISTING MASONRY WALL. SEE SECTION 2/A5.10
BRICK, MORTAR, AND JOINT TOOLING TO MATCH EXISTING.

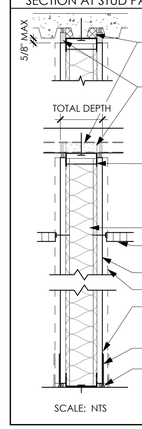
METAL PANEL OVER EXISTING MASONRY
METAL PANEL & CLIP SYSTEM ATTACHED TO EXISTING BRICK VENEER

MASONRY INFILL
BRICK WITH 1" AIR GAP ATTACHED TO 12" INSULATED CMU.
BRICK, MORTAR, AND JOINT TOOLING TO MATCH EXISTING.



1 BRACING AT HALF HEIGHT PARTITIONS
1" = 1'-0"

SECTION AT STUD PARTITION



AT RATED PARTITIONS: INSTALL FIRESTOPPING JOINT AS FOLLOWS: FLUTED METAL DECK CONDITIONS: UL JOINT # HW-D-0101. AT FLAT CONCRETE DECK CONDITIONS: UL JOINT # HW-D-0106.

AT NON-RATED PARTITIONS: INSTALL PRE-FORMED COMPRESSABLE FOAM OR PRE-FORMED MINERAL WOOL AT FLUTED METAL DECK CONDITIONS. PAINT TO MATCH ADJACENT

FULL HEIGHT: ATTACH 3" DEEP METAL DEFLECTION TRACK TO STRUCTURAL CEILING. HOLD STUDS AND GWB 5/8" BELOW STRUCTURAL CEIL'G. HOLD GWB ANCHORAGES 4" BELOW STRUCTURAL CEILING TO FACILITATE SLIP-JOINT ACTION.

BATT INSULATION.

CEILING. SEE REFLECTED CEILING PLAN FOR DETAILS.

ONE LAYER 5/8" GWB

TWO LAYERS 5/8" GWB

TAPERED EDGE OF GWB SHALL NOT BE INSTALLED ALONG BOTTOM EDGE. BOTTOM EDGE MUST BE FINISHED FLUSH TO RECEIVE WALL BASE.

WALL BASE. SEE ROOM FINISH SCHEDULE.

HOLD GWB 3/8" FROM FLOOR @ SILL CONDITION.
RATED PARTITIONS: PROVIDE PERIMETER SEALANT AT FLOOR AND CEILING TERMINATIONS AND AT ALL PENETRATIONS.

SCALE: NTS

STUD PARTITION NOTES (SEE WALL TYPE ABOVE)

1. **PROVIDE TYPE-X GYPSUM BOARD AT ALL FIRE RATED PARTITIONS.**
2. PROVIDE 25 GAUGE METAL STUDS AND ACCESSORIES AT ALL TYPICAL 3-5/8" PARTITIONS LESS THAN 13'-6" TALL.
3. PROVIDE 20 GAUGE METAL STUDS AND ACCESSORIES AT ALL 3-5/8" PARTITIONS 13'-6" TALL OR GREATER.
4. PROVIDE MOISTURE RESISTANT DRYWALL AT ALL GWB SURFACES WITHIN 6'-0" OF PLUMBING FIXTURES.
5. PROVIDE CEMENT BOARD AT ALL GWB SURFACES TO RECEIVE CERAMIC TILE, INCLUDING FLOOR BASE.
6. INSTALLATION OF ALL TYPES OF GYPSUM BOARD SHALL CONFORM TO REQUIREMENTS FOR FIRE RATINGS AND ACOUSTICAL RATINGS.
7. TYPICAL FLOOR PLAN DIMENSIONS OF PARTITIONS ARE TO THE FACE OF OUTERMOST LAYER OF GYPSUM BOARD UNLESS NOTED TO CENTERLINE OF PARTITION.
8. INSTALL SOLID WOOD BLOCKING FOR THE ATTACHMENT OF ALL WALL HUNG ITEMS OR EQUIPMENT DESCRIBED IN THE DOCUMENTS, WHETHER CONTRACTOR FURNISHED OR OWNER FURNISHED.
9. COORDINATE WITH OWNER THE LOCATION OF BLOCKING FOR OWNER SUPPLIED ITEMS.
10. INTERIOR WALLS AND PARTITIONS THAT EXCEED 6 FEET IN HEIGHT, INCLUDING THEIR FINISH MATERIALS, SHALL HAVE ADEQUATE STRENGTH TO RESIST THE LOADS TO WHICH THEY ARE SUBJECTED **BUT NOT LESS THAN A HORIZONTAL LOAD OF 5 PSF**.
11. MAXIMUM DEFLECTIONS FOR STUDS BACKING UP EXTERIOR BUILDING SKIN MATERIALS SHALL BE LIMITED TO THE FOLLOWING: BRICK / STONE L/600; EIFS / STUCCO L/360; METAL PANELS / WOOD SIDING L/240
12. PARTITION DETAILS DESCRIBE GENERAL REQUIREMENTS FOR PARTITIONS. REFER TO THE MANUFACTURER'S SPECIFICATIONS AND REQUIREMENTS OF APPLICABLE TESTING AGENCIES FOR SPECIFICS OF PARTITION CONSTRUCTION.
13. ALL PENETRATIONS IN ACOUSTICALLY RATED, FIRE RATED, AND SMOKE RATED PARTITIONS AND CONNECTIONS OF THE PARTITIONS TO OTHER PORTIONS OF THE WORK SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED DETAILS AND IN COMPLIANCE WITH APPLICABLE TESTING AGENCY REQUIREMENTS.
14. **UNLESS OTHERWISE INDICATED, PARTITIONS SHALL EXTEND TO UNDERSIDE OF ROOF OR FLOOR DECK ABOVE.**
15. WHERE A CLEAR DIMENSION OR OPENING IS REQUIRED OR NOTED, MEASURE DIMENSION TO FACE OF PARTITION FINISH.
16. WHERE PARTITIONS AND/OR FURRING MEET, MAINTAIN SURFACES FLUSH AND PLUMB.
17. PROVIDE 4 MIL VAPOR BARRIER AND 3-1/2" FIBERGLASS BATT INSULATION AT FURRING AT EXTERIOR WALL.
18. **PROVIDE GWB VERTICAL CONTROL JOINTS AT 30'-0" O.C. MAX**
19. ALL PENETRATIONS THROUGH RATED ASSEMBLIES (WALLS, FLOORS) SHALL BE DONE WITH LISTED PRODUCTS OR SLEEVES EQUAL TO OR GREATER THAN THE ASSEMBLY PENETRATED. A COPY OF THE LISTED PRODUCTS SHALL BE MADE AVAILABLE AT TIME OF INSPECTION .
20. ALL RATED WALLS SHALL BE IDENTIFIED ABOVE THE CEILING LINE AS TO THEIR RATING WHEN AND WHERE EXPOSED.

PERMIT & BID SET

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MADISENMAHER.COM

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WEST ALLIS, WI 53214

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DRAWN BY	JS
CHECKED BY	SM

WALL TYPES AND PARTITION DETAILS

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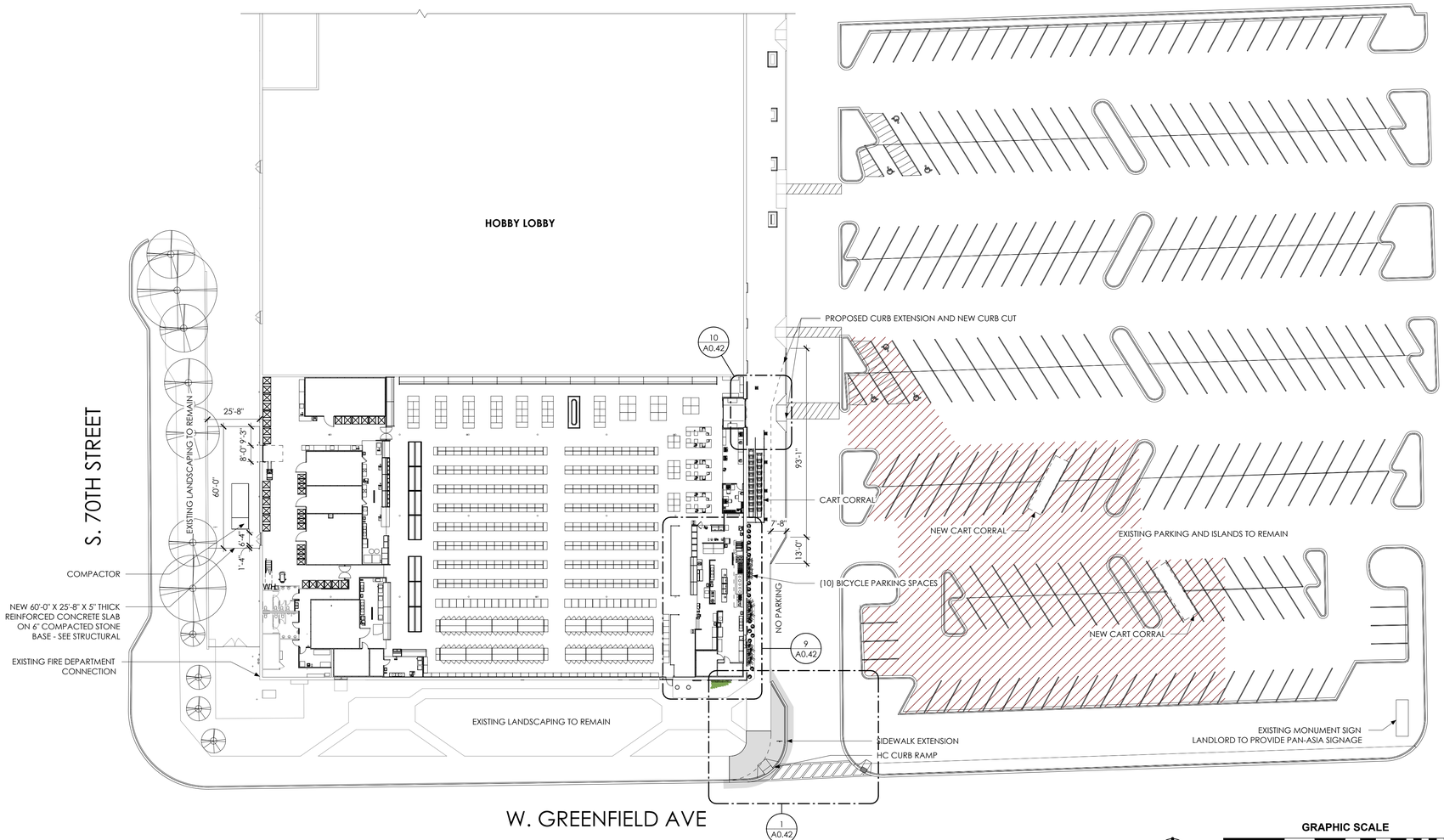
EXISTING SE ENTRANCE SIGNAGE

EXISTING NW ENTRANCE SIGNAGE

POSSIBLE LOCATION FOR NEW PAN-ASIA SIGNAGE

ZONING ANALYSIS

MUNICIPALITY:	WEST ALLIS
ZONING:	C3-PERMITTED USE
PROJECT AREA:	36,000 SF
NUMBER OF EMPLOYEES:	100
PARKING STALLS:	
3 / 1000 SF OF GROSS FLOOR AREA (EXCEPT STORAGE ROOMS)	
24000sf / 1000 x 3 =	72 REQUIRED (3 HANDICAP)
BICYCLE PARKING SPACES:	
1 / 3,000 SF GROSS FLOOR AREA, NOT TO EXCEED 10 SPACES =	10 REQUIRED



1 SITE PLAN
1" = 30'-0"

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02/08/24		CD | PERMIT & BID SET

PROJECT NUMBER	23-044
START DATE	08/28/23
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SITE PLAN

A0.41

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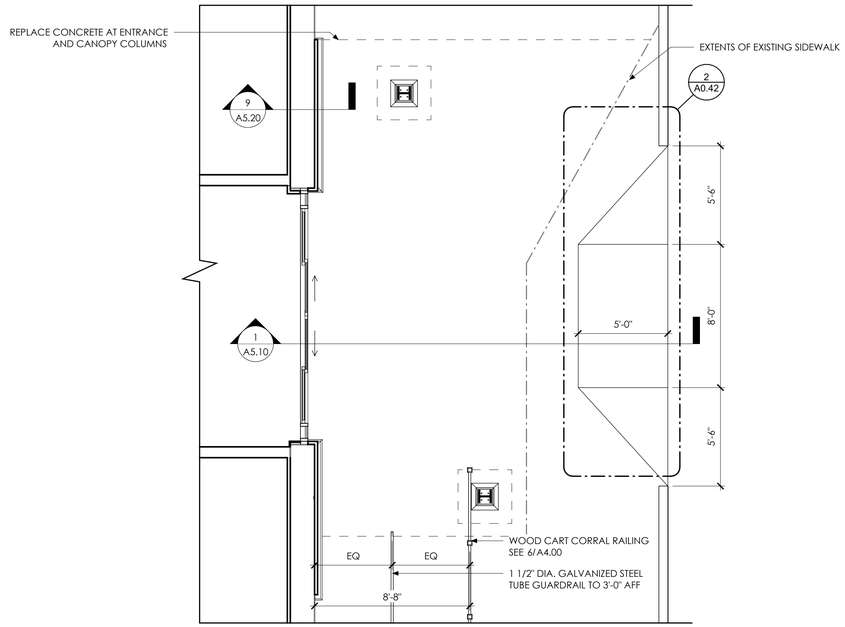
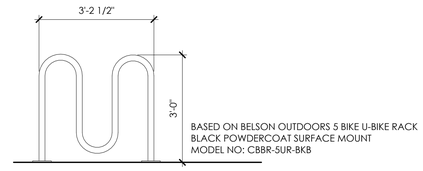
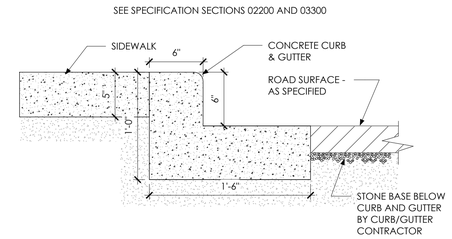


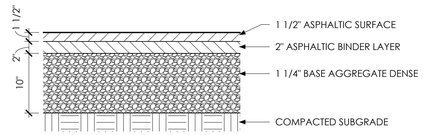
10 ENLARGED PLAN AT ENTRY
1/4" = 1'-0"



7 ELEVATION AT BIKE RACK
1/2" = 1'-0"

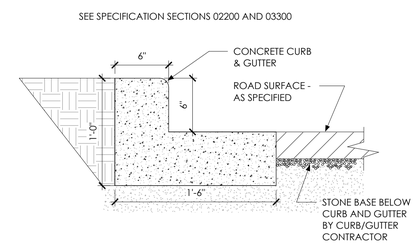


4 CONCRETE CURB DETAIL AT SIDEWALK
1 1/2" = 1'-0"

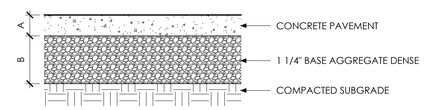


NOTES:
1. ASPHALT TO BE LAID IN TWO PASSES

6 ASPHALT PAVEMENT
1" = 1'-0"

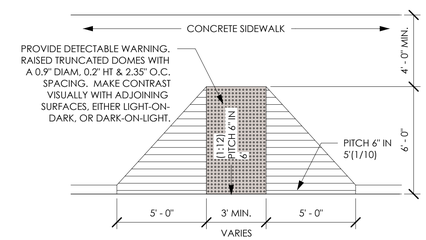


3 CONCRETE CURB DETAIL AT LANDSCAPING
1 1/2" = 1'-0"



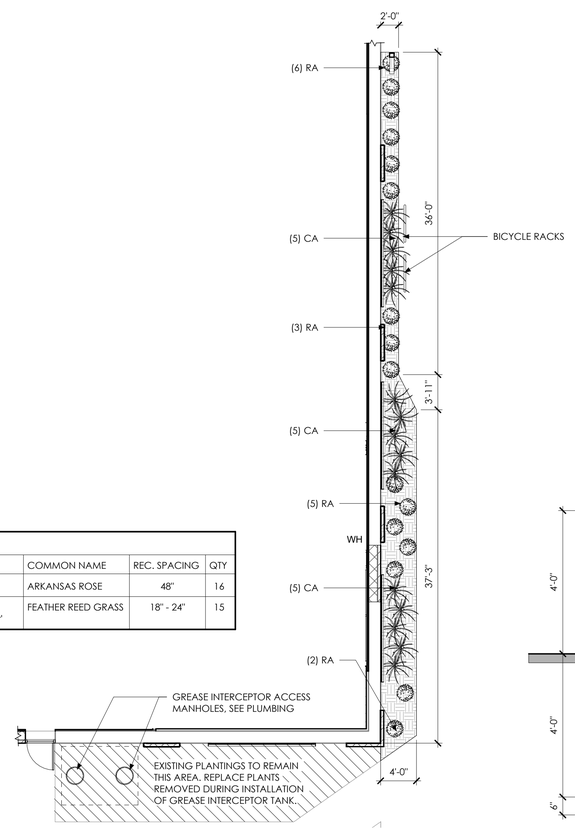
NOTES:
1. STANDARD COLOR CONCRETE
2. MEDIUM BROOM FINISH, PERP. TO DIRECTION OF TRAVEL ON SIDEWALKS
3. PROVIDE EXPANSION JOINTS 30' ALL WAYS, MINIMUM

5 CONCRETE PAVEMENT
1" = 1'-0"

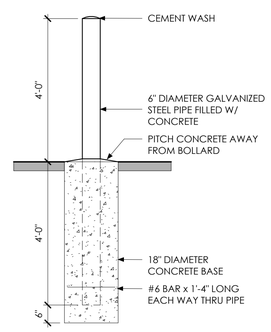


2 SIDEWALK CURB CUT
1/4" = 1'-0"

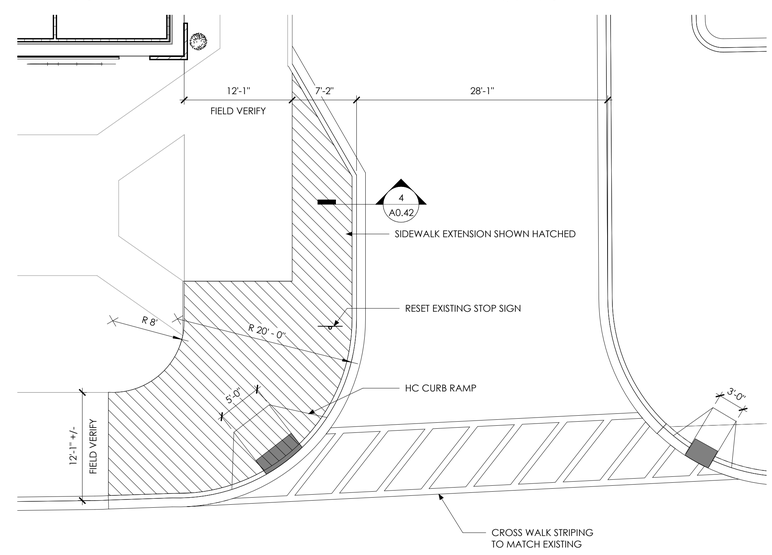
PLANTING SCHEDULE				
	SPECIES	COMMON NAME	REC. SPACING	QTY
RA	Rosa arkansana	ARKANSAS ROSE	48"	16
CA	Calamagrostis x acutiflora 'Karl Foerster'	FEATHER REED GRASS	18" - 24"	15



9 LANDSCAPING PLAN
1/8" = 1'-0"



8 SECTION AT EXTERIOR BOLLARD
1/2" = 1'-0"



1 SIDEWALK EXTENSION PLAN
1/8" = 1'-0"

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SITE DETAILS

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1 DEMO FIRST FLOOR PLAN
1/8" = 1'-0"

PLAN LEGEND

- EXISTING WALL TO REMAIN
- NEW METAL STUD WALL
- EXISTING DOOR TO BE REMOVED
- XXX KEYED NOTE
- 1 REVISION

LANDLORD REQUIREMENTS

1. CONACT LANDLORD FOR DUMPSTER LOCATION.
   A. TYPICALLY LOCATED BEHIND THE TENANT SPACE.
   B. AREA AROUND DUMPSTER MUST BE KEPT CLEAN DAILY. ANY FINES FROM THE MINICIPALITY WILL BE PASSED ONTO THE TENANT.
   C. ALL DUMPSTERS MUST BE PLACED ON 2X OR PLYWOOD BLOCKING.
2. ALL LOUD AND DISRUPTIVE CONSTRUCTION NOISE, SUCH AS SAWCUTTING, IS TO BE DONE ON ADJOINING TENANTS' OFF HOURS. CONSTRUCTION NOISE SHALL NOT BE DISRUPTIVE TO TENANTS OR PATRONS OF THE SHOPPING CENTER.
3. WHEN SAWCUTTING, PROVIDE PROTECTION (SUCH AS PLASTIC SHEETING FROM DECK TO FLOOR) FROM CONSTRUCTION DUST GOING INTO ADJOINING TENANT SPACES.
4. TENANT MUST PAINT BLACK MAST ON WINDOWS DURING CONSTRUCTION. PAPER TAPED TO WINDOWS IS NOT ACCEPTABLE.
5. GC TO IDENTIFY ALL WIRES, LOW VOLTAGE AND ELECTRICAL, RUNNING THROUGH THE CEILING SO THE LANDLORD WIRING FOR LIGHTS, SOUND SYSTEMS AND FIRE ALARM ARE NOT CUT DURING DEMO. ANY REPAIRS NEEDED TO LANDLORD WIRING IS GC/TENANT'S RESPONSIBILITY.
6. BARRICADES ARE REQUIRED FOR ANY FACADE AND STOREFRONT WORK. BARRICADES SHALL NOT IMPEDE PEDESTRIAN TRAFFIC AT THE SHOPPING CENTER, ALLOWING PROPER ADA INGRESS AND EGRESS. BARRICADES AND GRAPHICS ARE TENANT'S EXPENSE.

KEYNOTES-DEMO FIRST FLOOR

D-C-FIN	REMOVE EXISTING GWB CEILING THIS ROOM.
D-CASE	REMOVE EXISTING UPPER/LOWER CABINETS AND COUNTERTOP.
D-CASE-2	REMOVE COUNTERTOP, SAVE SINKS AND FAUCETS FOR REINSTALLATION.
D-DR/F	REMOVE EXISTING DOOR AND FRAME.
D-FLOR-F	REMOVE EXISTING FINISH FLOOR TO BARE CONCRETE, THIS ROOM.
D-FLOR-FZ	REMOVE PORTION OF EXISTING SLAB FOR NEW FREEZER. COORDINATE EXTENTS WITH PLANS.
D-FLOR-P	REMOVE PORTION OF EXISTING CONCRETE SLAB TO INSTALL FUTURE FLOOR DRAINS.
D-FLOR-R	REMOVE EXISTING RAISED FLOOR.
D-MEEZ	REMOVE EXISTING MEZZANINE FRAMING ABOVE, COLUMNS, AND WF BEAMS.
D-SLAB	REMOVE PORTION OF EXISTING SIDEWALK AND BUILDING SLAB FOR NEW ENTRANCE SLABS AND AS REQUIRED FOR COLUMN FOOTINGS.
D-STAIR	REMOVE EXISTING STAIR COMPLETE.
D-TP	REMOVE EXISTING TOILET/URINAL PARTITION.
D-W-F	REMOVE EXISTING FURRING.
D-WALL	REMOVE EXISTING WALL AS INDICATED. PATCH AND FINISH TO MATCH ADJACENT FINISHES. COORDINATE EXTENTS OF DEMOLITION WITH PLANS AND STRUCTURAL DRAWINGS.
D-WALL-O	REMOVE PORTION OF EXISTING WALL FOR NEW OPENING. COORDINATE EXTENTS WITH PLAN AND LINTEL WITH STRUCTURAL IF REQUIRED.
DE-EP	EC TO DETERMINE FUNCTIONALITY OF EXISTING ELECTRIC PANELS AND REMOVE/RELOCATE AS NECESSARY.
DP-FIX	REMOVE PLUMBING FIXTURE. CAP AS REQUIRED PER CODE.
DP-FIX-S	REMOVE EXISTING PLUMBING FIXTURE. SAVE FOR REINSTALLATION.
DS-COL	REMOVE EXISTING COLUMN SUPPORTING MEZZANINE TO BE REMOVED.

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DEMO FIRST FLOOR PLAN

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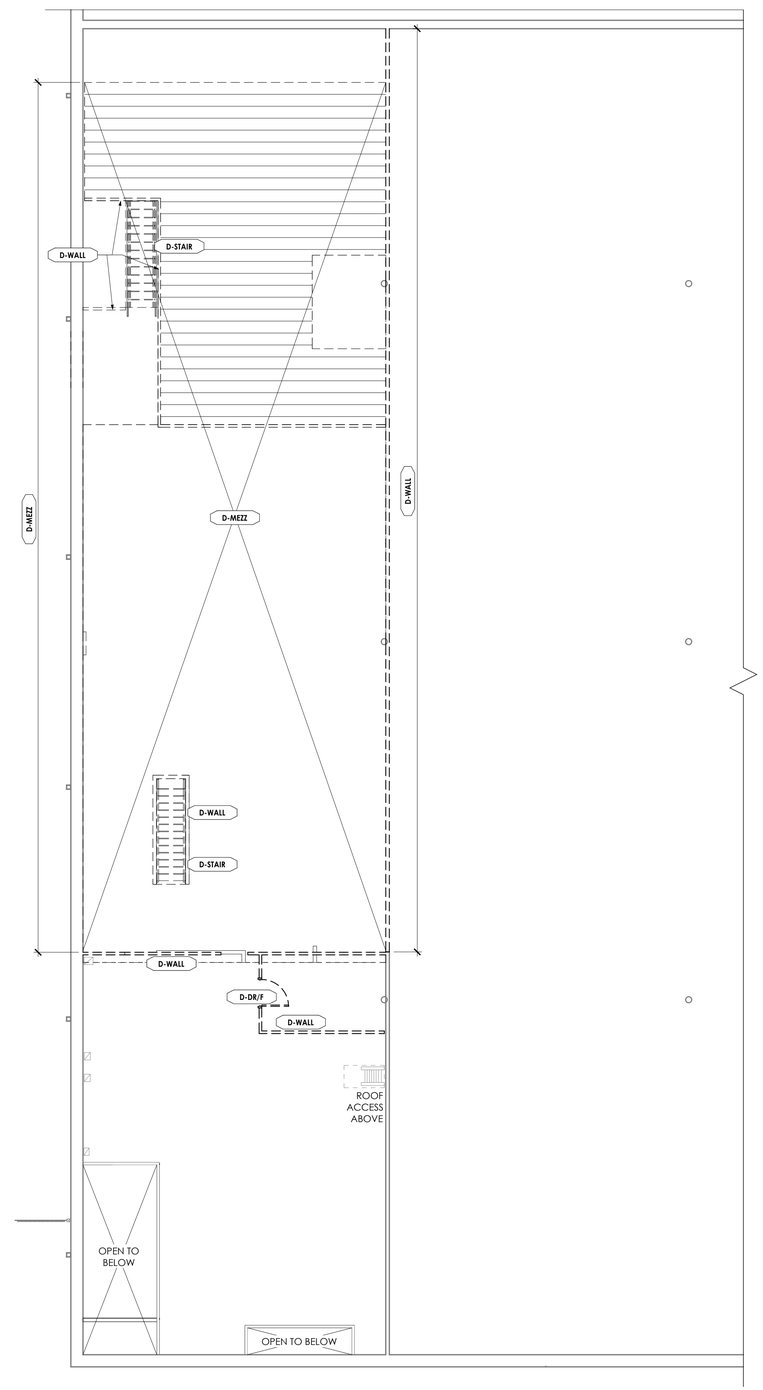

1 DEMO MEZZANINE PLAN
1/8" = 1'-0"

PLAN LEGEND

EXISTING WALL TO REMAIN
NEW METAL STUD WALL
EXISTING DOOR TO BE REMOVED
XXX KEYED NOTE
1 REVISION

KEYNOTES-DEMO MEZZANINE

D-DR/F	REMOVE EXISTING DOOR AND FRAME.
D-MEZZ	REMOVE EXISTING MEZZANINE FRAMING ABOVE, COLUMNS, AND WF BEAMS.
D-STAIR	REMOVE EXISTING STAIR COMPLETE.
D-WALL	REMOVE EXISTING WALL AS INDICATED. PATCH AND FINISH TO MATCH ADJACENT FINISHES. COORDINATE EXTENTS OF DEMOLITION WITH PLANS AND STRUCTURAL DRAWINGS.

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DEMO MEZZANINE PLAN

A0.52

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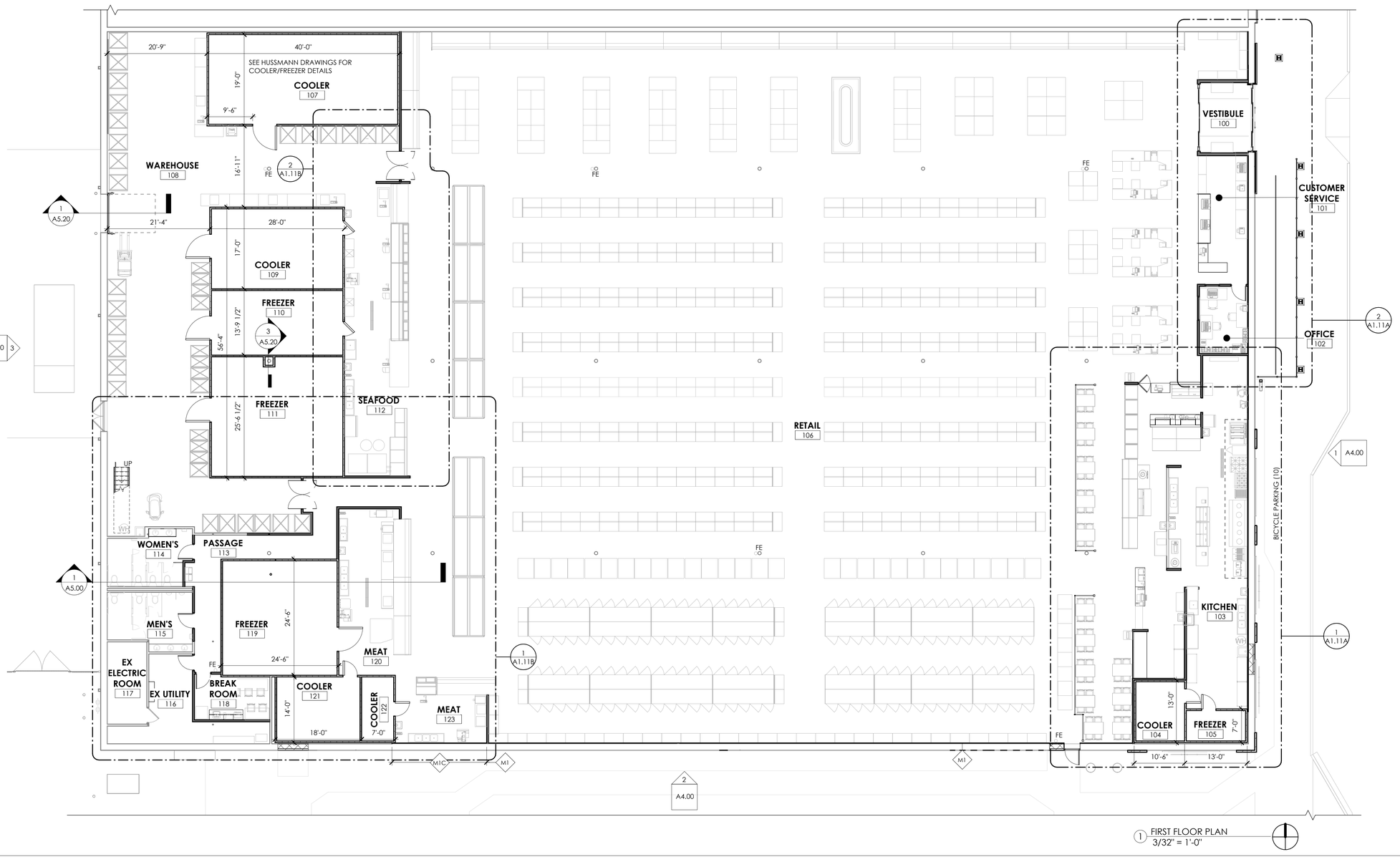

1 FIRST FLOOR PLAN
3/32" = 1'-0"

PLAN LEGEND

- EXISTING WALL
- NEW METAL STUD WALL
- EXISTING DOOR
- NEW DOOR (WITH DOOR TAG) — 101
- WALL TYPE, SEE A0.31 — M1

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FIRST FLOOR PLAN

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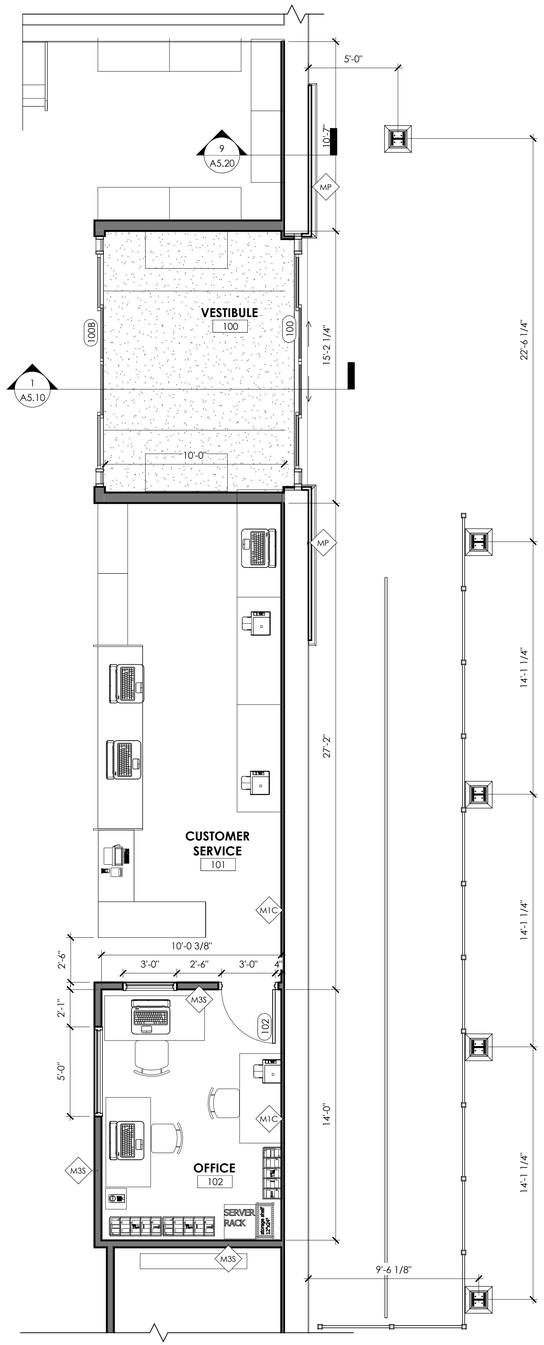
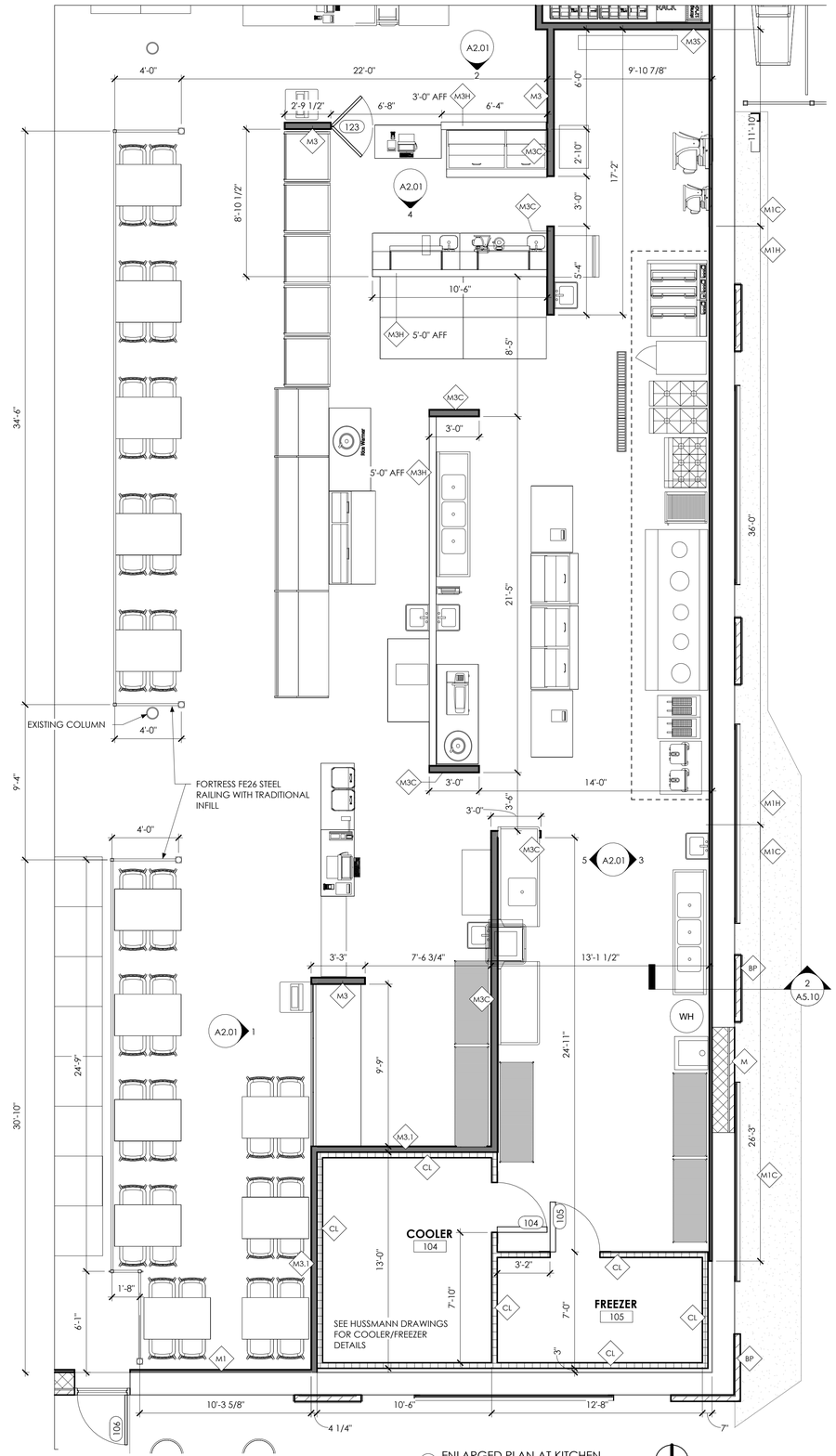


2 ENLARGED PLAN AT ENTRY & CUSTOMER SERVICE
1/4" = 1'-0"



1 ENLARGED PLAN AT KITCHEN
1/4" = 1'-0"

PLAN LEGEND

- EXISTING WALL
- NEW METAL STUD WALL
- EXISTING DOOR
- NEW DOOR (WITH DOOR TAG) — 101
- WALL TYPE, SEE A0.31 — M1

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EAST ENLARGED PLAN

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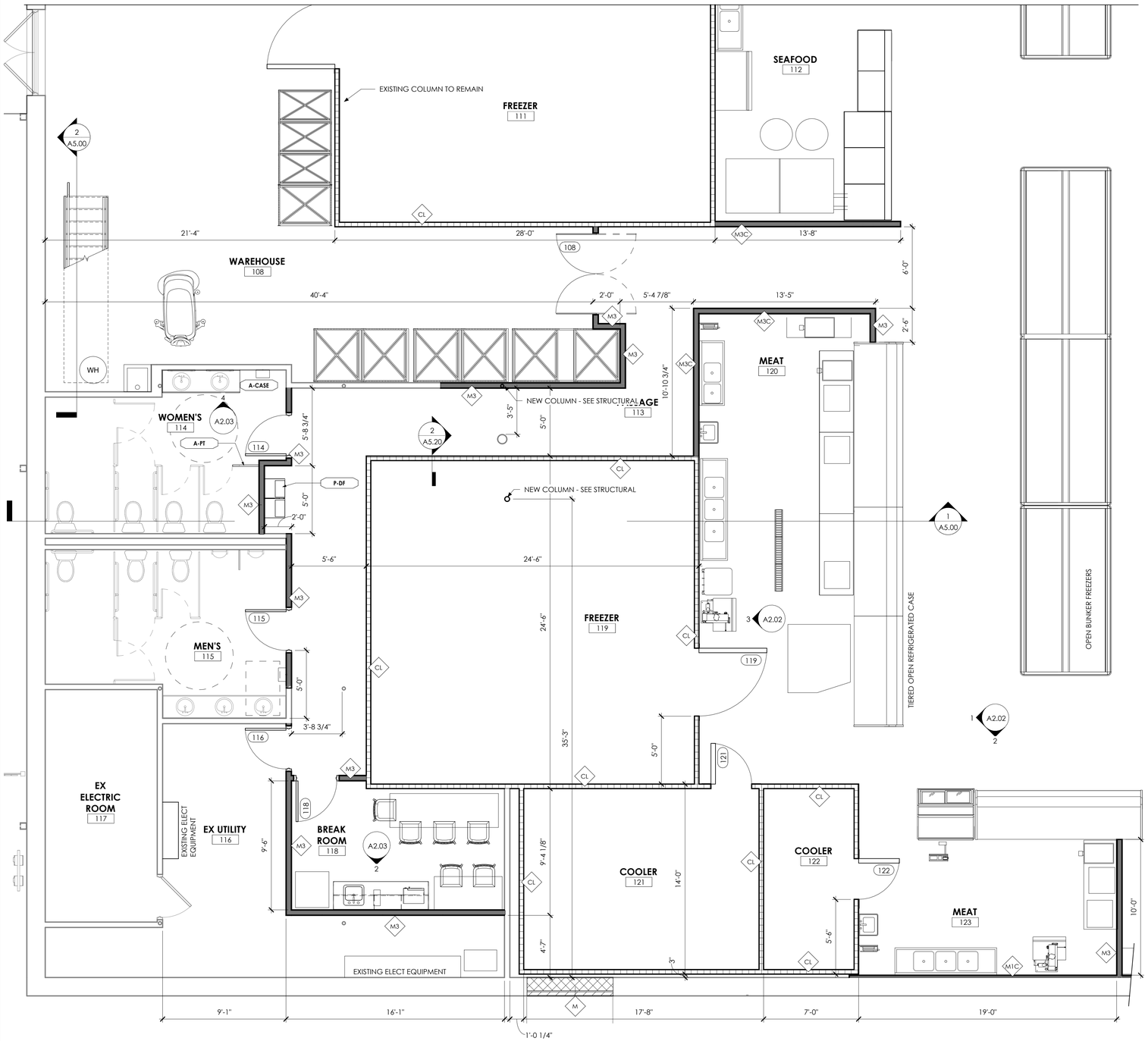
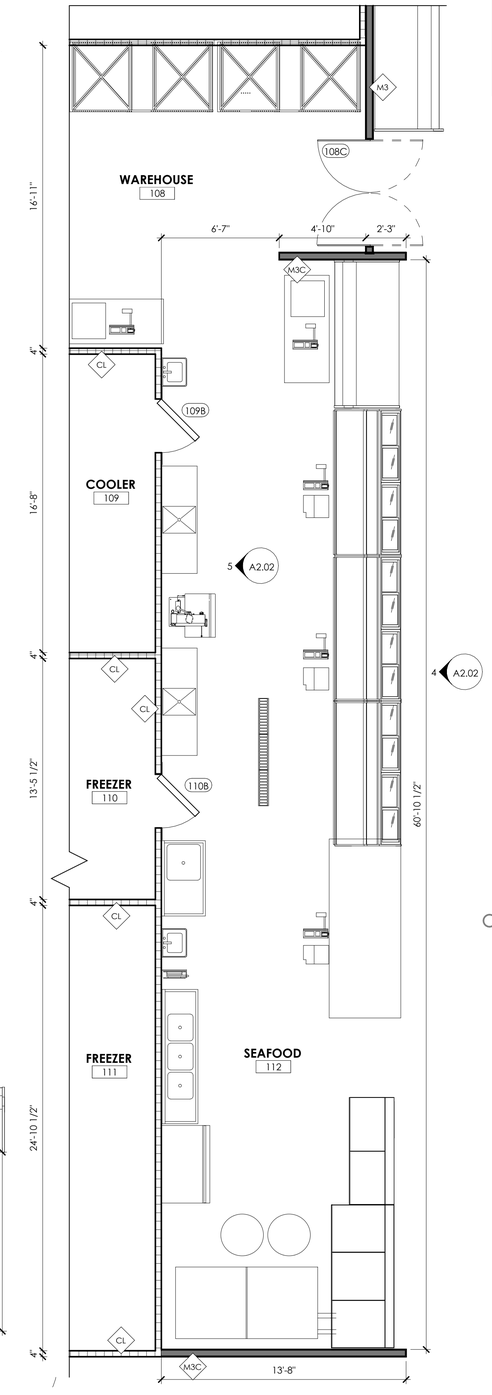


1 ENLARGED PLAN AT MEAT DEPT.
1/4" = 1'-0"



2 ENLARGED PLAN AT SEAFOOD DEPT.
1/4" = 1'-0"

PLAN LEGEND

- EXISTING WALL
- NEW METAL STUD WALL
- EXISTING DOOR
- NEW DOOR (WITH DOOR TAG) — 101
- WALL TYPE, SEE A0.31 — M1

KEYNOTES-FIRST FLOOR PLAN WEST

A-CASE	FURNISH & INSTALL NEW SOLID SURFACE COUNTERTOP. REINSTALL TWO UNDERMOUNT SINKS AND FAUCETS SAVED DURING DEMO.
A-PT	FURNISH & INSTALL NEW TOILET PARTITION PANEL TO MATCH EXISTING.
P-DF	REINSTALL DRINKING FOUNTAINS REMOVED DURING DEMO.

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WEST ENLARGED PLANS

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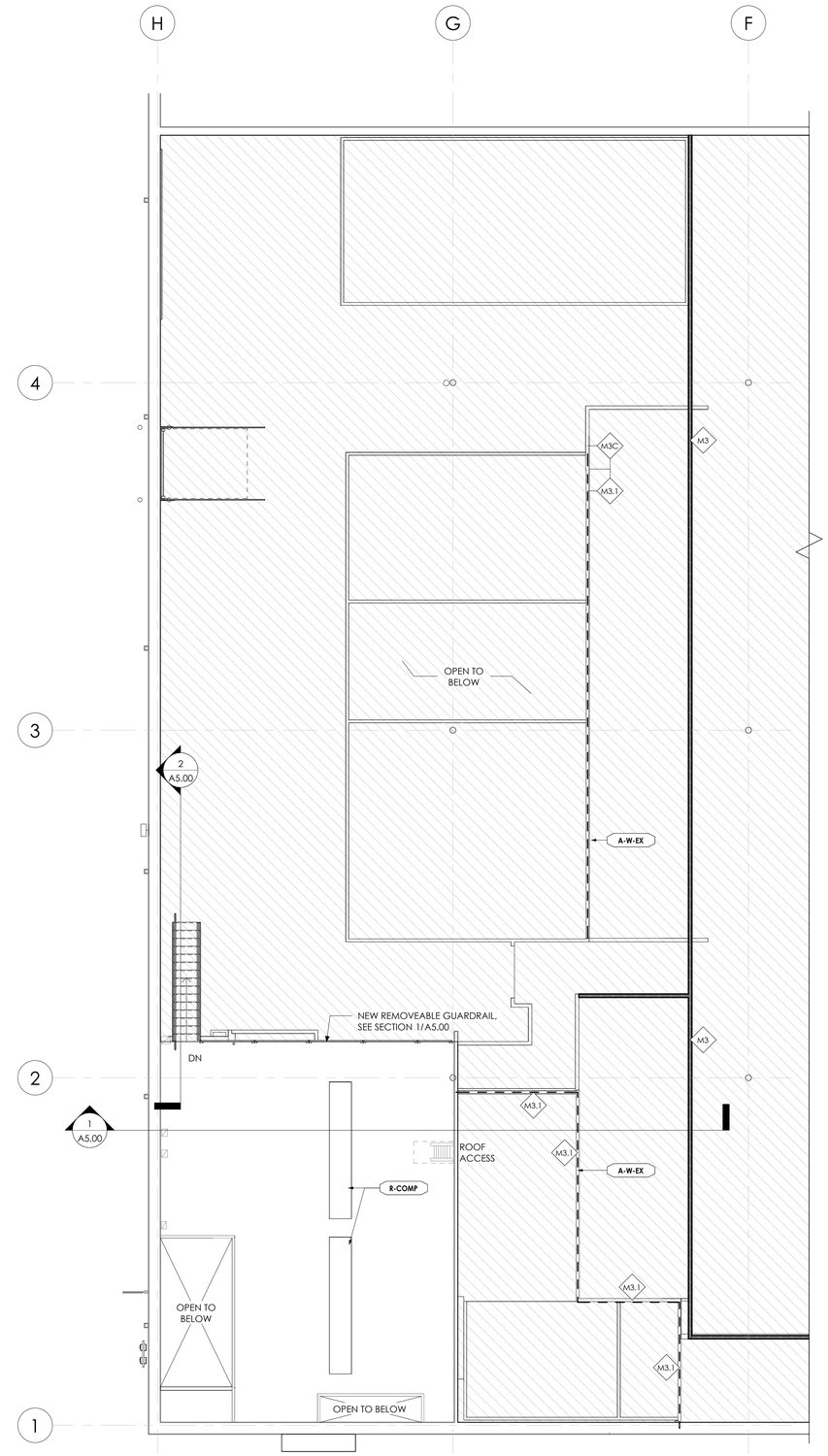

1 MEZZANINE PLAN
1/8" = 1'-0"

PLAN LEGEND

- EXISTING WALL
- NEW METAL STUD WALL
- EXISTING DOOR
- 101 NEW DOOR (WITH DOOR TAG)
- M1 WALL TYPE, SEE A0.31

KEYNOTES-MEZZANINE

A-W-EX	DASHED LINE INDICATES ENCLOSURE WALL BUILT ABOVE COOLER. EXTEND TO 6" ABOVE FINISH CEILING. BRACE TO STRUCTURE AS REQUIRED.
R-COMP	REFRIGERATION EQUIPMENT. SEE HUSSMANN DRAWINGS.

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MEZZANINE PLAN

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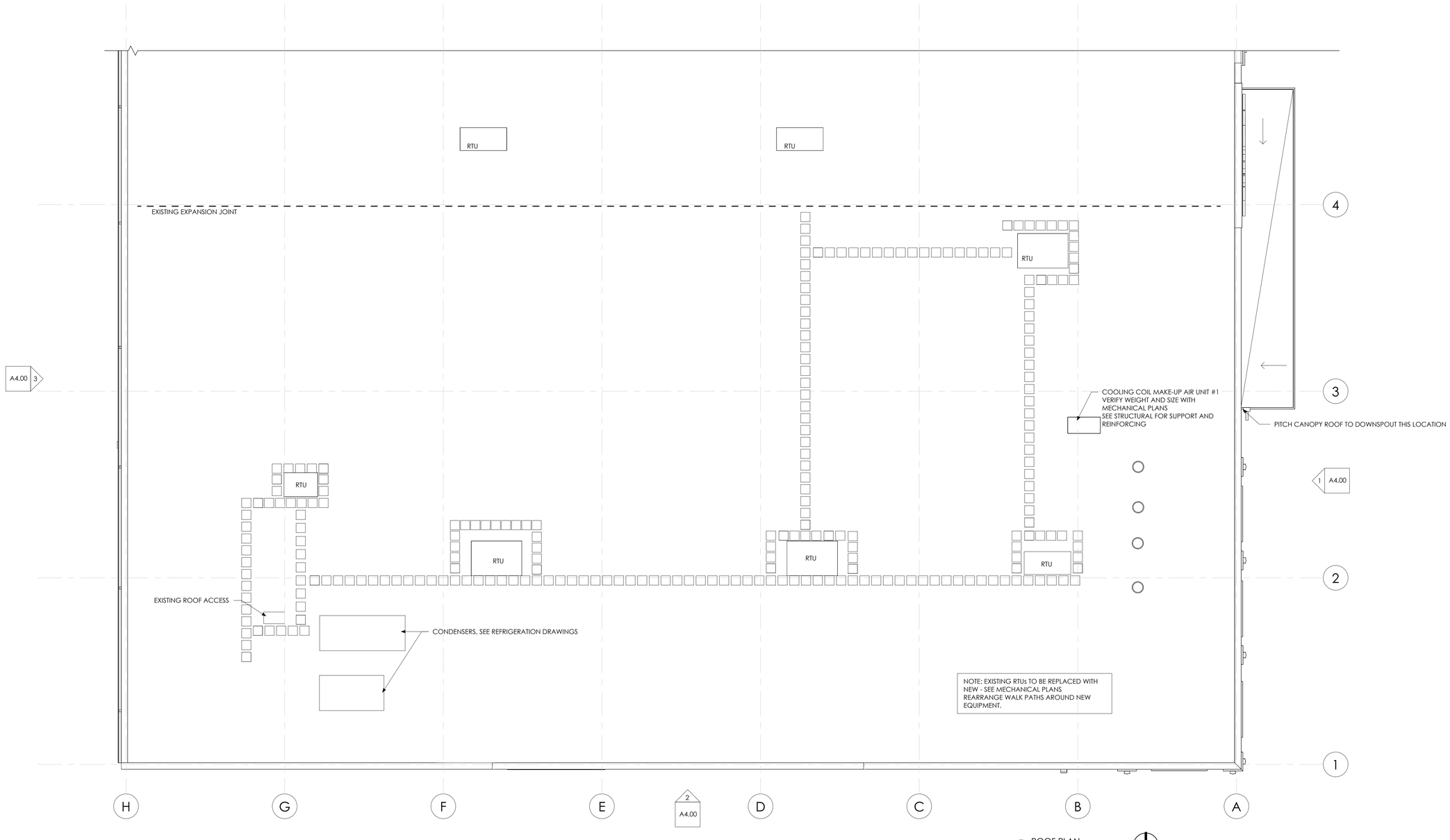

1 ROOF PLAN
3/32" = 1'-0"

MADISEN MAHER

ARCHITECTS

133 W. PITTSBURGH AVE, SUITE 102
MILWAUKEE, WI 53204
P: 414.277.8000
MADISENMAHER.COM

PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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02/08/24		CD | PERMIT & BID SET

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ROOF PLAN

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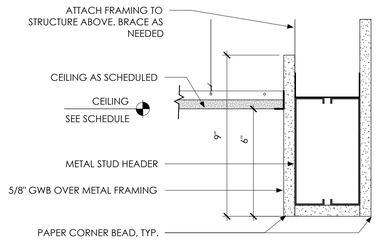
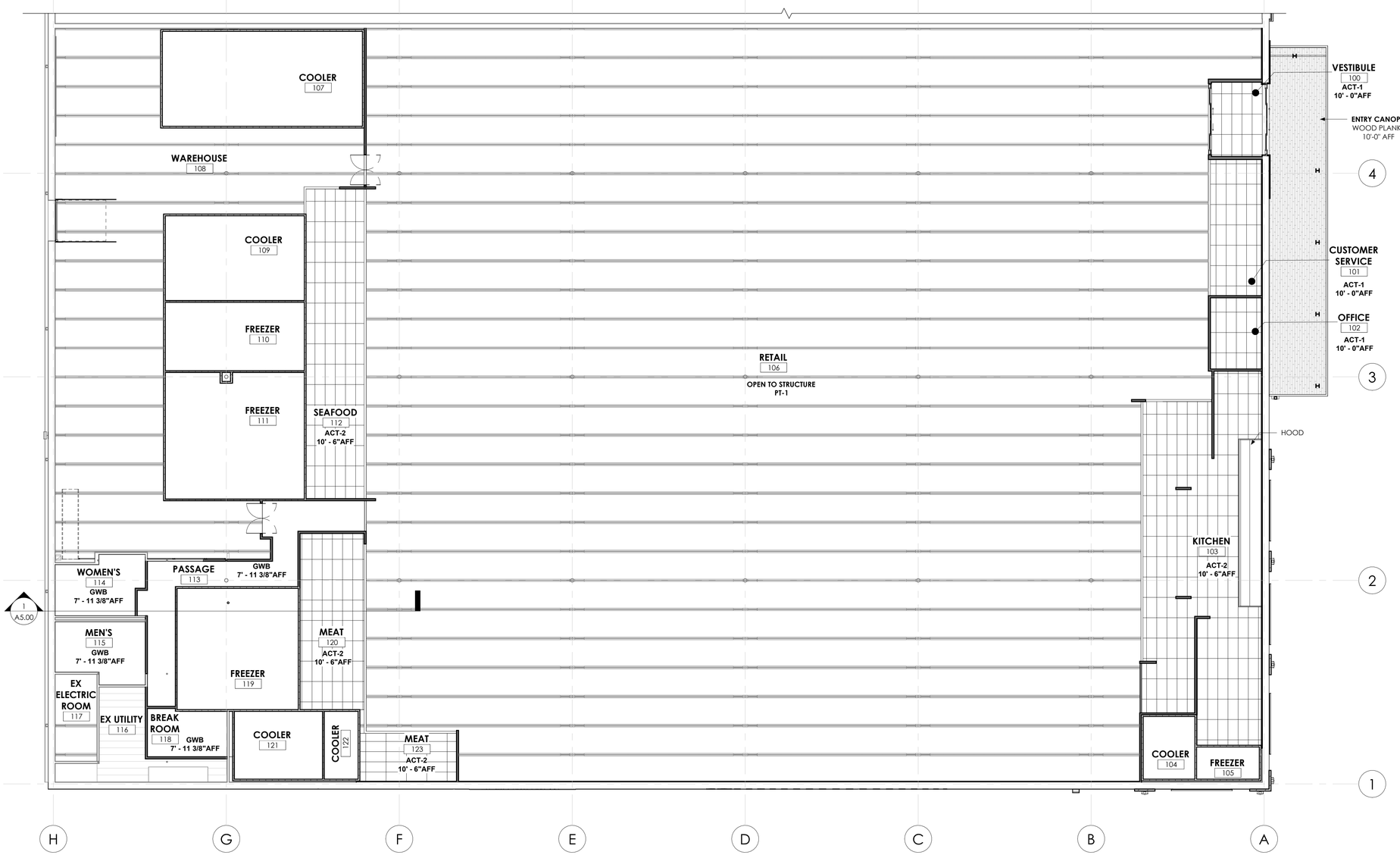


2 DETAIL AT GWB BULKHEAD, TYP.
3" = 1'-0"



1 1ST FLOOR REFLECTED CEILING PLAN
3/32" = 1'-0"

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1ST FLOOR REFLECTED CEILING PLAN

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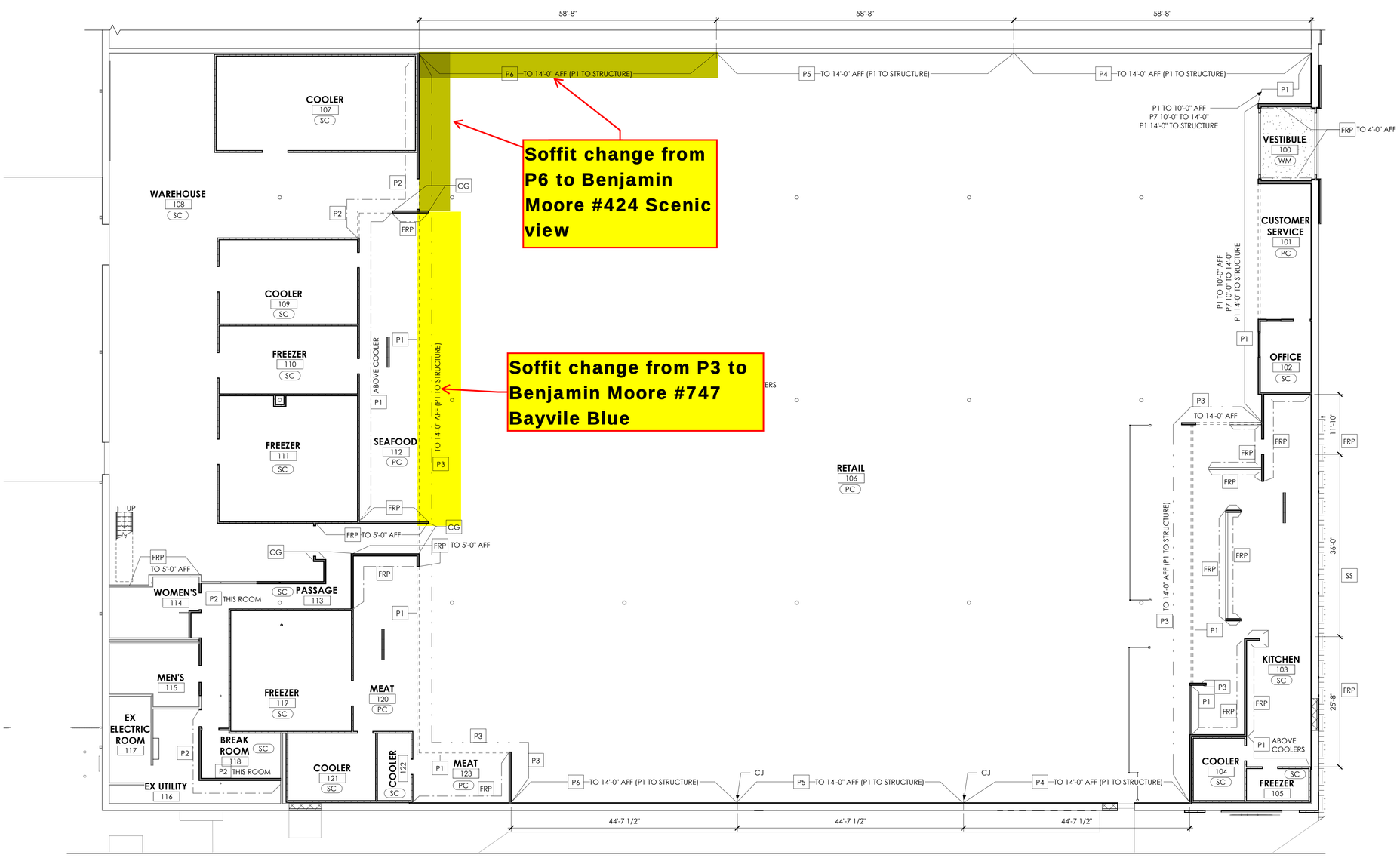
2/8/2024 2:32:54 PM

PLAN LEGEND	
?	FLOOR FINISH TAG
P1	WALL FINISH TAG
A-XXXX	KEYNOTE



1 FIRST FLOOR FINISH PLAN
3/32" = 1'-0"

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FIRST FLOOR FINISH PLAN

A1.31

2/8/2024 2:32:57 PM

ROOM SCHEDULE

ROOM NO.	NAME	FLOOR FINISH	BASE FINISH	WALL ALL	WALL NORTH	WALL SOUTH	WALL EAST	WALL WEST	CEILING MATERIAL	CEILING HEIGHT	REMARKS
100	VESTIBULE	PC	VB	P2	P2 / FRP	P2 / FRP			ACT-1	10'-6" AFF	
101	CUSTOMER SERVICE	PC	VB	P2					ACT-1	10'-6" AFF	
102	OFFICE	SC	VB	P2					ACT-1	10'-6" AFF	
103	KITCHEN	SC	SSB	FRP / P1					ACT-2	10'-6" AFF	
104	COOLER	SC	VB	BY HUSSMANN							
105	FREEZER	SC	VB	BY HUSSMANN							
106	RETAIL	PC	VB	VARIES, SEE PLAN					OPEN TO STRUC, P1		
107	COOLER	SC	VB	BY HUSSMANN							
108	WAREHOUSE	SC	VB	P2 / ETR					ETR		R2
109	COOLER	SC	VB	BY HUSSMANN							
110	FREEZER	SC	VB	BY HUSSMANN							
111	FREEZER	SC	VB	BY HUSSMANN							
112	SEAFOOD	PC	SSB		FRP / P1	FRP	P1	P1	ACT-2	10'-6" AFF	
113	PASSAGE	SC	VB	P2					GWB, P1	7'-10 1/2" AFF	
114	WOMEN'S	ETR	ETR / T1	P2					GWB, P1		R1
115	MEN'S	ETR	ETR / T1	P2					GWB, P1		R1
116	EX UTILITY	ETR	ETR	ETR					ETR		
117	EX ELECTRIC ROOM	ETR	ETR	ETR					ETR		
118	BREAK ROOM	SC	VB	P2					GWB, P1	7'-10 1/2" AFF	
119	FREEZER	SC	VB	BY HUSSMANN							
120	MEAT	SC	SSB		FRP	-	P1	FRP	ACT-2	10'-6" AFF	
121	COOLER	SC	VB	BY HUSSMANN							
122	COOLER	SC	VB	BY HUSSMANN							
123	MEAT	PC	SSB		P1	FRP	FRP	-	ACT-2	10'-6" AFF	

REMARKS

R1. EXISTING WALL, CEILING, AND FLOOR FINISH TO BE INFILLED OR PATCHED WHERE REQUIRED.

R2. PAINT ONLY AT NEW DRYWALL THIS ROOM.

INTERIOR FINISH KEY

MARK	MATERIAL	MANUFACTURER	PRODUCT SPEC.	DIMENSION	REMARKS
CEILINGS					
ACT-1	ACOUSTIC CEILING TILE	ARMSTRONG	OPTIMA, WHITE	2X4	-
ACT-2	ACOUSTIC CEILING TILE	NATIONAL GYPSUM	GOLD BOND GRIDSTONE CLEANROOM PANELS, WHITE	2X4	-
GWB	GYPSUM BOARD	-	-	-	PAINT FINISH, SEE SCHEDULE
WALLS					
FRP	FIBER REINFORCED PLASTIC PANELS	CRANE	CLASSIC, SIERRA ASH 018SA	-	-
P1	PAINT (WALL/CEILING/STRUC)	BENJAMIN MOORE	OC-69, WHITE OPULENCE	-	-
P2	PAINT (WALL)	BENJAMIN MOORE	#205, SIMPLY IRRESISTIBLE	-	
P3	PAINT (WALL)	BENJAMIN MOORE	#1323, CURRANT RED	-	-
P4	PAINT (WALL)	BENJAMIN MOORE	#076, CORLSBUD CANYON	-	-
P5	PAINT (WALL)	BENJAMIN MOORE	#140, FRUIT PUNCH	-	-
P6	PAINT (WALL)	BENJAMIN MOORE	#090, BUTTERFLY WINGS	-	-
P7	PAINT (WALL)	BENJAMIN MOORE	#170, TRADITIONAL YELLOW	-	-
SS	STAINLESS STEEL PANELS	-	-	-	-
FLOORS & BASE					
PC	POLISHED CONCRETE	-	POLISH TO 400 GRIT		-
	& SEALER	PROSOCO	CONSOLIDECK WITH LS GUARD GEMSTONE STAIN, COLOR: ROAST		-
SC	SEALED CONCRETE	-	-	-	-
SSB	4" STAINLESS STEEL BASE	-	-	-	-
T1	TILE BASE TO MATCH EXISTING	-	-	-	-
VB4	4" VINYL BASE	-	-	-	-
WM	CARPET (WALK OFF)	SHAW	CARPET PATH TILE STYLE 5T034 DARK RED 34851	24" X 24"	-
MISCELLANEOUS					
CC	COLUMN COVER	-	18GA STAINLESS STEEL COLUMN COVER	VERIFY DIA. IN FIELD, 5'-0" AFF	
CG	CORNER GUARD	EVERBUILT	1/16" THICK ALUMINUM ANGLE	1 1/4" X 1 1/4" X 48" HEIGHT	
ETR	EXISTING FINISH TO REMAIN				
PL-1	PLASTIC LAMINATE COUNTERTOPS	WILSONART	BLACK ALICANTE 4926K-07	-	
PL-2	PLASTIC LAMINATE CABINETRY	WILSONART	BUKA BARK 7982-38, FINE VELVET FINISH	-	

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ROOM FINISH SCHEDULE & DETAILS

A1.40

2/8/2024 2:32:59 PM

EQUIPMENT SCHEDULE

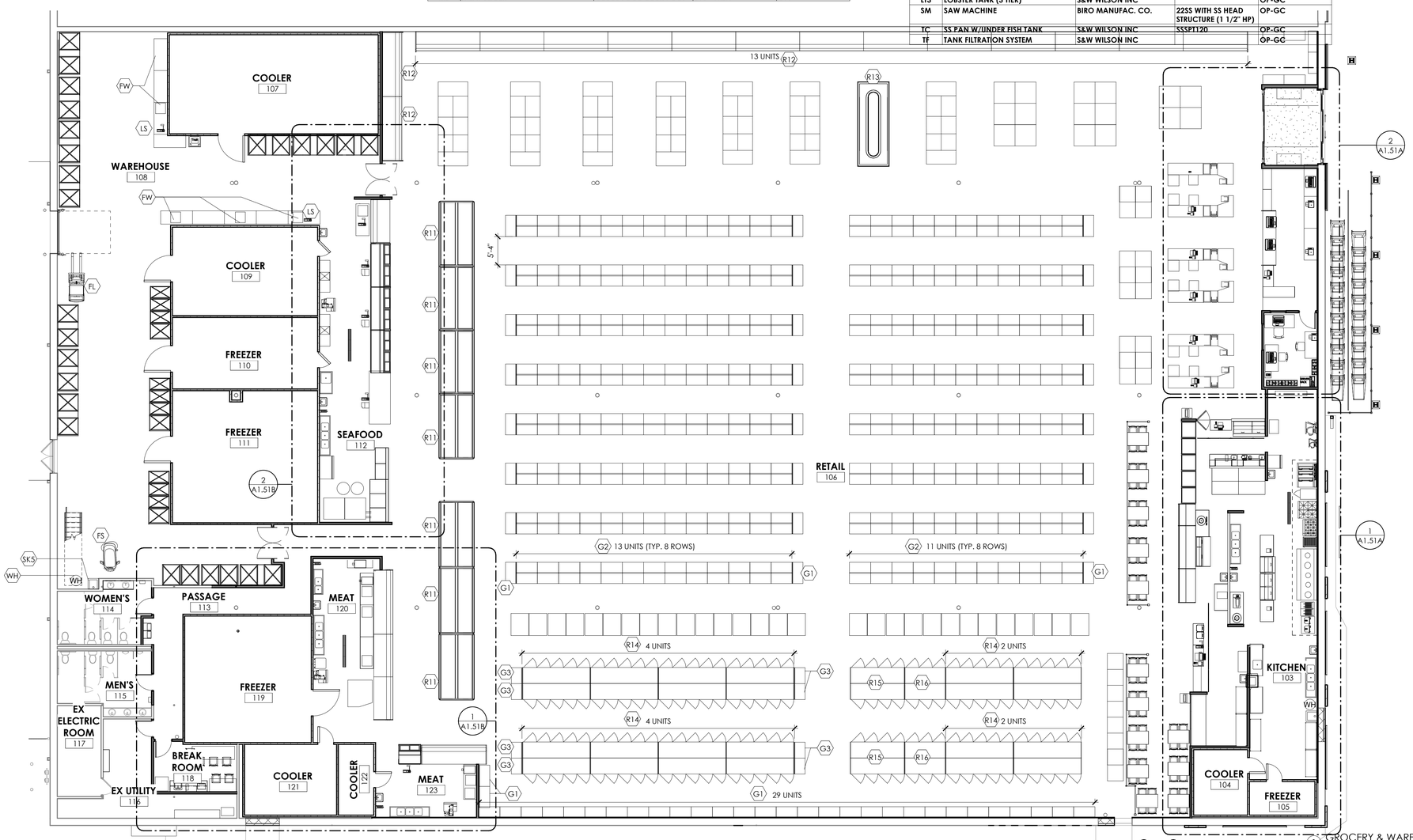
MARK	DESCRIPTION	MANUFACTURER	MODEL NO	COMMENTS
CAFE				
BS	BUN STEAMER	AVANTCO	HDS-175	OPI
C1	SERVICE COUNTER 4ft	STORE SUPPLY WAREHOUSE	65549	OP-GC
C2	SERVICE COUNTER 6ft	STORE SUPPLY WAREHOUSE	65506	OP-GC
CR	CASH REGISTER			OPI
D1	DISHWASHER CLEAN TABLE	EAGLE GROUP	DCTL-60-16/4	OPI
D2	DISHWASHER SOILED TABLE	EAGLE GROUP	SDTR-72-16/4	OPI
DF	GAS FLOOR FRYER	CECILWARE PRO	FMS504NAT	OP-GC
DW	DISHWASHER	AUTO-CHLOR	A5 WATER SAVER	OPI
HD	HEATED DISPLAY CASE	RPI INDUSTRIES	VIHD4-42-R-SQ-CC-CT	OPI
IB5	ICE BIN	HOSHIZAKI	B-500PF	OP-GC
IB9	ICE BIN	HOSHIZAKI	B-900PF	OP-GC
KK	SELF-SERVICE ORDERING KIOSK	MENUSIFU	KIOSK	OPI
MW	MICROWAVE	GALAXY EQUIPMENT	MWP00GUA	OPI
MX	STAND MIXER	KITCHENAID	KSM8990	OPI
MX3	30 QT. STAND MIXER	GLOBE FOOD EQUIP. CO.	SP30	OPI
MX6	60 QT. STAND MIXER	GLOBE FOOD EQUIP. CO.	SP60	OP-GC
O1	ELECTRIC DECK OVEN	LBC	SE-923 WITH WATER FILTRATION SYSTEM	OP-GC
O2	SMOKEHOUSE CABINET	WIN DEPOT	WSH-200	OP-GC
PF	PROOFING CABINET	ADMIRAL CRAFT EQUIPMENT CO.	PW-120	OPI
PT2	PREP TABLE (4FT)	ATOSA	SSTW-3048	OPI
PT3	PREP TABLE (5FT)	ATOSA	SSTW-3060	OPI
PT4	PREP TABLE (6FT)	ATOSA	SSTW-3072	OPI
PT5	SANDWICH PREP TABLE	ATOSA	MSF3615GR	OPI
PT6	SANDWICH PREP TABLE	ATOSA	MSF8307GR	OPI
PT7	SANDWICH PREP TABLE	ATOSA	MSF8308GR	OPI
PT8	REFRIGERATED PREP TABLE	ATOSA	MPF8202GR	OPI
RC	GAS RICE COOKER	AVANTCO	GRCNAT 110 CUP RICE COOKER	OP-GC
RP	RECEIPT PRINTER	EPSON	TM-T88V	OPI
RW	RICE WARMER	RICEMASTER	56919	OP-GC
SH1	BREAD RACK SHELVING 3'-0" x 2'-9"			OPI; 4 SHELVES, WOOD FINISH
ST1	DOUBLE BURNER GAS STOVE	ATOSA	ATSP-18-2L	OP-GC

EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO	COMMENTS
ST2	COUNTERTOP GAS RANGE AND STAND	ATOSA	ACHP-6 ON EQUIPMENT STAND ATSE-3036	OP-GC
ST3	GAS CHARBROILER AND STAND ATOSA ATSE-3024	STAR-MAX	6024CBF ON	OP-GC
W	5-BURNER GAS WOK	WIN DEPOT	WR-500	OP-GC
WR	FOOD WARMER	WINCO	FW-S600	OPI
CHECKOUT				
CB	CORK BOARD W/ALUM FRAME 48" x 96"	QUARTET	ECKA408	OPI; INSTALL BOTTOM EDGE AT 48" AFF
CH	CHECKOUT CONVEYOR COUNTER	PAN OSTON	BM-141011-8-RH/LH, BM-141100-4-RH/LH, BM-141204-RH/LH, BM-140208	OP-GC; VERIFY RIGHT AND LEFTHAND MODELS PER PLAN
DC1	GLASS DISPLAY CASE	STORE SUPPLY WAREHOUSE	SKU 65561LT	OP-GC
DC2	DISPLAY CHECKOUT COUNTER 36" x 124"	STORE FIXTURES DIRECT	GONDOLA W-RWCOS	OP-GC
EC	ELECTRIC CART	MART CART	3563	OPI
SF	SAFE	DENTRYSAFE	DH109E	OP-GC
GENERAL PLUMBING FIXTURES				
HR	HOSE REEL	EQUIP FOODSERVICE ACCESSORIES	5HR-242-12	GCI
HS	HAND SINK	-	-	OP-GC
HW	HOT WATER DISPENSER	AVANTCO	HWDD2	OP-GC
SK1	1 COMPARTMENT SINK W/DB	SAPPHIRE	SMS-2424L	OP-GC
SK2	2 COMPARTMENT SINK W/DB	SAPPHIRE	SMS-2-2020R	OP-GC
SK3	3 COMPARTMENT SINK W/DB	SAPPHIRE	SMS-3-1818R	OP-GC
SK4	3 COMPARTMENT SINK W/2 DB	SAPPHIRE	SMS-3-2020D	OP-GC
SK5	MOP SINK	SAPPHIRE	SMHS-01-D	GCI; PROVIDE BACKFLOW PREVENTER VALVE
SK6	16"x12" DROP-IN SS HAND SINK			OP-GC
WH	WATER HEATER			GCI
MEAT				
M1	MEAT SAW	BIRO MANUFAC. CO.	1433 3HP	OP-GC
MG	MEAT GRINDER	BIRO MANUFAC. CO.	922SS	OPI
MS	MEAT SLICER	GLOBE FOOD EQUIP. CO.	S13 - FRZN	OPI

EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO	COMMENTS
WP	MEAT WRAPPER	DIGI SYSTEM	AW-5600AT	OPI
MISC				
FL	FORK LIFT	CROWN EQUIPMENT CO.	SC 5200 SERIES	OPI
FS	FLOOR SCRUBBER	TENNANT	5680	OPI
FW	FILM WRAPPER	WINHOLT	WHSS-1	OPI
G1	GONDOLA SHELVING	LOZIER	1 SIDED, 48" LENGTH	OPI
G2	GONDOLA SHELVING	LOZIER	2 SIDED, 48" LENGTH	OPI
G3	GONDOLA SHELVING	LOZIER	1 SIDED, 36" LENGTH	OPI
HD-1	HAND DRYER	XLERATOR	XL-W-ECO	OPI
LS	LABEL PRINTING SCALE	CAS USA CORP.	CL5000B	OPI
TV	55" CEILING MOUNTED TV	SAMSUNG	55CU7000D	GCI; CEILING MOUNT WITH BOTTOM OF TV AT 7'-0" AFF
REFRIGERATION				
EV	EVAPORATOR			CEILING MOUNTED
R1	5 DECK REFRIGERATION CASE (12FT)	HUSSMANN	IM5SL (12FT)	
R2	5 DECK REFRIGERATION CASE (8FT)	HUSSMANN	IM5SL (8FT)	
R3	ENCLOSED REFRIGERATION CASE	HUSSMANN	ESG5 (4FT)	
R4	ENCLOSED REFRIGERATION CASE	HUSSMANN	ESG5 (8FT)	
R6	DOUBLE DOOR COOLER	TRUE MANUFAC. CO.	GDM-41SL-54-HC-LD	OPI
R7	SINGLE DOOR COOLER	TRUE MANUFAC. CO.	GDM-10	OPI
R8	REACH-IN REFRIGERATOR	HUSSMANN	SHVS5 (48")	
R9	REACH-IN REFRIGERATOR	HUSSMANN	SHVS5 (75 1/2")	
R10	REACH-IN REFRIGERATOR	HUSSMANN	SHVS5 (96")	
R11	OPEN BUNKER FREEZER	HUSSMANN	FWG-L (12ft)	
R12	OPEN REACH-IN REFRIGERATOR	HUSSMANN	INSIGHT IDSSL	
R13	PRODUCE ISLAND COOLER	HUSSMANN	TY3-6 (16ft)	
R14	REACH-IN COOLER	HUSSMANN	RLNI 5 DOOR	
R15	REACH-IN COOLER	HUSSMANN	RLNI 4 DOOR	
R16	REACH-IN COOLER	HUSSMANN	RLNI 3 DOOR	
R17	REFRIGERATOR	LG	LTCS20020S	OPI
SEAFOOD				
FC	FISH CUTTING TABLE	S&W WILSON INC	-	OP-GC
IM	ICE MAKER	HOSHIZAKI	KML-500MAJ	OP-GC
LT2	LOBSTER TANK (2 TIER)	S&W WILSON INC		OP-GC
LT3	LOBSTER TANK (3 TIER)	S&W WILSON INC		OP-GC
SM	SAW MACHINE	BIRO MANUFAC. CO.	22SS WITH SS HEAD STRUCTURE (1 1/2" HP)	OP-GC
TC	SS PAN W/UNDER FISH TANK	S&W WILSON INC	SSSPT120	OP-GC
TF	TANK FILTRATION SYSTEM	S&W WILSON INC		OP-GC



1 GROCERY & WAREHOUSE EQUIPMENT PLAN
3/32" = 1'-0"

PLAN LEGEND

- EXISTING WALL
- NEW METAL STUD WALL
- EXISTING DOOR
- 101 NEW DOOR (WITH DOOR TAG)
- M1 WALL TYPE, SEE A0.31

EQUIPMENT SCHEDULE COMMENTS

OPI - OWNER PROVIDED & INSTALLED
OP-GC - OWNER PROVIDED, GC TO PROVIDE HOOKUP CONNECTION
GCI - GC TO PROVIDE & INSTALL

1. HUSSMANN EQUIPMENT WILL BE INSTALLED BY HUSSMANN.
2. GC TO UNLOAD ALL OWNER PROVIDED EQUIPMENT FROM DELIVERY TRUCK.

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EQUIPMENT PLAN & SCHEDULE

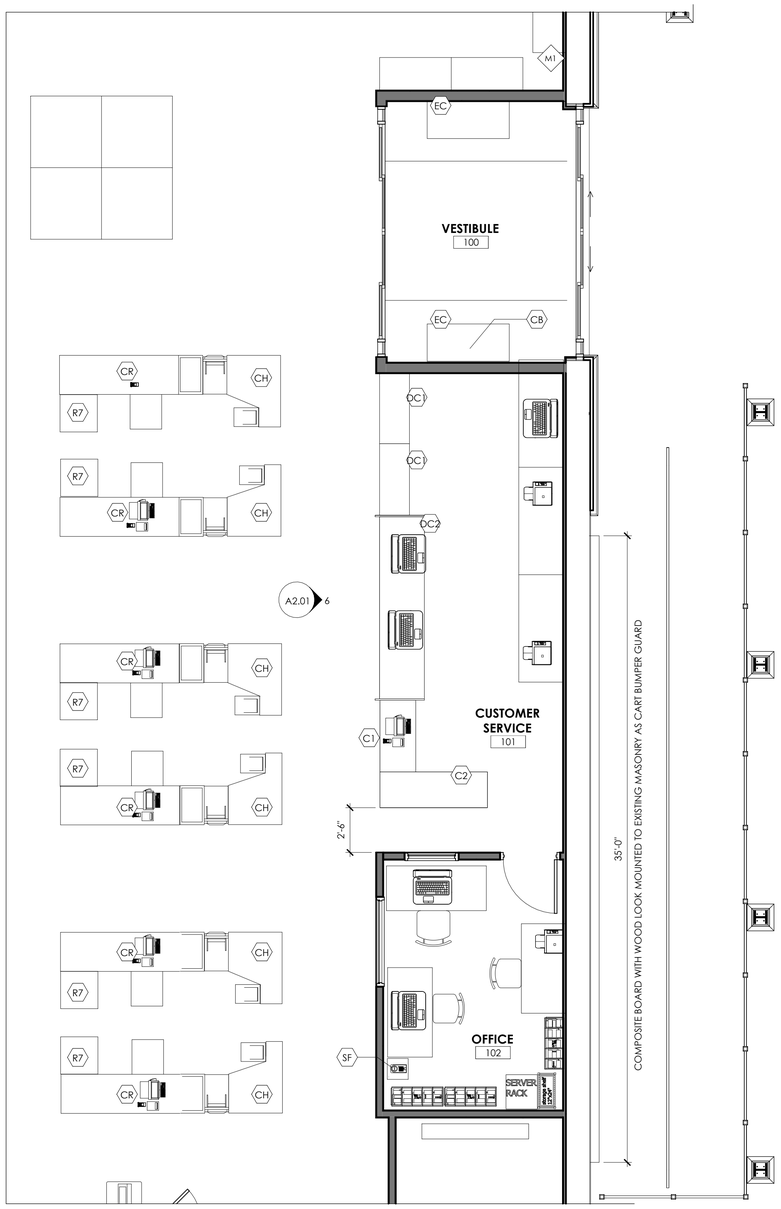
A1.51

2/8/2024 2:33:04 PM

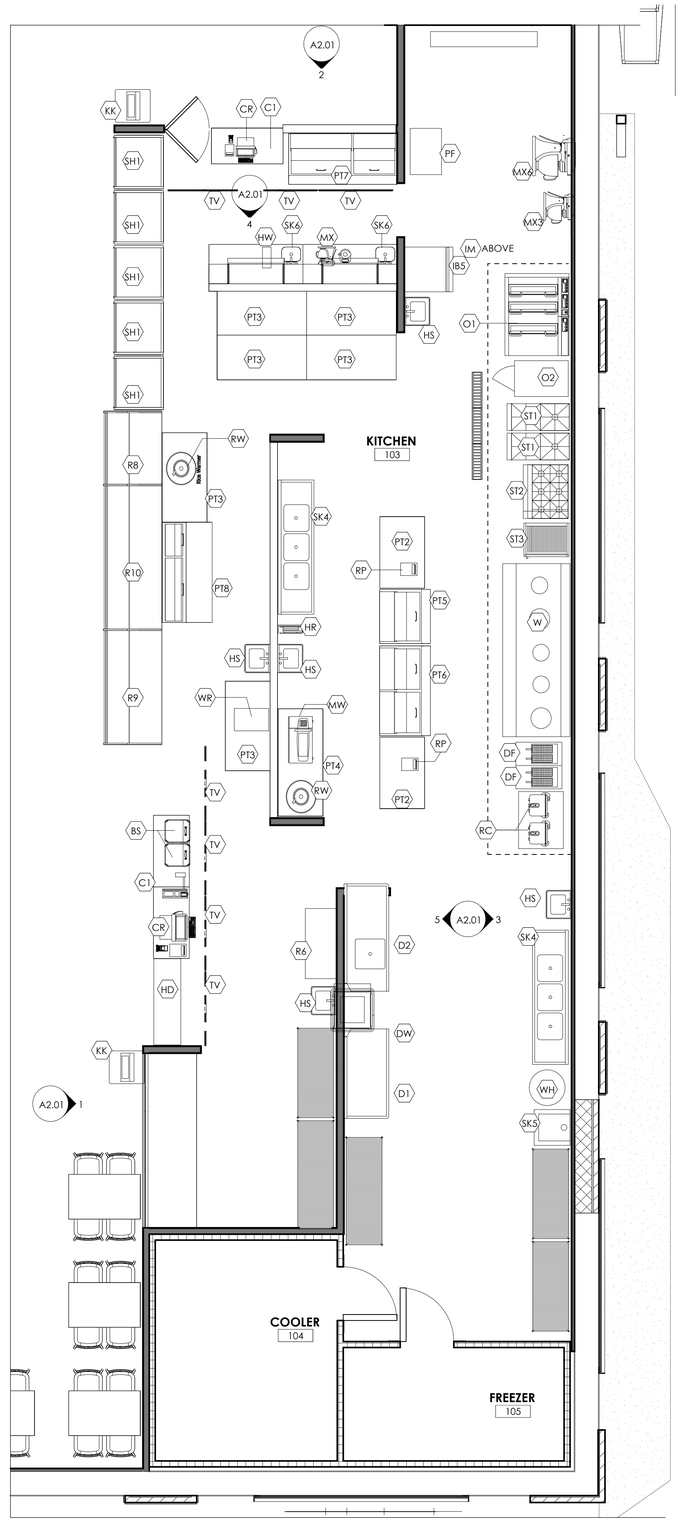
EQUIPMENT SCHEDULE COMMENTS

OPI - OWNER PROVIDED & INSTALLED
OP-GC - OWNER PROVIDED, GC TO PROVIDE HOOKUP CONNECTION
GCI - GC TO PROVIDE & INSTALL

1. HUSSMANN EQUIPMENT WILL BE INSTALLED BY HUSSMANN.
2. GC TO UNLOAD ALL OWNER PROVIDED EQUIPMENT FROM DELIVERY TRUCK.



2 EQUIPMENT PLAN AT CHECKOUT
1/4" = 1'-0"



1 EQUIPMENT PLAN AT CAFE
1/4" = 1'-0"

EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO	COMMENTS
CAFE				
BS	BUN STEAMER	AVANTCO	HDS-175	OPI
C1	SERVICE COUNTER 4ft	STORE SUPPLY WAREHOUSE	65549	OP-GC
C2	SERVICE COUNTER 6ft	STORE SUPPLY WAREHOUSE	65506	OP-GC
CR	CASH REGISTER			OPI
D1	DISHWASHER CLEAN TABLE	EAGLE GROUP	DCTL-60-16/4	OPI
D2	DISHWASHER SOILED TABLE	EAGLE GROUP	SDTR-72-16/4	OPI
DF	GAS FLOOR FRYER	CECILWARE PRO	FMS504NAT	OP-GC
DW	DISHWASHER	AUTO-CHLOR	A5 WATER SAVER	OPI
HD	HEATED DISPLAY CASE	RPI INDUSTRIES	VIHD4-42-R-SQ-CC-CT	OPI
IB5	ICE BIN	HOSHIZAKI	B-500PF	OP-GC
IB9	ICE BIN	HOSHIZAKI	B-900PF	OP-GC
KK	SELF-SERVICE ORDERING KIOSK	MENUSIFU	KIOSK	OPI
MW	MICROWAVE	GALAXY EQUIPMENT	MW900GUA	OPI
MX	STAND MIXER	KITCHENAID	KSM8990	OPI
MX3	30 QT. STAND MIXER	GLOBE FOOD EQUIP. CO.	SP30	OPI
MX6	60 QT. STAND MIXER	GLOBE FOOD EQUIP. CO.	SP60	OP-GC
O1	ELECTRIC DECK OVEN	LBC	SE-923 WITH WATER FILTRATION SYSTEM	OP-GC
O2	SMOKEHOUSE CABINET	WIN DEPOT	WSH-200	OP-GC
PF	PROOFING CABINET	ADMIRAL CRAFT EQUIPMENT CO.	PW-120	OPI
PT2	PREP TABLE (4FT)	ATOSA	SSTW-3048	OPI
PT3	PREP TABLE (5FT)	ATOSA	SSTW-3060	OPI
PT4	PREP TABLE (6FT)	ATOSA	SSTW-3072	OPI
PT5	SANDWICH PREP TABLE	ATOSA	MSF3615GR	OPI
PT6	SANDWICH PREP TABLE	ATOSA	MSF8307GR	OPI
PT7	SANDWICH PREP TABLE	ATOSA	MSF8308GR	OPI
PT8	REFRIGERATED PREP TABLE	ATOSA	MPF8202GR	OPI
RC	GAS RICE COOKER	AVANTCO	GRCNAT 110 CUP RICE COOKER	OP-GC
RP	RECEIPT PRINTER	EPSON	TM-T88V	OPI
RW	RICE WARMER	RICEMASTER	56919	OP-GC
SH1	BREAD RACK SHELVING 3'-0" x 2'-9"			OPI; 4 SHELVES, WOOD FINISH
ST1	DOUBLE BURNER GAS STOVE	ATOSA	ATSP-18-2L	OP-GC
ST2	COUNTERTOP GAS RANGE AND STAND	ATOSA	ACHP-6 ON EQUIPMENT STAND ATSE-3036	OP-GC
ST3	GAS CHARBROILER AND STAND ATOSA ATSE-3024	STAR-MAX	6024CBF ON	OP-GC
W	5-BURNER GAS WOK	WIN DEPOT	WR-500	OP-GC
WR	FOOD WARMER	WINCO	FW-S600	OPI
CHECKOUT				
CB	CORK BOARD W/ALUM FRAME 48" x 96"	QUARTET	ECKA408	OPI; INSTALL BOTTOM EDGE AT 48" AFF
CH	CHECKOUT CONVEYOR COUNTER	PAN OSTON	BM-141011-8-RH/LH, BM-141100-4-RH/LH, BM-141204-RH/LH, BM-140208	OP-GC; VERIFY RIGHT AND LEFTHAND MODELS PER PLAN
DC1	GLASS DISPLAY CASE	STORE SUPPLY WAREHOUSE	SKU 65561LT	OP-GC
DC2	DISPLAY CHECKOUT COUNTER 36" x 124"	STORE FIXTURES DIRECT	GONDOLA W-RWCOS	OP-GC
EC	ELECTRIC CART	MART CART	3563	OPI
SF	SAFE	DENTRYSAFE	DH109E	OP-GC
GENERAL PLUMBING FIXTURES				
HR	HOSE REEL	EQUIP FOODSERVICE ACCESSORIES	5HR-242-12	GCI
HS	HAND SINK		-	OP-GC
HW	HOT WATER DISPENSER	AVANTCO	HWDD2	OP-GC
SK1	1 COMPARTMENT SINK W/DB	SAPPHIRE	SMS-2424L	OP-GC
SK2	2 COMPARTMENT SINK W/DB	SAPPHIRE	SMS-2-2020R	OP-GC
SK3	3 COMPARTMENT SINK W/DB	SAPPHIRE	SMS-3-1818R	OP-GC
SK4	3 COMPARTMENT SINK W/2 DB	SAPPHIRE	SMS-3-2020D	OP-GC
SK5	MOP SINK	SAPPHIRE	SMHS-01-D	GCI; PROVIDE BACKFLOW PREVENTER VALVE
SK6	16"x12" DROP-IN SS HAND SINK			OP-GC
WH	WATER HEATER			GCI
MEAT				
M1	MEAT SAW	BIRO MANUFAC. CO.	1433 3HP	OP-GC
MG	MEAT GRINDER	BIRO MANUFAC. CO.	922SS	OPI
MS	MEAT SLICER	GLOBE FOOD EQUIP. CO.	S13 - FRZN	OPI
WP	MEAT WRAPPER	DIGI SYSTEM	AW-5600AT	OPI
MISC				
FL	FORK LIFT	CROWN EQUIPMENT CO.	SC 5200 SERIES	OPI
FS	FLOOR SCRUBBER	TENNANT	5680	OPI
FW	FILM WRAPPER	WINHOLT	WHSS-1	OPI
G1	GONDOLA SHELVING	LOZIER	1 SIDED, 48" LENGTH	OPI
G2	GONDOLA SHELVING	LOZIER	2 SIDED, 48" LENGTH	OPI
G3	GONDOLA SHELVING	LOZIER	1 SIDED, 36" LENGTH	OPI
HD-1	HAND DRYER	XLERATOR	XL-W-ECO	OPI
LS	LABEL PRINTING SCALE	CAS USA CORP.	CL5000B	OPI
TV	55" CEILING MOUNTED TV	SAMSUNG	55CU7000D	GCI; CEILING MOUNT WITH BOTTOM OF TV AT 7'-0" AFF
REFRIGERATION				
EV	EVAPORATOR			CEILING MOUNTED
R1	5 DECK REFRIGERATION CASE (12FT)	HUSSMANN	IM5SL (12FT)	
R2	5 DECK REFRIGERATION CASE (8FT)	HUSSMANN	IM5SL (8FT)	
R3	ENCLOSED REFRIGERATION CASE	HUSSMANN	ESGS (4FT)	
R4	ENCLOSED REFRIGERATION CASE	HUSSMANN	ESGS (8FT)	
R6	DOUBLE DOOR COOLER	TRUE MANUFAC. CO.	GDM-41SL-54-HC-LD	OPI
R7	SINGLE DOOR COOLER	TRUE MANUFAC. CO.	GDM-10	OPI
R8	REACH-IN REFRIGERATOR	HUSSMANN	SHVSS (48")	
R9	REACH-IN REFRIGERATOR	HUSSMANN	SHVSS (75 1/2")	
R10	REACH-IN REFRIGERATOR	HUSSMANN	SHVSS (96")	
R11	OPEN BUNKER FREEZER	HUSSMANN	FWG-L (12ft)	
R12	OPEN REACH-IN REFRIGERATOR	HUSSMANN	INSIGHT ID5SL	
R13	PRODUCE ISLAND COOLER	HUSSMANN	TY3-6 (16ft)	
R14	REACH-IN COOLER	HUSSMANN	RLNI 5 DOOR	
R15	REACH-IN COOLER	HUSSMANN	RLNI 4 DOOR	
R16	REACH-IN COOLER	HUSSMANN	RLNI 3 DOOR	
R17	REFRIGERATOR	LG	LTCS20020S	OPI
SEAFOOD				
FC	FISH CUTTING TABLE	S&W WILSON INC	-	OP-GC
IM	ICE MAKER	HOSHIZAKI	KML-500MAJ	OP-GC
LT2	LOBSTER TANK (2 TIER)	S&W WILSON INC		OP-GC
LT3	LOBSTER TANK (3 TIER)	S&W WILSON INC		OP-GC
SM	SAW MACHINE	BIRO MANUFAC. CO.	22SS WITH SS HEAD STRUCTURE (1 1/2" HP)	OP-GC
TC	SS PAN W/UNDER FISH TANK	S&W WILSON INC	SSSPT120	OP-GC
TF	TANK FILTRATION SYSTEM	S&W WILSON INC		OP-GC

