DOLLAR TREE

FRMR ENTERTAINMENT

30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DEAL # 30086

ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE	MAX	MAXIMUM
ADA	AMERICAN DISABILITIES ACT	MFG, MANUF	MANUFACTURE, MANUFACTURER
AFF	ABOVE FINISHED FLOOR	MIN	MINIMUM, MINUTE
ARCH	ARCHITECT, ARCHITECTURAL	MTD	MOUNTED
APPROX	APPROXIMATE	MTL	METAL
BD	BOARD	NIC	NOT IN CONTRACT
BLDG	BUILDING	OC	ON CENTER
CEM	CEMENT PLASTER FINISH	OPP	OPPOSITE
CLG	CEILING	PEJ	PREFORMED EXPANSION JOINT
CLR	CLEAR	PLAM	PLASTIC LAMINATE
CMU	CONCRETE MASONRY UNIT	PLYWD	PLYWOOD
COL	COLUMN	PR	PAIR
DF	DRINKING FOUNTAIN	PSI	POUNDS PER SQUARE INCH
DTL	DETAIL	PTD	PAINTED
DWG	DRAWING	RELO	RELOCATE
EA	EACH	REQD	REQUIRED
EIFS	EXTERIOR INSULATION FINISH SYSTEM	SC	SOLID CORE
ELEV	ELEVATION	SF	SQUARE FEET
EQ	EQUAL	SHT	SHEET
EXIST	EXISTING	SIM	SIMILAR
EXTING	EXTINGUISHER	STRUCT	STRUCTURAL
FE	FIRE EXTINGUISHER	T	THICK, THICKNESS
FR	FIRE RATING	TG	TEMPERED GLASS
FRP	FIBERGLAS REINFORCED PANEL	THRESH	THRESHOLD
FIN	FINISH, FINISHED	TYP	TYPICAL
FT	FOOT, FEET	UL	UNDERWRITERS LABORATORIES
FTG	FOOTING	UON	UNLESS OTHERWISE NOTED
FV	FIELD VERIFY	VCT	VINYL COMPOSITION TILE
GA	GAGE	VTR	VENT THROUGH ROOF
GWB	GYPSUM WALL BOARD	W	WIDE, WIDTH
H	HIGH	WD	WOOD
HDW	HARDWARE	W/	WITH
HM	HOLLOW METAL	WWF	WELDED WIRE FABRIC
HGT	HEIGHT	&	AND
HOL	HOLLOW	∠	ANGLE
HORIZ	HORIZONTALLY	@	AT
HR	HOUR	℄	CENTER LINE
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	°	DEGREES
JT	JOINT	Ø, DIA	DIAMETER
L	LENGTH, LONG	#	NUMBER
LAM	LAMINATE	±	PLUS OR MINUS
LVT	LUXURY VINYL TILE		

SYMBOLS

1 / A1 — ELEVATION MARKER

ELEVATION DATUM

1 / A1 — ENLARGED DETAIL INDICATOR

BREAK LINE

EXISTING DOOR

1 / A1 — WALL SECTION MARKER

NEW DOOR

X / X — INTERIOR ELEVATION MARKER

GYPSUM WALL BOARD

X — DEMOLITION NOTE

WOOD TRIM

X — WALL CONSTRUCTION TYPE

NEW WALL CONSTRUCTION

X — REVISION MARKER

CMU

X / XXX — DOOR NUMBER

CONCRETE

KEY PLAN

PROPOSED STORE

NOTE:
SEE 'GENERAL SITE ACCESSIBILITY NOTES', SHEET CS1, FOR ADDITIONAL REQUIREMENTS.

GENERAL SITE ACCESSIBILITY NOTES

1. IN ACCORDANCE WITH CHAPTER 11, ACCESSIBILITY - SECTIONS 1104 AND 1106 OF THE 2017 OHIO BUILDING CODE , THE EXTERIOR ROUTES OF TRAVEL AND ACCESSIBLE PARKING ARE EXISTING PRIOR TO THE OCCUPANCY OF THE NEW TENANT. NO CHANGE OF OCCUPANCY OR EXTERIOR SITE MODIFICATION SHALL OCCUR WITHOUT PRIOR PERMITTING AND COMPLIANCE TO ABOVE MENTIONED CODE. REQUIRED SITE DEVELOPMENT OR COMPLIANCE TO ABOVE MENTIONED CODE SHALL BE SOLE RESPONSIBILITY OF LANDLORD AND/OR OWNER OF EXISTING BUILDING AND SITE.

INDEX OF DRAWINGS

GENERAL NOTES

1. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND REGULATIONS. CONSTRUCTION SHALL ALSO COMPLY WITH LANDLORD'S CRITERIA (UNLESS PRECLUDED BY CODE).
2. ALL WOOD FRAMEWORK, WOOD BLOCKING AND PLYWOOD SHALL BE FIRE RETARDANT TREATED PER CODE.
3. ALL FINISH MATERIALS SHALL MEET FLAME SPREAD AND SMOKE DEVELOPMENT RATING CLASS C (OR CLASS 3).
4. WALL CONSTRUCTION BY THE TENANT'S CONTRACTOR IS SHOWN HATCHED.
5. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO BID TO DETERMINE THE EXTENT OF WORK. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND THE TENANT OF ANY DISCREPANCIES PRIOR TO BIDDING.
6. ALL MATERIALS INDICATED ARE NEW, UNLESS SPECIFICALLY NOTED AS EXISTING, AND SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR . ITEMS INDICATED AS TENANT SUPPLIED SHALL BE INSTALLED BY THE CONTRACTOR PER TENANT'S REQUIREMENTS AND/OR MANUFACTURER'S PUBLISHED STANDARDS.
7. ALL EXISTING MATERIALS TO REMAIN WHICH ARE DAMAGED OR OTHERWISE DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE PATCHED OR REPAIRED TO MATCH THE EXISTING ADJACENT MATERIALS, SO THAT THE REPAIR IS IMPERCEPTIBLE.
8. DURING THE COURSE OF CONSTRUCTION, IF THE CONTRACTOR UNCOVERS ANY CODE VIOLATION KNOWN TO HIM OR ANY DISCREPANCY WITH THE DESIGN, CONTRACTOR SHALL NOTIFY THE ARCHITECT OF SUCH IMMEDIATELY.
9. CONTRACTOR SHALL ASSEMBLE AND INSTALL MATERIALS/ PRODUCTS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRIAL/ASSOCIATION STANDARDS.
10. FIELD VERIFY AND/OR REPORT ASBESTOS-CONTAINING MATERIAL TO ARCHITECT AND TENANT UPON DISCOVERY.
11. SMOKE AND FIRE PARTITIONS SHALL BE CONSTRUCTED PER THE DESIGNATED UL DESIGN AND SHALL BE EXTENDED VERTICALLY TO THE BOTTOM OF THE STRUCTURE ABOVE. PROVIDE FIRE STOPS AND SEAL ALL PIPE AND CONDUIT PENETRATIONS WITH SEALANT THAT COMPLIES WITH THE MINIMUM FIRE RATED REQUIREMENTS FOR THE PARTITION. DUCT PENETRATIONS SHALL BE PROTECTED WITH SMOKE AND/OR FIRE DAMPERS.
12. ALL INTERIOR CONCRETE SHALL BE PORTLAND CEMENT BASED TO INCLUDE PATCHING, FLOATING/LEVELING OF FLOORS AND INFILLING.
13. FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITIONS SHALL BE PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING. LETTERING SHALL BE NOT LESS THAN 1/2" IN HEIGHT LOCATED ABOVE AN ACCESSIBLE CEILING AND REPEATED IN INTERVALS NOT EXCEEDING 30' HORIZONTALLY ALONG THE WALL OR PARTITION. SUGGESTED WORDING SHALL BE " FIRE AND/OR SMOKE BARRIER-PROTECT ALL OPENINGS."
14. ANY DETAIL WHICH MAY BE INCOMPLETE OR LACKING IN THE PLANS OR SPECIFICATIONS SHALL NOT CONSTITUTE CLAIM FOR EXTRA COMPENSATION. SUCH DETAIL, IF REQUESTED BY THE CONTRACTOR, SHALL BE SUPPLIED BY THE ENGINEER/ARCHITECT AND SUBMITTED TO THE CONTRACTOR IN ADVANCE OF ITS REQUIREMENT ON THE JOB. THE TRUE INTENT OF THE PLANS AND SPECIFICATIONS IS TO PRODUCE A COMPLETE WORKING FACILITY AND INCOMPLETE DETAIL WILL NOT ABROGATE THIS INTENT.
15. THE CONTRACTOR SHALL PROVIDE ALL SHOP DRAWINGS (WITH THEIR STAMP OF APPROVAL) AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION FOR APPROVAL BY THE ARCHITECT/ENGINEER OF RECORD.