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66213

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PROJECT NUMBER	23-044
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DRAWN BY	JS
CHECKED BY	SM

PERMIT & BID SET

ENLARGED EQUIPMENT PLANS

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EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO	COMMENTS
CAFE				
BS	BUN STEAMER	AVANTCO	HDS-175	OPI
C1	SERVICE COUNTER 4ft	STORE SUPPLY WAREHOUSE	65549	OP-GC
C2	SERVICE COUNTER 6ft	STORE SUPPLY WAREHOUSE	65506	OP-GC
CR	CASH REGISTER			OPI
D1	DISHWASHER CLEAN TABLE	EAGLE GROUP	DCTL-60-16/4	OPI
D2	DISHWASHER SOILED TABLE	EAGLE GROUP	SDTR-72-16/4	OPI
DF	GAS FLOOR FRYER	CECILWARE PRO	FMS504NAT	OP-GC
DW	DISHWASHER	AUTO-CHLOR	A5 WATER SAVER	OPI
HD	HEATED DISPLAY CASE	RPI INDUSTRIES	VIHD4-42-R-SQ-CC-CT	OPI
IB5	ICE BIN	HOSHIZAKI	B-500PF	OP-GC
IB9	ICE BIN	HOSHIZAKI	B-900PF	OP-GC
KK	SELF-SERVICE ORDERING KIOSK	MENUSIFU	KIOSK	OPI
MW	MICROWAVE	GALAXY EQUIPMENT	MW900GUA	OPI
MX	STAND MIXER	KITCHENAID	KSM8990	OPI
MX3	30 QT. STAND MIXER	GLOBE FOOD EQUIP. CO.	SP30	OPI
MX6	60 QT. STAND MIXER	GLOBE FOOD EQUIP. CO.	SP60	OP-GC
O1	ELECTRIC DECK OVEN	LBC	SE-923 WITH WATER FILTRATION SYSTEM	OP-GC
O2	SMOKEHOUSE CABINET	WIN DEPOT	WSH-200	OP-GC
PF	PROOFING CABINET	ADMIRAL CRAFT EQUIPMENT CO.	PW-120	OPI
PT2	PREP TABLE (4FT)	ATOSA	SSTW-3048	OPI
PT3	PREP TABLE (5FT)	ATOSA	SSTW-3060	OPI
PT4	PREP TABLE (6FT)	ATOSA	SSTW-3072	OPI
PT5	SANDWICH PREP TABLE	ATOSA	MSF3615GR	OPI
PT6	SANDWICH PREP TABLE	ATOSA	MSF8307GR	OPI
PT7	SANDWICH PREP TABLE	ATOSA	MSF8308GR	OPI
PTB	REFRIGERATED PREP TABLE	ATOSA	MPF8202GR	OPI
RC	GAS RICE COOKER	AVANTCO	GRCNAT 110 CUP RICE COOKER	OP-GC
RP	RECEIPT PRINTER	EPSON	TM-T88V	OPI
RW	RICE WARMER	RICEMASTER	56919	OP-GC
SH1	BREAD RACK SHELVING 3'-0" x 2'-9"			OPI; 4 SHELVES, WOOD FINISH
ST1	DOUBLE BURNER GAS STOVE	ATOSA	ATSP-18-2L	OP-GC

EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO	COMMENTS
ST2	COUNTERTOP GAS RANGE AND STAND	ATOSA	ACHP-6 ON EQUIPMENT STAND ATSE-3036	OP-GC
ST3	GAS CHARBROILER AND STAND ATOSA ATSE-3024	STAR-MAX	6024CBF ON	OP-GC
W	5-BURNER GAS WOK	WIN DEPOT	WR-500	OP-GC
WR	FOOD WARMER	WINCO	FW-S600	OPI
CHECKOUT				
CB	CORK BOARD W/ALUM FRAME 48" x 96"	QUARTET	ECKA408	OPI; INSTALL BOTTOM EDGE AT 48" AFF
CH	CHECKOUT CONVEYOR COUNTER	PAN OSTON	BM-141011-8-RH/LH, BM-141100-4-RH/LH, BM-141204-RH/LH, BM-140208	OP-GC; VERIFY RIGHT AND LEFTHAND MODELS PER PLAN
DC1	GLASS DISPLAY CASE	STORE SUPPLY WAREHOUSE	SKU 65561LT	OP-GC
DC2	DISPLAY CHECKOUT COUNTER 36" x 124"	STORE FIXTURES DIRECT	GONDOLA W-RWCOS	OP-GC
EC	ELECTRIC CART	MART CART	3563	OPI
SF	SAFE	DENTRYSAFE	DH109E	OP-GC
GENERAL PLUMBING FIXTURES				
HR	HOSE REEL	EQUIP FOODSERVICE ACCESSORIES	5HR-242-12	GCI
HS	HAND SINK		-	OP-GC
HW	HOT WATER DISPENSER	AVANTCO	HWDD2	OP-GC
SK1	1 COMPARTMENT SINK W/DB	SAPPHIRE	SMS-2424L	OP-GC
SK2	2 COMPARTMENT SINK W/DB	SAPPHIRE	SMS-2-2020R	OP-GC
SK3	3 COMPARTMENT SINK W/DB	SAPPHIRE	SMS-3-1818R	OP-GC
SK4	3 COMPARTMENT SINK W/2 DB	SAPPHIRE	SMS-3-2020D	OP-GC
SK5	MOP SINK	SAPPHIRE	SMHS-01-D	GCI; PROVIDE BACKFLOW PREVENTER VALVE
SK6	16"x12" DROP-IN SS HAND SINK			OP-GC
WH	WATER HEATER			GCI
MEAT				
M1	MEAT SAW	BIRO MANUFAC. CO.	1433 3HP	OP-GC
MG	MEAT GRINDER	BIRO MANUFAC. CO.	922SS	OPI
MS	MEAT SLICER	GLOBE FOOD EQUIP. CO.	S13 - FRZN	OPI

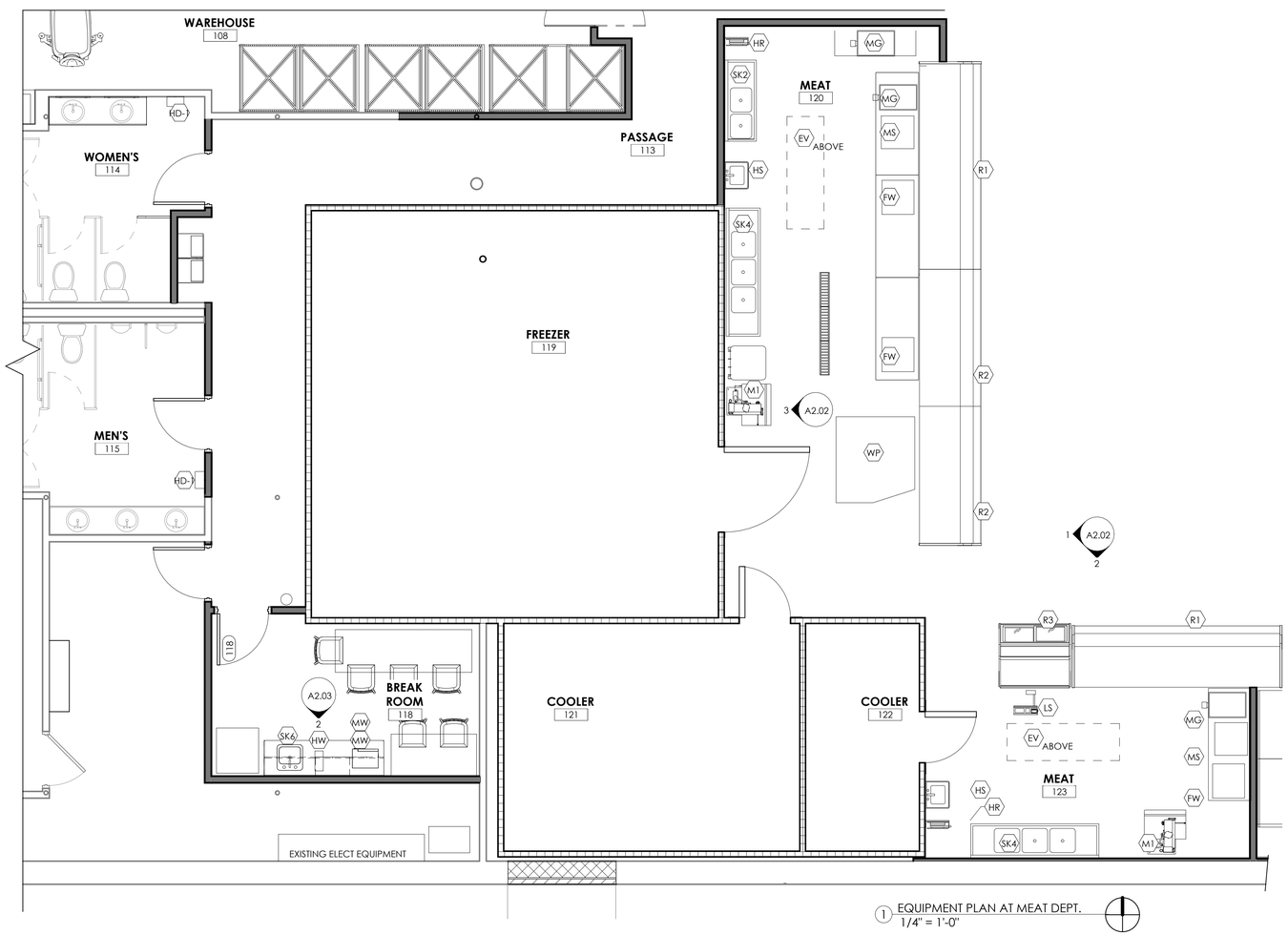
EQUIPMENT SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL NO	COMMENTS
WP	MEAT WRAPPER	DIGI SYSTEM	AW-S600AT	OPI
MISC				
FL	FORK LIFT	CROWN EQUIPMENT CO.	SC 5200 SERIES	OPI
FS	FLOOR SCRUBBER	TENNANT	5680	OPI
FW	FILM WRAPPER	WINHOLT	WHSS-1	OPI
G1	GONDOLA SHELVING	LOZIER	1 SIDED, 48" LENGTH	OPI
G2	GONDOLA SHELVING	LOZIER	2 SIDED, 48" LENGTH	OPI
G3	GONDOLA SHELVING	LOZIER	1 SIDED, 36" LENGTH	OPI
HD-1	HAND DRYER	XLERATOR	XL-W-ECO	OPI
LS	LABEL PRINTING SCALE	CAS USA CORP.	CL5000B	OPI
TV	55" CEILING MOUNTED TV	SAMSUNG	55CU7000D	GCI; CEILING MOUNT WITH BOTTOM OF TV AT 7'-0" AFF
REFRIGERATION				
EV	EVAPORATOR			CEILING MOUNTED
R1	5 DECK REFRIGERATION CASE (12FT)	HUSSMANN	IM5SL (12FT)	
R2	5 DECK REFRIGERATION CASE (8FT)	HUSSMANN	IM5SL (8FT)	
R3	ENCLOSED REFRIGERATION CASE	HUSSMANN	ESGS (4FT)	
R4	ENCLOSED REFRIGERATION CASE	HUSSMANN	ESGS (8FT)	
R6	DOUBLE DOOR COOLER	TRUE MANUFAC. CO.	GDM-41SL-54-HC-LD	OPI
R7	SINGLE DOOR COOLER	TRUE MANUFAC. CO.	GDM-10	OPI
R8	REACH-IN REFRIGERATOR	HUSSMANN	SHVSS (48")	
R9	REACH-IN REFRIGERATOR	HUSSMANN	SHVSS (75 1/2")	
R10	REACH-IN REFRIGERATOR	HUSSMANN	SHVSS (96")	
R11	OPEN BUNKER FREEZER	HUSSMANN	FWG-L (12ft)	
R12	OPEN REACH-IN REFRIGERATOR	HUSSMANN	INSIGHT IDSSL	
R13	PRODUCE ISLAND COOLER	HUSSMANN	TY3-6 (16ft)	
R14	REACH-IN COOLER	HUSSMANN	RLNI 5 DOOR	
R15	REACH-IN COOLER	HUSSMANN	RLNI 4 DOOR	
R16	REACH-IN COOLER	HUSSMANN	RLNI 3 DOOR	
R17	REFRIGERATOR	LG	LTCS20020S	OPI
SEAFOOD				
FC	FISH CUTTING TABLE	S&W WILSON INC	-	OP-GC
IM	ICE MAKER	HOSHIZAKI	KML-500MAJ	OP-GC
LT2	LOBSTER TANK (2 TIER)	S&W WILSON INC		OP-GC
LT3	LOBSTER TANK (3 TIER)	S&W WILSON INC		OP-GC
SM	SAW MACHINE	BIRO MANUFAC. CO.	22SS WITH SS HEAD STRUCTURE (1 1/2" HP)	OP-GC
TC	SS PAN W/UNDER FISH TANK	S&W WILSON INC	SSSPT120	OP-GC
TF	TANK FILTRATION SYSTEM	S&W WILSON INC		OP-GC

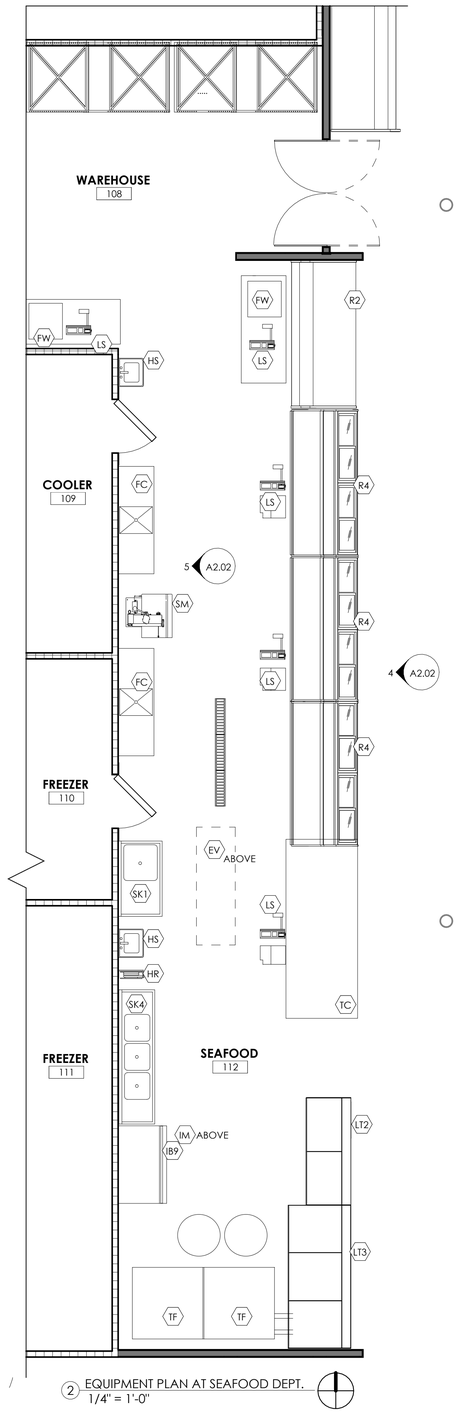
EQUIPMENT SCHEDULE COMMENTS

OPI - OWNER PROVIDED & INSTALLED
OP-GC - OWNER PROVIDED, GC TO PROVIDE HOOKUP CONNECTION
GCI - GC TO PROVIDE & INSTALL

1. HUSSMANN EQUIPMENT WILL BE INSTALLED BY HUSSMANN.
2. GC TO UNLOAD ALL OWNER PROVIDED EQUIPMENT FROM DELIVERY TRUCK.



1 EQUIPMENT PLAN AT MEAT DEPT.
1/4" = 1'-0"



2 EQUIPMENT PLAN AT SEAFOOD DEPT.
1/4" = 1'-0"

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ENLARGED EQUIPMENT PLANS

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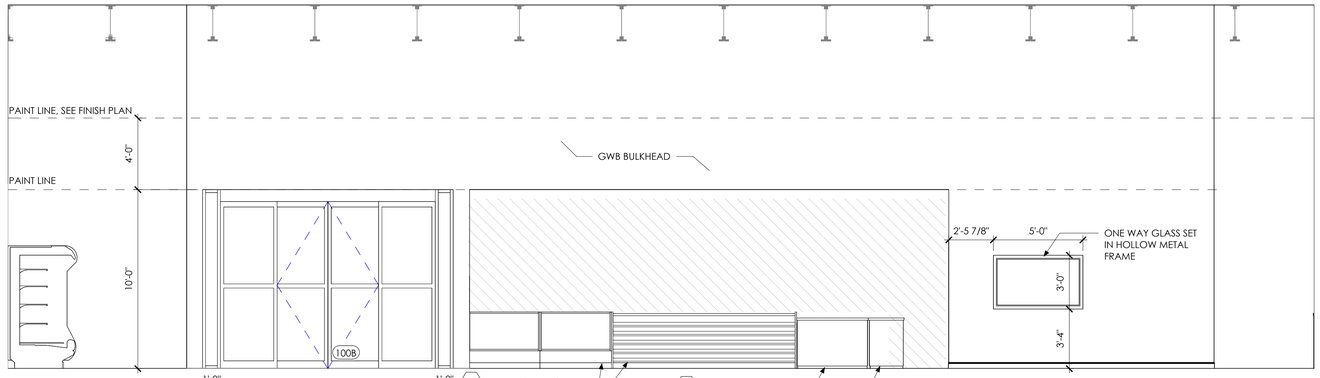
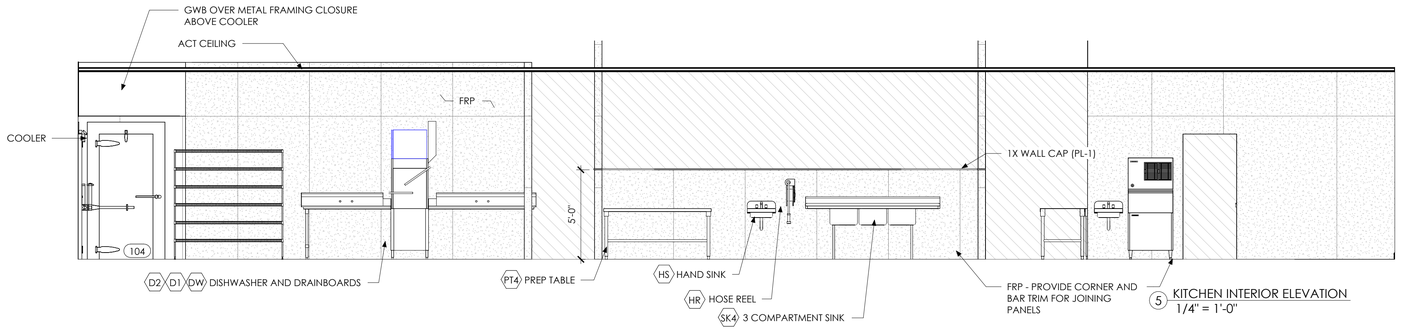
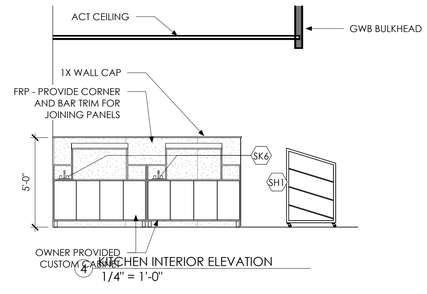


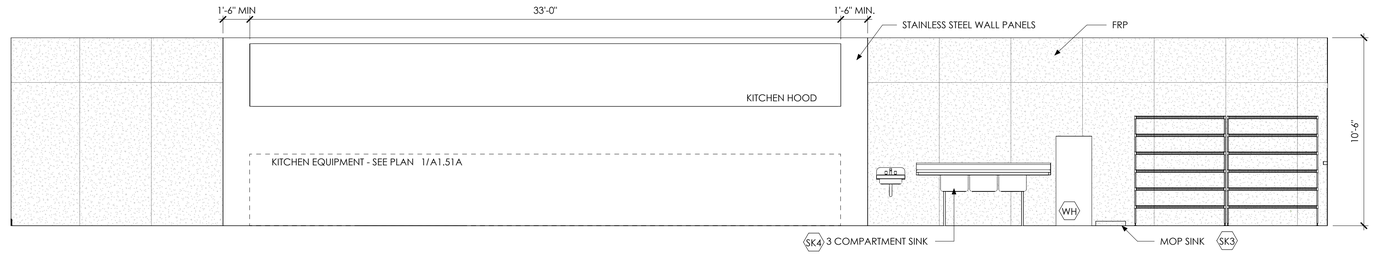
6 ELEVATION AT CUSTOMER SERVICE
1/4" = 1'-0"



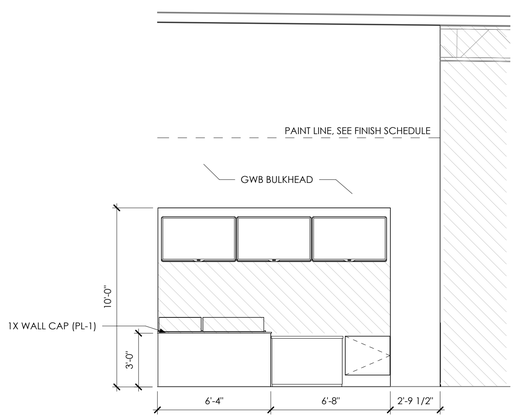
5 KITCHEN INTERIOR ELEVATION
1/4" = 1'-0"



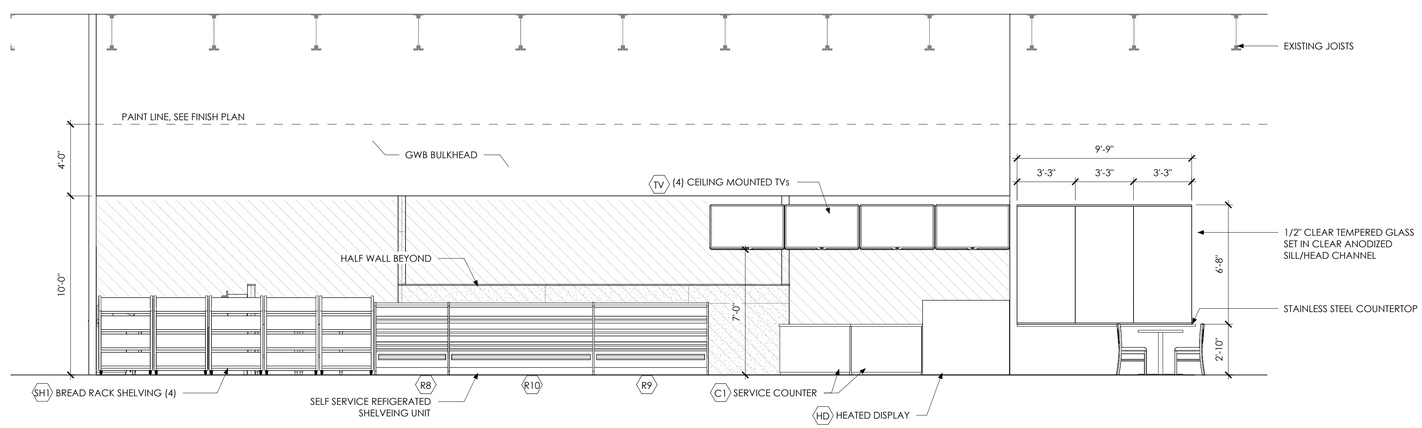
4 KITCHEN INTERIOR ELEVATION
1/4" = 1'-0"



3 ELEVATION AT KITCHEN HOT LINE
1/4" = 1'-0"



2 NORTH ELEVATION AT CAFE
1/4" = 1'-0"



1 WEST ELEVATION AT CAFE
1/4" = 1'-0"

PERMIT & BID SET

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INTERIOR ELEVATIONS AT CAFE

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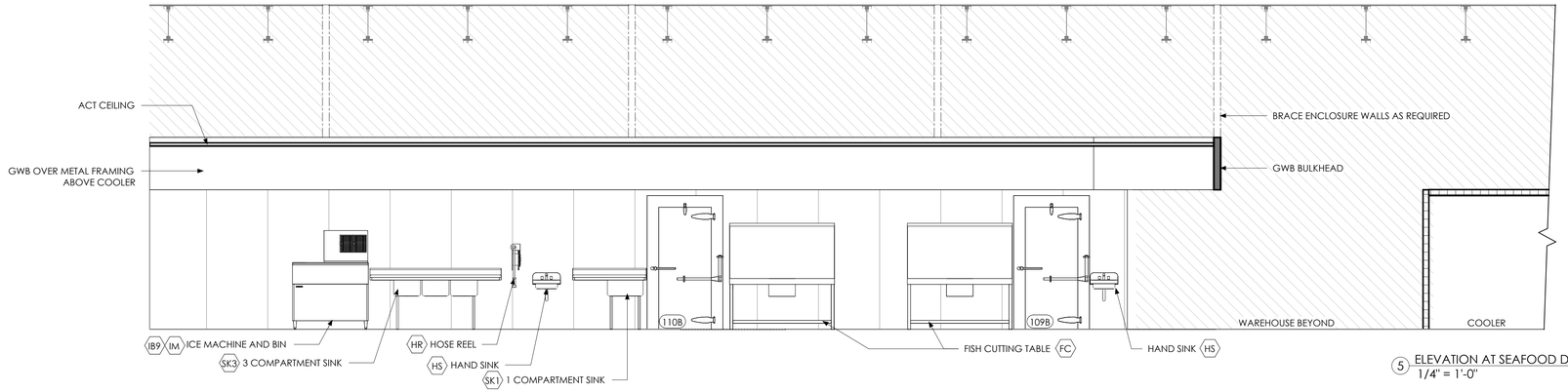
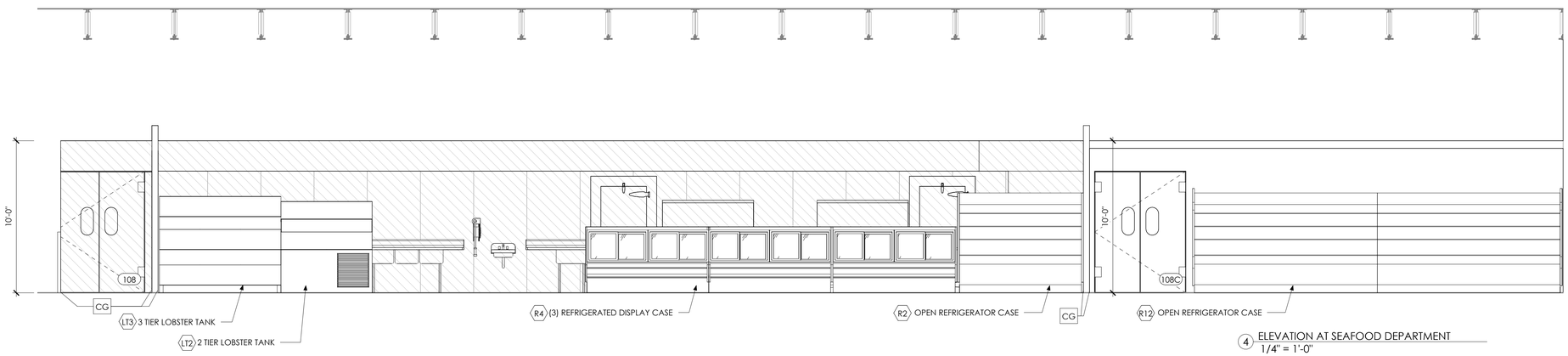
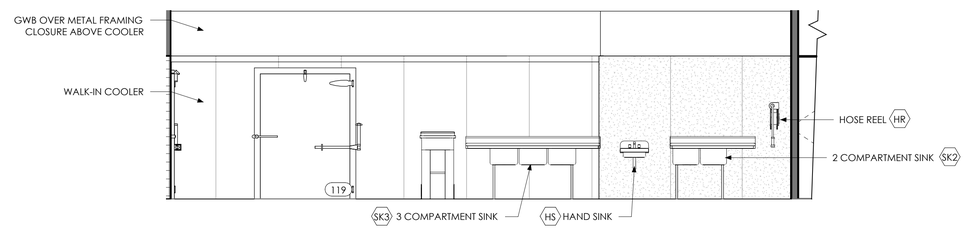


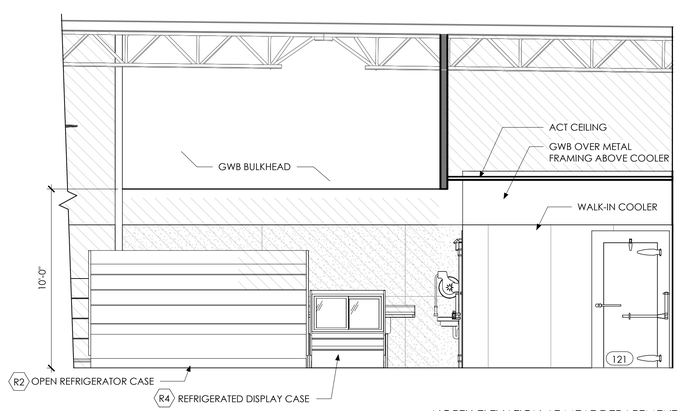
5 ELEVATION AT SEAFOOD DEPT. BACK WALL
1/4" = 1'-0"



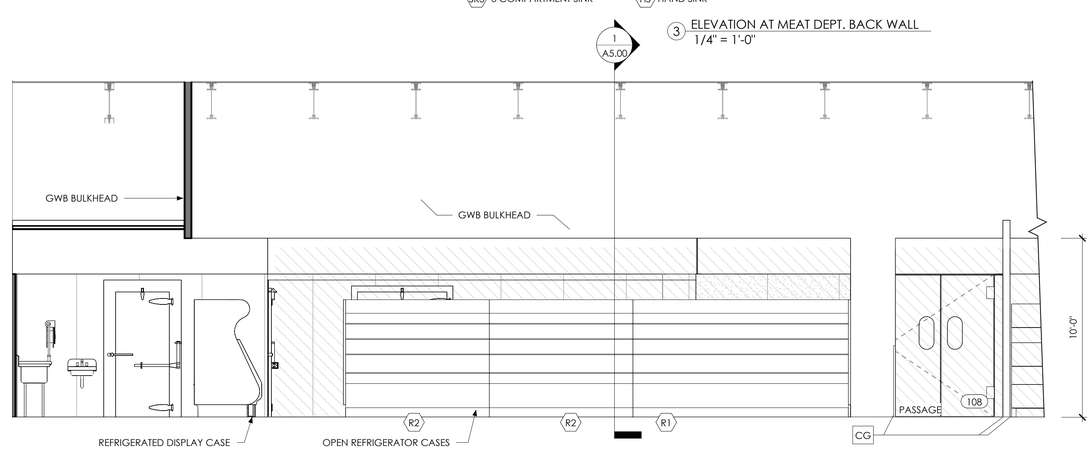
4 ELEVATION AT SEAFOOD DEPARTMENT
1/4" = 1'-0"



3 ELEVATION AT MEAT DEPT. BACK WALL
1/4" = 1'-0"



2 NORTH ELEVATION AT MEAT DEPARTMENT
1/4" = 1'-0"



1 EAST ELEVATION AT MEAT DEPARTMENT
1/4" = 1'-0"

MADISEN MAHER

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133 W. PITTSBURGH AVE, SUITE 102
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PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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DRAWN BY	JS
CHECKED BY	SM

PERMIT & BID SET

INTERIOR ELEVATIONS AT MEAT & SEAFOOD

A2.02

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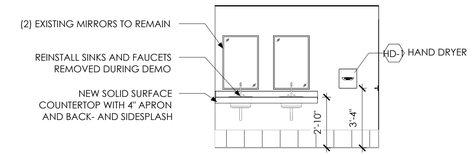
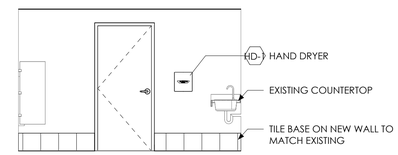
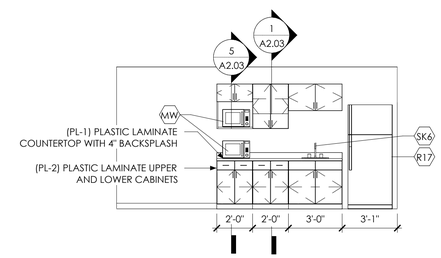


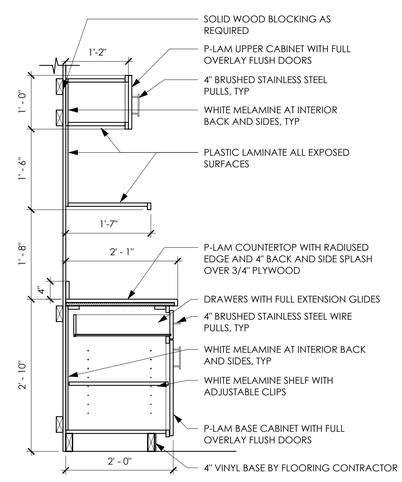
4 ELEVATION AT WOMEN'S
1/4" = 1'-0"



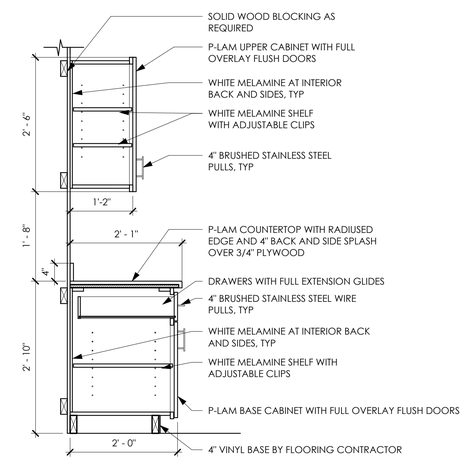
3 ELEVATION AT MENS
1/4" = 1'-0"



2 ELEVATION AT CASEWORK, BREAKROOM
1/4" = 1'-0"



5 SECTION AT CABINETRY, MICROWAVE
3/4" = 1'-0"



1 SECTION AT CABINETRY, TYP.
3/4" = 1'-0"

PERMIT & BID SET

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INTERIOR ELEVATIONS

A2.03

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DOOR HARDWARE GROUPS

HARDWARE GROUP 1

QTY	DESCRIPTION	MODEL NO.	FINISH	MFR
1 EA	CYLINDER	20-001/20-022	626	SCH
	OTHER HARDWARE BY DOOR SUPPLIER			

HARDWARE GROUP 2

QTY	DESCRIPTION	MODEL NO.	FINISH	MFR
	ALL HARDWARE BY DOOR SUPPLIER			

HARDWARE GROUP 3

QTY	DESCRIPTION	MODEL NO.	FINISH	MFR
3 EA	HINGES	BB81-4.5 X 4.5	652	PBB
1 EA	CODE LOCKSET	99170-001	615	KWS
1 EA	WALL STOP	409	630	RKW
3 EA	SILENCER	608-RKW		RKW

HARDWARE GROUP 4

QTY	DESCRIPTION	MODEL NO.	FINISH	MFR
1 EA	CONT. HINGE	CFM-83-HD-1	689	PEM
1 EA	EXIT DEVICE	99L-996L	652	VDP
1 EA	CYLINDER	20-022	626	SCH
1 EA	SURFACE CLOSER	4040XP-SCUSH	689	LCN
1 EA	THRESHOLD	171A	689	PEM
1 SET	WEATHERSTRIP	306-AV-H & J	689	PEM
1 EA	SWEEP	315CN-DW	689	PEM
1 EA	DRIP CAP	346C-DW + 4"	689	PEM

HARDWARE GROUP 5

QTY	DESCRIPTION	MODEL NO.	FINISH	MFR
3 EA	HINGES	BB81-4.5 X 4.5	652	PBB
1 EA	PULL PLATE	111 X 70C	630	RKW
1 EA	PUSH PLATE	70C	630	RKW
1 EA	SURFACE CLOSER	1461-RW/PA	689	LCN
1 EA	KICKPLATE	K1050 10" X 2" LDW	630	RKW
1 EA	WALL STOP	409	630	RKW
3 EA	SILENCERS	608-RKW		RKW

HARDWARE GROUP 6

QTY	DESCRIPTION	MODEL NO.	FINISH	MFR
3 EA	HINGES	BB81-4.5 X 4.5	652	PBB
1 EA	PULL PLATE	111 X 70C	630	RKW
1 EA	PUSH PLATE	70C	630	RKW
1 EA	SURFACE CLOSER	1461-RW/PA	689	LCN
1 EA	KICKPLATE	K1050 10" X 2" LDW	630	RKW
1 EA	OH STOP	OH1003	630	RKW
3 EA	SILENCERS	608-RKW		RKW

HARDWARE GROUP 7

QTY	DESCRIPTION	MODEL NO.	FINISH	MFR
2 EA	DBL ACTING HINGE	DA81		PBB

DOOR SCHEDULE

MARK	ROOM NAME	DOOR HEIGHT	DOOR WIDTH	DOOR TYPE	DOOR FINISH	DOOR GLAZING	HDWR	FRAME TYPE	FRAME FINISH	FIRE RATING	REMARKS
100	VESTIBULE	10' - 0"	12' - 0"	ASL			1				
100B	VESTIBULE	10' - 0"	12' - 0"	ASL			1				
102	OFFICE	7' - 0"	3' - 0"	HM			3	HMF			
104	COOLER	7' - 0"	3' - 0"	CL			2				
105	FREEZER	7' - 0"	3' - 0"	CL			2				
106	RETAIL	7' - 0"	3' - 0"	HMI			4	HMF			
107	COOLER	7' - 0"	5' - 0"	CL			2				
108	WAREHOUSE	8' - 0"	6' - 0"	DBA			2				
108B	WAREHOUSE	10' - 0"	8' - 0"				2				
108C	WAREHOUSE	8' - 0"	6' - 0"	DBA			2				
109	COOLER	7' - 0"	5' - 0"	CL			2				
109B	COOLER	7' - 0"	3' - 0"	CL			2				
110	FREEZER	7' - 0"	5' - 0"	CL			2				
110B	FREEZER	7' - 0"	3' - 0"	CL			2				
111	FREEZER	7' - 0"	5' - 0"	CL			2				
114	WOMEN'S	7' - 0"	3' - 0"	HM			5	HMF			
115	MEN'S	7' - 0"	3' - 0"	HM			6	HMF			
116	EX UTILITY	7' - 0"	3' - 0"	HM			3	HMF			
118	BREAK ROOM	7' - 0"	3' - 0"	HM			3	HMF			
119	FREEZER	7' - 0"	5' - 0"	CL			2				
121	COOLER	7' - 0"	3' - 0"	CL			2				
122	COOLER	7' - 0"	3' - 0"	CL			2				
123	RETAIL	2' - 2"	2' - 6"	SG			7				

FRAME TYPES

HMF - HOLLOW METAL FRAME

PRIME AND PAINT. COLOR TO MATCH ADJACENT WALL FINISH

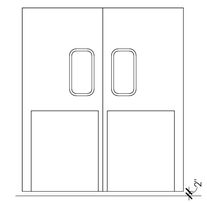
DOOR TYPES

HM - SINGLE HM/ **HMI** - INSULATED

1-3/4" THICK FLUSH PANEL HOLLOW METAL DOOR. PRIME & PAINT. COLOR TO MATCH ADJACENT WALL FINISH.

HM2 - PAIR HM

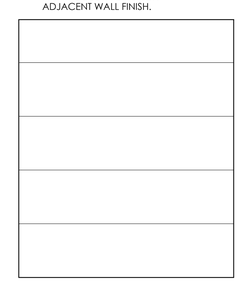
PAIR OF 1-3/4" THICK FLUSH PANEL HOLLOW METAL DOOR. PRIME & PAINT. COLOR TO MATCH ADJACENT WALL FINISH.



DBA - DOUBLE ACTION PAIR

PAIR OF HEAVY DUTY, 1 1/8" THICK DOUBLE ACTION DOORS WITH 36" TRAFFIC BUMPER AND VISION LITE (RUFF TUFF SERIES DOOR)

REINFORCE JAMBS FOR HEAVY DUTY USE

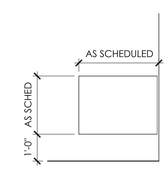


OHD - INSULATED OVERHEAD SECTIONAL

2" INSULATED SECTIONAL OVERHEAD DOOR

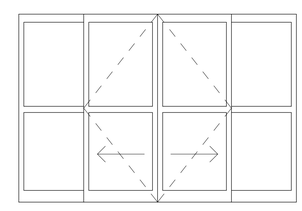
CL - COOLER/FREEZER DOOR

DOOR BY WALK-IN COOLER/FREEZER SUPPLIER



SG - SWING GATE

HALF HEIGHT DOOR ON DOUBLE ACTION SWING HINGES



ASL - AUTOMATIC SLIDING DOORS

AUTMATIC BI-PART SLIDING
STANDLEY DURA-GLIDE
MODEL 2000 BI-PART

PERMIT & BID SET

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DOOR AND WINDOW SCHEDULES

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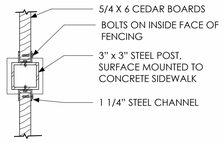
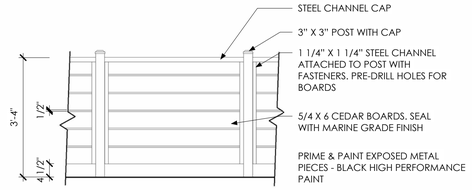
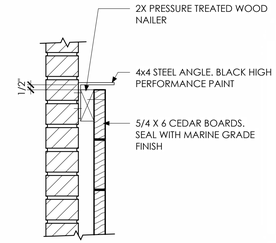


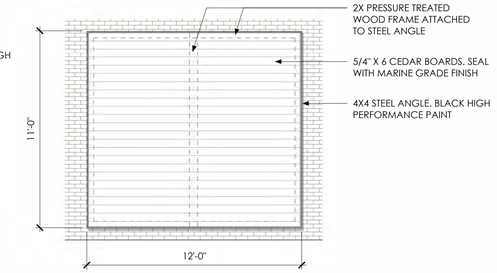
7 PLAN DETAIL AT WOOD RAILING
1 1/2" = 1'-0"



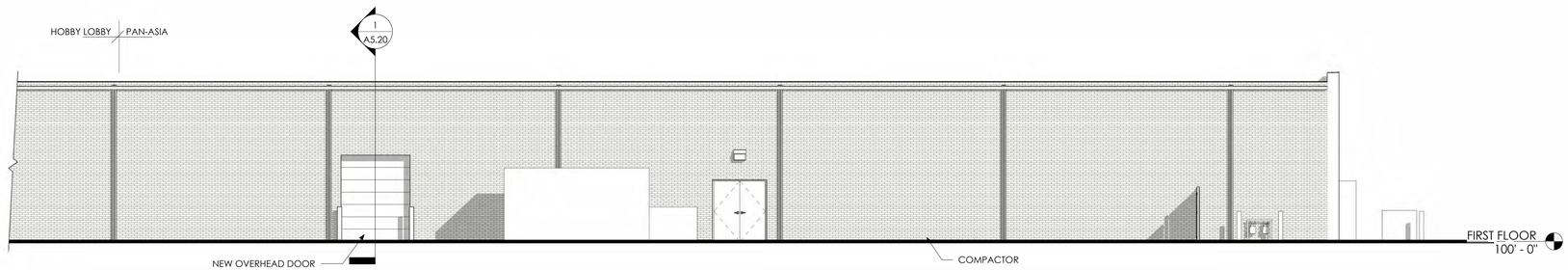
6 ELEVATION AT WOOD RAILING
1/2" = 1'-0"



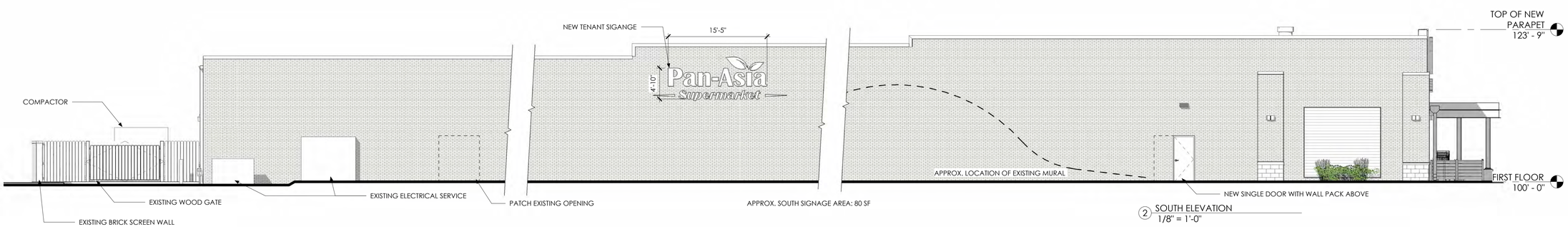
5 SECTION DETAIL AT WOOD SCREEN
1 1/2" = 1'-0"



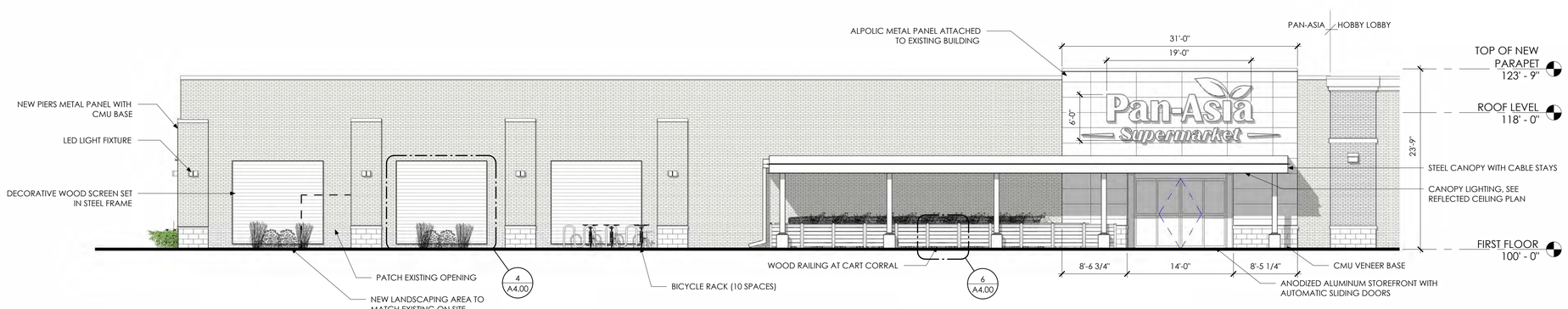
4 ELEVATION AT WOOD SCREEN
1/4" = 1'-0"



3 WEST ELEVATION
1/8" = 1'-0"



2 SOUTH ELEVATION
1/8" = 1'-0"



1 EAST ELEVATION
1/8" = 1'-0"

PERMIT & BID SET

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EXTERIOR ELEVATIONS

A4.00

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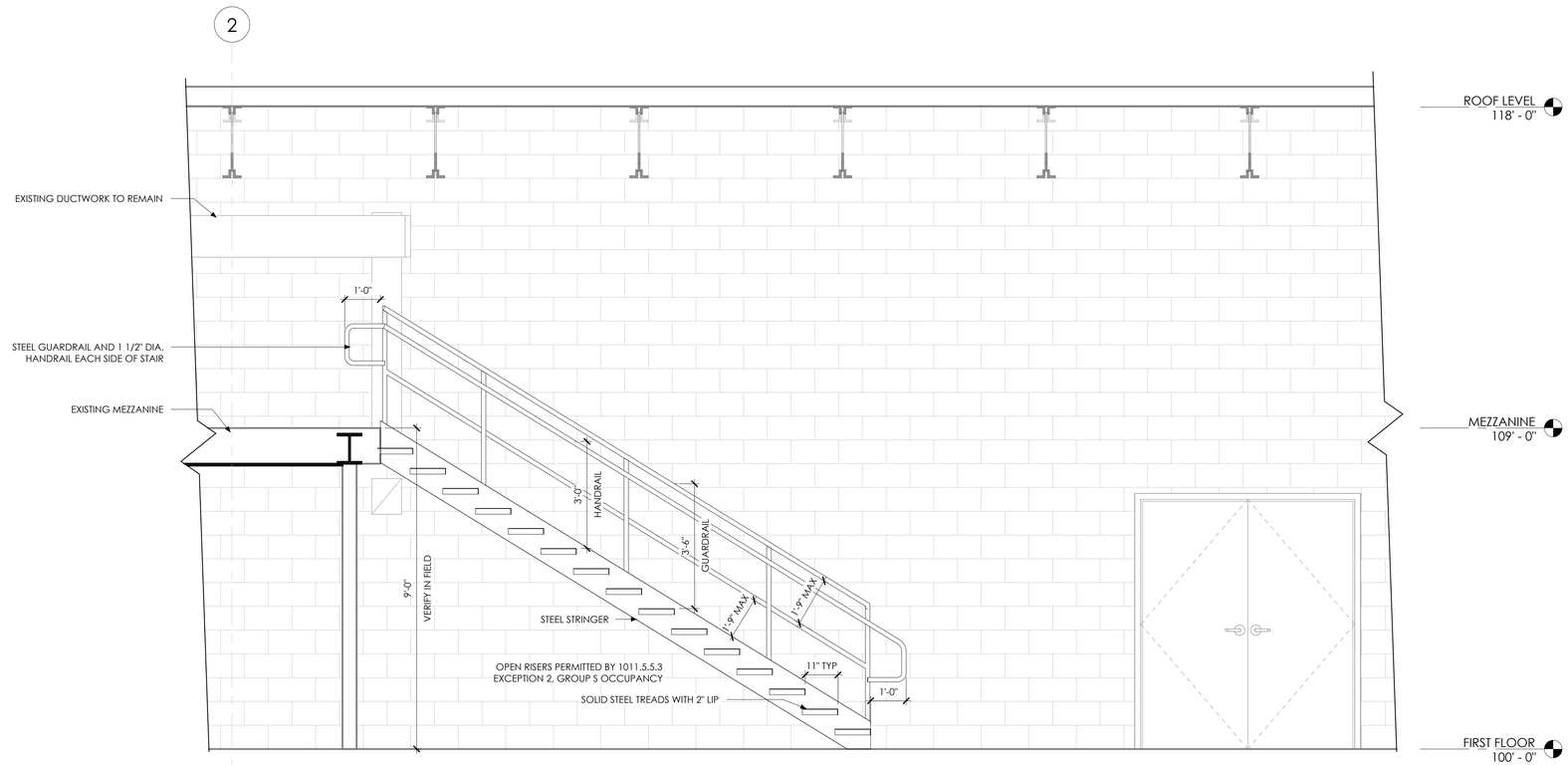
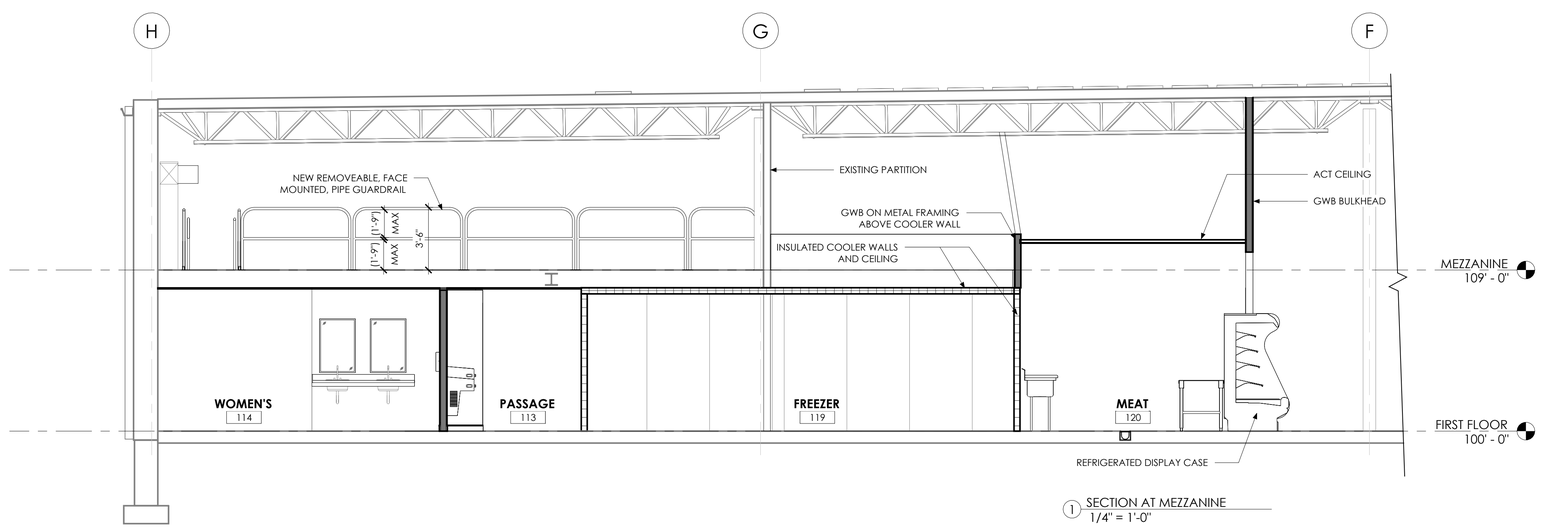


2 SECTION AT MEZZANINE STAIR
1/2" = 1'-0"



1 SECTION AT MEZZANINE
1/4" = 1'-0"

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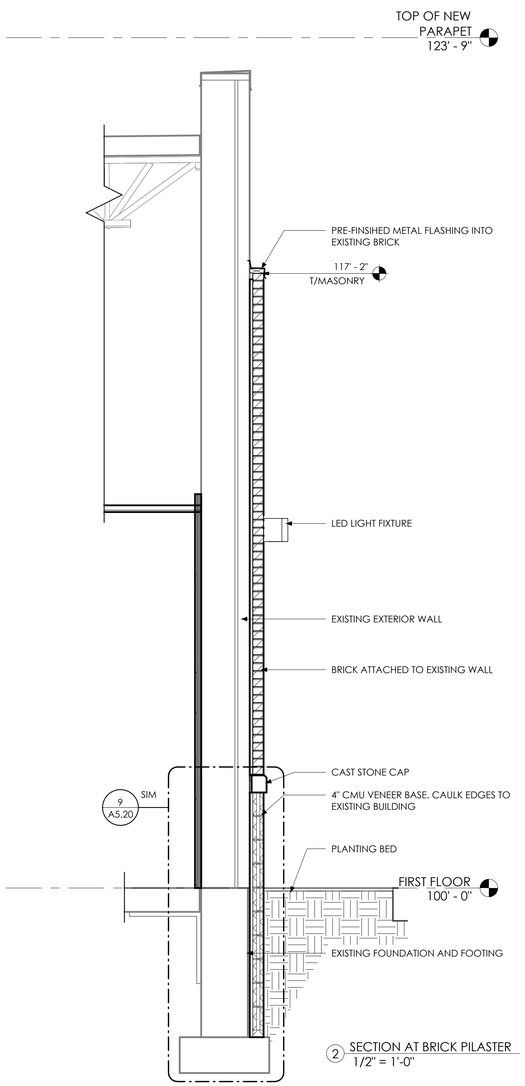
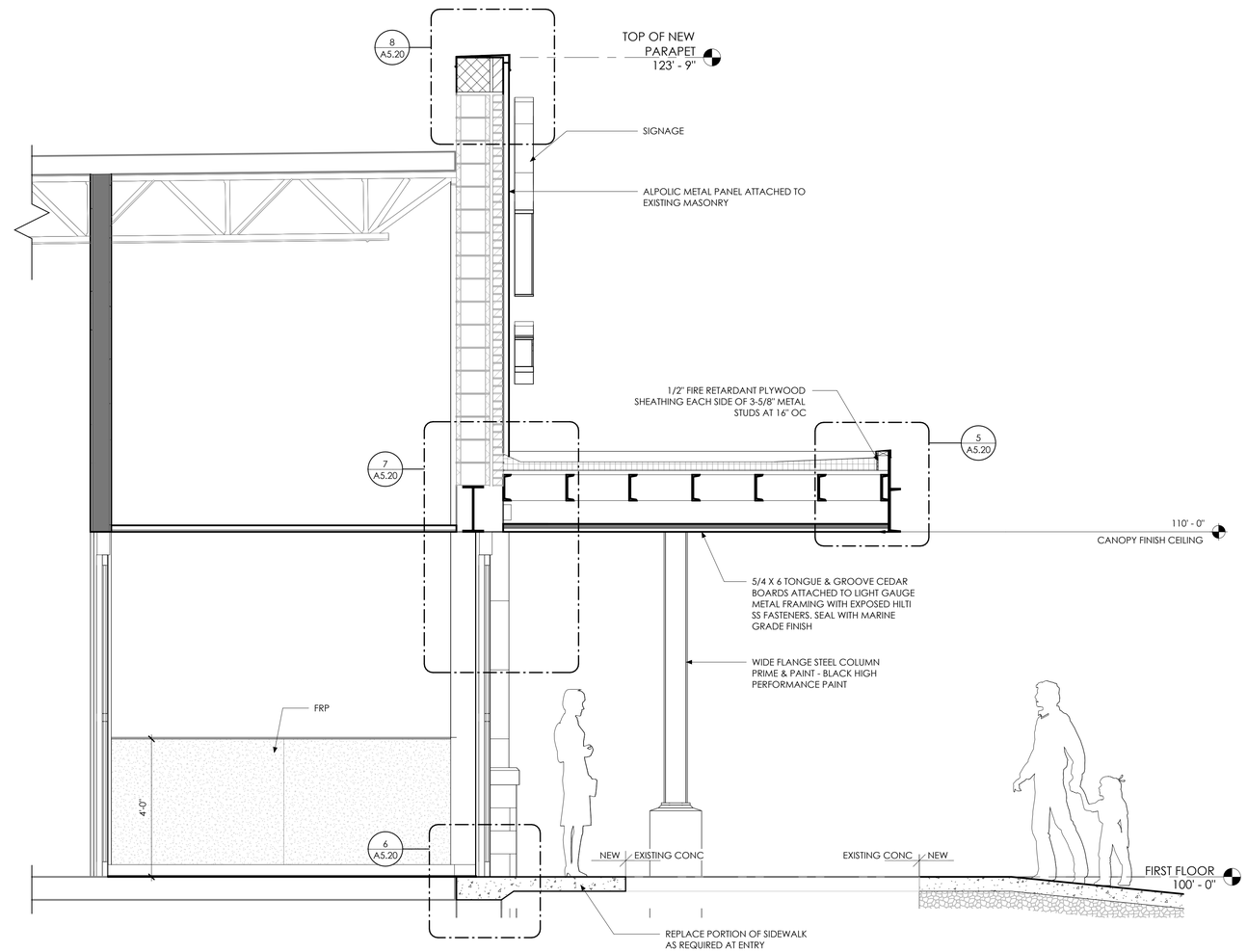
BUILDING SECTIONS

A5.00

2/8/2024 2:34:47 PM



2 SECTION AT BRICK PILASTER
1/2" = 1'-0"



1 SECTION AT MAIN ENTRANCE
1/2" = 1'-0"

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PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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DATE	REV	ISSUE
08/28/23	#	PROJECT START
09/29/23		SD | PLAN COMMISSION
10/12/23		PLAN COMMISSION COMMENTS
10/19/23		SD | PLAN COMMISSION
11/06/23		DD | PROGRESS
11/20/23		DD | OWNER REVIEW SET
12/21/23		DD | PROGRESS
01/29/24		CD | LANDLORD REVIEW SET
02/08/24		CD | PERMIT & BID SET

PROJECT NUMBER	23-044
START DATE	08/28/23
DRAWN BY	JS
CHECKED BY	SM

WALL SECTIONS

A5.10

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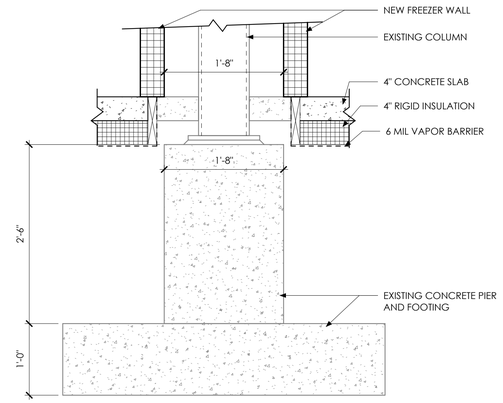
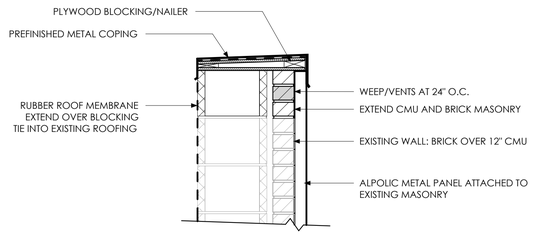
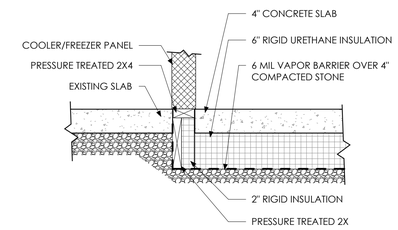


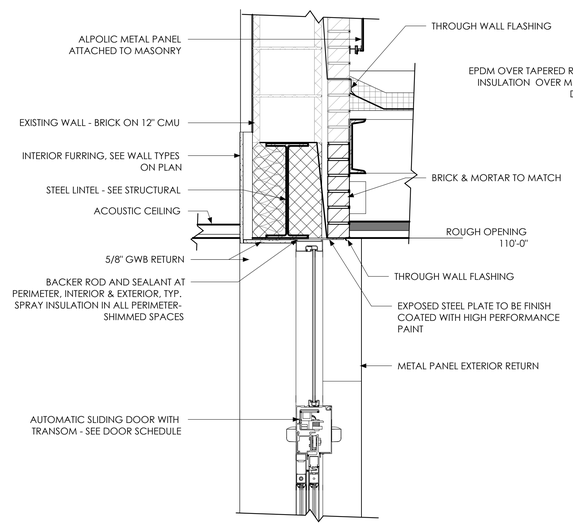
3 SECTION AT COLUMN IN FREEZER
1" = 1'-0"



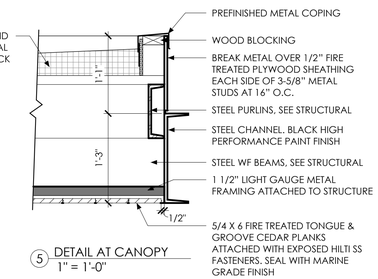
8 DETAIL AT NEW PARAPET
1" = 1'-0"



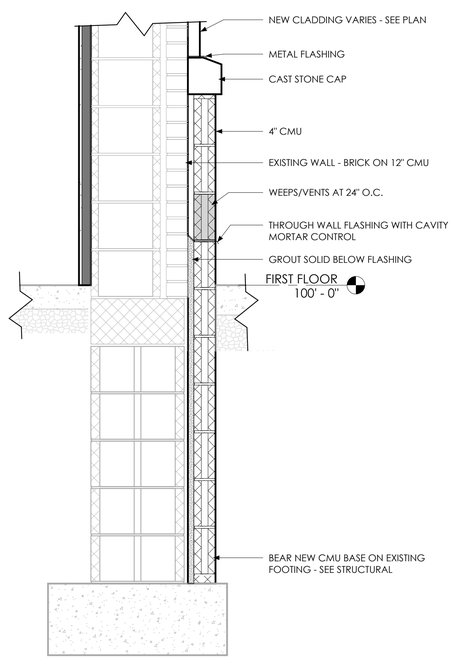
2 DETAIL AT FREEZER SLAB
1" = 1'-0"



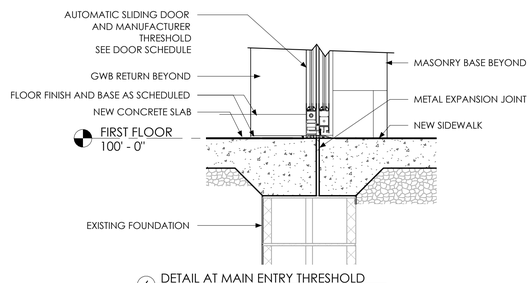
7 DETAIL AT MAIN ENTRY TRANSOM
1" = 1'-0"



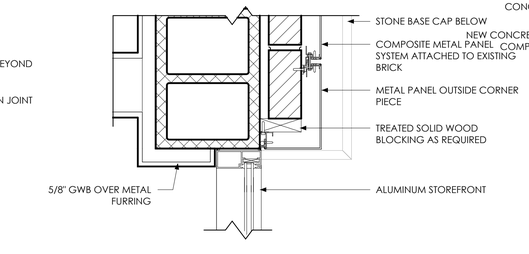
5 DETAIL AT CANOPY
1" = 1'-0"



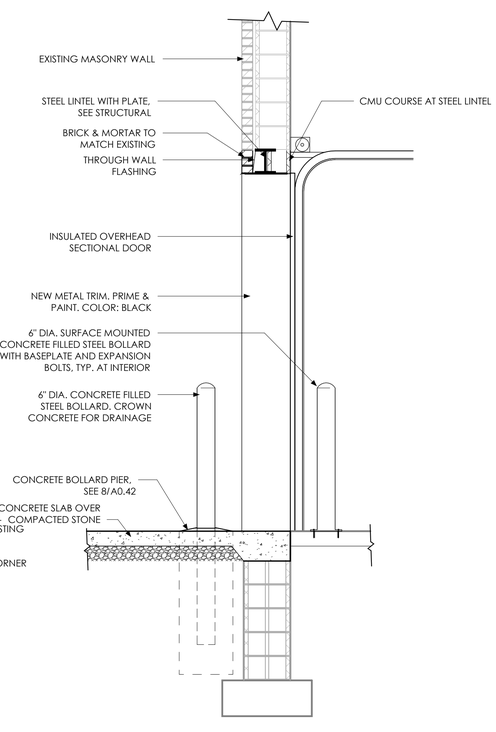
9 SECTION AT CMU BASE, TYP.
1" = 1'-0"



6 DETAIL AT MAIN ENTRY THRESHOLD
1" = 1'-0"



4 DETAIL AT ENTRY JAMB
1 1/2" = 1'-0"



1 SECTION AT OVERHEAD DOOR
1/2" = 1'-0"

PERMIT & BID SET

MADISEN MAHER

ARCHITECTS
133 W. PITTSBURGH AVE, SUITE 102
MILWAUKEE, WI 53204
P: 414.277.8000
MADISENMAHER.COM

PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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SECTION DETAILS

A5.20

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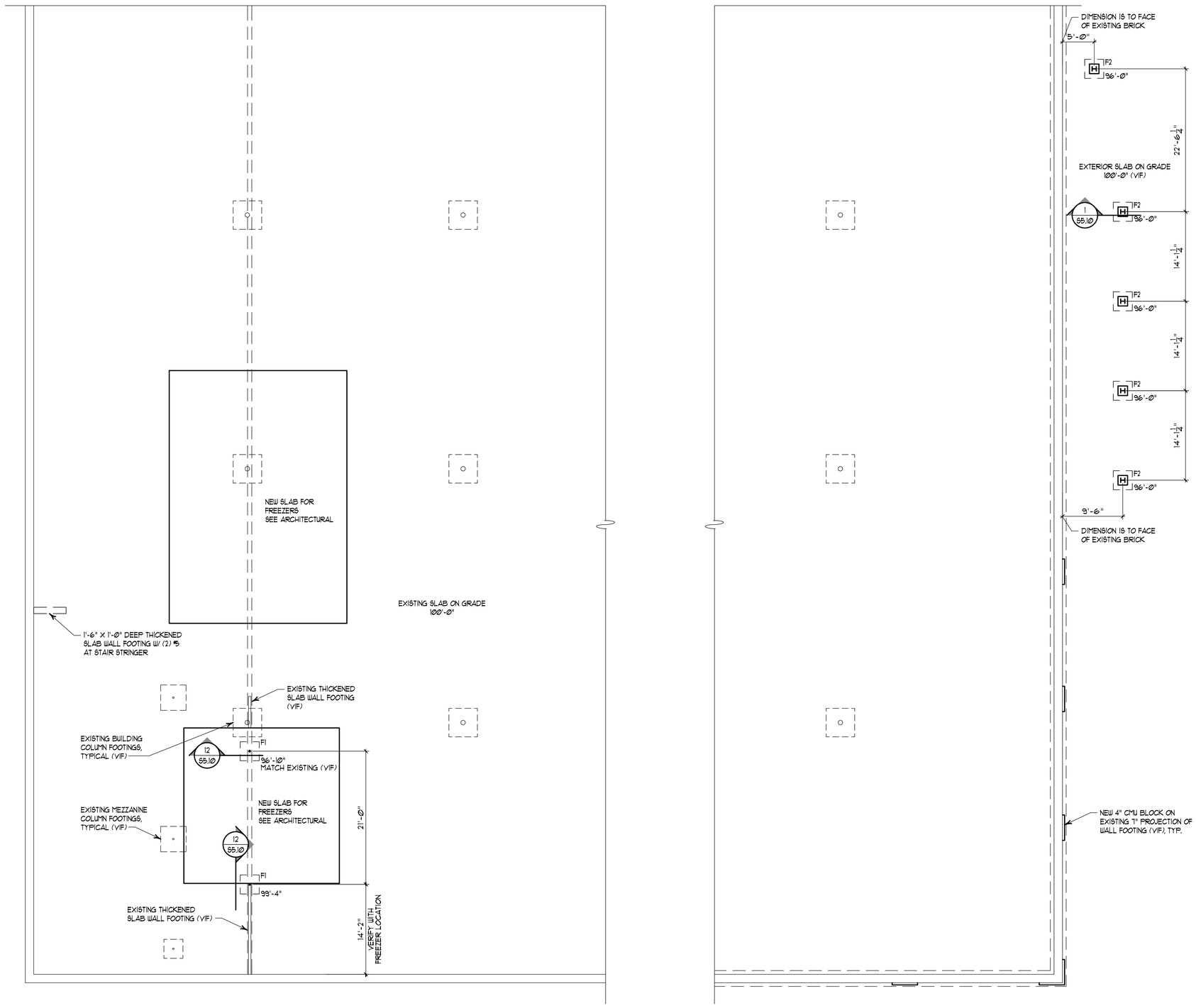

1 FOUNDATION PLAN

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

NORTH

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DATE	REV	ISSUE
02-08-24		PERMIT & BID SET

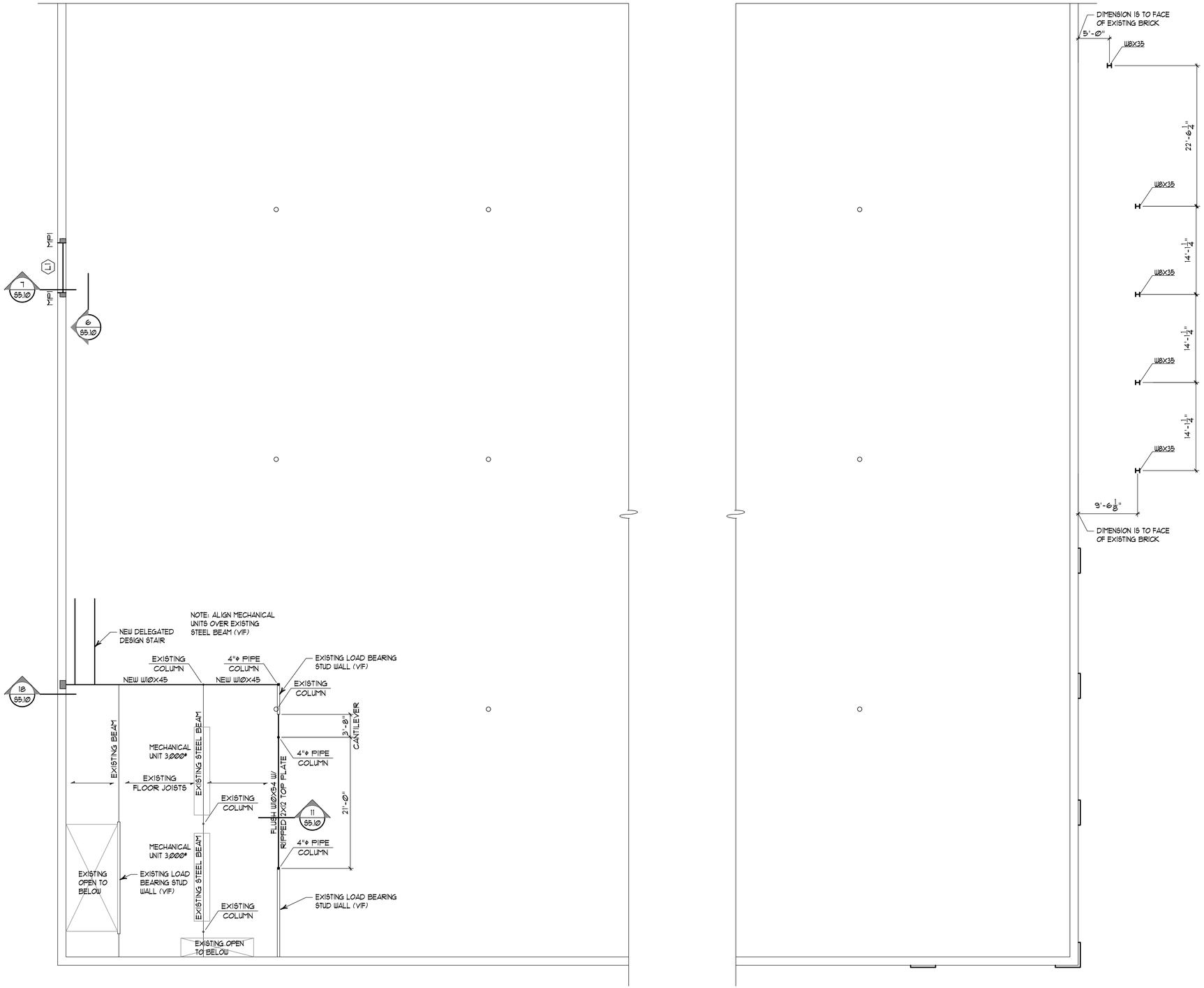
PROJECT	23100
START DATE	1-12-2024
DRAWN BY	LB
CHECKED BY	BE

PERMIT & BID SET

BARBER ENGINEERING
325 West Vine Street • Milwaukee, WI 53212
414-263-5500 • info@barberengineer.com

FOUNDATION PLAN

S1.00



1 MEZZANINE FRAMING PLAN

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

NORTH

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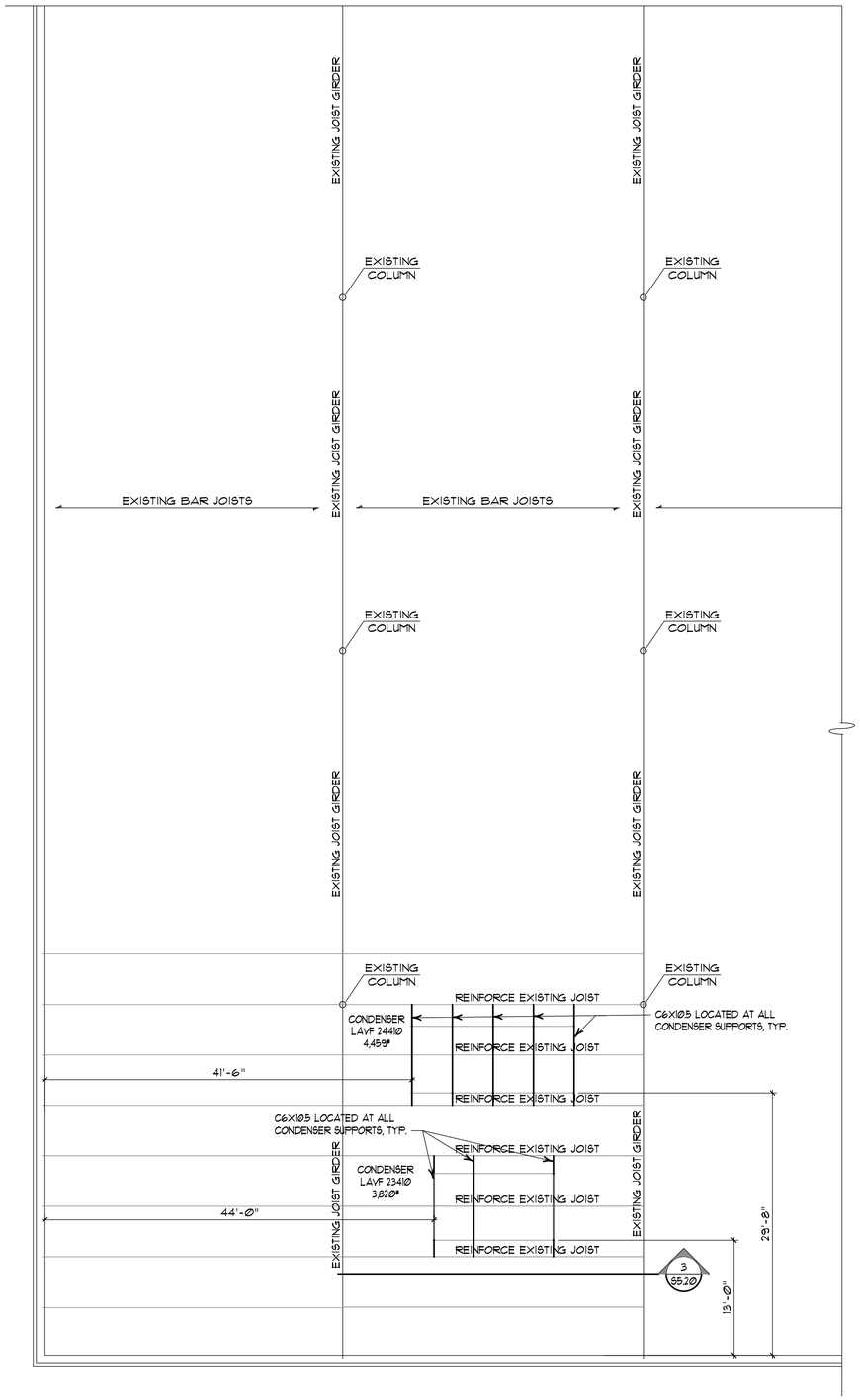
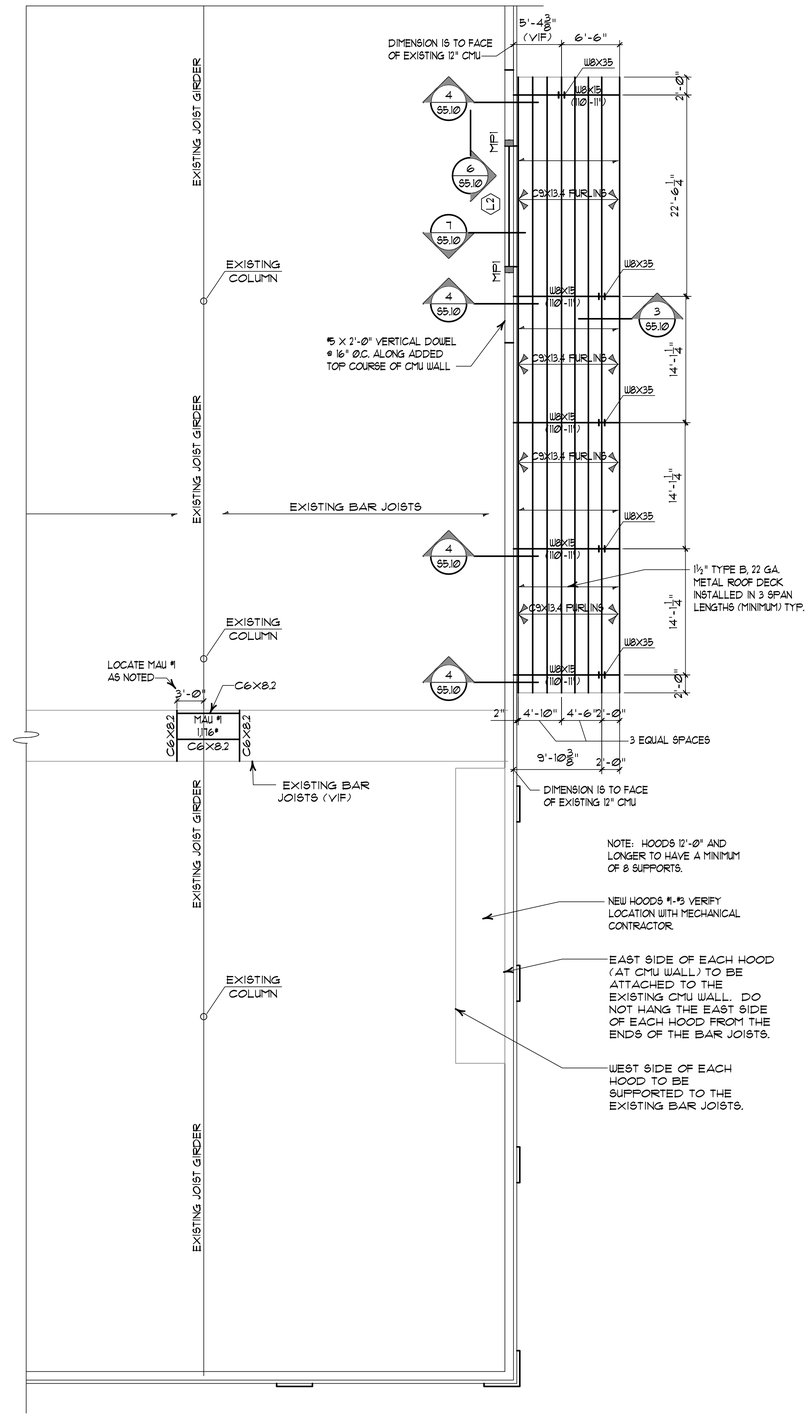
MEZZANINE FRAMING PLAN

S1.12





1 ROOF FRAMING PLAN

SCALE: 1/8" = 1'-Ø"

NORTH

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414-263-5500 • info@barberengineer.com

ROOF FRAMING PLAN

S1.13

DESIGN CRITERIA

PERFORM ALL CONSTRUCTION IN CONFORMANCE WITH THE BUILDING AND DESIGN CODES REFERENCED WITHIN THESE DOCUMENTS. THE PROJECT DOCUMENTS REFER TO THE FOLLOWING CODES AND STANDARDS, UNO:

WISCONSIN COMMERCIAL BUILDING CODE, 2018:
INTERNATIONAL BUILDING CODE (IBC), 2015

STRUCTURAL CONCRETE: "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
THE AMERICAN CONCRETE INSTITUTE (ACI 318-14).

CONCRETE MASONRY: "BUILDING CODE REQUIREMENTS FOR CONCRETE MASONRY STRUCTURES"
THE AMERICAN CONCRETE INSTITUTE (ACI 530-13).

STRUCTURAL STEEL: "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (AISC 360-10).

DESIGN LIVE LOADS

ROOF LOADING
LIVE LOAD---------- 20 PSF
GROUND SNOW LOAD (Pg)---------- 30 PSF
ROOF SLOPE FACTOR (Cs)---------- 1.0
EXPOSURE FACTOR (Ce) ---------- 1.0
IMPORTANCE FACTOR (Is) ---------- 1.0
THERMAL FACTOR (Ct) ---------- 1.0
THERMAL FACTOR - CANOPY (Ct) ---------- 1.2
ROOF SNOW LOAD (Pf) ---------- 21 PSF
ROOF SNOW LOAD - CANOPY (Pf) ----------25.2 PSF
DRIFT ---------- 23.8 PSF
DRIFT (CANOPY) ---------- 21.5 PSF
FLOOR LOADING
MEZZANINE ----------125 PSF
LATERAL EARTH PRESSURE (ACTIVE) ----------40 PSF/FT

WIND DESIGN DATA

ULTIMATE WIND SPEED (3 SECOND GUST) -------- 115 MPH
WIND DIRECTIONALITY FACTOR (Kd) ---------- 0.85
MEAN ROOF HEIGHT (CANOPY)---------- 11.5 FT
WIND EXPOSURE CATEGORY ---------- B
WIND EXPOSURE CLASSIFICATION ---------- +/- 0.18
CANOPY HEIGHT (H) ---------- 11.5 FT
CANOPY (L) ---------- 11.5 FT
Kh (CASE 1) ---------- 0.7
Kh (CASE 2) ---------- 0.7
TOPOGRAPHIC FACTOR (Kzt) ---------- 1.0
VELOCITY PRESSURE (qz) ---------- 20.1 PSF
ROOF NET UPLIFT ---------- 24.2 PSF
DESIGN PROCEDURE ----------DIRECTIONAL PROCEDURE

SEISMIC DESIGN LOADS

SEISMIC USE GROUP / OCCUPANCY CATEGORY --------- II
SEISMIC LOAD IMPORTANCE FACTOR (Ie) ---------- 1
SEISMIC SITE CLASS ---------- D
MAPPED SPECTRAL RESPONSE ACCELERATION (Ss)--- .077
MAPPED SPECTRAL RESPONSE ACCELERATION (S1)--- .049
SPECTRAL RESPONSE COEFFICIENT (Sds) ---------- .082
SPECTRAL RESPONSE COEFFICIENT (Sd1) ---------- .078
SEISMIC DESIGN CATEGORY ---------- B

CONTRACTOR NOTES

PROVIDE ANY NECESSARY TEMPORARY BRACING OR GUYS TO PROVIDE LATERAL SUPPORT OF THE BUILDING UNTIL PERMANENT FRAME IS COMPLETELY INSTALLED.

CONTRACTOR SHALL HIRE A SHORING ENGINEER & CONTRACTOR TO DESIGN AND PROVIDE ALL SHORING REQUIRED TO SUPPORT EXISTING CONSTRUCTION AND NEW CONSTRUCTION AS REQUIRED TO BUILD THIS PROJECT.

SHORING AND UNDERPINNING SHALL BE DESIGNED TO LIMIT HORIZONTAL AND VERTICAL MOVEMENT OF EXISTING CONSTRUCTION OF 1/4" MAXIMUM IN ANY DIRECTION.

IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND CONSTRUCTION SEQUENCE IN ORDER TO ENSURE THE SAFETY OF THE BUILDING AND WORKMEN DURING CONSTRUCTION (MEANS & METHODS OF CONSTRUCTION). THIS INCLUDES, BUT IS NOT LIMITED TO: SHORING, UNDERPINNING, TEMPORARY BRACING, ETC.

FIELD VERIFY ALL DIMENSIONS & EXISTING SIZES AND CONDITIONS SHOWN ON THESE CONSTRUCTION DOCUMENTS LOCATING EXISTING BUILDING ELEMENTS PRIOR TO PREPARING SHOP DRAWINGS & FABRICATING MATERIALS. GENERAL CONTRACTOR TO COORDINATE ANY CHANGES WITH ARCHITECT & ENGINEER.

EXISTING FRAMING SHOWN ON THESE DRAWINGS IS BASED ON AVAILABLE DOCUMENTATION & FIELD OBSERVATION TO DATE. FIELD VERIFY ACTUAL DIMENSIONS/CONFIGURATIONS OF ALL STRUCTURAL MEMBERS AS NECESSARY FOR NEW CONSTRUCTION. IF SIZES DIFFER, NOTIFY ENGINEER PRIOR TO PROCEEDING WITH WORK. FIELD VERIFY ALL EXISTING MEMBER SIZES AND LOCATIONS AS REQUIRED TO PROPERLY INSTALL ALL NEW STRUCTURAL MEMBERS AS SHOWN. MODIFY AND RELOCATE ALL OTHER WORK (PLUMBING, ELECTRICAL, HVAC, ETC.) AS REQUIRED TO INSTALL NEW STRUCTURAL MEMBERS AS SHOWN ON THESE DRAWINGS.

ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED BY CONTRACTOR AND COORDINATED WITH ARCHITECT'S DRAWINGS. INFORM ARCHITECT OF ANY DISCREPANCIES.

SEE ARCHITECT'S DRAWINGS FOR FLOOR PITCHES, DEPRESSIONS, ETC.

IN THE CASE OF DISCREPANCIES OR CONFLICTS IN THE DRAWINGS, CONTRACTOR SHALL ASSUME THE MORE COSTLY DESIGN DURING BIDDING AND SHALL REQUEST CLARIFICATION PRIOR TO CONSTRUCTION. COORDINATE CHANGES WITH ARCHITECT AND ENGINEER.

GENERAL NOTES

STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL, PLUMBING AND MECHANICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS OF ALL DRAWINGS INTO THEIR SHOP DRAWINGS AND WORK.

NO OPENINGS, OTHER THAN THOSE SHOWN ON DESIGN DRAWINGS AND APPROVED SHOP DRAWINGS, SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT AND ENGINEER.

NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL MEMBERS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT AND ENGINEER.

CONTRACTOR SHALL REVIEW AND STAMP ALL SHOP DRAWINGS BEFORE SUBMITTING TO THE ARCHITECT.

OPENINGS OF 1'-4" AND LESS ON A SIDE ARE GENERALLY NOT SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATION AND DIMENSIONS OF THOSE OPENINGS. PROVIDE REINFORCING AROUND OPENINGS PER TYPICAL DETAILS SHOWN ON STRUCTURAL DRAWINGS.

THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.

THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR SHALL FURNISH ALL TEMPORARY BRACING AND/OR SUPPORTS REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES.

DO NOT SCALE THESE DRAWINGS. USE DIMENSIONS.

CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD. EXPANSION JOINTS SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED TO ACCOMMODATE ANTICIPATED THERMAL MOVEMENT AFTER THE BUILDING IS COMPLETE.

THE CONTRACTOR SHALL INFORM THE ARCHITECT AND ENGINEER IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY FOR SUCH DEVIATION BY THE ARCHITECT'S AND ENGINEER'S APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, ETC. UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE ARCHITECT AND ENGINEER OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE ARCHITECT AND ENGINEER HAVE GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.

ALL THINGS WHICH, IN THE OPINION OF THE CONTRACTOR, APPEAR TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS AND AMBIGUITIES, IN THE PLANS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER. PLANS AND/OR SPECIFICATIONS WILL BE CORRECTED OR A WRITTEN INTERPRETATION OF THE ALLEGED DEFICIENCY, OMISSION, CONTRADICTION OR AMBIGUITY WILL BE MADE BY THE ARCHITECT AND ENGINEER BEFORE THE AFFECTED WORK PROCEEDS.

STEEL DECK - CANOPY ROOF

METAL ROOF DECK SHALL BE GALVANIZED OR PAINTED EXCEPT WHERE GALVANIZING IS SPECIFICALLY REQUIRED. GALVANIZED SHEET STEEL SHALL CONFORM TO ASTM A446 GRADE A AND ASTM A525 WITH A MINIMUM G30 COATING UNLESS OTHERWISE NOTED. SHEET STEEL TO BE PAINTED SHALL CONFORM TO ASTM A611 GRADE C.

DECK, ACCESSORIES, AND ATTACHMENTS SHALL CONFORM TO "STEEL DECK INSTITUTE SPECIFICATIONS" (LATEST EDITION).

STEEL DECK SHALL BE PLACED SUCH THAT EACH SHEET IS IN A THREE SPAN CONDITION (UNLESS NOTED OTHERWISE ON PLANS)

DECK TYPE: COMPLY WITH SDI "ROOF-DECK SPECIFICATIONS," OF METAL THICKNESS, WIDTH AND DEPTH INDICATED. SEE PLAN.

DECK ATTACHMENT: SEE APPLICABLE DETAILS AND SPECIFICATIONS. ATTACH DECK 6" ON CENTER ALONG PERIMETER WALLS AND END LAPS. MECHANICAL FASTENERS TO BE ONE OF THE FOLLOWING: TEKS SELF-DRILLING FASTENERS BY ITW BUILDEX, HILTI ENKK FASTENERS OR PNUEUTEK, INC. FASTENER SYSTEM.

FOR OPENING LESS THAN 10" IN DIAMETER, PROVIDE A 22 GAUGE COVERPLATE, 6"x24", EACH SIDE PERPENDICULAR TO DECK SPAN.

DO NOT SUSPEND POINT LOADS FROM ROOF DECK EXCEPT FOR HANGERS FOR SUSPENDED CEILINGS.

THE NAME OF THE DECK FABRICATOR SHALL BE CLEARLY NOTED ON ALL SHOP DRAWING SUBMITTALS.

DELEGATED DESIGN ITEMS

THE CONTRACTOR SHALL EMPLOY OR RETAIN A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF WISCONSIN TO DESIGN AND DETAIL DELEGATED DESIGN ITEMS TO MEET THE PERFORMANCE AND DESIGN CRITERIA ESTABLISHED AS PART OF THE BASE BUILDING STRUCTURE INDICATED IN THE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL FORWARD THE REVIEWED DELEGATED DESIGN DOCUMENTS TO THE BUILDING OFFICIAL, ARCHITECT AND ENGINEER OF RECORD WITH NOTATIONS FROM THE DESIGN PROFESSIONALS IN RESPONSIBLE CHARGE AND THE CONTRACTORS INDICATING THAT THE SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND ARE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING. THE DELEGATED DESIGN ITEMS SHALL NOT BE INSTALLED UNTIL THE SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL, ARCHITECT AND ENGINEER OF RECORD.

DELEGATED DESIGN ITEMS INCLUDED, BUT NOT LIMITED TO:
- STAIRS AND RAILINGS

FOUNDATION AND EARTHWORK

ISOLATED AND CONTINUOUS FOUNDATIONS HAVE BEEN DESIGNED FOR AN ASSUMED ALLOWABLE NET BEARING PRESSURE OF 3,000 PSF. THE OWNER AND CONTRACTOR ARE RESPONSIBLE FOR VERIFYING THESE ASSUMPTIONS WITH ACTUAL CONDITIONS PRIOR TO CONSTRUCTION OR BUILD AT THEIR OWN RISK. ACHIEVING AN ALLOWABLE BEARING PRESSURE DOES NOT PRECLUDE THE BUILDING FROM BEING SUBJECT TO DIFFERENTIAL MOVEMENT. SHOULD THE OWNER BE CONCERNED, THEY SHALL ENGAGE THE SERVICES OF A LICENSED GEOTECHNICAL ENGINEER TO INVESTIGATE AND PROVIDE RECOMMENDATIONS.

ALL FOOTING AND SLAB SUBGRADES, INCLUDING PIT SLABS, SHALL BE COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT BASED ON LABORATORY DESIGNATION ASTM D1557. ALL BACKFILL AROUND AND ABOVE ALL FOUNDATION ELEMENTS, FOOTINGS, CAPS, MATS AND PITS SHALL BE COMPACTED TO 90 PERCENT OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT BASED ON LABORATORY DESIGNATION ASTM D1557.

ALL ORGANIC AND/OR OTHER UNSUITABLE MATERIALS SHALL BE REMOVED FROM SUBGRADE AND BACKFILL AREAS WITH ACCEPTABLE GRANULAR FILL, COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY. FILL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8 INCHES IN LOOSE THICKNESS.

NO MUD SLABS, FOOTINGS OR SLABS SHALL BE PLACED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST OR ICE. SHOULD WATER OR FROST ENTER A FOOTING ELEVATION AFTER SUBGRADE APPROVAL, THE SUBGRADE SHALL BE RE-INSPECTED BY THE OWNER'S SOIL TESTING LABORATORY AFTER REMOVAL OF WATER OR FROST.

THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE BEFORE AND AFTER PLACING OF CONCRETE AND UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.

WHERE FILL MATERIAL IS REQUIRED ON BOTH SIDES OF GRADE BEAMS OR WALLS, IT SHALL BE PLACED SIMULTANEOUSLY.

WHERE FILL MATERIAL IS PLACED ON ONE SIDE OF A WALL (OR GRADE BEAM), THE WALL (OR GRADE BEAM) SHALL BE ADEQUATELY SHORED AND BRACED OR THE MATERIAL SHALL NOT BE PLACED UNTIL SUPPORTING FLOOR SLABS HAVE BEEN POURED AND SET OR FLOOR FRAMING HAS BEEN INSTALLED.

CONTRACTOR SHALL BE RESPONSIBLE TO ADEQUATELY PROTECT ALL EXCAVATION. WHERE NECESSARY, SHEET AND SHORE THE EXCAVATION WITH ALL REQUIRED TIEBACKS AND BRACING AS DETERMINED BY CONTRACTOR'S ENGINEER.

DO NOT BACKFILL AGAINST CANTILEVER RETAINING WALLS UNTIL THE CONCRETE HAS ATTAINED 100% OF ITS DESIGN STRENGTH.

THE CONCRETE FOR EACH ISOLATED FOOTING SHALL BE PLACED IN ONE (1) CONTINUOUS PLACEMENT.

ALL SLAB AND FOOTING MUD SLABS SHALL BE THOROUGHLY CLEANED IMMEDIATELY PRIOR TO THE FOUNDATION CONCRETE PLACEMENT.

ALL PERIMETER WALL AND COLUMN FOOTINGS SHALL BEAR A MINIMUM OF 4'-0" BELOW FINISHED GRADES. ALL WALL AND COLUMN FOOTINGS OUTSIDE THE BUILDING PERIMETER SHALL BEAR A MINIMUM OF 5'-0" BELOW FINISHED GRADES SHOWN ON THE CIVIL DRAWINGS.

SEE PLUMBING DRAWINGS FOR UNDER FLOOR DRAINAGE SYSTEM AND SPECIAL GRANULAR FILL MATERIALS.

SEE ARCHITECTURAL DRAWINGS FOR ALL WATERPROOFING AND DAMPPROOFING DETAILS.

CAST-IN-PLACE CONCRETE

CONCRETE COVER TO REINFORCING STEEL, UNLESS NOTED OTHERWISE, SHALL BE AS FOLLOWS:

CONCRETE CAST AGAINST EARTH AND PERMANENTLY EXPOSED TO EARTH:

FOOTINGS ---------- 3"

CONCRETE EXPOSED TO EARTH AND WEATHER:
WALLS, COLUMNS, PIERS, BEAMS:
UP THROUGH #5 BARS ---------- 1-1/2"
#6 THROUGH #18 ---------- 2"

FORMED SURFACES NOT IN CONTACT WITH EARTH OR EXPOSED TO WEATHER:
WALLS
UP THROUGH #11 BARS ---------- 3/4"
#14 AND #18 ---------- 1-1/2"

ELEVATED SLABS
TOP ---------- 3/4"
BOTTOM ---------- 1"

BEAMS
TOP/BOTTOM/SIDE ---------- 1-1/2"

COLUMNS
SIDES ---------- 1-1/2"

CAST-IN-PLACE CONCRETE

ALL WORK TO BE DONE IN ACCORDANCE WITH ACI 318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE DESIGN AND CONSTRUCTION (CURRENTLY ADOPTED EDITION).

CEMENT SHALL CONFORM TO ASTM C150 TYPE I. USE ONLY ONE BRAND OF CEMENT FOR ALL EXPOSED TO VIEW CONCRETE. AGGREGATES SHALL CONFORM TO ASTM C33 (REGULAR WEIGHT). ALL CONCRETE SHALL CONTAIN AN APPROVED WATER REDUCING ADMIXTURE. ALL EXPOSED CONCRETE SHALL BE AIR-ENTRAINED. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.

REINFORCING STEEL SHALL BE NEW DEFORMED BARS. REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60, ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064, GRADE 65. ALL TIES, STIRRUPS AND FIELD BENT BARS TO HAVE Fy = 40,000 PSI.

WHERE REINFORCING BARS ARE SHOWN CONTINUOUS, PROVIDE CLASS B TENSION LAP SPLICES (12" MINIMUM) EXCEPT WHERE NOTED OR DETAILED OTHERWISE. LAP WWF WIRE SPACING PLUS 2" (6" MINIMUM).

DETAIL AND PROVIDE SUITABLE WIRE SPACERS, CHAIRS, TIES, ETC., FOR SUPPORTING REINFORCING STEEL AND WELDED WIRE FABRIC IN THE PROPER POSITION WHILE PLACING CONCRETE.

PROVIDE DOWELS OF SAME SIZE AND SPACING AT VERTICAL WALL OR COLUMN PIER REINFORCING AT THE FOUNDATION, UNLESS NOTED OTHERWISE. DOWELS SHALL BE TIED IN PLACE PRIOR TO CONCRETE PLACEMENT.

PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF WALLS AND FOOTINGS.

CHECKED SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING AND PLACEMENT SHALL BE SUBMITTED FOR ENGINEER'S REVIEW PRIOR TO FABRICATION.

DRAWINGS SHOWING LOCATION OF CONSTRUCTION AND CONTROL JOINTS AND PLACING SEQUENCE SHALL BE SUBMITTED FOR ENGINEER'S REVIEW PRIOR TO PREPARATION OF THE REINFORCING STEEL SHOP DRAWINGS.

HORIZONTAL CONSTRUCTION JOINTS ARE NOT PERMITTED IN CONCRETE MEMBERS UNLESS SHOWN ON THE DRAWINGS OR APPROVED IN ADVANCE. VERTICAL CONSTRUCTION JOINTS OR BULKHEADS SHALL BE MADE AT MIDSPAN OR POINTS OF MINIMUM SHEAR.

SIZE OF CONCRETE POURS BETWEEN CONSTRUCTION JOINTS SHALL BE LIMITED TO:

1. WALLS: MAXIMUM LENGTH 100 FT WITH INTERMEDIATE CONTROL JOINTS APPROXIMATELY 30 FT. DO NOT LOCATE WITHIN 5 FT OF A CORNER OR COLUMN. COORDINATE LOCATIONS WITH VENEER JOINTS.
2. SLAB ON GRADE: 3,600 SQUARE FT WITH MAXIMUM DIMENSION OF 60 FT± PLACE IN LANE OR STRIP FASHION WITH INTERMEDIATE CONTROL JOINTS AT APPROXIMATELY 15 FT FOR EXPOSED CONCRETE SURFACES. COORDINATE LOCATIONS WITH FLOOR FINISHES.

VERIFY LOCATION OF OPENINGS SHOWN THROUGH CONCRETE SLABS OR WALLS AND COORDINATE ANY ADDITIONAL REQUIRED OPENINGS WITH OTHER TRADES AND THE ARCHITECT/ENGINEER.

CONCRETE EXPOSED TO FREEZING AND THAWING SHALL CONTAIN 6% (PLUS OR MINUS 1.5%) ENTRAINED AIR.

THICKEN SLABS ON GRADE BELOW NON-BEARING INTERIOR MASONRY WALLS.

ALUMINUM CONDUIT OR PIPING MAY NOT BE EMBEDDED IN ANY CONCRETE.

SLAB ON GRADE CONCRETE MIX TO HAVE LOW SHRINKAGE CHARACTERISTICS AND A LOW WATER/CEMENT RATIO. PROVIDE PLASTICIER AS REQUIRED. APPLY AN APPROPRIATE FLOOR HARDNER (NOT SHAKE-ON). SLAB TO BE LEVEL AND "SUPERFLAT" PER ACI 312.1R.

CONCRETE PLACEMENT: BEFORE PLACING CONCRETE, VERIFY THAT INSTALLATION OF FORMWORK, REINFORCEMENT AND EMBEDDED ITEMS ARE COMPLETE AND THAT REQUIRED INSPECTIONS HAVE BEEN PERFORMED.

DEPOSIT CONCRETE CONTINUOUSLY IN ONE LAYER OR IN HORIZONTAL LAYERS OF SUCH THICKNESS THAT NO NEW CONCRETE WILL BE PLACED ON CONCRETE THAT HAS HARDENED ENOUGH TO CAUSE SEAMS OR PLANES OF WEAKNESS. IF A SECTION CANNOT BE PLACED CONTINUOUSLY, PROVIDE CONSTRUCTION JOINTS AS INDICATED. DEPOSIT CONCRETE TO AVOID SEGREGATION. CONSOLIDATE PLACED CONCRETE WITH MECHANICAL VIBRATING EQUIPMENT ACCORDING TO ACI 301.

COLD-WEATHER PLACEMENT: COMPLY WITH ACI 306.1.
HOT-WEATHER PLACEMENT: COMPLY WITH ACI 301.

CONCRETE MIXES: THE FOLLOWING MAX AND MIN VALUES ARE TO BE USED AS GUIDELINES FOR PROVIDING CONCRETE THAT MEETS THE STRENGTH AND FINISH REQUIREMENTS OF THE CONCRETE FOR EACH USE. EXACT VALUES OF EACH ARE TO BE DETERMINED BY THE SUPPLIER & COORDINATED WITH THE CONCRETE CONTRACTOR AND GENERAL CONTRACTOR (OR CM.) FOR EACH SPECIFIC USE WITH THE GIVEN CONDITIONS, ADMIXTURES, ETC.

NAME	MIN. STRENGTH	MAX. AGG.	SLUMP RANGE	MAX W/C	AIR ENTRAIN.
FOOTINGS	3,000 PSI	1-1/2"	3-1/2" TO 5"	0.57	-
INT. SOG	4,000 PSI	1-1/2"	2-1/2" TO 4"	0.50	-
PIERS	4,000 PSI	3/4"	3-1/2" TO 5"	0.50	NOTE 2

TABLE NOTES:
1. CONCRETE PERMANENTLY EXPOSED TO FREEZE/THAW CYCLES SHALL BE AIR ENTRAINED FOR THE DESIGNATED AMOUNT WITH A TOLERANCE OF PLUS OR MINUS 1-1/2.
2. WALLS OR PIERS EXPOSED TO VIEW AND FREEZE/THAW ARE TO HAVE 5% AIR ENTRAINMENT.
3. ALL OTHER CONCRETE USED ON THE PROJECT ONLY REQUIRE AIR ENTRAINMENT IF IT IS PERMANENTLY EXPOSED TO FREEZE/THAW CONDITIONS.

STRUCTURAL STEEL NOTES

STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS UNLESS OTHERWISE NOTED ON THE CONTRACT DOCUMENTS

ROLLED SHAPES AND CHANNELS: ASTM A572 OR A992, MIN. Fy=50 KSI
ANGLES, RODS & PLATES: ASTM A36, MIN. Fy=36 KSI

ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) ASD SPECIFICATION AND CODES, 16TH EDITION.

WHERE NO CAMBER IS INDICATED, FABRICATE BEAMS SO THAT ANY NATURAL CAMBER IS UPWARD AFTER ERECTION.

SPLICES SHALL BE ALLOWED ONLY AT LOCATIONS SPECIFICALLY INDICATED ON THE STRUCTURAL DRAWINGS UNLESS APPROVED OTHERWISE BY THE EOR IN WRITING.

SHOP DRAWINGS: SHOW FABRICATION OF STRUCTURAL STEEL COMPONENTS. INCLUDE DETAILS OF CUTS, CONNECTIONS, SPLICES, CAMBER, HOLES AND OTHER PERTINENT DATA. INCLUDE EMBEDMENT DRAWINGS. INDICATE WELDS BY STANDARD AWS SYMBOLS, DISTINGUISHING BETWEEN SHOP AND FIELD WELDS, AND SHOW SIZE, LENGTH AND TYPE OF EACH WELD. SHOW BACKING BARS THAT ARE TO BE REMOVED AND SUPPLEMENTAL FILLET WELDS WHERE BACKING BARS ARE TO REMAIN. INDICATE TYPE, SIZE AND LENGTH OF BOLTS, DISTINGUISHING BETWEEN SHOP AND FIELD BOLTS. IDENTIFY PRETENSION AND SLIP CRITICAL, HIGH-STRENGTH BOLTED CONNECTIONS. SHOW ALL COPES, HOLES, OPENINGS AND MODIFICATIONS REQUIRED IN STRUCTURAL STEEL MEMBERS FOR ERECTION OR THE WORK OF OTHER TRADES ON THE SHOP DRAWINGS FOR APPROVAL BY THE DESIGN PROFESSIONALS.

FIELD MODIFICATION OF STRUCTURAL STEEL IS PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL OF THE DESIGN PROFESSIONALS.

REGARDLESS OF THICKNESS, ALL WELDING WORK SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1, "STRUCTURAL WELDING CODE - STEEL," 2010 EDITION OR NEWER, AND SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.

THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

AFTER FABRICATION AND JUST PRIOR TO SITE APPLICATION OF SPRAY-ON FIREPROOFING, ALL STRUCTURAL STEEL SHALL BE CLEANED OF ALL RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATERIALS, PRIMING AND PAINTING OF STRUCTURAL STEEL WILL NOT BE REQUIRED EXCEPT FOR STEEL THAT IS PERMANENTLY EXPOSED.

GALVANIZE ALL STRUCTURAL STEEL PERMANENTLY EXPOSED TO THE WEATHER, CLEAN AND TOUCH UP GALVANIZING AFTER ERECTION.

SOURCE QUALITY CONTROL: ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM SHOP TESTS AND INSPECTIONS. PROVIDE TESTING AGENCY WITH ACCESS TO PLACES WHERE STRUCTURAL-STEEL WORK IS BEING FABRICATED OR PRODUCED TO PERFORM TESTS AND INSPECTIONS.

BOLTED CONNECTIONS: INSPECT SHOP-BOLTED CONNECTIONS ACCORDING TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS."

WELDED CONNECTIONS: VISUALLY INSPECT SHOP-WELDED CONNECTIONS ACCORDING TO AWS D1.1/D1.1M AND THE FOLLOWING INSPECTION PROCEDURES, AT TESTING AGENCY'S OPTIONS:

1. LIQUID PENETRANT INSPECTION: ASTM E 165.
2. MAGNETIC PARTICLE INSPECTION: ASTM E 09± PERFORMED ON ROOT PASS AND ON FINISHED WELD. CRACKS OR ZONES OF INCOMPLETE FUSION OR PENETRATION ARE NOT ACCEPTED.
3. ULTRASONIC INSPECTION: ASTM E 164.
4. RADIOGRAPHIC INSPECTION: ASTM E 94.

EXAMINATION: VERIFY, WITH CERTIFIED STEEL ERECTOR PRESENT, ELEVATIONS OF CONCRETE BEARING SURFACES AND LOCATIONS OF ANCHOR RODS, BEARING PLATES, AND OTHER EMBEDMENTS FOR COMPLIANCE WITH REQUIREMENTS. PREPARE A CERTIFIED SURVEY OF EXISTING CONDITIONS. INCLUDE BEARING SURFACES, ANCHOR RODS, BEARING PLATES, AND OTHER EMBEDMENTS SHOWING DIMENSIONS, LOCATIONS, ANGLES AND ELEVATIONS.

PREPARATION: PROVIDE TEMPORARY SHORES, GUYS, BRACES AND OTHER SUPPORTS DURING ERECTION TO KEEP STRUCTURAL STEEL SECURE, PLUMB, AND IN ALIGNMENT AGAINST TEMPORARY CONSTRUCTION LOADS AND LOADS EQUAL IN INTENSITY TO DESIGN LOADS. REMOVE TEMPORARY SUPPORTS WHEN PERMANENT STRUCTURAL STEEL, CONNECTIONS AND BRACING ARE IN PLACE UNLESS OTHERWISE INDICATED.

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DATE	REV	ISSUE
02-08-24		PERMIT & BID SET

PROJECT	23100
START DATE	1-12-2024
DRAWN BY	LB
CHECKED BY	BE

PERMIT & BID SET

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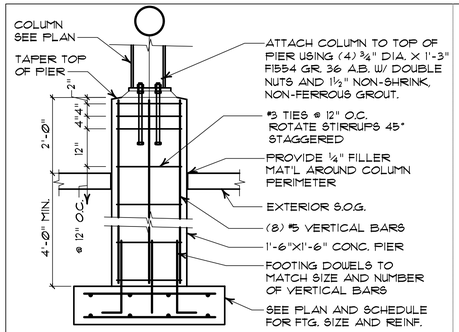
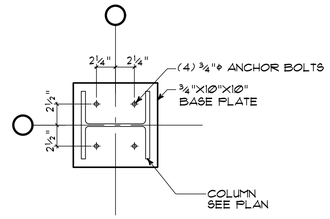
NOTES

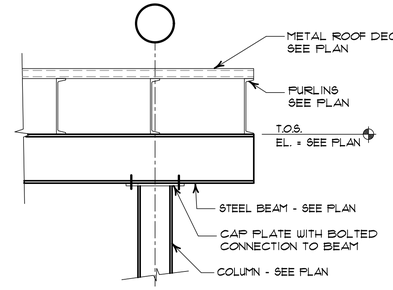
S5.00



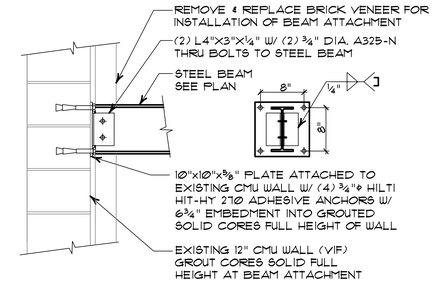
1 / S5.10 TYPICAL C.I.P CONC. PIER
SCALE: NONE



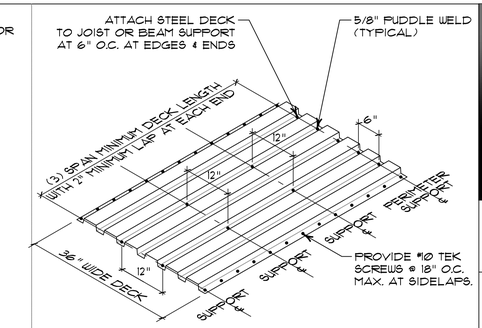
2 / S5.10 BASE PLATE
SCALE: NONE



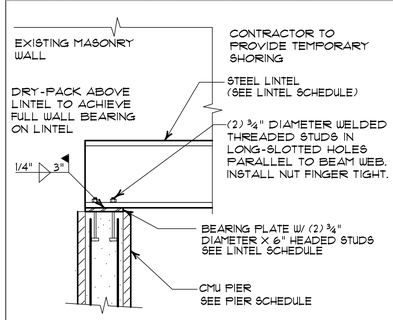
3 / S5.10 BEAM-COLUMN CONNECTION
SCALE: NONE



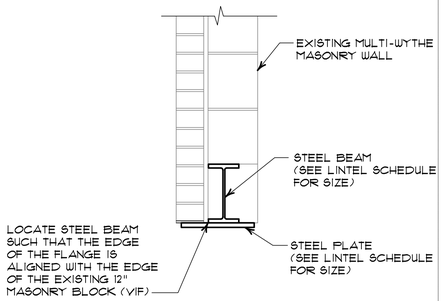
4 / S5.10 STEEL BEAM ATTACHMENT TO EXISTING CMU WALL
SCALE: NONE



5 / S5.10 METAL DECK FASTENING DETAIL
SCALE: NONE



6 / S5.10 LINTEL BEARING DETAIL
SCALE: NONE



7 / S5.10 STEEL LINTEL PLACEMENT IN MULTI-WYTHE MASONRY WALLS
SCALE: NONE

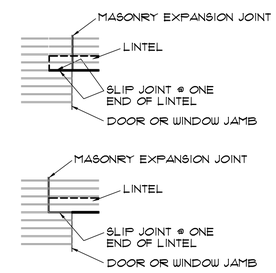
FOOTING SCHEDULE

MARK	FOOTING DIMENSIONS	FOOTING REINFORCING	NOTES
F1	3'-0"X3'-0"X1'-0"	(4) #4 EACH WAY	
F2	3'-0"X3'-0"X1'-0"	(4) #4 EACH WAY	T&B

NOTES:
1. B = BOTTOM, T = TOP
2. SEE SECTIONS AND DETAILS FOR REQUIRED FOOTING DOWELS.

LINTEL SCHEDULE

LINTEL MARK	DESCRIPTION	SECTION	END BEARING PLATES	REMARKS
L1	W8X24 W/ 1/4" X (WIDTH OF WALL-¼") (VIF) CONT. BOTTOM PLATE	3/16" 3"@12"	1/2" X 7 1/2" X 7 1/2" BEARING PLATE	
L2	W16X40 W/ 1/4" (WIDTH OF WALL-¼") (VIF) CONT. BOTTOM PLATE	3/16" 3"@12"	1/2" X 7 1/2" X 7 1/2" BEARING PLATE	



NOTES:

1.) PROVIDE MINIMUM 7" BEARING AT EACH END OF LINTEL UNLESS OTHERWISE INDICATED.

2.) CENTER LINTEL IN WALL UNLESS OTHERWISE NOTED.

3.) BOTTOM PLATES, WHERE CALLED FOR, SHALL EXTEND FULL LENGTH OF LINTEL.

4.) WELD MULTIPLE STEEL SECTION LINTELS INTO SINGLE UNITS.

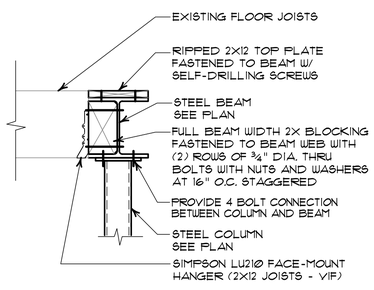
5.) SET BEARING PLATES FLUSH W/ TOP OF CONCRETE MASONRY UNIT.

6.) BEARING PLATES SHALL HAVE 2 - 3/4" ϕ HEADED STUDS WELDED TO BOTTOM SIDE OF PLATE TO BE SET IN MASONRY WALL.

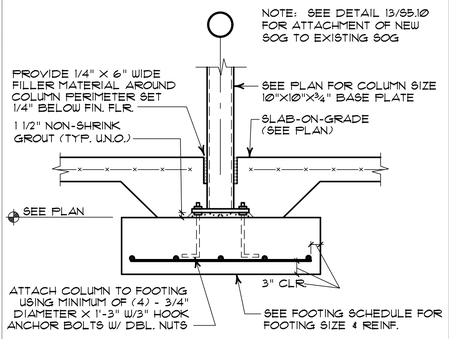
7.) ALL NON-SCHEDULED NON-LOAD BEARING LINTELS SHALL BE 8" DEEP X REQUIRED WALL WIDTH CMU BOND BEAMS W/ 2-#5.

8.) ALL LINTELS FOR EXTERIOR MASONRY AND EXTERIOR PORTIONS OF MULTI-WYTHE EXTERIOR WALLS SHALL HAVE SLIP JOINTS AT ONE END AS DETAILED AT LEFT.

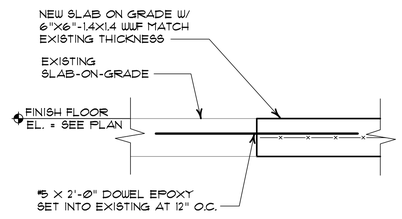
9.) REFER TO ARCH DRAWINGS FOR OPENING LOCATIONS, ELEVATIONS AND SIZES.



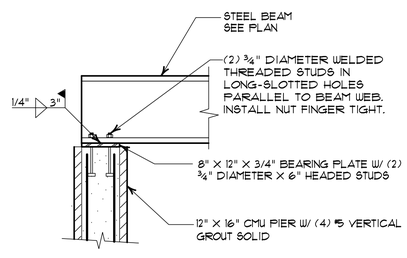
11 / S5.10 EXISTING FLOOR JOIST AT NEW STEEL BEAM
SCALE: NONE



12 / S5.10 TYPICAL COLUMN FOOTING
SCALE: NONE



13 / S5.10 NEW S.O.G. TO EXISTING S.O.G.
SCALE: NONE



18 / S5.10 BEAM BEARING ON EXISTING CMU WALL
SCALE: NONE

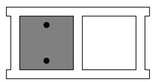
MASONRY PIER SCHEDULE

PIER MARK	PIER DIMENSIONS	TYPE	PIER REINFORCING		REMARKS
			VERTICAL	TIES	
MP1	8" X 12"	A	2-#5	-	NOTE #1

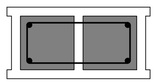
NOTES:

1.) PIER P1 IS TYPICAL FOR STEEL BEAM AND LINTEL BEARING AND SHALL BE INSTALLED IN ALL SUCH LOCATIONS IN ADDITION TO LOCATIONS IDENTIFIED ON THE DRAWINGS.

2.) INSULATION INSIDE THE MASONRY WALL SHALL BE REMOVED AT MASONRY PIERS AS NECESSARY FOR INSTALLATION OF REINFORCING AND GROUT.



TYPE A



TYPE B

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DATE	REV	ISSUE
02-08-24		PERMIT & BID SET

PROJECT	23100
START DATE	1-12-2024
DRAWN BY	LB
CHECKED BY	BE

PERMIT & BID SET

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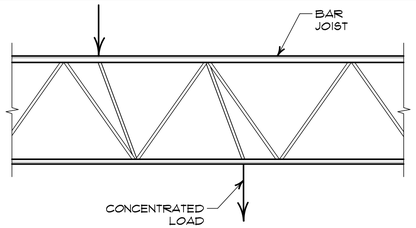
DETAILS

S5.10



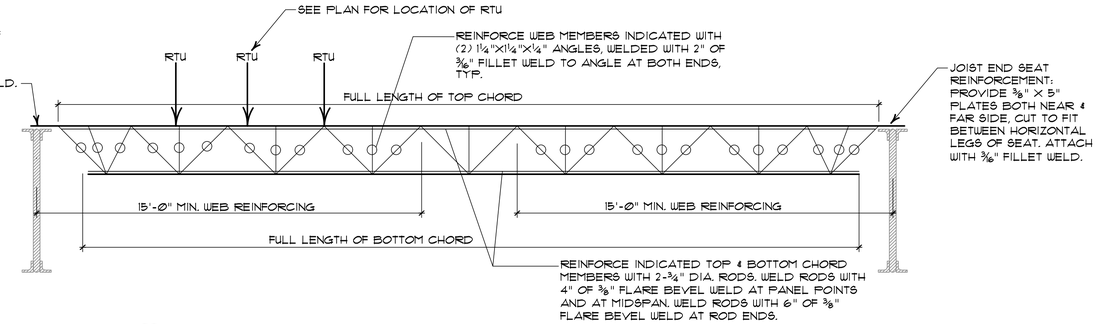
NOTE : JOIST CHORDS ARE NOT DESIGNED FOR CONCENTRATED LOADS. EITHER PLACE LOADS AT PANEL POINTS OR FIELD WELD AN EXTRA MEMBER FROM POINT OF LOAD TO NEAREST PANEL POINT ON OPPOSITE CHORD

1 / S5.20 BAR JOIST CHORD LOADING
SCALE: NONE

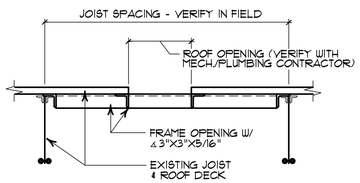
JOIST END SEAT REINFORCEMENT: PROVIDE ⅜" X 5" PLATES BOTH NEAR & FAR SIDE, CUT TO FIT BETWEEN HORIZONTAL LEGS OF SEAT. ATTACH WITH 3/16" FILLET WELD.

NOTE: JOIST WEB MEMBER LAYOUT IS A REPRESENTATION. VERIFY ACTUAL LAYOUT.

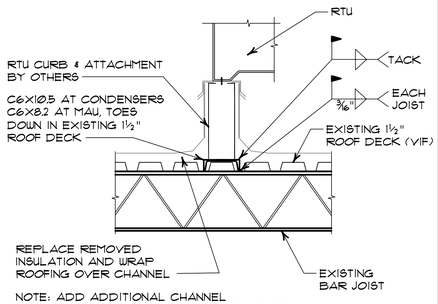
NOTE: JOIST TO BE SHORED DURING INSTALLATION OF REINFORCING. TEMPORARILY REMOVE AND REPLACE ANY INTERFERING ITEMS FOR INSTALLATION OF REINFORCING.



3 / S5.20 ELEVATION OF REINFORCED JOIST AT CONDENSER
SCALE: NONE

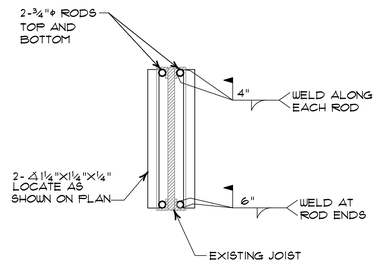


6 / S5.20 TYPICAL FRAMING @ ROOF OPENINGS
SCALE: NONE



NOTE: ADD ADDITIONAL CHANNEL ADJACENT TO CHANNEL SHOWN IF RTU CURB DOES NOT ALIGN WITH FLUTE SPACING.

7 / S5.20 ROOF CURB SUPPORT
SCALE: NONE



8 / S5.20 SECTION OF REINFORCED JOIST AT CONDENSERS
SCALE: NONE

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PROPOSED REMODEL TO:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT
ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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DATE	REV	ISSUE
02-08-24		PERMIT & BID SET

PROJECT	23100
START DATE	1-12-2024
DRAWN BY	LB
CHECKED BY	BE

PERMIT & BID SET

BARBER ENGINEERING
325 West Vine Street • Milwaukee, WI 53212
414-263-5500 • info@barberengineer.com

DETAILS

S5.20

PLUMBING FIXTURES

MARK	MANUFACTURER	MODEL	DESCRIPTION	FIXTURE UNITS				PIPE SIZE			NOTES
				CWFU	HWFU	WFU	DFU	DRAIN	CW	HW	
EWC-1	ELKAY	LZS8WSSP	ENHANCED EZH20 BOTTLE FILLING STATION & VERSATILE BI-LEVEL ADA COOLER FILTERED, REFRIGERATED, LIGHT GRAY, WALL MOUNTED ELECTRIC WATER COOLER: 115VAC, 60HZ, 1 PHASE, SS BASIN, NO-LEAD, BARRIER-FREE ACCESS, DELIVERS 8 GALLONS PER HOUR OF 50° WATER (80-INLET TEMP, 90° ROOM TEMP).	0.25		0	0.5	2"	1/2"		
FD-1	SOUIX CHIEF	842	LIGHT DUTY ADJUSTABLE PVC WITH THREADED ADAPER AND 5" NICKLE BRONZE RING AND FASTENED GRATE.				3				
FS-1	ZURN	FD-2370	12X12 RADIUSED PCV BODY FLOOR SINK WITH FULL RIM AND SEDIMENT BUCKET.				3	3"			
HD-1			HUB DRAIN. SAME MATERIAL AS SANITARY SEWR PIPING UNLESS NOTED OTHERWISE ON PLANS.								
HR-1	T&S BRASS AND BRONZE WORKS	5HR-242-12	BLACK POWDER COATED STEEL, OPEN HOSE REEL WITH 3/8" X 50' HOSE & FRONT TRIGGER BRASS WATER GUN	2		2		-	3/8"		
MB-1	FIAT	MSB-2424	MOLDED STONE SERVICE SINK. INSTALL COMPLETE WITH #830—AA CHROME PLATED SERVICE FAUCET W/ VACUUM BREAKER, INTEGRAL STOPS, WALL BRACE, PAIL HOOK AND HOSE THREAD ON SPOUT, 832-AA HOSE AND BRACKET, AND 889-CC MOP HANGER.	2	2	3	3	3"	3/4"	3/4"	
TD-1	ZURN	Z886-HD	TRENCH DRAIN WITH EXTRA HEAVY DUTY SLOTTED STRAINLESS STEEL GRATE AND FRAME ASSEMBLY.				3	3"			
WH-1	WOODFORD	24Y	STANDPIPE WALL HYDRANT WITH POLYCARBONATE WHEEL HANDLE AND LOOSE TEE KEY • ASSE STANDARD 1011 APPROVED VACUUM BREAKER, 3/4" MALE HOSE THREAD, 125 PSI MAX PRESSURE	4		4		-	3/4"		

WATER CALCULATION WORKSHEET

INFORMATION NEEDED FOR WATER SERVICE SIZING			
1	Demand of building in water supply fixture units:	60.5	WSFU
1a	Demand of building in WSFU converted to Gallons per minute:	54	GPM
2	Elevation difference from main or external pressure tank to building control valve:	8	FEET
3	Size of water meter (if applicable):	1-1/2	
4	Developed length from main or external pressure tank to building control valve:	100	FEET
5	Low pressure at main in street or external pressure tank:	51	PSI
CALCULATE WATER SERVICE PRESSURE LOSS			
6	Low pressure at main in street or external pressure tank. (value of # 5 above)	51	PSI
7	Determine pressure loss due to friction in [8.0] in diameter water service.		
	Water service piping is [DUCTILE IRON]		
	Pressure lose per 100 ft = [0.30] x [1]	0.3	
	Subtotal	50.7	PSI
8	Determine pressure loss or gain due to elevation (multiply the value of # 2 above by 0.434):	3.5	PSI
9	Available pressure after the bldg. control valve:	47.2	PSI
CALCULATE THE PRESSURE AVAILABLE FOR UNIFORM LOSS (VALUE OF "A")			
	A = [B - (C + D + E + F +G)] / H x 100		PSI
B	**Available pressure after the bldg. control valve. (from # 9 above):**	47.2	PSI
C	Pressure loss of water meter (when meter is required)	4	PSI
D	Pressure required at controlling fixture	20.0	PSI
	(Control fixture is: [HOSE BIBB])		
E	Difference in elevation between building control valve and the controlling fixture in feet [1] x 0.434	0.4	
F	Pressure loss due to water treatment devices and backflow preventors which serve the controlling fixture.	10	PSI
G	Pressure loss through tankless water heaters, combination boiler / hot water heaters, heat exchangers which serve the controlling fixture:	0	PSI
H	Developed length from building control valve to controlling fixture in feet: [375] x 1.5	562.5	FT
A	**Pressure available for uniform loss (psi/100' of pipe).**	2.4	**PSI /100 FT**

ABBREVIATIONS

AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
AP	ACCESS PANEL
BOP	BOTTOM OF PIPE
CA	COMBUSTION AIR
CO	CLEANOUT
DN	DOWN
ET-*	EXPANSION TANK
EWC-*	ELECTRIC WATER COOLER
FCO	FLOOR CLEANOUT
FD-*	FLOOR DRAIN
GI-*	GREASE INTERCEPTOR
HB-*	HOSE BIBB
HWRP-*	HOT WATER RECIRCULATION PUMP
IWH-*	INSTANTANEOUS WATER HEATER
L-*	LAVATORY
MB-*	MOP BASIN
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OD-*	OVERFLOW DRAIN
RD-*	ROOF DRAIN
S-*	SINK
SH-*	SHOWER
SP-*	SUMP PUMP
SS-*	SERVICE SINK
ST-*	STORAGE TANK
STP-*	SOLAR THERMAL PANEL
UR-*	URINAL
VFD	VARIABLE FREQUENCY DRIVE
WC-*	WATER CLOSET
WCO	WALL CLEANOUT
WH-*	WATER HEATER
WWHP-*	WATER-TO-WATER HEAT PUMP
X-*	EXISTING
YCO	YARD CLEANOUT

PLUMBING PIPING LEGEND

	NEW PLUMBING EQUIPMENT
	EXISTING PLUMBING COMPONENT
	DEMOLISHED PLUMBING EQUIPMENT
	PLUMBING EQUIPMENT SERVICE AREA
1	KEY NOTE
DCW	DOMESTIC COLD WATER
X-DCW	EXISTING DOMESTIC COLD WATER
HDCW	NEW HIGH PRESSURE DOMESTIC COLD WATER
X-HDCW	EXISTING HIGH PRESSURE DOMESTIC COLD WATER
SDCW	SOFT DOMESTIC COLD WATER
X-SDCW	EXISTING SOFT DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
X-DHW	EXISTING DOMESTIC HOT WATER
DHW 140°	DOMESTIC HOT WATER 140°
X-DHW 140°	EXISTING DOMESTIC HOT WATER 140°
DHWR	DOMESTIC HOT WATER RECIRCULATION
X-DHWR	EXISTING DOMESTIC HOT WATER RECIRCULATION
DHWR 140°	DOMESTIC HOT WATER RECIRCULATION 140°
X-DHWR 140°	EXISTING DOMESTIC HOT WATER RECIRCULATION 140°
DTW	DOMESTIC TEPID WATER
X-DTW	EXISTING DOMESTIC TEPID WATER
IRR	IRRIGATION
X-IRR	EXISTING IRRIGATION
NPW	NON-POTABLE WATER
X-NPW	EXISTING NON-POTABLE WATER
CW	CLEAR WASTE
X-CW	EXISTING CLEAR WASTE
CV	CLEAR VENT
X-CV	EXISTING CLEAR VENT
GW	GREASE WASTE
X-GW	EXISTING GREASE WASTE
SS	SANITARY SEWER
X-SS	EXISTING SANITARY SEWER
V	SANITARY VENT
X-V	EXISTING SANITARY VENT
SD	STORM DRAIN
X-SD	EXISTING STORM DRAIN
	STORM OVERFLOW DRAIN
X-OD	EXISTING STORM OVERFLOW DRAIN
	DEMOLISHED PIPING (ALL TYPES)

	BALL VAVLE
	BUTTERFLY VALVE
	CHECK VALVE
	CIRCUIT SETTER
	2-WAY ELECTRONIC CONTROL VALVE
	3-WAY ELECTRONIC CONTROL VALVE
	GATE VALVE
	HOSE BIBB
	OS&Y VALVE
	PLUG VALVE
	PRESSURE & TEMPERATURE RELIEF VALVE
	PRESSURE REDUCING VALVE
	TRIPLE DUTY VALVE
	AIR VENT
	FLEX PIPE
	FLOOR DRAIN / ROOF DRAIN
	P-T PLUG
	PIPE BREAK
	PIPE CAPPED END
	PIPE CLEANOUT
	PIPE ELBOW/TEE DOWN
	PIPE ELBOW/TEE UP
	CONNECT TO EXISTING
	PUMP
	REDUCER
	STRAINER
	UNION
FG	FLOW GUAGE
FS	FLOW SENSOR
PG	PRESSURE GAUGE
PS	PRESSURE SENSOR
TG	TEMPERATURE GAUGE
TS	TEMPERATURE SENSOR
EQUIPMENT / WH / FLOOR / X-X / TAG	PLUMBING EQUIPMENT TAG NOT ELECTRICALLY POWERED
EQUIPMENT / WH / FLOOR / X-X / TAG	PLUMBING EQUIPMENT TAG ELECTRICALLY POWERED

GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL REQUIRED OFFSETS FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL INSTALL MATERIAL AND EQUIPMENT TO CONFORM TO THE STRUCTURE, EQUIPMENT CONNECTIONS AND SHALL MAINTAIN APPROPRIATE CLEARANCES.
2. ALL WORK SHALL COMPLY WITH APPLICABLE NATIONAL, STATE, LOCAL CODES, FEDERAL AND STATE REGULATIONS, AND ALL REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION.
3. CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
4. THE CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE FULL EXTENT OF WORK AND PROJECT CONDITIONS. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF THE OBLIGATIONS OF THE CONTRACT.

FIRE PROTECTION LEGEND

	UPRIGHT SPRINKLER HEAD
	PENDANT SPRINKLER HEAD
	SEMI RECESSED SPRINKLER HEAD
	CONCEALED SPRINKLER HEAD
	EXTENDED COVERAGE SPRINKLER HEAD
	SPRING UPRIGHT SPRINKLER HEAD
	SIEDWALL SPRINKLER HEAD
	SIDEWALL SEMI RECESSED SPRINKLER HEAD
FPCH	FIRE PROTECTION - CHEMICAL
FPCH	EXISTING FIRE PROTECTION - CHEMICAL
FPD	FIRE PROTECTION - DRY
FPD	EXISTING FIRE PROTECTION - DRY
FPW	FIRE PROTECTION - WET
FPW	EXISTING FIRE PROTECTION - WET
	DEMOLISHED PIPING

GAS WATER HEATER (GWH)

MARK	LOCATION		MANUFACTURER	MODEL NO.	TYPE	GAS BURNER						WATERSIDE					THERMAL EFF	UNIT DIMENSIONS		WEIGHT (LB)	FLA	MCA	MOCP	VOLT	PH	REMARKS
										FUEL		FLOW (GPM)		STORAGE		MAX TEMP RISE (°F)										
	NAME	NO.				INPUT (BTUH)	CAP (BTUH)	EFF	STAGES	TYPE	PRESS AVAIL (INWC)	DESIGN	MIN @ MIN FIRE	RECOVERY (G/H)	VOL (GAL)			HEIGHT	DIAMETER							
WH-1	WAREHOUSE	108	AO SMITH	CYCLONE MXI BTH 199	CONDENSING	199,000	189,050	95.0%	2	NG	14	0		294	100.0	80	97%	6' - 4"	2' - 3 3/4"	523	6	7	15	120	1	
WH-2	KITCHEN	103	AO SMITH	CYCLONE MXI BTH 199	CONDENSING	199,000	189,050	95.0%	2	NG	14	0		0	100.0	80	97%	6' - 4"	2' - 3 3/4"	523	6	7	15	120	1	

PLUMBING PUMPS (P)

MARK	MANUFACTURER	MODEL NO.	TYPE	SERVES	CONFIGURATION						MOTOR DEMAND				MOTOR					STARTER	DISCONNECT	REMARKS
					FLOW		HEAD	TEMP (DEG F)	INLET SIZE (NPS)	OUTLET SIZE (NPS)	100% FLOW		50% FLOW		HP	RPM	EFF	VOLT	PH			
					DESIGN	MIN					BHP	EFF	BHP	EFF								
1	BELL & GOSSETT	PL36	INLINE	DHWR	5.0		20.0 FT	140.0	3/4"	3/4"	0.00	0.0%	0.00	0	0.08	3800		115	0			
2	BELL & GOSSETT	PL36	INLINE	DHWR	5.0		20.0 FT	140.0	3/4"	3/4"	0.00	0.0%	0.00	0	0.08	3800		115	0			

EXPANSION TANK (ET)

MARK	LOCATION		SYSTEM TYPE	MANUFACTURER	MODEL	TYPE	VOLUME		FILL PRESSURE (PSI)	MAXIMUM OPERATING PRESSURE (PSI)	DIAMETER	HEIGHT / LENGTH (INCHES)	OPERATING WEIGHT (LBS)	NOTES
	NAME	NO					TANK (GAL)	MINUMUM ACCEPTANCE (GAL)						
1	WAREHOUSE	108		AMTROL	ST-12C-DD	DIAPHRAGM	6.4	3.2	55.0	150.0	12"	18"	52	
2	KITCHEN	103		AMTROL	ST-12C-DD	DIAPHRAGM	6.4	3.2	55.0	150.0	12"	18"	52	

GREASE INTERCEPTOR SCHEDULE (GI)

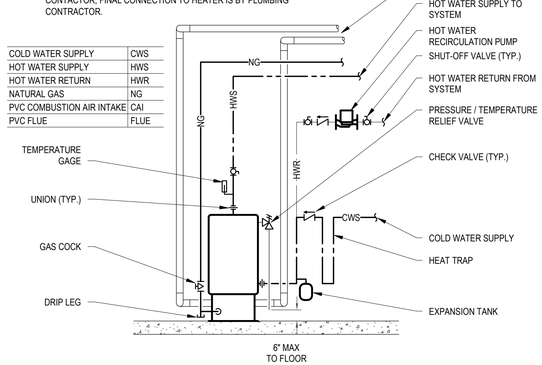
MARK	LOCATION		MANUFACTURER	MODEL	HOLDING CAPACITY	DIMENSIONS			UNIT WEIGHT (LB)	REMARKS
	NAME	NO.			LIQUID (GAL)	LENGTH	WIDTH	HEIGHT		
1	EXTERIOR	-	LAKESHORE BURIAL VAULT	1200 1C	1200	102 1/2"	78 1/2"	66 1/2"	0	

GREASE INTERCEPTOR CALC

INFORMATION NEEDED FOR GREASE INTERCEPTOR SIZING			
M	MEALS SERVED PER DAY:	216	MEALS
G	3 GALLONS PER MEAL SERVED:	3	GALLONS
H	HOURS PER DAY THAT MEALS ARE SERVED (MIN. 6, MAX. 12):	11	HOURS
P	MEAL PERIODS PER DAY (1, 2, OR 3):	3	PERIODS
	C = (M x G x H) / (P x 2)		
C	CAPACITY OF GREASE INTERCEPTOR:	1188	GALLONS

NOTE:
1. SEE PLANS FOR ROUTING OF WATER PIPING, AND CAI AND FLUE.
2. NATURAL GAS PIPING IS PIPED TO THE UNIT BY MECHANICAL CONTACTOR, FINAL CONNECTION TO HEATER IS BY PLUMBING CONTRACTOR.

COLD WATER SUPPLY	CWS
HOT WATER SUPPLY	HWS
HOT WATER RETURN	HWR
NATURAL GAS	NG
PVC COMBUSTION AIR INTAKE	CAI
PVC FLUE	FLUE



1 SEALED COMBUSTION WATER HEATER PIPING
N.T.S.

PLUMBING SHEET INDEX

NUMBER	SHEET NAME
P0.00	PLUMBING NOTES LEGEND ABBREVIATIONS
P0.50	UNDERGROUND PLUMBING DEMOLITION PLAN
P0.51	FIRST FLOOR PLUMBING DEMOLITION PLAN
P0.52	MEZZANINE AREA PLUMBING DEMOLITION PLANS
P0.53	ROOF PLUMBING DEMOLITION PLAN
P1.10	UNDERGROUND PLUMBING PLAN
P1.11	FIRST FLOOR PLUMBING PLAN
P1.11A	EAST ENLARGED PLUMBING PLAN
P1.11B	WEST ENLARGED PLUMBING PLAN
P1.12	MEZZANINE AREA PLUMBING PLANS
P1.13	ROOF PLUMBING PLAN
P8.00	PLUMBING SPECIFICATIONS
P9.00	WASTE & VENT RISER DIAGRAM
P9.10	DOMESTIC RISER DIAGRAMS
P9.20	GAS RISER DIAGRAM
P9.01	WASTE AND VENT RISER DIAGRAMS

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DATE	REV	ISSUE
08/28/23	#	PROJECT START
09/29/23		SD | PLAN COMMISSION
10/12/23		PLAN COMMISSION COMMENTS
10/19/23		SD | PLAN COMMISSION
11/06/23		DD | PROGRESS
11/20/23		DD | OWNER REVIEW
11/29/23		DD | PROGRESS

PROJECT NUMBER	23-044
START DATE	02/08/24
DRAWN BY	LLL
CHECKED BY	KLO

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WISCONSIN | ILLINOIS | FLORIDA
IBC PROJECT NO: 2023108

PLUMBING NOTES LEGEND ABBREVIATIONS

P0.00

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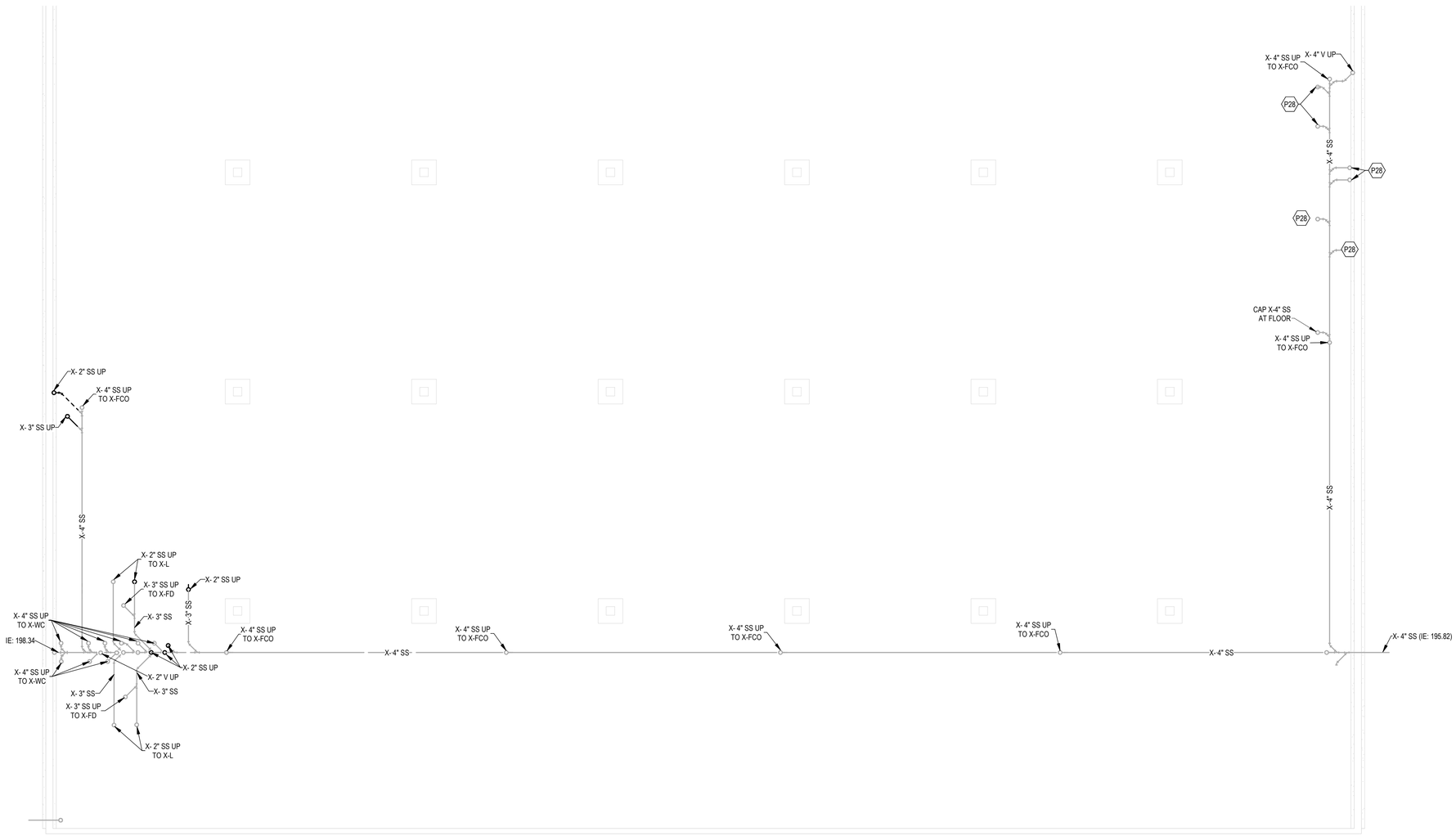
KEY NOTES

P28	EXISTING PIPING IS CAPPED AT FLOOR.



1 UNDERGROUND PLUMBING DEMOLITION PLAN

SCALE: 3/32" = 1'-0"

N

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UNDERGROUND PLUMBING DEMOLITION PLAN

P0.50

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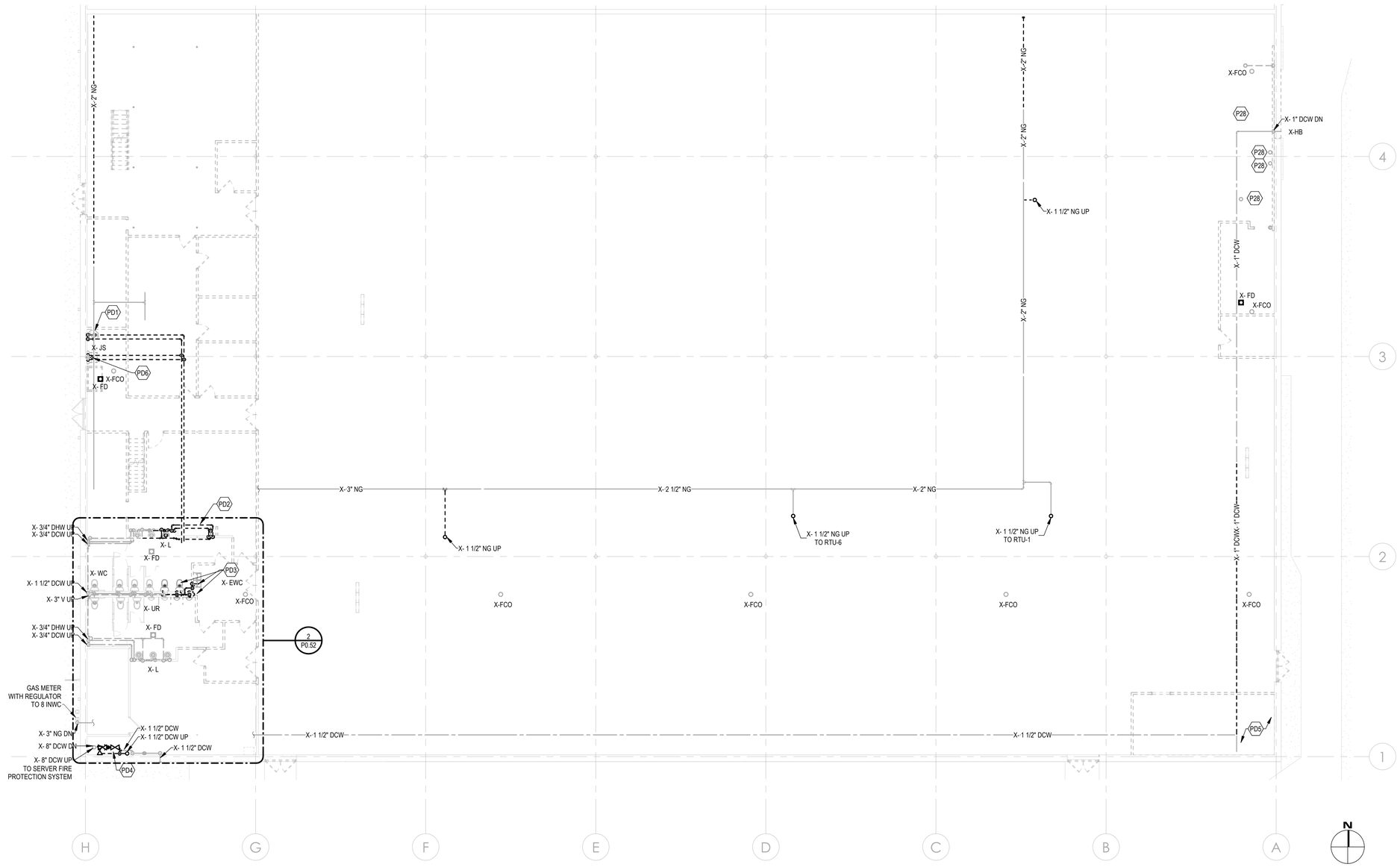
KEY NOTES

P28	EXISTING PIPING IS CAPPED AT FLOOR.
PD1	DEMOLISH EXISTING WATER HEATER AND ASSOCIATE VALVES AND PIPING BACK TO MAIN.
PD2	DEMOLISH EXISTING SINK AND LAV AND ASSOCIATED VALVES AND PIPING.
PD3	DEMOLISH EXISTING WATER COOLER, (2) URINALS, AND (2) WATER CLOSETS AND ASSOCIATED VALVES AND PIPING.
PD4	DEMOLISH X- 1 1/2" DCW PIPING AND ASSOCIATE VALVES . REMOVE EXISTING WATER METER TO BE REUSED WITH NEW 2" DCW PIPING.
PD5	DEMOLISH EXISTING PLUMBING FIXTURES AND ASSOCIATED VALVES AND PIPING BACK TO MAINS AND CAP. CAP EXISTING SANITARY PIPING AT FLOOR.
PD6	



1 FIRST FLOOR PLUMBING DEMOLITION PLAN

SCALE: 3/32" = 1'-0"

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DRAWN BY	Author
CHECKED BY	KLO

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FIRST FLOOR PLUMBING DEMOLITION PLAN

P0.51

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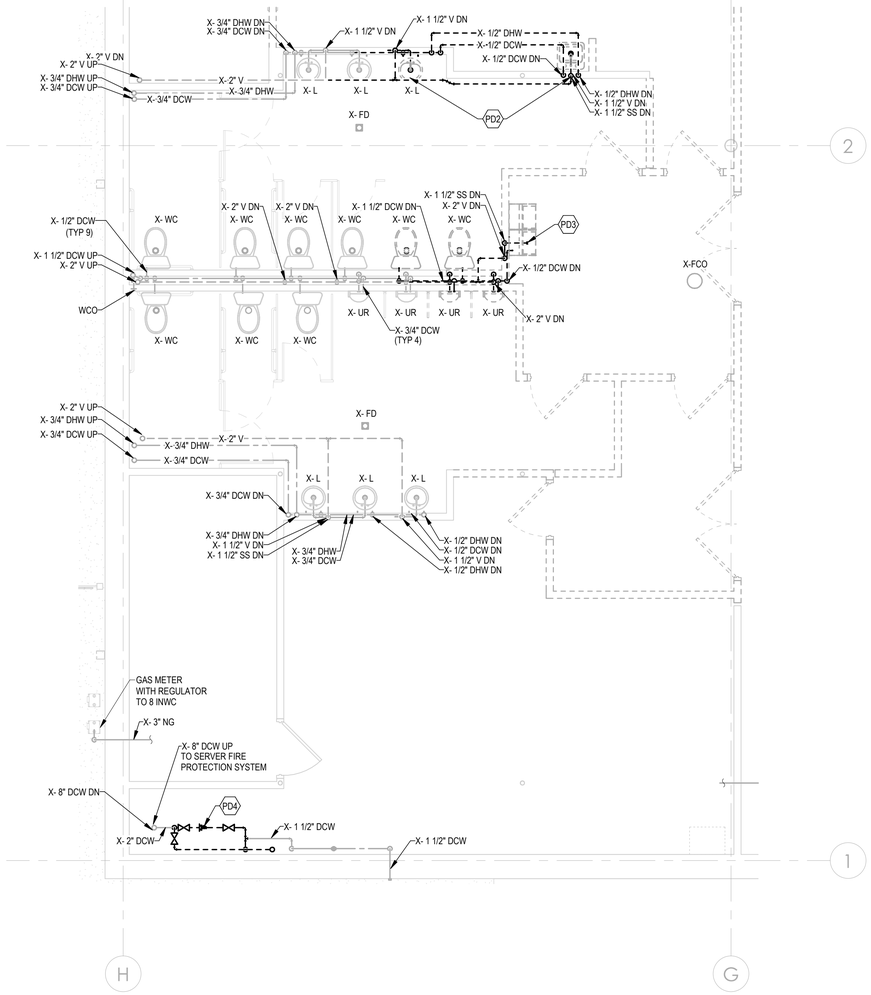
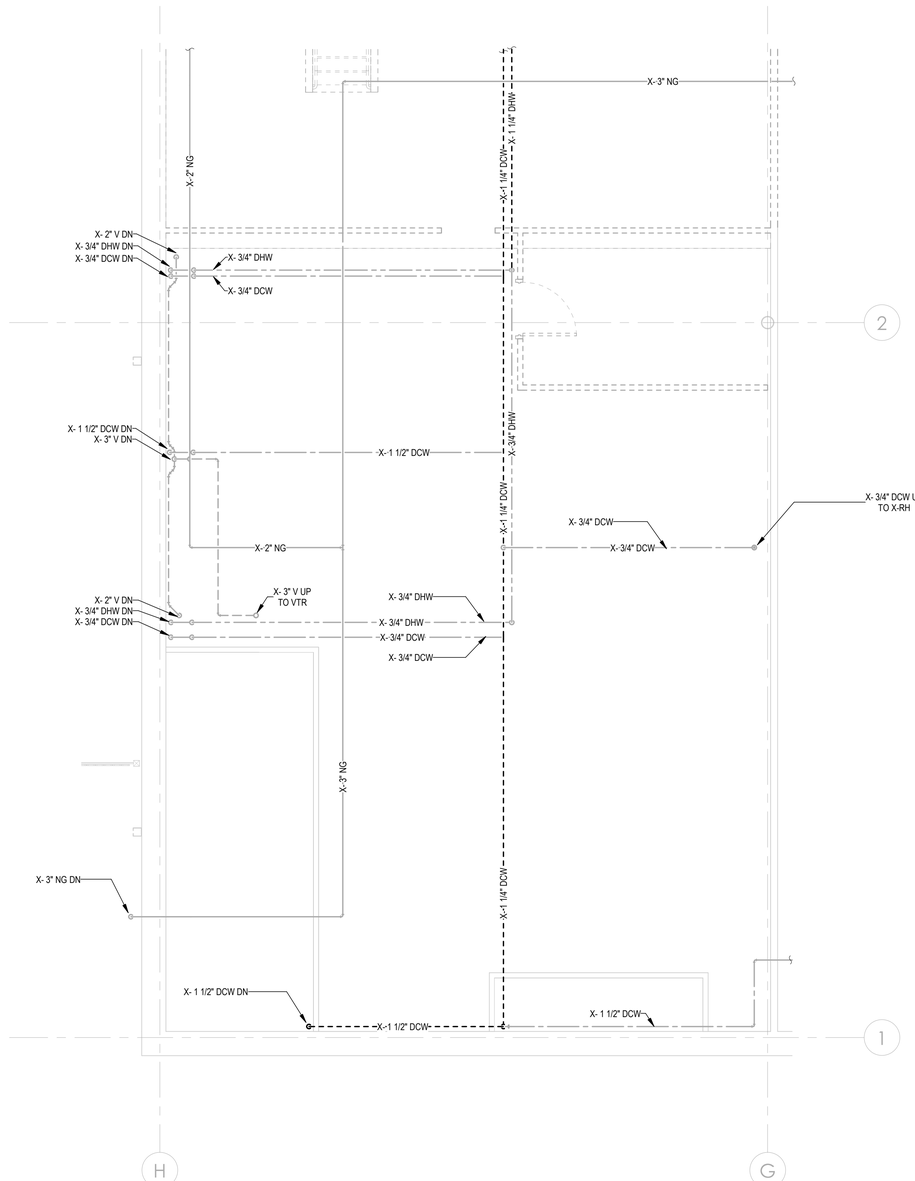
KEY NOTES

PD2	DEMOLISH EXISTING SINK AND LAV AND ASSOCIATED VALVES AND PIPING.
PD3	DEMOLISH EXISTING WATER COOLER, (2) URINALS, AND (2) WATER CLOSETS AND ASSOCIATED VALVES AND PIPING.
PD4	DEMOLISH X- 1 1/2" DCW PIPING AND ASSOCIATE VALVES. REMOVE EXISTING WATER METER TO BE REUSED WITH NEW 2" DCW PIPING.



2 UTILITES AND RESTROOMS PLUMBING DEMOLITION PLAN

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



1 MEZZANINE PLUMBING DEMOLITION PLAN

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

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11/29/23		DD | PROGRESS

PROJECT NUMBER	23-044
START DATE	02/08/24
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MEZZANINE AREA
PLUMBING
DEMOLITION PLANS

P0.52

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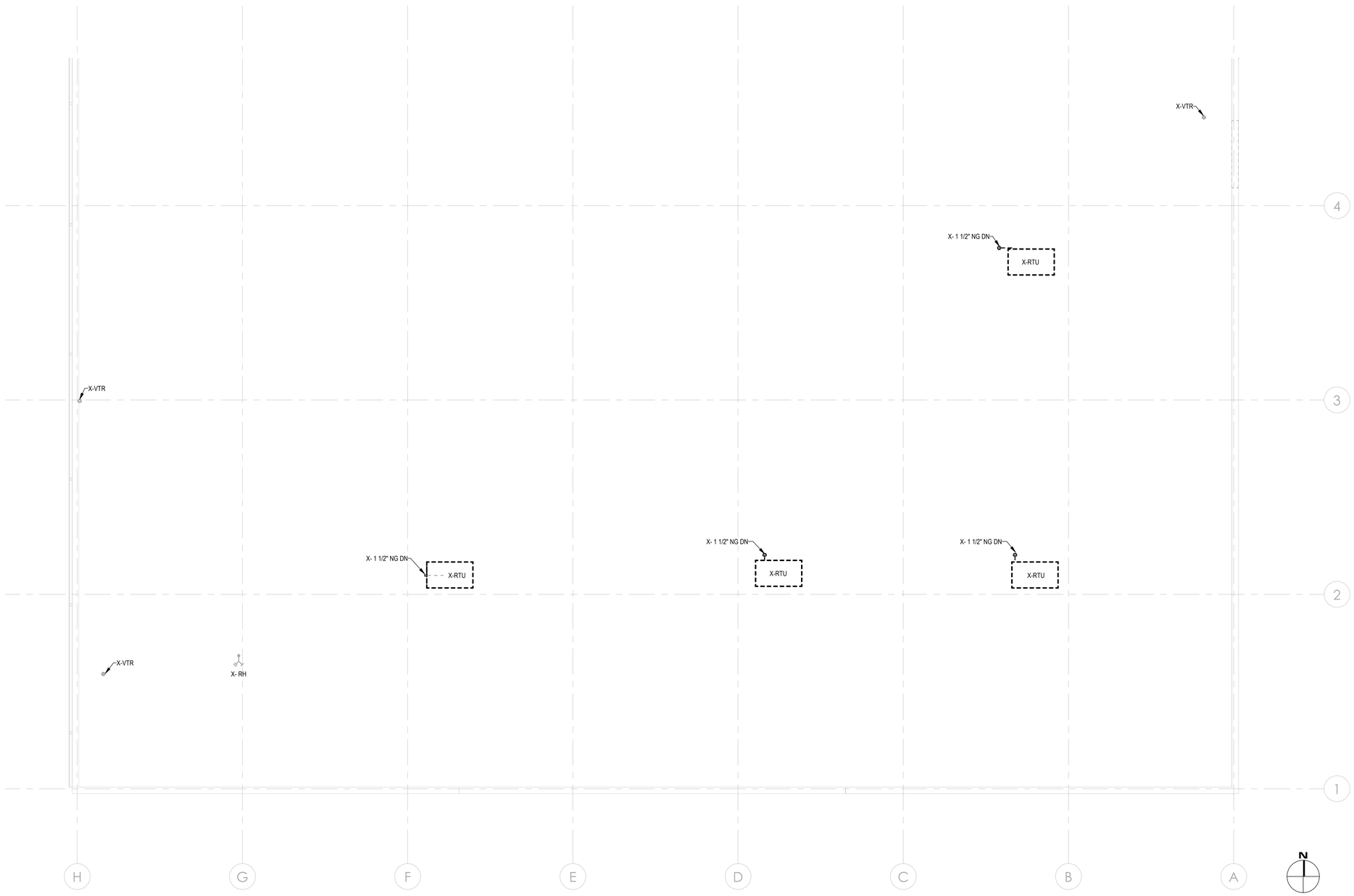
KEY NOTES



1 ROOF PLUMBING DEMOLITION PLAN

SCALE: 3/32" = 1'-0"

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PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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ROOF PLUMBING DEMOLITION PLAN

P0.53

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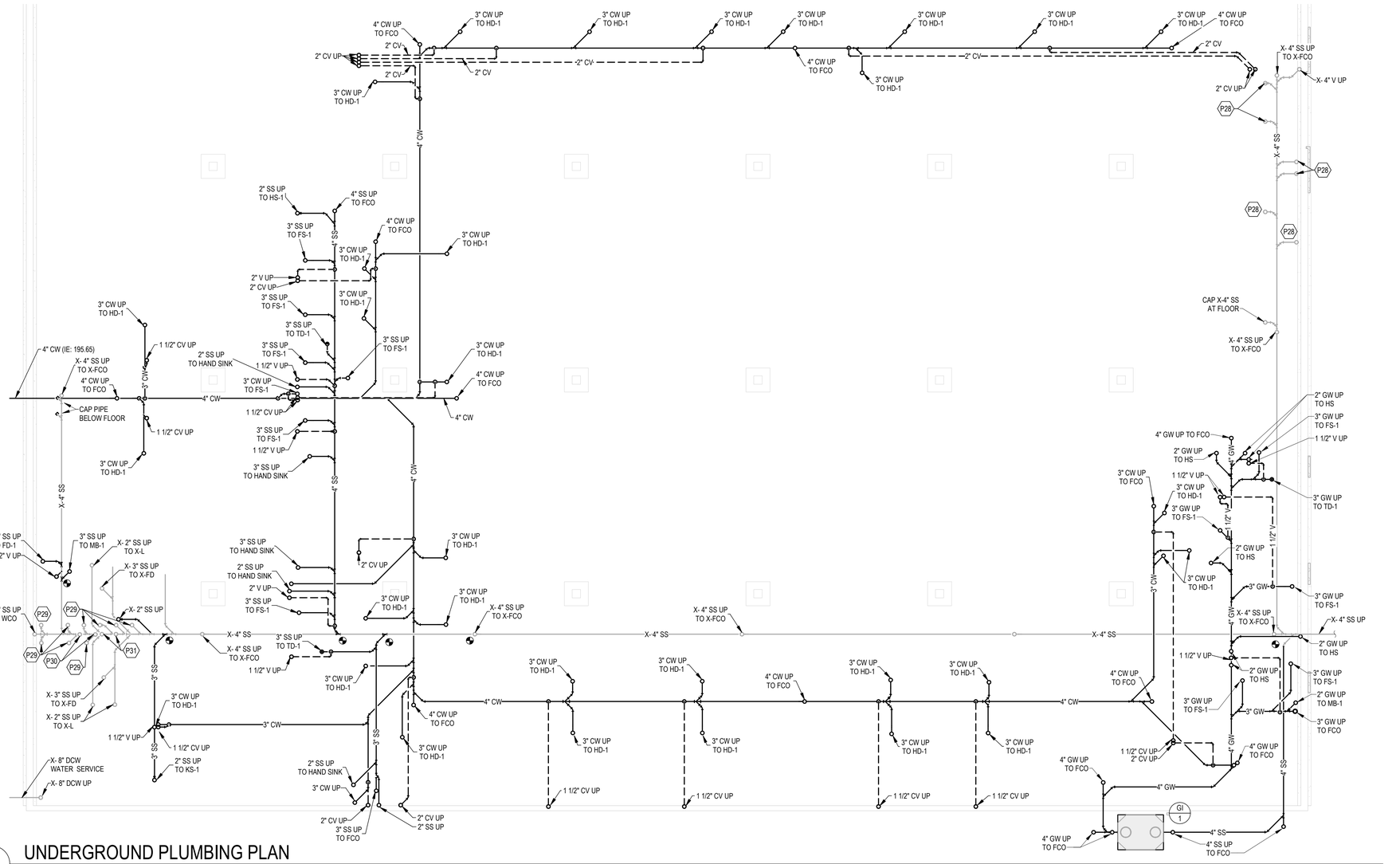
SHEET NOTES

1	ALL LOUD AND DISRUPTIVE CONSTRUCTION NOISE, SUCH AS SAWCUTTING, IS TO BE DONE ON ADJOINING TENANTS' OFF HOURS. CONSTRUCTION NOISE SHALL NOT BE DISRUPTIVE TO TENANTS OR PATRONS OF THE SHOPPING CENTER.
2	WHEN SAWCUTTING, PROVIDE PROTECTION (SUCH AS PLASTIC SHEETING FROM DECK TO FLOOR) FROM CONSTRUCTION DUST GOING INTO ADJOINING TENANT SPACES.
3	MUST USE LANDLORD REQUIRED ROOFER FOR ALL ROOF PENETRATIONS.

KEY NOTES

P28	EXISTING PIPING IS CAPPED AT FLOOR.
P29	X-4" SS UP TO X-WC.
P30	X-2" V UP.
P31	X-2" SS UP TO X-UR.



1 UNDERGROUND PLUMBING PLAN

SCALE: 3/32" = 1'-0"

N

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UNDERGROUND PLUMBING PLAN

P1.10

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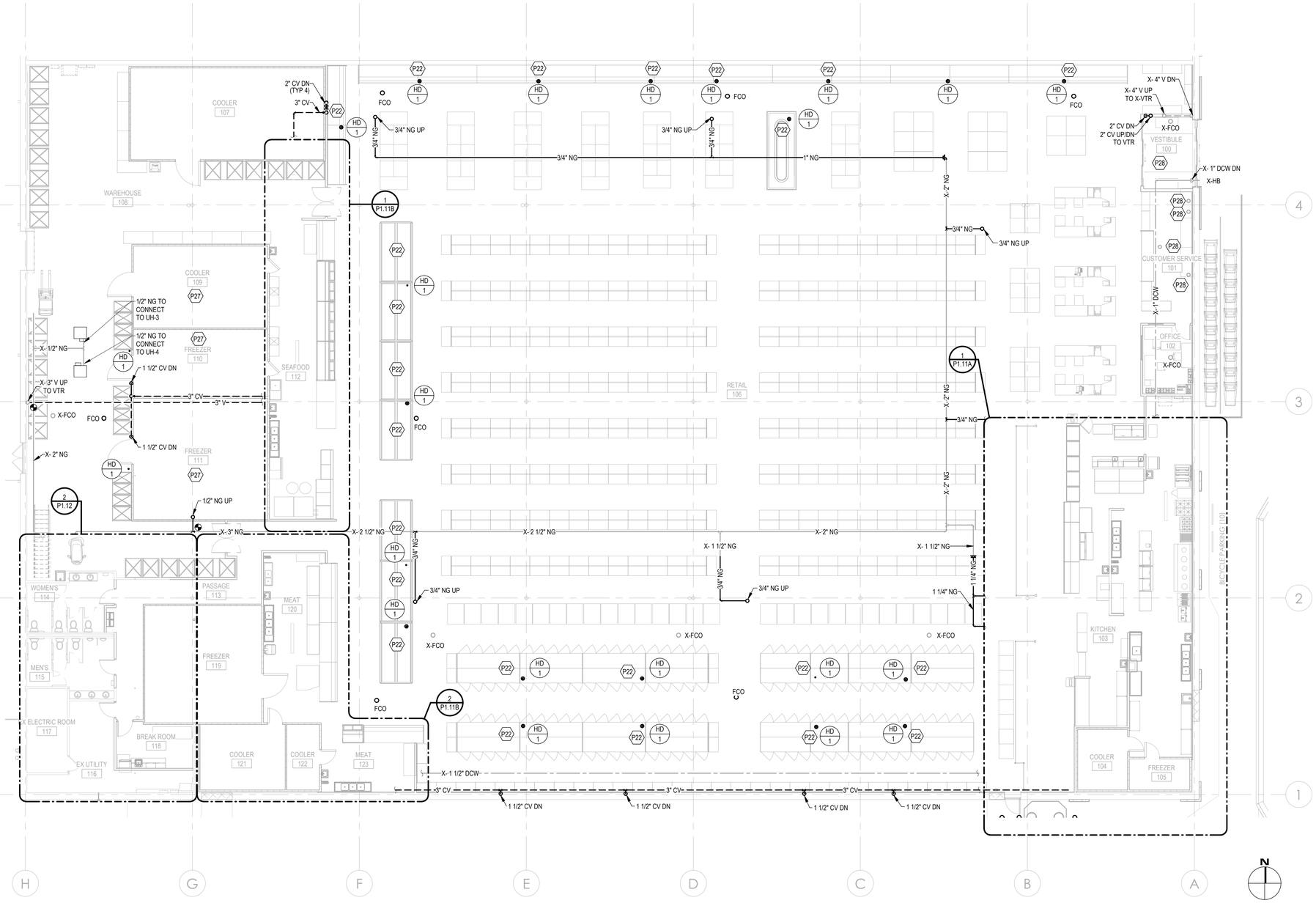
SHEET NOTES

1	ALL LOUD AND DISRUPTIVE CONSTRUCTION NOISE, SUCH AS SAWCUTTING, IS TO BE DONE ON ADJOINING TENANTS' OFF HOURS. CONSTRUCTION NOISE SHALL NOT BE DISRUPTIVE TO TENANTS OR PATRONS OF THE SHOPPING CENTER.
2	WHEN SAWCUTTING, PROVIDE PROTECTION (SUCH AS PLASTIC SHEETING FROM DECK TO FLOOR) FROM CONSTRUCTION DUST GOING INTO ADJOINING TENANT SPACES.
3	MUST USE LANDLORD REQUIRED ROOFER FOR ALL ROOF PENETRATIONS.

KEY NOTES

P22	PROVIDE 1/14" INDIRECT DRAIN LINE TO HUB DRAIN WITH AIR GAP.
P27	ROUTE INDIRECT WASTE LINES FROM EVAPORATOR UNITS IN CEILING SPACE TO NEATEST HUB DRAIN.
P28	EXISTING PIPING IS CAPPED AT FLOOR.



1 FIRST FLOOR PLUMBING PLAN

SCALE: 3/32" = 1'-0"

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FIRST FLOOR PLUMBING PLAN

P1.11

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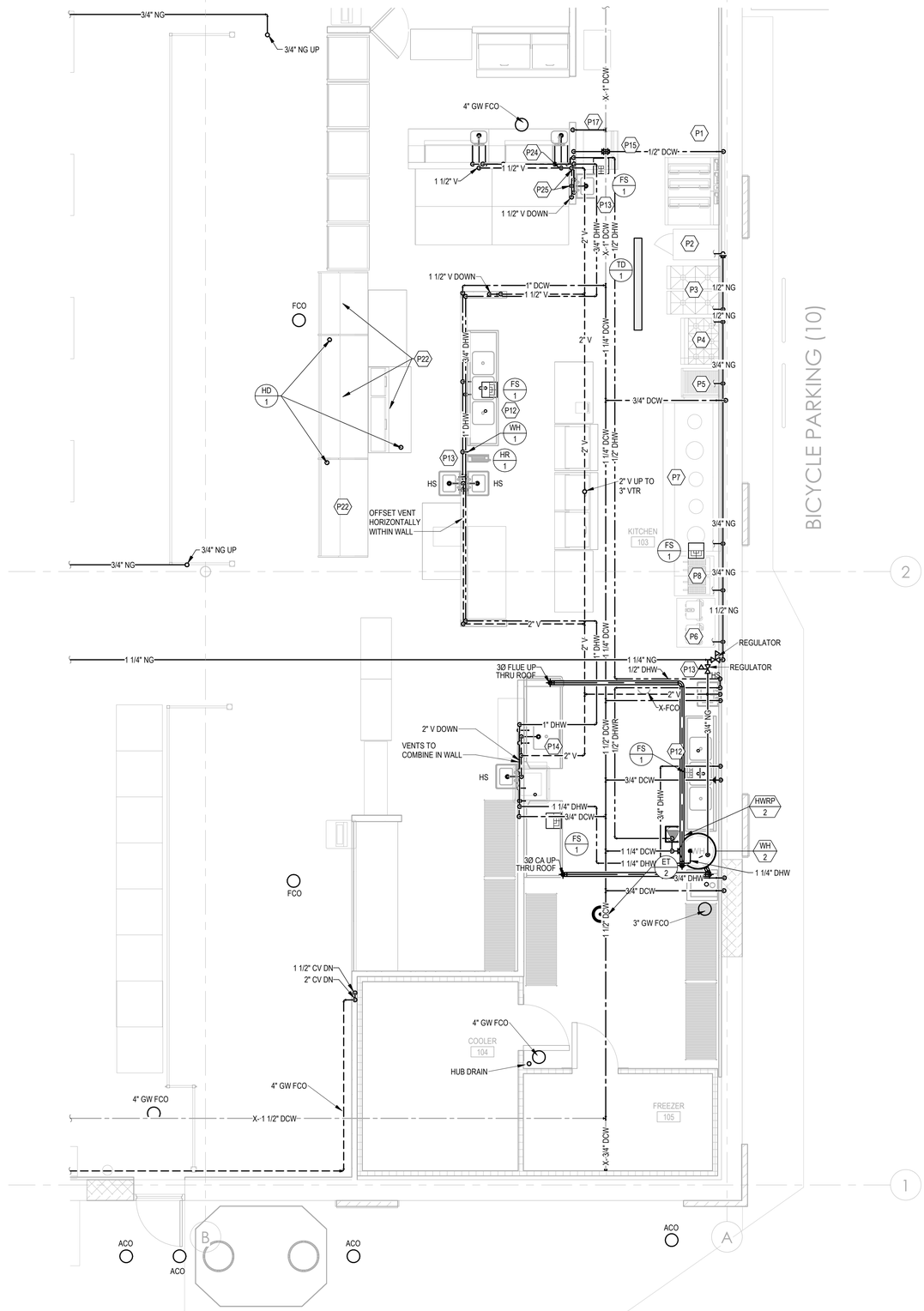

1 KITCHEN PLUMBING PLAN

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

SHEET NOTES

1	ALL LOUD AND DISRUPTIVE CONSTRUCTION NOISE, SUCH AS SAWCUTTING, IS TO BE DONE ON ADJOINING TENANTS' OFF HOURS. CONSTRUCTION NOISE SHALL NOT BE DISRUPTIVE TO TENANTS OR PATRONS OF THE SHOPPING CENTER.
2	WHEN SAWCUTTING, PROVIDE PROTECTION (SUCH AS PLASTIC SHEETING FROM DECK TO FLOOR) FROM CONSTRUCTION DUST GOING INTO ADJOINING TENANT SPACES.
3	MUST USE LANDLORD REQUIRED ROOFER FOR ALL ROOF PENETRATIONS.

KEY NOTES

P1	(O1) DECK OVEN WITH FILTRATION SYSTEM PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 1/2" DCW TO FILTRATION SYSTEM WITH BACKFLOW PREVENTION EQUAL TO WATTS 009, 1/2" FILTERED WATER CONNECTION TO DECK OVEN. PLUMBING CONTRACTOR TO INSTALL FILTRATION SYSTEM AND FILTER.
P2	SMOKE HOUSE PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 3/4" NG (80 MB @ 4 INWC). PROVIDE GAS REGULATOR AND SHUTOFF AT APPLIANCE.
P3	4-BURNER STOVE PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 1 1/2" NG (160 MB @ 4 INWC). PROVIDE GAS REGULATOR AND SHUTOFF AT APPLIANCE.
P4	6-BURNER STOVE PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 3/4" NG (192 MB @ 4 INWC). PROVIDE GAS REGULATOR AND SHUTOFF AT APPLIANCE.
P5	CHARBROILER PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 3/4" NG (80 MB @ 4 INWC). PROVIDE GAS REGULATOR AND SHUTOFF AT APPLIANCE.
P6	RICE COOKER PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 1/2" NG (14 MB @ 4 INWC). PROVIDE GAS REGULATOR AND SHUTOFF AT APPLIANCE.
P7	WOK PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 3/4" DCW AND 1 1/2" NG (500 MB @ 4 INWC). PROVIDE GAS REGULATOR AND SHUTOFF AT APPLIANCE AND INDIRECT DARN TO NEAREST FLOOR SINK.
P8	FLOOR FRYER PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 3/4" NG (120 MB @ 4 INWC) PROVIDE SHUTOFF VALVE.
P12	3-COMPARTMENT SINK WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW AND 1/2" DHW PIPING, CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. PROVIDE FULL SIZE DRAIN LINE WITH CLEANOUT FROM SINK. END OPEN OVER RECEPTOR WITH 2 " AIR GAP. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE THREE EVENLY SPACED FASTENERS TO ATTACH WALL STUDS. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P13	HAND SINK WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DHW AND 1/2" DHW AND 1 1/2" SS PIPING. INSTALL THERMOSTATIC MIXING VALVE FURNISHED WITH SINK WITH HARD PIPED CONNECTIONS TO ANGLE STOPS AND FLEXIBLE CONNECTIONS BETWEEN THERMOSTATIC MIXING VALVE AND FOOT PEDAL (PEDESTAL HAND SINK) OR KNEE LEVER (WALL MOUNTED HAND SINK) R WRIST BLADE LEVERS (ADA WALL MOUNTED HAND SINK) AND SINK. SET AT 105°F. CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE TWO EVENLY SPACED FASTENERS. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P14	SOILED DISHTABLE WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW AND 1/2" DHW PIPING, CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. PROVIDE FULL SIZE DRAIN LINE WITH CLEANOUT FROM SINK. END OPEN OVER RECEPTOR WITH 2 " AIR GAP. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE THREE EVENLY SPACED FASTENERS TO ATTACH WALL STUDS. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P15	ICE BIN PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PROVIDE 1/2" INDIRECT DRAIN LINE TO NEAREST FLOOR SINK WITH AIR GAP. REFER TO A1.51 EQUIPMENT SCHEDULE.
P17	ICE MACHINE PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PROVIDE 3/8" CONNECTION TO WATER FILTRATION SYSTEM WITH BACKFLOW PREVENTION TO ICE MACHINE AND 1/2" INDIRECT DRAIN LINE TO NEAREST FLOOR SINK WITH AIR GAP. PLUMBING CONTRACTOR TO INSTALL FILTRATION SYSTEM AND FILTER. REFER TO A1.51 EQUIPMENT SCHEDULE.
P22	PROVIDE 1/14" INDIRECT DRAIN LINE TO HUB DRAIN WITH AIR GAP.
P24	VENT PIPING TO COMBINE IN HALF WALL.
P25	VENT PIPING TO COMBINE IN WALL.

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EAST ENLARGED PLUMBING PLAN

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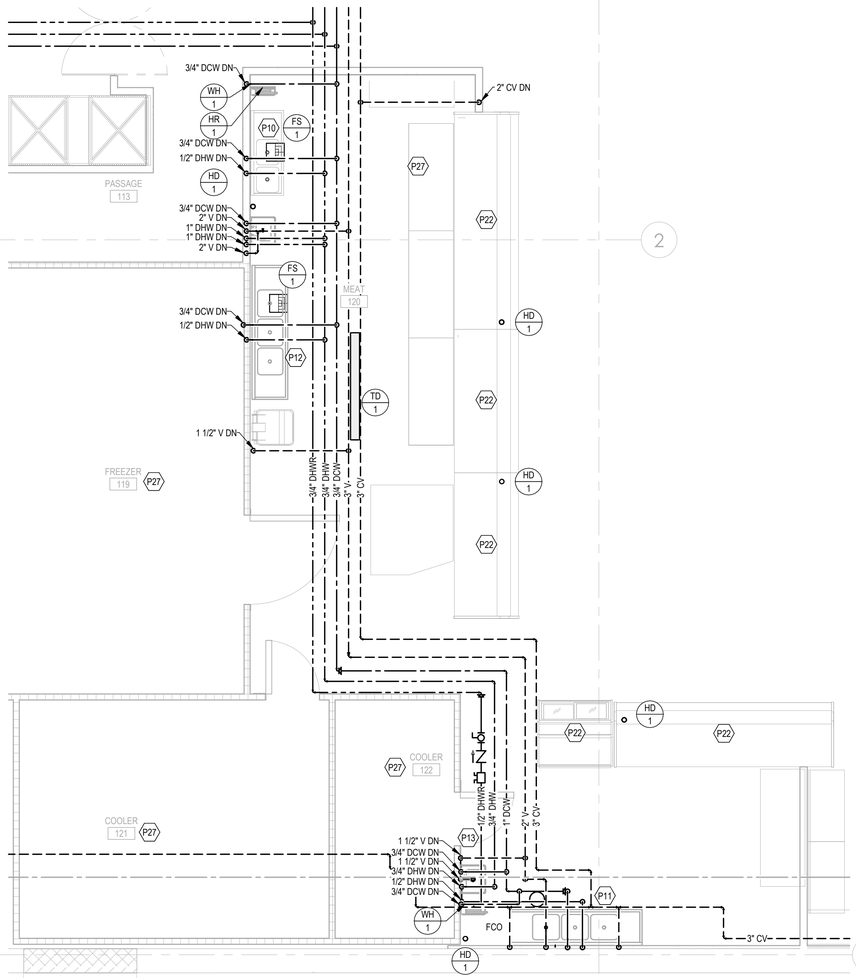
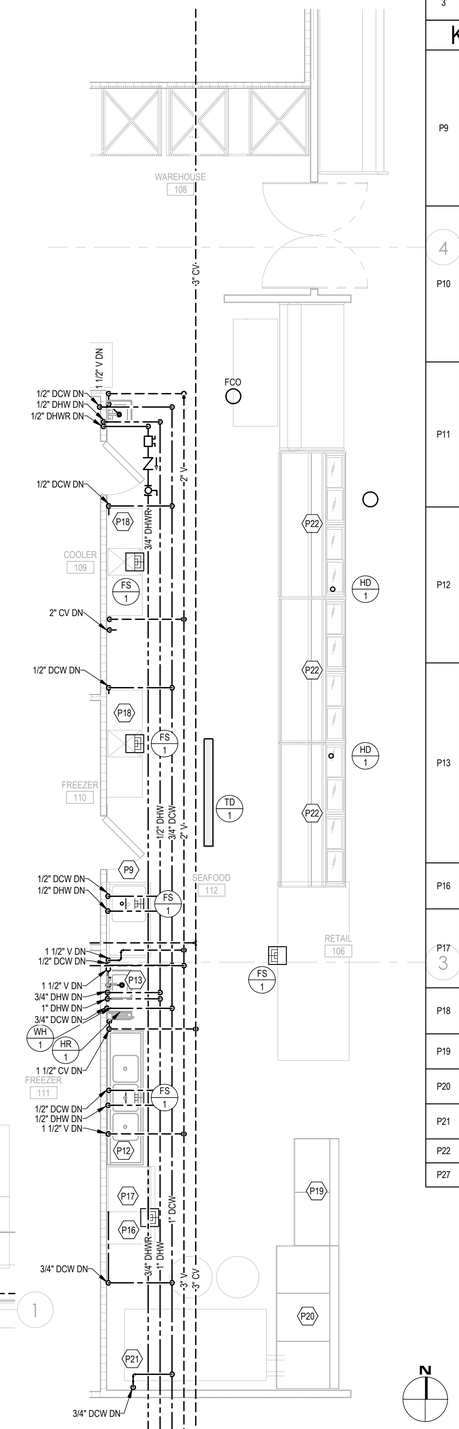


2 MEAT DEPT. PLUMBING PLAN

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



1 SEAFOOD DEPT. PLUMBING PLAN

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

SHEET NOTES

1	ALL LOUD AND DISRUPTIVE CONSTRUCTION NOISE, SUCH AS SAWCUTTING, IS TO BE DONE ON ADJOINING TENANTS' OFF HOURS. CONSTRUCTION NOISE SHALL NOT BE DISRUPTIVE TO TENANTS OR PATRONS OF THE SHOPPING CENTER.
2	WHEN SAWCUTTING, PROVIDE PROTECTION (SUCH AS PLASTIC SHEETING FROM DECK TO FLOOR) FROM CONSTRUCTION DUST GOING INTO ADJOINING TENANT SPACES.
3	MUST USE LANDLORD REQUIRED ROOFER FOR ALL ROOF PENETRATIONS.

KEY NOTES

P9	1-COMPARTMENT SINK WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW AND 1/2" DHW PIPING, CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. PROVIDE FULL SIZE DRAIN LINE WITH CLEANOUT FROM SINK. END OPEN OVER RECEPTOR WITH 2 " AIR GAP. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE TWO EVENLY SPACED FASTENERS FOR PREP SINK. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P10	2-COMPARTMENT SINK WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW AND 1/2" DHW PIPING, CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. PROVIDE FULL SIZE DRAIN LINE WITH CLEANOUT FROM SINK. END OPEN OVER RECEPTOR WITH 2 " AIR GAP. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE TWO EVENLY SPACED FASTENERS. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P11	3-COMPARTMENT SINK WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW AND 1/2" DHW PIPING, CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. PROVIDE FULL SIZE DRAIN LINE WITH CLEANOUT FROM SINK. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE THREE EVENLY SPACED FASTENERS TO ATTACH WALL STUDS. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
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P16	ICE BIN PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PROVIDE 1/2" INDIRECT DRAIN LINE TO NEAREST FLOOR SINK WITH AIR GAP. REFER TO A1.51 EQUIPMENT SCHEDULE.
P17	ICE MACHINE PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PROVIDE 3/8" CONNECTION TO WATER FILTRATION SYSTEM WITH BACKFLOW PREVENTION TO ICE MACHINE AND 1/2" INDIRECT DRAIN LINE TO NEAREST FLOOR SINK WITH AIR GAP. PLUMBING CONTRACTOR TO INSTALL FILTRATION SYSTEM AND FILTER. REFER TO A1.51 EQUIPMENT SCHEDULE.
P18	FISH CUTTING TABLE PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. EQUIPMENT SCHEDULE ITEM FC. PLUMBING CONTRACTOR TO PROVIDE SHUTOFF VALVE
P19	LOBSTER TANK (2 TIER) PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR.. REFER TO A1.51 EQUIPMENT SCHEDULE.
P20	LOBSTER TANK (3 TIER) PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. REFER TO A1.51 EQUIPMENT SCHEDULE ITEM LT3.
P21	TANK FILTRATION SYSTEM PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. REFER TO A1.51 EQUIPMENT SCHEDULE ITEM TF . PROVIDE SHUTOFF.
P22	PROVIDE 1/14" INDIRECT DRAIN LINE TO HUB DRAIN WITH AIR GAP.
P27	ROUTE INDIRECT WASTE LINES FROM EVAPORATOR UNITS IN CEILING SPACE TO NEATEST HUB DRAIN.

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WEST ENLARGED PLUMBING PLAN

P1.11B

2/7/2024 5:06:27 PM

SHEET NOTES

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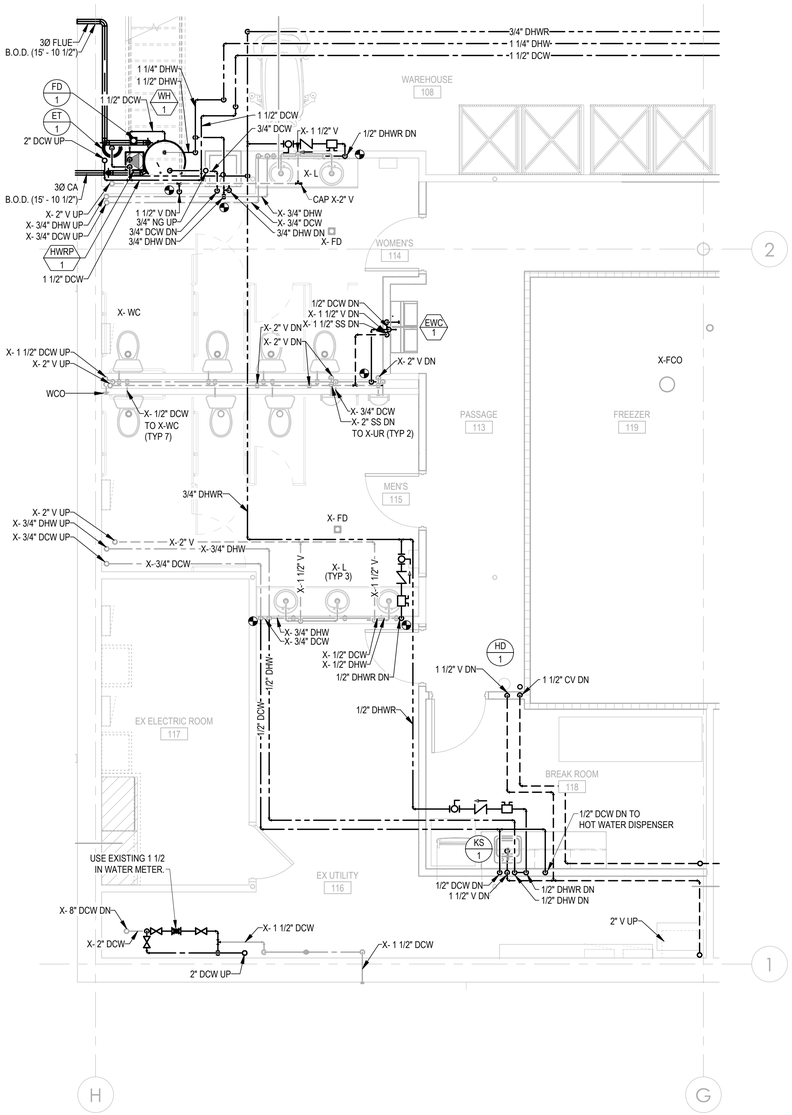
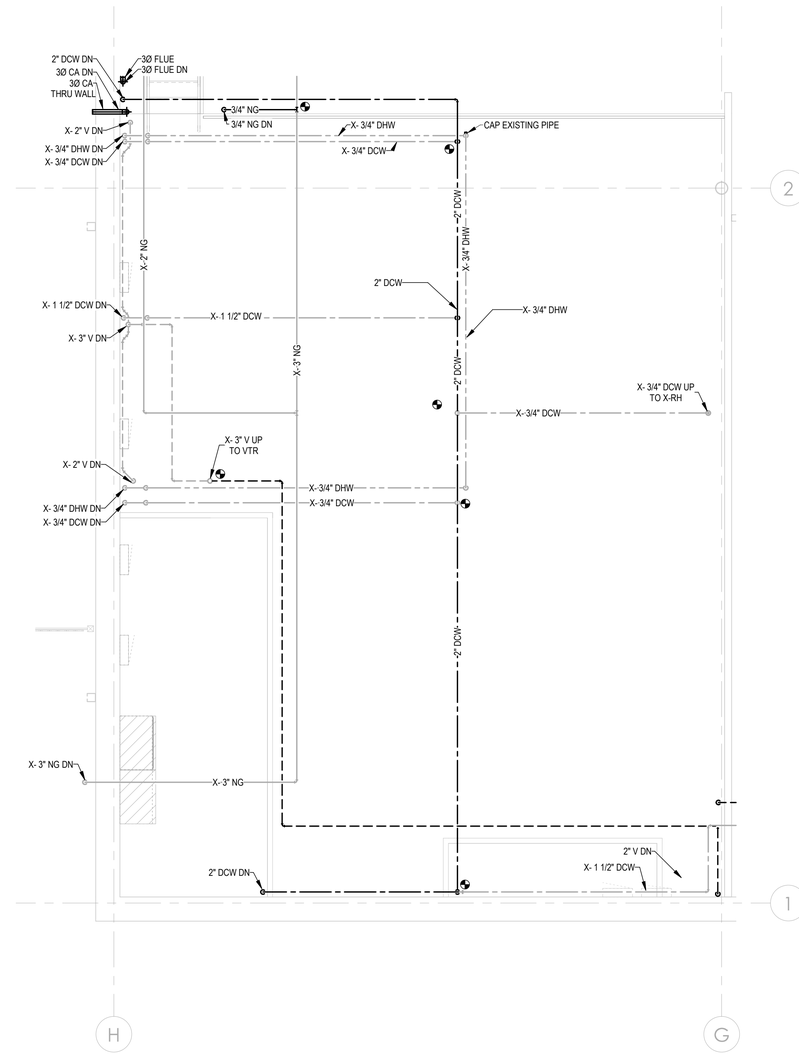


2 UTILITIES AND RESTROOM PLUMBING PLAN

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



1 MEZZANINE PLUMBING PLAN

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

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PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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MEZZANINE AREA
PLUMBING PLANS

P1.12

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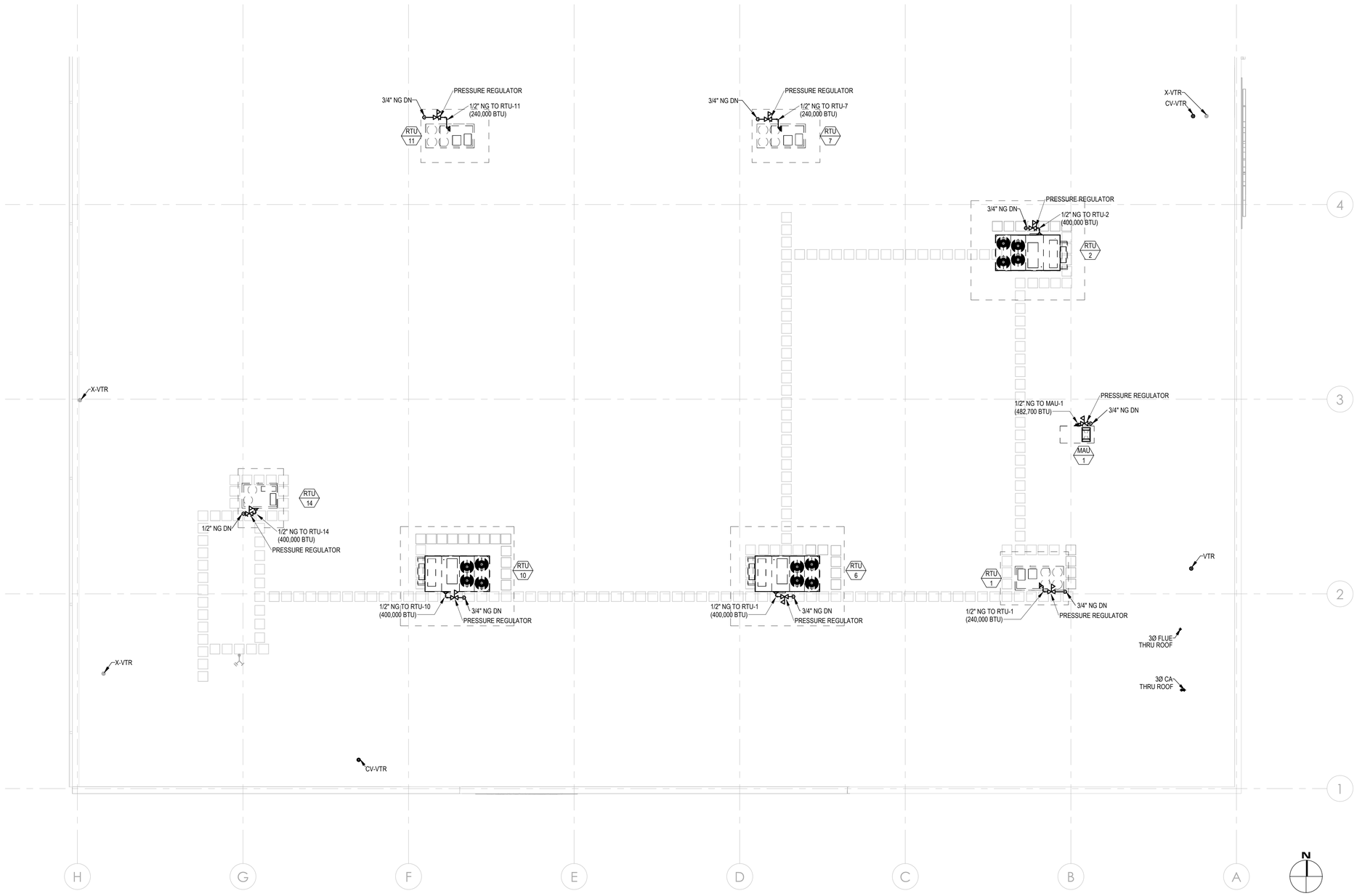
SHEET NOTES

1	ALL LOUD AND DISRUPTIVE CONSTRUCTION NOISE, SUCH AS SAWCUTTING, IS TO BE DONE ON ADJOINING TENANTS' OFF HOURS. CONSTRUCTION NOISE SHALL NOT BE DISRUPTIVE TO TENANTS OR PATRONS OF THE SHOPPING CENTER.
2	WHEN SAWCUTTING, PROVIDE PROTECTION (SUCH AS PLASTIC SHEETING FROM DECK TO FLOOR) FROM CONSTRUCTION DUST GOING INTO ADJOINING TENANT SPACES.
3	MUST USE LANDLORD REQUIRED ROOFER FOR ALL ROOF PENETRATIONS.

KEY NOTES



1 ROOF PLUMBING PLAN

SCALE: 3/32" = 1'-0"

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ROOF PLUMBING PLAN

P1.13

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PLUMBING SPECIFICATIONS

PART 1 - GENERAL

1.1 SECTION INCLUDES:
A. All Plumbing work necessary for the Pan Asia Supermarket in West Allis Wisconsin.

1.2 GENERAL PROVISIONS
A. In general, the work includes: Installing new storm piping and hub drains. and equipment.
B. Intent: This document will describe the design criteria and contractor's responsibility used to assure satisfactory, energy efficient and operational systems of plumbing work in compliance with the Wisconsin State code, these specifications, and the Owner's expectations.
C. Compliance with the outline scope of the work: Plumbing contractor shall review the Plumbing and Architectural plans and, in his proposal, identify if all or portions of the scope as outlined would not be met. If Contractor's proposal does not exclude any of the outlined scope provisions, Contractor becomes fully responsible for correction of any discrepancies or deficiencies of the Plumbing systems.
D. Contractor shall make all required applications and pay all fees to jurisdictional authorities as required for permit and construction.

1.3 MATERIAL AND EQUIPMENT
A. All material and equipment shall be new unless specified otherwise and of the quality used for the purpose in good commercial practice and shall be standard product of reputable manufacturers. Each major component of equipment shall have the manufacturer's name, catalog number, and capacity or rating on a nameplate, securely affixed on the equipment in a conspicuous place.

1.4 DAMAGE TO OTHER WORK
A. The Plumbing Contractor will be held rigidly responsible for all damages to the work of his own or any other trade resulting from the execution of his work. It shall be the Contractor's responsibility to adequately protect his work at all times. All damages resulting from his operations shall be repaired or the damaged portions replaced by the party originally performing the work, (to the entire satisfaction of the Construction Manager, General Contractor, or Owner), and all cost thereof shall be borne by the Contractor responsible for the damage.

1.5 COOPERATION WITH OTHER TRADES
A. This Contractor shall completely cooperate with all other trades in the matter of planning and executing of the work. Every reasonable effort shall be made to prevent conflict and interferences as to space requirements, dimensions, locations, openings, sleeving or other matters that tend to delay or obstruct the work of any trade.
A. The Contractor shall consult the drawings of the work for the various other trades; field layouts of the parties performing the work of the other trades; their shop drawings, and he shall be governed accordingly in laying out his work.

1.6 NEGLIGENCE
A. Should the Contractor fail to provide materials, templates, etc., or other necessary information causing delay or expense to another party, he shall pay the actual amount of the damages to the party who sustained the loss.

1.7 FIELD CHANGES
A. Should any change in Plumbing or Architectural drawings or specifications be required to comply with local regulations and/or field conditions, the Contractor shall refer same to Construction Manager, General Contractor, or Owner for approval before any work which deviates from the original requirements of the drawings and specifications is started. In the event of disagreements as to the necessity of such changes, the decision of the Construction Manager or General Contractor shall be final.

1.8 CUTTING AND PATCHING
A. All cutting and patching of existing structure to accommodate new plumbing is by plumbing contractor. Any cost caused by defective or ill-timed work shall be by the party responsible. Patching of holes, openings, etc., resulting from this work shall be by plumbing contractor.

1.9 1COMPLETION DATES
A. This Contractor shall be in a position to meet all completion dates established by the Construction Manager or General Contractor and shall furnish all labor of all classes required to meet such schedules and completion dates.

1.10 STANDARDS, CODES AND PERMITS
A. All work shall be installed in accordance with National, State and Local plumbing codes, laws, ordinances and regulations. Comply with all applicable OSHA regulations.
B. All materials shall have a U.L. label where a U.L. standards and/or test exists.
C. Prepare and submit all required permits to authorities having jurisdiction. Secure and pay for all permits and licenses required.

1.11 CLEAN UP
A. This Contractor shall at all times keep the premises free from excessive accumulation of waste material or rubbish resulting from his work, including tools, scaffolding and surplus materials, and he shall leave his work broom clean or its equivalent.

1.12 TESTS
A. The Contractor shall provide all instrumentation, labor and conduct all tests required by the Owner.
B. The Contractor shall provide reports of pressure tests for all systems to the Construction Manager or General Contractor for review.

1.13 WORKMANSHIP
A. The installation of all work shall be made so that its several component parts will function as a workable system complete with all accessories necessary for its operation and shall be left with all equipment properly adjusted and in working order. The work shall be executed in conformity with the best accepted standard practice of the trade so as to contribute to efficiency and appearance. It shall also be executed so that the installation will conform and adjust itself to the building structure, its equipment and its usage.

1.14 FIELD MEASUREMENTS
A. The Contractor shall take all field measurements necessary for his work and shall assume the full responsibility for their accuracy.

1.15 EXAMINATION OF PLANS, SPECIFICATIONS AND SITE
A. Before submitting a bid, the Contractor shall visit the site and familiarize himself with all features of the building and site which may affect the execution of his work. No extra payment will be allowed for the failure to obtain this information. If in the opinion of the Contractor there are omissions or errors in the plans or specifications, the Contractor shall clarify these points with the Owner and/or Engineer before submitting his bid. In lieu of written clarification by addendum, resolve all conflicts in favor of the greater quantity or better quality.

1.16 GUARANTEE
A. The Contractor shall unconditionally guarantee his work and all components thereof for a period of one year from the date of his final payment. He shall remedy any defects in workmanship and repair or replace any faulty equipment which shall appear within the guarantee period to the entire satisfaction of the Owner at no additional charge.

1.17 GENERAL SPECIFICATIONS
A. Provide all holes, sleeves, and caulking for installation of this work. Caulking to conform to fire rating of walls.
B. Before final payment is made, provide the following:
   a. Complete set of as-built drawings.
   b. Completed pressure test results.
   c. Operating manuals and guarantees for equipment installed.
C. Plumbing materials shall be installed in a neat and workmanlike manner.
D. All materials shall be new unless directed otherwise.

PART 2 - SPECIFIC REQUIREMENTS & PRODUCTS

2.1 MATERIALS

A. Piping
1. Domestic Cold Water: Copper Tube, Type L ASTM B42 & ASTM B88 with bronze or brass fittings and valves and rigid fiberglass insulation.
2. Sanitary: Cast iron pipe, ASTM A74, CISPI 301, ASTM A888 or Schedule 40 PVC pipe, ASTM D2665, D1785, F891-SCH 40.
3. Vent: Cast iron pipe, ASTM A74, CISPI 301, ASTM A888 or Schedule 40 PVC pipe, ASTM D2665, D1785, F891-SCH 40.
4. Storm:
   a. Above ground: Cast iron pipe, ASTM A74, CISPI 301, ASTM A888.
   b. Below ground: Cast iron pipe, ASTM A74, CISPI 301, ASTM A888 or Schedule 40 PVC pipe, ASTM D2665, D1785, F891-SCH 40.

B. Valves
1. Free, copper alloy, full port ball valves.

C. Insulation:
1. Domestic water supply and interior sanitary piping shall be insulated with preformed mineral fiber insulation, in thickness as required by applicable codes and AHSRAE 90.1.

D. Identification
1. Identify pipe with commercial pipe markers at 40' intervals and at each junction point, drop, valve, equipment connection and on each side of a wall or floor which the pipe passes through.
2. Lettering shall be sized so that it can be read from the floor.
3. Lettering and background colors shall conform to ANSI standards.
4. Identify flow direction on all piping with arrows at the pipe markers.

E. Hangers
1. To be installed per American National Standards Institute Code B31.1 in such a manner as to not damage building structure.
2. Piping shall be supported in a manner to prevent static or dynamic deflection of more than 1/8" under operating conditions.
3. Arrange for grouping of parallel runs of horizontal piping supported together on field fabricated, trapeze hangers where possible.
4. Where piping of various sizes is supported together by trapeze hangers, space hangers for smallest pipe size, or install intermediate supports for smaller diameter pipe.
5. Install additional attachments at concentrated loads, including valves, flanges, guides, strainers, expansion joints and at changes in direction of piping.
6. Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment.

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PLUMBING SPECIFICATIONS

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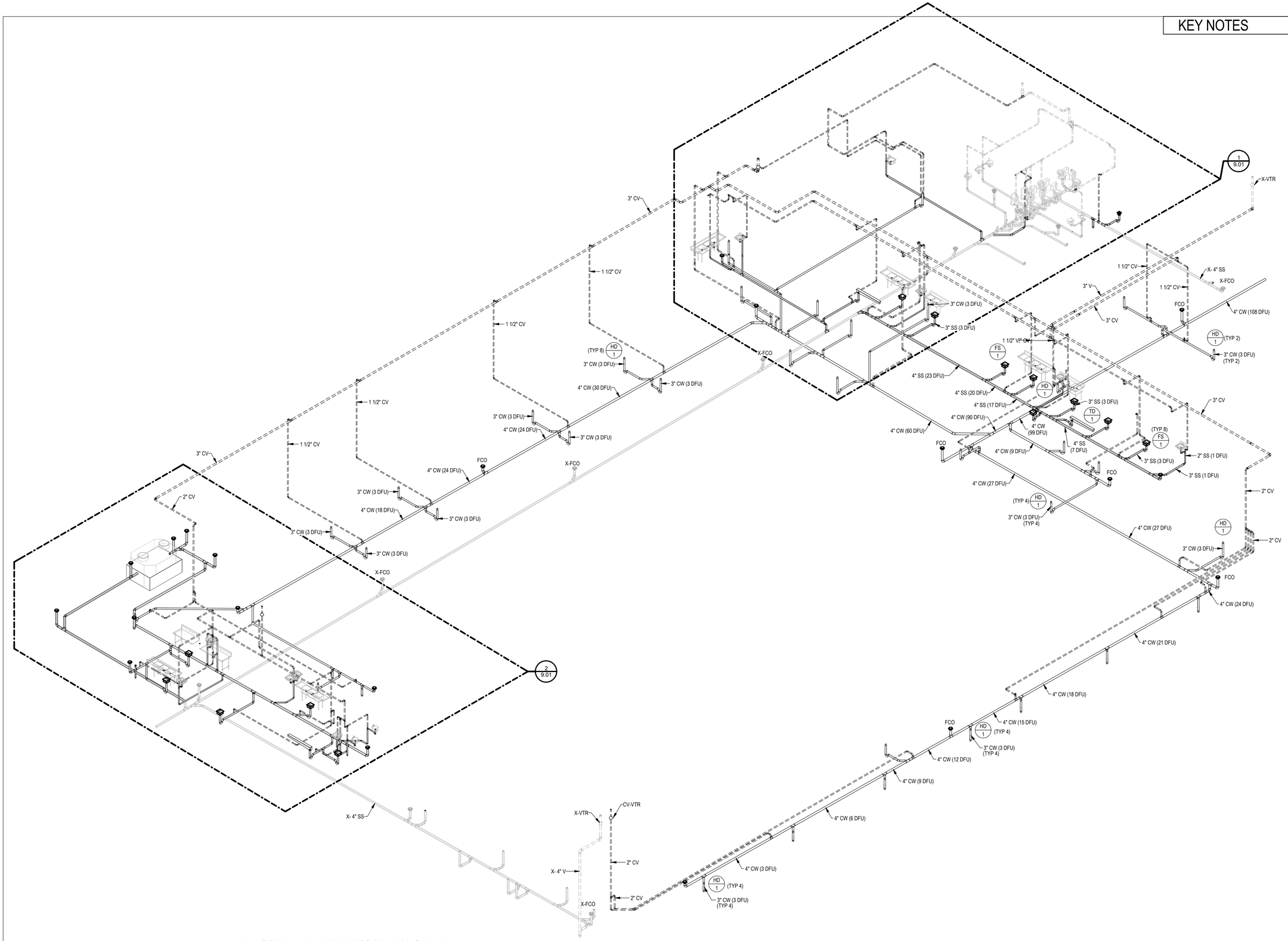
KEY NOTES



1 WASTE AND VENT RISER DIAGRAM

N.T.S.

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WASTE & VENT RISER DIAGRAM

P9.00

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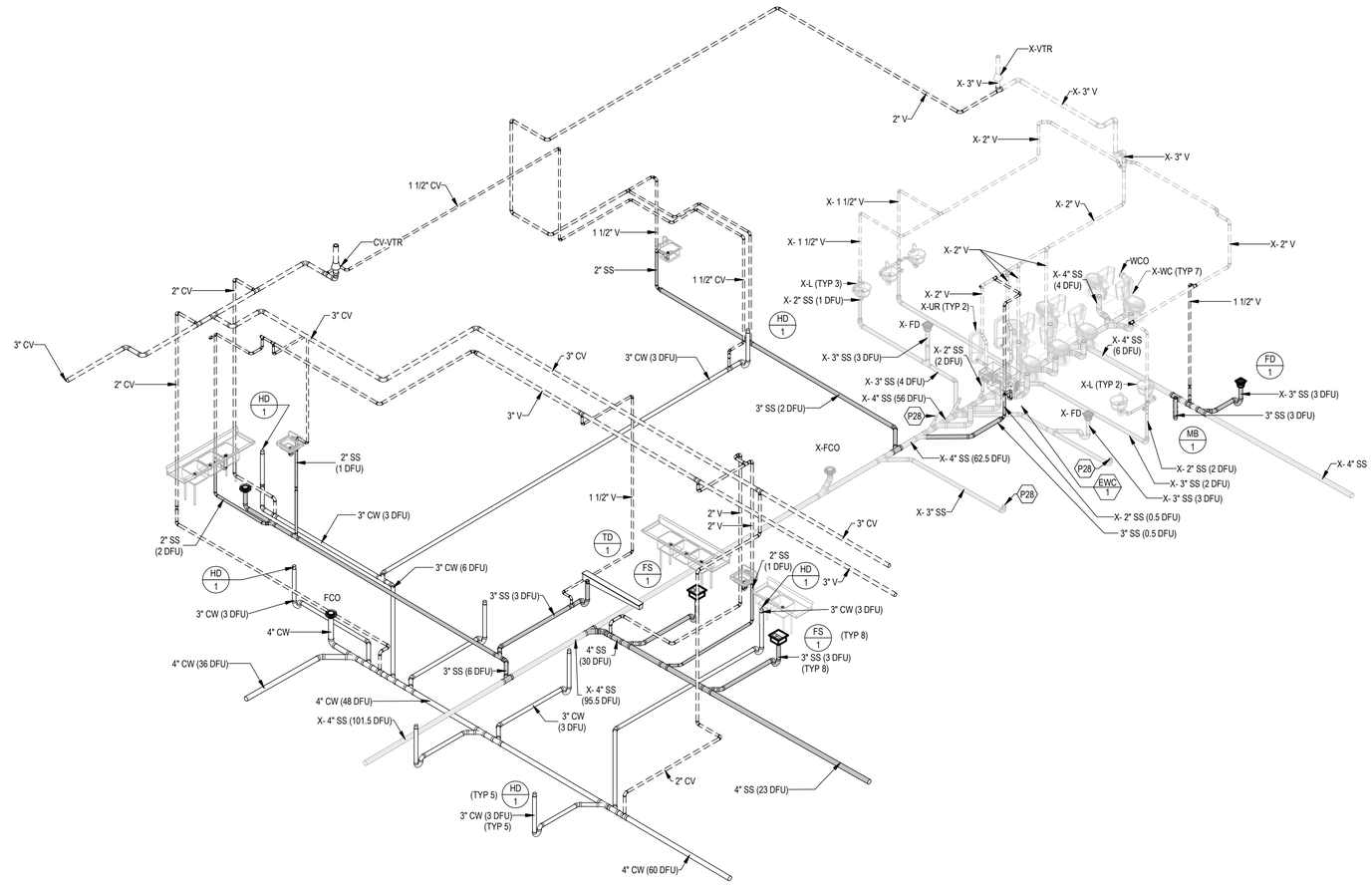
KEY NOTES

P28	EXISTING PIPING IS CAPPED AT FLOOR.



1 MEAT DEPT. AND RESTROOM WASTE AND VENT RISER DIAGRAM

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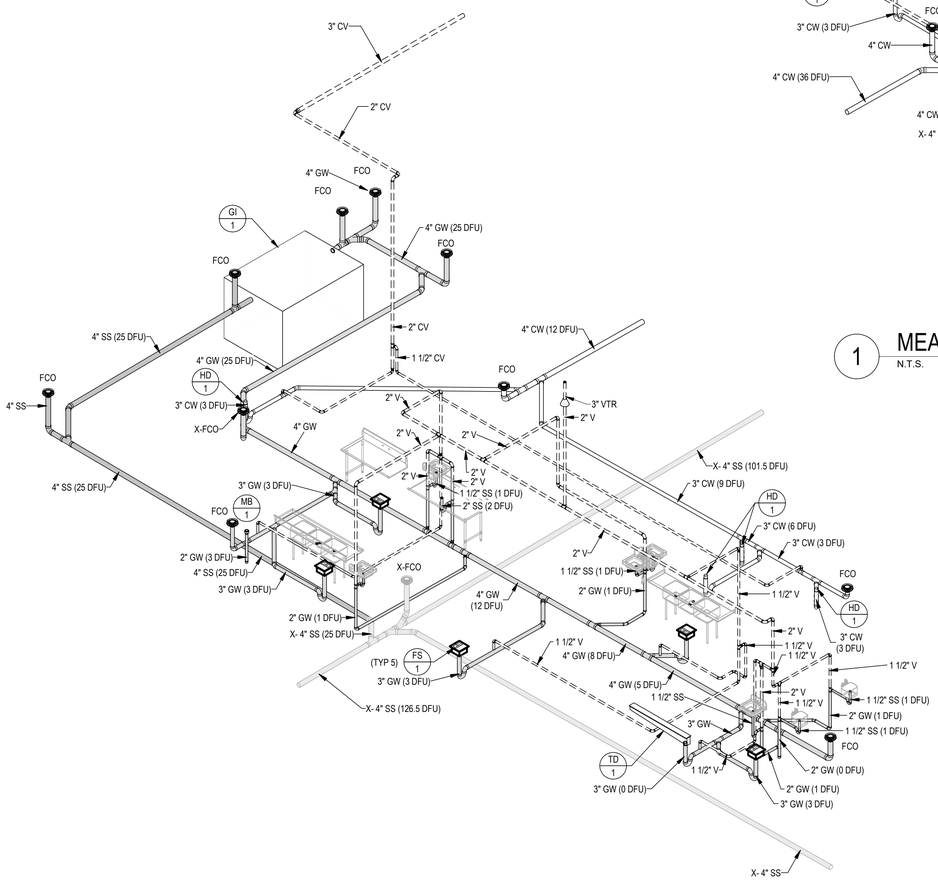

2 KITCHEN WASTE AND VENT RISER DIAGRAM

N.T.S.

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WASTE AND VENT RISER DIAGRAMS

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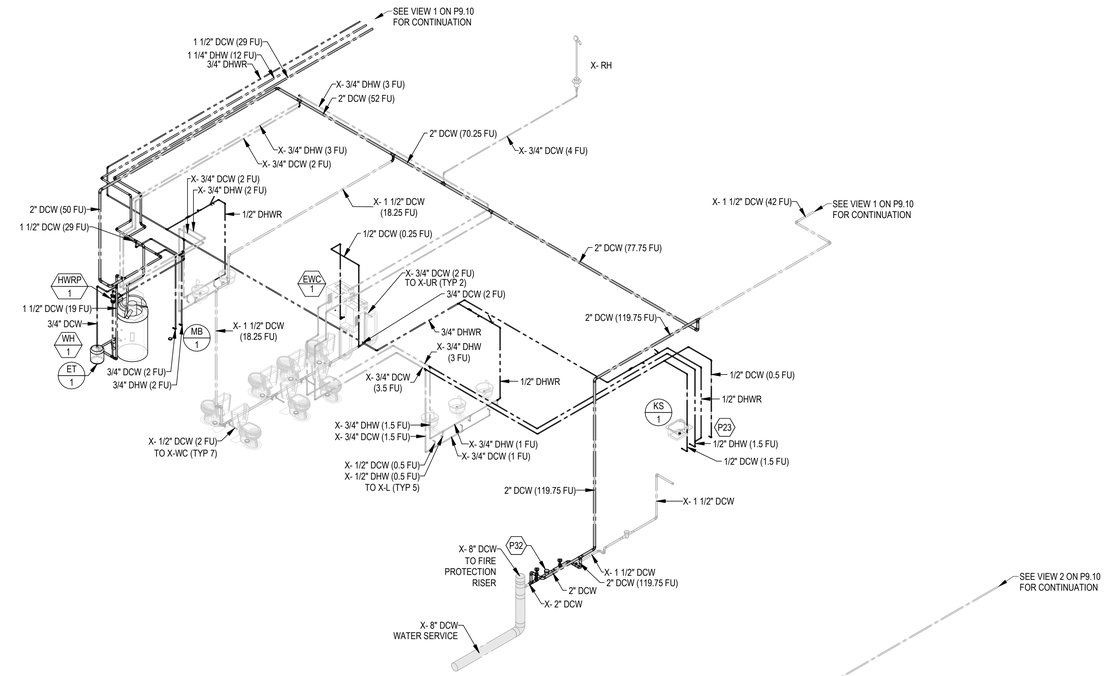
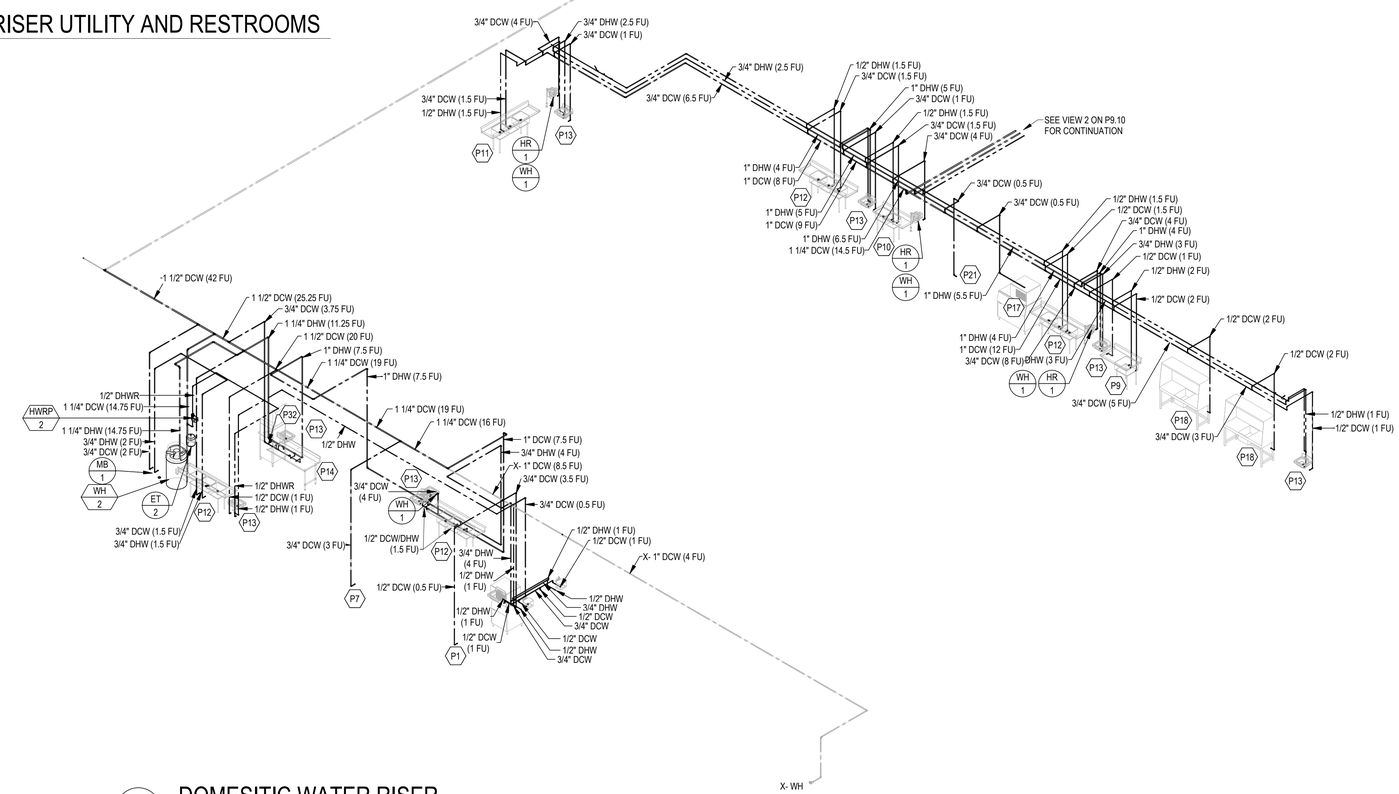


2 DOMESITIC WATER RISER UTILITY AND RESTROOMS

N.T.S.



1 DOMESITIC WATER RISER

N.T.S.

KEY NOTES

P1	(O1) DECK OVEN WITH FILTRATION SYSTEM PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 1/2" DCW TO FILTRATION SYSTEM WITH BACKFLOW PREVENTION. EQUAL TO WATTS 009, 1/2" FILTERED WATER CONNECTION TO DECK OVEN. PLUMBING CONTRACTOR TO INSTALL FILTRATION SYSTEM AND FILTER.
P7	WOK PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 3/4" DCW AND 1 1/2" NG (500 MB @ 4 INWC). PROVIDE GAS REGULATOR AND SHUTOFF AT APPLIANCE AND INDIRECT DARN TO NEAREST FLOOR SINK.
P9	1-COMPARTMENT SINK WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW AND 1/2" DHW PIPING, CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. PROVIDE FULL SIZE DRAIN LINE WITH CLEANOUT FROM SINK. END OPEN OVER RECEPTOR WITH 2 " AIR GAP. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE TWO EVENLY SPACED FASTENERS FOR PREP SINK. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P10	2-COMPARTMENT SINK WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW AND 1/2" DHW PIPING, CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. PROVIDE FULL SIZE DRAIN LINE WITH CLEANOUT FROM SINK. END OPEN OVER RECEPTOR WITH 2 " AIR GAP. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE TWO EVENLY SPACED FASTENERS. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P11	3-COMPARTMENT SINK WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW AND 1/2" DHW PIPING, CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. PROVIDE FULL SIZE DRAIN LINE WITH CLEANOUT FROM SINK. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE THREE EVENLY SPACED FASTENERS TO ATTACH WALL STUDS. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P12	3-COMPARTMENT SINK WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW AND 1/2" DHW PIPING, CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. PROVIDE FULL SIZE DRAIN LINE WITH CLEANOUT FROM SINK. END OPEN OVER RECEPTOR WITH 2 " AIR GAP. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE THREE EVENLY SPACED FASTENERS TO ATTACH WALL STUDS. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P13	HAND SINK WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DHW AND 1/2" DHW AND 1 1/2" SS PIPING. INSTALL THERMOSTATIC MIXING VALVE FURNISHED WITH SINK WITH HARD PIPED CONNECTIONS TO ANGLE STOPS AND FLEXIBLE CONNECTIONS BETWEEN THERMOSTATIC MIXING VALVE AND FOOT PEDAL (PEDESTAL HAND SINK) OR KNEE LEVER (WALL MOUNTED HAND SINK) R WRIST BLADE LEVERS (ADA WALL MOUNTED HAND SINK) AND SINK. SET AT 105°F. CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE TWO EVENLY SPACED FASTENERS. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P14	SOILED DISHTABLE WITH FAUCET AND INTEGRAL CHECK VALVES PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW AND 1/2" DHW PIPING, CHROME PLATED ANGLE SUPPLY, FLEXIBLE RISER, WHEEL HANDEL WITH ESCUTCHEON. PROVIDE FULL SIZE DRAIN LINE WITH CLEANOUT FROM SINK. END OPEN OVER RECEPTOR WITH 2 " AIR GAP. ATTACH SINK TO WALL WITH CONTRACTOR-PROVIDED STAINLESS-STEEL SLOTTED ROUND HEAD FASTENERS OR SHEET METAL SCREWS INSTALLED THROUGH TOP FLANGE OF SINK BACKSPLASH. FOR FRAMED WALLS USE THREE EVENLY SPACED FASTENERS TO ATTACH WALL STUDS. FOR SINKS INSTALLED ON COOLER PANEL WALLS, ATTACH SINK TO OUTER COOLER PANEL OUTER SHEET METAL WITH SCREWS AT 12" CENTERS ALONG BACKSPLASH.
P17	ICE MACHINE PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. PROVIDE 3/8" CONNECTION TO WATER FILTRATION SYSTEM WITH BACKFLOW PREVENTION TO ICE MACHINE AND 1/2" INDIRECT DRAIN LINE TO NEAREST FLOOR SINK WITH AIR GAP. PLUMBING CONTRACTOR TO INSTALL FILTRATION SYSTEM AND FILTER. REFER TO A1.51 EQUIPMENT SCHEDULE.
P18	FISH CUTTING TABLE PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. EQUIPMENT SCHEDULE ITEM FC. PLUMBING CONTRACTOR TO PROVIDE SHUTOFF VALVE
P21	TANK FILTRATION SYSTEM PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. REFER TO A1.51 EQUIPMENT SCHEDULE ITEM TF. PROVIDE SHUTOFF.
P23	HOT WATER DISPENSER PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. 1/2" DCW
P32	DISHWASHER PROVIDED BY OWNER. FINAL CONNECTIONS BY PLUMBING CONTRACTOR. CONNECTIONS: 1/2" DHW. PROVIDE 1/2" INDIRECT DRAIN LINE TO NEAREST FLOOR SINK WITH AIR GAP. REFER TO A1.51 EQUIPMENT SCHEDULE.

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START DATE	02/08/24
DRAWN BY	LLL
CHECKED BY	KLO

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DOMESTIC RISER DIAGRAMS

P9.10

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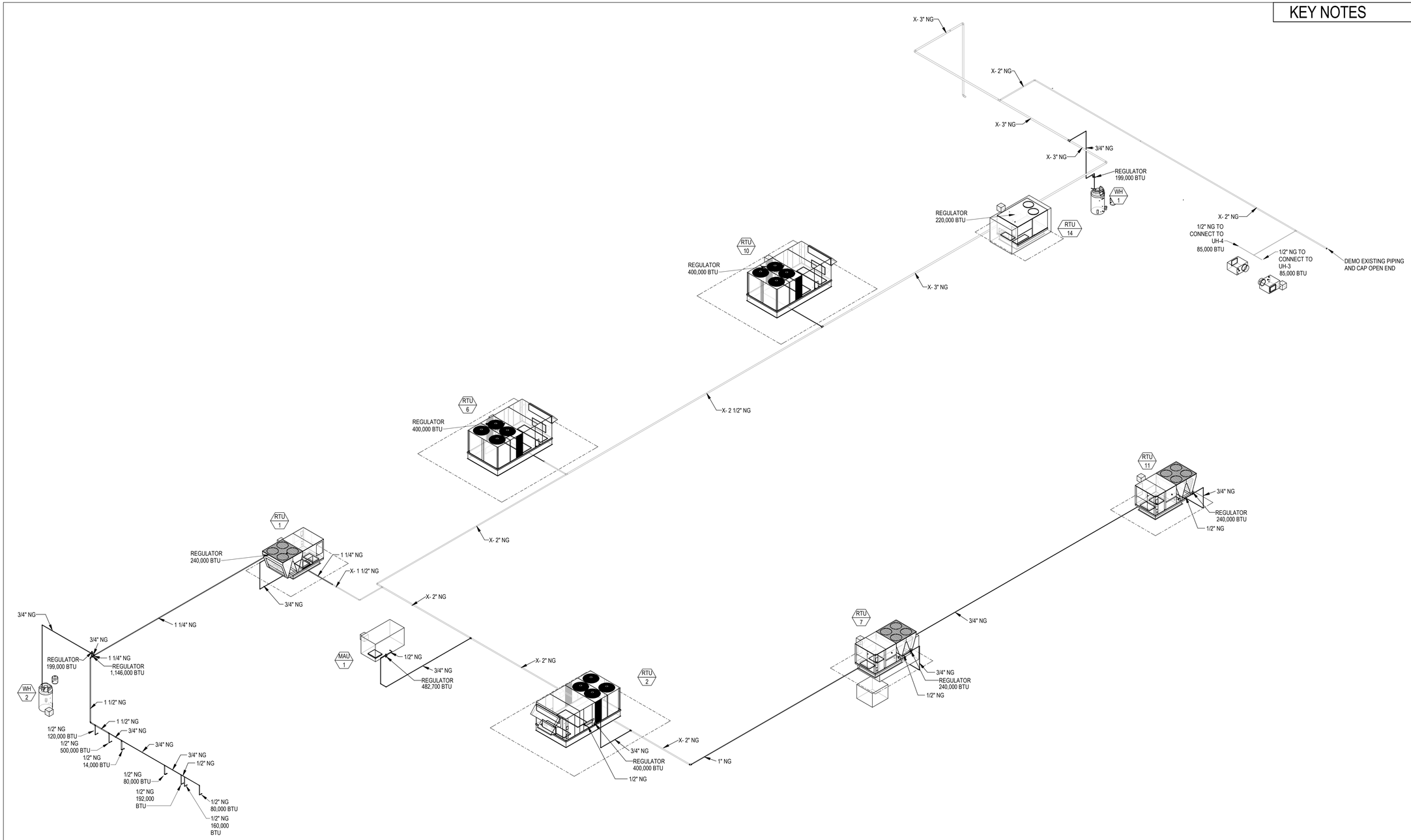
KEY NOTES



1 GAS RISER DIAGRAM

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GAS RISER DIAGRAM

P9.20

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ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AP	ACCESS PANEL
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
CA	COMBUSTION AIR
COND	CONDENSATE DRAIN
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CR	LOW PRESSURE STEAM CONDENSATE RETURN
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DE	DISHWASHER EXHAUST
DN	DOWN
EA	EXHAUST AIR
GSHXR	GROUND SOURCE HEAT EXCHANGER RETURN
GSHXS	GROUND SOURCE HEAT EXCHANGER SUPPLY
HPS	HIGH PRESSURE STEAM
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
KE	KITCHEN EXHAUST
LPS	LOW PRESSURE STEAM
MPS	MEDIUM PRESSURE STEAM
NC	NORMALLY CLOSED
NG	NATURAL GAS
NO	NORMALLY OPEN
OA	OUTSIDE AIR
RA	RETURN AIR
RCOVR	ENERGY RECOVERY RETURN
RCOVS	ENERGY RECOVERY SUPPLY
RELF	RELIEF AIR
RL	REFRIGERATION LIQUID
RS	REFRIGERATION SUCTION
SA	SUPPLY AIR
SOLR	SOLAR THERMAL RETURN
SOLS	SOLAR THERMAL SUPPLY
TA	TRANSFER AIR

CONTROLS LEGEND

- I/O POINT
- DUCT MOUNTED TEMPERATURE SENSOR
- DUCT MOUNTED HUMIDITY SENSOR
- PRESSURE DIFFERENTIAL SENSOR
- TEMPERATURE SENSORE, POINT SETTING
- CONTROL BOX
- CO2 MONITOR
- FLOW SWITCH
- THERMOSTAT
- VARIBLE FREQUENCY DRIVE CONTROL BOX
- AIRFLOW METER
- AIRFLOW DISCHARGE
- AIRLOW INTAKE
- COIL
- CONTROL VALVE, FLOW
- CONTROL VALVE, 3-WAY
- FAN
- FILTER
- MOTORIZED DAMPER
- PUMP

PIPING LEGEND

- BALL VAVLE
- BUTTERFLY VALVE
- CHECK VALVE
- CIRCUIT SETTER
- 2-WAY ELECTRONIC CONTROL VALVE
- 3-WAY ELECTRONIC CONTROL VALVE
- GATE VALVE
- HOSE BIBB
- OS&Y VALVE
- PLUG VALVE
- PRESSURE & TEMPERATURE RELIEF VALVE
- PRESSURE REDUCING VALVE
- TRIPLE DUTY VALVE
- AIR VENT
- FLEX PIPE
- FLOOR DRAIN / ROOF DRAIN
- P-T PLUG
- PIPE BREAK
- PIPE CAPPED END
- PIPE CLEANOUT
- PIPE ELBOW/TEE DOWN
- PIPE ELBOW/TEE UP
- POINT OF CONNECTION
- PUMP
- REDUCER
- STRAINER
- UNION
- FLOW GUAGE
- FLOW SENSOR
- PRESSURE GAUGE
- PRESSURE SENSOR
- TEMPERATURE GAUGE
- TEMPERATURE SENSOR
- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CMPA — COMPRESSED AIR
- CNDS — CONDENSATE
- CWR — CONDENSER WATER RETURN
- CWS — CONDENSER WATER SUPPLY
- RCOVR — ENERGY RECOVERY RETURN
- RCOVS — ENERGY RECOVERY SUPPLY
- FW — FEED WATER
- GSHXR — GEOTHERMAL WATER RETURN
- GWHXS — GEOTHERMAL WATER SUPPLY
- HWR — HOT WATER RETURN
- HWS — HOT WATER SUPPLY
- NG — NATURAL GAS
- RL — REFRIGERANT LIQUID
- RS — REFIRGERANT SUCTION
- SOLR — SOLAR THERMAL RETURN
- SOLS — SOLAR THERMAL SUPPLY
- CR — STEAM CONDENSATE RETURN
- HPS — HIGH PRESSURE STEAM
- LPS — LOW PRESSURE STEAM
- MPS — MEDIUM PRESSURE STEAM
- EXISITNG SUPPLY PIPING (ALL SYSTEMS)
- EXISTING RETURN PIPING (ALL SYSTEMS)
- DEMOLISHED PIPING

HVAC LEGEND

- NEW HVAC EQUIPMENT
- NEW DUCTWORK
- EXISTING MECHANICAL COMPONENT
- DEMOLISHED MECHANICAL EQUIPMENT
- MECHANICAL EQUIPMENT SERVICE AREA
- SUPPLY AIR DUCT UP
- SUPPLY AIR DUCT DOWN
- RETURN AIR DUCT UP
- RETURN AIR DUCT DOWN
- OUTSIDE AIR DUCT UP
- OUTSIDE AIR DUCT DOWN
- EXHAUST AIR DUCT UP
- EXHAUST AIR DUCT DOWN
- ELBOW WITH TURNING VANES
- FLEX DUCTWORK
- M — MOTORIZED DAMPER
- BD — BACK DRAFT DAMPER
- FD — FIRE DAMPER
- SD — SMOKE DAMPER
- FSD — COMBINATION FIRE/SMOKE DAMPER
- X-XX — DAMPER WITH SEQUENCE NUMBER
- BALANCING DAMPER
- AIRFLOW INDICATOR
- UC — DOOR UNDERCUT
- TRANSFER/DOOR GRILLE
- NEW SUPPLY DIFFUSER
- NEW RETURN TRANSFER GRILLE
- NEW EXHAUST GRILLE
- C — CO2 SENSOR
- PD — PRESSURE DIFFERENTIAL SENSOR
- PS — STATIC PRESSURE CONTROLLER
- T — THERMOSTAT
- T — TEMPERATURE SENSOR
- TC — THERMOSTAT / CO2 SENSOR
- TC — TEMPERATURE / CO2 SENSOR
- $ — SWITCH
- POINT OF CONNECTION
- CONTROL WIRE
- DN — DUCT OFFSET
- EQUIPMENT / FLOOR / TAG — VAV X-X — HVAC EQUIPMENT TAG ELECTRICALLY POWERED
- EQUIPMENT / FLOOR / TAG — VAV X-X — HVAC EQUIPMENT TAG NOT ELECTRICALLY POWERED
- NECK SIZE / TAG / CFM / TYP. # — Z1 12x12 100 (3) — DIFFUSER/GRILLE TAG

GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL REQUIRED OFFSETS FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL INSTALL MATERIAL AND EQUIPMENT TO CONFORM TO THE STRUCTURE, EQUIPMENT CONNECTIONS AND SHALL MAINTAIN APPROPRIATE CLEARANCES.
2. ALL WORK SHALL COMPLY WITH APPLICABLE NATIONAL, STATE, LOCAL CODES, FEDERAL AND STATE REGULATIONS, AND ALL REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION.
3. CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
4. THE CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE FULL EXTENT OF WORK AND PROJECT CONDITIONS. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF THE OBLIGATIONS OF THE CONTRACT.
5. COORDINATE EXACT LOCATION OF CEILING DIFFUSERS AND GRILLES WITH REFLECTED CEILING PLAN.
6. ALL BRANCH DUCTS SHALL MATCH DIFFUSER NECK SIZES UNLESS OTHERWISE NOTED.
7. ALL CONTROL WIRING SHALL BE RUN IN CONDUIT.
8. KEYNOTES PERTAIN ONLY TO THE DRAWING THEY ARE LOCATED ON.
9. DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.
10. ALL HOT WATER BRANCH LINES ARE 3/4" UNLESS NOTED OTHERWISE.
11. MAINTAIN 10' MINIMUM DISTANCE FROM OUTSIDE AIR INTAKE TO ANY EXHAUST OR PLUMBING VENTS.
12. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH.
13. ALL SUPPLY AND RETURN DUCTWORK IN UNINSULATED ATTIC SPACE SHALL BE WRAPPED WITH 3" INSULATION.
14. CLEAN ALL EXISTING DUCTWORK, COILS AND DIFFUSERS DESIGNATED TO REMAIN WITHIN THE PROJECT'S SCOPE OF WORK.
15. REMOVAL AND REINSTALLATION OF EXISTING CEILING IS REQUIRED. REPLACE ALL DAMAGED CEILING WITH NEW, EQUAL TO EXISTING.
16. CONTRACTOR SHALL SUPPLY LANDLORD WITH THE FOLLOWING INFORMATION FOR EACH PIECE OF EQUIPMENT UPON PROJECT COMPLETION:

    - MAKE
    - MODEL
    - SERIAL NUMBER
    - TONNAGE
    - YEAR OF MANUFACTURE
    - WARRANTY INFORMATION

VENTILATION SCHEDULE

ROOM NUMBER	ROOM NAME	AREA (SQ FT)	OCCUPANCY CLASSIFICATION	IMC 2015 REQUIRED VENTILATION					OUTSIDE AIR PROVIDED (CFM)	EXHAUST AIR PROVIDED (CFM)
				MECHANICAL VENTILATION (CFM)						
				OCCUPANTS (PEOPLE)	OCCUPANT OUTSIDE AIR (CFM)	SPACE OUTSIDE AIR (CFM)	TOTAL OUTSIDE AIR (CFM)	EXHAUST AIR (CFM)		
100	VESTIBULE	145	CORRIDOR	0	0	0	0	0	40	0
101	CUSTOMER SERVICE	275	OFFICE	2	10	20	30	0	45	0
102	OFFICE	140	OFFICE	3	15	10	25	0	30	0
103	KITCHEN	1495	KITCHEN	9	70	180	250	0	6145	8500
106	RETAIL	23240	SUPERMARKETS	185	1,390	1,395	2,785	0	2830	0
108	WAREHOUSE	3100	WAREHOUSES	0	0	190	190	0	425	0
112	SEAFOOD	715	SUPERMARKETS	3	25	45	70	0	70	800
113	PASSAGE	430	CORRIDOR	0	0	0	0	0	45	0
114	WOMENS	185	TOILET	0	0	0	0	280	0	300
115	MENS	200	TOILET	0	0	0	0	350	0	375
116	EX UTILITY	285	N/A	0	0	0	0	0	0	0
117	EX ELECTRIC ROOM	145	N/A	0	0	0	0	0	0	0
118	BREAK ROOM	155	CONFERENCE ROOMS	5	25	10	35	0	45	0
120	MEAT	440	SUPERMARKETS	2	15	30	45	0	45	400
123	MEAT	260	SUPERMARKETS	2	15	20	35	0	35	400
						TOTAL	3465	630	9755	10775

MECHANICAL SHEET INDEX

NUMBER	SHEET NAME
M0.00	MECHANICAL NOTES LEGENDS ABBREVIATIONS
M0.51	FIRST FLOOR MECHANICAL DEMOLITION PLAN
M0.52	MEZZANINE MECHANICAL DEMOLITION PAN
M0.53	ROOF MECHANICAL DEMOLITION PLAN
M1.11	FIRST FLOOR MECHANICAL PLAN
M1.11A	EAST ENLARGED MECHANICAL PLAN
M1.11B	WEST ENLARGED MECHANICAL PLAN
M1.12	MEZZANINE MECHANICAL PLAN
M1.13	ROOF MECHANICAL PLAN
M5.00	MECHANICAL DETAILS
M6.00	HVAC SCHEDULES
M8.00	MECHANICAL SPECIFICATIONS

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CLIENT

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MECHANICAL NOTES LEGENDS ABBREVIATIONS

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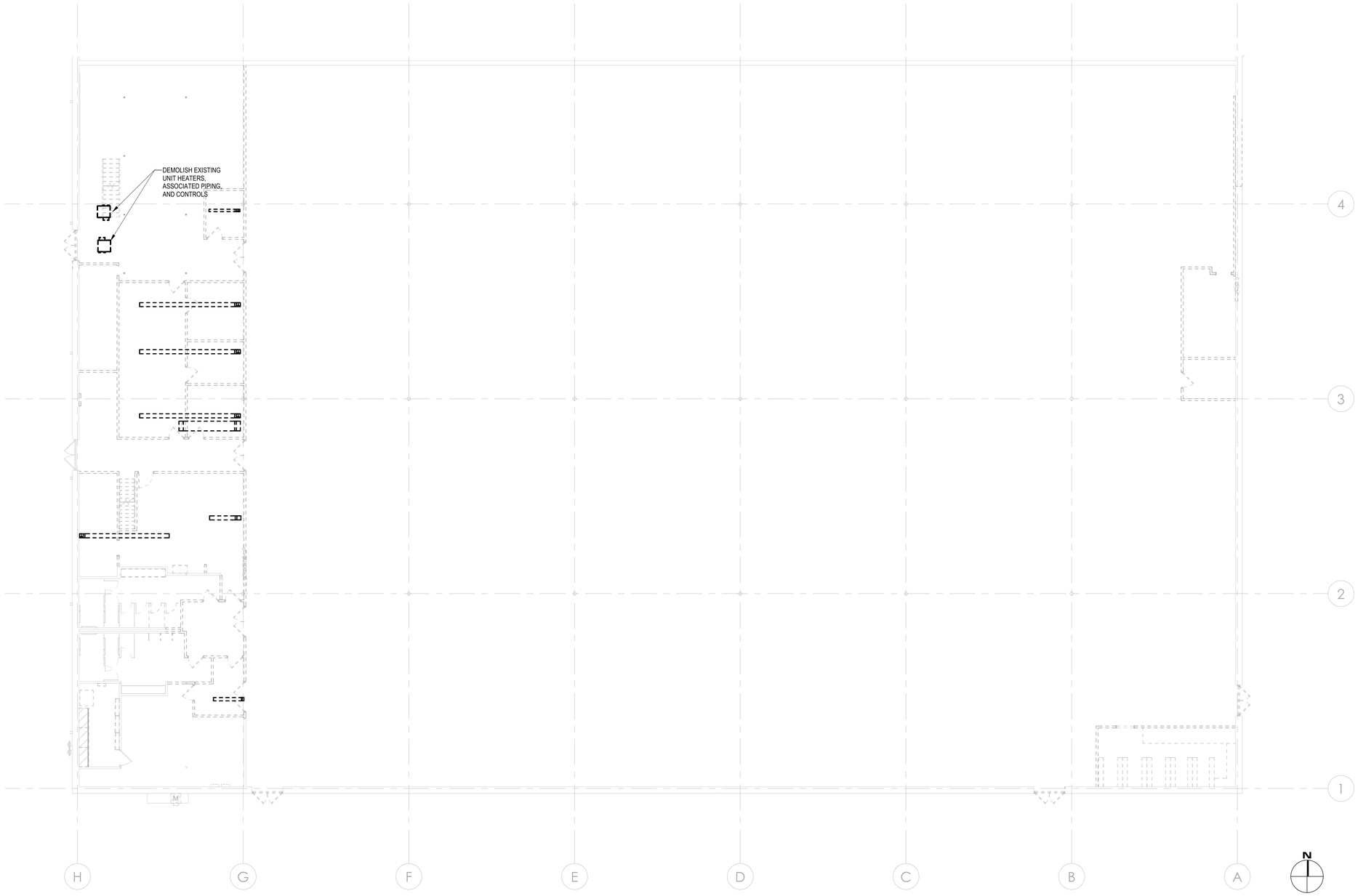
KEY NOTES



1 FIRST FLOOR HVAC DEMOLITION PLAN

SCALE: 3/32" = 1'-0"

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FIRST FLOOR MECHANICAL DEMOLITION PLAN

M0.51

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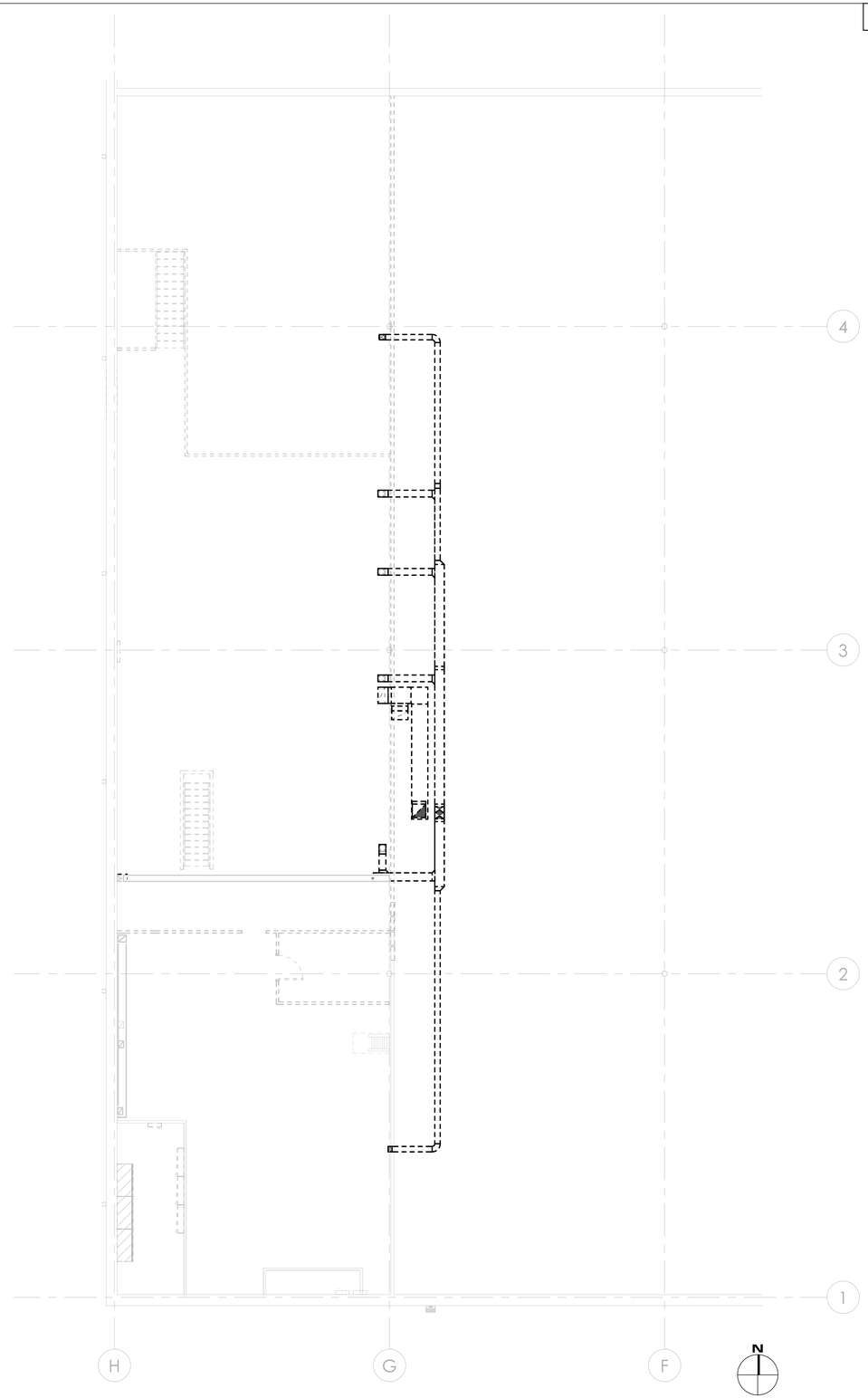
KEY NOTES



1 MEZZANINE HVAC DEMOLITION PLAN

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

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MEZZANINE MECHANICAL DEMOLITION PAN

M0.52

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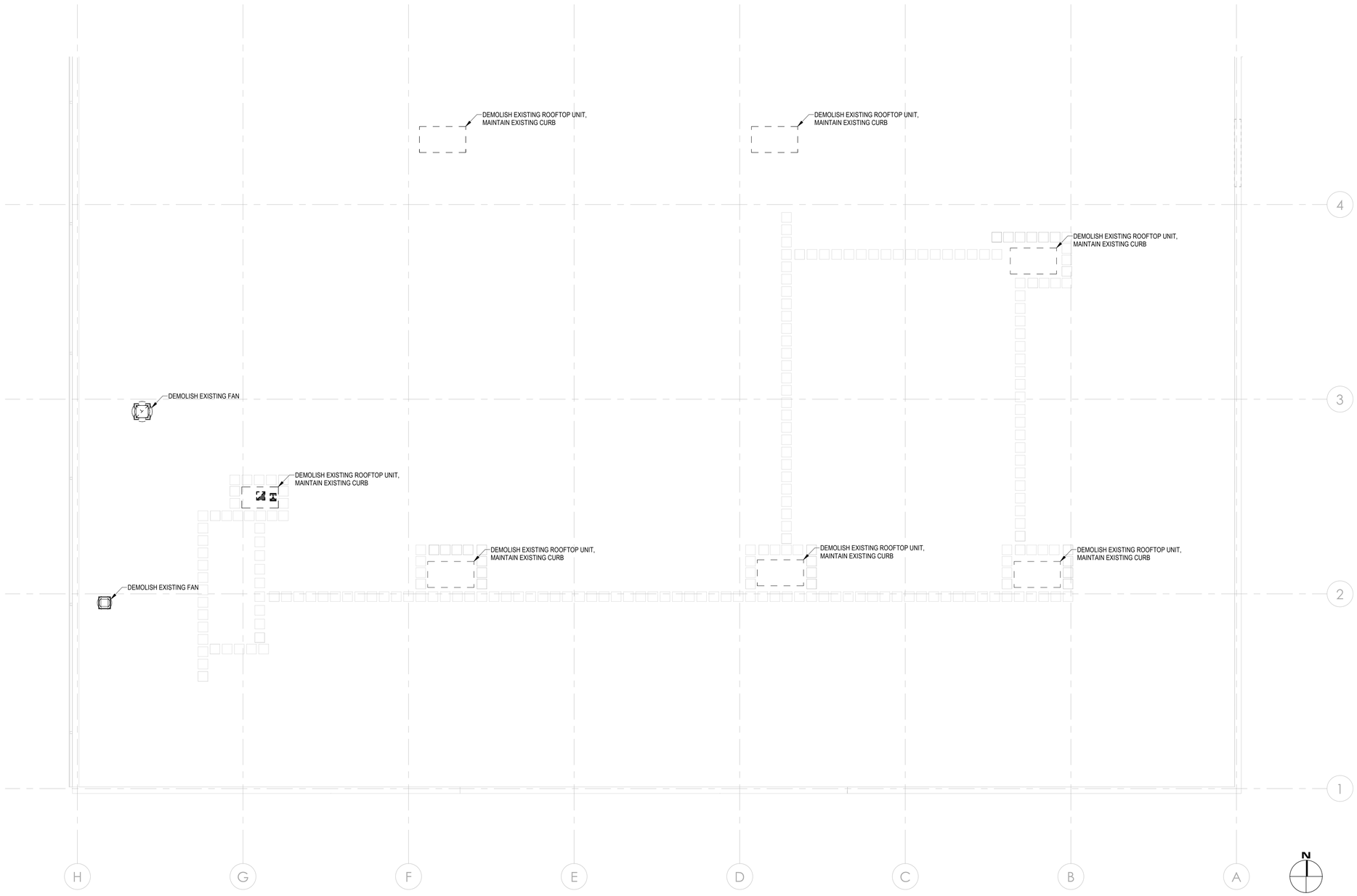
KEY NOTES



1 ROOF HVAC DEMOLITION PLAN

SCALE: 3/32" = 1'-0"

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ROOF MECHANICAL DEMOLITION PLAN

M0.53

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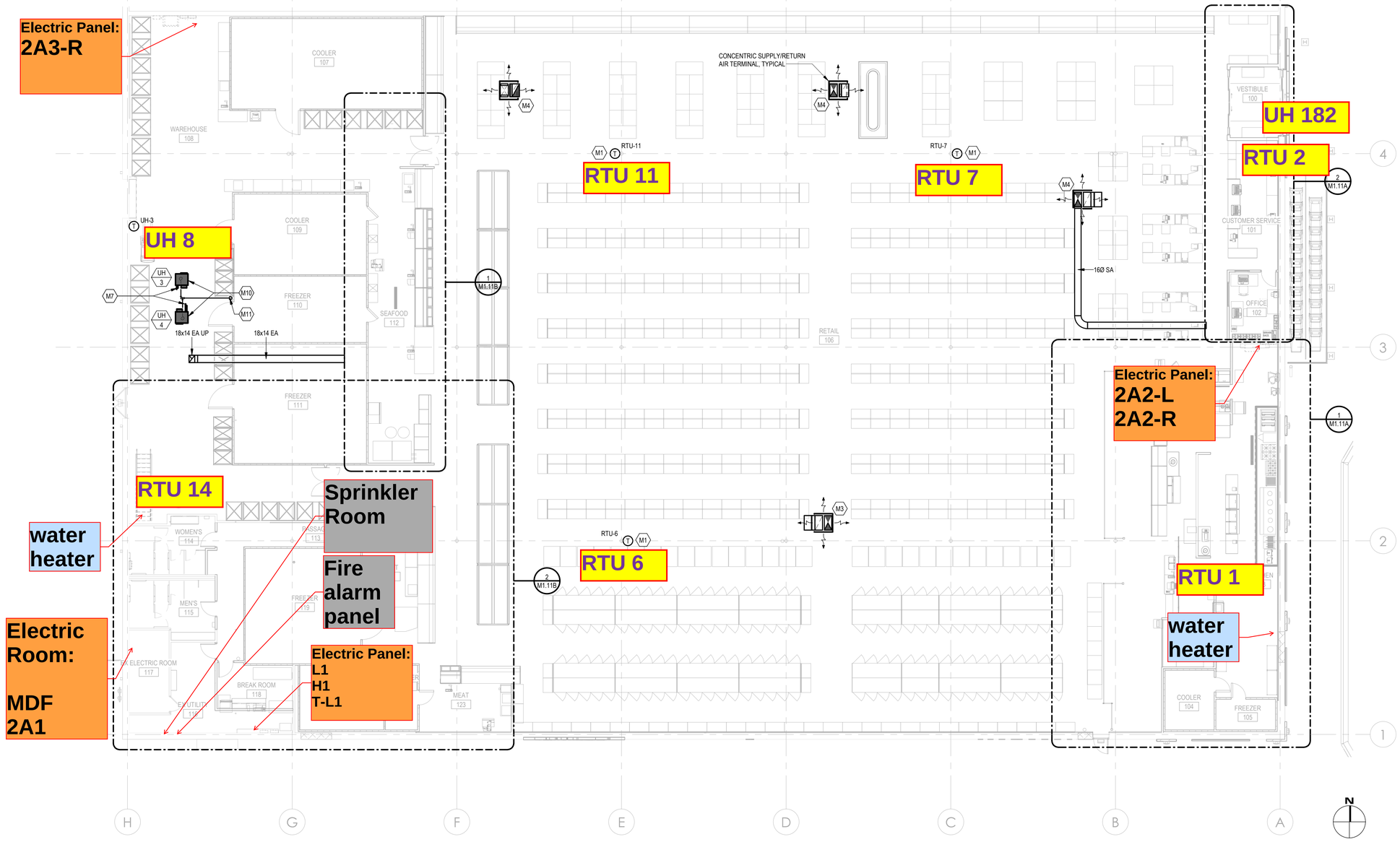
KEY NOTES

M1	PROVIDE LOCKABLE COVER FOR THERMOSTAT IN CUSTOMER-FACING AREA.
M3	PROVIDE CONCENTRIC SUPPLY/RETURN AIR TERMINAL, RUSKIN CDS-60 OR EQUIVALENT.
M4	PROVIDE CONCENTRIC SUPPLY/RETURN AIR TERMINAL, RUSKIN CDS-50 OR EQUIVALENT.
M7	PROVIDE CONCENTRIC VENT KIT FOR TERMINATION THROUGH ROOF. INSTALL PER MANUFACTURER'S REQUIREMENTS.
M10	INSTALL UNIT HEATER MINIMUM 12' AFF. COORDINATE FINAL LOCATION WITH OWNER.
M11	CONDENSATE PIPING DOWN TO HUB DRAIN. FIELD COORDINATE ACTUAL ROUTING. SIZE AND PITCH PER MANUFACTURER'S RECOMMENDATIONS.



1 FIRST FLOOR HVAC PLAN

SCALE: 3/32" = 1'-0"

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FIRST FLOOR MECHANICAL PLAN

M1.11

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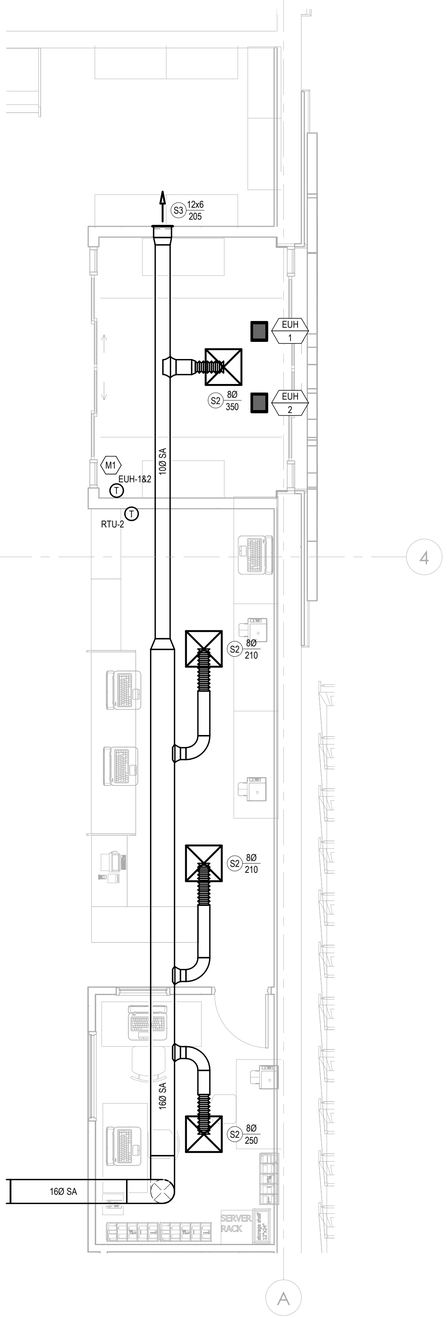
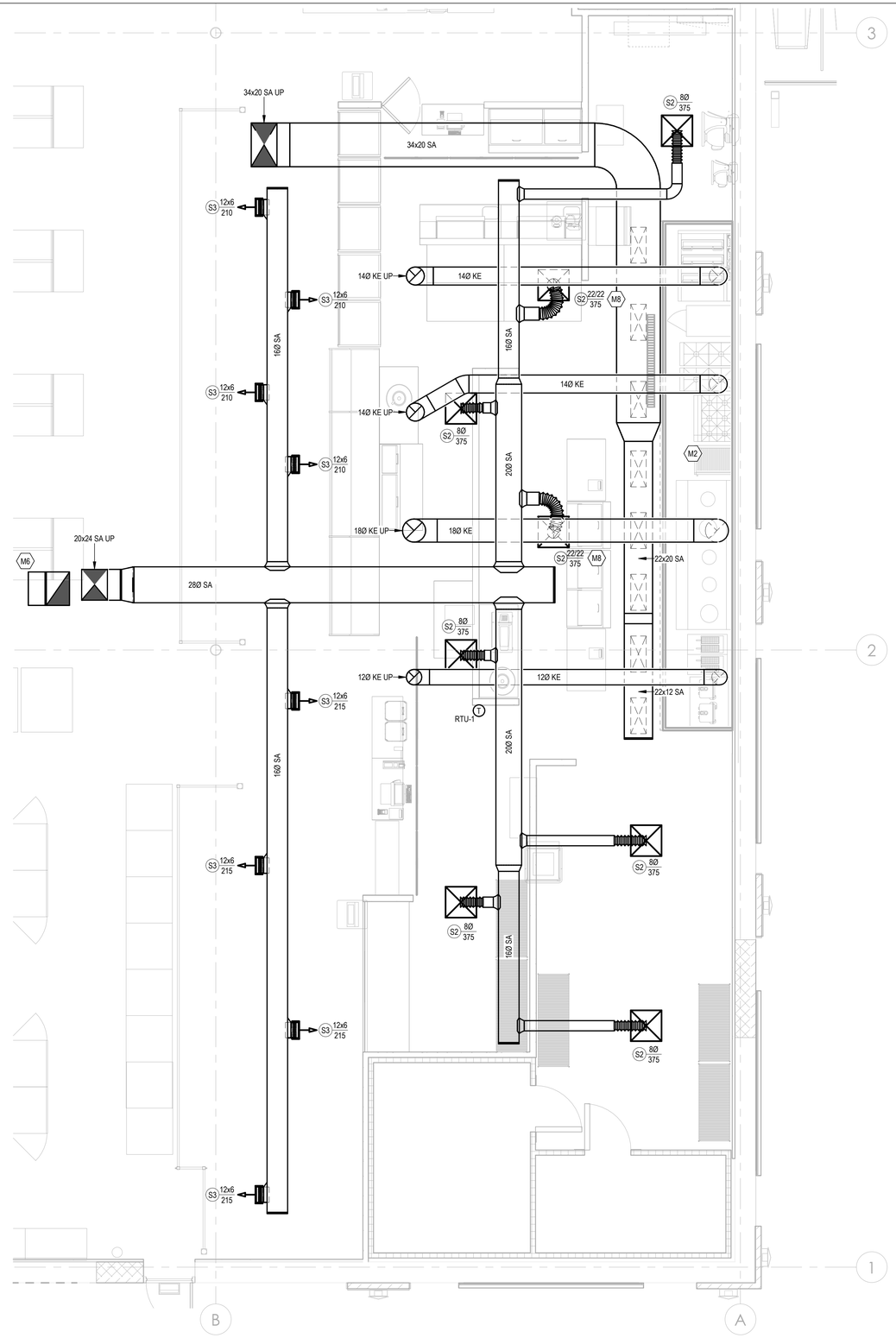


2 ENTRY & CUSTOMER SERVICE MECHANICAL PLAN

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



1 KITCHEN MECHANICAL PLAN

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

KEY NOTES

M1	PROVIDE LOCKABLE COVER FOR THERMOSTAT IN CUSTOMER-FACING AREA.
M2	OWNER TO FURNISH HOODS WITH INTEGRAL SUPPLY PLENUMS AND FIRE SUPPRESSION SYSTEM. HOOD EXHAUST FANS, MAKEUP AIR UNIT, AND CONTROLS. CONTRACTOR TO INSTALL ENTIRE HOOD SYSTEM. CONTACTOR TO FURNISH AND INSTALL ALL HOOD RELATED DUCTWORK. EXHAUST DUCTWORK SHALL BE STAINLESS STEEL UL LISTED "ECON-AIR" MODEL "EDW" AS INDICATED ON ECON-AIR DOCUMENTS. CONTACTOR SHALL CREATE DUCTWORK AS-BUILT AFTER HOOD INSTALLATION AND PRIOR TO ORDERING GREASE DUCTWORK AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
M6	PROVIDE FULL SIZE RETURN OPENING WITH WIRE MESH SCREEN.
M8	PROVIDE WITH WITH NO THROW PATTERN.

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10/19/23		SD | PLAN COMMISSION
11/06/23		DD | PROGRESS
11/20/23		DD | OWNER REVIEW
11/29/23		DD | PROGRESS

PROJECT NUMBER	23-044
START DATE	02/08/24
DRAWN BY	BMC, KJT
CHECKED BY	KLO

ibc engineering services, inc.
WISCONSIN | ILLINOIS | FLORIDA
IBC PROJECT NO. 2023108

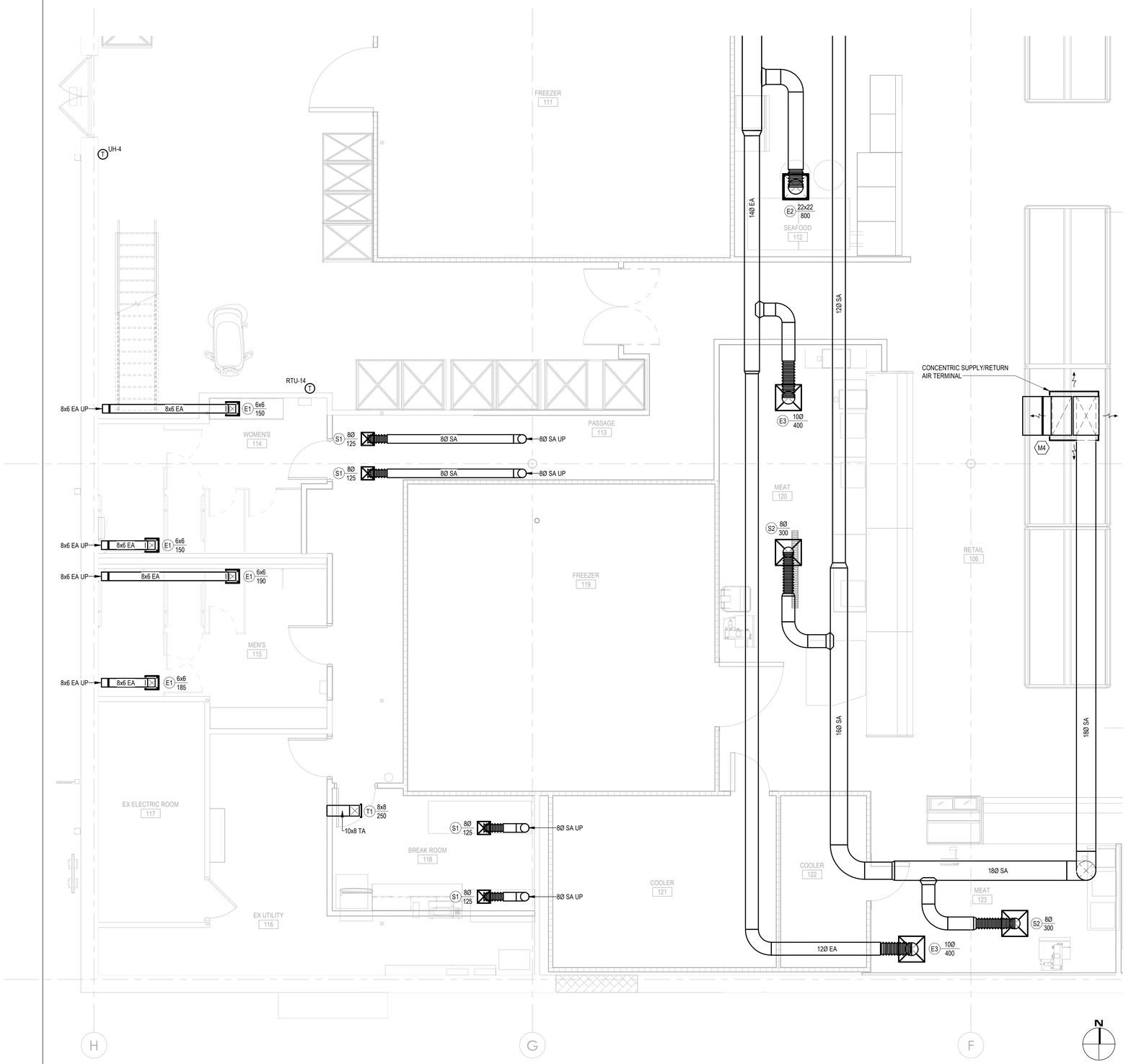
EAST ENLARGED MECHANICAL PLAN

M1.11A

2/7/2024 12:43:58 PM

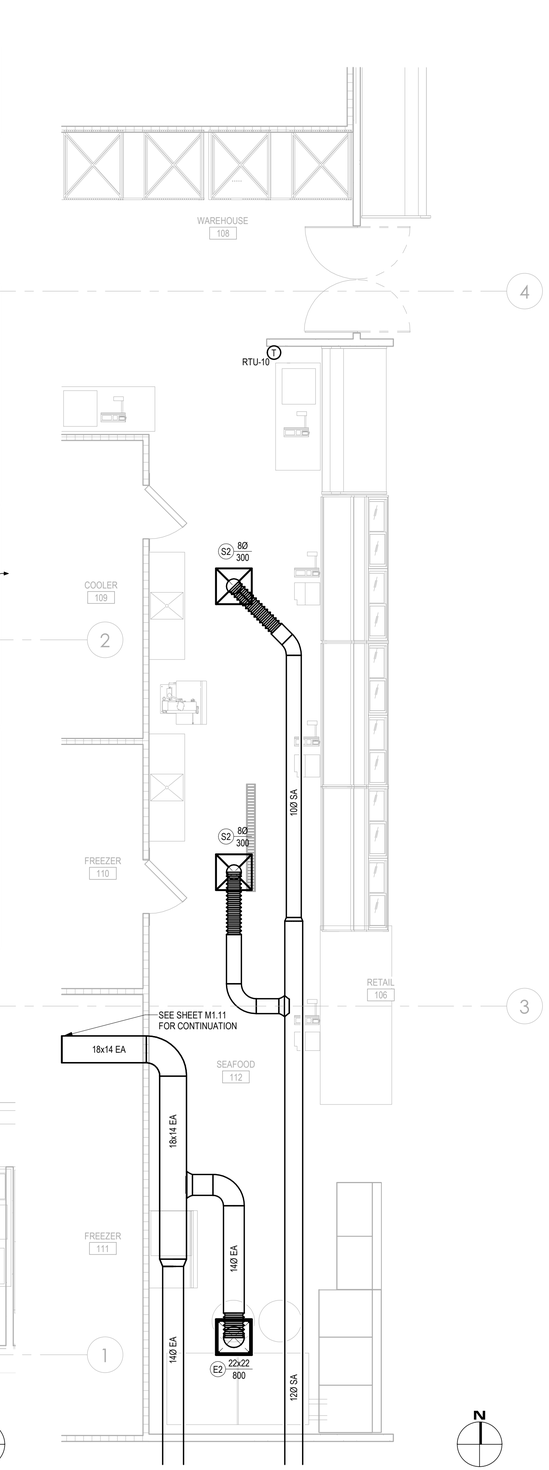
KEY NOTES

M4	PROVIDE CONCENTRIC SUPPLY/RETURN AIR TERMINAL, RUSKIN CDS-50 OR EQUIVALENT.



2 MEAT DEPT. MECHANICAL PLAN

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



1 SEAFOOD DEPT. MECHANCIAL PLAN

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

MADISEN MAHER

ARCHITECTS

133 W. PITTSBURGH AVE, SUITE 102
MILWAUKEE, WI 53204
P: 414.277.8000
MADISENMAHER.COM

PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
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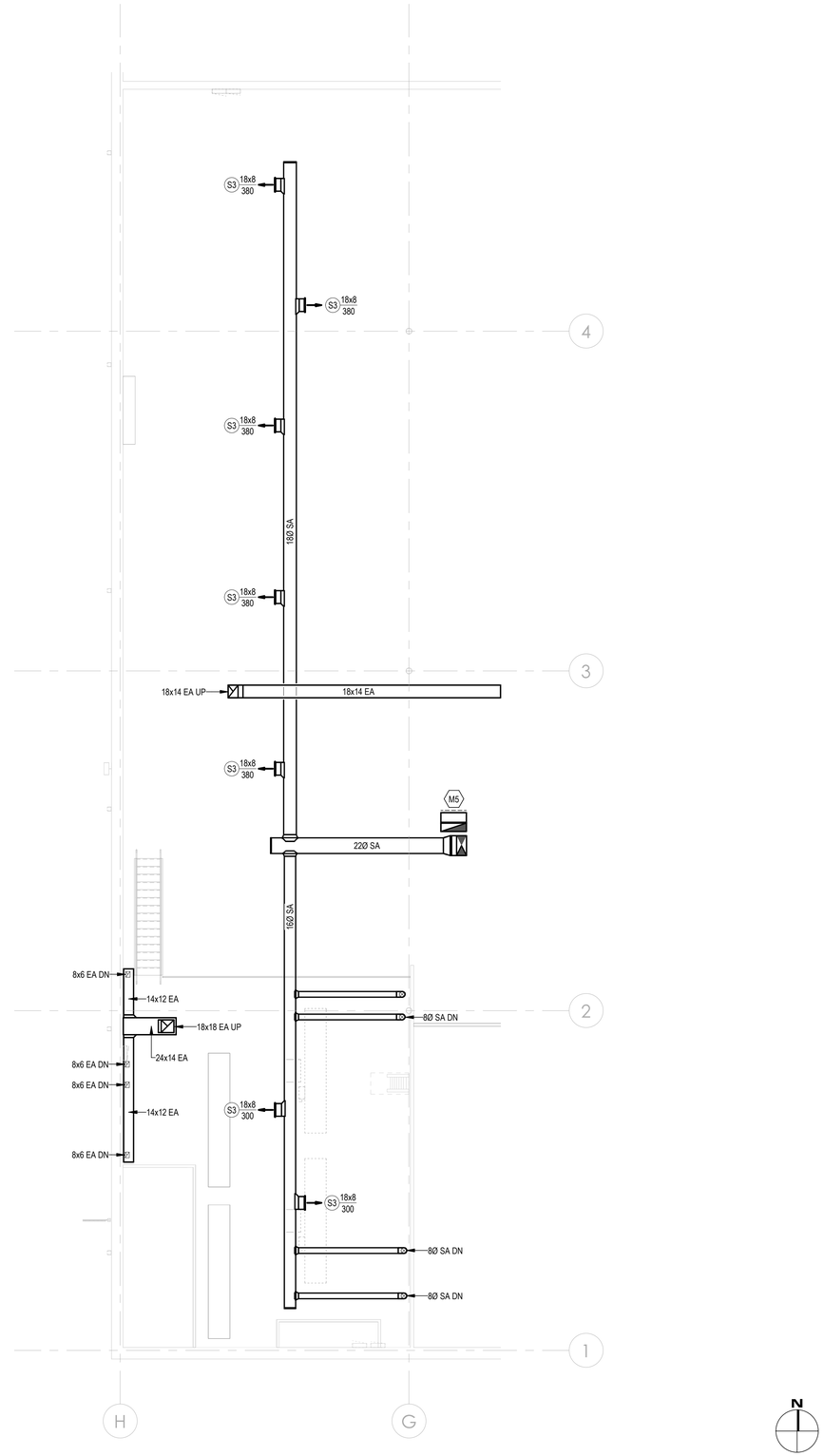
WEST ENLARGED MECHANICAL PLAN

M1.11B

2/7/2024 12:44:01 PM

KEY NOTES

M5	PROVIDE WIRE MESH SCREEN ON RETURN DUCT OPENING.



1 MEZZANINE HVAC PLAN

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

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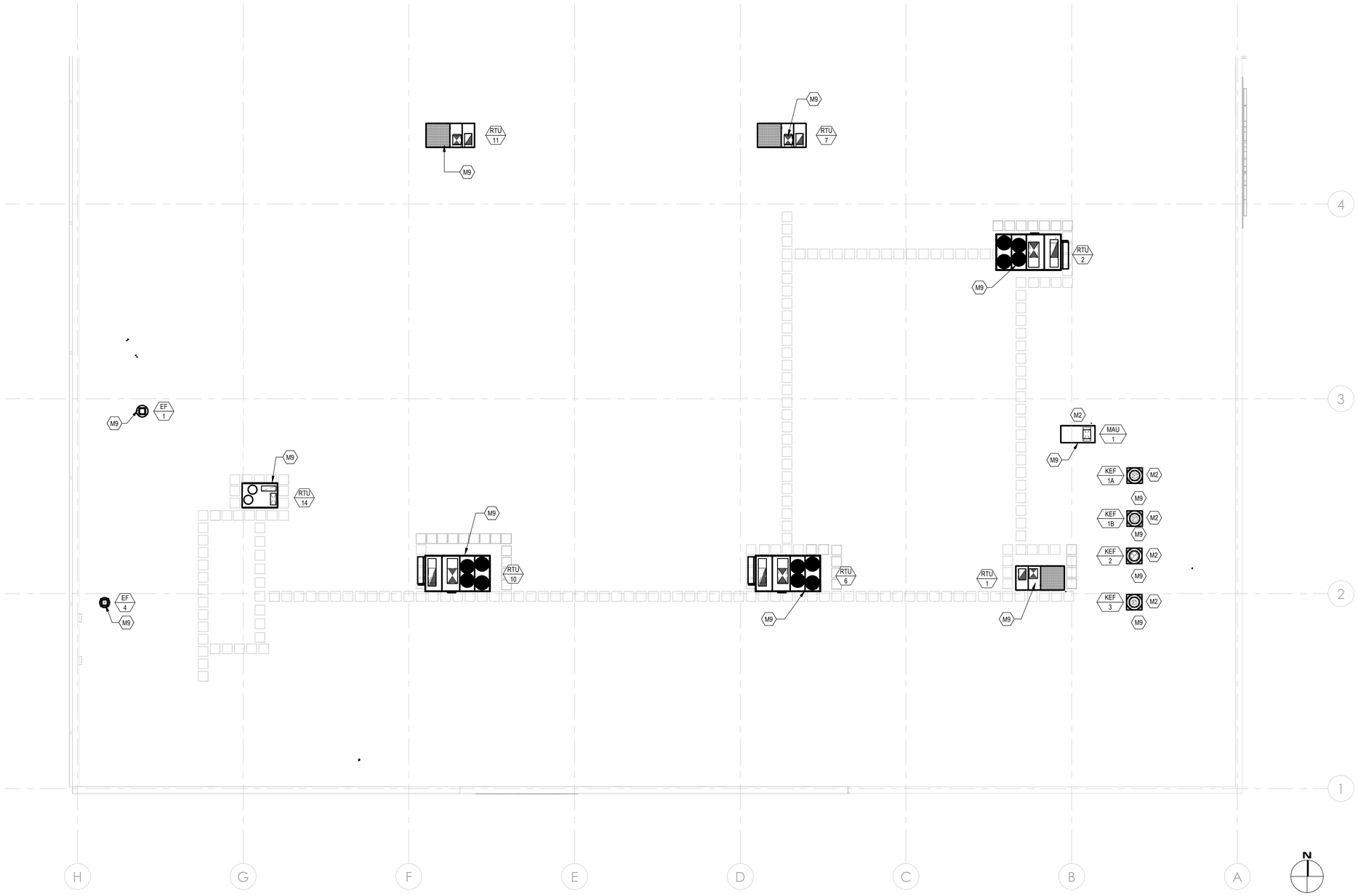
MEZZANINE MECHANICAL PLAN

M1.12

2/7/2024 12:44:02 PM

KEY NOTES

M2	OWNER TO FURNISH HOODS WITH INTEGRAL SUPPLY PLENUMS AND FIRE SUPPRESSION SYSTEM, HOOD EXHAUST FANS, MAKEUP AIR UNIT, AND CONTROLS. CONTRACTOR TO INSTALL ENTIRE HOOD SYSTEM. CONTACTOR TO FURNISH AND INSTALL ALL HOOD RELATED DUCTWORK. EXHAUST DUCTWORK SHALL BE STAINLESS STEEL UL LISTED "ECON-AIR" MODEL "EDW" AS INDICATED ON ECON-AIR DOCUMENTS. CONTACTOR SHALL CREATE DUCTWORK AS-BUILT AFTER HOOD INSTALLATION AND PRIOR TO ORDERING GREASE DUCTWORK AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
M9	COORDINATE WITH LANDLORD'S REQUIRED ROOFER FOR INSTALLATION OF MECHANICAL EQUIPMENT ON NEW AND EXISTING ROOF CURBS.



1 ROOF MECHANICAL PLAN

SCALE: 3/32" = 1'-0"

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ROOF MECHANICAL PLAN

M1.13

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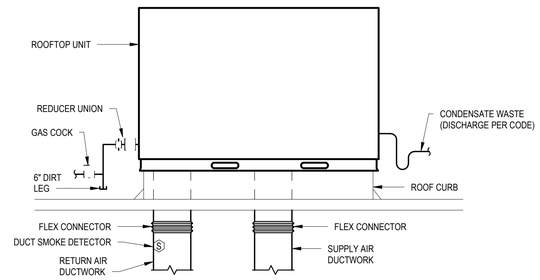
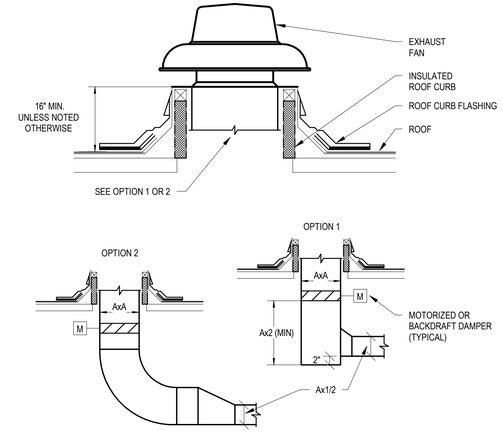


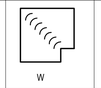
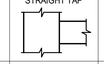
6 ROOFTOP UNIT DETAIL

N.T.S.



4 ROOF MOUNT EXHAUST FAN

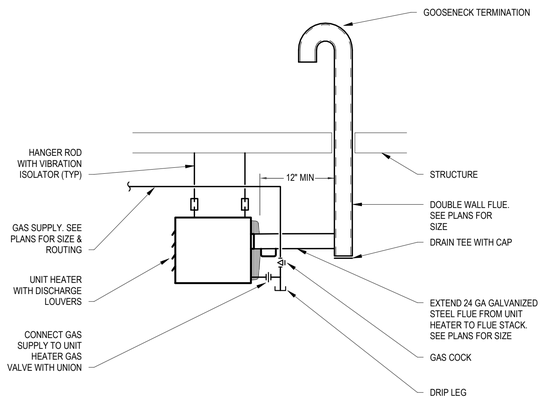
N.T.S.

	SMACNA ELBOW			BRANCH CONNECTION	
	RE1	RE2 / RE4	RE3		
AIR VELOCITY (FPM)				RECTANGULAR BRANCH FROM RECTANGULAR MAIN	ROUND BRANCH FROM RECTANGULAR MAIN
LESS THAN 1000	R ≥ 0.5 W	NO TURNING VANES		 STRAIGHT TAP	CONICAL TAP
1,000 TO 1,500	R ≥ W	SINGLE-THICKNESS TURNING VANES AT 3-1/4 INCH SPACING	R ≥ 0.5 W WITH TWO VANES	45 DEG ENTRY	HIGH-EFFICIENCY TAKE-OFF
1,500 & UP	R ≥ 1.5 W	SINGLE-THICKNESS TURNING VANES AT 1-1/2 INCH SPACING	R ≥ W WITH TWO VANES		

NOTES:
1. USE FITTINGS SHOWN ON PLANS UNLESS NOTED OTHERWISE. IF FIELD CONDITIONS PRECLUDE USE OF FITTING SHOWN, FITTINGS MEETING THE REQUIREMENTS SHOWN ABOVE MAY BE USED WITH ENGINEER'S APPROVAL.
2. FOR TURNING VANES LONGER THAN 36 INCHES, DOUBLE-WALL VANES AT 2-1/8 INCH SPACING MAY BE USED.
3. DO NOT INSTALL TURNING VANES ON MITERED ELBOWS (TYPE RE2/RE4) FOR RETURN-AIR OR EXHAUST-AIR SYSTEMS.
4. CONICAL TAPS MAY BE USED FOR ALL ROUND BRANCH CONNECTIONS FOR RETURN-AIR AND EXHAUST-AIR SYSTEMS.

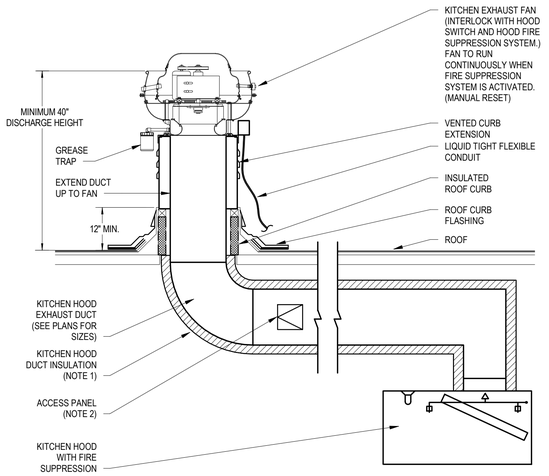
1 RECTANGULAR DUCT FITTINGS

N.T.S.



7 GAS FIRED UNIT HEATER

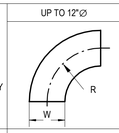
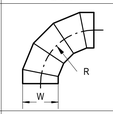
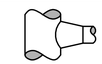
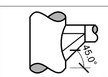
N.T.S.