NEW WORK NOTES

1. PROVIDE TENANT IDENTIFICATION SIGN AT REAR DOOR PER LANDLORD'S CRITERIA.
2. (3) 2A-10BC RATED FIRE EXTINGUISHERS TO BE TENANT SUPPLIED. SIMILAR TO JL INDUSTRIES MODEL COSMIC 5E. LOCATE EXTINGUISHERS AS SHOWN. PROVIDE WALL BRACKETS AND MOUNT CONTROLS AT 48" AFF MAX. PROVIDE "FIRE EXTINGUISHER" SIGNS ON WALL DIRECTLY ABOVE EACH UNIT. CONTRACTOR SHALL HAVE EXTINGUISHERS INSPECTED AND TAGGED .
3. THE CONTRACTOR SHALL VERIFY THAT TOILET ROOM(S), INCLUDING FIXTURES AND ACCESSORIES (BOTH EXISTING AND NEW) MEET ALL APPLICABLE LOCAL, STATE AND FEDERAL ACCESSIBILITY CODES AND LAWS.
4. PROVIDE EXTERIOR LIGHT ABOVE REAR DOOR, AS APPROVED BY LANDLORD. IF ONE DOES NOT EXIST WITHIN 10 FEET OF REAR DOOR.
5. PAINT ALL EXPOSED SURFACE MOUNTED CONDUIT TO MATCH ADJACENT WALL COLOR (IE WHITE OR YELLOW).
6. CONTRACTOR SHALL CAULK AROUND TOP AND BOTTOM EDGES OF COLUMN SURROUNDS TO AVOID INJURY.
7. REPAIR AND CLEAN ALL EXISTING MATERIALS (IE STOREFRONT FRAMING AND GLAZING, WALLS, CEILING, ETC) TO REMAIN TO A LIKE NEW CONDITION.
8. NOTIFY DOLLAR TREE'S CONSTRUCTION PM AS TO THE CONDITION OF EXPOSED CONCRETE BLOCK WALL TO REMAIN ON THE SALES FLOOR. DOLLAR TREE WILL MAKE THE DETERMINATION AS TO WHETHER THE WALL'S CONDITION IS SUITABLE FOR PAINTING OR NEEDS TO BE FURRED OUT WITH METAL STUDS AND GWB.
9. CONTRACTOR SHALL INSTALL TENANT SUPPLIED FIXTURES TO INCLUDE BUT NOT LIMITED TO CART CORRAL, PERIMETER WALL GONDOLA, FLOOR GONDOLA, BALLOON CENTER, HANGING BALLOON CORRALS, HELIUM TANK CABINET (SALES FLOOR), HELIUM TANK BRACKETS (STOCKROOM, SEE DETAIL), GRAVITY CONVEYOR SYSTEM, AND MOBILE FIXTURES PER TENANT'S FIXTURE PLAN. CALIFORNIA PROJECTS ONLY, CONTRACTOR SHALL STRAP ALL FIXTURES AS PER THE SEISMIC DRAWINGS PROVIDED. CONTACT THE CONSTRUCTION PM IF FIXTURE/SEISMIC DRAWING WAS NOT MADE AVAILABLE TO YOU DURING YOUR BIDDING PROCESS.
10. DOORS AND FRAMES (OTHER THAN THOSE LISTED AS EXIST) ARE TENANT SUPPLIED FOR CONTRACTOR INSTALLATION. STOREFRONT DOORS (WHEN NOTED) SHALL BE SUPPLIED AND INSTALLED BY CONTRACTOR AS REQUIRED. AUTOMATIC DOORS (WHEN NOTED) WILL BE SUPPLIED AND INSTALLED BY TENANT'S VENDOR (CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL CONNECTION.)
11. CONTRACTOR SHALL REMOVE ANY EXISTING SIGNAGE THAT HAS PREVIOUS TENANT'S NAME (INTERIOR AND/OR EXTERIOR.) ANY SIGNAGE THAT IS REQUIRED SHALL BE REPLACED IN LIKE KIND WITH DOLLAR TREE'S NAME.
12. CONTRACTOR SHALL VERIFY IF THERE IS AN EXISTING ACCESS PANEL TO TENANT'S SIGNAGE. IF ACCESS PANEL DOES NOT EXIST, INSTALL 2'-0" X 2'-0" ACCESS PANEL EITHER INSIDE AT DOLLAR TREE'S SPACE ABOVE THE CEILING (VERIFY FIRE RATINGS AND CODE REQUIREMENTS) OR IN THE EXTERIOR SOFFIT TO MATCH CANOPY CONSTRUCTION AS ALLOWED BY LANDLORD. CONFIRM WITH SIGN VENDOR FOR LOCATION PRIOR TO INSTALLING.
13. CONTRACTOR SHALL NOTIFY CONSTRUCTION PM OF ANY NECESSARY REPAIRS TO ROOF PRIOR TO PERFORMING ANY OR ALL WORK.
14. CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY AND ALL PREVIOUS TENANT'S EXTERIOR SIGNAGE LEFT BEHIND. ALL EXISTING MATERIALS TO REMAIN WHICH ARE DAMAGED OR OTHERWISED DISTURBED BY REMOVAL OF PREVIOUS TENANT SIGNAGE SHALL BE PATCHED OR REPAIRED AND PAINTED TO MATCH EXISTING ADJACENT MATERIALS SO THAT THE REPAIR IS IMPERCEPTIBLE. CONTRACTORS SHALL NOT INCLUDE THIS SCOPE OF WORK IN THEIR BID AND WILL BE HANDLED VIA CHANGE ORDER AFTER SITE EVALUATION IS DONE BY WINNING BIDDER. CONTRACTOR SHALL FORWARD THE EVALUATION AND PRICE QUOTE TO THE CONSTRUCTION PM FOR APPROVAL PRIOR TO PERFORMING ANY AND ALL WORK.
15. CONTRACTOR SHALL INSTALL TENANT SUPPLIED INTERIOR GRAPHICS AND SIGNS TO INCLUDE BUT NOT LIMITED TO PERIMETER WALL GRAPHICS/SIGNAGE, HANGING GRAPHICS/SIGNAGE AND STOREFRONT WINDOW DECALS. CONTACT THE CONSTRUCTION PM FOR GRAPHIC/SIGNAGE DRAWINGS.
16. CONTRACTOR SHALL SEAL ALL EXTERIOR PENETRATIONS INCLUDING CRACKS, HOLES, GAPS, AND EXISTING PENETRATIONS. CONTRACTOR SHALL SELECT MATERIAL APPROPRIATE FOR CONDITION TO PROVIDE PERMANENT RODENT-PROOF INFILL (INSULATION SPRAY FOAM IS NOT AN ACCEPTABLE FINISHED MATERIAL.)
17. CONTRACTOR SHALL POST ON BULLETIN BOARD IN OFFICE FINAL INSPECTIONS & CERTIFICATE OF OCCUPANCY.
18. WALK-IN FREEZER COOLER UNIT IS TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. THE UNIT IS SELF-CONTAINED AND DOES NOT REQUIRE A FLOOR SINK DRAIN. THE INTERIOR CEILING AND WALL FINISH ARE A NSF APPROVED GALVANIZED FINISH. THE FREEZER FLOOR IS TO HAVE AN ALUMINUM DIAMOND TREAD FINISH.
19. PROVIDE NEW ALUMINUM AND GLASS STOREFRONT SYSTEM EQUAL TO KAWNEER TRIFAB VG 451 SERIES, STICK SYSTEM FABRICATION, CLEAR ANODIZED FINISH TO MATCH EXISTING. PROVIDE TEMPERED 1" INSULATED LOW E GLAZING AS INDICATED. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL FIELD CONDITIONS, AND FOR ALL ACCESSORY PARTS AND HARDWARE REQUIRED. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE LANDLORD FOR APPROVAL PRIOR TO CONSTRUCTION.

ENVIRONMENTAL HEALTH NOTES

1. THIS FACILITY CARRIES ONLY 100 % PRE-PACKAGED FOOD TO INCLUDE THE FREEZER/COOLER PRODUCT.
2. THIS FACILITY IS A NON DINING FACILITY. NO DINING SEATING WILL BE PROVIDED TO CUSTOMERS.
3. THIS FACILITY DOES NOT PERFORM ANY TYPE OF FOOD PREPARATION WITHIN THE STORE FOR CUSTOMER CONSUMPTION AND/OR EMPLOYEE CONSUMPTION.
4. THIS FACILITY HAS NO FOOD EQUIPMENT WITHIN THE STORE.
5. THIS FACILITY WILL HAVE 3 TO 4 EMPLOYEES PER SHIFT MAXIMUM. ONE STORE MANAGER, ONE TO TWO CASHIERS AND ONE STOCKER.
6. EMPLOYEE LOCKERS- EASILY CLEANABLE LOCKERS WILL BE PROVIDED TO ALL EMPLOYEES, REFER TO FIXTURE PLAN FOR LOCATION.
7. MOP SINK- THIS FACILITY WILL BE SUPPLIED WITH A 24"x36" FLOOR MOUNTED MOP SINK WITH APPROVED VACUUM BREAKER FAUCET. WALLS SURROUNDING MOP SINK WILL HAVE FRP TO 8'-0" ABOVE FINISH FLOOR FOR EASY CLEANABLE SURFACE.
8. NSF, ANSI AND UL APPROVED- ALL EQUIPMENT WITHIN THIS FACILITY IS NSF, ANSI AND UL APPROVED, CUT SHEETS FOR EQUIPMENT AVAILABLE UPON REQUEST.
9. FINISH SCHEDULE- A FINISH SCHEDULE IS INCLUDED IN THIS SET OF CONSTRUCTION DOCUMENTS AND LOCATED ON SHEET A4 FOR YOUR USE.
10. QUESTIONS- EXAMINER PLEASE FEEL FREE TO CONTACT THE ARCHITECT AND ENGINEERS LISTED ON SHEET CS1 WITH ANY QUESTIONS OR ITEMS YOU NEED CLARIFICATION ON. ALSO YOU CAN CONTACT STEVEN McMAHON, DIRECTOR OF STORE DESIGN AT 757-321-5830.

FIRE PROTECTION NOTES

FIRE ALARM DRAWINGS ARE NOT REQUIRED WITHIN THE PROPOSED DOLLAR TREE IN WILLOWICK, OHIO. SEE FIRE ALARM NOTE BELOW:

THE EXISTING FIRE SPRINKLER RISER SERVING THE TENANT SPACE IS CURRENTLY BEING ELECTRONICALLY MONITORED BY A FIRE ALARM CONTROL PANEL LOCATED OUTSIDE OF THE PROPOSED TENANT SPACE. THE PROPOSED TENANT SPACE HAS AN OCCUPANT LOAD OF LESS THAN 500 AND DOES NOT REQUIRE OCCUPANT NOTIFICATION. THEREFORE, A FIRE ALARM SYSTEM IS NOT REQUIRED AND WILL NOT BE PROVIDED WITHIN THE PROPOSED TENANT SPACE. THE EXISTING LANDLORD FIRE ALARM SYSTEM SHALL CONTINUE TO MONITOR THE FIRE SPRINKLER SYSTEM AS CURRENTLY CONFIGURED.

RISK CLASS "LOW"

NO SECURITY MEASURE NECESSARY

BUILDING CODE SUMMARY

APPLICABLE BUILDING CODE:	2017 OHIO BUILDING CODE
APPLICABLE PLUMBING CODE:	2017 OHIO PLUMBING CODE
APPLICABLE ELECTRICAL CODE:	2017 NATIONAL ELECTRIC CODE
APPLICABLE FIRECODE:	2017 OHIO FIRE CODE
APPLICABLE MECHANICAL CODE:	2017 OHIO MECHANICAL CODE
APPLICABLE ENERGY CODE:	2017 OHIO ENERGY CODE
APPLICABLE ACCESSIBILITY CODE:	CHAPTER 11, OHIO BUILDING CODE AND ANSI A117.1-2003
USE GROUP:	M - MERCANTILE
CONSTRUCTION TYPE:	II-B
NUMBER OF STORIES:	1
SPRINKLERED:	YES
TOTAL LEASE AREA:	10,280 S.F.
OCCUPANCY LOAD:	SALES AREA 8,480 /60= 142 STOCKROOM 1,041 /300= 4 TOTAL 146
PROJECT ADDRESS:	FRMR ENTERTAINMENT 30930 LAKESHORE BLVD, WILLOWICK, OH 44095
BUILDING DEPARTMENT PHONE NO:	(440) 350-2636
FIRE MONITORING REQUIRED	YES

PROJECT DIRECTORY

ARCHITECT
BRIAN EADY ARCHITECTS
32403 SPRUCEWOOD STREET
FARMINGTON HILLS, MI 48334
PHONE (586) 933-3010
BRIAN EADY, OWNER

TENANT
DOLLAR TREE STORES
500 VOLVO PARKWAY
CHESAPEAKE, VA 23320
PHONE - 757-321-5000
MICHAEL SMEAD

PLUMB, MECH, ELEC ENGINEER
KLH ENGINEERS
1538 ALEXANDRIA PIKE, SUITE 11
FORT THOMAS, KY 41705
PHONE (859) 303-3715
SIMON GOYERT, PM

LANDLORD
BOB WAUGH
PHONE 240-712-1219
BWAUGH1@MSN.COM

SIGN CONTRACTOR
EVERBRITE, LLC
4949 S. 110TH STREET
P.O. BOX 2020
GREENFIELD, WI 53220
PHONE (800) 558-3888 EXT. 7198
JOSH JARVIS

STRUCTURAL ENGINEER
BROYLES AND ASSOCIATES
508 BAYLOR COURT, SUITE C
CHESAPEAKE, VA 23320
PHONE (757) 642-2251
FAX (757) 436-0610
DON BROYLES, ENGINEER

STORE #
TURNOVER DATE
OPEN DATE
CONTRACTOR
SVN TVN AS-IS SHELL / RELOCATION EXPANSION

MARK | DATE | DESCRIPTION | BY
REVISIONS

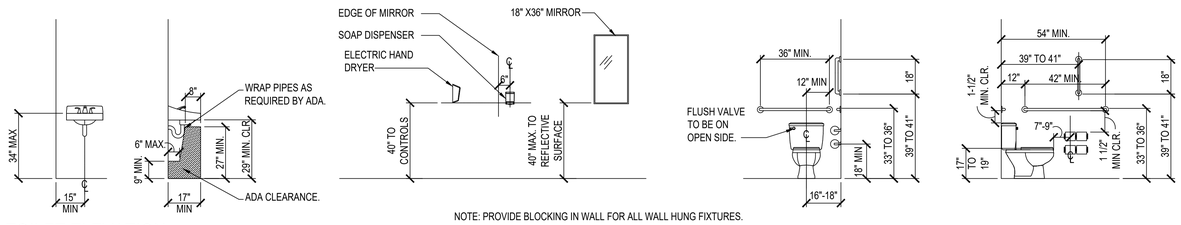
DATE 02/24/2023
PROJECT 0019.30
DRAWN BE
CHECKED BE

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

STATE OF OHIO
BRIAN EADY
2218722
REGISTERED ARCHITECT
03.24.2023

PROJECT: DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
DRAWING: NOTES, LEGEND, AND KEY PLAN

SHEET
CS1

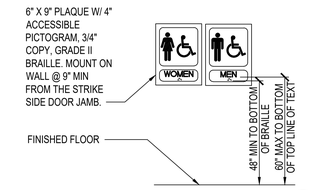


NOTE: PROVIDE BLOCKING IN WALL FOR ALL WALL HUNG FIXTURES.