NOTES:
1. PROVIDE FIRE PROOFING (UL LISTED FIRE WRAP) IF DUCT PENETRATES FIRE RATED BARRIERS.
2. PROVIDE ACCESS PANEL EVERY 20 FT, NEAR HOOD AND AT EVERY CHANGE OF DIRECTION.

5 KITCHEN HOOD EXHAUST

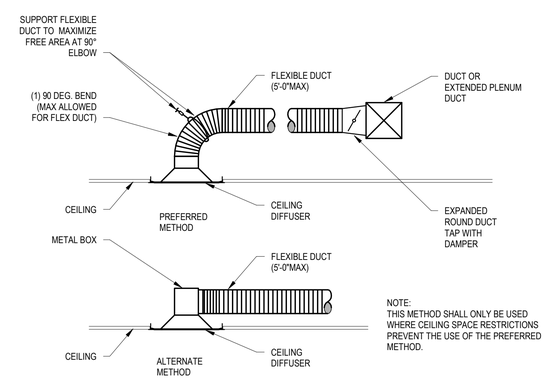
N.T.S.

	UP TO 12"Ø	14"Ø & UP	BRANCH CONNECTION
AIR VELOCITY (FPM)			WHERE BRANCH AIRFLOW ≤ 1/3 MAIN AIRFLOW
LESS THAN 1000	R ≥ W	R ≥ 0.5 3 GORES MIN	 CONICAL TAP
1,000 TO 1,500	R ≥ 0.5 W	R ≥ W 4 GORES MIN	 45° ENTRY OR
1,500 & UP	R ≥ 1.5 W	R ≥ 1.5 5 GORES MIN	45° BRANCH WITH 45° ELBOW

NOTES:
1. USE FITTINGS SHOWN ON PLANS UNLESS NOTED OTHERWISE. IF FIELD CONDITIONS PRECLUDE USE OF FITTING SHOWN, FITTINGS MEETING THE REQUIREMENTS SHOWN ABOVE MAY BE USED WITH ENGINEER'S APPROVAL.
2. FOR GORED ELBOWS OTHER THAN 90°, INCREASE OR DECREASE THE NUMBER OF GORES ACCORDINGLY.

2 ROUND DUCT FITTINGS

N.T.S.



NOTE:
THIS METHOD SHALL ONLY BE USED WHERE CEILING SPACE RESTRICTIONS PREVENT THE USE OF THE PREFERRED METHOD.

3 CEILING DIFFUSER

N.T.S.

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ibc engineering services, inc
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MECHANICAL DETAILS

M5.00

2/7/2024 12:44:06 PM

PACKAGED DX COOLING GAS-FIRED HEATING ROOFTOP UNITS (RTU)

MARK	MANUFACTURER	MODEL	SERVES	ARRANGEMENT	SUPPLY AIR (CFM)		OUTSIDE AIR (CFM)		FAN			COOLING											HEATING					FILTER	UNIT ELECTRICAL					PHYSICAL DATA				CONTROLS	CONFIGURATION	OPTIONS	REMARKS
												CAPACITY (BTUH)		AMBIENT AIR (DEG F)	EA (DEG F)		SA (DEG F)		MIN IEER	COMPRESSOR					AIRSIDE (DEG F)															
					FLOW	MIN	FLOW	MIN	ESP (IN-WC)	HP	BHP	TOTAL	SENSIBLE		DB	WB	DB	WB		TYPE	QTY	MIN TURNDOWN	STAGES	INPUT (BTUH)	CAPACITY (BTUH)	MIN TURNDOWN	EAT	LAT		MCA	MOCP	VOLT	PHASE	DISCONNECT	LENGTH	WIDTH	HEIGHT	UNIT WEIGHT (LB)				
1	JCI	ZJ150N2R4B2EAE2A2	KITCHEN	DOWNFLOW	4,700	1,600	460	460	0.8	7.50	5.46	156800	109200	95.0	80.0	67.0	57.9	56.5	15.2	SCROLL	2	50%	2	240,000	194,000	50%	60.0	98.2	MERV 13	38.5	50.0	480	3	FUSED	4' - 11"	9' - 11 1/2"	4' - 3"	1600	A	SZVAV	1, 2, 3, 4, 5, 6	I
2	JCI	AD15N3BPDE1AED43A3	CUSTOMER SERVICE	DOWNFLOW	6,000	1,800	650	650	0.8	3.00	2.14	178900	129500	95.0	80.0	67.0	59.0	57.2	14	SCROLL	2	50%	2	400,000	324,000	50%	60.0	110.0	MERV 13	35.8	45.0	480	3	FUSED	7' - 4 3/4"	13' - 4 15/256"	4' - 1"	2150	A	SZVAV	1, 2, 3, 4, 5, 6	I
6	JCI	AD15N3BPDE1AED43A3	RETAIL	DOWNFLOW	6,000	1,800	600	600	0.8	2.00	1.77	180100	130700	95.0	80.0	67.0	59.0	57.2	14	SCROLL	2	50%	2	400,000	324,000	50%	60.0	110.0	MERV 13	35.8	45.0	480	3	FUSED	7' - 4 3/4"	13' - 4 15/256"	4' - 1"	2150	A	SZVAV	1, 2, 3, 4, 5, 6	I
7	JCI	ZJ150N2R4B2EAE2A2	RETAIL	DOWNFLOW	4,700	1,450	515	515	0.8	5.00	4.28	155000	104500	95.0	80.0	67.0	57.2	55.8	15.2	SCROLL	2	50%	2	240,000	194,000	50%	60.0	98.2	MERV 13	38.5	50.0	480	3	FUSED	4' - 11"	9' - 11 1/2"	4' - 3"	1600	A	SZVAV	1, 2, 3, 4, 5, 6	I
10	JCI	AD15N3BPDE1AED43A3	MEAT/SEAFOOD	DOWNFLOW	6,000	1,800	670	670	0.8	3.00	2.52	177700	128300	95.0	80.0	67.0	59.0	57.2	14	SCROLL	2	50%	2	400,000	324,000	50%	60.0	110.0	MERV 13	35.8	45.0	480	3	FUSED	7' - 4 3/4"	13' - 4 15/256"	4' - 1"	2150	A	SZVAV	1, 2, 3, 4, 5, 6	I
11	JCI	ZJ150N2R4B2EAE2A2	RETAIL	DOWNFLOW	4,700	1,450	515	515	0.8	5.00	4.14	155500	105000	95.0	80.0	67.0	57.2	55.8	15.2	SCROLL	2	50%	2	240,000	194,000	50%	60.0	98.2	MERV 13	38.5	50.0	480	3	FUSED	4' - 11"	9' - 11 1/2"	4' - 3"	1600	A	SZVAV	1, 2, 3, 4, 5, 6	I
14	JCI	ZYG08F4C3EA2B121A4	BACK OF HOUSE	DOWNFLOW	3,000	900	500	500	1	3.70	2.00	89500	63300	95.0	80.0	67.0	58.5	56.9	14.6	SCROLL	2	50%	2	220,000	176,000	50%	60.0	114.3	MERV 13	21.7	25.0	480	3	FUSED	5' - 1 177/256"	6' - 9 3/4"	4' - 1"	1100	A	SZVAV	1, 2, 3, 4, 5, 6	I

CONFIGURATIONS:
CV CONSTANT VOLUME
SZVAV SINGLE ZONE VARIABLE AIR VOLUME
MZVAV MULTI-ZONE VARAIBLE AIR VOLUME

NOTE: EA = COIL ENTERING AIR, SA = SUPPLY AIR LEAVING UNIT

CONTROL
A. DRY BULB ECONOMIZER
B. ENTHALPY ECONOMIZER
C. CO2 DEMAND-BASED VENTILATION
D. BACNET INTERFACE

FEATURES AND OPTIONS
1. RETURN-AIR DUCT SMOKE DETECTOR
2. MODULATING GAS BURNERS
3. VARIABLE SPEED DRIVE FOR SUPPLY FAN
4. ROOF CURB ADAPTER (FIELD VERIFY)
5. HOT GAS REHEAT
6. SMART THERMOSTAT WITH APP INTEGRATION

REMARKS
I HEATING CAPACITY BASED ON CONSTANT OA AND MIN SA

FANS

MARK	LOCATION		MANUFACTURER	MODEL NO.	ARRANGEMENT	SERVES	FAN				MOTOR		UNIT ELECTRICAL							UNIT WEIGHT (LBS)	SONES	NOTES
	NAME	NO.					AIRFLOW (CFM) DESIGN	ESP (IN-WC)	RPM	DRIVE	HP	BHP	FLA	MCA	MOCP	VOLT	PH	STARTER	DISCONNECT			
KEF-1A	ROOF	-	ECON-AIR	EADU180H	UPFLOW	HOOD	1750	1.00	1326	DIRECT	1.00	0.62	1.7	0	15	460	3	VFD	FUSED	165	10	1
KEF-1B	ROOF	-	ECON-AIR	EADU180H	UPFLOW	HOOD	1750	1.00	1326	DIRECT	1.00	0.62	1.7	0	15	460	3	VFD	FUSED	165	10	1
KEF-2	ROOF	-	ECON-AIR	EADU180H	UPFLOW	HOOD	3300	1.30	1317	DIRECT	2.00	1.60	3.8	0	15	460	3	VFD	FUSED	225	21	1
KEF-3	ROOF	-	ECON-AIR	EADU180H	UPFLOW	HOOD	1700	1.30	1425	DIRECT	1.50	0.81	3.0	0	15	460	3	VFD	FUSED	190	12	1
EF-1	ROOF	-	GREENHECK	G-120-A	DOWNFLOW	MEAT/SEAFOOD	1600	0.75	1725	DIRECT	0.75	0.48	13.8	17	35	120	1	MAGNETIC	FUSED	75	16	
EF-4	ROOF	-	GREENHECK	G-100-A	DOWNFLOW	TOILETS	975	0.80	1725	DIRECT	0.33	0.29	7.2	9	15	120	1	MAGNETIC	FUSED	55	10	

NOTES:
1. FURNISHED BY OWNER AND INSTALLED BY MECHANICAL CONTRACTOR.

GAS-FIRED UNIT HEATERS (UH)

MARK	LOCATION		MANUFACTURER	MODEL	ARRANGEMENT	HEATING CAPACITY	FAN		AIRFLOW		GAS BURNER			UNIT WEIGHT	MOCP	VOLT	PH	STARTER	DISCONNECT	NOTES
	NAME	NO.					AIRFLOW (CFM)	POWER (HP)	EAT (DEG F)	LAT (DEG F)	INPUT (BTUH)	STAGES	MIN EFF							
UH-3	WAREHOUSE	108	REZNOR	UEZ-085	HORIZONTAL	79,050	1,205	0.05	60	120	85,000	1	0.93	105	15	120	1	INTEGRAL	NONFUSED	
UH-4	WAREHOUSE	108	REZNOR	UEZ-085	HORIZONTAL	79,050	1,205	0.05	60	120	85,000	1	0.93	105	15	120	1	INTEGRAL	NONFUSED	

MAKE-UP AIR UNITS (MAU)

MARK	LOCATION		MANUFACTURER	MODEL NO.	SERVES	CONFIGURATION	SUPPLY FAN						INPUT (BTUH)	OUTPUT (BTUH)	EAT (DEG F)	LAT (DEG F)	STAGES	MINIMUM TURNDOWN	FLITER	ELECTRICAL UNIT					PHYSICAL DATA				NOTES
	NAME	NO.					DESIGN SA (CFM)	MIN SA (CFM)	ESP (IN-WC)	HP	BHP	RPM								FLA	MCA	MOCP	VOLT	PH	LENGTH	WIDTH	HEIGHT	WEIGHT (LBS)	
1	ROOF	-	ECON-AIR	EA3-D.750-24D	HOODS	DOWNFLOW	5845	3500	0.75	7.5	4.51 hp	1332	482,700	444,000	-10	63			MERV 8	10	13	20	460	3	84"	42"	44"	870	1

NOTES:
1. FURNISHED BY OWNER AND INSTALLED BY MECHANICAL CONTRACTOR.

ELECTRIC CABINET UNIT HEATERS (EUH)

MARK	LOCATION		MANUFACTURER	MODEL	ARRANGEMENT	HEATING CAPACITY (BTU)	FAN	AIRSIDE		ELECTRIC COIL		UNIT WEIGHT	FLA	MOCP	VOLT	PH	STARTER	DISCONNECT	NOTES
	NAME	NO.					AIRFLOW (CFM)	EAT (DEG F)	LAT (DEG F)	STAGES	KW								
EUH-1	VESTIBULE	100	BERKO	QCH-1151F	CEILING MOUNT	5118	65	55	128	1	1.5	10	12.5 A	35	120	1	INTEGRAL	NONFUSED	
EUH-2	VESTIBULE	100	BERKO	QCH-1151F	CEILING MOUNT	5118	65	55	128	1	1.5	10	12.5 A	35	120	1	INTEGRAL	NONFUSED	

AIR TERMINAL (AT)

MARK	DESCRIPTION	MANUFACTURER	MODEL	SYSTEM	FACE SIZE	BLADE DESIGN					INSTALLATION	NOTES
						THICKNESS	SPACING	DEFLECTION ANGLE		ORIENTATION	BORDER TYPE	
								SINGLE	DOUBLE			
E1	PERFORATED DIFFUSER WITH DEFLECTORS	TITUS	PAR	EA	12x12						TYPE 1 (SURFACE)	SQUARE NECK
E2	PERFORATED DIFFUSER WITH DEFLECTORS	TITUS	PAR	EA	24x24						TYPE 3 (LAY-IN)	SQUARE NECK
E3	PERFORATED DIFFUSER WITH DEFLECTORS	TITUS	PAR	EA	24x24						TYPE 3 (LAY-IN)	ROUND NECK
S1	PERFORATED SUPPLY DIFFUSER WITH DEFLECTORS	TITUS	PAS	SA	12x12						TYPE 1 (SURFACE)	
S2	PERFORATED SUPPLY DIFFUSER WITH DEFLECTORS	TITUS	PAS	SA	24x24						TYPE 3 (LAY-IN)	
S3	LOUVERED DOUBLE DEFLECTION GRILLE	TITUS	300FL	SA	--	1/8"	3/4"	0.0°	0.0°	DOUBLE-LONG	TYPE 1 (SURFACE)	
T1	PERFORATED RETURN GRILLE	TITUS	PAR	TA	12x12						TYPE 1 (SURFACE)	

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PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT
ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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ibc engineering services, inc
WISCONSIN | ILLINOIS | FLORIDA
IBC PROJECT NO: 2023108

HVAC SCHEDULES

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MECHANICAL SPECIFICATIONS

SECTION 23 00 00 - COMMON WORK RESULTS FOR HVAC

1.1 QUALITY ASSURANCE

A. Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the contractor is responsible for all costs involved in integrating the equipment or accessories into the system and for obtaining the performance from the system into which these items are placed. This may include changes found necessary during the testing, adjusting, and balancing phase of the project.

1.2 CONTINUITY OF EXISTING SERVICES

A. Do not interrupt or change existing services without prior written approval from the Owner. When interruption is required, coordinate the downtime with the Owner to minimize disruption to their activities. Unless specifically stated, all work involved in interrupting or changing existing services is to be done during normal working hours.

1.3 EQUIPMENT INSTALLATION

A. Install equipment according to NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilating Systems."

B. Install equipment and devices level and plumb. Maintain sufficient clearance for normal service and maintenance.

C. Install equipment in accordance with manufacturer's written instructions.

D. Install equipment to allow maximum possible headroom unless specific mounting heights are indicated.

1.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

1.5 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks for all equipment and devices according to manufacturer's written instructions.
2. Verify that duct and piping connections and are as recommended by equipment manufacturers to achieve proper performance.
3. Verify that control connections are complete, and that controls and control enclosure are accessible.
4. Verify that nameplate and identification tags are visible.
5. Verify that controls respond to inputs as specified.

1.6 MECHANICAL DEMOLITION

A. Disconnect, demolish, and remove mechanical systems, equipment, and components indicated to be removed.

1. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
2. Equipment to Be Removed: Disconnect and cap services and remove equipment.
3. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
4. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

B. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

1.7 IDENTIFICATION FOR HVAC EQUIPMENT

A. Equipment Markers: Engraved, color-coded laminated plastic with unit name and tag number. Match schedules as closely as possible. Include contact-type, permanent adhesive.

B. Locate markers where accessible and visible.

SECTION 23 05 00 - TESTING, ADJUSTING AND BALANCING

1.8 QUALITY ASSURANCE

A. Engage a TAB form certified by AABC.

B. Certification of TAB Reports: Certify TAB field data reports. This certification includes the following:

1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.

C. Certify that TAB team complied with the procedures specified and referenced in this Specification

1.9 SUBMITTALS

A. Certified TAB Reports: Submit two copies of reports prepared or each of the following systems:

1. Constant-volume air system.
2. Variable-volume air system.

1.10 COORDINATION

A. Perform TAB after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

1.11 PROCEDURES FOR TESTING AND BALANCING

A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems" and this section.

B. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.

1. For variable-air-volume systems, develop a plan to simulate diversity.

1.12 TEMPERATURE-CONTROL VERIFICATION

A. Verify that controllers are calibrated and commissioned.

B. Check the operation of limiting controllers (i.e., high- and low-temperature controllers).

C. Check free travel and proper operation of control devices such as damper and valve operators.

D. Check the sequence of operation of control devices. Note air pressures and device positions and correlate with airflow and water flow measurements. Note the speed of response to input changes.

E. Check the interaction of interlock and lockout systems.

F. Note operation of electric actuators using spring return for proper fail-safe operations.

1.13 TOLERANCES

A. Set HVAC system airflow rates within the following tolerances:

1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus 5 to plus 10 percent.
2. Air Outlets and Inlets: 0 to minus 10 percent.

SECTION 23 30 00 - HVAC DUCTS

1.1 PERFORMANCE REQUIREMENTS

A. Duct construction and installation, including acceptable materials, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.

B. Sheet metal thickness shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible", but not less than 26 gauge.

C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

D. Surface Burning Characteristics: Surface-burning characteristics for insulation and related materials, duct liner, duct sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to ASTM E84, certified by an NRTL.

E. Fibrous Glass Duct Liner: Comply with ASTM C1071 and NFPA 90A or NFPA 90B. Maximum thermal conductivity shall be 0.24 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.

1.2 ACTION SUBMITTALS

A. Product Data For:

1. Each type of liner, adhesive and sealant.
2. Duct insulation.
3. Flexible ducts.
4. Each type of duct damper.

1.3 QUALITY ASSURANCE

A. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-up" and ASHRAE/IES 90.1, Section 6.4.4 - "HVAC System Construction and Insulation."

B. NFPA Compliance: Applicable requirements in NFPA 90A, "Installation of Air Conditioning and Ventilating Systems.", NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems.", and NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations."

C. All insulation shall be certified under the GREENGUARD Gold standard.

D. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

1.5 DUCT LINER

A. Fibrous-glass duct liner with EPA-registered antimicrobial erosion-resistant coating

B. Shop Application of Duct Liner: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 7-11, "Flexible Duct Liner Installation."

1.6 DUCT INSULATION

A. MF-1: Mineral fiber blanket complying with ASTM C553 Type II and ASTM C1290 Type III with factory-applied FSK jacket. Maximum thermal conductivity shall be 0.29 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.

B. MF-2: Mineral fiber board complying with ASTM C612 Type 1A or 1B with factory-applied FSK jacket. Maximum thermal conductivity shall be 0.23 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.

C. FB-1: High-temperature flexible blanket insulation complying with ASTM E2336, with FSK jacket, that is tested and certified by an NRTL to provide a 2-layer, fire rated enclosure for grease duct.

D. Install mineral fiber insulation on ducts indicated with smooth, straight and even surfaces. Cover joints and seams with foil-face vapor retarder tape matching factory-applied jacket.

1.7 DUCT ACCESSORIES

A. Duct accessories shall match material of connected duct.

B. Insulated, Flexible Ducts: UL 181, Class 1, with coated, polyethylene film or nylon fabric, fibrous-glass insulation and aluminized fiberglass vapor barrier film. Pressure rating: +6/-0.5 inches water column. Insulation R-value: 4.2.

C. Access Doors: 22 gauge frame; 22 gauge double skin insulated door with continuous piano hinge, cam lock and foam gasket seals.

D. Control Dampers: Low-leakage rated damper complying with AMCA 511 with airfoil blades and linkage outside air steam and operating temperature range suitable for the application. Maximum leakage shall be 3 cfm/sq ft at 1.0-inch water column.

1. Thermally insulated control dampers shall have thermally broken frames and blades, internally insulated with CFC-free expanded polyurethane foam.

1.8 DUCT INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handing equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved by Engineer.

B. Install ducts in maximum practical lengths with fewest possible joints.

C. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.

D. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

E. Install ducts with a minimum clearance of 1 inch, plus allowance for insulation thickness.

F. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.

G. Protect duct interiors from moisture, construction debris and dust, and other foreign materials. Comply with SMACNA's "IAQ Guidelines for Occupied Buildings Under Construction," Appendix G, "Duct Cleanliness for New Construction Guidelines."

1.9 INSTALLATION OF EXPOSED DUCTWORK

A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.

B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead.

C. Grind welds to provide smooth surface free of burrs, sharp edges, and weld splatter. When welding stainless steel with a No. 3 or 4 finish, grind the welds flush, polish the exposed welds, and treat the welds to remove discoloration caused by welding.

D. Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.

E. Replace damaged sections and finished work that does not comply with these requirements.

1.10 INSTALLATION OF COMMERCIAL KITCHEN HOOD EXHAUST DUCT

A. Install commercial kitchen hood exhaust ducts without dips and traps that may hold grease, and sloped a minimum of 2 percent to drain grease back to the hood.

B. Install fire-rated access panel assemblies at each change in direction and at maximum intervals of 12 feet in horizontal ducts, and at every floor for vertical ducts, or as indicated on Drawings.

C. Do not penetrate fire-rated assemblies except as allowed by applicable building codes and authorities having jurisdiction.

1.11 INSTALLATION OF DUCT ACCESSORIES

A. Install duct accessories in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

B. Install volume dampers at points on supply, return, and exhaust systems where branches extend from larger ducts.

C. Install duct access doors downstream from manual volume dampers, controls dampers and backdraft dampers.

5. Access doors shall be not less than 2 inches smaller than the duct, up to a maximum size of 18 inches by 18 inches.

E. Control Dampers: Unless otherwise noted, use opposed blade dampers for modulating or shutoff applications and parallel blade dampers for mixing applications.

F. Install duct liner for a minimum of 10 feet downstream of supply air fans.

1.12 DUCT SEALING

A. Seal ducts to Seal Class A according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible".

1. Sealant: Water-based mold- and mildew-resistant joint and seam sealant with minimum 70% solids content, suitable for indoor or outdoor use.

1.13 HANGER AND SUPPORT INSTALLATION

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."

B. Hangers Exposed to View: Threaded rod and angle or channel supports.

1.14 CONNECTIONS

A. Make connections to equipment with metal-edged flexible fabric connectors.

B. Connect ducts to diffusers directly or with maximum 60-inch lengths of flexible duct.

C. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

1.15 PAINTING

A. Paint interior of unlined metal ducts that are visible through registers and grilles. Solvent clean areas to be painted per SSPC-SP1 and apply one coat of flat, black, water-based paint suitable for galvanized-steel. Apply primer as specified by paint manufacturer.

1.16 DUCT CLEANING

A. Clean new duct system(s) before testing, adjusting, and balancing.

1.17 FIELD QUALITY CONTROL

A. Leakage Tests: Test a minimum of 25% of the total installed ducts area for each pressure class [**and all ductwork located outdoors**]. Comply with SMACNA's "HVAC Air Duct Leakage Test Manual." Submit a test report for each test.

B. Duct System Cleanliness Tests: Visually inspect duct system to ensure that no visible contaminants are present.

C. Perform tests and inspections and prepare test and inspection reports. Duct system will be considered defective if it does not pass tests and inspections

1.18 DUCT SCHEDULE

	MATERIAL	PRESSURE CLASS (IN W.C.)	INSULATION
SUPPLY AIR DUCTWORK	GS	+3	MF-1 1-1/2"
RETURN AIR DUCTWORK	GS	-2	-
GENERAL EXHAUST AIR DUCTWORK	GS	-1	-
KITCHEN EXHAUST AIR DUCTWORK	WELDED CS	+/- 2	FB-1

SECTION 23 74 16 - ROOFTOP AIR CONDITIONERS

1.1SUBMITTALS

A. Include manufacturer's technical data for each model indicated, including rated capacities, dimensions, required clearances, characteristics, furnished specialties, and accessories. Detail equipment assemblies and indicate weights, loads, and location of each field connection.

1.2WARRANTY

A. Manufacturer's standard form in which manufacturer agrees to replace components on rooftop air conditioners that fail in materials or workmanship within specified warranty period.

1. Compressors: Manufacturer's standard but not less than 5 years from date of Substantial Completion.
2. Heat Exchangers: Manufacturer's standard but not less than 5 years from date of Substantial Completion.
3. Solid State Ignition Modules: Manufacturer's standard but not less than 3 years from date of Substantial Completion.
4. Control Boards: Manufacturer's standard but not less than 3 years from date of Substantial Completion.
5. Fan Motors: Manufacturer's standard but not less than 3 years from date of Substantial Completion.

1.3EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. One set of fan belts for each belt-drive fan.
2. One set of filters for each unit.

1.4ROOFTOP AIR CONDITIONERS 7-1/2-20 TONS

A. Casing: Galvanized-steel construction with enamel paint finish, removable panels or access doors with neoprene gaskets for inspection and access to internal parts, minimum ½"thick thermal insulation, knockouts for electrical and piping connections, exterior condensate drain connection, and lifting lugs.

B. Indoor Fan: Forward curved, centrifugal, let driven with adjustable motor sheaves, grease-lubricated ball bearings, and motor.

C. Outside Coil Fan: Propeller type, directly driven by permanently lubricated motor.

D. Refrigerant Coils: Aluminum-plate fin and seamless copper tube in steel casing with equalizing type vertical distributor.

E. Compressor: Two scroll compressors with integral vibration isolators, internal overcurrent and overtemperature protection, and internal pressure relief.

F. Refrigeration System comprised of:

1. Compressors
2. Outside coil and fan
3. Indoor coil and fan
4. Four-way reversing valve and suction line accumulator
5. Check valves
6. Expansion valves with replaceable thermostatic elements
7. Refrigerant dryers
8. High-pressure switches
9. Low-pressure switches
10. Thermostats for coil freeze-up protection during low-ambient temperature operation or loss of air
11. Independent refrigerant circuits
12. Brass service valves installed in discharge and liquid lines
13. Charge of refrigerant
14. Hot-Gas Bypass: Factory-installed valve.
15. Timed Off Control: Automatic-reset control shuts compressor off after five minutes.

G. Filters: 2-inch thick, fiberglass, throwaway filters in filter rack

H. Heat Exchanger: Stainless-steel construction for natural-gas fired burners with the following controls:

1. Redundant dual gas valve with manual shutoff
2. Direct-spark pilot ignition
3. Electronic flame sensor
4. Induced-draft blower
5. Flame rollout switch

I. Outside-Air Damper: Linked damper blades, for 0 to 25 percent outside air with fully modulating, spring-return damper motor and hood.

J. Economizer: Return- and outside-air dampers with neoprene seals. Outside-air filter, and hood.

1. Fully modulating spring return damper motor with adjustable minimum position.
2. Electronic-control system uses outside-air enthalpy to adjust mixing dampers.
3. Gravity actuated relief damper with bird screen and hood

K. Power Connection: Provide for single connection of power to unit with unit-mounted disconnect switch accessible from outside unit and control-circuit transformer with built-in circuit breaker.

L. Roof Curb Adaptor: Galvanized steel to adapt existing roof curb to new equipment base. Field verify existing curbs and existing adaptors for sizing requirements.

1.5INSTALLATION

A. Install units level and plumb, maintaining manufacturer's recommended clearances.

B. Connect supply ducts to rooftop unit with flexible duct connectors.

C. Terminate return-air dct through roof structure and insulate space between roof and bottom of unit with 2-inch thick acoustic duct liner.

SECTION 23 34 23 - HVAC POWER VENTILATORS

1.1 SUBMITTALS

A.Include manufacturer's technical data for each model indicated, including rated capacities, dimensions, required clearances, characteristics, furnished specialties, and accessories. Detail equipment assemblies and indicate weights, loads, and location of each field connection.

1.2 WARRANTY

A.Manufacturer's standard form in which manufacturer agrees to replace components on power ventilators that fail in materials or workmanship within specified warranty period.

1.3 EXTRA MATERIALS

A.Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. One set of fan belts for each belt-drive fan.

1.4 CENTRIFUGAL ROOF VENTILATORS

A.Belt or direct driven centrifugal fans consisting of housing, wheel, fan shaft, bearings, motor and disconnect switch, drive assembly, curb base, and accessories.

B. Removable, spun-aluminum dome top and outlet baffle; square, one-piece, aluminum base with venturi inlet cone.

C.Aluminum hub and wheel with backward-inclined blades.

D.Accessories:

1. Disconnect Switch: Fusible type with thermal overload protection mounted inside fan housing, factory wired through an internal aluminum conduit.
2. Bird Screens: Removable, ½-inch mesh, aluminum or brass wire.
3. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in curb base; factory set to close when fan stops.

E. ROOF CURBS

1. Galvanized steel; mitered and welded corners; 1-1/2 inch thick rigid fiberglass insulation adhered to inside walls and 1-1/2 inch wood nailer.
2. Self-flashing without a cant strip with mounting flange.
3. 18 inch height

1.5 INSTALLATION

A.Install units level and plumb, maintaining manufacturer's recommended clearances.

B. Secure roof-mounted fans to roof curbs with cadmium-plated hardware.

C.Make final duct connections with flexible connectors.

SECTION 23 82 39.13 - CABINET UNIT HEATERS

1.1 SUBMITTALS

A.Include manufacturer's technical data for each model indicated, including rated capacities, dimensions, required clearances, characteristics, furnished specialties, and accessories. Detail equipment assemblies and indicate weights, loads, and location of each field connection.

1.2 WARRANTY

A.Manufacturer's standard form in which manufacturer agrees to replace components on power ventilators that fail in materials or workmanship within specified warranty period.

1.3 ELECTRIC RESISTANCE CABINET UNIT HEATERS

A.Cabinet: Steel with baked-enamel finish with manufacturer's standard paint, in color selected by architect.

1. Minimum 0.0528 inch thick galvanized sheet steel, removable panels secured with tamperproof cam fasteners and safety chain.

B. Filters: Minimum Efficiency Reporting Value according to ASHRAE 52.2.

1. Washable Foam: MERV 3
2. Glass Fiber Treated with Adhesive: MERV 5
3. Pleated: MERV 7

C.Coils: Nickel-chromium heating wire, free from expansion noise and hum, mounted in ceramic inserts in galvanized-steel housing; with fuses in terminal box for overcurrent protection and limit controls for high-temperature protection. Terminate elements in stainless-steel machine-staked terminals secured with stainless-steel hardware.

D.CONTROLS

a. Control voltage transformer

b. Wall-mounted thermostat

1.4 INSTALLATION

A.Install units level and plumb, maintaining manufacturer's recommended clearances.

B. Ground equipment according to Section 26 05 26 "Grounding and Bonding for Electrical Systems"

SECTION 23 53 33.13 - GAS-FIRED UNIT HEATERS

1.1 SUBMITTALS

A.Include manufacturer's technical data for each model indicated, including rated capacities, dimensions, required clearances, characteristics, furnished specialties, and accessories. Detail equipment assemblies and indicate weights, loads, and location of each field connection.

1.2 WARRANTY

A.Manufacturer's standard form in which manufacturer agrees to replace components on power ventilators that fail in materials or workmanship within specified warranty period.

1.3 ELECTRIC RESISTANCE CABINET UNIT HEATERS

A.Natural gas burner with separated combustion and power venting configuration.

B. Housing: Steel with integral draft hood and inserts for suspension of mounting rods

1. Baked enamel over corrosion-resistant treated surface.
2. Independently adjustable discharge louver blades

C.Heat Exchanger: 409 stainless steel

D.Burner: Aluminized steel with stainless steel inserts

E. Propeller Fan: Formed-steel propeller blades riveted to heavy-gage steel spider bolted to cast-iron hub, dynamically balanced and resiliently mounted.

F. Controls

1. Single sage gas control valve
2. Electronically controlled electric spark with flame sensor
3. Flame rollout switch

4.Control transformer

5. Thermal switch or fuse to stop burner on high limit
6. Wall mounted thermostat

1.4 INSTALLATION

A.Install units level and plumb, maintaining manufacturer's recommended clearances.

B. Ground equipment according to Section 26 05 26 "Grounding and Bonding for Electrical Systems"

C.Connect gas piping to gas train inlet, provide union with enough clearance for burner removal and service.

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PROPOSED REMODEL FOR:

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DRAWN BY	BMC, KJT
CHECKED BY	KLO

ibc engineering services, inc
WISCONSIN | ILLINOIS | FLORIDA
IBC PROJECT NO: 2023108

MECHANICAL SPECIFICATIONS

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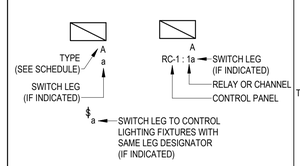
ABBREVIATIONS

2P	TWO POLE
A	AMPERE
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AJH	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
ALT	ALTERNATE
AOR	AREA OF REFUGE
AORM	AREA OF REFUGE MASTER STATION
AORR	AREA OF REFUGE REMOTE STATION
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV	AUDIO VISUAL
BLDG	BUILDING
BOT	BOTTOM
C	CONDUIT
CAB	CABINET
CATV	COMMUNITY ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CD	CANDELA OR CONSTRUCTION DOCUMENT
CKT	CIRCUIT
CLG	CEILING
COAX	COAXIAL CABLE
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
CU	COPPER
dB	DECIBEL
DB	DIRECT BURIAL
DEMO	DEMOLITION
DISC	DISCONNECT
DIST	DISTRIBUTION
DM	DIMMING
DN	DOWN
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DS	DAYLIGHT SENSOR
DWG	DRAWING
EBU	EMERGENCY BATTERY UNIT
EC	ELECTRICAL CONTRACTOR
ELEV	ELEVATOR
EM	EMERGENCY
ENCL	ENCLOSURE
ERL	EXISTING TO BE RELOCATED
ES	ELECTRIC STRIKE
ETR	EXISTING TO REMAIN
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FC	FOOT-CANDLE
FLA	FULL LOAD AMPERE
FP	FIRE PROTECTION
FSS	FUSED SAFETY SWITCH
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GEN	GENERATOR
GRD	GROUND
GC	GENERAL CONTRACTOR
GFI / GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HP	HORSE POWER
HZ	HERTZ
IG	ISOLATED GROUND
JB	JUNCTION BOX
K	KEY OPERATED
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWH	KILOWATT HOUR
LCP	LIGHTING CONTROL PANEL
LED	LIGHT EMITTING DIODE
LF	LINEAR FOOT (FEET)
LM	LUMEN
LPS	LOW PRESSURE SODIUM
LRA	LOCKED ROTOR AMPERAGE
LTG	LIGHTING
LV	LOW VOLTAGE
MAG	MAGNETIC STARTER
MAN	MANUAL STARTER
MATV	MASTER ANTENNA TELEVISION SYSTEM
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MH	MANHOLE
MOCP	MAXIMUM OVERCURRENT PROTECTION
MLO	MAIN LUG ONLY
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N	NEUTRAL
NA	NOT APPLICABLE
NAC	NOTIFICATION APPLIANCE CIRCUIT
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION AGENCY
NFSS	NON-FUSED SAFETY SWITCH
NIC	NOT INCLUDED IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OL	OVERLOAD
OS	OPTIONAL STANDBY
P	POLE
PA	PUBLIC ADDRESS
PB	PUSHBUTTON
PC	PLUMBING CONTRACTOR
PEC	PHOTOELECTRIC CELL, PHOTOEYE
PED	PEDISTAL
PEND	PENDANT
PF	POWER FACTOR
PH	PHASE
PL	PILOT LIGHT
PNL	PANEL
PWR	POWER
RC	REMOTE CONTROL
RCP	REFLECTED CEILING PLAN
REC	RECESSED
RECPT	RECEPTACLE
SCC	SHORT CIRCUIT CAPACITY
SF	SQUARE FOOT (FEET)
SPD	SURGE PROTECTION DEVICE
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
SS	SWITCH STATION
SW	SWITCH
T	TAMPERPROOF
TC	TIMECLOCK
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNV	UNIVERSAL
UPS	UNITERRUPTIBLE POWER SUPPLY
V	VOLT
VA	VOLT AMPERE
VAC	VOLT AMPERE CURRENT
VFD	VARIABLE FREQUENCY DRIVE
W	WATT OR WIRE
WAP	WIRELESS ACCESS POINT
WP	WEATHERPROOF
X-	EXISTING
XFER	TRANSFER
XFMR	TRANSFORMER
Z	ZONE

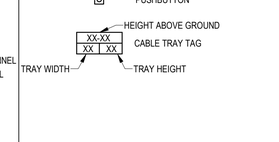
LIGHTING LEGEND

- SWITCH
- THREE WAY WALL SWITCH
- FOUR WAY WALL SWITCH
- DIMMING SWITCH
- THREE WAY DIMMING SWITCH
- FOUR WAY DIMMING SWITCH
- KEYED SWITCH
- THREE WAY KEYED SWITCH
- FOUR WAY KEYED SWITCH
- DUAL LEVEL SWITCH
- SWITCH STATION
- SWITCH-BOX OCCUPANCY SENSOR
- WALL MOUNT OCCUPANCY SENSOR
- CEILING MOUNT OCCUPANCY SENSOR
- SWITCH-BOX VACANCY SENSOR
- WALL MOUNT VACANCY SENSOR
- CEILING MOUNT VACANCY SENSOR
- CONTACTOR
- TIMECLOCK
- REMOTE TRANSFORMER
- CEILING MOUNT DAYLIGHT SENSOR
- WALL MOUNT DAYLIGHT SENSOR
- EXTERIOR PHOTOELECTRIC SWITCH
- SURFACE MOUNT LIGHT FIXTURE
- PENDANT DIRECT/INDIRECT (LENGTH AS INDICATED)
- STRIP/INDUSTRIAL FIXTURE
- 2X2 SURFACE MOUNT FIXTURE
- 2X2 RECESSED FIXTURE
- 2X4 SURFACE MOUNT FIXTURE
- 2X4 RECESSED FIXTURE
- LINEAR WALL BRACKET
- RECESSED FIXTURE
- CEILING MOUNTED FIXTURE
- TRACK LIGHT OR MONOPOINT
- P1 LARGE PENDANT
- POLE MOUNT LUMINAIRE
- BOLLARD
- FLOOD LIGHT
- WALL WASH
- WALL SCONCE
- SHADING INDICATES EMERGENCY FIXTURE (TYPICAL ALL FIXTURE TYPES)
- CEILING MOUNTED SINGLE FACE EXIT SIGN
- CEILING MOUNTED DOUBLE FACE EXIT SIGN
- WALL MOUNTED SINGLE FACE EXIT SIGN
- END MOUNTED SINGLE FACE EXIT SIGN
- END MOUNTED DOUBLE FACE EXIT SIGN
- EXIT SIGN DIRECTIONAL ARROW (AS INDICATED)
- EMERGENCY WALL PACK (EBU)
- EMERGENCY CEILING PACK (EBU)
- EMERGENCY WALL PACK WITH SINGLE FACE EXIT SIGNAGE
- EMERGENCY WALL PACK REMOTE HEAD
- NE EMERGENCY BYPASS TRANSFER RELAY



SYSTEM LEGEND

- TELEPHONE OUTLET
- DATA OUTLET
- TELEPHONE/DATA OUTLET
- DATA OUTLET 6" ABOVE BACKSPLASH OR COUNTER OR AT HEIGHT INDICATED
- TELEPHONE FLOOR OUTLET
- DATA FLOOR OUTLET
- TELEPHONE/DATA FLOOR OUTLET
- TELEPHONE FLOOR OUTLET
- CEILING TELEPHONE/DATA OUTLET
- AV AUDIO/VIDEO FLOOR OUTLET
- AV CEILING AUDIO/VIDEO OUTLET
- AV WALL MOUNTED AUDIO/VISUAL
- TV TELEVISION FLOOR OUTLET
- TV CEILING TELEVISION OUTLET
- TV WALL MOUNTED TELEVISION
- W WIRELESS ACCESS POINT CEILING
- W WIRELESS ACCESS POINT WALL
- S CEILING MOUNTED SPEAKER
- S WALL MOUNTED SPEAKER
- V VOLUME CONTROL
- V WALL MOUNTED VOLUME CONTROL
- M MICROPHONE FLOOR OUTLET
- M CEILING MICROPHONE JACK
- M WALL MOUNTED MICROPHONE JACK
- CL CEILING MOUNTED/SUSPENDED CLOCK
- CL WALL MOUNTED CLOCK
- CR SECURITY CARD READER
- ES SECURITY ELECTRIC STRIKE
- DC SECURITY DOOR CONTACTOR
- DP SECURITY DOOR POSITION SWITCH
- MD SECURITY MOTION DETECTOR
- KP SECURITY KEY PAD
- ML SECURITY MAG-LOCK
- PB SECURITY PUSH BUTTON
- RE SECURITY REQUEST TO EXIT
- SECURITY CAMERA
- WALL MOUNTED SECURITY CAMERA
- PTZ SECURITY PAN, TILT, ZOOM CAMERA
- PTZ WALL MOUNTED SECURITY PAN, TILT, ZOOM CAMERA
- ACP SECURITY ACCESS CONTROL PANEL
- SCP SECURITY CONTROL PANEL
- MPX SECURITY MULTIPLEXER
- N NURSE ZONE DOME LIGHT
- N DL NURSE DOME-LESS CONTROLLER
- NB NURSE BED STATION
- ND NURSE DUTY STATION
- NE NURSE EMERGENCY CALL
- NM NURSE MASTER STATION
- NS NURSE STAFF STATION
- NCP NURSE CALL CONTROL PANEL
- NIP NURSE CALL PERIPHERAL INTERFACE PORT
- IR INFRARED RECEIVER
- SM SECURITY MONITOR
- EMERGENCY PUSHBUTTON
- PUSHBUTTON



POWER LEGEND

- SINGLE RECEPTACLE
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE 6" ABOVE BACKSPLASH OR COUNTER OR AT HEIGHT INDICATED
- TOP SWITCHED DUPLEX RECEPTACLE
- USB DUPLEX RECEPTACLE
- GFI DUPLEX RECEPTACLE
- DOUBLE DUPLEX RECEPTACLE
- TOP SWITCHED DOUBLE DUPLEX RECEPTACLE
- SPECIAL PURPOSE OUTLET
- D DUPLEX FLOOR OUTLET
- D TOP SWITCHED DUPLEX FLOOR OUTLET
- DOUBLE DUPLEX FLOOR OUTLET
- HALF SWITCHED DOUBLE DUPLEX FLOOR OUTLET
- CEILING MOUNTED DUPLEX RECEPTACLE
- CEILING MOUNTED DUPLEX RECEPTACLE
- HALF SWITCHED CEILING MOUNTED DUPLEX RECEPTACLE
- POKE THRU
- PP POWER POLE
- J JUNCTION BOX
- J WALL MOUNTED JUNCTION BOX
- CIRCUIT BREAKER
- FUSE
- GROUND
- TRANSOCKET
- M METER
- SURFACE MOUNT PANEL
- RECESSED PANEL
- CURRENT TRANSFORMER
- MANUAL DISCONNECT
- NON-FUSED DISCONNECT
- FUSED DISCONNECT
- MAGNETIC STARTER
- COMBINATION STARTER
- MOTOR
- POWER ASSIST OPERATOR PUSH PLATE
- GROUND BUS BAR
- 1 SPECIAL PURPOSE OUTLET NUMBER (SEE SCHEDULE)
- 1 MOTOR NUMBER (SEE SCHEDULE)

GENERAL LEGEND

- NEW ELECTRICAL COMPONENT
- EXISTING ELECTRICAL COMPONENT
- DEMOLISHED ELECTRICAL COMPONENT
- E##: KEY NOTE
- PP/1 : 1: CIRCUIT NUMBER; PANEL IDENTIFIER
- PRIMARY DAYLIGHT ZONE
- SECONDARY DAYLIGHT ZONE

FIRE ALARM LEGEND

- PULL STATION
- HORN
- HORN - CEILING
- HORN STROBE
- HORN STROBE - CEILING
- STROBE
- STROBE - CEILING
- S SPEAKER
- S SPEAKER - CEILING
- S SPEAKER STROBE
- S SPEAKER STROBE - CEILING
- BELL
- S SMOKE DETECTOR - WALL MOUNTED
- H HEAT DETECTOR
- S SMOKE DETECTOR
- S D DUCT MOUNTED SMOKE DETECTOR
- FS FLOW SWITCH
- TS TAMPER SWITCH
- DH DOOR HOLDER
- CM CONTROL MODULE
- MM MONITORING MODULE
- AOR AREA OF REFUGE CALL-IN STATION
- FAAP ANNUNCIATOR PANEL
- NAC NAC PANEL
- FACP CONTROL PANEL
- BEAM DETECTOR

GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL REQUIRED COMPONENTS FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL FURNISH AND INSTALL MATERIAL, EQUIPMENT, DEVICES, FIXTURES, SERVICE REQUIREMENTS NECESSARY TO CONFORM TO THE STRUCTURE, EQUIPMENT CONNECTIONS, FOR A COMPLETE AND FUNCTIONAL INSTALLATION AND SHALL MAINTAIN APPROPRIATE CLEARANCES.
2. ALL WORK SHALL COMPLY WITH APPLICABLE NATIONAL, STATE, LOCAL CODES, FEDERAL AND STATE REGULATIONS, AND ALL REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION.
3. CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
4. THE CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE FULL EXTENT OF WORK AND PROJECT CONDITIONS. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF THE OBLIGATIONS OF THE CONTRACT.
5. THE CONTRACTOR SHALL CHECK ALL DRAWINGS AND SPECIFICATIONS OF OTHER TRADES AND INCLUDE IN THEIR BID ANY ADDITIONAL WORK REQUIRED BY THIS TRADE.
6. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHT SWITCHES, POWER, AND COMMUNICATIONS OUTLETS. ALL OUTLETS SHALL BE MOUNTED VERTICALLY UNLESS OTHERWISE NOTED. COORDINATE ALL FINAL DEVICE REQUIREMENTS WITH ARCHITECT PRIOR TO INSTALLATION.
7. ALL CONDUITS SHOULD BE SUPPORTED IN COMPLIANCE WITH CODE REQUIREMENTS AND INSTALLED IN A MANNER AS TO AFFORD MINIMUM INTERFERENCE WITH OTHER TRADES. ALL CONDUITS ABOVE CEILING SHALL BE RIGIDLY SUPPORTED BY SUITABLE HANGERS FROM THE STRUCTURAL SLAB DECK OR FRAMING ABOVE INDEPENDENT OF THE CEILING, CEILING SUPPORT SYSTEM AND OTHER TRADE COMPONENTS. ALL CONDUITS SHALL BE CONCEALED UNLESS OTHERWISE NOTED ON DRAWINGS.
8. FIRE RATED SEALS SHALL BE PROVIDED FOR ALL CONDUIT PENETRATIONS THROUGH FIRE RATED FLOORS, WALLS, AND CEILINGS.
9. CONTRACTOR SHALL VERIFY ALL EQUIPMENT CONNECTION CONFIGURATIONS BEFORE PURCHASE. ALL DEVICES SHOWN ARE FOR REFERENCE ONLY, TO COMMUNICATE DESIGN INTENT, FINAL LOCATIONS SHALL BE VERIFIED PRIOR TO INSTALLATION. THIS NOTE SHALL APPLY TO, BUT NOT BE LIMITED TO, RECEPTACLES, SWITCHES, DATA PORTS, AUDIO/VIDEO DEVICES, AND TELEPHONE JACKS.
10. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL ABOVE CEILING REQUIREMENTS (PLENUM, NON-PLENUM, AIR HANDLING, ETC.) AS REQUIRED BY LOCAL AUTHORITY BEFORE THE INSTALLATION AND PURCHASE OF ELECTRICAL EQUIPMENT, MATERIALS AND DEVICES, WIRING, CABLING, AND THE ORDERING OF LIGHTING FIXTURES.
11. CONDUCTOR SIZES INDICATED ARE MINIMUM SIZES BASED ON 60°C COPPER CONDUCTOR 100 AMPS OR LESS AND 75° C COPPER CONDUCTOR GREATER THAN 100 AMPS. AMPACITIES OF CONDUCTORS DO NOT TAKE VOLTAGE DROP INTO CONSIDERATION. CONTRACTOR SHALL SIZE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS TO PREVENT A VOLTAGE DROP EXCEEDING 3 PERCENT AT THE FARTHEST OUTLET OF POWER, HEATING, AND LIGHTING LOADS, OR COMBINATION OF SUCH LOADS, AND WHERE THE MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST OUTLET DOES NOT EXCEED 5 PERCENT, TO PROVIDE REASONABLE EFFICIENCY OF OPERATION.

ELECTRICAL SHEET INDEX

NUMBER	SHEET NAME
E0.00	ELECTRICAL NOTES LEGENDS ABBREVIATIONS
E0.51	FIRST FLOOR ELECTRICAL DEMOLITION PLAN
E0.53	ROOF ELECTRICAL DEMOLITION PLAN
E0.52	MEZZANINE ELECTRICAL DEMOLITION PAN
E1.11	FIRST FLOOR LIGHTING PLAN
E1.11A	EAST ENLARGED LIGHTING PLANS
E1.11B	WEST ENLARGED LIGHTING PLANS
E1.12	MEZZANINE LIGHTING PLAN
E1.21	FIRST FLOOR POWER AND SYSTEMS PLAN
E1.21A	EAST ENLARGED POWER AND SYSTEMS PLANS
E1.21B	WEST ENLARGED POWER AND SYSTEMS PLANS
E1.22	MEZZANINE POWER AND SYSTEMS PLAN
E1.23	ROOF POWER PLAN
E5.00	ELECTRICAL DETAILS
E5.01	ELECTRICAL DETAILS
E6.00	ELECTRICAL SCHEDULES
E6.01	ELECTRICAL SCHEDULES
E6.02	ELECTRICAL SCHEDULES
E6.03	ELECTRICAL SCHEDULES
E7.00	ELECTRICAL RISER DIAGRAM
E8.00	ELECTRICAL SPECIFICATIONS
E8.01	ELECTRICAL SPECIFICATIONS

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PROPOSED REMODEL FOR:

Pan-Asia Supermarket

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6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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10/19/23		SD | PLAN COMMISSION
11/06/23		DD | PROGRESS
11/20/23		DD | OWNER REVIEW
11/29/23		DD | PROGRESS

PROJECT NUMBER	23-044
START DATE	02/08/24
DRAWN BY	DMS
CHECKED BY	KLO

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ELECTRICAL NOTES LEGENDS ABBREVIATIONS

E0.00

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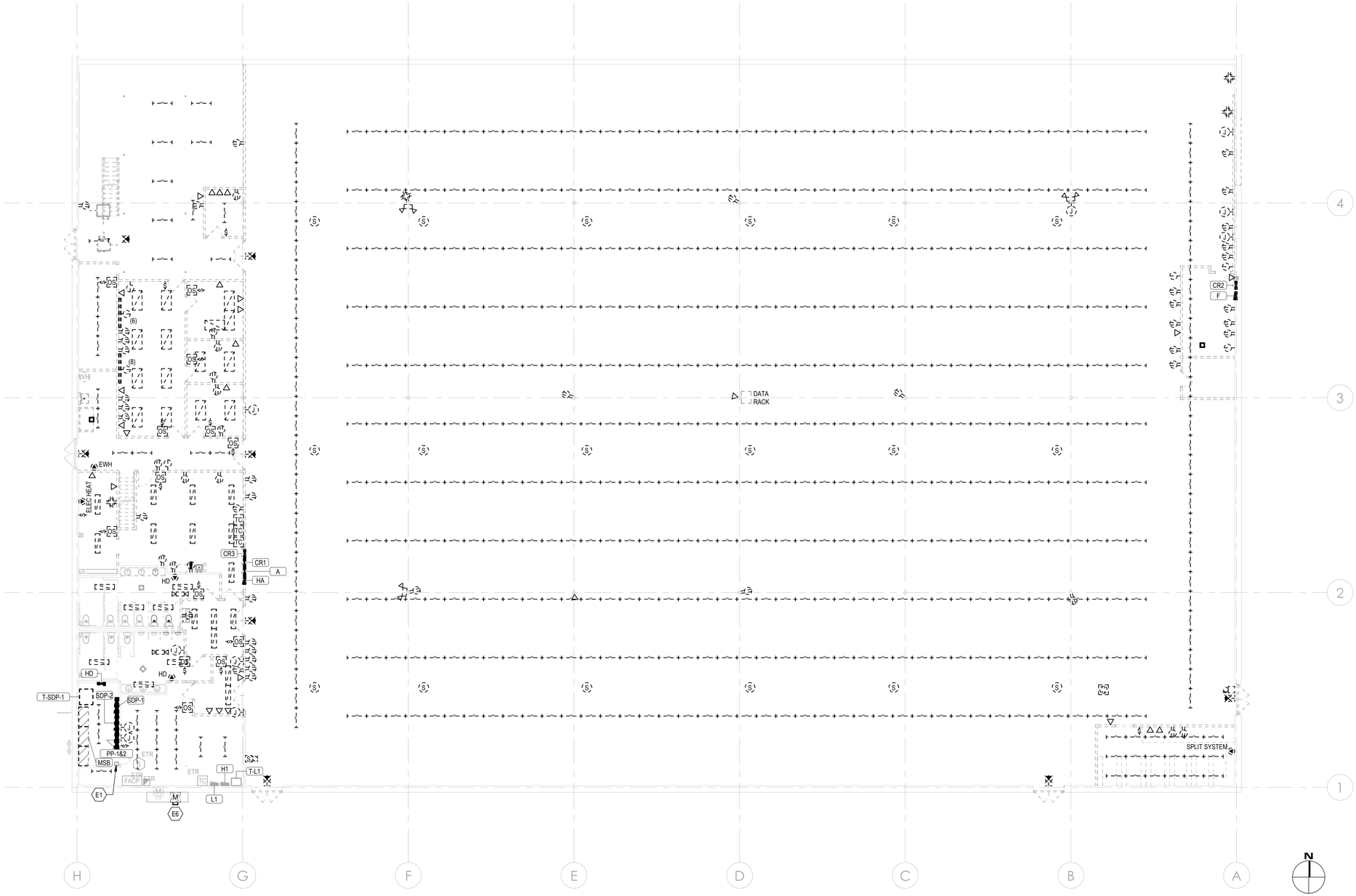
SHEET NOTES

1	ANY ELECTRICAL SHUTDOWN THAT WILL AFFECT THE CENTER IS NEEDED IN ORDER TO UPGRADE SERVICE. CONTRACTOR MUST GIVE LANDLORD TWO WEEK PRIOR NOTICE OF SHUTDOWN.

KEY NOTES

E1	EXISTING AT&T LINE TO REMAIN.
E6	EXISTING 600 AMP UTILITY METER SERVING EXISTING VACANT SPACE TO BE REMOVED TO ACCOMMODATE INSTALLATION OF NEW 1200 AMP METER.



1 FIRST FLOOR ELECTRICAL DEMOLITION PLAN

SCALE: 3/32" = 1'-0"

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FIRST FLOOR ELECTRICAL DEMOLITION PLAN

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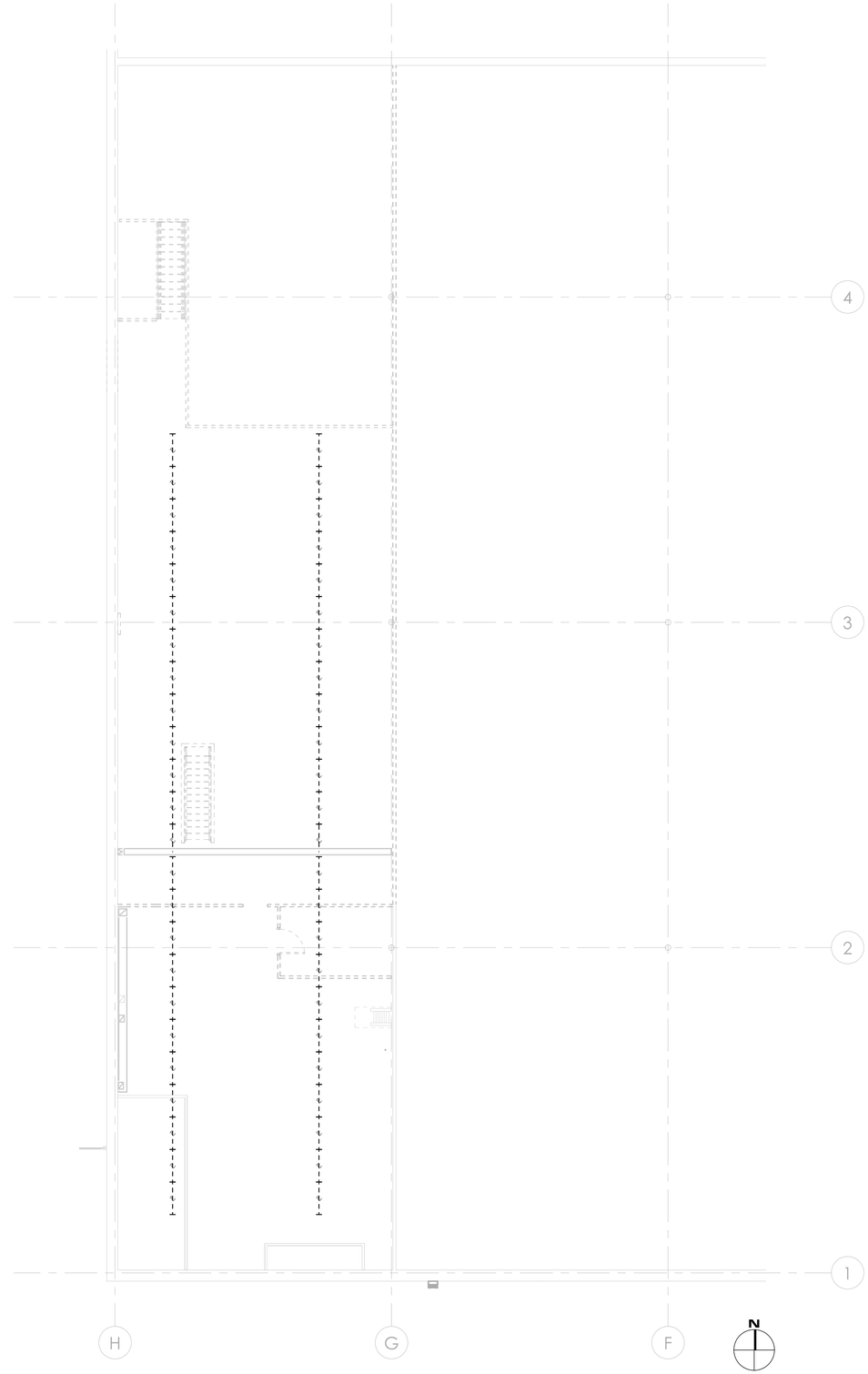

1 MEZZANINE ELECTRICAL DEMOLITION PLAN

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

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MEZZANINE ELECTRICAL DEMOLITION PAN

E0.52

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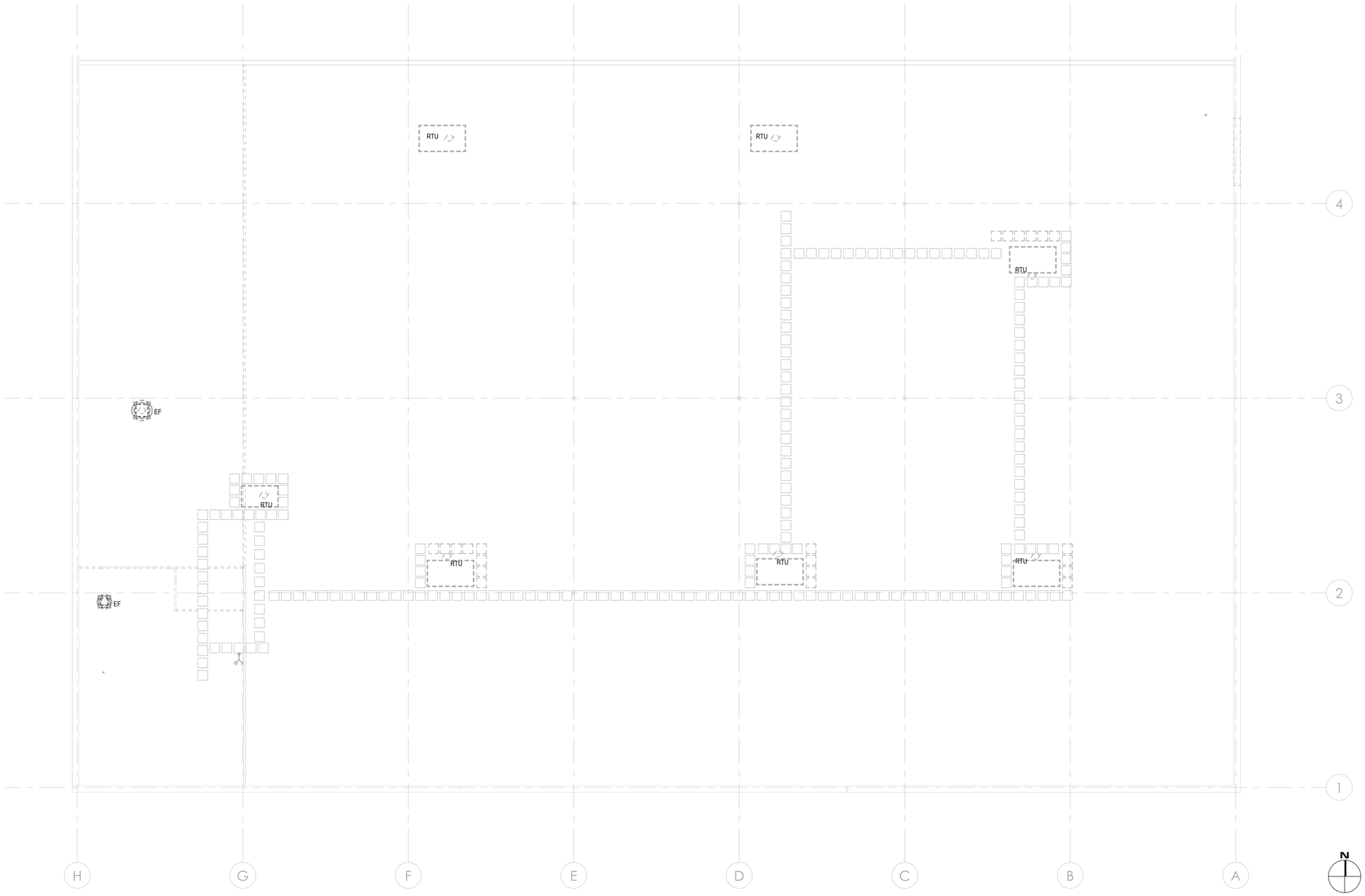

1 ROOF ELECTRICAL DEMOLITION PLAN

SCALE: 3/32" = 1'-0"

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ROOF ELECTRICAL DEMOLITION PLAN

E0.53

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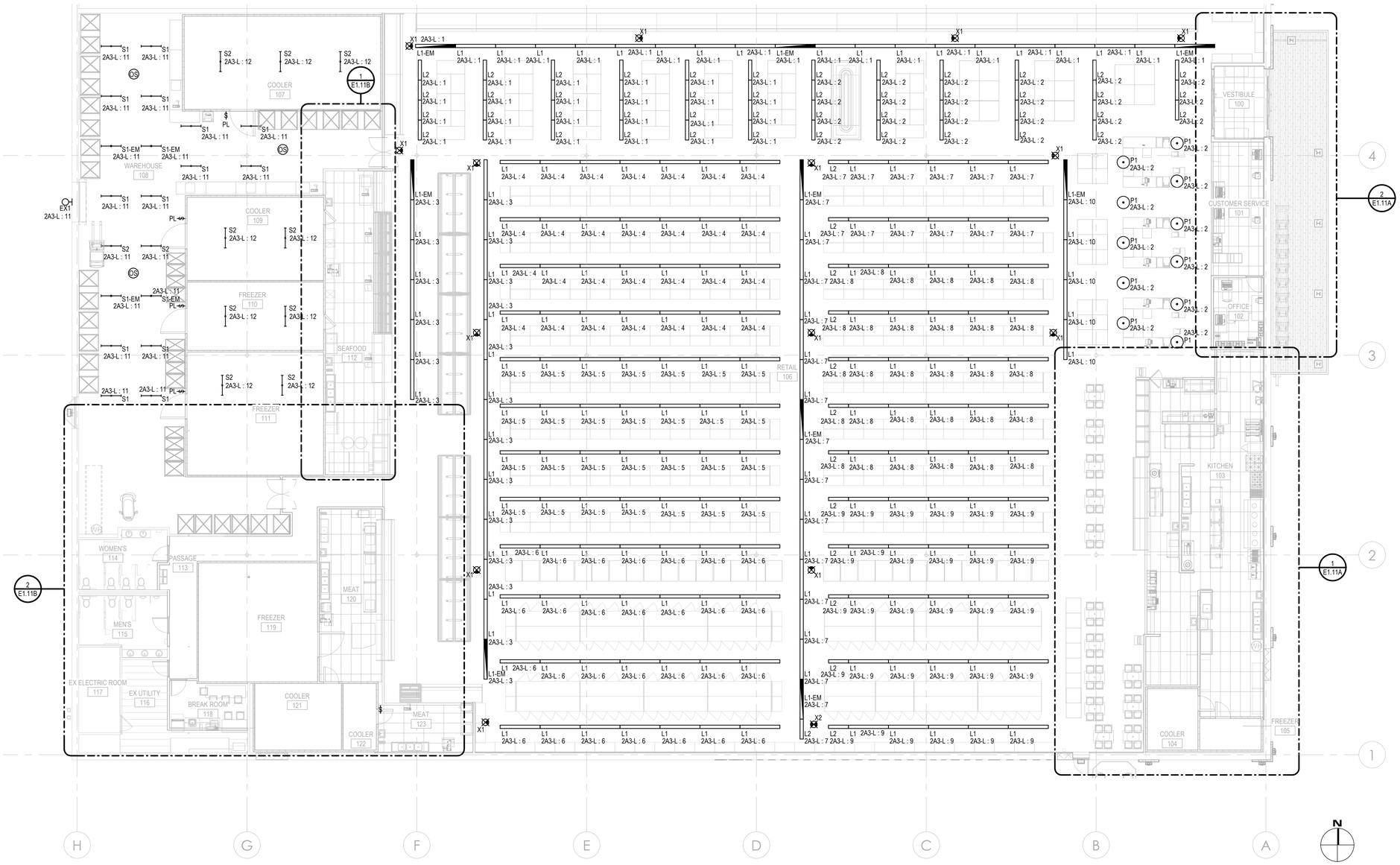
SHEET NOTES

1	ALL OCCUPANCY AND VACANCY SENSORS SHALL BE WIRED IN SERIES WITH ROOM SWITCHES UNLESS OTHERWISE NOTED OR INDICATED.
2	OCCUPANCY AND VACANCY SENSORS ARE INDICATED TO SHOW DESIGN INTENT. LOCATE AND MOUNT SENSORS PER RECOMMENDATIONS OF THE SENSOR MANUFACTURER TO PROVIDE COVERAGE OF THE ASSOCIATED AREA.
3	ALL EXIT SIGNS SHALL BE CIRCUITED TO THE UNSWITCHED PORTION OF THE NEAREST NORMAL CIRCUIT SERVING THE IMMEDIATE AREA.
4	EMERGENCY LIGHTING (SHADED FIXTURES) TO BE PROVIDED BY BATTERY BACKUP VERSION OF LIGHTING FIXTURES.



1 FIRST FLOOR LIGHTING PLAN

SCALE: 3/32" = 1'-0"

MADISEN MAHER

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PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
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CHECKED BY	KLO

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FIRST FLOOR LIGHTING PLAN

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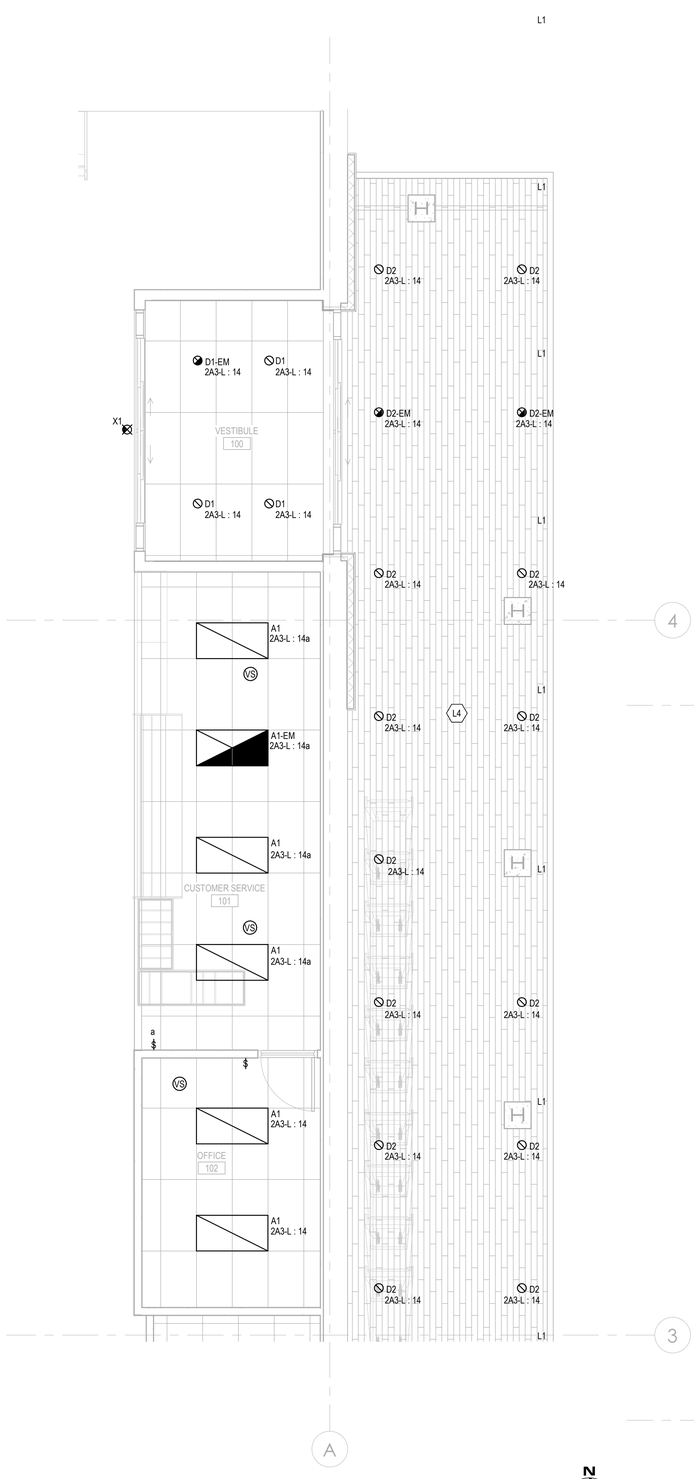
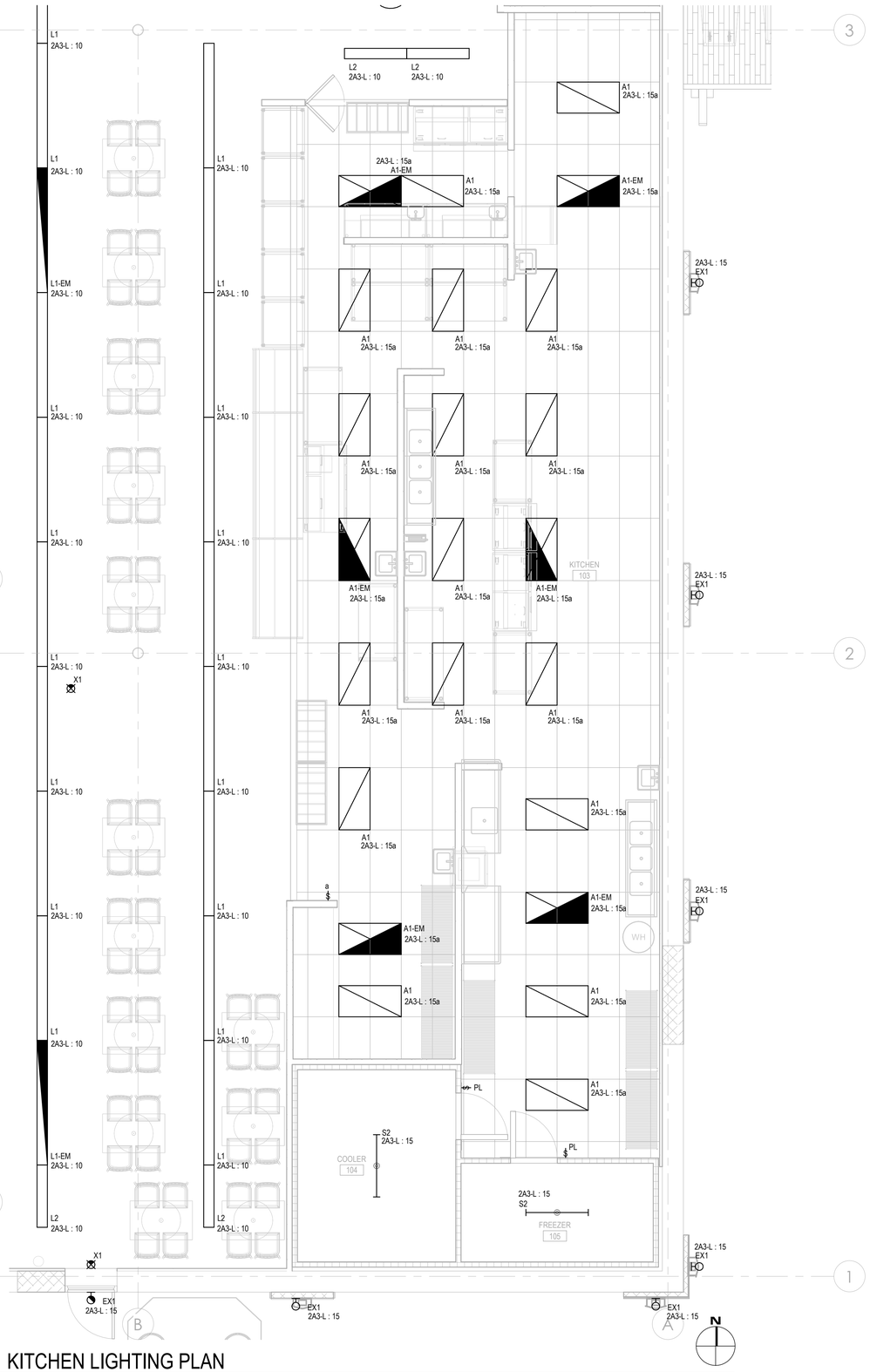


2 ENTRY & CUSTOMER SERVICE LIGHTING PLAN

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



1 KITCHEN LIGHTING PLAN

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

SHEET NOTES

1	ALL OCCUPANCY AND VACANCY SENSORS SHALL BE WIRED IN SERIES WITH ROOM SWITCHES UNLESS OTHERWISE NOTED OR INDICATED.
2	OCCUPANCY AND VACANCY SENSORS ARE INDICATED TO SHOW DESIGN INTENT. LOCATE AND MOUNT SENSORS PER RECOMMENDATIONS OF THE SENSOR MANUFACTURER TO PROVIDE COVERAGE OF THE ASSOCIATED AREA.
3	ALL EXIT SIGNS SHALL BE CIRCUITED TO THE UNSWITCHED PORTION OF THE NEAREST NORMAL CIRCUIT SERVING THE IMMEDIATE AREA.
4	EMERGENCY LIGHTING (SHADED FIXTURES) TO BE PROVIDED BY BATTERY BACKUP VERSION OF LIGHTING FIXTURES.

KEY NOTES

L4	ALL CANOPY LIGHTING SHALL BE CONTROLLED VIA EXISTING TIME CLOCK.

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EAST ENLARGED LIGHTING PLANS

E1.11A

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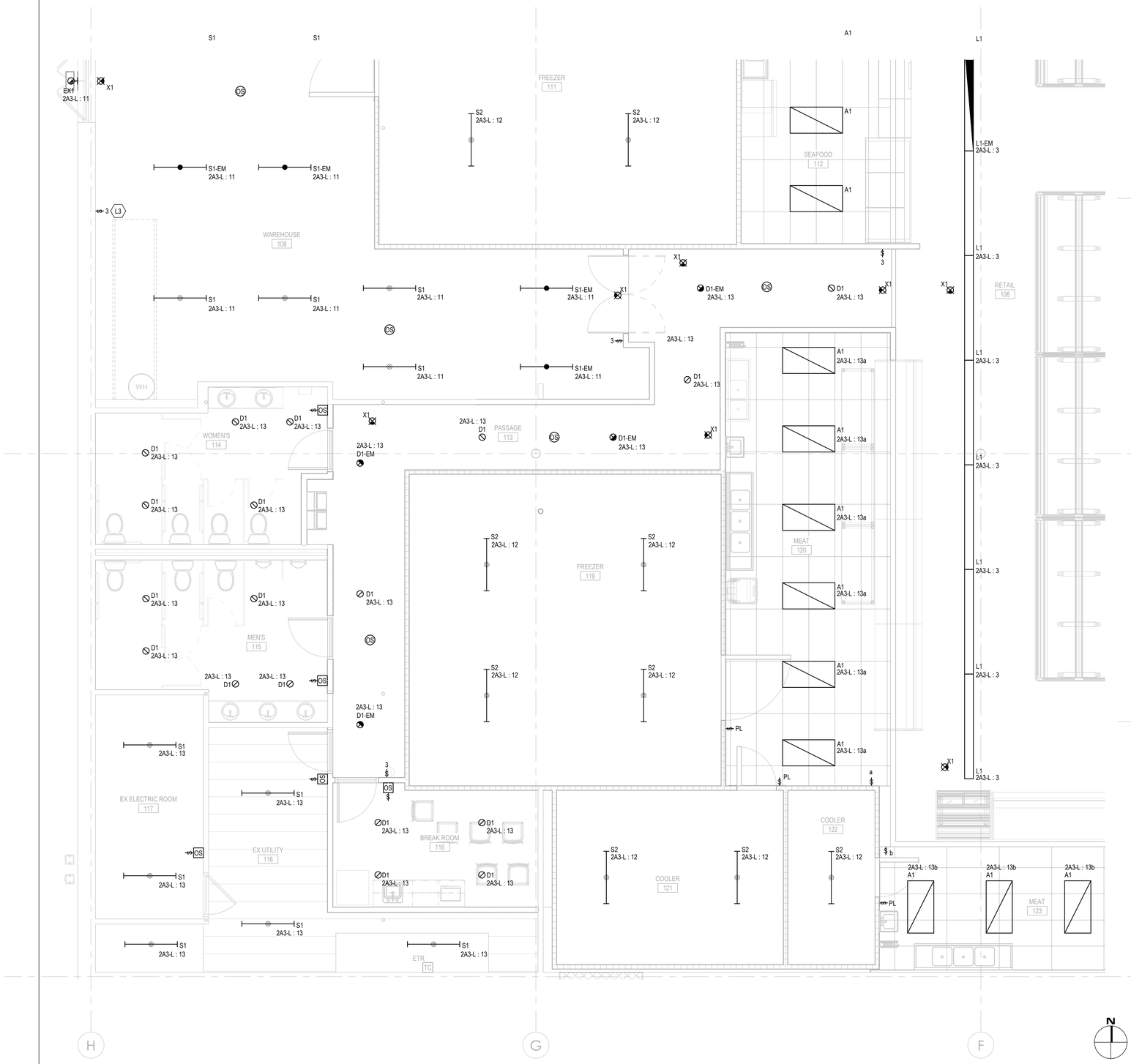
SHEET NOTES

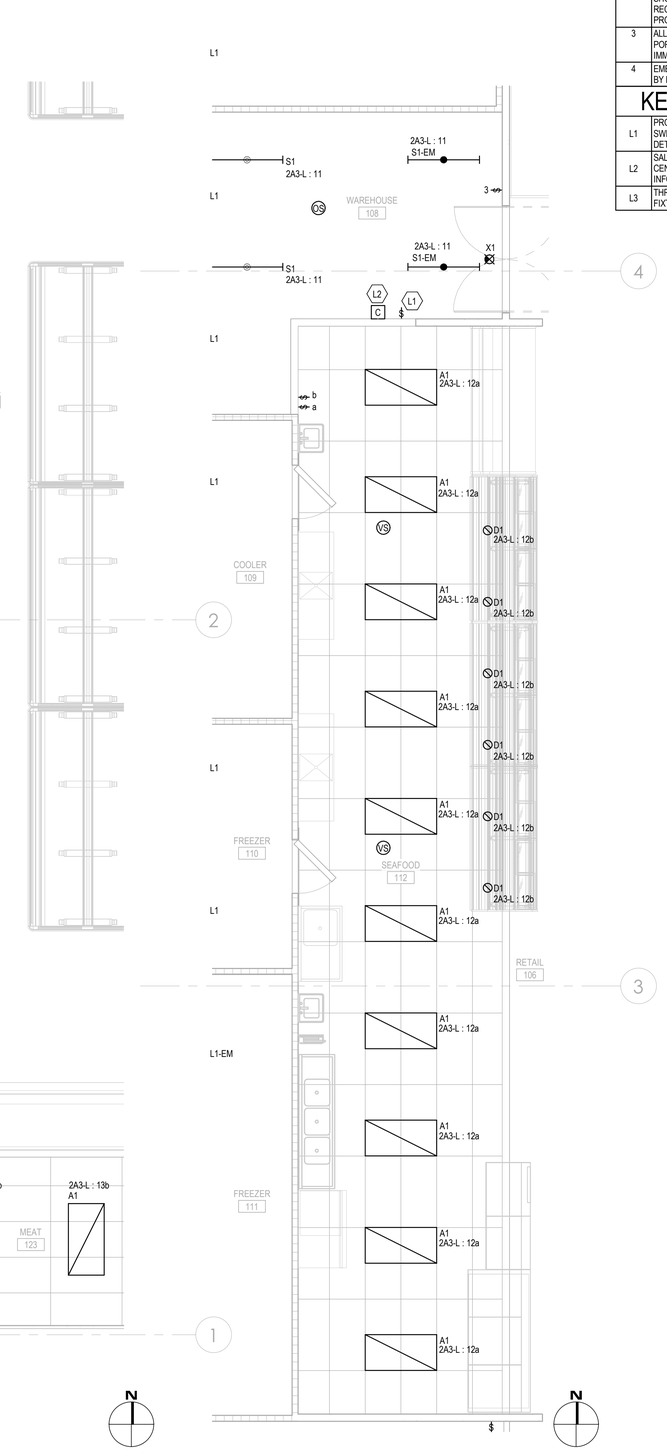
1	ALL OCCUPANCY AND VACANCY SENSORS SHALL BE WIRED IN SERIES WITH ROOM SWITCHES UNLESS OTHERWISE NOTED OR INDICATED.
2	OCCUPANCY AND VACANCY SENSORS ARE INDICATED TO SHOW DESIGN INTENT. LOCATE AND MOUNT SENSORS PER RECOMMENDATIONS OF THE SENSOR MANUFACTURER TO PROVIDE COVERAGE OF THE ASSOCIATED AREA.
3	ALL EXIT SIGNS SHALL BE CIRCUITED TO THE UNSWITCHED PORTION OF THE NEAREST NORMAL CIRCUIT SERVING THE IMMEDIATE AREA.
4	EMERGENCY LIGHTING (SHADED FIXTURES) TO BE PROVIDED BY BATTERY BACKUP VERSION OF LIGHTING FIXTURES.

KEY NOTES

L1	PROVIDE A 20AMP, 120/277VOLT SPDP MOMENTARY CONTACT SWITCH TO CONTROL SALES FLOOR LIGHTING. REFER TO DETAIL 1/E6.00 FOR MORE INFORMATION.
L2	SALES FLOOR LIGHTING CONTACTOR MOUNTED 60" AFF TO CENTER OF ENCLOSURE. REFER TO DETAIL 1/E6.00 FOR MORE INFORMATION.
L3	THREE WAY LIGHT SWITCH TO CONTROL MEZZANINE LIGHTING FIXTURES.



2 MEAT DEPT. LIGHTING PLAN
SCALE: 1/4" = 1'-0"



1 SEAFOOD DEPT. LIGHTING PLAN
SCALE: 1/4" = 1'-0"

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WEST ENLARGED LIGHTING PLANS

E1.11B

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SHEET NOTES

1	ALL OCCUPANCY AND VACANCY SENSORS SHALL BE WIRED IN SERIES WITH ROOM SWITCHES UNLESS OTHERWISE NOTED OR INDICATED.
2	OCCUPANCY AND VACANCY SENSORS ARE INDICATED TO SHOW DESIGN INTENT. LOCATE AND MOUNT SENSORS PER RECOMMENDATIONS OF THE SENSOR MANUFACTURER TO PROVIDE COVERAGE OF THE ASSOCIATED AREA.
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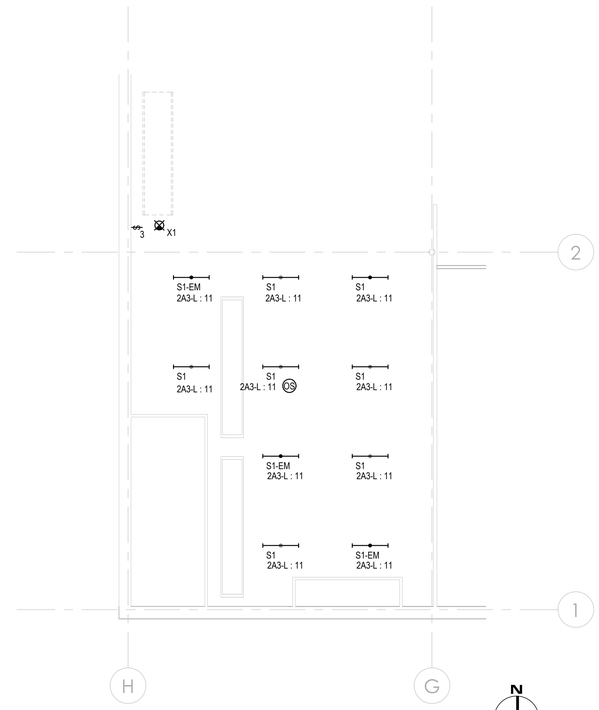

1 MEZZANINE LIGHTING PLAN

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

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MEZZANINE LIGHTING PLAN

E1.12

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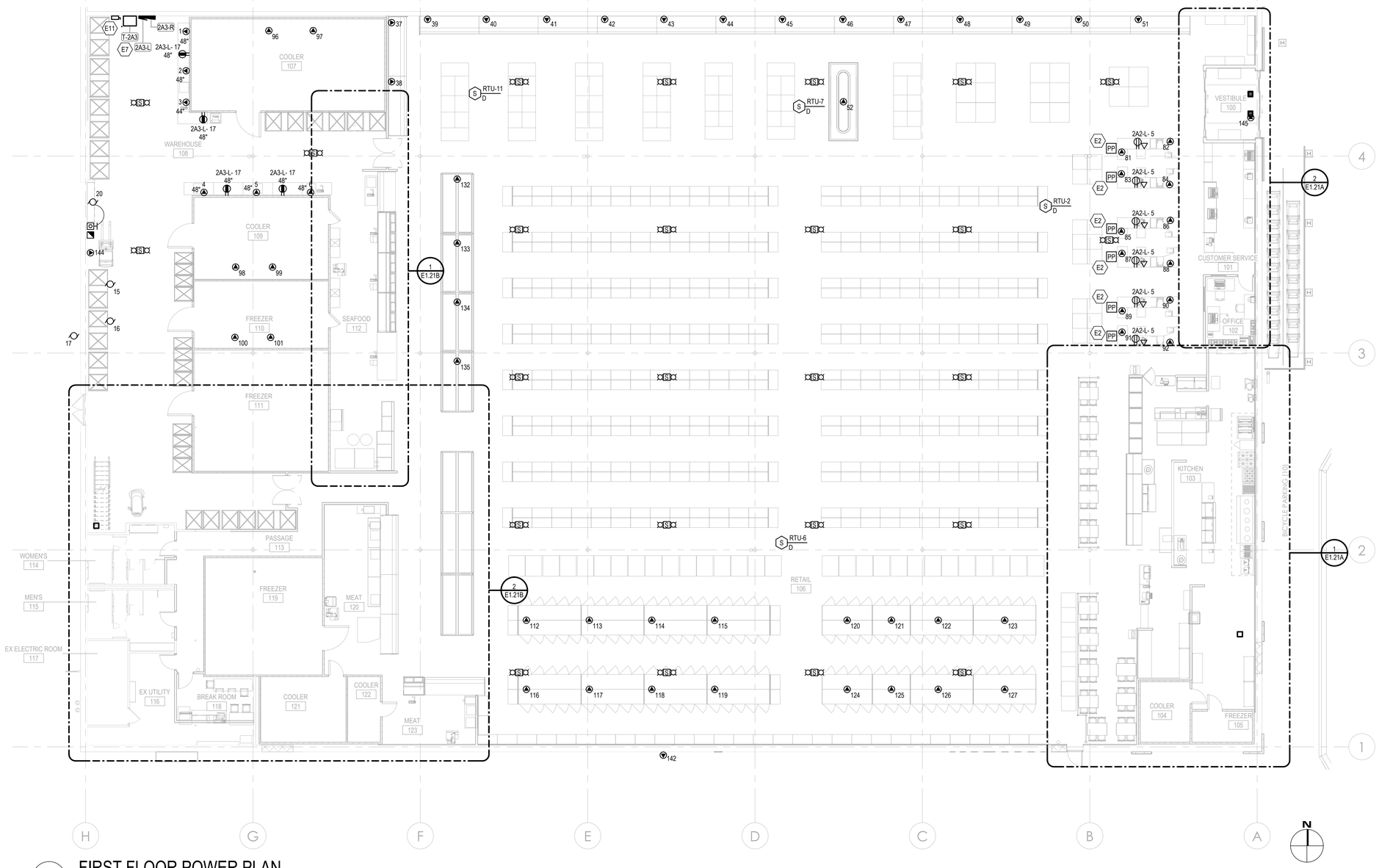
KEY NOTES

E2	PROVIDE A POWER POLE TYPE NP800 BY WIREMOLD LEGRAND OR PRIOR APPROVED EQUAL. TWO COMPARTMENTS. ONE FOR POWER AND ONE FOR COMMUNICATIONS.
E7	PROVIDE 4" HOUSEKEEPING PAD FOR NEW TRANSFORMER.
E11	PROVIDE DISCONNECT ADJACENT TO TRANSFORMER AS DISCONNECTING MEANS OF THE TRANSFORMER FOR MAINTENANCE.



1 FIRST FLOOR POWER PLAN

SCALE: 3/32" = 1'-0"

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FIRST FLOOR POWER AND SYSTEMS PLAN

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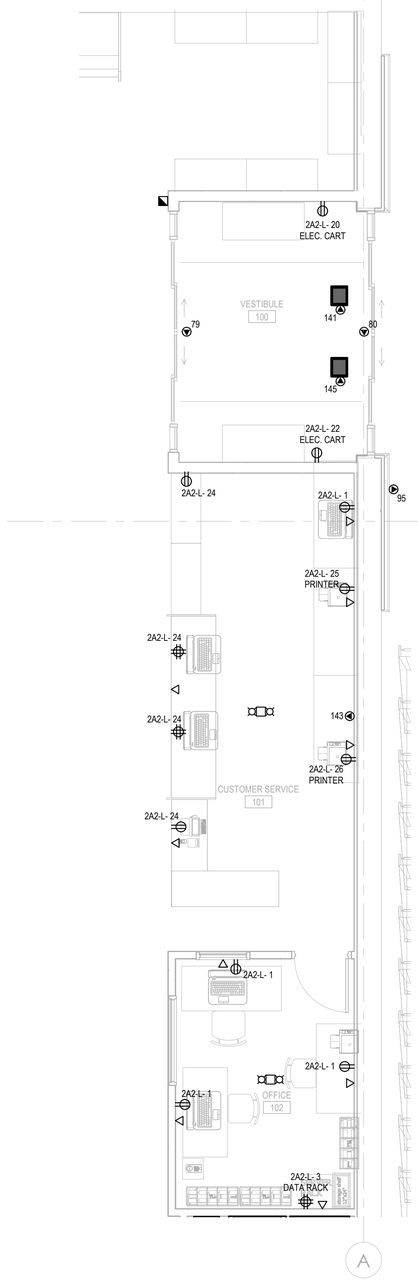
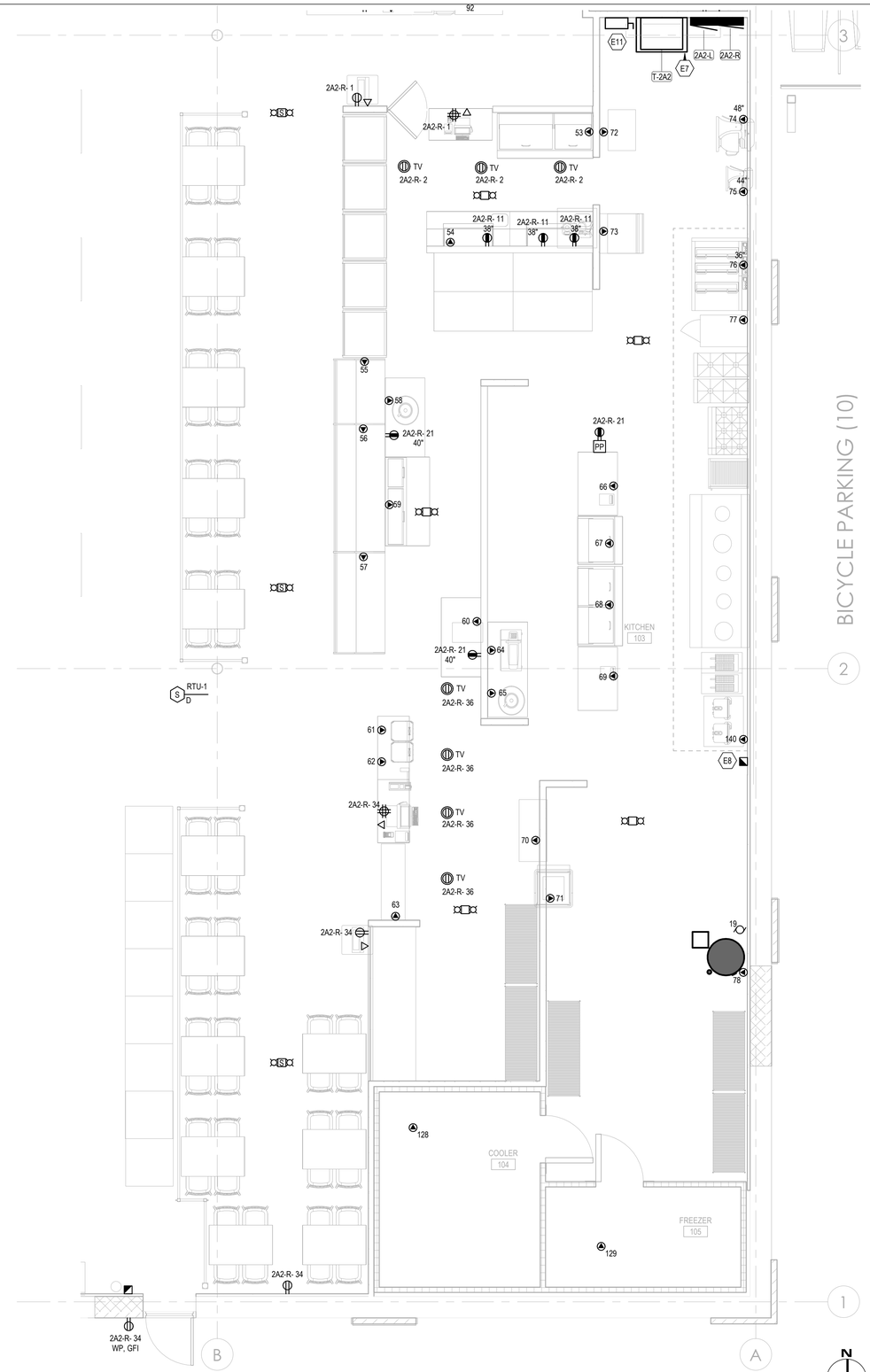


2 ENTRY & CUSTOMER SERVICE POWER & SYSTEMS PLAN

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



1 KITCHEN POWER & SYSTEMS PLAN

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

KEY NOTES

E7	PROVIDE 4" HOUSEKEEPING PAD FOR NEW TRANSFORMER.
E8	MANUAL PULL STATION IS PART OF HOOD FIRE SUPRESSION SYSTEM.
E11	PROVIDE DISCONNECT ADJACENT TO TRANSFORMER AS DISCONNECTING MEANS OF THE TRANSFORMER FOR MAINTENANCE.

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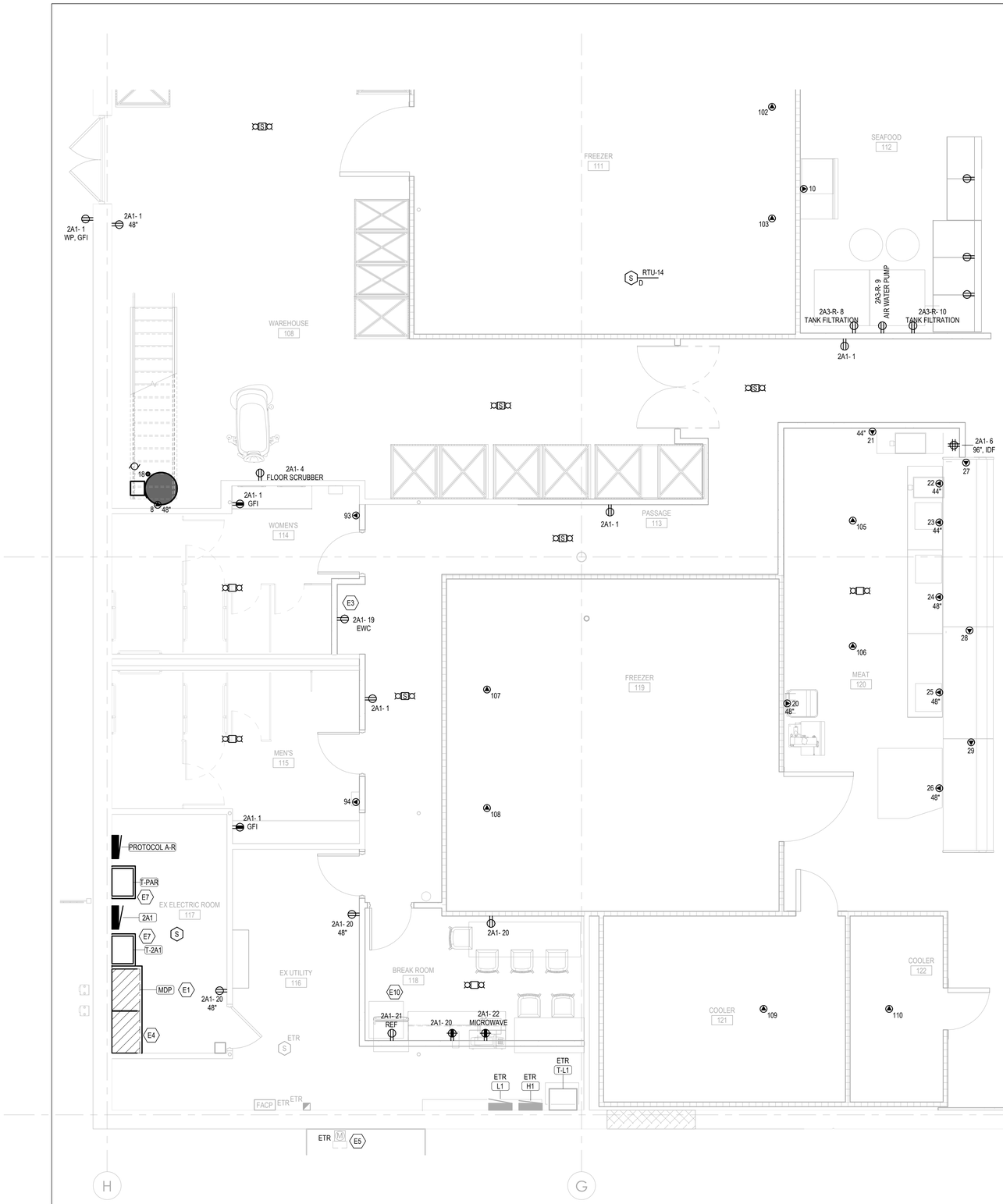
EAST ENLARGED POWER AND SYSTEMS PLANS

E1.21A

2/5/2024 2:28:48 PM

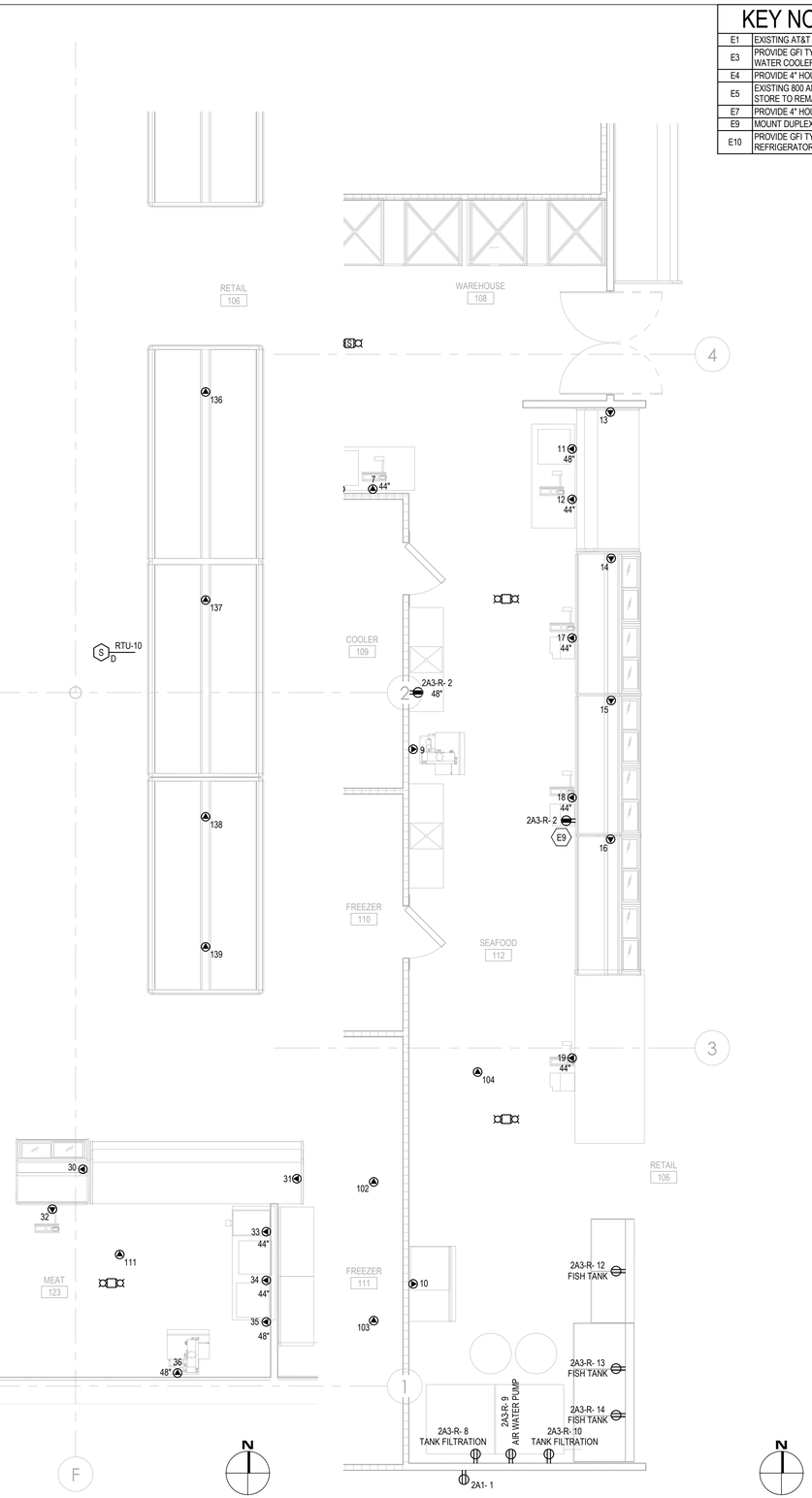
KEY NOTES

E1	EXISTING AT&T LINE TO REMAIN.
E3	PROVIDE GFI TYPE CIRCUIT BREAKER TO SERVE NEW ELECTRIC WATER COOLER.
E4	PROVIDE 4" HOUSEKEEPING PAD FOR NEW SWITCHBOARD.
E5	EXISTING 800 AMP UTILITY METER SERVING HOBBY LOBBY STORE TO REMAIN.
E7	PROVIDE 4" HOUSEKEEPING PAD FOR NEW TRANSFORMER.
E9	MOUNT DUPLEX RECEPTACLE UNDER SCALE.
E10	PROVIDE GFI TYPE CIRCUIT BREAKER TO SERVE NEW REFRIGERATOR.



2 MEAT DEPT. POWER & SYSTEMS PLAN

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



1 SEAFOOD DEPT. POWER & SYSTEMS PLAN

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

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WEST ENLARGED POWER AND SYSTEMS PLANS

E1.21B

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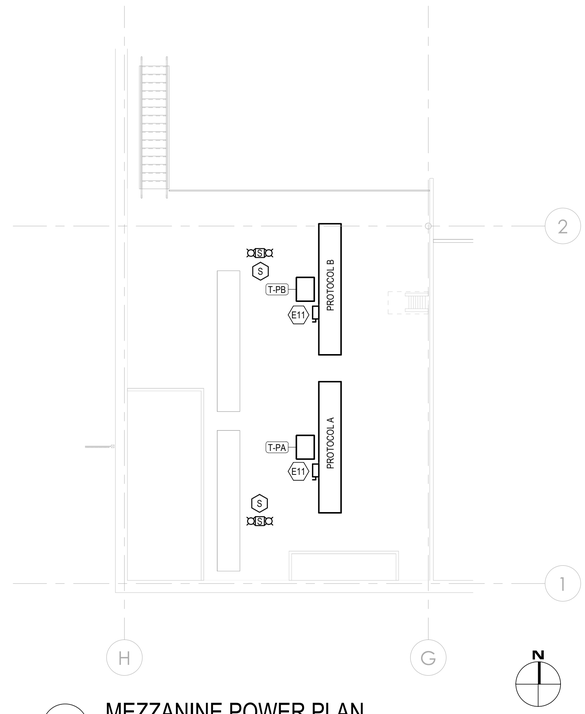
KEY NOTES

E11	PROVIDE DISCONNECT ADJACENT TO TRANSFORMER AS DISCONNECTING MEANS OF THE TRANSFORMER FOR MAINTENANCE.



1 MEZZANINE POWER PLAN

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

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MEZZANINE POWER AND SYSTEMS PLAN

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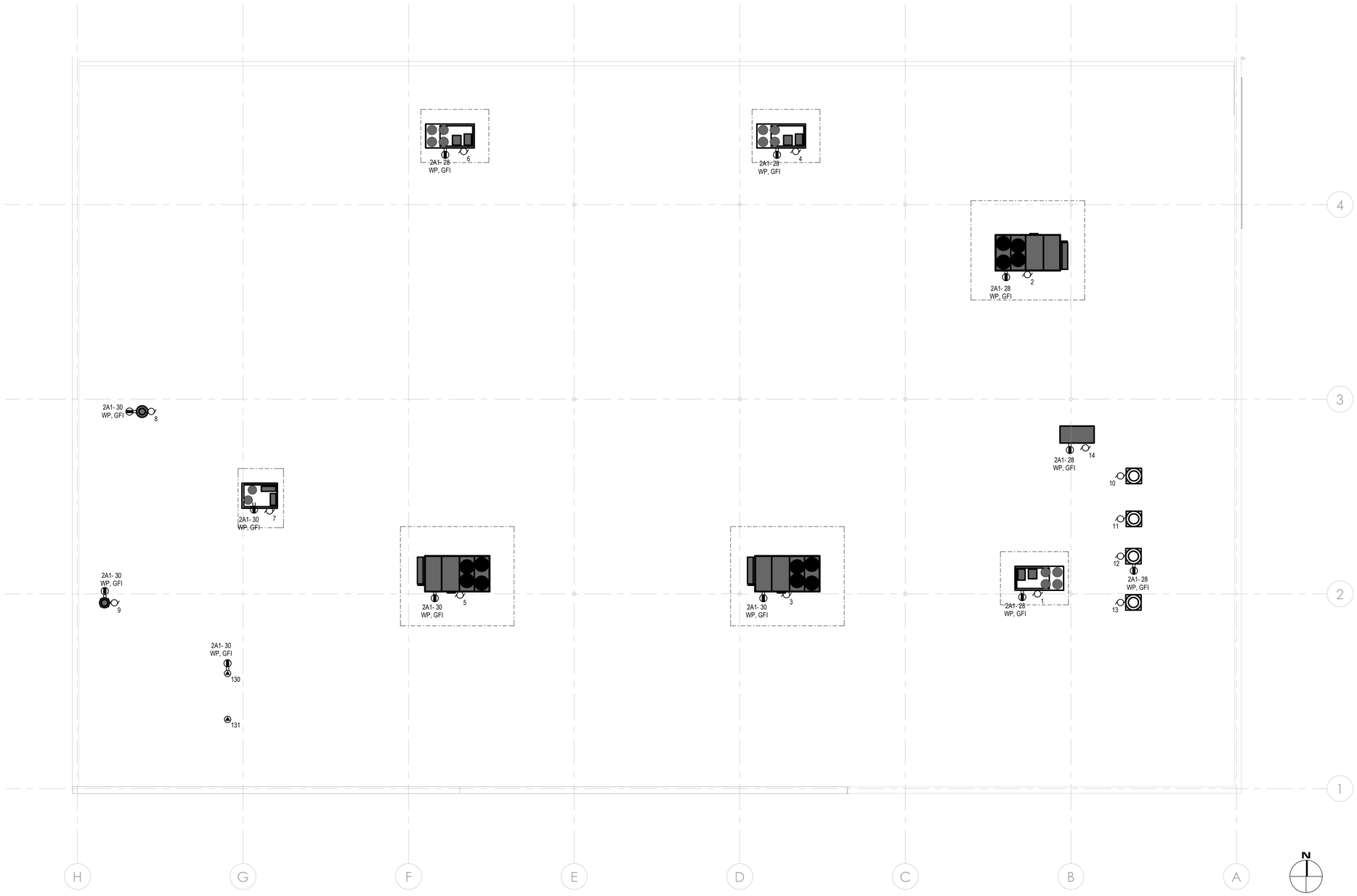

1 ROOF POWER PLAN

SCALE: 3/32" = 1'-0"

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ROOF POWER PLAN

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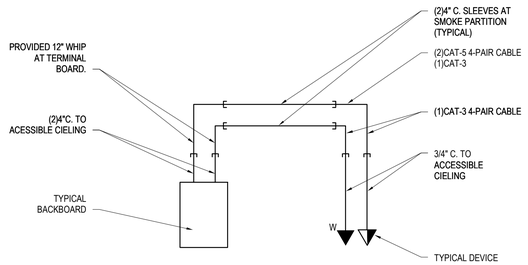
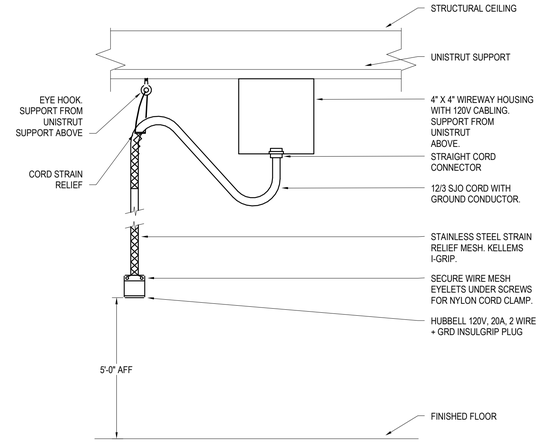


NOTE:
SEE PLAN FOR DEVICE LOCATION.

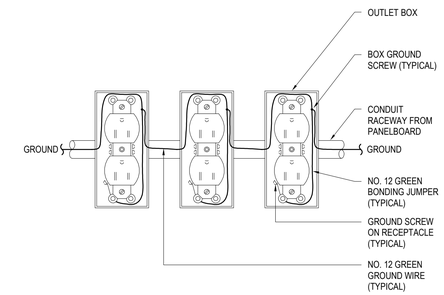
5 TYPICAL TELE/DATA RISER DIAGRAM

SCALE: NTS



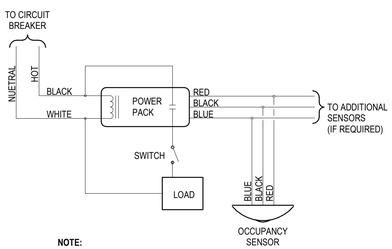
3 CORD DROP DETAIL

SCALE: NTS



1 TYPICAL RECEPTACLE GROUNDING DETAIL

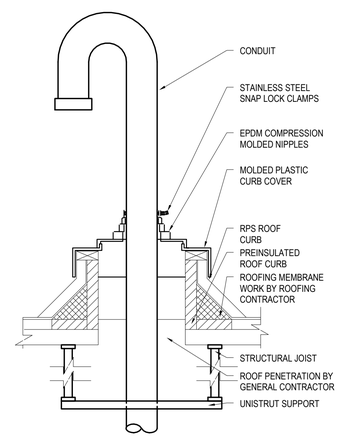
SCALE: NTS



NOTE:
OCCUPANCY SENSOR SHALL HAVE ISOLATED RELAY OUTPUT FOR HVAC INTERFACE

6 OCCUPANCY SENSOR WIRING DETAIL

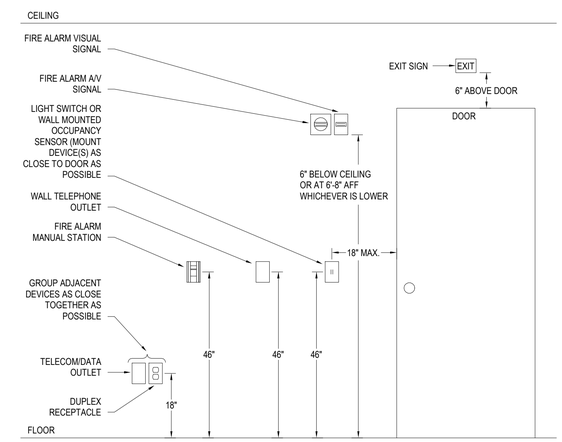
SCALE: NTS



DETAIL NOTE:
1. CONTRACTOR SHALL USE LANDLORD'S REQUIRED ROOFER FOR ALL ROOF PENETRATIONS.

4 TYPICAL ROOF PENETRATION

SCALE: NTS



2 TYPICAL MOUNTING HEIGHT DETAIL

SCALE: NTS

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PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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DRAWN BY	DMS
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IBC PROJECT NO: 2023108

ELECTRICAL DETAILS

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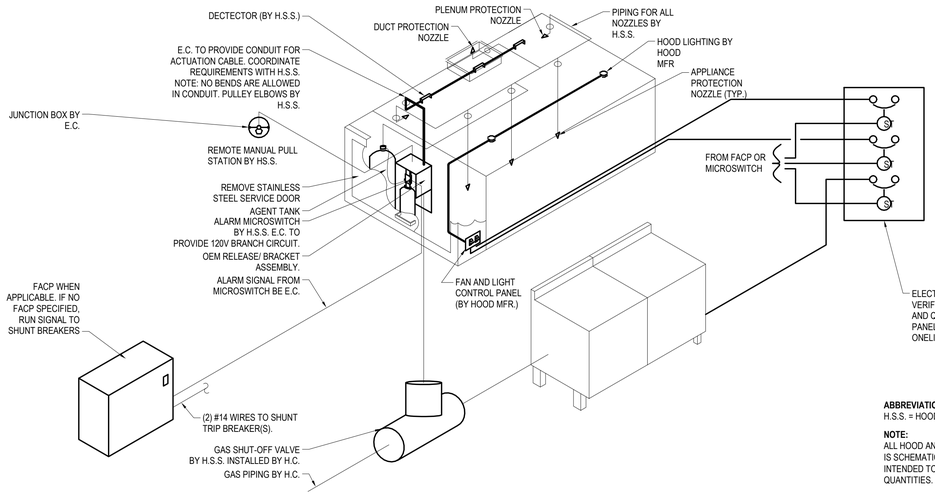


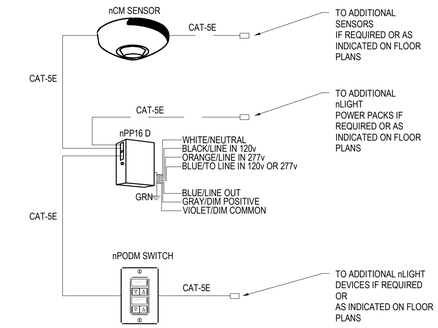
ABBREVIATION:
H.S.S. = HOOD SUPPRESSION SUPPLIER

NOTE:
ALL HOOD AND H.S.S. INFORMATION IS SCHEMATIC ONLY AND NOT INTENDED TO INDICATE ACTUAL QUANTITIES.

3 KITCHEN HOOD DETAIL

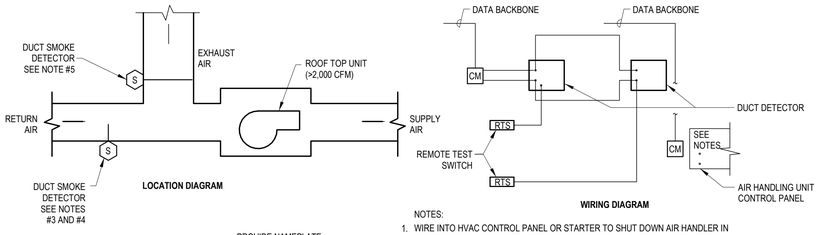
SCALE: NTS

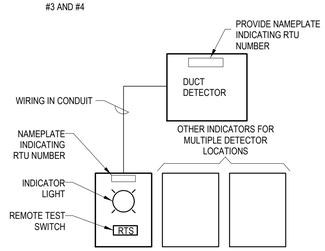
NOTE:
EITHER BLUE WIRE CAN BE CONNECTED TO 120VAC OR 277VAC LINE IN. CAP OFF UNUSED WIRE.



1 TYPICAL nLIGHT 0-10V DIMMING WIRING DIAGRAM

SCALE: 12" = 1'-0"



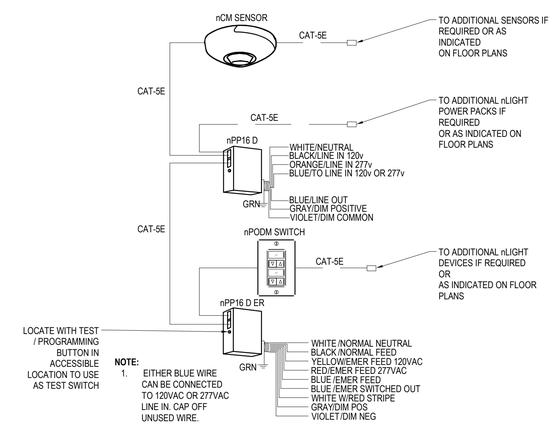


NOTES:

1. WIRE INTO HVAC CONTROL PANEL OR STARTER TO SHUT DOWN AIR HANDLER IN THE EVENT SMOKE IS DETECTED. PROVIDE OVERRIDE SWITCH (KEYED SWITCH OR START PUSH-BUTTON STATION IN LOCKED ENCLOSURE) ADJACENT TO FACP TO RESTART THE HVAC UNIT. PROVIDE WRITTEN STATEMENT TO AHJ. THAT THE SYSTEM WAS TESTED AND OPERATES CORRECTLY.
2. MOUNT REMOTE TEST STATION ON NEAREST WALL THAT PROVIDES ACCESS. IN INSTALLATIONS WHERE TWO OR MORE AHU'S ARE INSTALLED TOGETHER, MOUNT ALL TEST SWITCHES IN ONE AREA.
3. DUCT SMOKE DETECTORS SHALL BE INSTALLED IN RETURN AIR SYSTEMS WITH A CAPACITY GREATER THAN 2,000 CFM, IN THE RETURN AIR DUCT OR PLENUM UPSTREAM OF ANY FILTERS, EXHAUST AIR CONNECTIONS, OUTDOOR AIR
4. CONNECTIONS, OR DECONTAMINATION EQUIPMENT AND APPLIANCES. WHERE RETURN AIR RISERS SERVE TWO OR MORE STORIES AND ARE PART OF A RETURN AIR SYSTEM HAVING A CAPACITY GREATER THAN 15,000 CFM, DUCT SMOKE DETECTORS SHALL BE INSTALLED AT EACH STORY. SUCH DUCT SMOKE DETECTORS SHALL BE LOCATED UPSTREAM OF THE CONNECTION BETWEEN THE RETURN AIR RISER AND ANY AIR DUCTS OR PLENUMS.
5. THE ACTUATION OF A DUCT SMOKE DETECTOR SHALL ACTIVATE A VISIBLE AND AUDIBLE SUPERVISORY SIGNAL AT A CONSTANTLY ATTENDE LOCATION.

4 ROOF TOP UNIT SHUTDOWN DETAIL

SCALE: NTS



NOTE:
1. EITHER BLUE WIRE CAN BE CONNECTED TO 120VAC OR 277VAC LINE IN. CAP OFF UNUSED WIRE.

2 TYPICAL nLIGHT 0-10V DIMMING WITH EMERGENCY WIRING DIAGRAM

SCALE: NTS

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ELECTRICAL DETAILS

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LIGHTING FIXTURE SCHEDULE

FIXTURE	DESCRIPTION	LAMPING QTY	LAMPING TYPE	LAMPING INPUT W	DRIVER	VOLTAGE	MANUFACTURER	CATALOG NUMBER	MOUNTING	SEE NOTE
A1	2X4 LED PANEL		4591 LUMENS, 3500K	42 W	-	120V	METALUX	24FP4735C	RECESSED	
A1-EM	2X4 LED PANEL		4591 LUMENS, 3500K	42 W	-	120V	METALUX	24FP4735C-EL14W	RECESSED	4
D1	6" LED DOWNLIGHT		2307 LUMENS, 3500K	20 W	-	120V	HALO	HC6CP-20-D010-HB128APK-61-MD-H-WF	RECESSED	
D1-EM	6" LED DOWNLIGHT		2307 LUMENS, 3500K	20 W	-	120V	HALO	HC6CP-20-D010-REM14-HB128APK-61-MD-H-WF	RECESSED	4
D2	6" LED LENSED DOWNLIGHT		3000 LUMENS, 5000K	27 W	-	120V	HALO	PR6-30-D010-HB128APK-MD-850-MW	RECESSED	
D2-EM	6" LED LENSED DOWNLIGHT		3000 LUMENS, 5000K	27 W	-	120V	HALO	PR6-30-D010-ERM-14-HB128APK-MD-850-MW	RECESSED	4
EX1	EXTERIOR LED WALL PACK		LED, 3000K	5 W	-	120V	SURE-LITES	AEL2-31-BK-SD	SURFACE	
L1	8'-0" LINEAR LED PENDANT		6128 LUMENS, 3500 K	54 W	-	120V	METALUX	8WSL-LD2-60-SPC-UNV-L835-CD1-U	SURFACE	5,7
L1-EM	8'-0" LINEAR LED PENDANT		6128 LUMENS, 3500 K	54 W	-	120V	METALUX	8WSL-LD2-60-SPC-UNV-EL14W-L835-CD1-U	SURFACE	4,5,7
L2	4'-0" LINEAR LED PENDANT		3023 LUMENS, 3500 K	25 W	-	120V	METALUX	4WSL-LD2-30-SPC-UNV-L835-CD1-U	SURFACE	5,7
P1	4"-0" DIAMETER DIRECT PENDANT		4600 LUMENS, 4000K	105 W	-	120V	PRUDENTIAL LIGHTING	O-40-LED4-SO-FWA-TMW-D1-SC-UNV-CA144-ND	SUSPENDED	
S1	4'-0" LED LENSED UTILITY WRAP		4010 LUMENS, 4000K	36 W	-	UNV	METALUX	4WP3040C	SURFACE	
S1-EM	4'-0" LED LENSED UTILITY WRAP		4010 LUMENS, 4000K	36 W	-	UNV	METALUX	4WP3040C-EBPLED14W	SURFACE	4,6
S2	4'-0" LED VAPORTITE		5405 LUMENS, 4000K	44 W	-	UNV	METALUX	4VT3-LD5-5-G-UNV-L840-U	SURFACE	6
X1	SINGLE FACE LED EXIT SIGN		LED W/ UNIT	3 W	-	120V	ATLITE	XLN2-8-D-R-1ES-WH	CEILING	1,2,3
X2	DOUBLE FACE LED EXIT SIGN		LED W/ UNIT	3 W	-	120V	ATLITE	XLN2-8-D-R-2ES-WH	CEILING	1,2,3

REMARKS:
A. CONTRACTOR SHALL CONFIRM CEILING TYPE REQUIREMENTS PRIOR TO THE RELEASE OF THE ORDER.
B. CATALOG NUMBERS ARE TO PROVIDE GUIDANCE ONLY AND MAY NOT BE COMPLETE.
C. FIXTURES SPECIFIED TO MEET DESIGN INTENT. EQUALS MAY BE SUBSTITUTED SUBJECT TO DESIGN TEAM'S APPROVAL.
D. PROVIDE ALL COMPONENTS AND ACCESSORIES NECESSARY FOR A COMPLETE AND FUNCTIONAL INSTALLATION.
E. ARCHITECT TO DETERMINE ALL FINISHES.
F. VERIFY DIMMING CONTROLS ARE COMPATIBLE WITH DIMMING DRIVER SELECTED FOR FIXTURE.

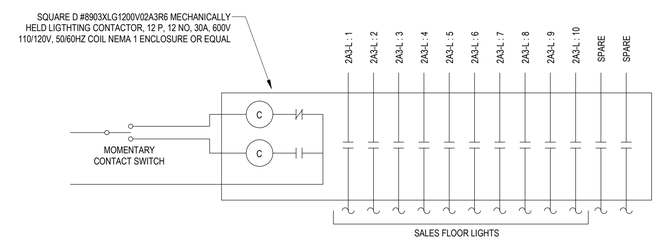
NOTES:
1. FIELD SELECTABLE CHEVRONS SHALL BE APPLIED OR INSTALLED/REMOVED AS INDICATED ON PLANS AND AS REQUIRED BY ALL GOVERNING CODES.
2. PROVIDE NUMBER OF FACES AS INDICATED ON PLANS AND AS REQUIRED BY ALL GOVERNING CODES.
3. ALL EXIT SIGNS MUST MEET ALL CITY, STATE, AND NATIONAL CODES INCLUDING BUT NOT LIMITED TO IBC 1011 AND ANSI-A117.1 SEC 703.
4. PROVIDE EMERGENCY CIRCUIT AND/OR SECTION AS AVAILABLE FROM MANUFACTURER WHERE INDICATED ON PLANS.
5. PROVIDE AIRCRAFT CABLE ACCESSORY OR STEMS IN LENGTH NECESSARY TO ACCOMMODATE MOUNTING HEIGHTS AS INDICATED BY THE ARCHITECT.
6. MOUNT TO BOTTOM OF CEILING JOIST. USE UNISTRUT WHERE REQUIRED.
7. MOUNT AT 14'-0" TO BOTTOM OF LIGHT FIXTURE.

LIGHTING CONTROL BASIS OF DESIGN

AREA	LIGHTING CONTROL INTENT - IECC 2015	SEE NOTE
CORRIDOR / VESTIBULE / LOBBY	1. INDIVIDUAL ENTERS THE SPACE, OCCUPANCY IS IMMEDIATELY DETECTED, AND LIGHTS AUTOMATICALLY TURN "ON" VIA OCCUPANCY SENSOR. 2. LIGHTS IN DAYLIGHT ZONES (WHERE APPLICABLE) AUTOMATICALLY CONTINUOUSLY DIM AND TURN "OFF" IN RESPONSE TO DAYLIGHT LEVELS VIA DAYLIGHT SENSOR. 3. WHEN AN OCCUPANT EXITS THE SPACE, AND ONCE MINUTES OF VACANCY (ADJUSTABLE) IS DETECTED, LIGHTS AUTOMATICALLY TURN "OFF" VIA OCCUPANCY SENSOR. 4. MANUAL WALL SWITCH PROVIDES LOCAL OVERRIDE CONTROL.	
RESTROOM	1. INDIVIDUAL ENTERS THE SPACE, OCCUPANCY IS IMMEDIATELY DETECTED, AND LIGHTS AUTOMATICALLY TURN "ON" VIA OCCUPANCY SENSOR. 2. WHEN AN OCCUPANT EXITS THE SPACE, AND ONCE MINUTES OF VACANCY (ADJUSTABLE) IS DETECTED, LIGHTS AUTOMATICALLY TURN "OFF" VIA OCCUPANCY SENSOR. 3. MANUAL WALL SWITCH PROVIDES LOCAL OVERRIDE CONTROL.	
MECHANICAL / ELECTRICAL / EQUIPMENT ROOM	1. INDIVIDUAL ENTERS THE SPACE AND UTILIZES WALL SWITCH TO TURN LIGHTS "ON". 2. OCCUPANT UTILIZES WALL SWITCH TO TURN LIGHTS "OFF" UPON EXITING THE SPACE.	
STORAGE ROOM	1. INDIVIDUAL ENTERS THE SPACE, OCCUPANCY IS IMMEDIATELY DETECTED, AND LIGHTS AUTOMATICALLY TURN "ON" VIA OCCUPANCY SENSOR. 2. OCCUPANT UTILIZES WALL SWITCH TO TURN LIGHTS "OFF" UPON EXITING THE SPACE. 3. WHEN AN OCCUPANT EXITS THE SPACE, WITHOUT THE USE OF THE SWITCH, AND ONCE 15 MINUTES (ADJUSTABLE) OF VACANCY IS DETECTED, LIGHTS AUTOMATICALLY TURN "OFF" VIA OCCUPANCY SENSOR.	
OFFICE	1. INDIVIDUAL ENTERS THE SPACE AND UTILIZES DIMMING WALL SWITCH TO TURN LIGHTS "ON" AND/OR ADJUST DIMMING LEVELS AS DESIRED. 2. LIGHTS IN DAYLIGHT ZONE (WHERE APPLICABLE) AUTOMATICALLY CONTINUOUSLY DIM AND TURN "OFF" IN RESPONSE TO DAYLIGHT LEVELS VIA DAYLIGHT SENSOR. 3. OCCUPANT UTILIZES DIMMING WALL SWITCH TO TURN LIGHTS "OFF" UPON EXITING THE SPACE. 4. WHEN AN OCCUPANT EXITS THE SPACE, WITHOUT THE USE OF THE SWITCH, AND ONCE 15 MINUTES (ADJUSTABLE) OF VACANCY IS DETECTED, LIGHTS AUTOMATICALLY TURN "OFF" VIA VACANCY SENSOR.	
EXTERIOR LIGHTING	1. LIGHTS SHALL SWEEP "ON" AND "OFF" AS SCHEDULED BY TIMECLOCK.	

REMARKS:
A. ACUITY BRANDS NLIGHT IS THE BASIS OF DESIGN OF CONTROL SYSTEM. PROVISION OF ALTERNATE PRODUCT BY CONTRACTOR SHALL REQUIRE CONTRACTOR TO BE RESPONSIBLE FOR ALL ASSOCIATED DESIGN REQUIREMENTS.
B. CATALOG NUMBERS ARE TO PROVIDE GUIDANCE ONLY AND MAY NOT BE COMPLETE.
C. PROVIDE ALL COMPONENTS AND ACCESSORIES NECESSARY FOR A COMPLETE AND FUNCTIONAL INSTALLATION.
D. DAYLIGHT ZONE AND NON-DAYLIGHT ZONE LIGHTS SHALL BE CONTROLLED ON SAME SWITCH AND/OR SWITCH BUTTON. DIMMING THRESHOLD OF THE DAYLIGHT SENSOR SHALL NOT BE EXCEEDED FOR LIGHTS WITHIN THE DAYLIGHT ZONE.
E. COORDINATE ALL PROGRAMMING WITH OWNER.
F. COORDINATE BUTTON ENGRAVINGS WITH OWNER.
G. LIGHTING DESIGNATED AS EMERGENCY LIGHTS SHALL BE CONTROLLED VIA SPACE CONTROLS WITH NORMAL POWER LIGHTING AND SHALL IMMEDIATELY ILLUMINATE UPON LOSS OF NORMAL POWER FOR NOT LESS THAN 90 MINUTES, UNLESS OTHERWISE NOTED.

NOTES:
1. NOT USED.



1 LIGHTING CONTACTOR DETAIL
SCALE: NTS

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ELECTRICAL SCHEDULES

E6.00

2/5/2024 2:28:56 PM

SPECIAL PURPOSE OUTLET SCHEDULE

NO.	DESCRIPTION	LOCATION ROOM		EQUIPMENT INFORMATION				FEED FROM		BREAKER		OUTLET TYPE	SEE NOTE
		NAME	NO	KW	FLA	VOLT	PH	PANEL	CKT NO.	SIZE	POLE		
115	REACH-IN ISLAND	RETAIL	106	4	33	120	1			0	1	DIRECT	4
116	REACH-IN ISLAND	RETAIL	106	4	33	120	1			0	1	DIRECT	4
117	REACH-IN ISLAND	RETAIL	106	4	33	120	1			0	1	DIRECT	4
118	REACH-IN ISLAND	RETAIL	106	4	33	120	1			0	1	DIRECT	4
119	REACH-IN ISLAND	RETAIL	106	4	33	120	1			0	1	DIRECT	4
120	REACH-IN ISLAND	RETAIL	106	3.4	28	120	1			0	1	DIRECT	4
121	REACH-IN ISLAND	RETAIL	106	3.4	28	120	1			0	1	DIRECT	4
122	REACH-IN ISLAND	RETAIL	106	3.4	28	120	1			0	1	DIRECT	4
123	REACH-IN ISLAND	RETAIL	106	3.4	28	120	1			0	1	DIRECT	4
124	REACH-IN ISLAND	RETAIL	106	3.4	28	120	1			0	1	DIRECT	4
125	REACH-IN ISLAND	RETAIL	106	3.4	28	120	1			0	1	DIRECT	4
126	REACH-IN ISLAND	RETAIL	106	3.4	28	120	1			0	1	DIRECT	4
127	REACH-IN ISLAND	RETAIL	106	3.4	28	120	1			0	1	DIRECT	4
128	COOLER	COOLER	104	0.2	1.8	120	1			0	1	DIRECT	4
129	KITCHEN FREEZER	FREEZER	105	0.4	1.8	208	1			0	2	DIRECT	4
130	ACCU-B	ROOF	---	17.9	21.5	480	3	MDP	16	0	3	DIRECT	
131	ACCU-A	ROOF	---	13.7	16.5	480	3	MDP	15	0	3	DIRECT	
132	FROZEN FOOD ISLAND	RETAIL	106	1.5	12.3	120	1			0	1	DIRECT	4
133	FROZEN FOOD ISLAND	RETAIL	106	1.5	12.3	120	1			0	1	DIRECT	4
134	FROZEN FOOD ISLAND	RETAIL	106	1.5	12.3	120	1			0	1	DIRECT	4
135	FROZEN FOOD ISLAND	RETAIL	106	1.5	12.3	120	1			0	1	DIRECT	4
136	FROZEN FOOD ISLAND	RETAIL	106	1.3	10.6	120	1			0	1	DIRECT	4
137	FROZEN FOOD ISLAND	RETAIL	106	1.3	10.6	120	1			0	1	DIRECT	4
138	FROZEN FOOD ISLAND	RETAIL	106	1.3	10.6	120	1			0	1	DIRECT	4
139	FROZEN FOOD ISLAND	RETAIL	106	1.3	10.6	120	1			0	1	DIRECT	4
140	FIRE SUPPRESSION SYSTEM	KITCHEN	103	0.5	4.2	120	1	2A2-R	20	20	1	DIRECT	
141	EUH-1	VESTIBULE	100	1.5	12.5	120	1	2A2-L	19	35	1	DIRECT	
142	EXTERIOR STORE SIGN	EXTERIOR	---	1	8.3	120	1	2A2-L	4	20	1	DIRECT	1
143	HUSSMANN PANEL REMOTE ALARM	CUSTOMER SERVICE	101	0.2	1.7	120	1	2A2-L	2	20	1	DIRECT	2
144	FORK LIFT CHARGER	WAREHOUSE	108	11.5	32	208	3	2A3-R	15,17,19	40	3	RECEPT.	
145	EUH-2	VESTIBULE	100	1.5	12.5	120	1	2A2-L	21	35	1	DIRECT	

REMARKS:

A. REFER TO EQUIPMENT DATA SHEET FOR ADDITIONAL INFORMATION.
B. COORDINATE WITH EQUIPMENT SUPPLIER FOR INSTALLATION REQUIREMENTS.
C. FOR DIRECT CONNECTED EQUIPMENT, TERMINATE EQUIPMENT WIRING IN A JUNCTION BOX WITH PROPERLY RATED WIRE NUTS.

NOTES:

1. ROUTE THROUGH EXISTING TIME CLOCK. COORDINATE EXACT LOCATION WITH SIGN CONTRACTOR. SIGN CONTRACTOR TO PROVIDE FINAL CONNECTIONS.
2. PROVIDE 18-2 WIRE FROM ALARM PANEL TO CONTROLLER IN PROTOCAL A LOCATED IN THE MEZZANINE.
3. RECEPTACLE PROVIDED BY HUSSMANN.
4. THIS PIECE OF REFRIGERATION EQUIPMENT IS SERVED BY PROTOCAL A OR B LOCATED IN THE MEZZANINE OR PROTOCAL A REMOTE LOCATED IN MAIN ELECTRICAL ROOM. REFER TO REFRIGERATION DRAWINGS FOR MORE INFORMATION. ALL REFRIGERATION EQUIPMENT SHALL BE INSTALLED AND WIRIED BY HUSSMANN. NO SCOPE OF WORK FOR ELECTRICAL CONTRACTOR.

MOTOR WIRING SCHEDULE

NO.	DESCRIPTION	LOCATION ROOM		ELECTRICAL INFORMATION				FEED FROM		BREAKER		SEE NOTE
		NAME	NO	HP	FLA	VOLT	PH	PANEL	CKT NO.	SIZE	POLE	
1	RTU-1	ROOF	---	7 1/2	39	480	3	MDP	8	50	3	
2	RTU-2	ROOF	---	3	36	480	3	MDP	9	45	3	
3	RTU-6	ROOF	---	2	36	480	3	MDP	10	45	3	
4	RTU-7	ROOF	---	5	39	480	3	MDP	11	50	3	
5	RTU-10	ROOF	---	3	36	480	3	MDP	12	45	3	
6	RTU-11	ROOF	---	5	39	480	3	MDP	13	50	3	
7	RTU-14	ROOF	---	4	22	480	3	MDP	14	25	3	
8	EF-1	ROOF	---	1 1/2	17	120	1	2A1	32	35	1	
9	EF-4	ROOF	---	1	7	120	1	2A1	33	20	1	
10	KEF-1A	ROOF	---	3/4	1.7	480	3	MDP	17	20	3	
11	KEF-1B	ROOF	---	3/4	1.7	480	3	MDP	18	20	3	
12	KEF-2	ROOF	---	2	3.8	480	3	MDP	19	20	3	
13	KEF-3	ROOF	---	-	3	480	3	MDP	20	20	3	
14	MAU-1	ROOF	---	7 1/2	30	480	3	MDP	21	35	3	
15	UH-3	WAREHOUSE	108	FRAC	1.3	120	1	2A3-L	23	20	1	
16	UH-4	WAREHOUSE	108	FRAC	1.3	120	1	2A3-L	24	20	1	
17	TRASH COMPACTOR	EXTERIOR	---	10	30.5	208	3	2A3-L	25,27,29	70	3	
18	HWRP-1	WAREHOUSE	108	FRAC	1.3	120	1	2A1	3	20	1	
19	HWRP-2	KITCHEN	103	FRAC	1.3	120	1	2A2-R	39	20	1	
20	OVERHEAD DOOR	WAREHOUSE	108	1/2	9.8	120	1	2A3-R	11	20	1	

REMARKS:

A. ELECTRICAL CONTRACTOR TO PROVIDE PROPERLY RATED FUSED DISCONNECT FUSED PER EQUIPEMENT NAME PLATE WITHIN SIGHT OF EQUIPMENT, UNLESS OTHERWSIE NOTED IN THE MECHANICAL DRAWINGS.
B. REFER TO MECHANICAL SHEETS FOR TYPE OF CONTROLLERS PROVIDED WITH THE HVAC EQUIPMETNT. CONTROLLER TO BE WIRED BY EC UNLESS INDICATED OTHERWISE.

NOTES:

1. NOTE USED.

SPECIAL PURPOSE OUTLET SCHEDULE

NO.	DESCRIPTION	LOCATION ROOM		EQUIPMENT INFORMATION				FEED FROM		BREAKER		OUTLET TYPE	SEE NOTE
		NAME	NO	KW	FLA	VOLT	PH	PANEL	CKT NO.	SIZE	POLE		
1	FW - FILM WRAPPER	WAREHOUSE	108	0.8	8	120	1	2A3-L	16	20	1	5-20R	
2	FW - FILM WRAPPER	WAREHOUSE	108	0.8	8	120	1	2A3-L	18	20	1	5-20R	
3	LS - LABEL PRINTING SCALE	WAREHOUSE	108	0.1	1	120	1	2A3-L	19	20	1	5-15R	
4	FW - FILM WRAPPER	WAREHOUSE	108	0.8	8	120	1	2A3-L	20	20	1	5-20R	
5	FW - FILM WRAPPER	WAREHOUSE	108	0.8	8	120	1	2A3-L	21	20	1	5-20R	
6	FW - FILM WRAPPER	WAREHOUSE	108	0.8	8	120	1	2A3-L	22	20	1	5-20R	
7	LS - LABEL PRINTING SCALE	WAREHOUSE	108	0.1	1	120	1	2A3-L	26	20	1	5-15R	
8	WH - WATER HEATER	WAREHOUSE	108	0.8	7	120	1	2A1	2	20	1	DIRECT	
9	SW - SAW MACHINE	SEAFOOD	112	1.8	8.7	208	1	2A3-R	4,6	20	2	DISC. SW	
10	IM - ICE MACHINE	SEAFOOD	112	1	8.4	120	1	2A3-R	7	20	1	5-15R	
11	FW - FILM WRAPPER	SEAFOOD	112	0.8	8	120	1	2A3-L	28	20	1	5-20R	
12	LS - LABEL PRINTING SCALE	SEAFOOD	112	0.1	1	120	1	2A3-L	30	20	1	5-15R	
13	R2 - 5 DECK REFRGERATION CASE (8FT)	SEAFOOD	112	0.2	1.8	120	1			20	1	DIRECT	4
14	R4 - ENCLOSED REFRGERATION CASE (8FT)	SEAFOOD	112	0.1	0.5	120	1			20	1	DIRECT	4
15	R4 - ENCLOSED REFRGERATION CASE (8FT)	SEAFOOD	112	0.1	0.5	120	1			20	1	DIRECT	4
16	R4 - ENCLOSED REFRGERATION CASE (8FT)	SEAFOOD	112	0.1	0.5	120	1			20	1	DIRECT	4
17	LS - LABEL PRINTING SCALE	SEAFOOD	112	0.1	1	120	1	2A3-R	1	20	1	5-15R	3
18	LS - LABEL PRINTING SCALE	SEAFOOD	112	0.1	1	120	1	2A3-R	3	20	1	5-15R	3
19	LS - LABEL PRINTING SCALE	SEAFOOD	112	0.1	1	120	1	2A3-R	5	20	1	5-15R	
20	M1 - MEAT SAW	MEAT	120	3.3	9.1	208	3	2A1	12,14,16	20	3	DISC. SW	
21	MG - MEAT GRINDER	MEAT	120	1.6	13.2	208	1	2A1	5,7	20	2	6-30R	
22	MG - MEAT GRINDER	MEAT	120	1.6	13.2	120	1	2A1	8	20	1	5-15R	
23	MS - MEAT SLICER	MEAT	120	0.2	2	120	1	2A1	9	20	1	5-15R	
24	FW - FILM WRAPPER	MEAT	120	0.8	8	120	1	2A1	10	20	1	5-20R	
25	FW - FILM WRAPPER	MEAT	120	0.8	8	120	1	2A1	11	20	1	5-20R	
26	WP - MEAT WRAPPER	MEAT	120	1.5	7.2	208	1	2A1	13,15	20	2	DIRECT	
27	R1 - ENCLOSED REFRGERATION CASE (12FT)	RETAIL	106	0.3	2.6	120	1			20	1	DIRECT	4
28	R4 - ENCLOSED REFRGERATION CASE (8FT)	RETAIL	106	0.1	0.5	120	1			20	1	DIRECT	4
29	R4 - ENCLOSED REFRGERATION CASE (8FT)	RETAIL	106	0.1	0.5	120	1			20	1	DIRECT	4
30	R3 - ENCLOSED REFRGERATION CASE (4FT)	RETAIL	106	0.1	NA	120	1			20	1	DIRECT	4
31	R1 - ENCLOSED REFRGERATION CASE (12FT)	RETAIL	106	0.3	2.6	120	1			20	1	DIRECT	4
32	LS - LABEL PRINTING SCALE	MEAT	123	0.1	1	120	1	2A1	23	20	1	5-15R	
33	MG - MEAT GRINDER	MEAT	123	1.6	13.2	120	1	2A1	24	20	1	5-15R	
34	MS - MEAT SLICER	MEAT	123	0.2	2	120	1	2A1	25	20	1	5-15R	
35	FW - FILM WRAPPER	MEAT	123	0.8	8	120	1	2A1	26	20	1	5-20R	
36	M1 - MEAT SAW	MEAT	123	3.3	9.1	208	3	2A1	27,29,31	20	3	DISC. SW	
37	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
38	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
39	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
40	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
41	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
42	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
43	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
44	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
45	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
46	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
47	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
48	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
49	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
50	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
51	R12 - OPEN REACH-IN REFRIGERATOR	RETAIL	106	0.2	1.7	120	1			20	1	DIRECT	4
52	R13 - PRODUCE ISLAND COOLER	RETAIL	106	1	8.3	120	1			0	1	DIRECT	4
53	PT7 - SANDWICH PREP TABLE	KITCHEN	103	0.3	2.3	120	1	2A2-R	3	20	1	5-15R	
54	MX - STAND MIXER	KITCHEN	103	0.5	4.2	120	1	2A2-R	10	20	1	5-15R	
55	R8 - REACH-IN REFRIGERATOR	RETAIL	106	0.1	NA	120	1			20	1	DIRECT	4
56	R10 - REACH-IN REFRIGERATOR	RETAIL	106	0.1	0.5	120	1			20	1	DIRECT	4
57	R9 - REACH-IN REFRIGERATOR	RETAIL	106	0.1	0.5	120	1			20	1	DIRECT	4
58	RW - RICE WARMER	KITCHEN	103	0.1	0.8	120	1	2A2-R	23	20	1	5-20R	
59	PT8 - REFRIGERATED PREP TABLE	KITCHEN	103	0.3	2.3	120	1	2A2-R	24	20	1	5-15R	
60	WR - FOOD WARMER	KITCHEN	103	1.5	12.5	120	1	2A2-R	25	20	1	5-15R	
61	BS - BUN STEAMER	KITCHEN	103	1.2	10	120	1	2A2-R	32	20	1	5-15R	
62	BS - BUN STEAMER	KITCHEN	103	1.2	10	120	1	2A2-R	33	20	1	5-15R	
63	R5 - DOUBLE DOOR COOLER	KITCHEN	103	1.3	10.5	120	1	2A2-R	35	20	1	5-15R	
64	MW - MICROWAVE	KITCHEN	103	0.9	7.5	120	1	2A2-R	26	20	1	5-15R	
65	RW - RICE WARMER	KITCHEN	103	0.1	0.8	120	1	2A2-R	27	20	1	5-20R	
66	RP - RECEIPT PRINTER	KITCHEN	103	0.2	1.8	120	1	2A2-R	28	20	1	5-15R	
67	RT5 - SANDWICH PREP TABLE	KITCHEN	103	0.3	2.8	120	1	2A2-R	29	20	1	5-15R	
68	RT6 - SANDWICH PREP TABLE	KITCHEN	103	0.3	2.8	120	1	2A2-R	30	20	1	5-15R	
69	RP - RECEIPT PRINTER	KITCHEN	103	0.2	1.8	120	1	2A2-R	31	20	1	5-15R	
70	R6 - DOUBLE DOOR COOLER	KITCHEN	103	1.3	10.5	120	1	2A2-R	37	20	1	5-15R	
71	DW - DISHWASHER	KITCHEN	103	1.5	12.5	120	1	2A2-R	38	20	1	DIRECT	
72	PF - PROOFING CABINET	KITCHEN	103	1.8	15	120	1	2A2-R	4	20	1	5-15R	
73	IM - ICE MACHINE	KITCHEN	103	1	8.4	120	1	2A2-R	8	20	1	5-15R	
74	MX6 - 60 QT. STAND MIXER	KITCHEN	103	1.1	9	208	1	2A2-R	5,7,9	20	3	L15-20R	
75	MX3 - 30 QT. STAND MIXER	KITCHEN	103	1.9	16	120	1	2A2-R	6	20	1	5-20R	
76	O1 - ELECTRIC DECK OVEN	KITCHEN	103	7.8	NA	208	1	2A2-R	12,14,16	20	3	DIRECT	
77	O2 - SMOKEHOUSE CABINET	KITCHEN	103	0.2	1.5	208	1	2A2-R	13,15,17	20	3	GFI, 5-20R	
78	WH - WATER HEATER	KITCHEN	103	-	-	120	1	2A2-R	40	20	1	DIRECT	
79	AUTODOOR	VESTIBULE	100	0.5	4.2	120	1	2A2-L	18	0	1	DIRECT	
80	AUTODOOR	VESTIBULE	100	0.5	4.2	120	1	2A2-L	18	0	1	DIRECT	
81	R7 - SINGLE DOOR COOLER	RETAIL	106	0.5	4.1	120	1	2A2-L	6	0	1	DIRECT	
82	CH - CHECKOUT CONVEYOR COUNTER	RETAIL	106	0.5	4.1	120	1	2A2-L	7	0	1	DIRECT	
83	R7 - SINGLE DOOR COOLER	RETAIL	106	0.5	4.1	120	1	2A2-L	8	0	1	DIRECT	
84	CH - CHECKOUT CONVEYOR COUNTER	RETAIL	106	0.5	4.1	120	1	2A2-L	9	0	1	DIRECT	
85	R7 - SINGLE DOOR COOLER	RETAIL	106	0.5	4.1	120	1	2A2-L	10	0	1	DIRECT	
86	CH - CHECKOUT CONVEYOR COUNTER	RETAIL	106	0.5	4.1	120	1	2A2-L	11	0	1	DIRECT	
87	R7 - SINGLE DOOR COOLER	RETAIL	106	0.5	4.1	120	1	2A2-L	12	0	1	DIRECT	
88	CH - CHECKOUT CONVEYOR COUNTER	RETAIL	106	0.5	4.1	120	1	2A2-L	13	0	1	DIRECT	
89	R7 - SINGLE DOOR COOLER	RETAIL	106	0.5	4.1	120	1	2A2-L	14	0	1	DIRECT	
90	CH - CHECKOUT CONVEYOR COUNTER	RETAIL	106	0.5	4.1	120	1	2A2-L	15	0	1	DIRECT	
91	R7 - SINGLE DOOR COOLER	RETAIL	106	0.5	4.1	120	1	2A2-L	16	0	1	DIRECT	
92	CH - CHECKOUT CONVEYOR COUNTER	RETAIL	106	0.5	4.1	120	1	2A2-L	17	0	1	DIRECT	
93	ELEC HAND DRYER	WOMEN'S	114	0.5	4.5	120	1	2A1	17	20	1	DIRECT	
94	ELEC HAND DRYER	MEN'S	115	0.5	4.5	120	1	2A1	18	20	1	DIRECT	
95	EXTERIOR STORE SIGN	EXTERIOR	------	1	8.3	120	1	2A2-L	23	20	1	DIRECT	1
96	PRODUCE COOLER	COOLER	107	1.1	9	120	1			0	1	DIRECT	4
97	PRODUCE COOLER	COOLER	107	1.1	9	120	1			0	1	DIRECT	4
98	GROCERY COOLER	COOLER	109	0.6	5.4	120	1			0	1	DIRECT	4
99	GROCERY COOLER	COOLER	109	0.6	5.4	120	1			0	1	DIRECT	4
100	SEAFOOD FREEZER	FREEZER	110	1	4.8	208	1			0	1	DIRECT	4
101	SEAFOOD FREEZER	FREEZER	110	1	4.8	208	1			0	1	DIRECT	4
102	GROCERY FREEZER	FREEZER	111	1.2	6	208	1			20	2	DIRECT	4
103	GROCERY FREEZER	FREEZER	111	1.2	6	208	1			20	2	DIRECT	4
104	SEAFOOD PREP EVAPERATOR	SEAFOOD	112	0.3	2.7	120	1			0	1	DIRECT	4
105	MEAT PREP EVAPERATOR	MEAT	120	0.6	5.4	120	1			0	1	DIRECT	4
106	MEAT PREP EVAPERATOR	MEAT	120	0.6	5.4	120	1			0	1	DIRECT	4
107	MEAT FREEZER	FREEZER	119	1.2	6	208	1			0	2	DIRECT	4
108	MEAT FREEZER	FREEZER	119	1.2	6	208	1			0	2	DIRECT	4
109	MEAT COOLER	COOLER	121	0.4	2	208	1			0	2	DIRECT	4
110	MEAT/FISH COOLER	COOLER	122	0.3	1.5	208	1			0	2	DIRECT	4
111	MEAT PREP EVAPERATOR	MEAT	123	0.3	2.7	120	1			0	1	DIRECT	4
112	REACH-IN ISLAND	RETAIL	106	4	33	120	1			0	1	DIRECT	4
113	REACH-IN ISLAND	RETAIL	106	4	33	120	1			0	1	DIRECT	4
114	REACH-IN ISLAND	RETAIL	106	4	33	120	1			0	1	DIRECT	4

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PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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DATE	REV	ISSUE
08/28/23	#	PROJECT START
09/29/23		SD | PLAN COMMISSION
10/12/23		PLAN COMMISSION COMMENTS
10/19/23		SD | PLAN COMMISSION
11/06/23		DD | PROGRESS
11/20/23		DD | OWNER REVIEW
11/29/23		DD | PROGRESS

PROJECT NUMBER	23-044
START DATE	02/08/24
DRAWN BY	DMS
CHECKED BY	KLO

ibc engineering services, inc.
WISCONSIN | ILLINOIS | FLORIDA
IBC PROJECT NO: 2023108

ELECTRICAL SCHEDULES

E6.01

2/5/2024 2:28:58 PM

Panel: 2A2-L

LOCATION: KITCHEN 103
SUPPLY FROM: T-2A2
MOUNTING: SURFACE
ENCLOSURE: NEMA1

VOLTS: 208Y/120
PHASES: 3
WIRES: 4

A.I.C. RATING: 10KAIC
MAINS TYPE: MAIN CB
MAINS RATING: 250 A
MCB RATING: 250 A

POLE NO.	POLES	AMP	DESCRIPTION	A	B	C	DESCRIPTION	AMP	POLES	POLE NO.
1	1	20	RECEPTACLES - ROOMS 101 & 102	720 / 200			HUSSMANN PANEL REMOTE ALARM - RM 101	20	1	2
3	1	20	DATA RACK - OFFICE 102		360 / 1000		EXTERIOR STORE SIGN (SPO #142) - EXTERIOR	20	1	4
5	1	20	RECEPTACLES - RETAIL 106			1080 / 492	R7 - SINGLE DOOR COOLER (SPO #18) - RM 106	20	1	6
7	1	20	CH - CHECKOUT CONVEYOR CTR - RM 106	492 / 492			R7 - SINGLE DOOR COOLER (SPO #83) - RM 106	20	1	8
9	1	20	CH - CHECKOUT CONVEYOR CTR - RM 106		492 / 492		R7 - SINGLE DOOR COOLER (SPO #85) - RM 106	20	1	10
11	1	20	CH - CHECKOUT CONVEYOR CTR - RM 106			492 / 492	R7 - SINGLE DOOR COOLER (SPO #87) - RM 106	20	1	12
13	1	20	CH - CHECKOUT CONVEYOR CTR - RM 106	492 / 492			R7 - SINGLE DOOR COOLER (SPO #89) - RM 106	20	1	14
15	1	20	CH - CHECKOUT CONVEYOR CTR - RM 106		492 / 492		R7 - SINGLE DOOR COOLER (SPO #91) - RM 106	20	1	16
17	1	20	CH - CHECKOUT CONVEYOR CTR - RM 106			492 / 1008	AUTODOORS (SPO #79 & #80) - VESTIBULE 100	20	1	18
19	1	35	EUH-1 (SPO #141) - VESTIBULE 100	1500 / 500			ELECTRIC CART - VESTIBULE 100	20	1	20
21	1	35	EUH-2 (SPO #145) - VESTIBULE 100		1500 / 500		ELECTRIC CART - VESTIBULE 100	20	1	22
23	1	20	EXTERIOR STORE SIGN (SPO #95) - EXTERIOR			1000 / 720	RECEPTACLES - CUSTOMER SERVICE 101	20	1	24
25	1	20	PRINTER - CUSTOMER SERVICE 101	1500 / 1500			PRINTER - CUSTOMER SERVICE 101	20	1	26
27	1	20	SPARE		0 / 0		SPARE	20	1	28
29	1	20	SPARE			0 / 0	SPARE	20	1	30
31	1	20	SPARE	0 / 0			SPARE	20	1	32
33	1	20	SPARE		0 / 0		SPARE	20	1	34
35	1	20	SPARE			0 / 0	SPARE	20	1	36
37	1	--	SPACE	0 / 0			SPACE	--	1	38
39	1	--	SPACE		0 / 0		SPACE	--	1	40
41	1	--	SPACE			0 / 0	SPACE	--	1	42
			PHASE TOTAL:	19892 VA	13856 VA	14284 VA				
			TOTAL LOAD:	48032 VA						

Notes:

Panel: 2A2-R

LOCATION: KITCHEN 103
SUPPLY FROM: 2A2-L
MOUNTING: SURFACE
ENCLOSURE: NEMA1

VOLTS: 208Y/120
PHASES: 3
WIRES: 4

A.I.C. RATING: 10KAIC
MAINS TYPE: MLO
MAINS RATING: 250 A
MCB RATING:

POLE NO.	POLES	AMP	DESCRIPTION	A	B	C	DESCRIPTION	AMP	POLES	POLE NO.
1	1	20	RECEPTACLES - ROOMS 106, 103	360 / 540			TVS - KITCHEN 103	20	1	2
3	1	20	PT7 - SANDWICH PREP TABLE (SPO #53) - 103		276 / 1800		PF - PROOFING CABINET (SPO #72) - RM 103	20	1	4
5						360 / 1920	MX3 - 30 QT. STAND MIXER (SPO #75) - RM 103	20	1	6
7	3	20	MX6 - 60 QT. STAND MIXER (SPO #74) - RM 103	360 / 1008			IM - ICE MACHINE (SPO #73) - KITCHEN 103	20	1	8
9					360 / 500		MX - STAND MIXER (SPO #54) - KITCHEN 103	20	1	10
11	1	20	RECEPTACLES - KITCHEN 103			540 / 2600				12
13				60 / 2600			O1 - ELECTRIC DECK OVEN (SPO #76) - RM 103	80	3	14
15	3	20	O2 - SMOKEHOUSE CABINET (SPO #77) - 103		60 / 2600					16
17						60 / 0	SHUNT TRIP FOR CIRCUIT ABOVE	--	1	18
19	1	--	SHUNT TRIP FOR CIRCUIT ABOVE	0 / 500			FIRE SUPPRESSION SYSTEM (SPO #140) - 103	20	1	20
21	1	20	RECEPTCLES - KITCHEN 103		540 / 0		SHUNT TRIP FOR CIRCUIT ABOVE	--	1	22
23	1	20	RW - RICE WARMER (SPO #58) - KITCHEN 103			100 / 276	PT8 - REF. PREP TABLE (SPO #59) - ROOM 103	20	1	24
25	1	20	WR - FOOD WARMER (SPO #60) - KITCHEN 103	1500 / 900			MW - MICROWAVE (SPO #64) - KITCHEN 103	20	1	26
27	1	20	RW - RICE WARMER (SPO #65) - KITCHEN 103		100 / 216		RP - RECEIPT PRINTER (SPO #66) - ROOM 103	20	1	28
29	1	20	RT5 - SANDWICH PREP TABLE (SPO #67) - 103			336 / 336	RT6 - SANDWICH PREP TABLE (SPO #68) - 103	20	1	30
31	1	20	RP - RECEIPT PRINTER (SPO #69) - ROOM 103	216 / 1200			BS - BUN STEAMER (SPO #61) - KITCHEN 103	20	1	32
33	1	20	BS - BUN STEAMER (SPO #62) - KITCHEN 103		1200 / 720		RECEPTACLES - ROOMS 106, 103	20	1	34
35	1	20	R5 - DOUBLE DOOR COOLER (SPO #63) - 103			1260 / 720	TVS - KITCHEN 103	20	1	36
37	1	20	R6 - DOUBLE DOOR COOLER (SPO #70) - 103	1260 / 1500			R6 - DOUBLE DOOR COOLER (SPO #71) - 103	20	1	38
39	1	20	HWRP-2 (MOTOR #19) - KITCHEN 103		156 / 0		WH - WATER HEATER (SPO #78) - KITCHEN 103	20	1	40
41	1	20	SPARE			0 / 0	SPARE	20	1	42
			PHASE TOTAL:	12004 VA	8528 VA	8508 VA				
			TOTAL LOAD:	29040 VA						

Notes:
1. PROVIDE GFI TYPE CIRCUIT BREAKER FOR CIRCUIT #8.

Panel: MDP

LOCATION: EX. ELECTRICAL ROOM 117
SUPPLY FROM: UTILITY
MOUNTING: FREE STANDING
ENCLOSURE: NEMA1

VOLTS: 480Y/277
PHASES: 3
WIRES: 4
MOUNTING SPACE:

A.I.C. RATING: 42KAIC
MAINS TYPE: MCB
BUS: 1200 A
MCB RATING: 1200 A

CIRCUIT	DESCRIPTION	LOAD KVA	LOAD FLA	BRKR POLES	BRKR AMP	REMARKS
1	SPD	--	--	3	60 A	
2	T-2A1	27 kVA	32 A	3	110 A	
3	T-2A2	48 kVA	58 A	3	110 A	
4	T-2A3	56 kVA	67 A	3	110 A	
5	T-PA	137 kVA	165 A	3	225 A	
6	T-PAR	47 kVA	56 A	3	90 A	
7	T-PB	148 kVA	178 A	3	225 A	
8	RTU-1 (MOTOR #1) - ROOF	32 kVA	39 A	3	50 A	
9	RTU-2 (MOTOR #2) - ROOF	30 kVA	36 A	3	45 A	
10	RTU-6 (MOTOR #3) - ROOF	30 kVA	36 A	3	45 A	
11	RTU-7 (MOTOR #4) - ROOF	32 kVA	39 A	3	50 A	
12	RTU-10 (MOTOR #5) - ROOF	30 kVA	36 A	3	45 A	
13	RTU-11 (MOTOR #6) - ROOF	32 kVA	39 A	3	50 A	
14	RTU-14 (MOTOR #7) - ROOF	18 kVA	22 A	3	25 A	
15	ACCU-A (SPO #131) - ROOF	14 kVA	17 A	3	25 A	
16	ACCU-B (SPO #130) - ROOF	18 kVA	22 A	3	30 A	
17	KEF-1A (MOTOR #10) - ROOF	1 kVA	2 A	3	20 A	
18	KEF-1B (MOTOR #11) - ROOF	1 kVA	2 A	3	20 A	
19	KEF-2 (MOTOR #12) - ROOF	3 kVA	4 A	3	20 A	
20	KEF-3 (MOTOR #13) - ROOF	2 kVA	3 A	3	20 A	
21	MAU-1 (MOTOR #14) - ROOF	25 kVA	30 A	3	35 A	
22	SPACE	--	--	3	--	
23	SPACE	--	--	3	--	
24	SPACE	--	--	3	--	

Notes:

Panel: 2A1

LOCATION: ELECTRIC ROOM 117
SUPPLY FROM: T-2A1
MOUNTING: SURFACE
ENCLOSURE: NEMA1

VOLTS: 208Y/120
PHASES: 3
WIRES: 4

A.I.C. RATING: 10KAIC
MAINS TYPE: MAIN CB
MAINS RATING: 150 A
MCB RATING: 150 A

POLE NO.	POLES	AMP	DESCRIPTION	A	B	C	DESCRIPTION	AMP	POLES	POLE NO.
1	1	20	RECEPTACLE - ROOMS 115, 114, 108, 113	1260 / 840			GWH-1 (SPO #8) - WAREHOUSE 108	20	1	2
3	1	20	HWRP-1 (MOTOR #18) - WAREHOUSE 108		156 / 180		FLOOR SCRUBBER - WAREHOUSE 108	20	1	4
5	2	20	MG - MEAT GRINDER (SPO #21) - MEAT 120			792 / 360	DATA RACK - MEAT 120	20	1	6
7				792 / 1584			MG - MEAT GRINDER (SPO #22) - MEAT 120	20	1	8
9	1	20	MS - MEAT SLICER (SPO #23) - MEAT 120		240 / 750		FW - FILM WRAPPER (SPO #24) - MEAT 120	20	1	10
11	1	20	FW - FILM WRAPPER (SPO #25) - MEAT 120			750 / 1092				12
13	2	20	WP - MEAT WRAPPER (SPO #26) - MEAT 120	750 / 1092			M1 - MEAT SAW (SPO #20) - MEAT 120	20	3	14
15					750 / 1092					16
17	1	20	HAND DRYER (SPO #93) - WOMEN'S 114			530 / 530	HAND DRYER (SPO #94) - MEN'S 115	20	1	18
19	1	20	EWC - PASSAGE 113	180 / 720			RECEPTACLES - ROOMS 116, 117, 118	20	1	20
21	1	20	REFRIGERATOR - BREAK ROOM 118		180 / 1000		MICROWAVE - BREAK ROOM 118	20	1	22
23	1	20	LS - LABEL PRINTING SCALE (SPO #32) - RM 123			120 / 1584	MG - MEAT GRINDER (SPO #33) - MEAT 123	20	1	24
25	1	20	MS - MEAT SLICER (SPO #34) - MEAT 123	240 / 750			FW - FILM WRAPPER (SPO #35) - MEAT 123	20	1	26
27	3	20	M1 - MEAT SAW (SPO #36) - MEAT 123		1092 / 1080		RECEPTACLES - ROOF	20	1	28
29						1092 / 1080	RECEPTACLES - ROOF	20	1	30
31				1092 / 2040			EF-1 (MOTOR #8) - ROOF	35	1	32
33	1	20	EF-4 (MOTOR #9) - ROOF		840 / 0		SPARE	20	1	34
35	1	20	SPARE			0 / 0	SPARE	20	1	36
37	1	--	SPACE	0 / 0			SPACE	--	1	38
39	1	--	SPACE		0 / 0		SPACE	--	1	40
41	1	--	SPACE			0 / 0	SPACE	--	1	42
			PHASE TOTAL:	11340 VA	7360 VA	7930 VA				
			TOTAL LOAD:	26630 VA						

Notes:
1. PROVIDE GFI TYPE CIRCUIT BREAKER FOR CIRCUITS 19 AND 21.

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08/28/23	#	PROJECT START
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10/19/23		SD | PLAN COMMISSION
11/06/23		DD | PROGRESS
11/20/23		DD | OWNER REVIEW
11/29/23		DD | PROGRESS

PROJECT NUMBER	23-044
START DATE	02/08/24
DRAWN BY	DMS
CHECKED BY	KLO

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IBC PROJECT NO: 2023108

ELECTRICAL SCHEDULES

E6.02

2/5/2024 2:28:59 PM

Panel: 2A3-L

LOCATION: WAREHOUSE 108
SUPPLY FROM: T-2A3
MOUNTING: SURFACE
ENCLOSURE: NEMA1

VOLTS: 208Y/120
PHASES: 3
WIRES: 4

A.I.C. RATING: 10KAIC
MAINS TYPE: MAIN CB
MAINS RATING: 250 A
MCB RATING: 250 A

POLE NO.	POLES	AMP	DESCRIPTION	A	B	C	DESCRIPTION	AMP	POLES	POLE NO.
1	1	20	LIGHTING - RETAIL 106	1680 / 1730			LIGHTING - RETAIL 106	20	1	2
3	1	20	LIGHTING - RETAIL 106		1404 / 1512		LIGHTING - RETAIL 106	20	1	4
5	1	20	LIGHTING - RETAIL 106			1512 / 1512	LIGHTING - RETAIL 106	20	1	6
7	1	20	LIGHTING - RETAIL 106	1371 / 1475			LIGHTING - RETAIL 106	20	1	8
9	1	20	LIGHTING - REATIL 106		1475 / 1342		LIGHTING - RETAIL 106	20	1	10
11	1	20	LIGHTING - WAREHOUSE 108 & MEZZANINE			1538 / 1332	LIGHTING - RMS 109, 110, 107, 111	20	1	12
13	1	20	LIGHTING - ROOMS 113-117, 120, 123, 118	1034 / 737			LIGHTING - ROOMS 102, 100, 101	20	1	14
15	1	20	LIGHTING - ROOMS 103, 104, 105		1089 / 750		FW - FILM WRAPPER (SPO #1) - ROOM 108	20	1	16
17	1	20	RECEPTACLES - WAREHOUSE 108			720 / 750	FW - FILM WRAPPER (SPO #2) - ROOM 108	20	1	18
19	1	20	LS - LABEL PRINTING SCALE (SPO #3) - RM 108	120 / 750			FW - FILM WRAPPER (SPO #4) - ROOM 108	20	1	20
21	1	20	FW - FILM WRAPPER (SPO #5) - ROOM 108		750 / 750		FW - FILM WRAPPER (SPO #6) - ROOM 108	20	1	22
23	1	20	UH-3 (MOTOR #15) - WAREHOUSE 108			156 / 156	UH-4 (MOTOR #16) - WAREHOUSE 108	20	1	24
25				3699 / 120			LS - LABEL PRINTING SCALE (SPO #7) - RM 108	20	1	26
27	3	70	TRASH COMPACTOR (MOTOR #17) - EXTERIOR		3699 / 750		FW - FILM WRAPPER (SPO #11) - SEAFOOD 112	20	1	28
29						3699 / 120	LS - LABEL PRINTING SCALE (SPO #12) - RM 112	20	1	30
31	1	20	SPARE	0 / 0			SPARE	20	1	32
33	1	20	SPARE		0 / 0		SPARE	20	1	34
35	1	20	SPARE			0 / 0	SPARE	20	1	36
37	1	--	SPACE	0 / 0			SPACE	--	1	38
39	1	--	SPACE		0 / 0		SPACE	--	1	40
41	1	--	SPACE			0 / 0	SPACE	--	1	42
			PHASE TOTAL:	19224 VA	18746 VA	18036 VA				
			TOTAL LOAD:	56005 VA						

Notes:

Panel: 2A3-R

LOCATION: WAREHOUSE 108
SUPPLY FROM: 2A3-L
MOUNTING: SURFACE
ENCLOSURE: NEMA1

VOLTS: 208Y/120
PHASES: 3
WIRES: 4

A.I.C. RATING: 10KAIC
MAINS TYPE: MLO
MAINS RATING: 250 A
MCB RATING:

POLE NO.	POLES	AMP	DESCRIPTION	A	B	C	DESCRIPTION	AMP	POLES	POLE NO.
1	1	20	LS - LABEL PRINTING SCALE (SPO #17) - RM 112	120 / 360			RECEPTACLES - SEAFOOD 112	20	1	2
3	1	20	LS - LABEL PRINTING SCALE (SPO #18) - RM 112		120 / 905		SW - SAW MACHINE (SPO #9) - SEAFOOD 112	20	2	4
5	1	20	LS - LABEL PRINTING SCALE (SPO #19) - RM 112			120 / 905				6
7	1	20	IM - ICE MACHINE (SPOO #10) - ROOM 112	1008 / 180			TANK FILTRATION - SEAFOOD 112	20	1	8
9	1	20	AIR WATER PUMP - SEAFOOD 112		180 / 180		RECEPTACLE - SEAFOOD 112	20	1	10
11	1	20	OVERHEAD DOOR (MOTOR #20) - ROOM 108			1176 / 500	FISH TANK - SEAFOOD 112	20	1	12
13	1	20	FISH TANK - SEAFOOD 112	500 / 500			FISH TANK - SEAFOOD 112	20	1	14
15					3840 / 0		SPARE	20	1	16
17	3	40	FORK TRUCK CHARGER (SPO #144) - RM 108			3840 / 0	SPARE	20	1	18
19				3840 / 0			SPARE	20	1	20
21	1	20	SPARE		0 / 0		SPARE	20	1	22
23	1	20	SPARE			0 / 0	SPARE	20	1	24
25	1	20	SPARE	0 / 0			SPARE	20	1	26
27	1	20	SPARE		0 / 0		SPARE	20	1	28
29	1	20	SPARE			0 / 0	SPARE	20	1	30
31	1	--	SPACE	0 / 0			SPACE	--	1	32
33	1	--	SPACE		0 / 0		SPACE	--	1	34
35	1	--	SPACE			0 / 0	SPACE	--	1	36
37	1	--	SPACE	0 / 0			SPACE	--	1	38
39	1	--	SPACE		0 / 0		SPACE	--	1	40
41	1	--	SPACE			0 / 0	SPACE	--	1	42
			PHASE TOTAL:	6508 VA	5225 VA	6541 VA				
			TOTAL LOAD:	18274 VA						

Notes:

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11/29/23		DD | PROGRESS

PROJECT NUMBER	23-044
START DATE	02/08/24
DRAWN BY	DMS
CHECKED BY	KLO

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IBC PROJECT NO: 2023108

ELECTRICAL SCHEDULES

E6.03

2/5/2024 2:28:59 PM

FEEDER SCHEDULE

ID #	AMPS	SINGLE PHASE, 2 WIRE		1 OR 3 PHASE, 3 WIRE		THREE PHASE, 4 WIRE		ALL
		CND SIZE	PHASE CONDUCTORS	CND SIZE	PHASE CONDUCTORS	CND SIZE	PHASE CONDUCTORS	EQUIP. GRD. CONDUCTOR
1	10	3/4"	(2) #12	3/4"	(3) #12	3/4"	(4) #12	#12
2	15	3/4"	(2) #12	3/4"	(3) #12	3/4"	(4) #12	#12
3	20	3/4"	(2) #12	3/4"	(3) #12	3/4"	(4) #12	#12
4	25	3/4"	(2) #10	3/4"	(3) #10	3/4"	(4) #10	#10
5	30	3/4"	(2) #10	3/4"	(3) #10	3/4"	(4) #10	#10
6	35	3/4"	(2) #8	3/4"	(3) #8	1"	(4) #8	#10
7	40	3/4"	(2) #8	3/4"	(3) #8	1"	(4) #8	#10
8	45	3/4"	(2) #6	1"	(3) #6	1"	(4) #6	#10
9	50	3/4"	(2) #6	1"	(3) #6	1"	(4) #6	#10
10	60	1"	(2) #4	1"	(3) #4	1-1/4"	(4) #4	#10
11	70	1"	(2) #4	1-1/4"	(3) #4	1-1/4"	(4) #4	#8
12	80	1"	(2) #3	1-1/4"	(3) #3	1-1/4"	(4) #3	#8
13	90	1-1/4"	(2) #2	1-1/4"	(3) #2	1-1/2"	(4) #2	#8
14	100	1-1/4"	(2) #1	1-1/4"	(3) #1	1-1/2"	(4) #1	#8
15	110	1"	(2) #1	1-1/4"	(3) #1	1-1/2"	(4) #1	#6
16	125	1-1/4"	(2) #1/0	1-1/2"	(3) #1/0	2"	(4) #1/0	#6
17	150	1-1/4"	(2) #1/0	1-1/2"	(3) #1/0	2"	(4) #1/0	#6
18	175	N / A	N / A	2"	(3) #2/0	2"	(4) #2/0	#6
19	200	N / A	N / A	2"	(3) #3/0	2"	(4) #3/0	#6
20	225	N / A	N / A	2"	(3) #4/0	2-1/2"	(4) #4/0	#4
21	250	N / A	N / A	2-1/2"	(3) 250 kcmil	3"	(4) 250 kcmil	#4
22	300	N / A	N / A	3"	(3) 350 kcmil	3"	(4) 350 kcmil	#4
23	350	N / A	N / A	3"	(3) 500 kcmil	3-1/2"	(4) 500 kcmil	#3
24	400	N / A	N / A	(2) 2"	2 SETS OF (3) #3/0	(2) 2"	2 SETS OF (4) #3/0	#3
25	450	N / A	N / A	(2) 2"	2 SETS OF (3) #4/0	(2) 2-1/2"	2 SETS OF (4) #4/0	#2
26	500	N / A	N / A	(2) 2-1/2"	2 SETS OF (3) 250 kcmil	(2) 3"	2 SETS OF (4) 250 kcmil	#2
27	600	N / A	N / A	(2) 3"	2 SETS OF (3) 350 kcmil	(2) 3"	2 SETS OF (4) 350 kcmil	#1
28	700	N / A	N / A	(2) 3"	2 SETS OF (3) 500 kcmil	(2) 3-1/2"	2 SETS OF (4) 500 kcmil	#1/0
29	800	N / A	N / A	(3) 2-1/2"	3 SETS OF (3) 300 kcmil	(3) 3"	3 SETS OF (4) 300 kcmil	#1/0
30	900	N / A	N / A	(3) 3"	3 SETS OF (3) 350 kcmil	(3) 3"	3 SETS OF (4) 350 kcmil	#2/0
31	1000	N / A	N / A	(4) 2-1/2"	4 SETS OF (3) 250 kcmil	(4) 3"	4 SETS OF (4) 250 kcmil	#2/0
32	1200	N / A	N / A	(4) 3"	4 SETS OF (3) 350 kcmil	(4) 3"	4 SETS OF (4) 350 kcmil	#3/0
33	1600	N / A	N / A	(5) 3"	5 SETS OF (3) 400 kcmil	(5) 3"	5 SETS OF (4) 400 kcmil	#4/0
34	1800	N / A	N / A	(6) 3"	6 SETS OF (3) 350 kcmil	(6) 3"	6 SETS OF (4) 350 kcmil	250 kcmil
35	2000	N / A	N / A	(6) 3"	6 SETS OF (3) 500 kcmil	(6) 3-1/2"	6 SETS OF (4) 500 kcmil	250 kcmil
36	2500	N / A	N / A	(8) 3"	8 SETS OF (3) 400 kcmil	(8) 3"	8 SETS OF (4) 400 kcmil	350 kcmil
37	3000	N / A	N / A	(8) 3"	8 SETS OF (3) 500 kcmil	(8) 3-1/2"	8 SETS OF (4) 500 kcmil	400 kcmil

SCHEDULE BASED ON NEC TABLE 310.15(B)(16), 60 DEGREE CELSIUS CONDUCTOR 100 AMPS OR LESS AND 75 DEGREE CELSIUS CONDUCTOR GREATER THAN 100 AMPS. SIZES REFERENCED ARE MINIMUM. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL CONDUCTOR SIZES TO ACCOMMODATE VOLTAGE DROP.

PLAN NOTATION:

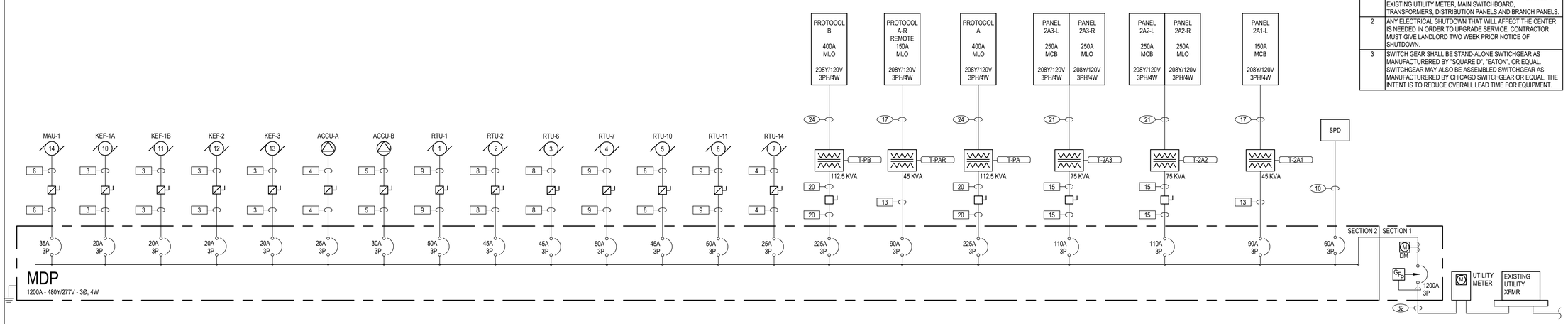
(X)—⌒ - SINGLE-PHASE, TWO-WIRE FEEDER, NUMBER IS THE FEEDER ID #

[X]—⌒ - SINGLE OR THREE-PHASE, THREE-WIRE FEEDER, NUMBER IS THE FEEDER ID #

(X)—⌒ - THREE PHASE, FOUR-WIRE FEEDER, NUMBER IS THE FEEDER ID#

SHEET NOTES

1	ALL EXISTING ELECTRICAL SERVICE EQUIPMENT SHALL BE REMOVED IN THEIR ENTIRETY INCLUDING BUT NOT LIMITED TO EXISTING UTILITY METER, MAIN SWITCHBOARD, TRANSFORMERS, DISTRIBUTION PANELS AND BRANCH PANELS.
2	ANY ELECTRICAL SHUTDOWN THAT WILL AFFECT THE CENTER IS NEEDED IN ORDER TO UPGRADE SERVICE, CONTRACTOR MUST GIVE LANDLORD TWO WEEK PRIOR NOTICE OF SHUTDOWN.
3	SWITCH GEAR SHALL BE STAND-ALONE SWTICHGEAR AS MANUFACTURERED BY "SQUARE D", "EATON", OR EQUAL. SWITCHGEAR MAY ALSO BE ASSEMBLED SWITCHGEAR AS MANUFACTURERED BY CHICAGO SWITCHGEAR OR EQUAL. THE INTENT IS TO REDUCE OVERALL LEAD TIME FOR EQUIPMENT.



1 ELECTRICAL RISER DIAGRAM

SCALE: NTS

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IBC PROJECT NO: 2023108

ELECTRICAL RISER DIAGRAM

E7.00

2/6/2024 3:35:32 PM

ELECTRICAL SPECIFICATIONS

1.1 GENERAL ELECTRICAL REQUIREMENTS

A. THE ELECTRICAL DRAWINGS DO NOT ATTEMPT TO SHOW COMPLETE DETAILS OF BUILDING CONSTRUCTION WHICH AFFECTS THE ELECTRICAL INSTALLATION. THE CONTRACTOR SHALL REFER TO THE COMPLETE SET OF PROJECT DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL DETAILS, WHICH AFFECT THE PROPER INSTALLATION OF THIS WORK.

B. THE MENTION OF ANY ARTICLE, OPERATION, OR METHOD REQUIRES THAT THE CONTRACTOR SHALL PROVIDE SAME AND PERFORM EACH OPERATION, IN COMPLETE ACCORDANCE WITH THE CONDITIONS STATED. THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, EQUIPMENT AND TRANSPORTATION AS NECESSARY TO COMPLETE THE PROJECT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS. IN GENERAL, THIS WORK INCLUDES EVERYTHING ESSENTIAL FOR A COMPLETE ELECTRICAL SYSTEM IN OPERATING ORDER AS SHOWN ON THE DRAWINGS AND AS SPECIFIED.

C. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL STATE AND LOCAL INSPECTION AUTHORITIES HAVING JURISDICTION TOGETHER WITH THE RECOMMENDATIONS OF THE MANUFACTURER WHOSE EQUIPMENT IS TO BE SUPPLIED AND INSTALLED UNDER THIS CONTRACT. THE OMISSION OF EXPRESSED REFERENCE TO ANY ITEM OF LABOR OR MATERIAL NECESSARY FOR THE PROPER EXECUTION OF THE WORK IN ACCORDANCE WITH THE PRESENT PRACTICES OF THE TRADE SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING SUCH ADDITIONAL LABOR AND MATERIALS.

D. BEFORE SUBMITTING THEIR BID, EACH BIDDER SHALL EXAMINE THE DRAWINGS RELATING TO THEIR WORK AND SHALL BECOME FULLY INFORMED AS TO THE EXTENT AND CHARACTER OF THE WORK REQUIRED AND ITS RELATION TO OTHER WORK IN THE BUILDING.

E. THE CONTRACTOR, IN CONJUNCTION WITH THE ARCHITECT, SHALL ESTABLISH EXACT LOCATIONS OF ALL MATERIALS AND EQUIPMENT TO BE INSTALLED. CONSIDERATION SHALL BE GIVEN TO CONSTRUCTION FEATURES, EQUIPMENT OF OTHER TRADES AND REQUIREMENTS OF THE EQUIPMENT PROPER.

F. ALL MATERIALS SHALL BE SUITABLY STORED AND PROTECTED PRIOR TO INSTALLATION AND ALL WORK SHALL BE PROTECTED AFTER INSTALLATION, DURING CONSTRUCTION AND PRIOR TO ACCEPTANCE.

G. THE CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR DELIVERY, ERECTION AND INSTALLATION OF ALL EQUIPMENT AND APPARATUS REQUIRED TO BE INSTALLED BY THE CONTRACTOR. ALL SUCH EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR UPON COMPLETION OF THE PROJECT.

1.2 PERMITS AND LICENSES

A. THE CONTRACTOR SHALL PREPARE AND SUBMIT ALL APPLICATIONS AND WORKING DRAWINGS, AS REQUIRED, TO AUTHORITIES HAVING JURISDICTION OVER THE PROJECT. ALL LICENSES AND PERMITS REQUIRED SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT A COPY OF ALL PERMITS SECURED TO THE OWNER.

B. PROVIDE THE OWNER WITH A WRITTEN CERTIFICATE THAT ALL PARTS OF THE ELECTRICAL SYSTEM HAVE BEEN INSPECTED AND FINAL APPROVAL HAS BEEN OBTAINED FROM THE APPROPRIATE AUTHORITY HAVING JURISDICTION.

C. PROVIDE A COPY OF THE ELECTRICAL PERMIT TO THE OWNER REPRESENTATIVE PRIOR TO PROCEEDING WITH ANY WORK.

1.3 SUBMITTALS

A. SUBMIT TO ENGINEER FOR REVIEW, THE MANUFACTURER'S SHOP DRAWINGS AND/OR EQUIPMENT BROCHURES IN QUANTITIES DETERMINED BY THE ARCHITECT FOR THE FOLLOWING

1. WIRING DEVICES.
2. SWITCHBOARDS.
3. PANELBOARDS.
4. TRANSFORMERS.
5. ENCLOSED SWITCHES AND CIRCUIT BREAKERS.
6. ENCLOSED CONTROLLERS.
7. LIGHTING FIXTURES.
8. FIRE ALARM EQUIPMENT.
9. LIGHTING CONTROL DEVICES.

B. ALL DATA SUBMITTED FOR ENGINEER'S REVIEW SHALL BE NUMBERED CONSECUTIVELY, SHALL BE NOTED TO CORRELATE WITH THE ELECTRICAL DRAWINGS, AND SHALL BEAR:

1. THE NAME AND LOCATION OF THE PROJECT.
2. THE NAME OF THE CONTRACTOR.
3. THE DATE OF SUBMITTAL.
4. THE DATE OF THE DRAWINGS AND THE DATE OF EACH CORRECTION AND REVISION
5. IF MORE THAN ONE TYPE OF LIGHTING FIXTURE (OR OTHER MATERIAL) IS ON A SUBMITTED SHEET, THE PROPOSED EQUIPMENT SHALL BE INDICATED APPROPRIATELY BY THE ELECTRICAL CONTRACTOR.
6. FAILURE TO DO THIS, MAY RESULT IN THE SUBMITTAL(S) BEING RETURNED TO THE CONTRACTOR FOR CORRECTION AND RE-SUBMISSION.
7. FAILING TO FOLLOW THESE INSTRUCTIONS DOES NOT RELIEVE THE CONTRACTOR FROM THE REQUIREMENT OF MEETING THE PROJECT SCHEDULE.

C. THE CONTRACTOR SHALL EXAMINE, STAMP AND SIGN SHOP DRAWINGS AND EQUIPMENT BROCHURES PRIOR TO SUBMISSION. THE CONTRACTOR SHALL VERIFY THAT THE MATERIALS AND EQUIPMENT DEPICTED WILL PROPERLY FIT INTO THE CONSTRUCTION. THE CONTRACTOR SHALL ALSO REVIEW ALL PREVIOUSLY COMPLETED WORK RELATED TO THE INSTALLATION OF THE EQUIPMENT DEPICTED TO ENSURE THAT IT HAS BEEN PROPERLY INSTALLED.

D. NO MATERIALS OR EQUIPMENT SUBJECT TO PRIOR REVIEW BY THE ENGINEER SHALL BE FABRICATED OR INSTALLED BY THE CONTRACTOR. THE ENGINEER'S REVIEW OF SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR DEVIATIONS FROM THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, UNLESS PRIOR APPROVAL FOR SUCH DEVIATIONS HAS BEEN GRANTED.

E. SUBMIT ADDITIONAL MATERIALS AT THE REQUEST OF THE ENGINEER.

F. THE CONTRACTOR SHALL ASSEMBLE AND SUBMIT TO THE ARCHITECT FOR SUBSEQUENT SUBMISSION TO THE OWNER, THREE COMPLETE SETS OF A MANUAL OF OPERATION AND MAINTENANCE FOR EACH OF THE ELECTRICAL AND COMMUNICATIONS SYSTEMS.

1.4 COORDINATION

A. COORDINATE CHASES, SLOTS, INSERTS, SLEEVES, AND OPENINGS WITH GENERAL CONSTRUCTION WORK AND ARRANGE IN BUILDING STRUCTURE DURING PROGRESS OF CONSTRUCTION TO FACILITATE THE ELECTRICAL INSTALLATIONS THAT FOLLOW.

1. SET INSERTS AND SLEEVES IN POURED-IN-PLACE CONCRETE, MASONRY WORK, AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.

B. SEQUENCE, COORDINATE, AND INTEGRATE INSTALLING ELECTRICAL MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. COORDINATE INSTALLING LARGE EQUIPMENT REQUIRING POSITIONING BEFORE CLOSING IN THE BUILDING.

C. THE CONTRACTOR SHALL VERIFY THAT ALL DEVICES ARE COMPATIBLE FOR THE SURFACES ON WHICH THEY WILL BE USED. THIS INCLUDES, BUT IS NOT LIMITED TO, LIGHT FIXTURES, PANELBOARDS, DEVICES AND ETC.

D. COORDINATE ALL WORK WITH OTHER CONTRACTORS/SUBCONTRACTORS PRIOR TO INSTALLATION. ANY INSTALLED WORK THAT IS NOT COORDINATED AND THAT INTERFERES WITH OTHER CONTRACTOR'S WORK SHALL BE REMOVED OR RELOCATED AT THE INSTALLING CONTRACTOR'S EXPENSE.

E. COORDINATE ELECTRICAL SERVICE CONNECTIONS TO COMPONENTS FURNISHED BY UTILITY COMPANIES.

1. COORDINATE INSTALLATION AND CONNECTION OF UTILITIES AND SERVICES, INCLUDING PROVISION FOR ELECTRICITY-METERING COMPONENTS.
2. COMPLY WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION AND OF UTILITY COMPANY PROVIDING ELECTRICAL POWER AND OTHER SERVICES.