TOILET ELEVATION

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

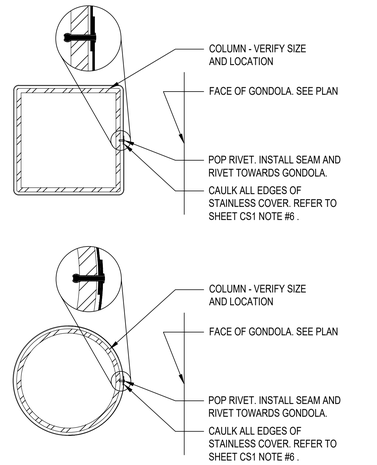
1 / CS2



SIGNAGE ELEVATION

SCALE: NTS

2 / CS2

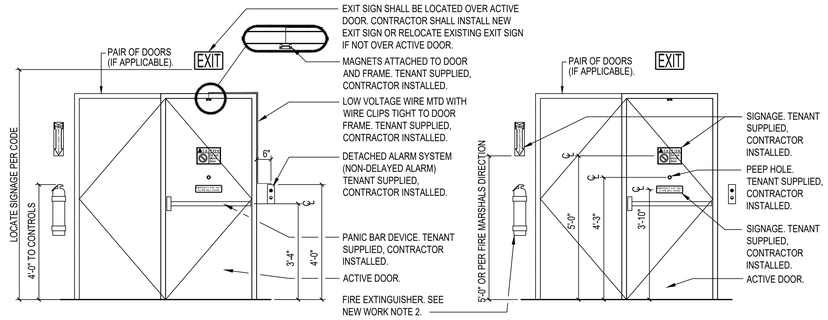


COLUMNN DETAILS

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

3 / CS2

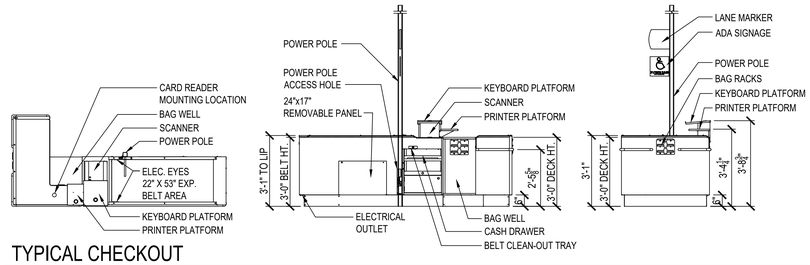
NOTE:
1. CHECKOUTS AND POWER POLES ARE TENANT SUPPLIED / CONTRACTOR INSTALLED.
2. CHECKOUT AISLES SHALL COMPLY WITH BUILDING CODE SECTION 1109.12.2 (PROVIDE 2 when 5 or more)
3. PROVIDE SIGN DISPLAYING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY IN BLUE AND WHITE ABOVE THE CHECKOUT AISLE IN THE SAME LOCATION AS THE CHECKOUT NUMBER OR TYPE OF CHECKOUT IDENTIFICATION.



TYP REAR DOOR ALARM MOUNTING DETAIL

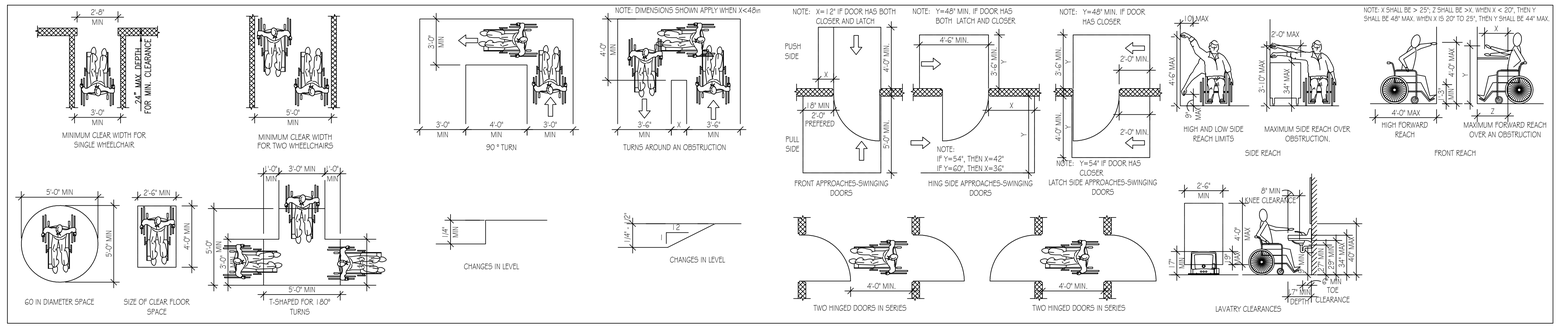
SCALE: 1/2" = 1'-0"

4 / A2



TYPICAL CHECKOUT

SCALE: NOT TO SCALE



TYPICAL ACCESSIBILITY CONFIGURATIONS

SCALE: NOT TO SCALE

MARK	DATE	DESCRIPTION
	BY	

DATE 02/24/2023
PROJECT 0019.30
DRAWN BE
CHECKED BE

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

STATE OF OHIO
BRIAN EADY
2218722
REGISTERED ARCHITECT
03.24.2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
DRAWING
NOTES AND ACCESSIBILITY DETAILS