F. COORDINATE LOCATION OF ACCESS PANELS AND DOORS FOR ELECTRICAL ITEMS THAT ARE CONCEALED BY FINISHED SURFACES.

G. WHERE ELECTRICAL IDENTIFICATION DEVICES ARE APPLIED TO FIELD-FINISHED SURFACES, COORDINATE INSTALLATION OF IDENTIFICATION DEVICES WITH COMPLETION OF FINISHED SURFACE.

H. COORDINATION MEETINGS: ATTEND COORDINATION MEETINGS WITH ALL OTHER TRADES FOR THE PURPOSE OF COORDINATING THE LOCATIONS OF ALL FIRE PROTECTION, PLUMBING, HVAC AND ELECTRICAL WORK FOR THE ENTIRE PROJECT. THE GOAL OF THESE MEETINGS IS TO AVOID CONFLICTS BETWEEN TRADES IN THE FIELD.

I. CONFLICTS BETWEEN TRADES: RESOLVE ALL CONFLICTS WITH TRADES AT NO ADDITIONAL COST TO THE OWNER OR ARCHITECT/ENGINEER.

J. CEILING HEIGHTS: MAINTAIN ALL CEILING HEIGHTS INDICATED ON THE ARCHITECTURAL DRAWINGS. CEILING HEIGHTS WILL NOT BE LOWERED TO ACCOMMODATE INSTALLATION OF FIRE PROTECTION, HVAC OR ELECTRICAL WORK. INSTALL ALL WORK SO THAT THERE IS AT LEAST EIGHT (8) INCHES CLEARANCE ABOVE THE CEILING GRID, IN ALL AREAS, TO FACILITATE INSTALLATION OF LIGHT FIXTURES. IF INSTALLED WORK DOES NOT COMPLY WITH THE CEILING HEIGHT REQUIREMENTS STATED ABOVE, THEN THE CONTRACTOR SHALL REMOVE AND RE-INSTALL WORK TO COMPLY WITH THE STATED REQUIREMENTS ABOVE AT NO ADDITIONAL COST TO THE OWNER OR ARCHITECT.

K. CEILING GRID PRIORITY: LIGHTING FIXTURE LOCATIONS TAKE PRIORITY OVER DIFFUSER AND SPRINKLER HEAD LOCATIONS.

1.5 MATERIAL AND EQUIPMENT

A. ALL MATERIAL AND EQUIPMENT SHALL BE NEW AND OF THE QUALITY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE, AND SHALL BE STANDARD PRODUCT OF REPUTABLE MANUFACTURERS. EACH MAJOR COMPONENT OF EQUIPMENT SHALL HAVE THE MANUFACTURER'S NAME, CATALOG NUMBER, AND CAPACITY OR RATING ON A NAMEPLATE, SECURELY AFFIXED ON THE EQUIPMENT IN A CONSPICUOUS PLACE.

1.6 DAMAGE TO OTHER WORK

A. THE ELECTRICAL CONTRACTOR WILL BE HELD RIGIDLY RESPONSIBLE FOR ALL DAMAGES TO THE WORK OF THEIR OWN OR ANY OTHER TRADE RESULTING FROM THE EXECUTION OF THEIR WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ADEQUATELY PROTECT THEIR WORK AT ALL TIMES. ALL DAMAGES RESULTING FROM THEIR OPERATIONS SHALL BE REPAIRED OR THE DAMAGED PORTIONS REPLACED BY THE PARTY ORIGINALLY PERFORMING THE WORK, (TO THE ENTIRE SATISFACTION OF THE ARCHITECT), AND ALL COST THEREOF SHALL BE BORNE BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.

1.7 COOPERATION WITH OTHER TRADES

A. THIS CONTRACTOR SHALL COMPLETELY COOPERATE WITH ALL OTHER TRADES IN THE MATTER OF PLANNING AND EXECUTING OF THE WORK. EVERY REASONABLE EFFORT SHALL BE MADE TO PREVENT CONFLICT AND INTERFERENCES AS TO SPACE REQUIREMENTS, DIMENSIONS, LOCATIONS, OPENINGS, SLEEVING OR OTHER MATTERS WHICH TEND TO DELAY OR OBSTRUCT THE WORK OF ANY TRADE.

1.8 NEGLIGENCE

A. SHOULD THE CONTRACTOR FAIL TO PROVIDE MATERIALS, TEMPLATES, ETC., OR OTHER NECESSARY INFORMATION CAUSING DELAY OR EXPENSE TO ANOTHER PARTY, HE SHALL PAY THE ACTUAL AMOUNT OF THE DAMAGES TO THE PARTY WHO SUSTAINED THE LOSS.

1.9 FIELD CHANGES

A. SHOULD ANY CHANGE IN DRAWINGS OR SPECIFICATIONS BE REQUIRED TO COMPLY WITH LOCAL REGULATIONS AND/OR FIELD CONDITIONS, THE CONTRACTOR SHALL REFER SAME TO ARCHITECT/ENGINEER FOR APPROVAL BEFORE ANY WORK WHICH DEVIATES FROM THE ORIGINAL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS IS STARTED. IN THE EVENT OF DISAGREEMENTS AS TO THE NECESSITY OF SUCH CHANGES, THE DECISION OF THE ARCHITECT/ENGINEER SHALL BE FINAL.

1.10 CUTTING AND PATCHING

A. PROVIDE ALL NECESSARY CUTTING AND PATCHING, AND WITH APPROVAL, TO PERMIT THE INSTALLATION OF CONDUIT OR ANY PART OF THE WORK UNDER THIS BRANCH. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COST CAUSED BY DEFECTIVE OR ILL-TIMED WORK. PATCHING OF HOLES, OPENINGS, ETC. RESULTING FROM THE WORK OF THIS BRANCH SHALL BE PROVIDED BY THIS CONTRACTOR.

1.11 TEMPORARY ELECTRIC

A. TEMPORARY ELECTRICAL SERVICES INCLUDE ALL ELECTRIC SERVICE REQUIRED UP TO THE TIME OF SUBSTANTIAL COMPLETION.

B. AS SOON AS CONTRACT IS AWARDED, ELECTRICAL CONTRACTOR WILL MAKE ALL ARRANGEMENTS FOR TEMPORARY SERVICE. A 120/240 VOLT, 200 AMPERES, SINGLE PHASE, 3 WIRE SERVICE SHALL BE EXTENDED INTO THE BUILDING AS WORK PROGRESSES AND PANELS PROVIDED AS NECESSARY TO PROVIDE A MINIMUM OF TWO WEATHERPROOF SOCKETS PER 1000 SQ. FT. OF FLOOR SPACE. SOCKETS SHALL BE UTILIZED FOR INTERIOR LIGHTING AND SMALL FRACTIONAL HP MOTORS ONLY. COST OF TEMPORARY SERVICE SHALL BE BY THE ELECTRICAL CONTRACTOR. IN ADDITION, INSTALL AND MAINTAIN LAMPS AS REQUIRED TO PROVIDE ILLUMINATION OF 1/4 WATT PER SQ. FT. THROUGHOUT, OR AS REQUIRED BY ANY CODES OR ORDINANCES. MAINTAIN AND REPLACE ALL DEFECTIVE SOCKETS, FUSES AND WIRING. REMOVE TEMPORARY INSTALLATION UPON COMPLETION OF PERMANENT SERVICE. ALL TEMPORARY WIRING SHALL CONFORM ALL APPLICABLE CODES INCLUDING NEC AND OSHA.

C. INSTALL PERMANENT SERVICE AS SOON AS PRACTICAL.

D. ALL CONTRACTORS SHALL PROVIDE AND MAINTAIN THEIR OWN EXTENSION CORDS AND ADDITIONAL LAMPS AS REQUIRED TO PERFORM THEIR WORK PROPERLY.

2.1 COPPER BUILDING WIRE

A. AVAILABLE MANUFACTURERS: BASIS OF DESIGN: SOUTHWIRE COMPANY

B. DESCRIPTION: FLEXIBLE, INSULATED AND UNINSULATED, DRAWN COPPER CURRENT-CARRYING CONDUCTOR WITH AN OVERALL INSULATION LAYER OR JACKET, OR BOTH, RATED 600 V OR LESS.

C. STANDARDS:

1. LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE.
2. RESTRICTION OF HAZARDOUS SUBSTANCE DIRECTIVE COMPLIANT.
3. CONDUCTOR AND CABLE MARKING: COMPLY WITH WIRE AND CABLE MARKING ACCORDING TO UL'S "WIRE AND CABLE MARKING AND APPLICATION GUIDE."

C. CONDUCTORS: COPPER, COMPLYING WITH ASTM-B-3 FOR BARE ANNEALED COPPER AND WITH ASTM-B-8 FOR STRANDED CONDUCTORS.

D. CONDUCTOR INSULATION AND WIRING METHODS:

1. SERVICE ENTRANCE: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.
2. EXPOSED FEEDERS: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.
3. FEEDERS CONCEALED IN CEILINGS, WALLS, PARTITIONS, AND CRAWLSPACES: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.
4. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.
5. FEEDERS INSTALLED BELOW RAISED FLOORING: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.
6. EXPOSED BRANCH CIRCUITS, INCLUDING IN CRAWLSPACES: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.
7. BRANCH CIRCUITS CONCEALED IN CEILINGS, WALLS, AND PARTITIONS: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.
8. BRANCH CIRCUITS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN/THWN-2, SINGLE CONDUCTORS IN RACEWAY.

E. INSTALLATION

1. USE CONDUCTORS NOT SMALLER THAN 12 AWG FOR POWER AND LIGHTING CIRCUITS.

3.1 GROUNDING AND BONDING

A. INSULATED CONDUCTORS: COPPER WIRE OR CABLE INSULATED FOR 600 V UNLESS OTHERWISE REQUIRED BY APPLICABLE CODE OR AUTHORITIES HAVING JURISDICTION.

B. BARE COPPER CONDUCTORS:

1. SOLID CONDUCTORS: ASTM-B-3.
2. STRANDED CONDUCTORS: ASTM-B-8.
3. TINNED CONDUCTORS: ASTM-B-33.
4. BONDING CABLE: 28 KCMIL, 14 STRANDS OF NO. 17 AWG CONDUCTOR, 1/4 INCH (6 MM) IN DIAMETER.
5. BONDING CONDUCTOR: NO. 4 OR NO. 6 AWG, STRANDED CONDUCTOR.
6. BONDING JUMPER: COPPER TAPE, BRAIDED CONDUCTORS TERMINATED WITH COPPER FERRULES; 1-5/8 INCHES (41 MM) WIDE AND 1/16 INCH (1.6 MM) THICK.
7. TINNED BONDING JUMPER: TINNED-COPPER TAPE, BRAIDED CONDUCTORS TERMINATED WITH COPPER FERRULES; 1-5/8 INCHES (41 MM) WIDE AND 1/16 INCH (1.6 MM) THICK.

C. GROUNDING BUS: PREDRILLED RECTANGULAR BARS OF ANNEALED COPPER, 1/4 BY 6 INCHES (6.3 BY 100 MM) IN CROSS SECTION, WITH 9/32-INCH (7.14-MM) HOLES SPACED 1-1/8 INCHES (28 MM) APART, UNLESS IDENTIFIED OTHERWISE. STAND-OFF INSULATORS FOR MOUNTING SHALL COMPLY WITH UL 891 FOR USE IN SWITCHBOARDS, 600 V AND SHALL BE LEXAN OR PVC, IMPULSE TESTED AT 5000 V.

3.2 EQUIPMENT GROUNDING

A. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH THE FOLLOWING ITEMS, IN ADDITION TO THOSE REQUIRED BY NFPA 70:

1. FEEDERS AND BRANCH CIRCUITS.
2. LIGHTING CIRCUITS.
3. RECEPTACLE CIRCUITS.
4. SINGLE-PHASE MOTOR AND APPLIANCE BRANCH CIRCUITS.
5. THREE-PHASE MOTOR AND APPLIANCE BRANCH CIRCUITS.
6. FLEXIBLE RACEWAY RUNS.

3.3 GROUNDING AND BONDING INSTALLATION

A. BONDING STRAPS AND JUMPERS: INSTALL IN LOCATIONS ACCESSIBLE FOR INSPECTION AND MAINTENANCE EXCEPT WHERE ROUTED THROUGH SHORT LENGTHS OF CONDUIT.

1. BONDING TO STRUCTURE: BOND STRAPS DIRECTLY TO BASIC STRUCTURE, TAKING CARE NOT TO PENETRATE ANY ADJACENT PARTS.
2. BONDING TO EQUIPMENT MOUNTED ON VIBRATION ISOLATION HANGERS AND SUPPORTS: INSTALL BONDING SO VIBRATION IS NOT TRANSMITTED TO RIGIDLY MOUNTED EQUIPMENT.
3. USE EXOTHERMIC-WELDED CONNECTORS FOR OUTDOOR LOCATIONS; IF A DISCONNECT-TYPE CONNECTION IS REQUIRED, USE A BOLTED CLAMP.

B. GROUNDING AND BONDING FOR PIPING:

1. METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING. CONNECT GROUNDING CONDUCTORS TO MAIN METAL WATER SERVICE PIPES; USE A BOLTED CLAMP CONNECTOR OR BOLT A LUG-TYPE CONNECTOR TO A PIPE FLANGE BY USING ONE OF THE LUG BOLTS OF THE FLANGE. WHERE A DIELECTRIC MAIN WATER FITTING IS INSTALLED, CONNECT GROUNDING CONDUCTOR ON STREET SIDE OF FITTING. BOND METAL GROUNDING CONDUCTOR CONDUIT OR SLEEVE TO CONDUCTOR AT EACH END.
2. WATER METER PIPING: USE BRAIDED-TYPE BONDING JUMPERS TO ELECTRICALLY BYPASS WATER METERS. CONNECT TO PIPE WITH A BOLTED CONNECTOR.
3. BOND EACH ABOVEGROUND PORTION OF GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE.

C. BONDING INTERIOR METAL DUCTS: BOND METAL AIR DUCTS TO EQUIPMENT GROUNDING CONDUCTORS OF ASSOCIATED FANS, BLOWERS, ELECTRIC HEATERS, AND AIR CLEANERS. INSTALL BONDING JUMPER TO BOND ACROSS FLEXIBLE DUCT CONNECTIONS TO ACHIEVE CONTINUITY.

D. GROUNDING FOR STEEL BUILDING STRUCTURE: INSTALL A DRIVEN GROUND ROD AT BASE OF EACH CORNER COLUMN AND AT INTERMEDIATE EXTERIOR COLUMNS AT DISTANCES NOT MORE THAN 60 FEET (18 M) APART.

4.1 HANGERS AND SUPPORTS

A. COMPLY WITH THE FOLLOWING STANDARDS FOR APPLICATION AND INSTALLATION REQUIREMENTS OF HANGERS AND SUPPORTS, EXCEPT WHERE REQUIREMENTS ON DRAWINGS OR IN THIS SECTION ARE STRICTER:

1. NECA 1.
2. NECA 101
3. NECA 102.
4. NECA 105.
5. NECA 111.

B. RACEWAY SUPPORT METHODS: IN ADDITION TO METHODS DESCRIBED IN NECA 1, EMT, IMC, AND RMC, MAY BE SUPPORTED BY OPENINGS THROUGH STRUCTURE MEMBERS, ACCORDING TO NFPA 70.

C. STRENGTH OF SUPPORT ASSEMBLIES: WHERE NOT INDICATED, SELECT SIZES OF COMPONENTS SO STRENGTH WILL BE ADEQUATE TO CARRY PRESENT AND FUTURE STATIC LOADS WITHIN SPECIFIED LOADING LIMITS. MINIMUM STATIC DESIGN LOAD USED FOR STRENGTH DETERMINATION SHALL BE WEIGHT OF SUPPORTED COMPONENTS PLUS 200 LB (90 KG).

D. MOUNTING AND ANCHORAGE OF SURFACE-MOUNTED EQUIPMENT AND COMPONENTS: ANCHOR AND FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTS TO BUILDING STRUCTURAL ELEMENTS BY THE FOLLOWING METHODS UNLESS OTHERWISE INDICATED BY CODE:

1. TO WOOD: FASTEN WITH LAG SCREWS OR THROUGH BOLTS.
2. TO NEW CONCRETE: BOLT TO CONCRETE INSERTS.
3. TO MASONRY: APPROVED TOGGLE-TYPE BOLTS ON HOLLOW MASONRY UNITS AND EXPANSION ANCHOR FASTENERS ON SOLID MASONRY UNITS.
4. TO EXISTING CONCRETE: EXPANSION ANCHOR FASTENERS.
5. INSTEAD OF EXPANSION ANCHORS, POWDER-ACTUATED DRIVEN THREADED STUDS PROVIDED WITH LOCK WASHERS AND NUTS MAY BE USED IN EXISTING STANDARD-WEIGHT CONCRETE 4 INCHES (100 MM) THICK OR GREATER. DO NOT USE FOR ANCHORAGE TO LIGHTWEIGHT-AGGREGATE CONCRETE OR FOR SLABS LESS THAN 4 INCHES (100 MM) THICK.
6. TO STEEL: WELDED THREADED STUDS COMPLYING WITH AWS D1.1/D1.1M, WITH LOCK WASHERS AND NUTS. [BEAM CLAMPS (MSS TYPE 19,21,23,25, OR 27) COMPLYING WITH MSS SP-69]
7. TO LIGHT STEEL: SHEET METAL SCREWS.
8. ITEMS MOUNTED ON HOLLOW WALLS AND NONSTRUCTURAL BUILDING SURFACES: MOUNT CABINETS, PANELBOARDS, DISCONNECT SWITCHES, CONTROL ENCLOSURES, PULL AND JUNCTION BOXES, TRANSFORMERS, AND OTHER DEVICES ON SLOTTED-CHANNEL RACKS ATTACHED TO SUBSTRATE.

E. DRILL HOLES FOR EXPANSION ANCHORS IN CONCRETE AT LOCATIONS AND TO DEPTHS THAT AVOID THE NEED FOR REINFORCING BARS.

5.1 CONCRETE BASES

A. CONSTRUCT CONCRETE BASES OF DIMENSIONS INDICATED, BUT NOT LESS THAN 4 INCHES (100 MM) LARGER IN BOTH DIRECTIONS THAN SUPPORTED UNIT, AND SO ANCHORS WILL BE A MINIMUM OF 10 BOLT DIAMETERS FROM EDGE OF THE BASE.

B. USE 3000-PSI (20.7-MPA), 28-DAY COMPRESSIVE-STRENGTH CONCRETE. CONCRETE MATERIALS, REINFORCEMENT, AND PLACEMENT REQUIREMENTS AS SPECIFIED.

C. ANCHOR EQUIPMENT TO CONCRETE BASE AS FOLLOWS:

1. PLACE AND SECURE ANCHORAGE DEVICES. USE SUPPORTED EQUIPMENT MANUFACTURER'S SETTING DRAWINGS, TEMPLATES, DIAGRAMS, INSTRUCTIONS, AND DIRECTIONS FURNISHED WITH ITEMS TO BE EMBEDDED.
2. INSTALL ANCHOR BOLTS TO ELEVATIONS REQUIRED FOR PROPER ATTACHMENT TO SUPPORTED EQUIPMENT.
3. INSTALL ANCHOR BOLTS ACCORDING TO ANCHOR-BOLT MANUFACTURER'S WRITTEN INSTRUCTIONS.

6.1 RACEWAY APPLICATION

A. OUTDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW UNLESS OTHERWISE INDICATED:

1. EXPOSED CONDUIT: GRC.
2. CONCEALED CONDUIT, ABOVEGROUND: GRC.
3. UNDERGROUND CONDUIT: RNC, TYPE EPC-40-PVC.
4. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): LFMC.
5. BOXES AND ENCLOSURES, ABOVEGROUND: NEMA 250, TYPE 3R, UNLESS OTHERWISE INDICATED.

B. INDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW UNLESS OTHERWISE INDICATED:

1. EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: EMT.
2. EXPOSED, NOT SUBJECT TO SEVERE PHYSICAL DAMAGE: EMT.
3. EXPOSED AND SUBJECT TO SEVERE PHYSICAL DAMAGE: GRC.
4. CONCEALED IN CEILINGS AND INTERIOR WALLS AND PARTITIONS: EMT.
5. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS.
6. DAMP OR WET LOCATIONS: GRC.
7. BOXES AND ENCLOSURES: NEMA 250, TYPE 1, EXCEPT USE NEMA 250, TYPE 4 STAINLESS STEEL IN INSTITUTIONAL AND COMMERCIAL KITCHENS AND DAMP OR WET LOCATIONS.

C. MINIMUM RACEWAY SIZE: 1/2-INCH (16-MM) (21-MM) TRADE SIZE.

D. RACEWAY FITTINGS: COMPATIBLE WITH RACEWAYS AND SUITABLE FOR USE AND LOCATION.

1. RIGID AND INTERMEDIATE STEEL CONDUIT: USE THREADED RIGID STEEL CONDUIT FITTINGS UNLESS OTHERWISE INDICATED. COMPLY WITH NEMA FB 2.10.
2. PVC EXTERNALLY COATED, RIGID STEEL CONDUITS: USE ONLY FITTINGS LISTED FOR USE WITH THIS TYPE OF CONDUIT. PATCH AND SEAL ALL JOINTS, NICKS, AND SCRAPES IN PVC COATING AFTER INSTALLING CONDUITS AND FITTINGS. USE SEALANT RECOMMENDED BY FITTING MANUFACTURER AND APPLY IN THICKNESS AND NUMBER OF COATS RECOMMENDED BY MANUFACTURER.
3. EMT: USE SETSCREW OR COMPRESSION, STEEL FITTINGS. COMPLY WITH NEMA FB 2.10.
4. FLEXIBLE CONDUIT: USE ONLY FITTINGS LISTED FOR USE WITH FLEXIBLE CONDUIT. COMPLY WITH NEMA FB 2.20.

E. INSTALL NONFERROUS CONDUIT OR TUBING FOR CIRCUITS OPERATING ABOVE 60 HZ. WHERE ALUMINUM RACEWAYS ARE INSTALLED FOR SUCH CIRCUITS AND PASS THROUGH CONCRETE, INSTALL IN NONMETALLIC SLEEVE.

F. DO NOT INSTALL ALUMINUM CONDUITS, BOXES, OR FITTINGS IN CONTACT WITH CONCRETE OR EARTH.

6.2 METAL WIREWAYS AND AUXILIARY GUTTERS

A. DESCRIPTION: SHEET METAL, COMPLYING WITH UL 870 AND NEMA 250, TYPE 1 UNLESS OTHERWISE INDICATED, AND SIZED ACCORDING TO NFPA 70.

1. METAL WIREWAYS INSTALLED OUTDOORS SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.

B. FITTINGS AND ACCESSORIES: INCLUDE COVERS, COUPLINGS, OFFSETS, ELBOWS, EXPANSION JOINTS, ADAPTERS, HOLD-DOWN STRAPS, END CAPS, AND OTHER FITTINGS TO MATCH AND MATE WITH WIREWAYS AS REQUIRED FOR COMPLETE SYSTEM.

C. WIREWAY COVERS: SCREW-COVER OR HINGED TYPE UNLESS OTHERWISE INDICATED.

D FINISH: MANUFACTURER'S STANDARD ENAMEL FINISH.

6.3 SURFACE RACEWAYS

A. LISTING AND LABELING: SURFACE RACEWAYS AND TELE-POWER POLES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.

B. SURFACE METAL RACEWAYS: GALVANIZED STEEL WITH SNAP-ON COVERS COMPLYING WITH UL 5. MANUFACTURER'S STANDARD ENAMEL FINISH IN COLOR SELECTED BY ARCHITECT.

C. TELE-POWER POLES:

1. MATERIAL: GALVANIZED STEEL WITH IVORY BAKED-ENAMEL FINISH.
2. FITTINGS AND ACCESSORIES: DIVIDERS, END CAPS, COVERS, CUTOUTS, WIRING HARNESSES, DEVICES, MOUNTING MATERIALS, AND OTHER FITTINGS SHALL MATCH AND MATE WITH TELE-POWER POLE AS REQUIRED FOR COMPLETE SYSTEM.

6.4 BOXES, ENCLOSURES, AND CABINETS

A. GENERAL REQUIREMENTS FOR BOXES, ENCLOSURES, AND CABINETS: BOXES, ENCLOSURES, AND CABINETS INSTALLED IN WET LOCATIONS SHALL BE LISTED FOR USE IN WET LOCATIONS.

B. SHEET METAL OUTLET AND DEVICE BOXES: COMPLY WITH NEMA OS 1 AND UL 514A.

C. CAST-METAL OUTLET AND DEVICE BOXES: COMPLY WITH NEMA FB 1, FERROUS ALLOY, TYPE FD, WITH GASKETED COVER.

D. NONMETALLIC OUTLET AND DEVICE BOXES: COMPLY WITH NEMA OS 2 AND UL 514C.

E. METAL FLOOR BOXES:

1. MATERIAL: CAST METAL.
2. TYPE: FULLY ADJUSTABLE.
3. SHAPE: RECTANGULAR.
4. LISTING AND LABELING: METAL FLOOR BOXES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.

F. LUMINAIRE OUTLET BOXES: NONADJUSTABLE, DESIGNED FOR ATTACHMENT OF LUMINAIRE WEIGHING 50 LB (23 KG). OUTLET BOXES DESIGNED FOR ATTACHMENT OF LUMINAIRES WEIGHING MORE THAN 50 LB (23 KG) SHALL BE LISTED AND MARKED FOR THE MAXIMUM ALLOWABLE WEIGHT.

7.1 SLEEVES

A. WALL SLEEVES:

1. STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, ZINC COATED, PLAIN ENDS.
2. CAST-IRON PIPE SLEEVES: CAST OR FABRICATED "WALL PIPE," EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL WATERSTOP UNLESS OTHERWISE INDICATED.

SLEEVES FOR CONDUITS PENETRATING NON-FIRE-RATED GYPSUM BOARD

ASSEMBLIES: GALVANIZED-STEEL SHEET; 0.0239-INCH (0.6-MM) MINIMUM

THICKNESS; ROUND TUBE CLOSED WITH WELDED LONGITUDINAL JOINT, WITH

TABS FOR SCREW-FASTENING THE SLEEVE TO THE BOARD.

SLEEVES FOR RECTANGULAR OPENINGS:

1. MATERIAL: GALVANIZED SHEET STEEL.
2. MINIMUM METAL THICKNESS:
   a) FOR SLEEVE CROSS-SECTION RECTANGLE PERIMETER LESS THAN 50 INCHES (1270 MM) AND WITH NO SIDE LARGER THAN 16 INCHES (400 MM), THICKNESS SHALL BE 0.052 INCH (1.3 MM).
   b) FOR SLEEVE CROSS-SECTION RECTANGLE PERIMETER 50 INCHES (1270 MM) OR MORE AND ONE OR MORE SIDES LARGER THAN 16 INCHES (400 MM), THICKNESS SHALL BE 0.138 INCH (3.5 MM).

8.1 ELECTRICAL IDENTIFICATION COLOR AND LEGEND REQUIREMENTS

A. RACEWAYS AND CABLES CARRYING CIRCUITS AT 600 V OR LESS:

1. BLACK LETTERS ON AN ORANGE FIELD.
2. LEGEND: INDICATE VOLTAGE.

B. COLOR-CODING FOR PHASE- AND VOLTAGE-LEVEL IDENTIFICATION, 600 V OR LESS: USE COLORS LISTED BELOW FOR UNGROUNDED CONDUCTORS.

1. COLOR SHALL BE FACTORY APPLIED.
2. COLORS FOR 208/120-V CIRCUITS:
   a) PHASE A: BLACK.
   b) PHASE B: RED.
   c) PHASE C: BLUE.
3. COLORS FOR 480/277-V CIRCUITS:
   a) PHASE A: BROWN.
   b) PHASE B: ORANGE.
   c) PHASE C: YELLOW.
4. COLOR FOR NEUTRAL: WHITE FOR 120 VOLT, GRAY FOR 277 VOLT.
5. COLOR FOR EQUIPMENT GROUNDS: GREEN.
6. COLORS FOR ISOLATED GROUNDS: GREEN WITH WHITE STRIPE.

C. EQUIPMENT IDENTIFICATION LABELS:

1. BLACK LETTERS ON A WHITE FIELD.

8.2 INSTALLATION

A. UNDERGROUND LINE WARNING TAPE:

1. DURING BACKFILLING OF TRENCHES, INSTALL CONTINUOUS UNDERGROUND-LINE WARNING TAPE DIRECTLY ABOVE CABLE OR RACEWAY AT 6 TO 8 INCHES (150 TO 200 MM) BELOW FINISHED GRADE. USE MULTIPLE TAPES WHERE WIDTH OF MULTIPLE LINES INSTALLED IN A COMMON TRENCH EXCEEDS 16 INCHES (400 MM) OVERALL.

LIMIT USE OF UNDERGROUND-LINE WARNING TAPE TO DIRECT-BURIED CABLES.

2. INSTALL UNDERGROUND-LINE WARNING TAPE FOR DIRECT-BURIED CABLES AND CABLES IN RACEWAYS.
3. INSTALL DETECTABLE UNDERGROUND-LINE WARNING TAPE WHERE PVC RACEWAYS ARE USED.

B. FLOOR MARKING TAPE: APPLY BLACK/YELLOW STRIPES TO FINISHED SURFACES FOLLOWING MANUFACTURER'S WRITTEN INSTRUCTIONS.

C. SYSTEM IDENTIFICATION FOR RACEWAYS AND CABLES UNDER 600 V: IDENTIFICATION SHALL COMPLETELY ENCIRCLE CABLE OR CONDUIT. PLACE IDENTIFICATION OF TWO-COLOR MARKINGS IN CONTACT, SIDE BY SIDE.

1. SECURE TIGHT TO SURFACE OF CONDUCTOR, CABLE, OR RACEWAY.

D. SELF-ADHESIVE LABELS:

1. ON EACH ITEM, INSTALL UNIQUE DESIGNATION LABEL THAT IS CONSISTENT WITH WIRING DIAGRAMS, SCHEDULES, AND OPERATION AND MAINTENANCE MANUAL.
2. UNLESS OTHERWISE INDICATED, PROVIDE A SINGLE LINE OF TEXT WITH (13-MM-) HIGH LETTERS ON 1-1/2-INCH- (38-MM-) HIGH LABEL; WHERE TWO LINES OF TEXT ARE REQUIRED, USE LABELS 2 INCHES (50 MM) HIGH.

E. EQUIPMENT IDENTIFICATION LABELS:

1. INDOOR EQUIPMENT: LAMINATED ACRYLIC OR MELAMINE PLASTIC SIGN.
2. OUTDOOR EQUIPMENT: LAMINATED ACRYLIC OR MELAMINE SIGN
3. EQUIPMENT TO BE LABELED:

PANELBOARDS: TYPEWRITTEN DIRECTORY OF CIRCUITS IN THE LOCATION

PROVIDED BY PANELBOARD MANUFACTURER. PANELBOARD IDENTIFICATION

SHALL BE IN THE FORM OF AN ENGRAVED, LAMINATED ACRYLIC OR

MELAMINE LABEL.

4. ENCLOSURES AND ELECTRICAL CABINETS.
5. SWITCHGEAR, SWITCHBOARDS, MOTOR-CONTROL CENTERS
6. TRANSFORMERS: LABEL THAT INCLUDES TAG DESIGNATION INDICATED ON DRAWINGS FOR THE TRANSFORMER, FEEDER, AND PANELBOARDS OR EQUIPMENT SUPPLIED BY THE SECONDARY.
7. ENCLOSED SWITCHES AND CIRCUIT BREAKERS.
8. ENCLOSED CONTROLLERS.
9. VARIABLE-SPEED CONTROLLERS.
10. POWER-GENERATING UNITS.
11. AUTOMATIC TRANSFER SWITCHES.

9.1 LIGHTING CONTROL DEVICES

A. ELECTRONIC TIME CLOCK: SOLID STATE, PROGRAMMABLE, WITH ALPHANUMERIC DISPLAY; COMPLYING WITH UL 917.

1. LISTED AND LABELED AS DEFINED IN NFPA 70 AND MARKED FOR INTENDED LOCATION AND APPLICATION.
2. CONTACT CONFIGURATION: AS INDICATED.
3. CONTACT RATING: 20-A LOAD, 120-/240-277-V AC.
4. PROGRAMS: EIGHT ON-OFF SET POINTS ON A 24-HOUR SCHEDULE AND AN ANNUAL HOLIDAY SCHEDULE THAT OVERRIDES THE WEEKLY OPERATION ON HOLIDAYS, OR AS OTHERWISE IDENTIFIED.
5. CIRCUITRY: ALLOW CONNECTION OF A PHOTOELECTRIC RELAY AS SUBSTITUTE FOR ON-OFF FUNCTION OF A PROGRAM ON SELECTED CHANNELS.
6. ASTRONOMIC TIME: ALL CHANNELS.
7. AUTOMATIC DAYLIGHT SAVINGS TIME CHANGEOVER ALL CHANNELS.
8. BATTERY BACKUP: NOT LESS THAN SEVEN DAYS RESERVE, TO MAINTAIN SCHEDULES AND TIME CLOCK.

B. OUTDOOR PHOTOELECTRIC SWITCHES: SOLID STATE, WITH DRY CONTACTS RATED FOR INDICATED USE, TO OPERATE CONNECTED RELAY, CONTACTOR COILS, OR MICROPROCESSOR INPUT; COMPLYING WITH UL 773A, AND COMPATIBLE WITH BALLASTS AND LED LAMPS.

1. LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
2. LIGHT-LEVEL MONITORING RANGE: 1.5 TO 10 FC (16.14 TO 108 LUX), WITH AN ADJUSTMENT FOR TURN-ON AND TURN-OFF LEVELS WITHIN THAT RANGE, AND A DIRECTIONAL LENS IN FRONT OF THE PHOTOCELL TO PREVENT FIXED LIGHT SOURCES FROM CAUSING TURN-OFF].
3. TIME DELAY: THIRTY-SECOND MINIMUM, TO PREVENT FALSE OPERATION.
4. SURGE PROTECTION: METAL-OXIDE VARISTOR.
5. LIGHTING ARRESTER: AIR-GAP TYPE.
6. MOUNTING::
   a) TWIST LOCK COMPLIES WITH NEMA C136.10, WITH BASE-AND-STEM MOUNTING OR STEM-AND-SWIVEL MOUNTING ACCESSORIES AS REQUIRED TO DIRECT SENSOR TO THE NORTH SKY EXPOSURE.
   b) TWIST LOCK COMPLYING WITH NEMA C136.10, WITH BASE, ON LUMINAIRE
7. FAILURE MODE: LUMINAIRE STAYS ON.
8. POWER PACK: DRY CONTACTS RATED FOR LOAD AT 120- AND 277-V AC. SENSOR HAS 24-V DC, 150-MA, CLASS 2 POWER SOURCE, AS DEFINED BY NFPA 70.
   a) LED STATUS LIGHTS TO INDICATE LOAD STATUS.
   b) PLENUM RATED.

C. DUAL-TECHNOLOGY TYPE INDOOR OCCUPANCY AND VACANCY SENSORS: MOUNTED AS INDICATED; DETECT OCCUPANTS IN COVERAGE AREA USING PIR AND ULTRASONIC DETECTION METHODS. THE PARTICULAR TECHNOLOGY OR COMBINATION OF TECHNOLOGIES THAT CONTROL ON-OFF FUNCTIONS IS SELECTABLE IN THE FIELD BY OPERATING CONTROLS ON UNIT.

1. SENSITIVITY ADJUSTMENT: SEPARATE FOR EACH SENSING TECHNOLOGY.
2. DETECTOR SENSITIVITY: DETECT OCCURRENCES OF 6-INCH- (150-MM-) MINIMUM MOVEMENT OF ANY PORTION OF A HUMAN BODY THAT PRESENTS A TARGET OF NOT LESS THAN 36 SQ. IN. (232 SQ. CM), AND DETECT A PERSON OF AVERAGE SIZE AND WEIGHT MOVING NOT LESS THAN 12 INCHES (305 MM) IN EITHER A HORIZONTAL OR A VERTICAL MANNER AT AN APPROXIMATE SPEED OF 12 INCHES/S (305 MM/S).
3. DETECTION COVERAGE (STANDARD ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 1000 SQ. FT. (93 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
4. DETECTION COVERAGE (ROOM, WALL MOUNTED): DETECT OCCUPANCY ANYWHERE WITHIN A 180-DEGREE PATTERN CENTERED ON THE SENSOR OVER AN AREA OF 2000 SQUARE FEET (220 SQUARE METERS) (330 SQUARE METERS) WHEN MOUNTED 48 INCHES (1200 MM) ABOVE FINISHED

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6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
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DATE	REV	ISSUE
08/28/23	#	PROJECT START
09/29/23		SD | PLAN COMMISSION
10/12/23		PLAN COMMISSION COMMENTS
10/19/23		SD | PLAN COMMISSION
11/06/23		DD | PROGRESS
11/20/23		DD | OWNER REVIEW
11/29/23		DD | PROGRESS

PROJECT NUMBER	23-044
START DATE	02/08/24
DRAWN BY	DMS
CHECKED BY	KLO

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IBC PROJECT NO: 2023108

ELECTRICAL SPECIFICATIONS

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ELECTRICAL SPECIFICATIONS

10.1 TRANSFORMERS

A. AVAILABLE MANUFACTURERS: BASIS OF DESIGN: SQUARE D, SCHNEIDER ELECTRIC.

1. DRY- TYPE ENERGY EFFICIENT TRANSFORMERS PER NEMA TP-1 WITH PRIMARY AND SECONDARY VOLTAGES OF 600V AND LESS CAPACITY RATINGS 15 KVA THRU 750 KVA. COMPLY WITH NEMA ST 20, AND LIST AND LABEL AS COMPLYING WITH UL 506 OR UL 1561.

B. DESCRIPTION: FACTORY-ASSEMBLED AND -TESTED, AIR-COOLED UNITS FOR 60-HZ SERVICE.

C. CORES: GRAIN-ORIENTED, NON-AGING SILICON STEEL.

D. COILS: CONTINUOUS WINDINGS WITHOUT SPLICES, EXCEPT FOR TAPS.

1. INTERNAL COIL CONNECTIONS: BRAZED OR PRESSURE TYPE.

E. COIL MATERIAL: COPPER.

11.1 SWITCHBOARDS

A. AVAILABLE MANUFACTURERS: BASIS OF DESIGN: SQUARE D, SCHNEIDER ELECTRIC.

B. FRONT-CONNECTED, FRONT-ACCESSIBLE SWITCHBOARD: FIXED, INDIVIDUALLY MOUNTED MAIN DEVICE, PANEL-MOUNTED. BOLT-ON BRANCHES. THROUGH 1200A, AND SECTIONS FRONT AND REAR ALIGNED.

C. NOMINAL SYSTEM VOLTAGE: 480Y/277V

D. MAIN-BUS CONTINUOUS: SEE DRAWINGS

E. ENCLOSURE: STEEL, NEMA 250, AND UL 891, TYPE 1.

F. ENCLOSURE FINISH FOR INDOOR UNITS: FACTORY-APPLIED FINISH IN MANUFACTURER'S STANDARD GRAY FINISH OVER A RUST-INHIBITING PRIMER ON TREATED METAL SURFACE.

G. BUSES AND CONNECTIONS: THREE PHASE, FOUR WIRE, UNLESS OTHERWISE INDICATED.

1. PHASE- AND NEUTRAL-BUS MATERIAL: HARD-DRAWN COPPER OF 98 PERCENT CONDUCTIVITY WITH FEEDER CIRCUIT-BREAKER LINE CONNECTIONS.
2. GROUND BUS: SIZED PER NFPA 70 AND UL 891 TABLES 28.1 AND 28.2. HARD-DRAWN COPPER OF 98 PERCENT CONDUCTIVITY, EQUIPPED WITH PRESSURE CONNECTORS FOR FEEDER AND BRANCH-CIRCUIT GROUND CONDUCTORS. FOR BUSWAY FEEDERS, EXTEND INSULATED EQUIPMENT GROUNDING CABLE TO BUSWAY GROUND CONNECTION AND SUPPORT CABLE AT INTERVALS IN VERTICAL RUN.
3. CONTACT SURFACES OF BUSES: SILVER PLATED.
4. MAIN PHASE BUSES, NEUTRAL BUSES, AND EQUIPMENT GROUND BUSES: UNIFORM CAPACITY FOR ENTIRE LENGTH OF SWITCHBOARD'S MAIN AND DISTRIBUTION SECTIONS. PROVIDE FOR FUTURE EXTENSIONS FROM BOTH ENDS. TAPERED BUS IS NOT PERMITTED.
5. NEUTRAL BUSES: 100 PERCENT OF THE AMPACITY OF PHASE BUSES, UNLESS OTHERWISE INDICATED, EQUIPPED WITH PRESSURE CONNECTORS FOR OUTGOING CIRCUIT NEUTRAL CABLES. BUS EXTENSIONS FOR BUSWAY FEEDER NEUTRAL BUS ARE BRACED.

H. SWITCHBOARD NAMEPLATES: LABEL EACH PANELBOARD WITH ENGRAVED METAL OR LAMINATED-PLASTIC NAMEPLATE MOUNTED WITH CORROSION-RESISTANT SCREWS.

12.1 PANELBOARDS

A. AVAILABLE MANUFACTURERS: BASIS OF DESIGN: SQUARE D, SCHNEIDER ELECTRIC.

B. ENCLOSURES: FLUSH- AND SURFACE-MOUNTED CABINETS. NEMA PB 1, TYPE 1.

1. HINGED FRONT COVER: ENTIRE FRONT TRIM HINGED TO BOX AND WITH STANDARD DOOR WITHIN HINGED TRIM COVER.
2. FINISH: MANUFACTURER'S STANDARD ENAMEL FINISH OVER CORROSION-RESISTANT TREATMENT OR PRIMER COAT.
3. DIRECTORY CARD: WITH TRANSPARENT PROTECTIVE COVER, MOUNTED IN METAL FRAME, INSIDE PANELBOARD DOOR.

C. PHASE AND GROUND BUSES:

1. MATERIAL: HARD-DRAWN COPPER, 98 PERCENT CONDUCTIVITY.
2. EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUND CONDUCTORS; BONDED TO BOX.

D. CONDUCTOR CONNECTORS: SUITABLE FOR USE WITH CONDUCTOR MATERIAL.

1. MAIN AND NEUTRAL LUGS: MECHANICAL TYPE.
2. FEED-THROUGH LUGS: MECHANICAL TYPE SUITABLE FOR USE WITH CONDUCTOR MATERIAL. LOCATE AT OPPOSITE END OF BUS FROM INCOMING LUGS OR MAIN DEVICE.

E. FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS.

F. BRANCH OVERCURRENT PROTECTIVE DEVICES: PLUG-IN CIRCUIT BREAKERS, REPLACEABLE WITHOUT DISTURBING ADJACENT UNITS.

G. DOORS: CONCEALED HINGES; SECURED WITH FLUSH LATCH WITH TUMBLER LOCK; KEYED ALIKE.

H. INSTALL FILLER PLATES IN UNUSED SPACES.

I. PANELBOARD NAMEPLATES: LABEL EACH PANELBOARD WITH ENGRAVED METAL OR LAMINATED-PLASTIC NAMEPLATE MOUNTED WITH CORROSION-RESISTANT SCREWS.

13.1 OVERCURRENT PROTECTIVE DEVICES

A. MOLDED-CASE CIRCUIT BREAKER: UL 489, WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS.

1. THERMAL-MAGNETIC CIRCUIT BREAKERS: INVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS, AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250 A AND LARGER.
2. GFCI CIRCUIT BREAKERS: SINGLE- AND TWO-POLE CONFIGURATIONS WITH 5-30MA TRIP SENSITIVITY.

14.1 WIRING DEVICE: STRAIGHT-BLADE RECEPTACLES

A. AVAILABLE MANUFACTURERS: BASIS OF DESIGN: COOPER WIRING SYSTEMS

B. HEAVY DUTY SPECIFICATION GRADE DUPLEX CONVENIENCE RECEPTACLES: 125 V, 20 A; COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596.

14.2 GFCI RECEPTACLES

A. GENERAL DESCRIPTION:

1. HEAVY DUTY SPECIFICATION GRADE 125 V, 20 A, STRAIGHT BLADE, FEED-THROUGH TYPE.
2. COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, UL 943 CLASS A, AND FS W-C-596.
3. INCLUDE INDICATOR LIGHT THAT SHOWS WHEN THE GFCI HAS MALFUNCTIONED AND NO LONGER PROVIDES PROPER GFCI PROTECTION.

B. HEAVY DUTY SPECIFICATION GRADE GFCI, TAMPER-RESISTANT AND WEATHER-RESISTANT CONVENIENCE RECEPTACLES: SQUARE FACE, 125 V, 20 A; COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND UL 943 CLASS A.

C. IDENTIFICATION OF RECEPTACLES: IDENTIFY PANELBOARD AND CIRCUIT NUMBER FOR WHICH SERVED. USE HOT, STAMPED OR ENGRAVED MACHINE PRINTING WITH BLACK-FILLED LETTERING ON FACE OR PLATE, AND DURABLE WIRE MARKERS OR TAGS INSIDE OUTLET BOXES.

14.3 TOGGLE SWITCHES

A. COMPLY WITH NEMA WD 1, UL 20, AND FS W-S-896; 120/277 V, 20A.

14.4 WALL PLATES

A. SINGLE AND COMBINATION TYPES SHALL MATCH CORRESPONDING WIRING DEVICES.

1. PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH.
2. MATERIAL FOR FINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC.
3. MATERIAL FOR UNFINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC
4. MATERIAL FOR DAMP LOCATIONS: THERMOPLASTIC WITH SPRING-LOADED LIFT COVER, AND LISTED AND LABELED FOR USE IN WET AND DAMP LOCATIONS.

B. WET-LOCATION, WEATHERPROOF COVER PLATES: NEMA 250, COMPLYING WITH TYPE 3R, WEATHER-RESISTANT THERMOPLASTIC WITH LOCKABLE COVER. WEATHERPROOF WHILE IN-USE.

15.1 FUSIBLE SWITCHES

A. AVAILABLE MANUFACTURERS: BASIS OF DESIGN: SQUARE D, SCHNEIDER ELECTRIC.

B. TYPE HD, HEAVY DUTY:

1. SINGLE THROW, THREE POLE, 600-V AC., 1200 A AND SMALLER.
2. UL 98 AND NEMA KS 1, HORSEPOWER RATED, WITH CLIPS OR BOLT PADS TO ACCOMMODATE FUSES.
3. LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.

B. ACCESSORIES:

1. EQUIPMENT GROUND KIT: INTERNALLY MOUNTED AND LABELED FOR COPPER AND ALUMINUM GROUND CONDUCTORS.
2. NEUTRAL KIT: INTERNALLY MOUNTED; INSULATED, CAPABLE OF BEING GROUNDED AND BONDED; LABELED FOR COPPER AND ALUMINUM NEUTRAL CONDUCTORS.
3. LUGS: MECHANICAL TYPE, SUITABLE FOR NUMBER, SIZE, AND CONDUCTOR MATERIAL.
4. SERVICE-RATED SWITCHES: LABELED FOR USE AS SERVICE EQUIPMENT.
5. FUSE CLIPS SHALL BE REJECTION TYPE, CLASS R

15.2 NONFUSIBLE SWITCHES

A. AVAILABLE MANUFACTURERS: BASIS OF DESIGN: SQUARE D, SCHNEIDER ELECTRIC.

B. TYPE GD, GENERAL DUTY, THREE POLE, SINGLE THROW, 240-V AC, 600 A AND SMALLER: UL 98 AND NEMA KS 1, HORSEPOWER RATED, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.

C. TYPE HD, HEAVY DUTY, THREE POLE, SINGLE THROW, 600-V AC, 1200 A AND SMALLER: UL 98 AND NEMA KS 1, HORSEPOWER RATED, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.

D. TYPE HD, HEAVY DUTY, SIX POLE, SINGLE THROW, 600-V AC, 200 A AND SMALLER: UL 98 AND NEMA KS 1, HORSEPOWER RATED, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.

E. TYPE HD, HEAVY DUTY, THREE POLE, DOUBLE THROW, 600-V AC, 1200A AND SMALLER: UL 98 AND NEMA KS 1, HORSEPOWER RATED, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.

F. ACCESSORIES:

1. EQUIPMENT GROUND KIT: INTERNALLY MOUNTED AND LABELED FOR COPPER AND ALUMINUM GROUND CONDUCTORS.
2. NEUTRAL KIT: INTERNALLY MOUNTED; INSULATED, CAPABLE OF BEING GROUNDED AND BONDED; LABELED FOR COPPER AND ALUMINUM NEUTRAL CONDUCTORS.
3. LUGS: MECHANICAL TYPE, SUITABLE FOR NUMBER, SIZE, AND CONDUCTOR MATERIAL.
4. SERVICE-RATED SWITCHES: LABELED FOR USE AS SERVICE EQUIPMENT.

16.1 MANUAL MOTOR-STARTING SWITCHES (MSS): "QUICK-MAKE, QUICK-BREAK" TOGGLE OR PUSH-BUTTON ACTION; MARKED TO SHOW WHETHER UNIT IS OFF OR ON.

1. STANDARD: COMPLY WITH NEMA ICS 2, GENERAL PURPOSE, CLASS A.
2. CONFIGURATION: NONREVERSING.
3. SURFACE MOUNTING.
4. RED PILOT LIGHT.

16.2 ENCLOSED FULL-VOLTAGE MAGNETIC MOTOR CONTROLLERS

A. DESCRIPTION: ACROSS-THE-LINE START, ELECTRICALLY HELD, FOR NOMINAL SYSTEM VOLTAGE OF 600-V AC AND LESS.

B. STANDARD: COMPLY WITH NEMA ICS 2, GENERAL PURPOSE, CLASS A.

C. CONFIGURATION: NONREVERSING.

D. CONTACTOR COILS: PRESSURE-ENCAPSULATED TYPE. 600-V AC, 1200 A AND

1. OPERATING VOLTAGE: MANUFACTURER'S STANDARD, UNLESS INDICATED.

E. CONTROL POWER:

1. FOR ON-BOARD CONTROL POWER, OBTAIN FROM LINE CIRCUIT OR FROM INTEGRAL CPT. THE CPT SHALL HAVE CAPACITY TO OPERATE INTEGRAL DEVICES AND REMOTELY LOCATED PILOT, INDICATING, AND CONTROL DEVICES.

F. COMBINATION TYPE:

1. FUSIBLE DISCONNECTING MEANS:
   A) NEMA KS 1, HEAVY-DUTY, HORSEPOWER-RATED, FUSIBLE SWITCH WITH CLIPS OR BOLT PADS TO ACCOMMODATE INDICATED FUSES.
   B) LOCKABLE HANDLE: ACCEPTS THREE PADLOCKS AND INTERLOCKS WITH COVER IN CLOSED POSITION.
2. NONFUSIBLE DISCONNECTING MEANS:
   A) NEMA KS 1, HEAVY-DUTY, HORSEPOWER-RATED, NONFUSIBLE SWITCH.
   B) LOCKABLE HANDLE: ACCEPTS THREE PADLOCKS AND INTERLOCKS WITH COVER IN CLOSED POSITION.

17.1 LED LIGHTING

A. MAINTAIN COLOR CONSISTENCY AND LIGHT INTENSITY ACROSS MULTIPLE FIXTURES OF THE SAME DESIGNATION AND THOSE WITH THE SAME FAMILY.

B. DESIGN LUMINAIRES WITH HEAT SINKING ADEQUATE SUCH THAT THE JUNCTION TEMPERATURE OF THE LED'S IS MAINTAINED TO MEET THE RATED LIFE AS PUBLISHED BY THE LED MANUFACTURER.

C. MINIMUM CRI OF 80 UNLESS OTHERWISE INDICATED.

D. BIN LED'S SO THAT ALL LUMINAIRES OF THE SAME TYPE HAVE CLOSELY-MATCHED COLOR AND LUMEN OUTPUT CHARACTERISTICS SO THAT THEY SHALL BE WITHIN 3 MC ADAMS ELLIPSE STEPS.

E. EFFICACY: 50 LUMENS PER WATT UNLESS OTHERWISE INDICATED.

F. L70: 50,000 HOURS MINIMUM.

G. CCT: 4000-4100 K UNLESS OTHERWISE INDICATED.

H. LED POWER SUPPLY REQUIREMENTS

1. OPERATE LED'S WITHIN THE CURRENT LIMIT SPECIFICATIONS FOR THE LED MANUFACTURER.
2. OPERATE AT 60HZ INPUT SOURCE AND HAVE INPUT POWER FACTOR ABOVE 90% AND A MINIMUM EFFICIENCY OR 70% AT FULL RATED LOAD OF THE DRIVER.
3. PROVIDE SHORT CIRCUIT AND OVERLOAD PROTECTION.
4. CONTAIN NO PCB'S (POLYCHLORINATED BIPHENYL).
5. COMPLY WITH IEEE C.62.41-1991, CLASS A OPERATION.
6. BE UL1310/8750 RECOGNIZED WHEN USED IN CONJUNCTION WITH A UL LISTED LUMINAIRE

17.2 EXIT LIGHTING

A. GENERAL: COMPLY WITH UL 924; FOR SIGN COLORS AND LETTERING SIZE, COMPLY WITH AUTHORITIES HAVING JURISDICTION.

1. CONTRACTOR SHALL PROVIDE AN ADDITIONAL TEN PERCENT OF THE TOTAL EXIT SIGNS TO BE INSTALLED AT THE DIRECTION OF THE A/E, OR THE AUTHORITY HAVING JURISDICTION.

B. INTERNALLY LIGHTED SIGNS:

1. LAMPS FOR AC OPERATION: LIGHT-EMITTING DIODES (LED), 70,000 HOURS MINIMUM OF RATED LAMP LIFE.
2. NO GREATER THAN 5 INPUT WATTS PER FACE.

C. SELF-POWERED EXIT SIGNS (BATTERY TYPE): INTEGRAL AUTOMATIC CHARGER IN A SELF-CONTAINED POWER PACK.

BATTERY: SEALED, MAINTENANCE-FREE, NICKEL-CADMIUM TYPE WITH SPECIAL WARRANTY.

3. CHARGER: FULLY AUTOMATIC, SOLID-STATE TYPE WITH SEALED TRANSFER RELAY.
4. OPERATION: RELAY AUTOMATICALLY ENERGIZES LAMP FROM BATTERY WHEN CIRCUIT VOLTAGE DROPS TO 80 PERCENT OF NOMINAL VOLTAGE OR BELOW. WHEN NORMAL VOLTAGE IS RESTORED, RELAY DISCONNECTS LAMPS FROM BATTERY, AND BATTERY IS AUTOMATICALLY RECHARGED AND FLOATED ON CHARGER.
5. TEST PUSH BUTTON: PUSH-TO-TEST TYPE, IN UNIT HOUSING, SIMULATES LOSS OF NORMAL POWER AND DEMONSTRATES UNIT OPERABILITY.
6. LED INDICATOR LIGHT: INDICATES NORMAL POWER ON. NORMAL GLOW INDICATES TRICKLE CHARGE; BRIGHT GLOW INDICATES CHARGING AT END OF DISCHARGE CYCLE.

18.1 COPPER HORIZONTAL CABLING DESCRIPTION

A. HORIZONTAL CABLE CABLING SYSTEM SHALL PROVIDE INTERCONNECTIONS BETWEEN DISTRIBUTOR A, DISTRIBUTOR B, OR DISTRIBUTOR C, AND THE EQUIPMENT OUTLET, OTHERWISE KNOWN AS "CABLING SUBSYSTEM 1," IN THE TELECOMMUNICATIONS CABLING SYSTEM STRUCTURE. CABLING SYSTEM CONSISTS OF HORIZONTAL CABLES, INTERMEDIATE AND MAIN CROSS-CONNECTS, MECHANICAL TERMINATIONS, AND PATCH CORDS OR JUMPERS USED FOR HORIZONTAL-TO-HORIZONTAL CROSS-CONNECTION.

1. TIA-568-C.1 REQUIRES THAT A MINIMUM OF TWO EQUIPMENT OUTLETS BE INSTALLED FOR EACH WORK AREA.
2. HORIZONTAL CABLING SHALL CONTAIN NO MORE THAN ONE TRANSITION POINT OR CONSOLIDATION POINT BETWEEN THE HORIZONTAL CROSS-CONNECT AND THE TELECOMMUNICATIONS EQUIPMENT OUTLET.
3. BRIDGED TAPS AND SPLICES SHALL NOT BE INSTALLED IN THE HORIZONTAL CABLING.

B. A WORK AREA IS APPROXIMATELY 100 SQ. FT. (9.3 SQ. M), AND INCLUDES THE COMPONENTS THAT EXTEND FROM THE EQUIPMENT OUTLETS TO THE STATION EQUIPMENT.

C. THE MAXIMUM ALLOWABLE HORIZONTAL CABLE LENGTH IS 295 FEET (90 M). THIS MAXIMUM ALLOWABLE LENGTH DOES NOT INCLUDE AN ALLOWANCE FOR THE LENGTH OF 16 FEET (4.9 M) TO THE WORKSTATION EQUIPMENT OR IN THE HORIZONTAL CROSS-CONNECT.

18.2 CATEGORY 6 TWISTED PAIR CABLE

A. DESCRIPTION: FOUR-PAIR, BALANCED-TWISTED PAIR CABLE, WITH INTERNAL SPLINE, CERTIFIED TO MEET TRANSMISSION CHARACTERISTICS OF CATEGORY 6 CABLE AT FREQUENCIES UP TO 500MHZ.

B. STANDARD: COMPLY WITH TIA-568-C.2 FOR CATEGORY 6A CABLES.

C. CONDUCTORS: 100-OHM, 23 AWG SOLID COPPER.

D. SHIELDING/SCREENING: SHIELDED TWISTED PAIRS (FTP).

E. CABLE RATING: PLENUM.

F. JACKET: YELLOW THERMOPLASTIC

18.3 TWISTED PAIR CABLE HARDWARE

A. DESCRIPTION: HARDWARE DESIGNED TO CONNECT, SPLICE, AND TERMINATE TWISTED PAIR COPPER COMMUNICATIONS CABLE.

B. GENERAL REQUIREMENTS FOR TWISTED PAIR CABLE HARDWARE:

1. COMPLY WITH THE PERFORMANCE REQUIREMENTS OF ASSOCIATED CABLING.
2. COMPLY WITH TIA-568-C.2, IDC TYPE, WITH MODULES DESIGNED FOR PUNCH-DOWN CAPS OR TOOLS.
3. CABLES SHALL BE TERMINATED WITH CONNECTING HARDWARE OF SAME CATEGORY OR HIGHER.

C. SOURCE LIMITATIONS: OBTAIN TWISTED PAIR CABLE HARDWARE FROM SAME MANUFACTURER AS TWISTED PAIR CABLE, FROM SINGLE SOURCE.

D. CONNECTING BLOCKS:

1. 110-STYLE IDC FOR CATEGORY 6.
2. 66-STYLE IDC FOR CATEGORY 6.
3. PROVIDE BLOCKS FOR THE NUMBER OF CABLES TERMINATED ON THE BLOCK, PLUS 25 PERCENT SPARE. INTEGRAL WITH CONNECTOR BODIES, INCLUDING PLUGS AND JACKS WHERE INDICATED.

E. CROSS-CONNECT: MODULAR ARRAY OF CONNECTING BLOCKS ARRANGED TO TERMINATE BUILDING CABLES AND PERMIT INTERCONNECTION BETWEEN CABLES.

1. NUMBER OF TERMINALS PER FIELD: ONE FOR EACH CONDUCTOR IN ASSIGNED CABLES.

F. PATCH PANEL: MODULAR PANELS HOUSING NUMBERED JACK UNITS WITH IDC-TYPE CONNECTORS AT EACH JACK LOCATION FOR PERMANENT TERMINATION OF PAIR GROUPS OF INSTALLED CABLES.

1. FEATURES:
   A) UNIVERSAL T568A AND T568B WIRING LABELS.
   B) LABELING AREAS ADJACENT TO CONDUCTORS.
   C) REPLACEABLE CONNECTORS.
   D) 24 OR 48 PORTS.
2. CONSTRUCTION: 16-GAUGE STEEL AND MOUNTABLE ON EQUIPMENT RACKS.
3. NUMBER OF JACKS PER FIELD: ONE FOR EACH FOUR-PAIR CONDUCTOR GROUP OF INDICATED CABLES, PLUS SPARES AND BLANK POSITIONS ADEQUATE TO SUIT SPECIFIED EXPANSION CRITERIA.

G. PATCH CORDS: FACTORY-MADE, FOUR-PAIR CABLES IN 19-INCH (483 MM) LENGTHS; TERMINATED WITH AN EIGHT-POSITION MODULAR PLUG AT EACH END.

1. PATCH CORDS SHALL HAVE BEND-RELIEF-COMPLIANT BOOTS AND COLOR-CODED ICONS TO ENSURE PERFORMANCE. PATCH CORDS SHALL HAVE LATCH GUARDS TO PROTECT AGAINST SNAGGING.
2. PATCH CORDS SHALL HAVE COLOR-CODED BOOTS FOR CIRCUIT IDENTIFICATION.

H. PLUGS AND PLUG ASSEMBLIES:

1. MALE; EIGHT POSITION; COLOR-CODED MODULAR TELECOMMUNICATIONS CONNECTOR DESIGNED FOR TERMINATION OF A SINGLE FOUR-PAIR, 100-OHM, UNSHIELDED OR SHIELDED TWISTED PAIR CABLE.
2. STANDARD: COMPLY WITH TIA-568-C.2.
3. MARKED TO INDICATE TRANSMISSION PERFORMANCE.

I. JACKS AND JACK ASSEMBLIES:

1. FEMALE; EIGHT POSITION; MODULAR; FIXED TELECOMMUNICATIONS CONNECTOR DESIGNED FOR TERMINATION OF A SINGLE FOUR-PAIR, 100-OHM, UNSHIELDED OR SHIELDED TWISTED PAIR CABLE.
2. DESIGNED TO SNAP-IN TO A PATCH PANEL OR FACEPLATE.
3. STANDARD: COMPLY WITH TIA-568-C.2.
4. MARKED TO INDICATE TRANSMISSION PERFORMANCE.

J. FACEPLATE:

1. FOUR PORT, VERTICAL SINGLE GANG FACEPLATES DESIGNED TO MOUNT TO SINGLE GANG WALL BOXES.
2. FOR USE WITH SNAP-IN JACKS ACCOMMODATING ANY COMBINATION OF TWISTED PAIR, OPTICAL FIBER, AND COAXIAL WORK AREA CORDS.
   A) FLUSH MOUNTING JACKS, POSITIONING THE CORD AT A 45-DEGREE ANGLE.

K. LEGEND:

1. MACHINE PRINTED, IN THE FIELD, USING ADHESIVE-TAPE LABEL. SNAP-IN, CLEAR-LABEL COVERS AND MACHINE-PRINTED PAPER INSERTS.

MADISEN MAHER

ARCHITECTS
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P: 414.277.8000
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PROPOSED REMODEL FOR:

Pan-Asia Supermarket

WEST ALLIS TOWN CENTER
6900 W. GREENFIELD AVE
WEST ALLIS, WI 53214

CLIENT

ETHAN LIN
PAN-ASIA SUPERMARKET
11940 METCALF AVE.
OVERLAND PARK, KANSAS
66213

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DATE	REV	ISSUE
08/28/23	#	PROJECT START
09/29/23		SD | PLAN COMMISSION
10/12/23		PLAN COMMISSION COMMENTS
10/19/23		SD | PLAN COMMISSION
11/06/23		DD | PROGRESS
11/20/23		DD | OWNER REVIEW
11/29/23		DD | PROGRESS

PROJECT NUMBER	23-044
START DATE	02/08/24
DRAWN BY	DMS
CHECKED BY	KLO

ibc engineering services, inc
WISCONSIN | ILLINOIS | FLORIDA
IBC PROJECT NO: 2023108

ELECTRICAL SPECIFICATIONS

E8.01

2/5/2024 2:29:01 PM

FOR QUESTIONS, CALL THE
Tulsa Office
REGION 80
PHONE: (918) 258 - 0291
EMAIL: reg80@econair.com

PATENT NUMBERS

AC-PSP (UNITED STATES) - US PATENT 7963830 B2.
AC-PSP WALL (CANADA) - CA PATENT 2820509.
AC-PSP ISLAND (CANADA) - CA PATENT 2520330.

HOOD INFORMATION - JOB#6528660

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1		6630 EX-2-PSP-F	ECON-AIR	14' 0"	600 DEG	I	HEAVY	250	3500			4"	14"	1750	1637	-0.366"	2515	430 SS WHERE EXPOSED	LEFT	ALONE
												4"	14"	1750	1637	-0.366"				
2		6630 EX-2-PSP-F	ECON-AIR	12' 0"	600 DEG	I	HEAVY	275	3300			4"	18"	3300	1867	-0.575"	2000	430 SS WHERE EXPOSED	MIDDLE	ALONE
3		6630 EX-2-PSP-F	ECON-AIR	7' 0"	600 DEG	I	HEAVY	243	1701			4"	12"	1701	2166	-0.458"	1330	430 SS WHERE EXPOSED	RIGHT	ALONE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1		SS BAFFLE WITH HANDLES	10	20"	16"	30%	7	L55 SERIES E26	NO	LEFT	12"x66"x30"	TANK FS	4.0/4.0/4.0/4.0	DCV-4111	1 LIGHT 1 FAN	YES	1481 LBS
2		SS BAFFLE WITH HANDLES	9	20"	16"	30%	6	L55 SERIES E26	NO							YES	740 LBS
3		SS BAFFLE WITH HANDLES	5	20"	16"	30%	3	L55 SERIES E26	NO	RIGHT	12"x66"x30"	TANK FS	4.0/4.0/4.0/4.0			YES	868 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1		FIELD WRAPPER 17.00" HIGH FRONT, LEFT.
		BACKSPLASH 128.00" HIGH X 456.00" LONG 430 SS VERTICAL.
		STRUCTURAL FRONT PANEL.
		LEFT WIDE VERTICAL END PANEL 42" TOP WIDTH, 36" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
2		FIELD WRAPPER 17.00" HIGH FRONT.
		STRUCTURAL FRONT PANEL.
3		FIELD WRAPPER 17.00" HIGH FRONT, RIGHT.
		RISER SENSOR INSTALL 6IN PLEN.
		RIGHT WIDE VERTICAL END PANEL 42" TOP WIDTH, 36" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S) WIDTH	LENG	DIA	CFM	SP
1		Front	180"	14"	6"	MUA	12"	28"		838	0.225"
						MUA	12"	28"		838	0.225"
						MUA	12"	28"		838	0.225"
2		Front	144"	14"	6"	MUA	12"	28"		666	0.169"
						MUA	12"	28"		666	0.169"
						MUA	12"	28"		666	0.169"
3		Front	96"	14"	6"	MUA	12"	28"		665	0.168"
						MUA	12"	28"		665	0.168"

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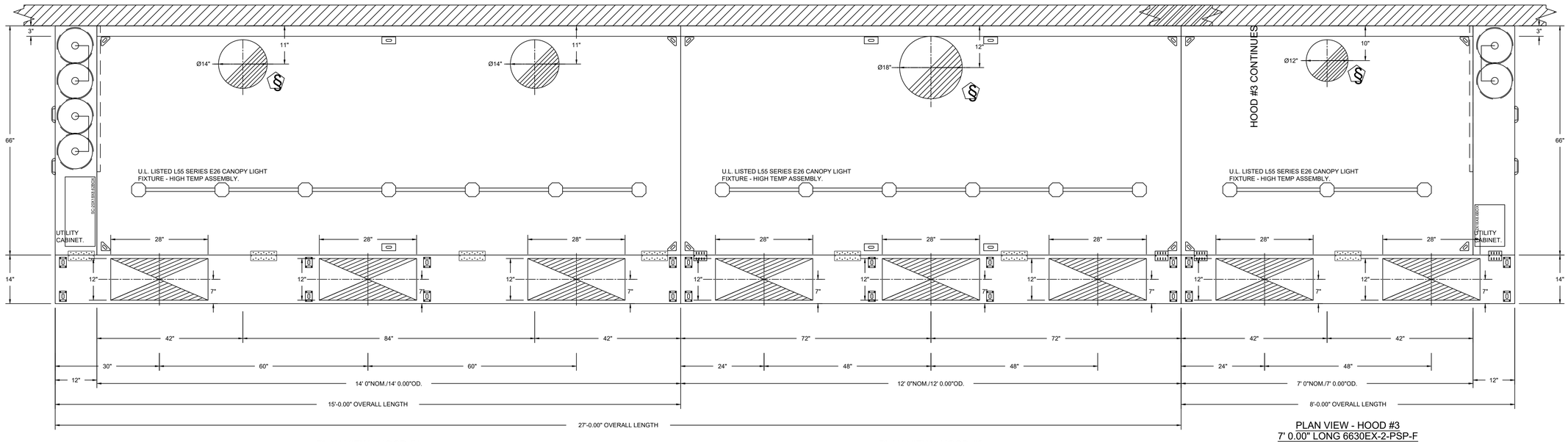
12101 East 51st Street, Suite 101A, Tulsa, OK, 74146 PHONE: (918) 258 - 0291 FAX: 9192275947 EMAIL: reg80@econair.com

Pan Asia - Milwaukee
6900 West Greenfield Avenue,
West Allis, WI, 53214

DATE: 1/12/2024
DWG.#: 6528660
DRAWN BY: RJH-80
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 1



PLAN VIEW - HOOD #1
14' 0.00" LONG 6630EX-2-PSP-F
NOTE: ADDITIONAL HANGING ANGLES PROVIDED FOR HOODS 12' AND LONGER.

PLAN VIEW - HOOD #2
12' 0.00" LONG 6630EX-2-PSP-F
NOTE: ADDITIONAL HANGING ANGLES PROVIDED FOR HOODS 12' AND LONGER.

PLAN VIEW - HOOD #3
7' 0.00" LONG 6630EX-2-PSP-F

ECON-AIR RECOMMENDS THE USE OF LISTED, PRE-FABRICATED ROUND GREASE EXHAUST DUCT TO REDUCE STATIC PRESSURE IN THE SYSTEM, MINIMIZE INSTALLATION AND INSPECTION TIMES, AND ENSURE DUCT IS LIQUID TIGHT

HVAC DISTRIBUTION NOTE

HIGH VELOCITY DIFFUSERS OR HVAC RETURNS SHOULD NOT BE PLACED WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.

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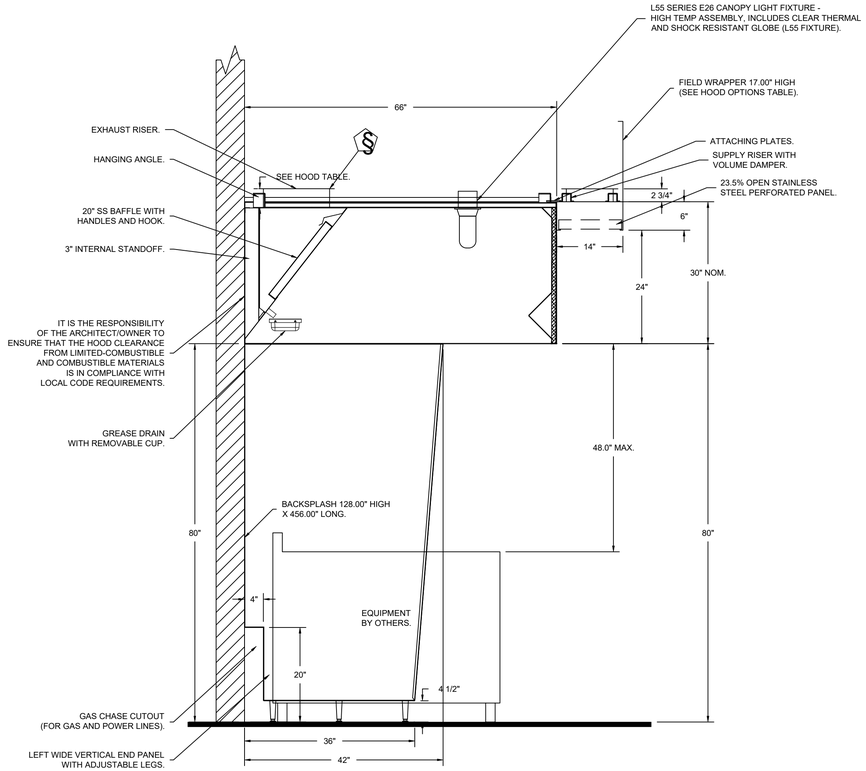
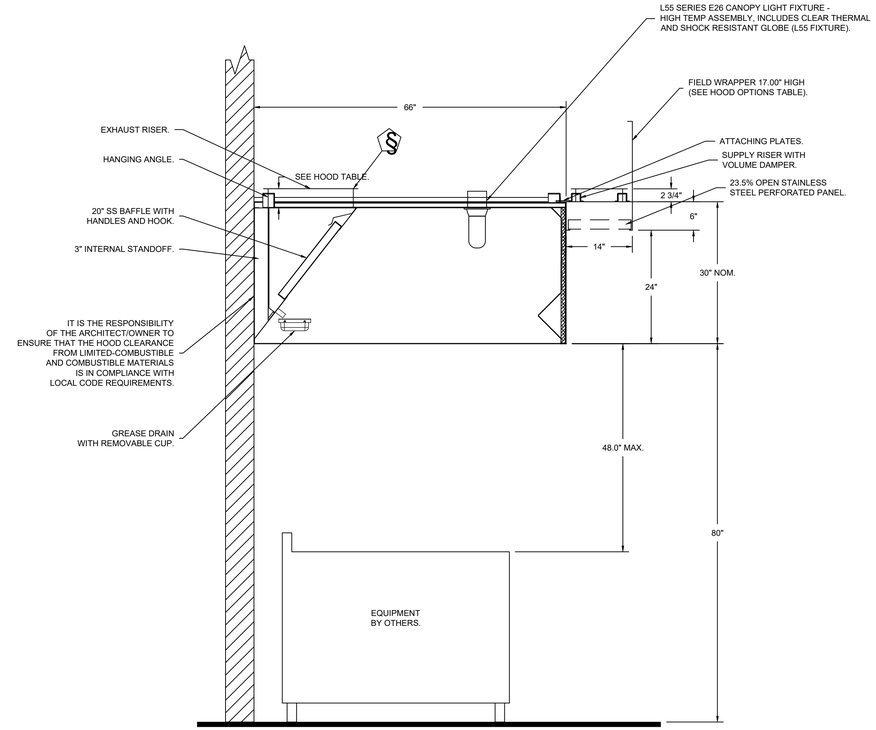
SHEET NO. 2

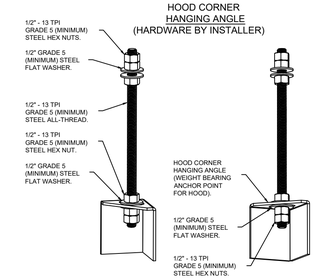


SECTION VIEW - MODEL 6630EX-2-PSP-F
HOOD - #1



SECTION VIEW - MODEL 6630EX-2-PSP-F
HOOD - #2

HOOD CORNER
HANGING ANGLE
(HARDWARE BY INSTALLER)



ASSEMBLY INSTRUCTIONS

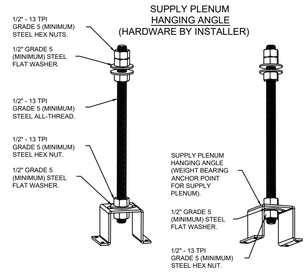
HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

VERIFY CEILING HEIGHT

___' - ___"

HEIGHT REQUIRED TO VERIFY THAT HOOD FITS SPACE AND TO SIZE THE ENCLOSURE PANELS

SUPPLY PLENUM
HANGING ANGLE
(HARDWARE BY INSTALLER)



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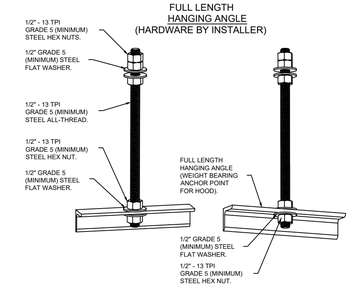
FULL LENGTH
HANGING ANGLE
(HARDWARE BY INSTALLER)



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

MASTER DRAWING

SHEET NO.
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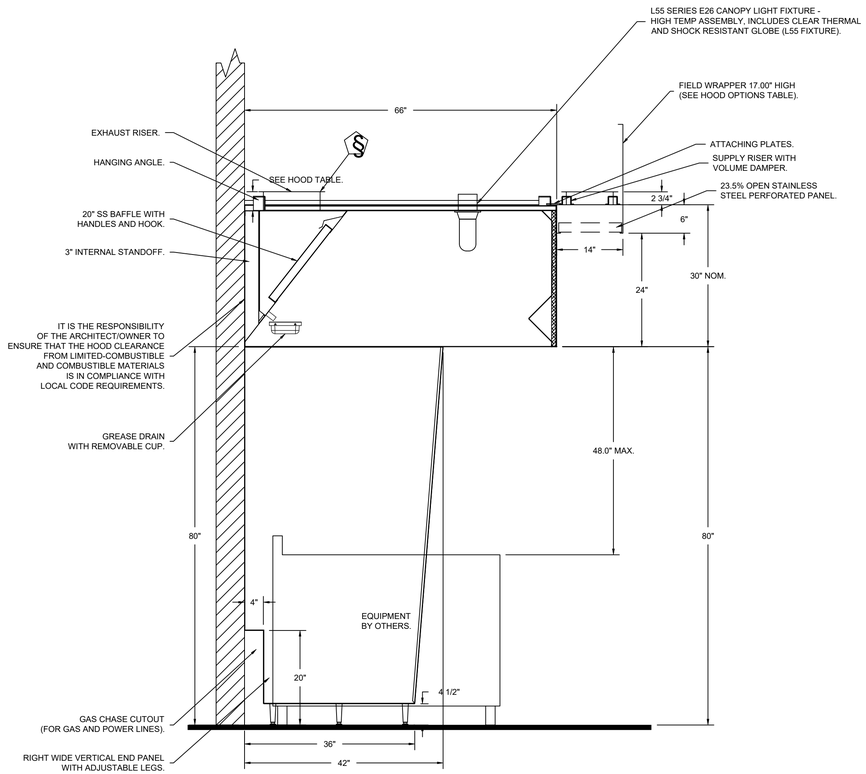
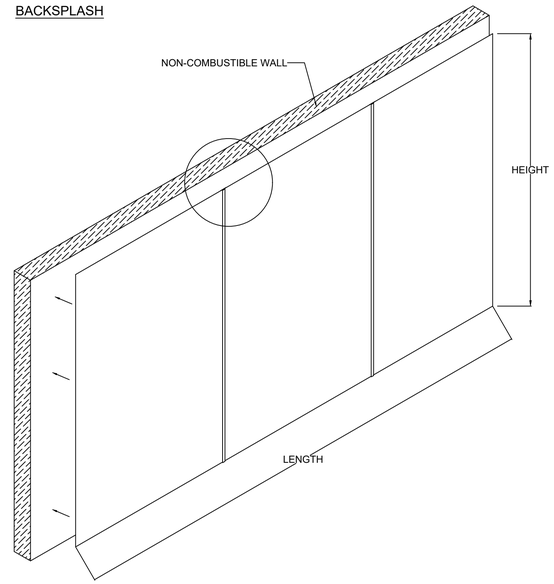
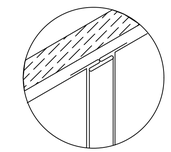


SECTION VIEW - MODEL 6630EX-2-PSP-F
HOOD - #3

BACKSPLASH





BACKSPLASH PANELS
SLIDE INTO DIVIDER BAR

- BACKSPLASH IS NOT INSULATED AND IS UNSUITABLE FOR INSTALL AGAINST COMBUSTIBLE WALLS

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

MASTER DRAWING

SHEET NO.
4

FIRE SYSTEM INFORMATION - JOB#6528660

FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION	
						SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0/4.0/4.0/4.0	80	101	FIRE CABINET LEFT	LEFT, HOOD 1
			4.0/4.0	40		FIRE CABINET RIGHT	RIGHT, HOOD 3

GAS VALVE(S)

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	2.000	ECON-AIR

FIRE SYSTEM PARTS LIST KEY

FIRE SYSTEM NO	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
1		0 - 0 - TANK FIRE SUPPRESSION POST-DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - 12-F28021-32144-OT-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO, CLOSE ON TEMP RISE AT 360°F.	4	0
		0 - 0 - 32-00002 QUIK SEAL - 1/2" (UL).	4	0
		0 - 0 - 361091 3/8" BRASS PLUG.	2	0
		0 - 0 - 4429K153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	6	0
		0 - 0 - 4429K422 1/2" X 1/4" BRASS REDUCING BUSHING.	3	0
		0 - 0 - 79425 3/8" NPT FEMALE TO 1/2" MALE PROPRESS ADAPTER.	2	0
		0 - 0 - 79525 1/2" 90 PRO-PRESS ELBOW WITH 1/2 " NPT FEMALE CONNECTION, VIEGA.	3	0
		0 - 0 - 79580 1/2" X 1/2" PRO-PRESS TEE X 1/2 " NPT FEMALE CONNECTION, VIEGA.	6	0
		0 - 0 - 87-120042-001 SECONDARY ACTUATOR VALVE (SVA) - SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION.	4	0
		0 - 0 - 87-120045-001 HOSE, SECONDARY ACTUATOR HOSE, 7.5" BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION.	4	0
		0 - 0 - 87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	6	0
		0 - 0 - 87-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	24	0
		0 - 0 - 9055455PC PRO PRESS 1/2 PRESS X PRESS 90 ELBOW LD.	27	0
		0 - 0 - 9097200PC PRO PRESS PC611 1/2 PRESS TEE LD.	18	0
		0 - 0 - 98694A115 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	12	0
		0 - 0 - A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX, RED COLOR.	2	0
		0 - 0 - A31484 1/4" NPT SCHRADER VALVE AND CAP, JB INDUSTRIES. 1/4" FLARE X 1/4" MPT HALF UNION. USED ON TANK SERVICE PORT.	3	0
		0 - 0 - BI145 3/8" BLACK IRON 90 ELL.	9	0
		0 - 0 - DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	6	0
		0 - 0 - SLPCON-03FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN END TO END HOODS WITH LESS THAN A 2' GAP. KIT CONTAINS 5 FEET OF BLACK MG WIRE, 5 FEET OF TAN MG WIRE, 3 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	3	0
		0 - 0 - SLPCON-55FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN HOODS WITH UP TO 48' GAP. KIT CONTAINS 57 FEET OF BLACK MG WIRE, 57 FEET OF TAN MG WIRE, 55 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	1	0
		0 - 0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	18	0
		0 - 0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	6	0
		0 - 0 - WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	6	0
		16 - 16 - 79210 1/2" X 3/8" NPT MALE ADAPTER, VIEGA.	22	0
		16 - 16 - OL-F NOZZLE - TANK PROTECTION APPLIANCE COVERAGE NOZZLE (INCLUDES METAL BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE).	22	0
		26 - 26 - QSA-3/8 QUIK SEAL - 3/8" (UL).	22	0
		34 - 34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT. RED COLOR.	2	0

REVISIONS

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DATE: 1/12/2024

DWG.#: 6528660

DRAWN BY: RJH-80

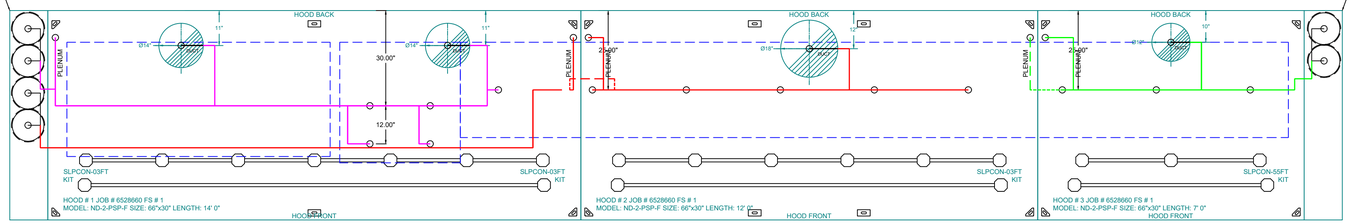
SCALE: 3/4" = 1'-0"

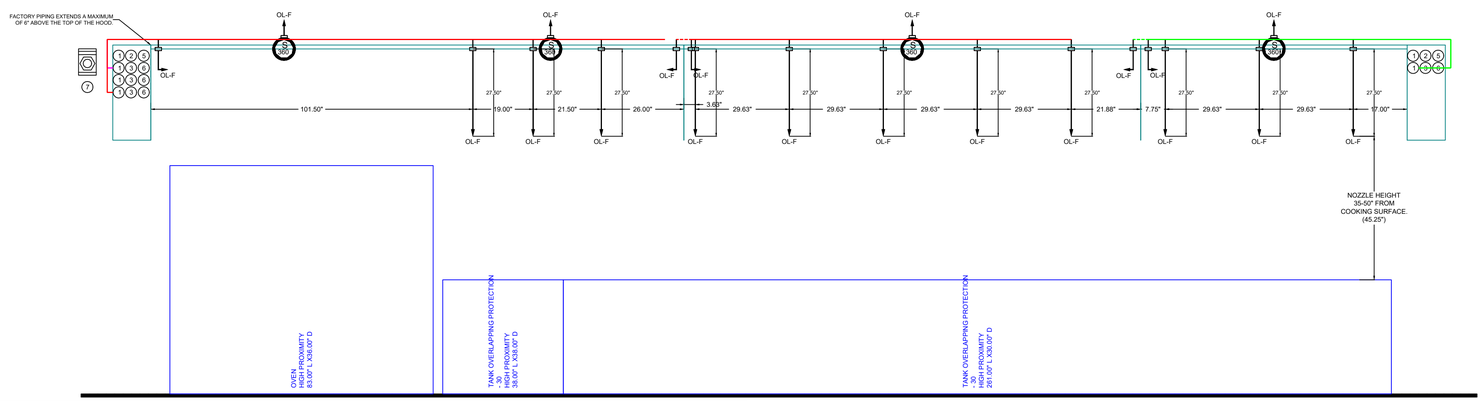
MASTER DRAWING

SHEET NO.
5

SYSTEM REQUIRES A MINIMUM OF 7 FT OF EQUIVALENT PIPE LENGTH BETWEEN TANK AND NEAREST APPLIANCE NOZZLE FOR MOST APPLIANCES. EACH 90 DEGREE ELBOW ADDS 1.3 FT OF EQUIVALENT LENGTH. SEE MANUAL FOR DETAILS

SYSTEM REQUIRES A MINIMUM OF 7 FT OF EQUIVALENT PIPE LENGTH BETWEEN TANK AND NEAREST APPLIANCE NOZZLE FOR MOST APPLIANCES. EACH 90 DEGREE ELBOW ADDS 1.3 FT OF EQUIVALENT LENGTH. SEE MANUAL FOR DETAILS





NOTES
- FIELD PIPE DROPS AS SHOWN
  PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- FIELD INSTALLED DROP: FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
- SHIP LOOSE DROP: FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED LOOSE TO BE FIELD-INSTALLED.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
- IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
- FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

- OL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS

JOB #: 6528660.
JOB NAME: PAN ASIA - MILWAUKEE.

SYSTEM SIZE: TANK-SP-4 WITH REMOTE TANK-SP-2 DESIGN FP: 101. MAXIMUM FP: 120.
HOOD # 1 14' 0.00" LONG x 66" WIDE x 30" HIGH.
RISER # 1 SIZE: 14" DIA.
RISER # 2 SIZE: 14" DIA.
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.
HOOD # 2 12' 0.00" LONG x 66" WIDE x 30" HIGH.
RISER # 1 SIZE: 18" DIA.
HOOD # 2 METAL BLOW-OFF CAPS INCLUDED.
HOOD # 3 7' 0.00" LONG x 66" WIDE x 30" HIGH.
RISER # 1 SIZE: 12" DIA.
HOOD # 3 METAL BLOW-OFF CAPS INCLUDED.

- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

LEGEND - FIRE CABINET TANK SYSTEM

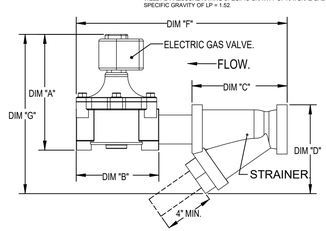
1	4 GALLON TANK.
2	PRIMARY ACTUATOR RELEASE.
3	SECONDARY ACTUATOR RELEASE.
4	PRESSURE SUPERVISION SWITCH.
5	PRIMARY HOSE ASSEMBLY.
6	SECONDARY HOSE ASSEMBLY.
7	REMOTE MANUAL ACTUATION DEVICE.

GAS VALVES AND STRAINERS

	GAS VALVE SIZING						GAS VALVE DIMENSIONS						INSTALLATION	PART NUMBERS		
	TYPE	SIZE	VOLTAGE	MIN. INLET PRESSURE	MAX. INLET PRESSURE	FLOW AT 1 IN.W.C. DROP NATURAL GAS	FLOW AT 1 IN.W.C. DROP PROPANE	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "F"	DIM "G"	MOUNTING ORIENTATION	GAS VALVE PART NUMBER	STRAINER PART NUMBER	GAS VALVE/STRAINER KIT
GAS VALVE FOR FS#1 →	ELECTRICAL	2"	120 VAC	0 PSI (0 IN.W.C.)	5 PSI (138 IN.W.C.)	2,940,500 BTU/HR	1,908,048 BTU/HR	7-5/8"	6-3/8"	7-1/4"	7-13-16"	15-5/8"	13-15/16"	HORIZONTAL/ VERTICAL	8214280	4417K68	(SC)EGVA2

ALL GAS VALVES/STRAINERS
PROPER CLEARANCE MUST BE PROVIDED IN ORDER TO SERVICE THE STRAINERS A MINIMUM OF 4" CLEARANCE DISTANCE MUST BE PROVIDED AT THE BASE OF THE STRAINER CUSTOMER MUST VERIFY BTU CONSUMPTION AS WELL AS PRESSURE RATING SPECIFIC GRAVITY OF NATURAL GAS = 0.64, SPECIFIC GRAVITY OF LP = 1.52.

CALCULATIONS
TO CALCULATE GAS FLOW FOR OTHER THAN 1 IN.W.C. PRESSURE DROP
NEW BTU/HR = (BTU/HR AT 1 IN.W.C. PRESSURE DROP) X NEW PRESSURE DROP$^{0.5}$
TO CALCULATE GAS FLOW FOR OTHER THAN 0.64 SPECIFIC GRAVITY
NEW BTU/HR = (BTU/HR AT 0.64) X (0.64 / NEW SPECIFIC GRAVITY)$^{0.5}$



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DATE: 1/12/2024
DWG.#: 6528660
DRAWN BY: RJH-80
SCALE: SEE DIMS
MASTER DRAWING

SHEET NO.
6

EXHAUST FAN INFORMATION - JOB#6528660

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	KEF1A	1	EADU85H	ECON-AIR	1750	1.000	1326	TEAO-ECM	1.000	0.4500	1	230	6.5	554 FPM	125	11.3
2	KEF1B	1	EADU85H	ECON-AIR	1750	1.000	1326	TEAO-ECM	1.000	0.4500	1	230	6.5	554 FPM	125	11.3
3	KEF-2	1	EADU180H	ECON-AIR	3300	1.300	1317	ODP,PREMIUM	2.000	1.6040	3	460	3.8	762 FPM	223	20.9
4	KEF3	1	EADU85H	ECON-AIR	1701	1.300	1425	TEAO-ECM	1.000	0.5530	1	230	6.5	538 FPM	125	12.7

CONDENSER DETAILS

FAN UNIT NO	TAG	FAN UNIT MODEL #	CONDENSER NO	TONNAGE	VOLTAGE	PHASE	FREQUENCY	MCA	RLA	MAX FUSE SIZE	MIN WIRE SIZE	SEER
5	MAU-1	A3-D.750-24D-MPU	1	5	460	3 PHASE	60 HZ	10.5 AMPS	8.5 AMPS	15 AMPS	14 AWG	14
			2	5	460	3 PHASE	60 HZ	10.5 AMPS	8.5 AMPS	15 AMPS	14 AWG	14

MUA FAN INFORMATION - JOB#6528660

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
5	MAU-1	1	A3-D.750-24D-MPU	24MF-3-MOD	A3-D.750	3600	5845	0.750	1450	ODP,PREMIUM	7.500	5.6440	3	460	9.6	29.6A	35A	1898	13.8

COILS - JOB#6528660

FAN UNIT NO	TAG	COIL TYPE	DESIGN CFM	COOLING											HEATING								
				ENTERING DB TEMP	ENTERING WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	ENTERING DB TEMP	LEAVING DB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	STEAM PRESSURE	TOTAL CAPACITY	SENSIBLE CAPACITY
5	MAU-1	DX	5845	87.0°F	73.0°F	76.3°F	68.0°F	---	---	---	---	105.2 MBH	64.7 MBH	40.5 MBH	---	---	---	---	---	---	---	---	---

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
5	MAU-1	482657	444044	73°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	KEF1A	1	GREASE BOX
		1	36" TALL STRAIGHT WIND BAND EXTENSION 15 (SHIPS LOOSE)
		1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CCW ROTATION
		1	2 YEAR PARTS WARRANTY
2	KEF1B	1	GREASE BOX
		1	36" TALL STRAIGHT WIND BAND EXTENSION 15 (SHIPS LOOSE)
		1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CCW ROTATION
		1	2 YEAR PARTS WARRANTY
3	KEF-2	1	GREASE BOX
		1	EXHAUST FAN HEAT BAFFLE
		1	24" TALL STRAIGHT WIND BAND EXTENSION 18/20 (SHIPS LOOSE)
		1	LOAD REACTOR MOUNTED IN FAN
		1	UNIT MOUNTED VFD FOR USE WITH ECPM03
		1	VFD MOUNTING BRACKET FOR DU/DR 180 - 200
		1	2 YEAR PARTS WARRANTY
4	KEF3	1	GREASE BOX
		1	36" TALL STRAIGHT WIND BAND EXTENSION 15 (SHIPS LOOSE)
		1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CCW ROTATION
		1	2 YEAR PARTS WARRANTY
5	MAU-1	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC
		1	BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 3 (1" MOD VALVE)
		1	SHIP LOOSE GAS STRAINER 1"
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	MOTORIZED BACKDRAFT DAMPER FOR A3-D HOUSING - MEETS AMCA CLASS 1A RATING
		1	10 TON 2 CIRCUIT (5/5) MODULAR PACKAGED COOLING OPTION FOR SIZE 3 DF/EH MUA (3,600 TO 6,000 CFM), 460V, 3 PHASE. COOLING THERMOSTAT OR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION
		1	DOWNTURN PLENUM FOR SIZE 3 DX COIL MODULE
		1	SINGLE POINT MPU CONNECTION - 2 CONDENSERS
		1	UNIT MOUNTED VFD FOR USE WITH ECPM03
		1	LOAD REACTOR MOUNTED IN FAN
		1	2 YEAR PARTS WARRANTY

FAN ACCESSORIES

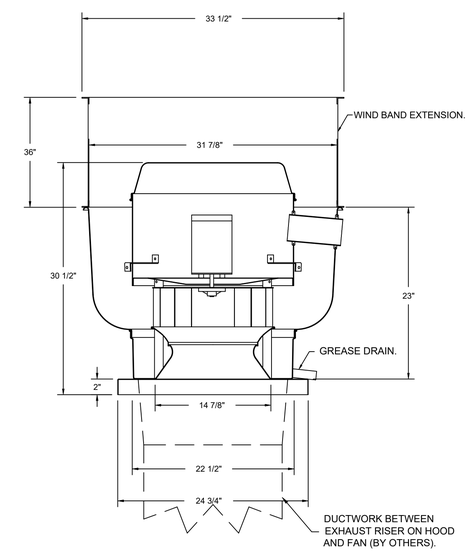
FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	KEF1A	YES						
2	KEF1B	YES						
3	KEF-2	YES						
4	KEF3	YES						
5	MAU-1						YES	

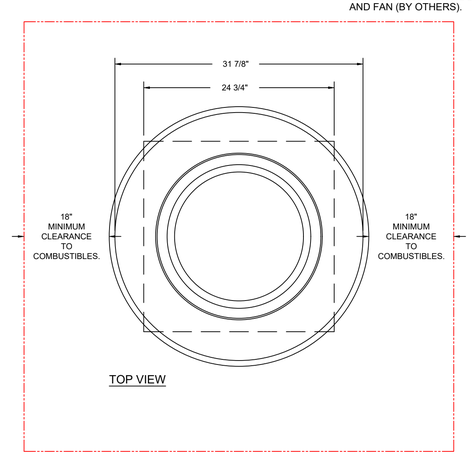
CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	KEF1A	41 LBS	CURB	23.000"W X 23.000"L X 24.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT VENTED HINGED.
2	# 2	KEF1B	41 LBS	CURB	23.000"W X 23.000"L X 24.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT VENTED HINGED.
3	# 3	KEF-2	52 LBS	CURB	26.500"W X 26.500"L X 24.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT VENTED HINGED.
4	# 4	KEF3	41 LBS	CURB	23.000"W X 23.000"L X 24.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT VENTED HINGED.
5	# 5	MAU-1	128 LBS	CURB	35.000"W X 150.000"L X 20.000"H 0.250:12.000 PITCH ALONG WIDTH, RIGHT INSULATED.