SHEET
CS2

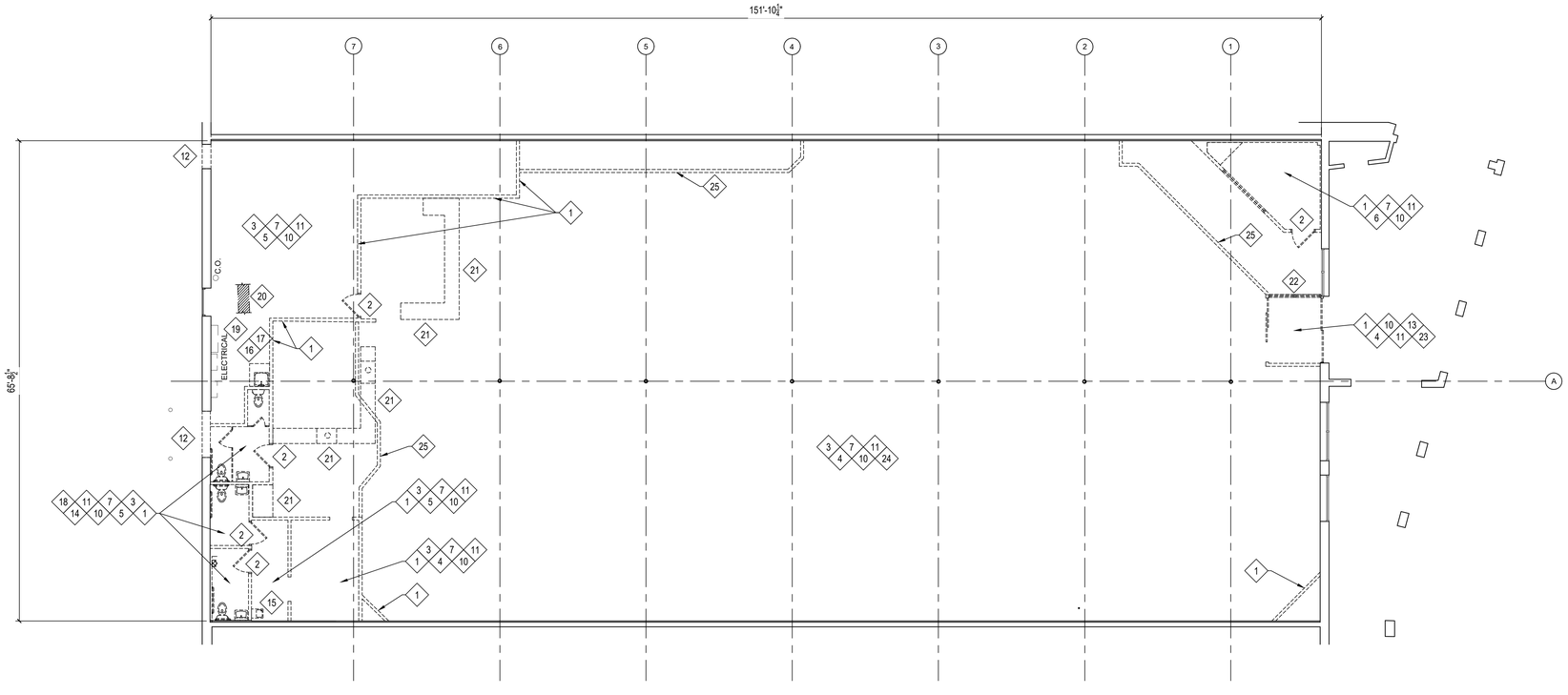
GENERAL DEMOLITION NOTES

1. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEM SELF WITH ALL APPLICABLE CODES, RULES, PROCEDURES, OR CONSTRAINTS OF ANY KIND PRIOR TO COMMENCEMENT OF DEMOLITION INCLUDING ANY FEDERAL, STATE, CITY, MUNICIPAL, OR LANDLORD REQUIREMENTS.
2. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO KEEP ORDERLY WORKING CONDITIONS WITHIN, AND AROUND THE PREMISES - REMOVE ALL DEBRIS IN THE APPROPRIATE MANNER.
3. SPACE IS TO BE BROOM CLEAN READY FOR BUILD OUT OF NEW SPACE & FINISHES.
4. GENERAL CONTRACTOR IS RESPONSIBLE FOR CONTRACTING TRASH REMOVAL SERVICE. TRASH REMOVAL MUST BE COORDINATED WITH ON-SITE PROPERTY MANAGEMENT.
5. CONTRACTOR TO PROTECT DEMISING WALL FRAMING & REPLACE ALL DAMAGED AREAS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING & PAYING FOR ALL DEMOLITION PERMITS.
7. THIS DRAWING REFLECTS AVAILABLE DEMOLITION INFORMATION, HOWEVER, IT SHALL BE THE RESPONSIBILITY OF ALL CONTRACTORS TO VISIT THE & REVIEW ALL CONSTRUCTION DOCUMENTS TO FULLY DETERMINE THE SCOPE & INTENT OF THE DEMOLITION ACTIVITY.
8. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL SPECIFIC DEMOLITION INFORMATION & INSTRUCTION AS TO WHAT EXISTING EQUIPMENT AND/OR CONSTRUCTION IS TO REMAIN.
9. CONTRACTOR IS TO INSPECT THE PREMISES PRIOR TO SUBMITTING A BID AND BE RESPONSIBLE FOR ALL DEMOLITION WORK REQUIRED FOR NEW CONSTRUCTION.
10. GENERAL CONTRACTOR IS TO PROVIDE ALL NECESSARY DUST & TRAFFIC BARRIERS & TEMPORARY PARTITIONS AS REQUIRED TO MAINTAIN A SAFE & CLEAN ENVIRONMENT FOR THE PUBLIC, EMPLOYEES, AND PROPERTY THROUGHOUT THE PROJECT.
11. ANY EXISTING EQUIPMENT TO BE ABANDONED MUST BE COMPLETELY REMOVED AND PROPERLY DISPOSED OF, AND ANY REPAIRS TO ROOFING SYSTEMS OR OTHER PARTS OF THE BUILDING MUST BE COMPLETED TO LANDLORD'S SPECIFICATIONS.
12. IN ALL WALLS & FIXTURES THAT ARE TO BE REMOVED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTION OF THE SOURCE AND REMOVING OR CAPPING ANY ELECTRICAL, PLUMBING AND/OR GAS LINES THAT ARE DISCLOSED AND NOT SCHEDULED FOR REUSE.
13. CONTRACTOR TO PATCH/REPAIR/REPLACE EXISTING FLOORS, WALLS, AND CEILINGS TO MATCH ADJACENT CONSTRUCTION DUE TO DEMOLITION OF FIXTURES, EQUIPMENT, AND ETC.
14. THE CONTRACTOR SHALL ADHERE TO PROPER RECOVERY AND DISPOSAL ALL REFRIGERANTS. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COMPLIANCE WITH STATE AND FEDERAL REGULATIONS RELATING TO CLEAN AIR AND/OR VENTING OF CFC AND/OR HCFC REFRIGERANTS UNTIL THE EQUIPMENT IS TURNED OVER TO BRUNSWICK FOR OPERATION AND MAINTENANCE. THIS RESPONSIBILITY SHALL INCLUDE ALL WORK RELATING TO DISCHARGING ANY AND ALL HVAC REFRIGERANT SYSTEMS OF ANY EXISTING EQUIPMENT REUSED OR REMOVED.
15. G.C. SHALL PROVIDE ALL TEMPORARY SHORING, BRACING & PINNING OF WALLS REQUIRED TO MAINTAIN INTEGRITY OF WALL CONSTRUCTION DURING DEMOLITION & UNTIL WALL HAS BEEN COMPLETED.

DEMOLITION NOTES

(X)

1. REMOVE PARTITION COMPLETE.
2. REMOVE DOOR AND FRAME COMPLETE.
3. REMOVE EXISTING WALL FIXTURES AND FINISHES COMPLETE.
4. FLOORING CONTRACTOR (TENANT HIRED) SHALL REMOVE EXISTING CARPET COMPLETE. GC SHALL NOT INCLUDE IN BID.
5. FLOORING CONTRACTOR (TENANT HIRED) SHALL REMOVE EXISTING VCT FLOORING COMPLETE. GC SHALL NOT INCLUDE IN BID.
6. FLOORING CONTRACTOR (TENANT HIRED) SHALL REMOVE EXISTING CERAMIC TILE COMPLETE. GC SHALL NOT INCLUDE IN BID.
7. REMOVE EXISTING BASE COMPLETE.
8. NOT USED
9. NOT USED
10. REMOVE EXISTING ACT AND GRID COMPLETE (EXIST CEILING HEIGHT IS 11'-0" AFF VIF.)
11. REMOVE EXISTING LIGHT FIXTURES COMPLETE.
12. REMOVE PORTION OF EXTERIOR MASONRY WALL TO 8" BELOW FINISHED FLOOR AS INDICATED FOR INSTALLATION OF DOOR IN NEW WORK. REFER TO STRUC.
13. REMOVE EXIST SLIDING DOORS, STOREFRONT, TRANSOM AND THRESHOLD COMPLETE
14. REMOVE EXISTING TOILET FIXTURES AND ACCESSORIES COMPLETE. TRENCH FLOOR AS REQUIRED FOR RELOCATION OF PLUMBING FIXTURES.
15. REMOVE EXISTING EWC COMPLETE. FOR REMOVAL OF PLUMBING FIXTURES SEE PLUMBING SHEETS.
16. REMOVE EXISTING MOP SINK COMPLETE. FOR REMOVAL OF PLUMBING FIXTURES SEE PLUMBING SHEETS.
17. REMOVE EXISTING WATER HEATER COMPLETE. FOR REMOVAL OF PLUMBING FIXTURES SEE PLUMBING SHEETS.
18. REMOVE, CAP, OR FILL EXISTING DRAIN COMPLETE. FOR MODIFICATION OF EXISTING PLUMBING SEE PLUMBING SHEETS.
19. FOR REMOVAL AND/OR RELOCATION OF EXISTING ELECTRICAL PANELS AND TRANSFORMER SEE ELECTRICAL SHEETS.
20. REMOVE PORTION OF EXISTING CONCRETE SLAB AS REQUIRED TO TRENCH FLOOR FOR RELOCATION OF PLUMBING FIXTURES. CONTRACTOR SHALL INCLUDE IN BID ALL TRENCHING REQUIRED TO EXTEND PLUMBING IN NEW WORK. (CONTRACTOR SHALL AVOID SALES FLOOR IF POSSIBLE.)
21. REMOVE EXISTING WOOD SHELVING, CABINETS AND FIXTURES COMPLETE.
22. REMOVE EXISTING WINDOW FRAME AND GLAZING COMPLETE.
23. REMOVE EXISTING AUTOMATIC DOOR SENSOR COMPLETE.
24. REMOVE AND CAP EXISTING CONDUIT / OUTLETS COMPLETE TO BELOW FINISH FLOOR.
25. REMOVE EXISTING SOFFIT COMPLETE.



DEMOLITION PLAN

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

PROJECT NORTH

MARK	DATE	REVISIONS
		DESCRIPTION
		BY

DATE 02/24/2023
PROJECT 0019.30
DRAWN BE
CHECKED BE

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

STATE OF OHIO
BRIAN EADY
2218722
REGISTERED ARCHITECT
03.24.2023

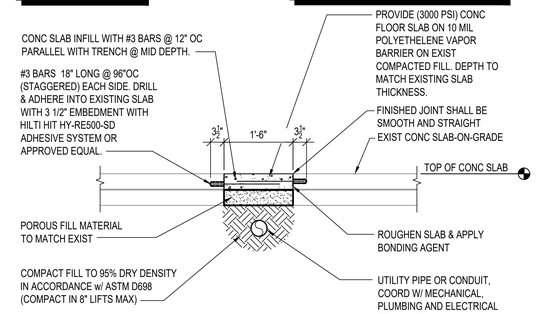
PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
DRAWING
DEMOLITION PLAN AND NOTES

SHEET
D1

NO PLUMBING LINES SHALL PASS UNDER THE SALES FLOOR SLAB. PLUMBING LINES CAN PASS UNDER THE TOILET, OFFICE, AND SUPPORT AREAS

TYPICAL @ NEW SANITARY SEWER PIPE

ALL CEMENT USED SHALL CONFORM TO THE LATEST ASTM SPECIFICATION C 150, TYPE 3. ONLY ONE (1) BRAND OF PORTLAND CEMENT SHALL BE USED IN ANY ONE STRUCTURE. CONCRETE MIXTURE SHALL BE DESIGNED TO PROVIDE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI IN 3 DAYS.



SLAB IN-FILL DETAIL

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

1 / A1

GENERAL INFORMATION:

SHOPPING CENTER:	FORMER ASSEMBLY
CITY:	WILLOWICK
STATE:	MI
CEILING HEIGHT (SALES AREA):	10'-10"
SPRINKLERED:	YES

SQUARE FOOTAGES

TOTAL SPACE LEASED:	10280 SF	
SALES FLOOR AREA:	8480 SF	
NON-SALES AREA:	1800 SF	17.5 %
USABLE STOCKROOM:	1041 SF	10.1 %
USABLE SALES FLOOR	8144	

WALL CONSTRUCTION TYPES

V1 EXTERIOR DEMISING WALL: EXISTING WALL. INSPECT CONDITION OF WALL FOLLOWING REMOVAL OF SLATWALL @ DEMISING WALLS. SCOPE TO INLCUDE REPLACEMENT OF ½" DRYWALL WHERE NOT CONCEALED BY STORE FIXTURES. PATCH AND REPAIR WALL AS REQUIRED. FINISH PER FINISH SCHEDULE, SHEET A4.

V2 PARTITION WALL: 6" (20 GA) METAL STUDS @ 16" OC WITH ONE LAYER 5/8" GWB EACH SIDE TO ROOF DECK ON SALES AREA SIDE AND TO 12'-0" AFF ON STOCKROOM SIDE. SEE DETAIL 1/A4 FOR ADDITIONAL REQUIREMENTS AND BRACING. FINISH PER FINISH SCHEDULE, SHEET A4.

V3 PARTITION WALL: 3 5/8" (20 GA) METAL STUDS @ 16" OC WITH ONE LAYER 5/8" GWB ON RESTROOM SIDE TO FINISHED CEILING & ONE LAYER 5/8" GWB ON HALLWAY SIDE TO 6" ABOVE FINISHED CEILING. PLUMBING WALLS ON INTERIOR OF TOILETS SHALL HAVE WATER RESISTANT GWB. SEE DETAIL 1/A2. FINISH PER FINISH SCHEDULE, SHEET A4.

V4 PARTITION WALL: 6" (20 GA) METAL STUDS @ 16" OC WITH ONE LAYER 5/8" GWB ON RESTROOM SIDE TO FINISHED CEILING, ONE LAYER 5/8" GWB ON HALLWAY SIDE TO 6" ABOVE FINISHED CEILING & ONE LAYER 5/8" GWB ON SALES AREA SIDE TO DECK. PLUMBING WALLS ON INTERIOR OF TOILETS SHALL HAVE WATER RESISTANT GWB. SEE DETAIL 5/A4. ALSO SEE DETAIL 1/A4 FOR BRACING DETAILS. FINISH PER FINISH SCHEDULE, SHEET A4.

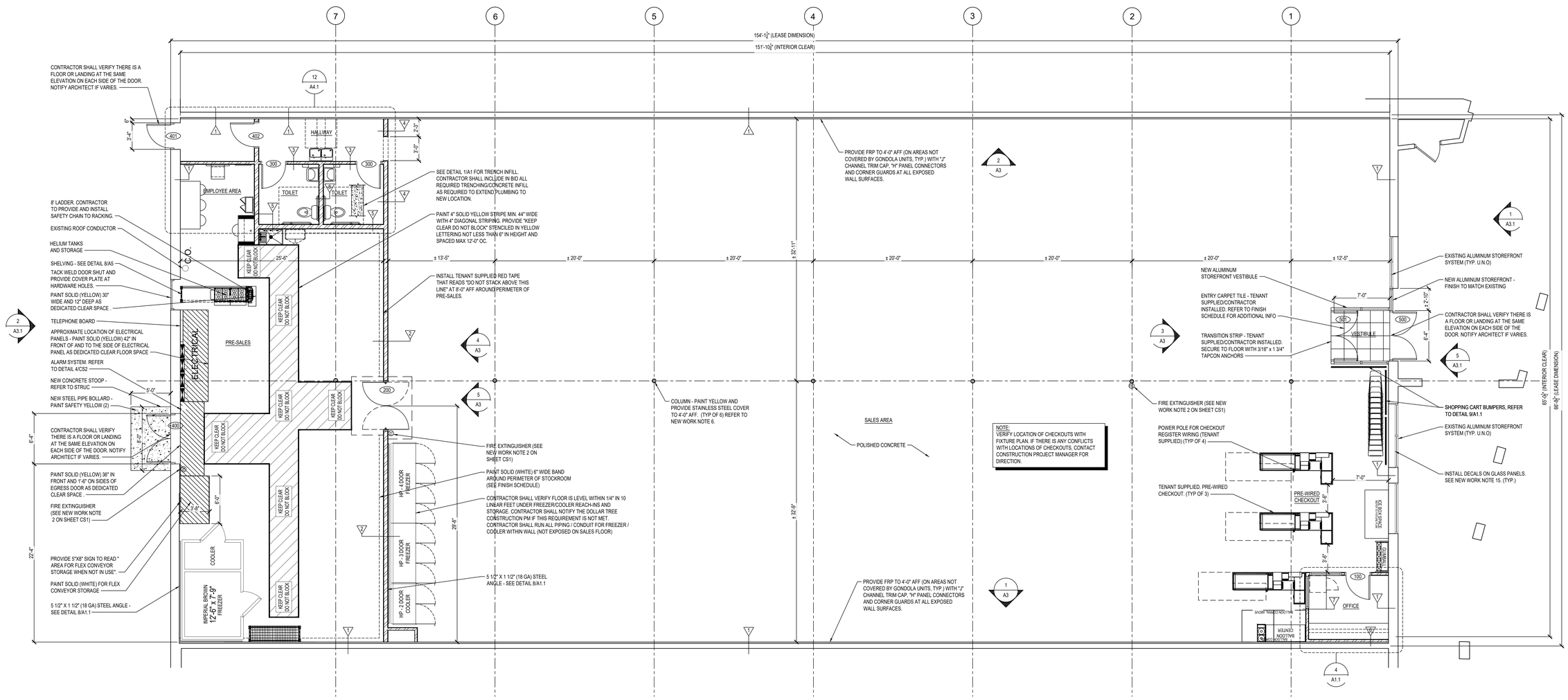
V5 PARTITION WALL: 6" (20 GA) METAL STUDS TO DECK @ 16" OC WITH ONE LAYER 5/8" GWB EACH SIDE TO 12'-0" STOCKROOM SIDE, ONE LAYER 5/8" GWB TO 6" ABOVE FINISHED CEILING ON HALLWAY SIDE & TO FINISHED CEILING ON TOILET ROOM SIDE. PLUMBING WALLS ON INTERIOR OF TOILETS SHALL HAVE WATER RESISTANT GWB. SEE DETAIL 6/A4. FINISH PER FINISH SCHEDULE, SHEET A4.