HMI SCHEDULE				
UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #5	HMI #1 - UNIT HMI # 1	MOUNTED IN UNIT	NOT AVERAGED	55

FANS #1 (KEF1A), #2 (KEF1B) - EADU85H EXHAUST FAN





FEATURES:

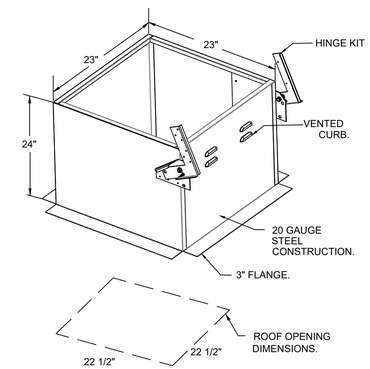
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

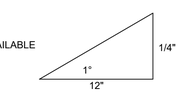
ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX.
- 36" TALL STRAIGHT WIND BAND EXTENSION 15 (SHIPS LOOSE).
- ECM WIRING PACKAGE - PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CCW ROTATION.
- 2 YEAR PARTS WARRANTY.



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.



SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE.

REVISIONS

DESCRIPTION	DATE:

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DWG.#: 6528660

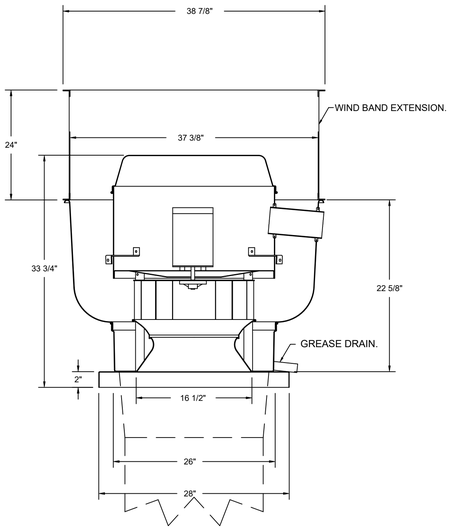
DRAWN BY: RJH-80

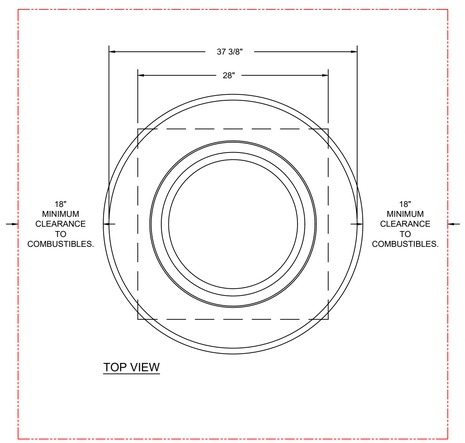
SCALE: 3/4" = 1'-0"

MASTER DRAWING

SHEET NO.
7

FAN #3 EADU180H - EXHAUST FAN (KEF-2)





FEATURES:

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- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
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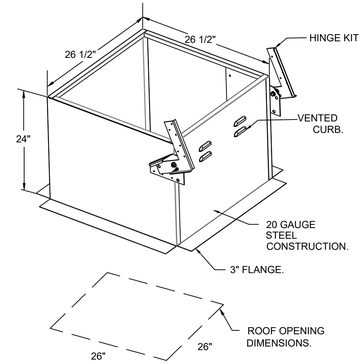
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

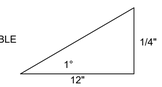
ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX.
- EXHAUST FAN HEAT BAFFLE.
- 24" TALL STRAIGHT WIND BAND EXTENSION 18/20 (SHIPS LOOSE).
- LOAD REACTOR MOUNTED IN FAN.
- UNIT MOUNTED VFD FOR USE WITH ECPM03.
- VFD MOUNTING BRACKET FOR DU/DR 180
- 200.
- 2 YEAR PARTS WARRANTY.



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.

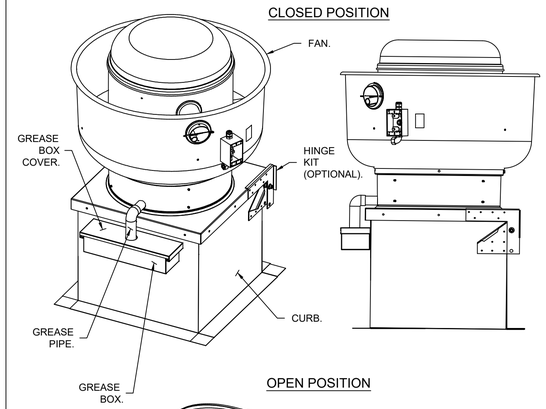


SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE.

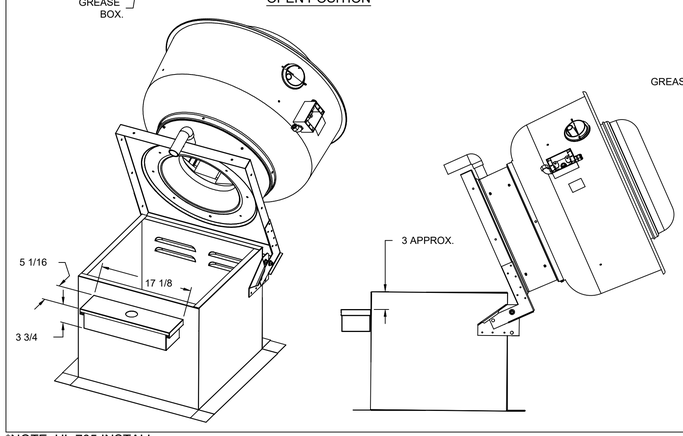
GREASE BOX INSTALLATION

GREASEBOX
REV.#2 08/19/02

CLOSED POSITION



OPEN POSITION



PARTS INCLUDED

GREASE BOX.
GREASE BOX COVER.
GREASE PIPE.

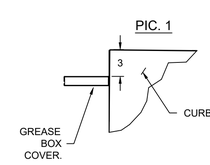
SHEET METAL SCREWS
3 - LONG (3/4" LG.).

GREASE BOX FIELD INSTALLATION

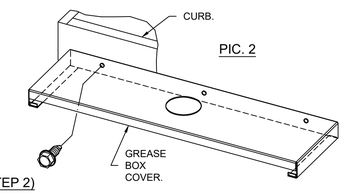
STEP 1)

ATTACH GREASE BOX COVER TO THE CURB, HOLD 3" DIMENSION AS SHOWN ON PIC. 1. SCREW GREASE BOX COVER TO CURB USING (3) LONG (3/4" LG.) SCREWS AS SHOWN ON PIC. 2.

PIC. 1



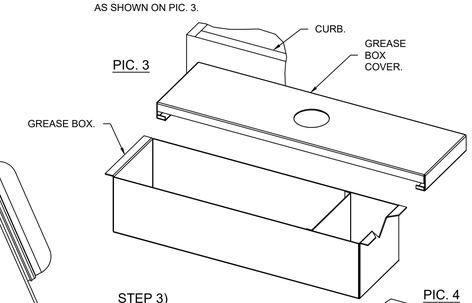
PIC. 2



STEP 2)

ATTACH GREASE BOX TO GREASE BOX COVER, SLIDE AND DROP. AS SHOWN ON PIC. 3.

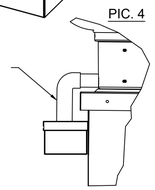
PIC. 3



STEP 3)

INSTALL GREASE PIPE AS SHOWN ON PIC. 4.

PIC. 4



*NOTE: UL 705 INSTALL.

REVISIONS

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DATE: 1/12/2024

DWG.#: 6528660

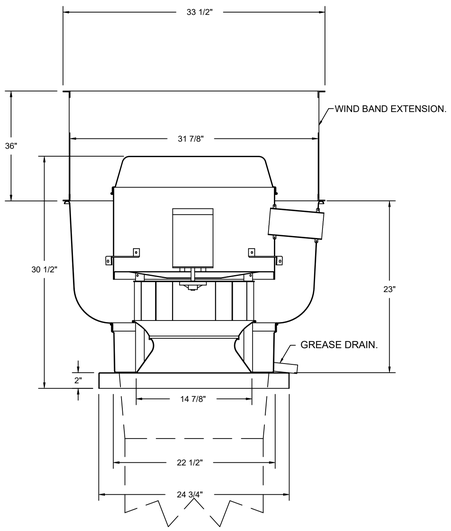
DRAWN BY: RJH-80

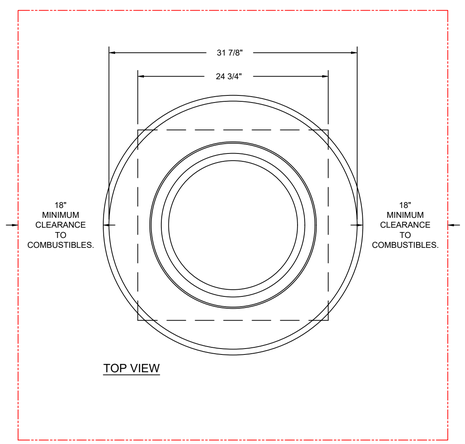
SCALE: 3/4" = 1'-0"

MASTER DRAWING

SHEET NO.
8

FAN #4 EADU85H - EXHAUST FAN (KEF3)





FEATURES:

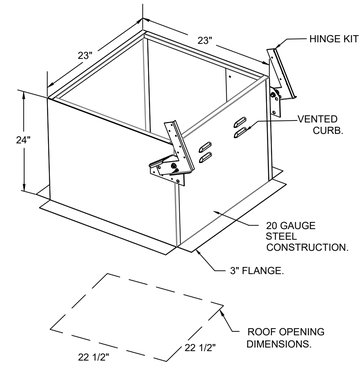
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

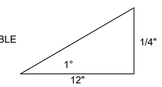
ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX.
- 36" TALL STRAIGHT WIND BAND EXTENSION 15 (SHIPS LOOSE).
- ECM WIRING PACKAGE - PWM SIGNAL FROM ECPMO3 PREWIRE (TELCO MOTOR), CCW ROTATION.
- 2 YEAR PARTS WARRANTY.



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.



SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE.

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DRAWN BY: RJH-80

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

MASTER DRAWING

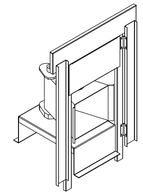
SHEET NO.
9

FAN #5 A3-D.750-24D-MPU - HEATER (MAU-1)
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 24" MIXED FLOW DIRECT DRIVE FAN AND 18" BURNER.
2. INTAKE HOOD WITH EZ FILTERS.
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT.
4. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE.
5. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC,, 2.5" DIAMETER, 1/4" THREAD SIZE.
6. BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 3 (1" MOD VALVE).
7. 5HP LOOSE GAS STRAINER. TO BE INSTALLED UPSTREAM OF UNIT CONNECTION. 1" CONNECTION.
8. CASLINK BUILDING MONITORING SYSTEM COMMUNICATIONS MODULE. REQUIRES INTERNET & FIELD WIRED ETHERNET CONNECTION OR 3G CELLULAR SERVICE. INCLUDES REV 3 COMM MODULE, RJ45 TO MODBUS CONVERTER, 3 FT CAT5 CABLE, AND 1 FT OF SHIELDED TWISTED PAIR.
9. MOTORIZED BACK DRAFT DAMPER 30" X 30" FOR SIZE 3 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE. NFBUP-S ACTUATOR INCLUDED.
10. 10 TON, DUAL CIRCUIT (5/5) MODULAR PACKAGED COOLING OPTION FOR SIZE 3 DF/EH MODULAR PACKAGED UNIT. INCLUDES CONDENSER, DX COIL, FILTER/DRYER KIT, THERMAL EXPANSION VALVE, R410A REFRIGERANT, AND REFRIGERANT PIPING. (3,600 TO 6,000 CFM) WHEN ORDERED WITH OPPOSITE AIRFLOW CONDENSERS ACCESS AND COIL PIPING WILL REMAIN IN STANDARD POSITION. DRAIN AND SLEEVE WILL MOVE TO THE OPPOSITE SIDE. ANY OTHER CHANGE WILL REQUIRE CLI. CONDENSERS REQUIRE SEPARATE 460V, 3 PHASE POWER SUPPLY UNLESS ORDERED WITH SINGLE POINT CONNECTION. COIL = 3E20020S.
11. VENTURI PLENUM FOR SIZE 3 COOLING COIL MODULE - REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS.
12. SINGLE POINT MPU CONNECTION, 2 CONDENSERS.
13. UNIT MOUNTED VFD FOR USE WITH ECPM03.
14. MOUNT LOAD REACTOR IN FAN.
15. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER/MPU SECTION).
16. 2 YEAR PARTS WARRANTY.

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 24" x 24".

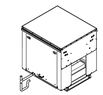
SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 2°F , TEMP. RISE = 73°F.
BTUx CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT BTUx AT ALTITUDE OF 0.0 FT. = 455845.
INPUT BTUx AT ALTITUDE OF 0.0 FT. = 495483.
OUTPUT BTUx AT ALTITUDE OF 724 FT. = 444044.
INPUT BTUx AT ALTITUDE OF 724 FT. = 482857.



DIRECT FIRED (DF) PROFILE PLATE ASSEMBLY

TYPICAL DRAIN TRAP INSTALL



RECOMMENDED COOLING COIL DRAIN TRAP CONFIGURATION.

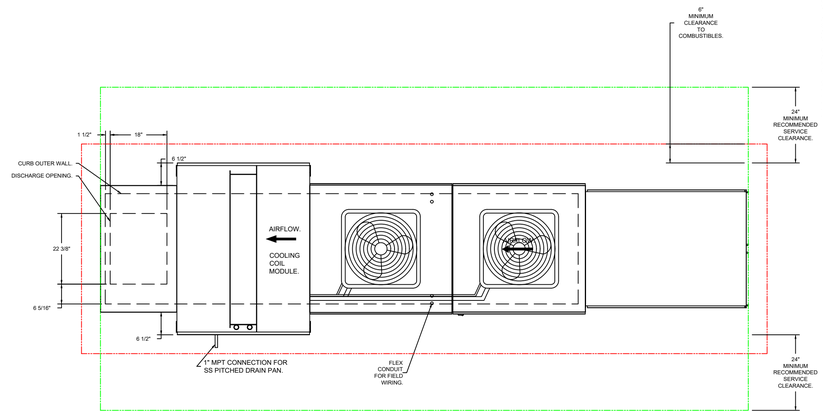
NOTES:
1) 1" DIAMETER PVC PIPE ONLY.
2) USE ONLY LOW PROFILE COUPLINGS.
3) ADD CLEAN OUT AS SHOWN.

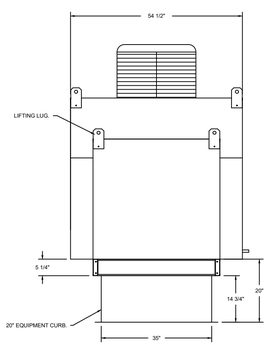
DIRECT FIRED PROFILE PLATE SPECIFICATIONS:
DESCRIPTION:
DIRECT FIRED BURNERS SHALL HAVE PATENTED (US PATENT NO.: US6295238B2), SELF-ADJUSTING PROFILE PLATES DESIGNED TO ENSURE PROPER AIR VELOCITY AND PRESSURE DROP ACROSS THE BURNER. PROFILE PLATES SHALL ALLOW BURNERS TO ACHIEVE CLEAN COMBUSTION BY LIMITING BY-PRODUCT LEVELS TO A MAXIMUM OF 5PPM OF CARBON MONOXIDE (CO) AND 0.5PPM OF NITROGEN DIOXIDE (NO2). DIRECT FIRED UNITS SHALL BE CONFIGURED WITH THE BLOWER MOUNTED DOWNSTREAM OF THE BURNER. THIS ARRANGEMENT WILL ENSURE A CONSISTENT AIRFLOW, REGARDLESS OF INLET AIR TEMPERATURE.

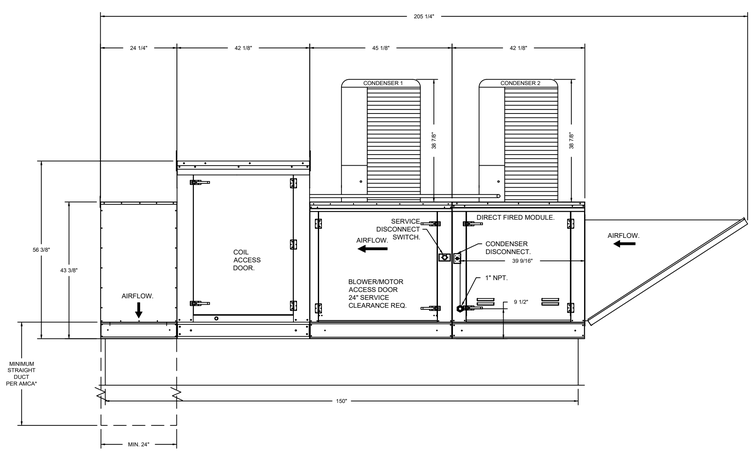
APPLICATION:
SPRING-LOADED BURNER PROFILE PLATES ARE ENGINEERED TO AUTOMATICALLY REACT TO THE MOMENTUM OF A FRESH AIR STREAM, WITHOUT THE NEED FOR ANY MOTORS OR ACTUATORS TO MECHANICALLY ADJUST THEM. WITH THIS FEATURE, ALL DF UNITS ARE DESIGNED FOR DEMAND CONTROL VENTILATION (DCV) REQUIREMENTS.

CERTIFICATIONS:
ALL PROFILE PLATE ASSEMBLIES SHALL BE INCLUDED IN THE DF UNIT'S ETL LISTING AND COMPLY WITH COMBINED SAFETY STANDARDS ANSI Z83.4 AND CSA 3.7 (NON-RECIRCULATING DF HEATERS) AND ANSI Z83.18 (RECIRCULATING DF HEATERS).

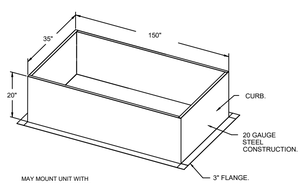
GENERAL CONSTRUCTION:
-PROFILE PLATES SHALL BE FORMED FROM G90 GALVANIZED STEEL.
-PROFILE PLATES SHALL VARY IN SIZE PER UNIT.
-PROFILE PLATES SHALL BE MOUNTED ALONG THE SAME PLANE AS THE DISCHARGE OF THE BURNER.
-DESIGN SHALL INCORPORATE PROPERLY TORQUED, PERMANENTLY MOUNTED SPRING HINGES.
-SPRING HINGES SHALL BE MADE FROM PLATED STEEL.



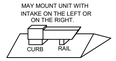


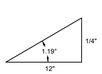


OPTIONS:
- FULL BOTTOM CORNERS.



MAY MOUNT UNIT WITH INTAKE ON THE LEFT OR ON THE RIGHT.





1/4"/12" PITCH = 1.19° SLOPE

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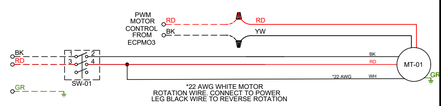
DATE: 1/12/2024
DWG.#: 6528660
DRAWN BY: RJH-80
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 10

Exhaust Fan Wiring	JOB 6528660 - Pan Asia - Milwaukee	
DRAWING NUMBER EXH6528660-1	SHIP DATE 1/12/2024	MODEL EADU85H



Installed Options

Component Identification

Label	Description	Location
MT-01	Fan Motor	[3]
SW-01	Main disconnect switch	[3]

MOTOR INFO
EXHAUST 1.0HP-2300V-TP-8.5FLA

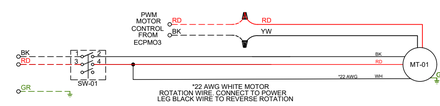
ELECTRICAL INFORMATION
MOTOR/CTRL MCA: 8.2A
MOTOR/CTRL MOP: 15A

NOTES
DENOTES FIELD WIRING
DENOTES INTERNAL WIRING

WIRE COLOR

BK - BLACK	YW - YELLOW
BL - BLUE	GR - GREEN
BR - BROWN	GY - GRAY
OR - ORANGE	PR - PURPLE
RD - RED	PK - PINK
WH - WHITE	

Exhaust Fan Wiring	JOB 6528660 - Pan Asia - Milwaukee	
DRAWING NUMBER EXH6528660-2	SHIP DATE 1/12/2024	MODEL EADU85H



Installed Options

Component Identification

Label	Description	Location
MT-01	Fan Motor	[3]
SW-01	Main disconnect switch	[3]

MOTOR INFO
EXHAUST 1.0HP-2300V-TP-8.5FLA

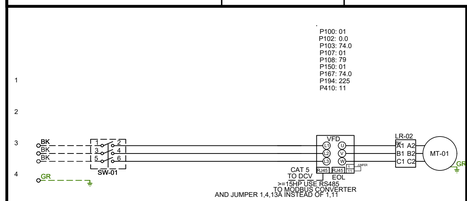
ELECTRICAL INFORMATION
MOTOR/CTRL MCA: 8.2A
MOTOR/CTRL MOP: 15A

NOTES
DENOTES FIELD WIRING
DENOTES INTERNAL WIRING

WIRE COLOR

BK - BLACK	YW - YELLOW
BL - BLUE	GR - GREEN
BR - BROWN	GY - GRAY
OR - ORANGE	PR - PURPLE
RD - RED	PK - PINK
WH - WHITE	

Exhaust Fan Wiring	JOB 6528660 - Pan Asia - Milwaukee	
DRAWING NUMBER EXH6528660-3	SHIP DATE 1/12/2024	MODEL EADU180H



Installed Options

Component Identification

Label	Description	Location
LR-XX	Line/Load Reactor	[3]
MT-01	Fan Motor	[3]
SW-01	Main disconnect switch	[3]

MOTOR INFO
EXHAUST 2.0HP-460V-3P-3.8FLA
VFD PART: ESU222M04T3X6F1
REACTOR PART: KDRM45L1

ELECTRICAL INFORMATION
MOTOR/CTRL MCA: 4.9A
MOTOR/CTRL MOP: 15A

NOTES
DENOTES FIELD WIRING
DENOTES INTERNAL WIRING

WIRE COLOR

BK - BLACK	YW - YELLOW
BL - BLUE	GR - GREEN
BR - BROWN	GY - GRAY
OR - ORANGE	PR - PURPLE
RD - RED	PK - PINK
WH - WHITE	

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DATE: 1/12/2024

DWG.#: 6528660

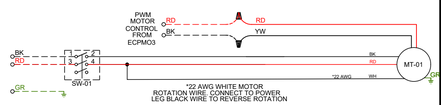
DRAWN BY: RJH-80

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

MASTER DRAWING

SHEET NO. 11

Exhaust Fan Wiring	JOB	6528660 - Pan Asia - Milwaukee	
DRAWING NUMBER EXH6528660-4	SHIP DATE 1/12/2024	MODEL EADU85H	



Installed Options

Component Identification

Label	Description	Location
MT-01	Fan Motor	[3]
SW-01	Main disconnect switch	[3]

MOTOR INFO

EXHAUST 1.0HP-230V-TP-8.9FLA

ELECTRICAL INFORMATION

MOTOR/CTRL MCA: 8.2A
MOTOR/CTRL MOP: 15A

NOTES

- - - - DENOTES FIELD WIRING
——— DENOTES INTERNAL WIRING

WIRE COLOR

BK - BLACK	YW - YELLOW
BL - BLUE	GR - GREEN
BR - BROWN	GY - GRAY
OR - ORANGE	PR - PURPLE
RD - RED	PK - PINK
WH - WHITE	

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DATE: 1/12/2024

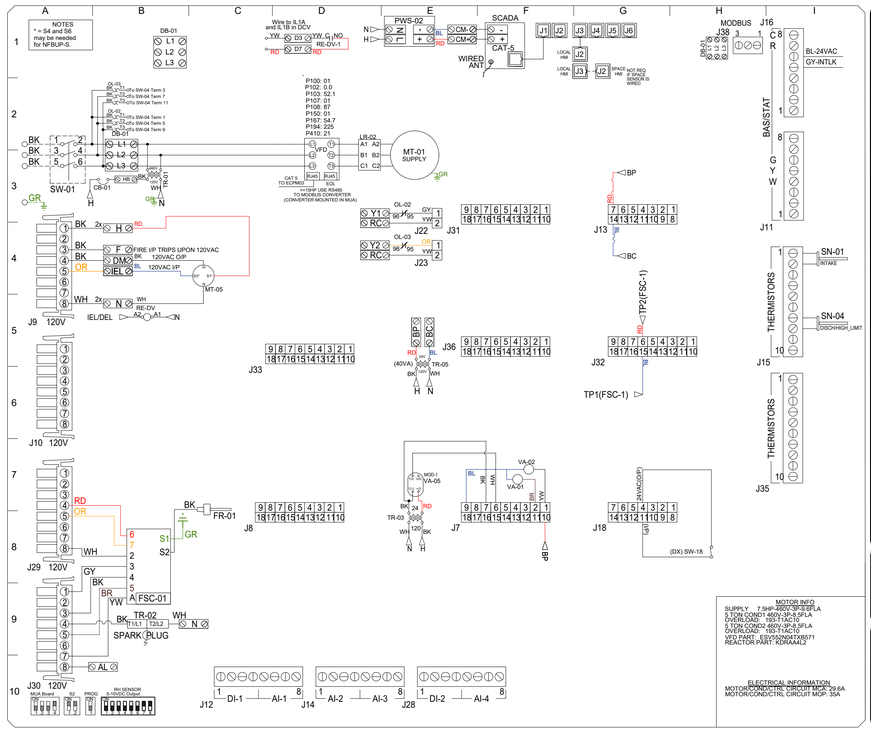
DWG.#: 6528660

DRAWN BY: RJH-80

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

MASTER DRAWING

SHEET NO. 12



COMPONENT LIST

LABEL	DESCRIPTION	
CB-01	CIRCUIT_BREAKER	B3
SCADA	SCADA_COMM_MODULE	F6
DB-01	DISTRIBUTION_BLOCK	B2
FR-01	EV/DEOM/ACU=51.1-MP	B8
FSC-01	FIRE/TE_FLAME_SAFETY	B6
LR-XX	LINEAR_REACTOR	D3
MT-01	SUPPLY_MOTOR	C1
MT-05	IN7/AIR_DAMPER_MTR	C4
RE-DV	DCV_RELAY	B5/D1
SN-XX	TEMP_SENSOR	H5/I6/I7
SW-01	DISCONNECT_SWITCH	A3
SW-18	DX_FLOAT_SWITCH	H6
TR-01	CTRL_TRANSFMR	B3
TR-02	IGNITION_TRANSFMR	B9
TR-05	BOARD_POWER_TRFMR	E5
VA-01	PILOT_GAS_VALVE	E7
VA-02	MAIN_GAS_VALVE	E7
VA-05	MOD_GAS_VALVE	E7

LEGEND

FIELD WIRING
FACTORY WIRING

BK-BLACK	YW-YELLOW		
BL-BLUE	GY-GREY		
BR-BROWN	PR-PURPLE		
OR-ORANGE	RD-RED		
WH-WHITE	GR-GREEN		
ORBL-ORBL STRIPE			
BLRD-BLRD STRIPE			
RDGN-RDGN STRIPE			
WHBL-WHBL STRIPE			

JOB NAME: Pan Asia - Milw...
DRAWING TITLE:
DESCRIPTION OF OPERATION: MUA BOARD (DETAILS TO FOLLOW)

JOB NO	DRAWN BY
6528660	AUTO
FILE	DATE
FACTORY	1/12/2024

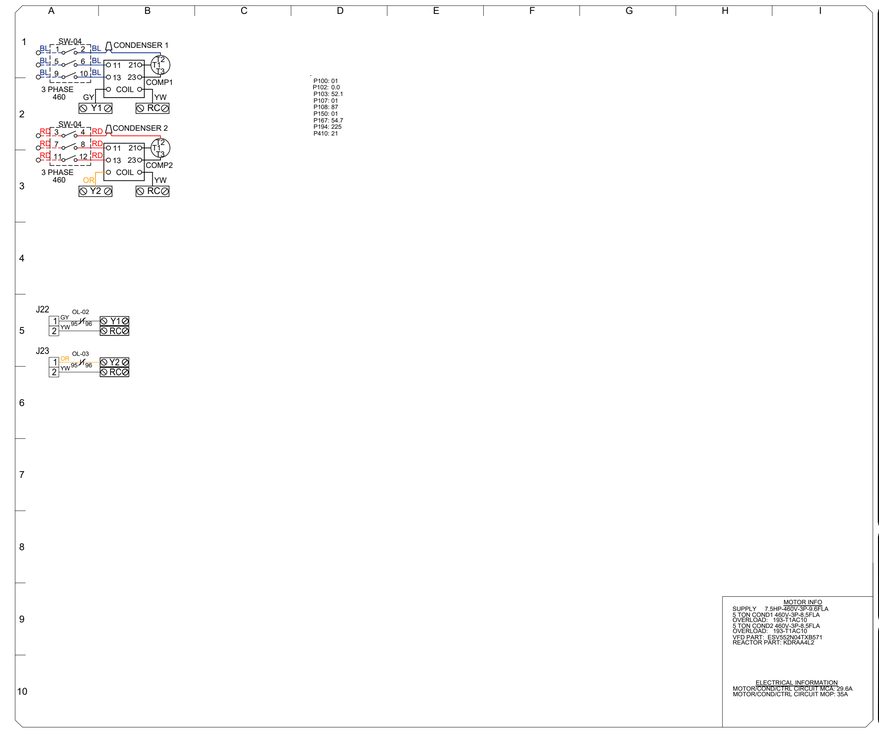
DWG # WW6528660-5

MOTOR INFO

SUPPLY 7.5HP-3PD/208-230/3-60FLA
5 TON COND1-460V-3P-8.5F-LA
OVERLOAD: 193-T1AC10
5 TON COND2-460V-3P-8.5FLA
OVERLOAD: 193-T1AC10
VFD PART: (EB)PS2N24TX0571
REACTOR PART: RDR0A4L2

ELECTRICAL INFORMATION

MOTOR/COND/CTRL CIRCUIT MCA: 39.6A
MOTOR/COND/CTRL CIRCUIT MOP: 35A



COMPONENT LIST

LABEL	DESCRIPTION	
COND-1	CONDENSOR_1	B1
COND-2	CONDENSOR_2	B2
OL-02	COND_1_OVERLOAD	A5
OL-03	COND_2_OVERLOAD	A5
SW-04	DISCON_SW_40A	A1

LEGEND

FIELD WIRING
FACTORY WIRING

BK-BLACK	YW-YELLOW		
BL-BLUE	GY-GREY		
BR-BROWN	PR-PURPLE		
OR-ORANGE	RD-RED		
WH-WHITE	GR-GREEN		
ORBL-ORBL STRIPE			
BLRD-BLRD STRIPE			
RDGN-RDGN STRIPE			
WHBL-WHBL STRIPE			

JOB NAME: Pan Asia - Milw...
DRAWING TITLE:
DESCRIPTION OF OPERATION: MUA BOARD (DETAILS TO FOLLOW)

JOB NO	DRAWN BY
6528660	AUTO
FILE	DATE
FACTORY	1/12/2024

DWG # WW6528660-5

MOTOR INFO

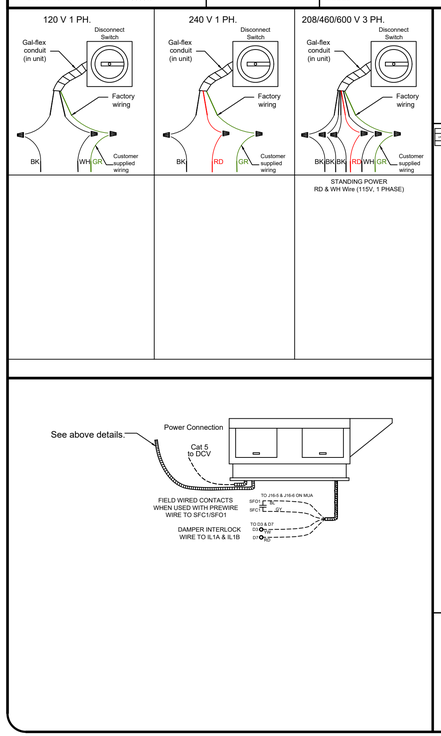
SUPPLY 7.5HP-3PD/208-230/3-60FLA
5 TON COND1-460V-3P-8.5F-LA
OVERLOAD: 193-T1AC10
5 TON COND2-460V-3P-8.5FLA
OVERLOAD: 193-T1AC10
VFD PART: (EB)PS2N24TX0571
REACTOR PART: RDR0A4L2

ELECTRICAL INFORMATION

MOTOR/COND/CTRL CIRCUIT MCA: 39.6A
MOTOR/COND/CTRL CIRCUIT MOP: 35A

Installation Wiring

DRAWING NUMBER	RP6528660-5	JOB	6528660 - Pan Asia - Milwaukee
		SHIP DATE 1/12/2024	MODEL A3-D.750-24D-MPU



Installed Options

Field Wired Switch

NOTES

WIRE COLOR

BK - BLACK	YW - YELLOW
BL - BLUE	GR - GREEN
BR - BROWN	GY - GRAY
OR - ORANGE	PR - PURPLE
RD - RED	PK - PINK
WH - WHITE	

REVISIONS

	DESCRIPTION	DATE:
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Pan Asia - Milwaukee
6900 West Greenfield Avenue,
West Allis, WI, 53214

DATE: 1/12/2024

DWG.#: 6528660

DRAWN BY: RJH-80

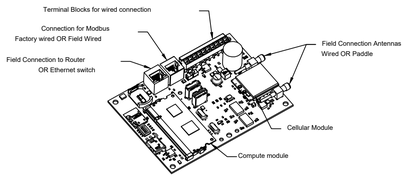
SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 13

ELECTRICAL PACKAGE - JOB#6528660

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	?	HP	VOLT	FLA
1		DCV-4111	UTILITY CABINET LEFT	UTILITY CABINET LEFT	1 LIGHT	SMART CONTROLS DCV	KEF1A	EXHAUST	1	1.000	230	6.5
							KEF1B	EXHAUST	1	1.000	230	6.5
							KEF-2	EXHAUST	3	2.000	460	3.8
				HOOD # 1	1 FAN		KEF3	EXHAUST	1	1.000	230	6.5
							MAU-1	SUPPLY	3	7.500	460	9.6

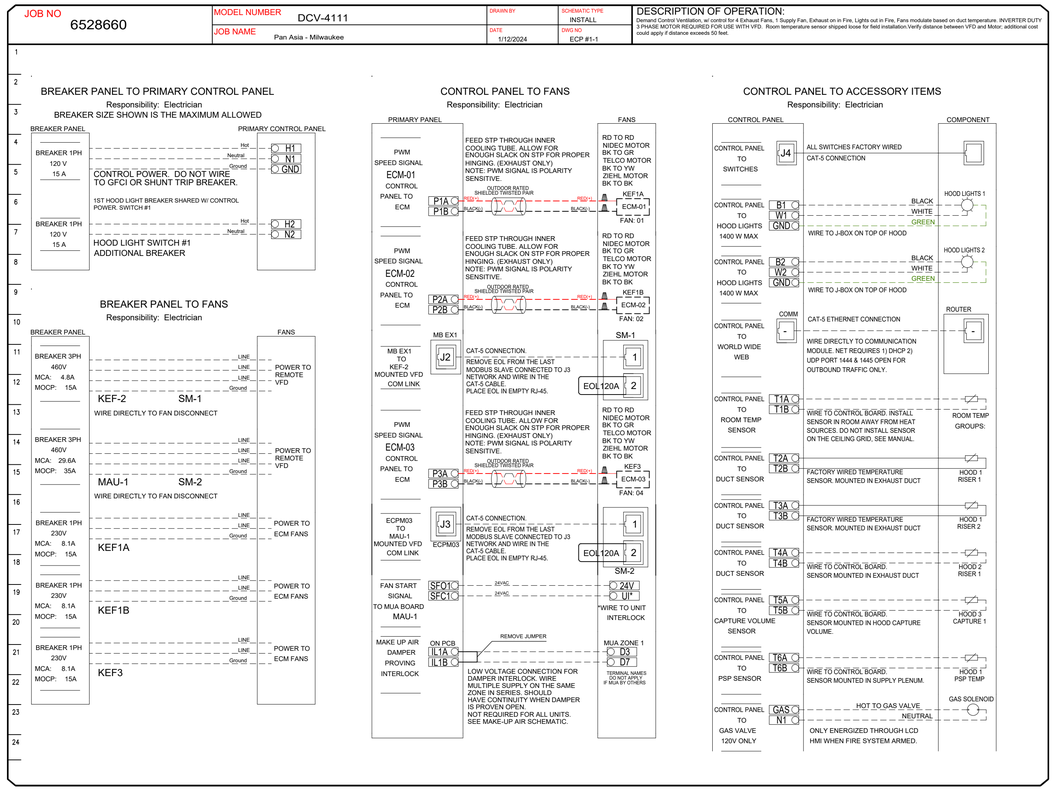


CASlink Monitor and Control

- Hood control panel to support communications to cloud-based Building Management System.
- Hood Control Panel to allow cloud-based Building Management System to monitor real time parameters outlined as MONITOR in the points list.
- Hood Control Panel to allow cloud-based Building Management System to control parameters outlined as CONTROL in the points list.
- Hood Control Panel to allow cloud-based Building Management System to implement SYSTEM ECONOMIZER control strategies for fully integrated Building Management.

MONITORING AND CONTROL POINTS LIST

DCV Packages	Function
Room Temperature	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Fan Speed	MONITOR
Fan Amperage	MONITOR
Fan Power	MONITOR
VFD Faults	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
Fire Condition	MONITOR
Fans Button	MONITOR & CONTROL
Lights Button	MONITOR & CONTROL



SYSTEM DESIGN VERIFICATION (SDV)

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

REVISIONS

	DESCRIPTION	DATE:
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Pan Asia - Milwaukee
6900 West Greenfield Avenue,
West Allis, WI, 53214

DATE: 1/12/2024

DWG.#: 6528660

DRAWN BY: RJH-80

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

MASTER DRAWING

SHEET NO. 14

JOB NO	MODEL NUMBER	DRAWN BY	SCHEMATIC TYPE	DESCRIPTION OF OPERATION:
6528660	DCV-4111		INSTALL	Makeup Control Ventilation, w/ control for 4 Exhaust Fans, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD. Room temperature sensor shipped loose for field installation.Verify distance between VFD and Motor; additional cost could apply if distance exceeds 50 feet.
JOB NAME	DATE	DWG NO		
Pan Asia - Milwaukee	1/12/2024	ECP #1-2		

THE FOLLOWING CONNECTIONS MAY OR MAY NOT BE REQUIRED BASED ON JOBSITE SPECIFICATIONS

CONTROL PANEL SIGNAL FOR EXTERNAL SHUNT TRIP — ST, N1 — HOT TO SHUNT COIL; NEUTRAL FROM SHUNT COIL — SHUNT COIL

ST TERMINAL IS ENERGIZED IN FIRE CONDITION.

CONTROL PANEL SIGNAL FOR EXTERNAL CONTACTOR COIL — KS, N1 — HOT_TO_CONTACTOR_COIL; NEUTRAL_TO_CONTACTOR_COIL — CONTACTOR_COIL

KS TERMINAL IS DE-ENERGIZED IN FIRE CONDITION.

CONTROL PANEL DRY CONTACT ON/OFF WITH SUPPLY FAN GROUP 1 — SFC1, SFO1, SFC2, SFO2 — COMMON; NORMALLY OPEN; COMMON; NORMALLY OPEN

SPARE CONTACTS WILL MAKE COMMON TO NORMALLY OPEN WHEN SUPPLY FAN IS ON.

DCV SPEED 0-10V OUTPUT (TOTAL) — VO+, VO- ON PCB — + / - TO BMS

WIRE TO ECPM03 TERMINALS. CONFIGURABLE OUTPUT. SEE ECPM03 OWNERS MANUAL.

VFD ANALOG 0-10V OUTPUT (EACH VFD) — 30, 2 IN VFD — + TO BMS

WIRE TO VFD TERMINAL STRIP. PROPORTIONAL TO FREQUENCY. SEE VFD OWNERS MANUAL.

CONTROL PANEL TO EXTERNAL SWITCH — H1, IO1 — BMS SWITCH C NO

SIGNAL SWITCH THROUGH BMS WILL ACTIVATE ZONE1 FANS AND LIGHTS

CONTROL PANEL TO GAS VALVE 24V DC ONLY — LGV, N1D — POSITIVE TO GAS VALVE; NEGATIVE — GAS SOLENOID

ONLY ENERGIZED THROUGH LCD HMI WHEN FIRE SYSTEM ARMED. (NOT NEEDED IF USING 120V GAS VALVE).

CONTROL PANEL TO FIRE SYSTEM

Responsibility: ALARM CONTRACTOR

CONTROL PANEL — COMPONENT

CONTROL PANEL SIGNAL FOR BUILDING FIRE ALARM PANEL — J9 — AL1, AL2 — BUILDING ALARM PANEL FIRE INPUT

WIRE DIRECTLY TO CORE CIRCUIT BOARD. AL1 WILL MAKE AL2 IN FIRE CONDITION.

CONTROL PANEL SIGNAL FOR BUILDING TROUBLE ALARM — TBC, TBL — COMMON; NORMALLY CLOSED — BUILDING ALARM PANEL

TROUBLE RELAY CONTACTS WILL MAKE TBC TO TBL IN TROUBLE CONDITION.

CONTROL PANEL TO FIRE SYSTEM RELEASE SOLENOID — RS2, N1D — RS-2 BR BL

WIRING DIAGRAM FOR REMOTE RELEASE SOLENOID.

CONTROL PANEL TO FIRE SYSTEM

Responsibility: CERTIFIED INSTALLER

CONTROL PANEL — COMPONENT

CONTROL PANEL TO DUCT MOUNTED FIRE DETECTION STAT(S) — 21, 22 — FIRE STATS — FS-01 BK WH Fire Stat; FS-02 BK WH Fire Stat

FIRE STAT SUPERVISED LOOP
May be mixed factory and field wiring. See Installation Schematic. Multiple fire sensors possible.
HIGH TEMP WIRE (842 F), PN: SLPCON-xFT required for all Supervised Loop wiring in contact with a hood. All other wiring shall be PN: 6320UL Belden or similar.

23, 24

CONTROL PANEL TO FIRE SYSTEM PULL STATION — 101, 102 — PULL STATION — MS-01 C NO Micro SW; AUX-01 AU1 AU2 Adjacent FS Panel; MAD-01 C NO Manual Actuation Device

MANUAL ACTUATION LOOP / REMOTE FIRE SYSTEM LOOP
Multiple manual actuation possible.
Multiple manual actuation possible.
A Plug jumper with wires from pin 1 to pin4 and from pin2 to pin3 shall be used in place of a 2 amp fuse and wire in the supervised actuation loop.
Microswitch MS-01 is optional for fire system interlock.

Auxiliary Interlock (AUX-01)
Wire AU1 / AU2 of adjacent Master FS panel(s) in each manual activation loop for simultaneous activation. See Fire system drawings for more information.

103, 104

CONTROL PANEL TO MASTER FS BOARD. — ECPM03 J3 — CORE PCB J5, EOL120A J6

CAT-5 CONNECTION

ADDITIONAL DEVICES MAY BE INLINE.

PLACE END OF LINE PLUG IN EMPTY JACK. PN: EOL120A UNLESS VFD, PCU OR OTHER COMPONENT IN SERIES.

INTERLOCK NETWORK — CONTROL PANEL TO MASTER FS PANEL — CA, CB, CC — SHIELDED TWISTED PAIR — BLACK, RED, SHIELD — MASTER CORE CA CB CC

WIRE TO LIKE TERMINALS IN ALL CORE PANELS THAT MUST ACTIVATE TOGETHER. SET MASTER & SLAVE DIP SWITCHES PER FIRE SYSTEM MANUAL.

CONTROL PANEL TO EXTRA FIRE SYSTEM PRESSURE SWITCH — PSX, H1D — PS-X RD WH

WIRING DIAGRAM FOR ALL OTHER PRESSURE SWITCHES IN SERIES.

JOB NO	MODEL NUMBER	DRAWN BY	SCHEMATIC TYPE	DESCRIPTION OF OPERATION:
6528660	DCV-4111		INSTALL	Fire System #1 TANK FS - 4-0/4-0/4.0A 0 / Remote - 4-0/4-0.
JOB NAME	DATE	DWG NO		
Pan Asia - Milwaukee	1/12/2024	ECP #1-3		

TANK PROTECTION ELECTRICAL DETAIL

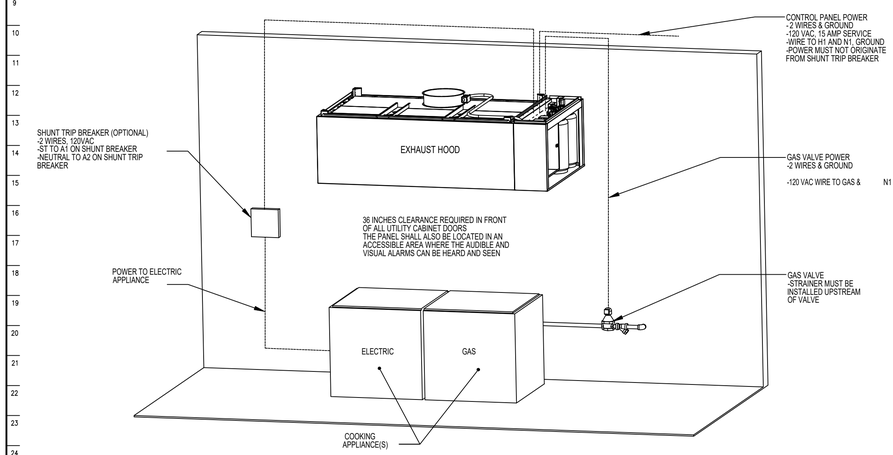
02/10/2021 Rev. 2

ELECTRICIAN:
1. WIRE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC
2. WIRE ALL FANS PER INCLUDED SCHEMATIC
3. WIRE SHUNT TRIP BREAKER (OPTIONAL)
4. WIRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)
5. WIRE GAS VALVE

FS-1: MASTER

ELECTRICAL CONTRACTOR REQUIREMENT

ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER (OPTIONAL)	ST & N1	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	H1 & N1 + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
GAS VALVE	GAS & N1 (IF 120 VAC)	RED/RED/GREEN	OR 120 VAC	< 1.0 AMPS	IF 120 VAC - 2 WIRES & GROUND GAS TO RED, N1 TO RED, AND GREEN TO GROUND



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

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DESCRIPTION	DATE:

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Pan Asia - Milwaukee
6900 West Greenfield Avenue,
West Allis, WI, 53214

DATE: 1/12/2024

DWG.#: 6528660

DRAWN BY: RJH-80

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

MASTER DRAWING

SHEET NO. 15

JOB NO	MODEL NUMBER	DRAWN BY	SCHEMATIC TYPE	DESCRIPTION OF OPERATION:
6528660	DCV-4111		INSTALL	Fire System #1 TANK FS - 4.0/4.0/4.0/4.0 / Remote - 4.0/4.0.
	JOB NAME: Pan Asia - Milwaukee	DATE: 1/12/2024	DWG NO: ECP #1-4	

TANK PROTECTION LOW-VOLTAGE DETAIL

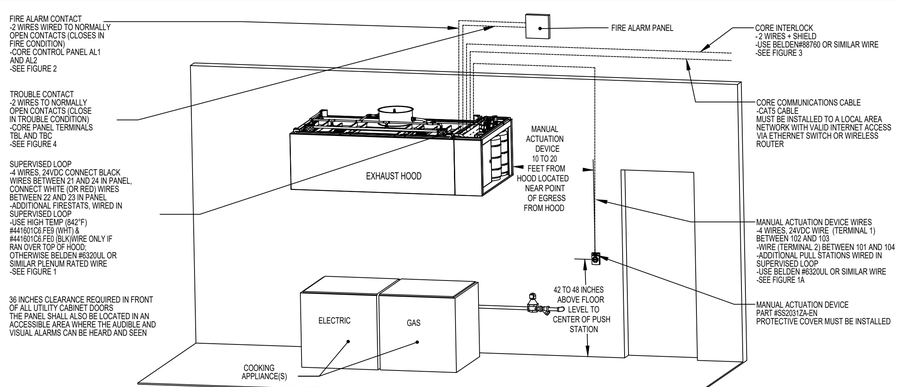
10/01/2023 Rev. 3

ALARM CONTRACTOR:
1. WIRE MANUAL ACTUATION DEVICE(S), REMOTE FIRESTAT(S), CORE INTERLOCK(S), FIRE SENSOR(S) AND FIRE ALARM CONTACTS
2. COMPLETE FINAL HOOKUP OF SYSTEM
3. VERIFY FINAL FIRE SYSTEM TEST

FS-1: MASTER

ALARM CONTRACTOR REQUIREMENT

ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
MANUAL ACTUATION DEVICE(S)	101 AND 104 102 AND 103	1 & 2	24 VDC	< 1.0 AMPS	WIRE MANUAL ACTUATION DEVICE TERMINAL 1 BETWEEN CORE PANEL TERMINALS 102 AND 103 WIRE MANUAL ACTUATION DEVICE TERMINAL 2 BETWEEN CORE PANEL TERMINALS 101 AND 104 JUMPER 101 TO 104 AND 102 TO 103 IF NO MANUAL ACTUATION DEVICE IS INSTALLED
MANUAL ACTUATION DEVICE COVER	N/A	N/A	N/A	N/A	MANUAL ACTUATION DEVICE COVER MUST BE INSTALLED IF SURFACE MOUNTED, USE COVER EXTENSION STI-6531B
REMOTE FIRESTAT SENSOR(S)	21 AND 24 22 AND 23	BLACK AND WHITE	24 VDC	< 1.0 AMPS	WIRE FIRE SENSOR WHITE WIRES BETWEEN HOOD CORE PANEL TERMINALS 22 AND 23 WIRE FIRE SENSOR BLACK WIRE BETWEEN HOOD CORE PANEL TERMINALS 21 AND 24 HIGH TEMP (842°F) #4416010LF6 PER (WHT) & #4416010LF6 FEI (BLK)WIRE OR SIMILAR ONLY IF RAN OF HOOD. OTHERWISE BELDEN #6320UL OR SIMILAR PLENUM RATED WIRE. SEE FIGURE 1
FIRE ALARM CONTACT	AL1, AL2	VARIES	50V MAX (AC/DC)	UP TO 1 AMP	FIRE ALARM RELAY CONTACTS FOR BUILDING FIRE ALARM LOCATED IN THE CORE ELECTRICAL CONTROL PANEL
CORE INTERLOCK(S)	CA, CB, CC	CA, CB, CC	RS-485 COMMUNICATIONS SIGNAL		CORE SYSTEM (1) CA, TO CORE SYSTEM (2) CA. CORE SYSTEM (1) CB, TO CORE SYSTEM (2) CB. CORE SYSTEM (1) CC, TO CORE SYSTEM (2) CC. USE BELDEN# 88760 OR SIMILAR WIRE
TROUBLE CONTACT	TBC, TBL, TOK	VARIES	MAX 120 VAC	UP TO 6 AMPS	WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION
CORE COMMUNICATIONS CABLE	RJ-45 Jack	INTERNET CONNECTION	SIGNAL	<1.0 AMPS	TYPICAL CONNECTION CAT5 CABLE TO LOCAL AREA NETWORK VIA ETHERNET SWITCH OR WIRELESS ROUTER WITH VALID INTERNET CONNECTION



ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

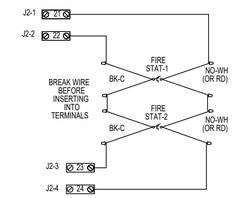
NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

JOB NO	MODEL NUMBER	DRAWN BY	SCHEMATIC TYPE	DESCRIPTION OF OPERATION:
6528660	DCV-4111		INSTALL	Fire System #1 TANK FS - 4.0/4.0/4.0/4.0 / Remote - 4.0/4.0.
	JOB NAME: Pan Asia - Milwaukee	DATE: 1/12/2024	DWG NO: ECP #1-5	

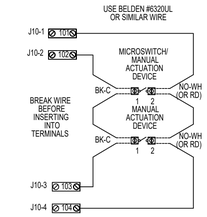
TANK PROTECTION LOW-VOLTAGE FIGURES

10/01/2023 Rev. 17

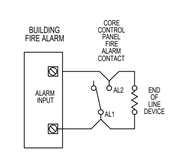
FS-1: MASTER



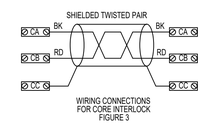
WIRING CONNECTIONS FOR FIRESTAT LOOP FIGURE 1



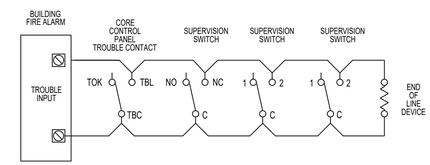
WIRING CONNECTIONS FOR MANUAL ACTUATION LOOP FIGURE 1A



WIRING CONNECTIONS FOR FIRE ALARM CONTACT FIGURE 2



WIRING CONNECTIONS FOR CORE INTERLOCK FIGURE 3



WIRING CONNECTIONS FOR TROUBLE CONTACT FIGURE 4

ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

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Pan Asia - Milwaukee
6900 West Greenfield Avenue,
West Allis, WI, 53214

DATE: 1/12/2024

DWG.#: 6528660

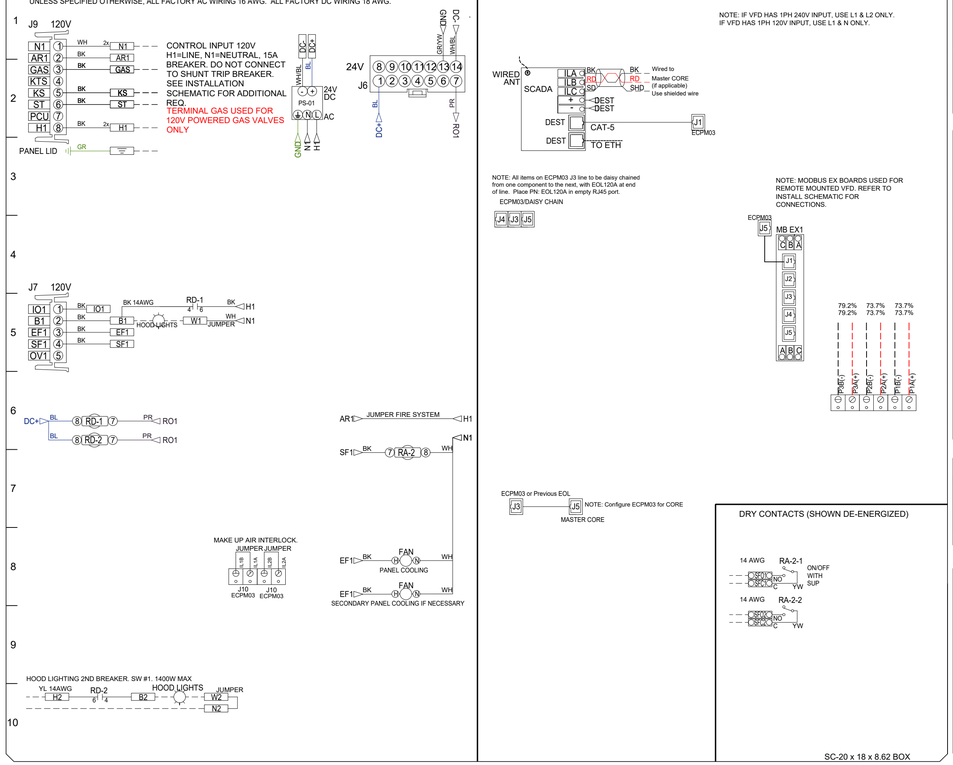
DRAWN BY: RJH-80

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

MASTER DRAWING

SHEET NO. 16

UNLESS SPECIFIED OTHERWISE, ALL FACTORY AC WIRING 16 AWG. ALL FACTORY DC WIRING 18 AWG.



FACTORY WIRING SCHEMATIC CIRCUIT BOARDS ECPM03

RA-x 120 VAC RELAY			RD-x 24 VDC RELAY		
NO	4	3	NO	4	3
NC	2	1	NC	2	1
COIL	8	7	COIL	8	7
COM	6	5	COM	6	5

COMPONENT LIST

LABEL	DESCRIPTION
ST-X	Starter PN: varies
OL-X	Overload PN: varies
C-X	Contactor PN: varies
PS-1	Power Sup. 24VDC PN: MDP-S30A-12
RA-x	120V Relay DPDT PN: 34.116.0184.0
RD-x	24VDC Light Relay PN: 34.116.0188.0
TS-x	Duct Thermostat PN: ACF-PCT-TX-EXPL
MB EX1	Modbus Expansion PN: MODBUS-EX
SCADA	SCADA Module PN:

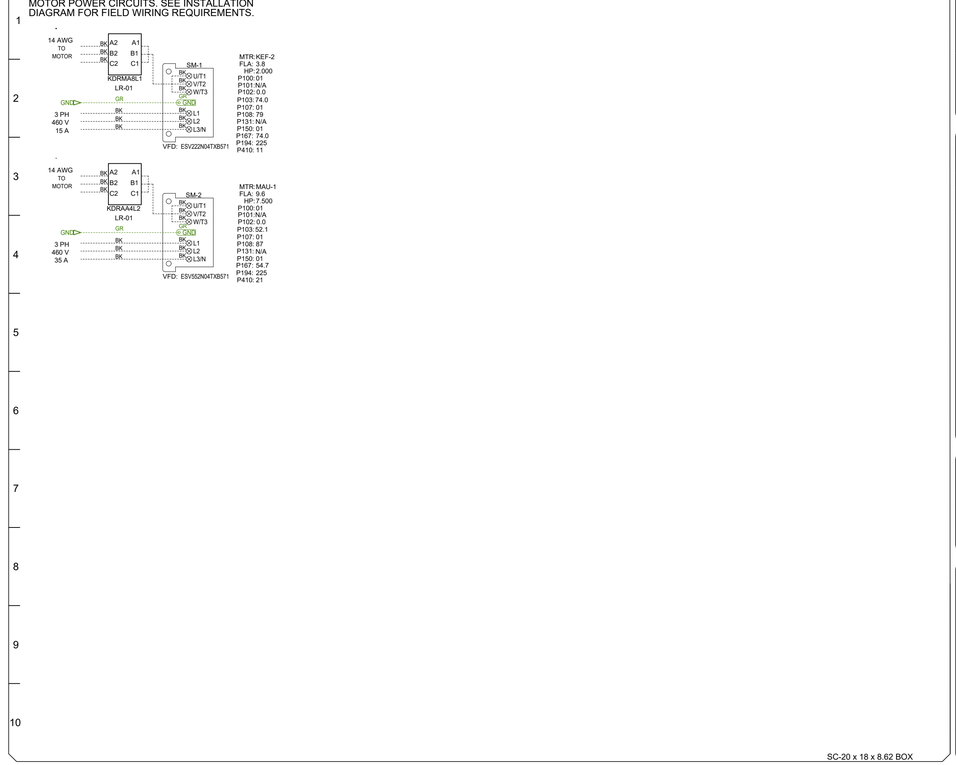
LEGEND

FIELD WIRING
FACTORY WIRING

BK- BLACK	YW- YELLOW
BL- BLUE	GY- GREY
BR- BROWN	PR- PURPLE
OR- ORANGE	RD- RED
WH- WHITE	
OR/BL- OR/BL STRIPE	
BL/RD- BL/RD STRIPE	
RD/GN- RD/GN STRIPE	
WH/BL- WH/BL STRIPE	

JOB NAME: Pan Asia - Milwa...
DRAWING TITLE: DCV-4111
DESCRIPTION OF OPERATION: Demand Control Ventilation, w/ control for 4 Exhaust Fans, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD. Room temperature sensor shipped loose for field installation.Verify distance between VFD and Motor, additional cost could apply if distance exceeds 50 feet.

JOB NO	DRAWN BY
6528660	
TYPE: FACTORY	DATE: 1/12/2024
DWG NO: ECP #1-6	



FACTORY WIRING SCHEMATIC CIRCUIT BOARDS ECPM03
DCV Rev. 2.10.00 HMI Rev. 2.10.00

RA-x 120 VAC RELAY			RD-x 24 VDC RELAY		
NO	4	3	NO	4	3
NC	2	1	NC	2	1
COIL	8	7	COIL	8	7
COM	6	5	COM	6	5

COMPONENT LIST

LABEL	DESCRIPTION
ST-X	Starter PN: varies
C-X	Contactor PN: varies
SM-X	VFD PN: varies
LR-X	Line/Load Reactor PN: varies

LEGEND

FIELD WIRING
FACTORY WIRING

BK- BLACK	YW- YELLOW
BL- BLUE	GY- GREY
BR- BROWN	PR- PURPLE
OR- ORANGE	RD- RED
WH- WHITE	
OR/BL- OR/BL STRIPE	
BL/RD- BL/RD STRIPE	
RD/GN- RD/GN STRIPE	
WH/BL- WH/BL STRIPE	

JOB NAME: Pan Asia - Milwa...
DRAWING TITLE: DCV-4111
DESCRIPTION OF OPERATION: Demand Control Ventilation, w/ control for 4 Exhaust Fans, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD. Room temperature sensor shipped loose for field installation.Verify distance between VFD and Motor, additional cost could apply if distance exceeds 50 feet.

JOB NO	DRAWN BY
6528660	
TYPE: FACTORY	DATE: 1/12/2024
DWG NO: ECP #1-7	

REVISIONS

	DESCRIPTION	DATE:
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Pan Asia - Milwaukee
6900 West Greenfield Avenue,
West Allis, WI, 53214

DATE: 1/12/2024

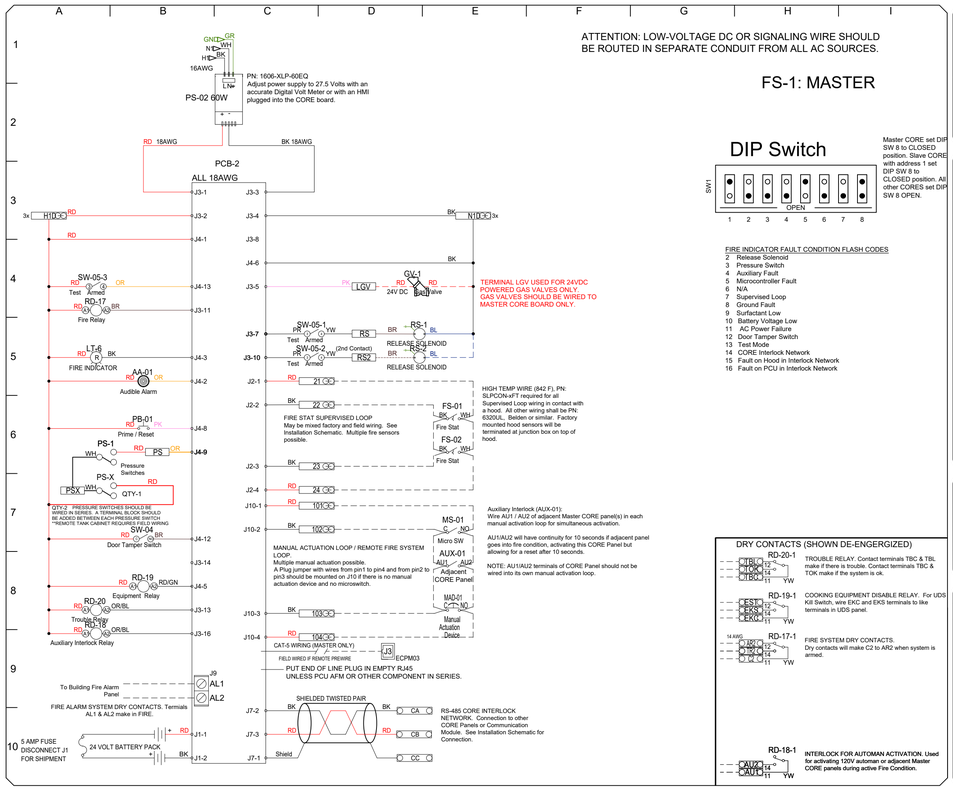
DWG.#: 6528660

DRAWN BY: RJH-80

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

MASTER DRAWING

SHEET NO. 17



ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES.

FS-1: MASTER

DIP Switch

Master CORE set DIP SW 8 to CLOSED position. Slave CORE with address 1 set DIP SW 8 to CLOSED position. All other CORES set DIP SW 8 OPEN.

FIRE INDICATOR FAULT CONDITION FLASH CODES

2 Release Solenoid
3 Pressure Switch
4 Auxiliary Fault
5 Microcontroller Fault
6 N/A
7 Supervised Loop
8 Ground Fault
9 Surfactant Low
10 Battery Voltage Low
11 AC Power Failure
12 Door Tamper Switch
13 Test Mode
14 CORE Interlock Network
15 Fault on Hood in Interlock Network
16 Fault on PCU in Interlock Network

HIGH TEMP WIRE (842 F), PN: SLPCONvaFT required for all Supervised Loop wiring in contact with a hood. All other wiring shall be PN: 6320UL, Belden or similar. Factory mounted hood sensors will be terminated at junction box on top of hood.

Auxiliary Interlock (AUX-01):
Wire AU1 / AU2 of adjacent Master CORE panel(s) in each manual activation loop for simultaneous activation.

AU1/AU2 will have continuity for 10 seconds if adjacent panel goes into fire condition, activating this CORE Panel but allowing for a reset after 10 seconds.

NOTE: AU1/AU2 terminals of CORE Panel should not be wired into its own manual activation loop.

DRY CONTACTS (SHOWN DE-ENGERGIZED)

RD-20-1 — TROUBLE RELAY. Contact terminals TBC & TBL make if there is trouble. Contact terminals TBC & TOK make if the system is ok.

RD-19-1 — COOKING EQUIPMENT DISABLE RELAY. For UDS Kill Switch, wire EKC and EKS terminals to like terminals in UDS panel.

RD-17-1 — FIRE SYSTEM DRY CONTACTS. Dry contacts will make C2 to AR2 when system is armed.

RD-18-1 — INTERLOCK FOR AUTOMAN ACTIVATION. Used for activating 120V automan or adjacent Master CORE panels during active Fire Condition.

FACTORY WIRING SCHEMATIC
CORE FIRE PROTECTION

RA-x 120VAC RELAY			RD-x 24 VDC RELAY		
NO	4	3	NO	4	3
NC	2	1	NC	2	1
COIL	8	7	COIL	8	7
COM	6	5	COM	6	5

COMPONENT LIST

LABEL	DESCRIPTION
MAD-01	MANUAL ACTIVATION PN: DEVICE
PCB-2	CORE PCB PN: PCBCORE-APP
PS-02	CORE POWER SUPPLY PN: 1606-XLP-60E
WS-x	Water Solenoid PN: varies
LT-06	24V Red Ind. Light PN: PNL-165-02R
LL-01	Surf. Level Sensor PN: A02610
AA-01	Audible Alarm PN: SCS130,A3PF1B
PB-XX	Prime/Reset Switch PN: 2N4KA23N4S7015
SW-05	TEST/ARM Switch PN: 250A22
SW-04	Tamper Switch PN: EJ-2RC/-42
SP-1	Surfactant Pump PN: 5000-805
GV-1	24v DC Gas Valve PN: varies
FS-XX	Duct Fire Sensor PN: 12-F2802-000360
LT-05	24V YLW Ind. Light PN: PNL-165-02Y
PS-01	Remote Pull/Push PN: Station 57-02243/1
PWS-01	24VDC Power Suppl PN: 24VDC 18W POWER
RD-XX	24VDC Phoenix Relay PN: PLC-RPT-24DC/21

LEGEND

FIELD WIRING
FACTORY WIRING

BK- BLACK — YW- YELLOW
BL- BLUE — GY- GREY
BR- BROWN — PR- PURPLE
OR- ORANGE — RD- RED
WH- WHITE — GR- GREEN
OR/BL- OR/BL STRIPE
BL/RD- BL/RD STRIPE
RD/GN- RD/GN STRIPE
WH/BL- WH/BL STRIPE

JOB NAME: Pan Asia - Milwa...
DRAWING TITLE: DCV-4111
DESCRIPTION OF OPERATION: Fire System #1 TANK FS - 4.G/4.D/4.D/4.D / Remote - 4.G/4.0.

JOB NO	DRAWN BY
6528660	
TYPE	DATE
FACTORY	1/12/2024

DWG NO ECP #1-8

REVISIONS

	DESCRIPTION	DATE:
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DRAWN BY: RJH-80

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

MASTER DRAWING

SHEET NO. 18

DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:

- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).

- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.

- TEMPERATURE PROBE(S) LOCATED IN THE EXHAUST DUCT RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.

- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.1.1.

- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.

- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.

- VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDS BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.

- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.

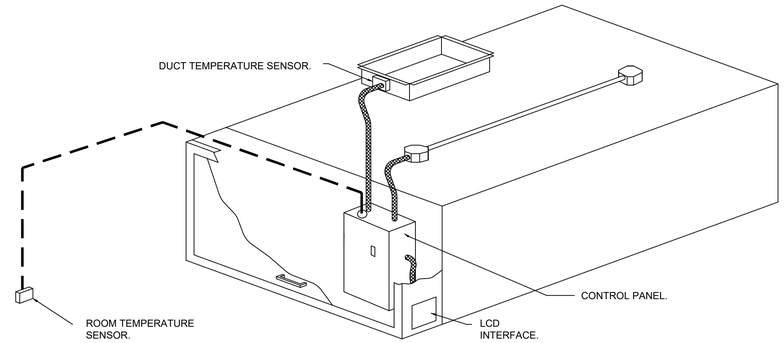
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.

- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.

- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.

- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).

- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
  A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
  B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
  C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  E. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
  G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.



TYPICAL HOOD CONTROL PANEL INSTALLATION

SEQUENCE OF OPERATIONS:

THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- AUTOMATIC: THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS "DYNAMIC", THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS "STATIC", FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).

- MANUAL:THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.

- SCHEDULE: A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.

- OTHER: THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).

- FIRE: UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

REVISIONS

	DESCRIPTION	DATE:
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DWG.#: 6528660

DRAWN BY: RJH-80

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

MASTER DRAWING

SHEET NO.
19

DUCTWORK #1 PARTS - JOB#6528660 DOUBLE WALL

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
H1-E1	DW18DWRISER-2R-S	1750				-0.366	8.15	0.00	1	DOUBLE WALL RISER COVER - USED ON 14" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
H1-E2	DW18DWRISER-2R-S	1750				-0.366	8.15	0.00	1	DOUBLE WALL RISER COVER - USED ON 14" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
H2-E1	DW22DWRISER-2R-S	3300				-0.5753	10.73	0.00	1	DOUBLE WALL RISER COVER - USED ON 18" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
H3-E1	DW16DWRISER-2R-S	1701				-0.4575	7.31	0.00	1	DOUBLE WALL RISER COVER - USED ON 12" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
P1	DW1427DWAJD-2R-S	1750				-0.005	52.12	1637.02	1	DOUBLE WALL ADJUSTABLE DUCT - 14" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 24.5" / ADJUSTMENT = 13.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P2	DW1490DWASY-2R-S	1750				-0.1155	33.30	1637.02	1	DOUBLE WALL DUCT - 14" INNER 90 DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P3	DW1402DWOFFSETASY-2R-S	1750				-0.003	12.99	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT RISER & 2 DEGREE OFFSET - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P4	DW1411DWLT-2R-S	1750				-0.0043	14.89	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT, 11" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P5	DW1417DWLT-2R-S	1750				-0.0067	22.79	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT, 17" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P6	DW1822SADKIT						7.25		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 18" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW1822SAD, & HARDWARE BAG 4.
P7 ASSEMBLED W/P8	DW14DWTEASY-2R-S	1750		1		-0.1232	41.37	1637.02	1	DOUBLE WALL DUCT - 14" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P8 ASSEMBLED W/P7 O=S	DW14DWACCDOORCOV-2R-S						22.25		1	DOUBLE WALL DUCT - 14" INNER ACCESS DOOR & 18" ACCESS DOOR COVER WITH CLAMPS - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P9	DW1402DWOFFSETASY-2R-S	1750				-0.003	12.99	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT RISER & 2 DEGREE OFFSET - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P10	DW1447DWLT-2R-S	1750				-0.0188	62.39	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT, 47" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P11	DW1447DWLT-2R-S	1750				-0.0188	62.39	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT, 47" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P12	DW1447DWAJD-2R-S	1750				-0.0144	93.18	1637.02	1	DOUBLE WALL ADJUSTABLE DUCT - 14" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P13 ASSEMBLED W/P14	DW144550DWLTTP-2R-S	1750				-0.018	61.01	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT, 45.5" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL - USED WITH TRANSITION PLATE.
P14 ASSEMBLED W/P13 O=T	DW23114TP	1750					8.49	1637.02	1	DUCT TO CURB TRANSITION, 23" CURB TO 14" DUCT, 16 GA ALUMINIZED. USED ON BDU15, DU75 & 85.
SYSTEM AT P14						-0.6967	0.00			
P15	DW1427DWAJD-2R-S	1750				-0.005	52.12	1637.02	1	DOUBLE WALL ADJUSTABLE DUCT - 14" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 24.5" / ADJUSTMENT = 13.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P16	DW1490DWASY-2R-S	1750				-0.1155	33.30	1637.02	1	DOUBLE WALL DUCT - 14" INNER 90 DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P17	DW1402DWOFFSETASY-2R-S	1750				-0.003	12.99	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT RISER & 2 DEGREE OFFSET - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P18	DW1411DWLT-2R-S	1750				-0.0043	14.89	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT, 11" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P19	DW1417DWLT-2R-S	1750				-0.0067	22.79	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT, 17" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P20	DW1822SADKIT						7.25		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 18" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW1822SAD, & HARDWARE BAG 4.
P21 ASSEMBLED W/P22	DW14DWTEASY-2R-S	1750		1		-0.1232	41.37	1637.02	1	DOUBLE WALL DUCT - 14" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P22 ASSEMBLED W/P21 O=S	DW14DWACCDOORCOV-2R-S						22.25		1	DOUBLE WALL DUCT - 14" INNER ACCESS DOOR & 18" ACCESS DOOR COVER WITH CLAMPS - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P23	DW1402DWOFFSETASY-2R-S	1750				-0.003	12.99	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT RISER & 2 DEGREE OFFSET - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P24	DW1447DWLT-2R-S	1750				-0.0188	62.39	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT, 47" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P25	DW1447DWLT-2R-S	1750				-0.0188	62.39	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT, 47" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL.
P26	DW1447DWAJD-2R-S	1750				-0.0144	93.18	1637.02	1	DOUBLE WALL ADJUSTABLE DUCT - 14" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P27 ASSEMBLED W/P28	DW144550DWLTTP-2R-S	1750				-0.018	61.01	1637.02	1	DOUBLE WALL DUCT - 14" INNER DUCT, 45.5" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER SHELL - USED WITH TRANSITION PLATE.
P28 ASSEMBLED W/P27 O=T	DW23114TP	1750					8.49	1637.02	1	DUCT TO CURB TRANSITION, 23" CURB TO 14" DUCT, 16 GA ALUMINIZED. USED ON BDU15, DU75 & 85.
SYSTEM AT P28						-0.6967	0.00			
P29	DW1827DWAJD-2R-S	3300				-0.004	62.85	1867.42	1	DOUBLE WALL ADJUSTABLE DUCT - 18" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 24.5" / ADJUSTMENT = 13.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P30	DW1890DWASY-2R-S	3300				-0.1635	45.59	1867.42	1	DOUBLE WALL DUCT - 18" INNER 90 DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P31	DW1802DWOFFSETASY-2R-S	3300				-0.002	15.00	1867.42	1	DOUBLE WALL DUCT - 18" INNER DUCT RISER & 2 DEGREE OFFSET - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P32	DW1807DWLT-2R-S	3300				-0.002	13.10	1867.42	1	DOUBLE WALL DUCT - 18" INNER DUCT, 7" LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P33	DW1817DWLT-2R-S	3300				-0.005	27.78	1867.42	1	DOUBLE WALL DUCT - 18" INNER DUCT, 17" LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P34	DW2226SADKIT						8.80		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 22" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2226SAD, & HARDWARE BAG 4.
P35 ASSEMBLED W/P36	DW18DWTEASY-2R-S	3300		1		-0.218	55.68	1867.42	1	DOUBLE WALL DUCT - 18" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P36 ASSEMBLED W/P35 O=S	DW18DWACCDOORCOV-2R-S						26.16		1	DOUBLE WALL DUCT - 18" INNER ACCESS DOOR & 22" ACCESS DOOR COVER WITH CLAMPS - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P37	DW1802DWOFFSETASY-2R-S	3300				-0.002	15.00	1867.42	1	DOUBLE WALL DUCT - 18" INNER DUCT RISER & 2 DEGREE OFFSET - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P38	DW1847DWLT-2R-S	3300				-0.0142	77.59	1867.42	1	DOUBLE WALL DUCT - 18" INNER DUCT, 47" LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P39	DW1835DWLT-2R-S	3300				-0.0106	57.50	1867.42	1	DOUBLE WALL DUCT - 18" INNER DUCT, 35" LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.

DUCTWORK #1 PARTS - JOB#6528660 DOUBLE WALL

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P40	DW1847DWAJD-2R-S	3300				-0.0133	107.98	1867.42	1	DOUBLE WALL ADJUSTABLE DUCT - 18" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P41 ASSEMBLED W/P42	DW184550DWLTTP-2R-S	3300				-0.014	75.96	1867.42	1	DOUBLE WALL DUCT - 18" INNER DUCT, 45.5" LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL - USED WITH TRANSITION PLATE.
P42 ASSEMBLED W/P41 O=T	DW2618TP	3300					10.58	1867.42	1	DUCT TO CURB TRANSITION, 26-1/2" CURB TO 18" DUCT, 16 GA ALUMINIZED. USED ON BDU18 & 20.
SYSTEM AT P42						-1.0238	0.00			
P43	DW1227DWAJD-2R-S	1701				-0.01	45.95	2165.78	1	DOUBLE WALL ADJUSTABLE DUCT - 12" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 24.5" / ADJUSTMENT = 13.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P44	DW1290DWASY-2R-S	1701				-0.1935	27.16	2165.78	1	DOUBLE WALL DUCT - 12" INNER 90 DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P45	DW1202DWOFFSETASY-2R-S	1701				-0.006	11.20	2165.78	1	DOUBLE WALL DUCT - 12" INNER DUCT RISER & 2 DEGREE OFFSET - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P46	DW1247DWAJD-2R-S	1701				-0.021	83.19	2165.78	1	DOUBLE WALL ADJUSTABLE DUCT - 12" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P47 ASSEMBLED W/P48	DW12DWTEASY-2R-S	1701		1		-0.2064	34.13	2165.78	1	DOUBLE WALL DUCT - 12" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P48 ASSEMBLED W/P47 O=S	DW12DWACCDOORCOV-2R-S						18.57		1	DOUBLE WALL DUCT - 12" INNER ACCESS DOOR & 16" ACCESS DOOR COVER WITH CLAMPS - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P49	DW1202DWOFFSETASY-2R-S	1701				-0.006	11.20	2165.78	1	DOUBLE WALL DUCT - 12" INNER DUCT RISER & 2 DEGREE OFFSET - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P50	DW1247DWLT-2R-S	1701				-0.0381	54.71	2165.78	1	DOUBLE WALL DUCT - 12" INNER DUCT, 47" LONG - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P51	DW1247DWLT-2R-S	1701				-0.0381	54.71	2165.78	1	DOUBLE WALL DUCT - 12" INNER DUCT, 47" LONG - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P52	DW1235DWLT-2R-S	1701				-0.0284	40.86	2165.78	1	DOUBLE WALL DUCT - 12" INNER DUCT, 35" LONG - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P53	DW1247DWAJD-2R-S	1701				-0.0284	83.19	2165.78	1	DOUBLE WALL ADJUSTABLE DUCT - 12" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P54 ASSEMBLED W/P55	DW1214DWRNDADP2ASY13-2R-S	1701				-0.019	21.94	2165.78	1	DOUBLE WALL DUCT - 12" X 14" RND2RND ADAPTER - 13" TALL - 2 LAYERS REDUCED CLEARANCE - 16" X 18" STAINLESS STEEL OUTER SHELL. STANDARD ADAPTER.
P55 ASSEMBLED W/P54	DW2614TP	1701					12.53	1591.19	1	DUCT TO CURB TRANSITION, 26-1/2" CURB TO 14" DUCT, 16 GA ALUMINIZED. USED ON BDU18.
SYSTEM AT P55						-1.0524	0.00			
P56	DW1620SADKIT						6.53		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 16" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW1620SAD, & HARDWARE BAG 4.
RC1	DW18DWRISER-2R-S						8.15		1	DOUBLE WALL RISER COVER - USED ON 14" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
RC2	DW18DWRISER-2R-S						8.15		1	DOUBLE WALL RISER COVER - USED ON 14" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 18" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
RC3	DW22DWRISER-2R-S						10.73		1	DOUBLE WALL RISER COVER - USED ON 18" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
RC4	DW16DWRISER-2R-S						7.31		1	DOUBLE WALL RISER COVER - USED ON 12" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
	3M-2000PLUS						0.80		12	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW12DWCLASY-2R-S						6.44		5	DUCT - 12" DUCT - 16" DOUBLE "V" CLAMP - 2R INSULATION & SINGLE "V" CLAMP INCLUDED - REDUCED CLEARANCE.
	DW14DWCLASY-2R-S						7.21		14	DUCT - 14" DUCT - 18" DOUBLE "V" CLAMP - 2R INSULATION & SINGLE "V" CLAMP INCLUDED - REDUCED CLEARANCE.
	DW18DWCLASY-2R-S						8.70		7	DUCT - 18" DUCT - 22" DOUBLE "V" CLAMP - 2R INSULATION & SINGLE "V" CLAMP INCLUDED - REDUCED CLEARANCE.
TOTAL WEIGHT							2392.58			

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DATE: 1/12/2024

DWG.#: 6528660

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SHEET NO. 20

DOUBLE WALL FACTORY BUILT DUCTWORK

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE ENTIRE INSTALLATION AND OPERATION MANUAL
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

HORIZONTAL	
DUCT DIAMETER	SUPPORT SPACING (FT)
5"	7'
6"	7'
7"	7'
8"	7'
10"	7'
12"	7'
14"	7'
16"	7'
18"	5'
20"	5'
22"	5'
24"	5'
26"	5'
28"	5'
30"	5'
32"	5'
34"	5'
36"	5'

VERTICAL			
TYPE	WALL SUPPORT (FT)	CURB SUPPORT (FT)	FLOOR SUPPORT (FT)
2R & 2R HT (5"-16")	20'	24'	24'
2R (18")	18'	24'	24'
3R & 3Z (5"-24")	10'	24'	24'
3Z (26" -36")	10'	20'	20'

DO NOT LEAK TEST USING SMOKE BOMBS CONTAINING CHLORINES/CHLORIDES. CONSULT WITH CAPTIVEAIRE FOR PROPER LEAK TESTING METHODS.

GREASE DUCT & CHIMNEY SPECIFICATIONS:
PROVIDE GREASE DUCT EQUAL TO ECON-AIR MODEL "EDW"
ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "EDW"
IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING
CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "EDW"
DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER
THE MANUFACTURES INSTALLATION GUIDE.
PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER
MANUFACTURES LISTING MODEL "EDW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12",
HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12".
DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN
HORIZONTAL RUNS.

IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO ECON-AIR MODEL "EDW- 2R, 2R TYPE HT, 3R, OR 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

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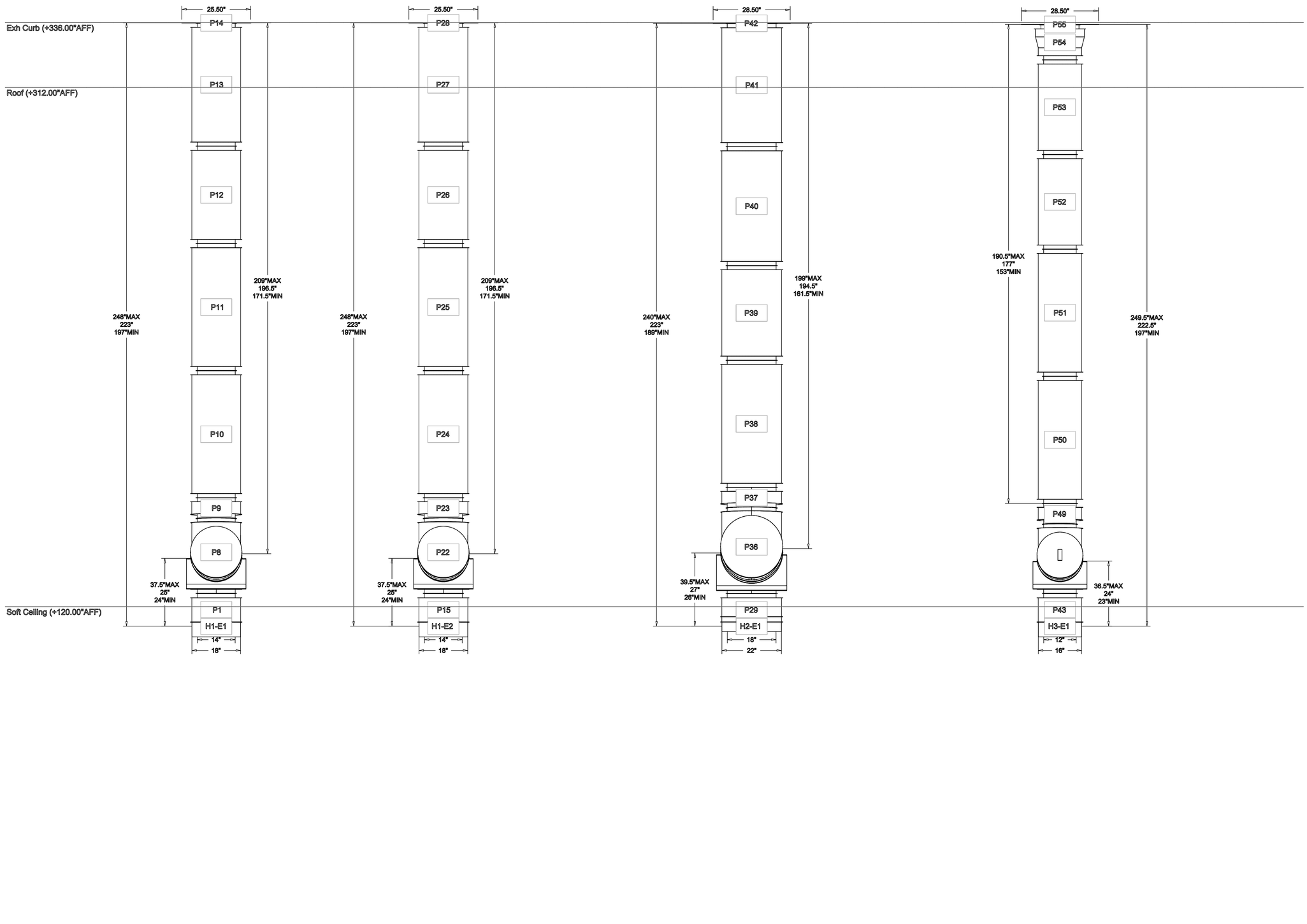
SHEET NO. 21

DUCTWORK #1 FRONT VIEW



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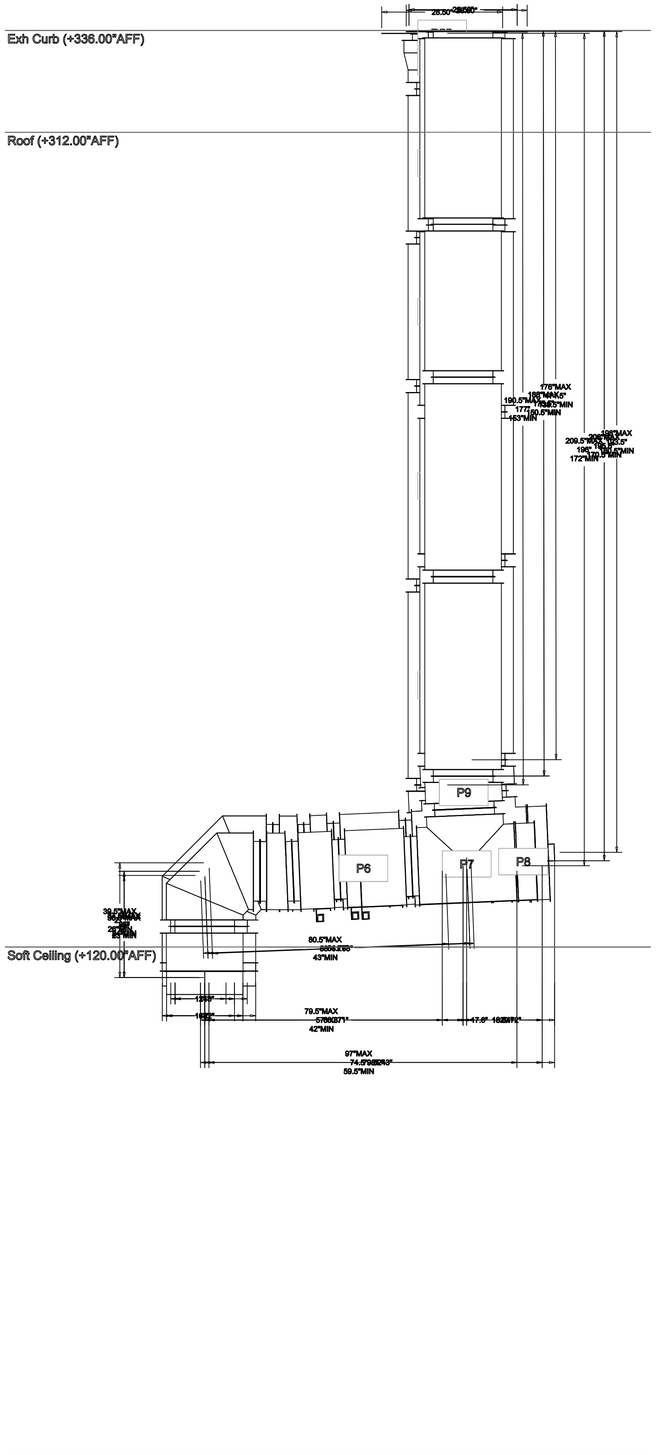
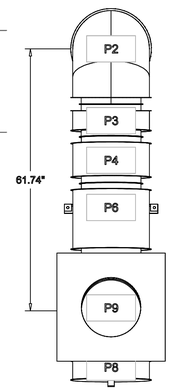
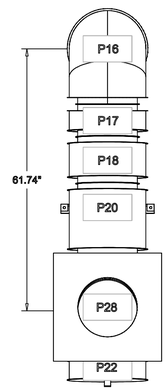
SHEET NO. 22

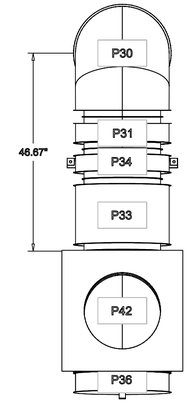
DUCTWORK #1 SIDE VIEW

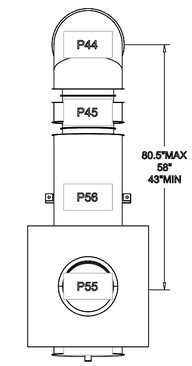


DUCTWORK #1 TOP VIEW









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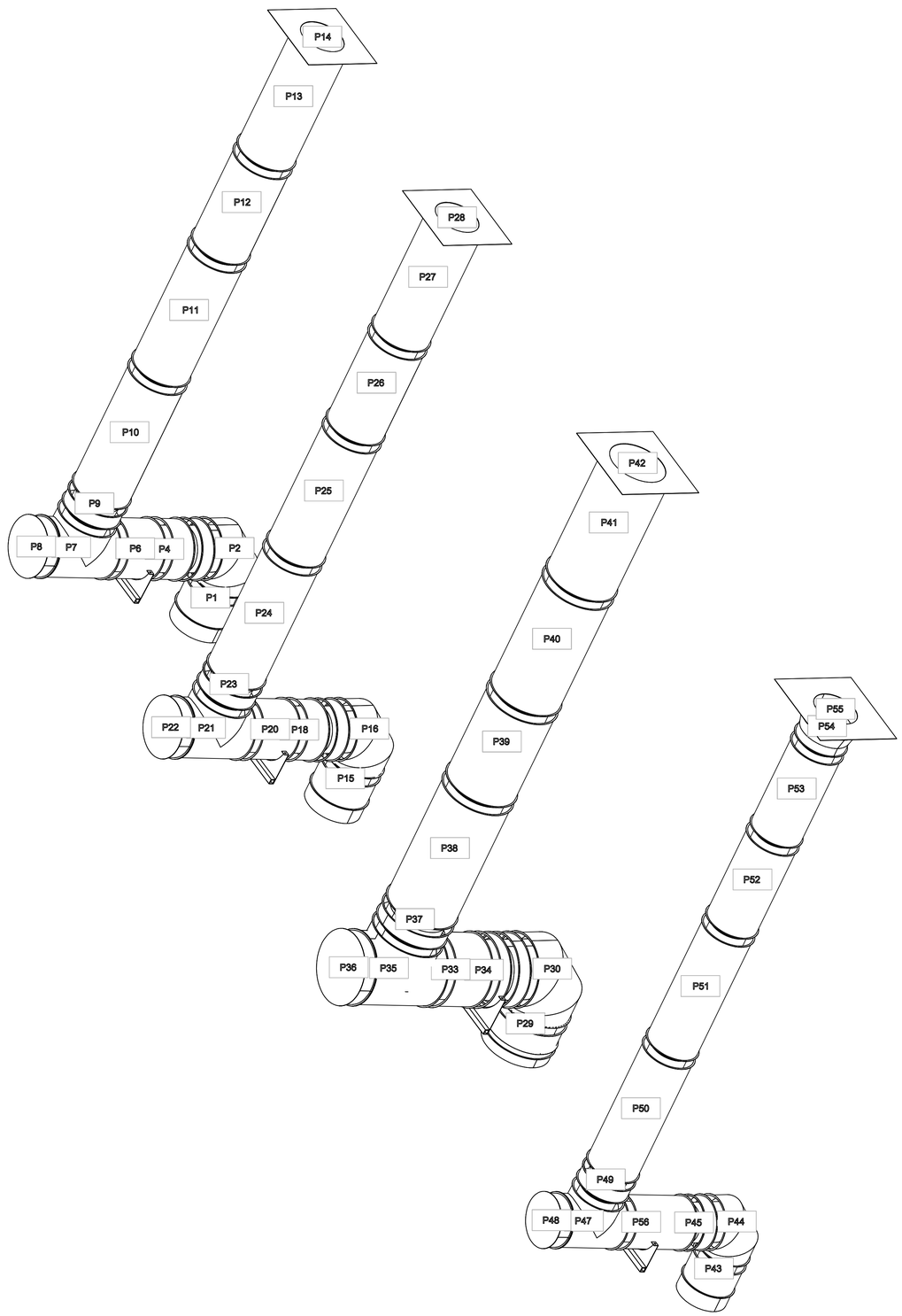
SHEET NO.
23

DUCTWORK #1 SE VIEW



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