V6 PARTITION WALL: 3 5/8" (20 GAGE) METAL STUDS @ 16" OC WITH ONE LAYER 5/8" GWB ON EXPOSED SIDE TO 6" ABOVE FINISHED CEILING. FINISH PER FINISH SCHEDULE SHEET A4.

V7 PARTITION WALL: 3 5/8" (20 GAGE) METAL STUDS @ 16" OC WITH ONE LAYER 5/8" GWB EACH SIDE. TO 8'-0" AFF. SEE DETAIL 11 & 12 ON A1.1. FINISH PER FINISH SCHEDULE SHEET A4.

V8 PLUMBING PARTITION: 6" (20 GA) METAL STUDS @ 16" OC WITH ONE LAYER 5/8" GWB EACH EXPOSED SIDE TO FINISHED CEILING. PLUMBING WALLS ON INTERIOR OF TOILETS SHALL HAVE WATER RESISTANT GWB. SEE DETAIL 4/A4. FINISH PER FINISH SCHEDULE, SHEET A4.

V9 INFILL PARTITION: 2 1/2" (20 GA) METAL STUDS @ 12" OC WITH ONE LAYER 5/8" GWB ON EXPOSED SIDE. ALIGN EXIST ADJACENT SURFACES. FINISH PER FINISH SCHEDULE, SHEET A4.



FLOOR PLAN

SCALE: 3/16"=1'-0"

PROJECT NORTH

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BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

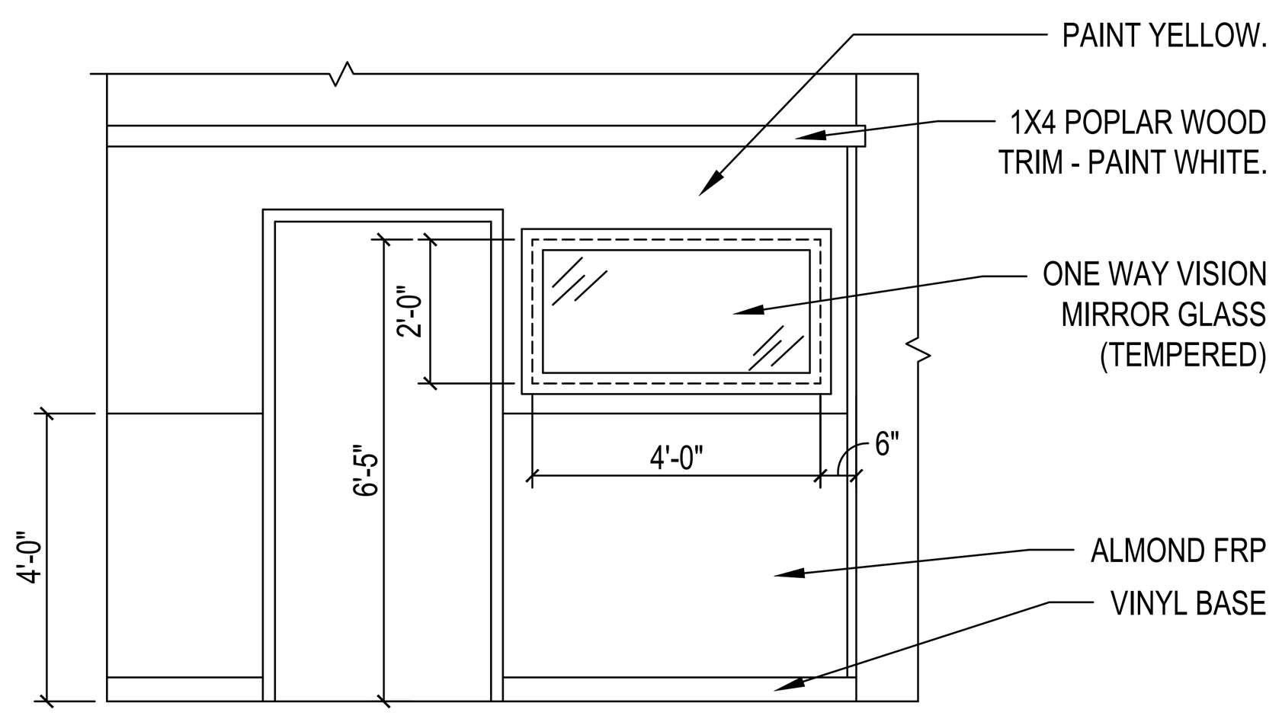
STATE OF OHIO
BRIAN EADY
2218722
REGISTERED ARCHITECT
03.24.2023

DOLLAR TREE

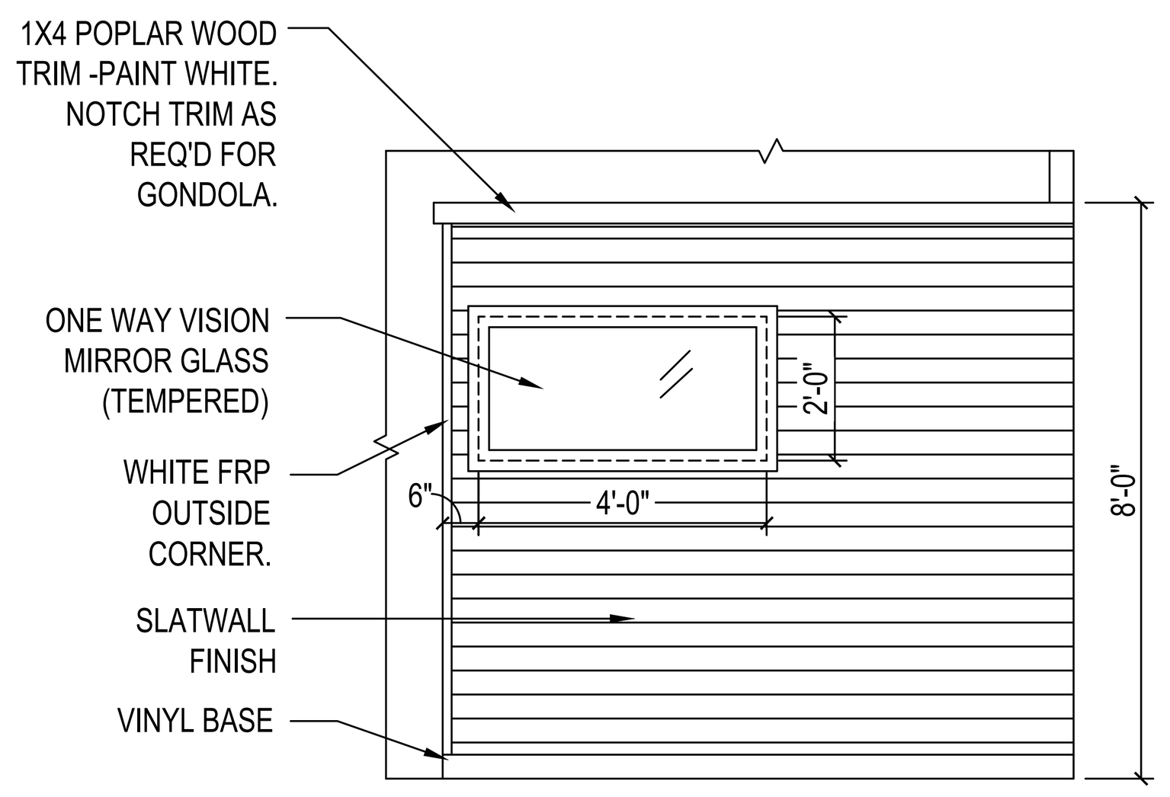
PROJECT: FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING: FLOOR PLAN, WALL CONSTRUCTION TYPES

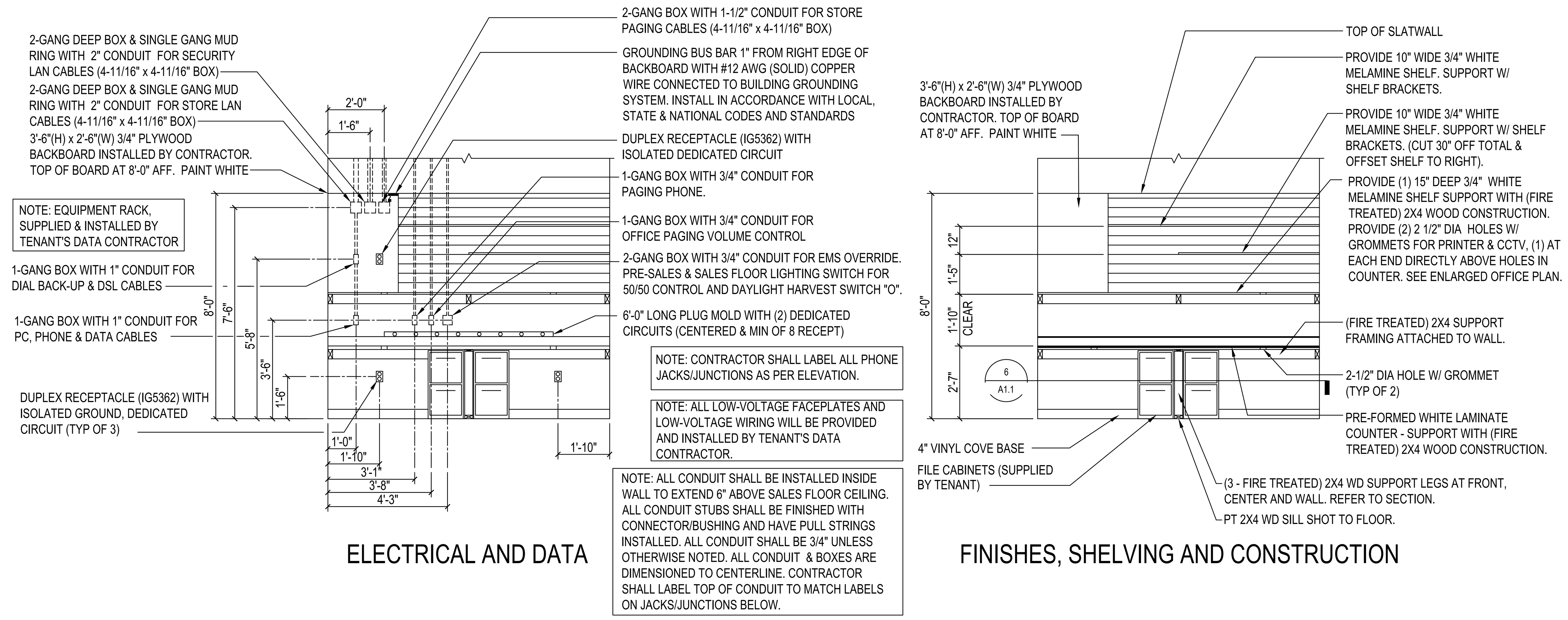
SHEET
A1



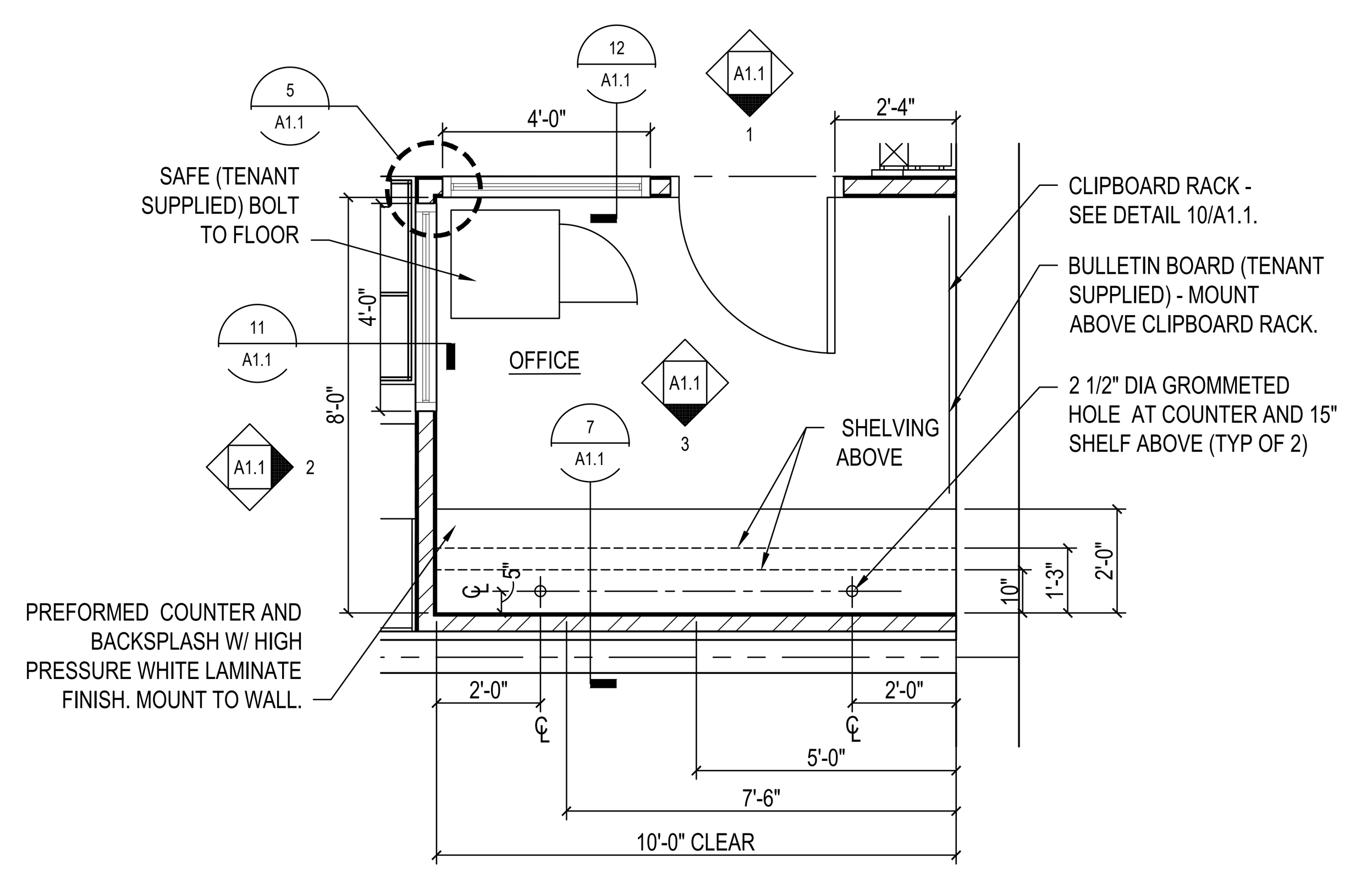
OFFICE ELEVATION
SCALE: 3/8" = 1'-0"
1 / A1.1



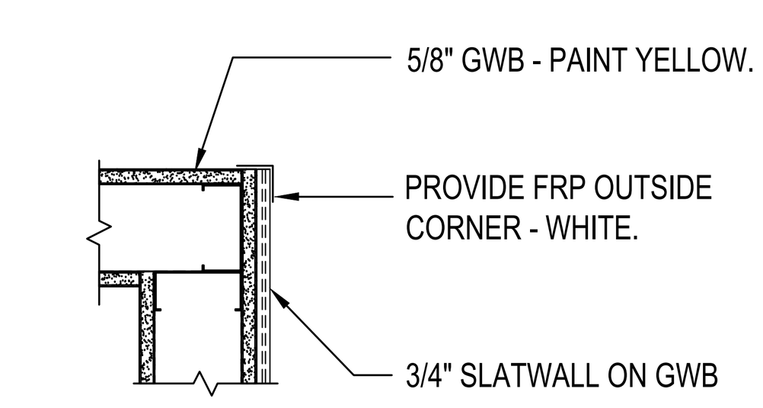
OFFICE ELEVATION
SCALE: 3/8" = 1'-0"
2 / A1.1



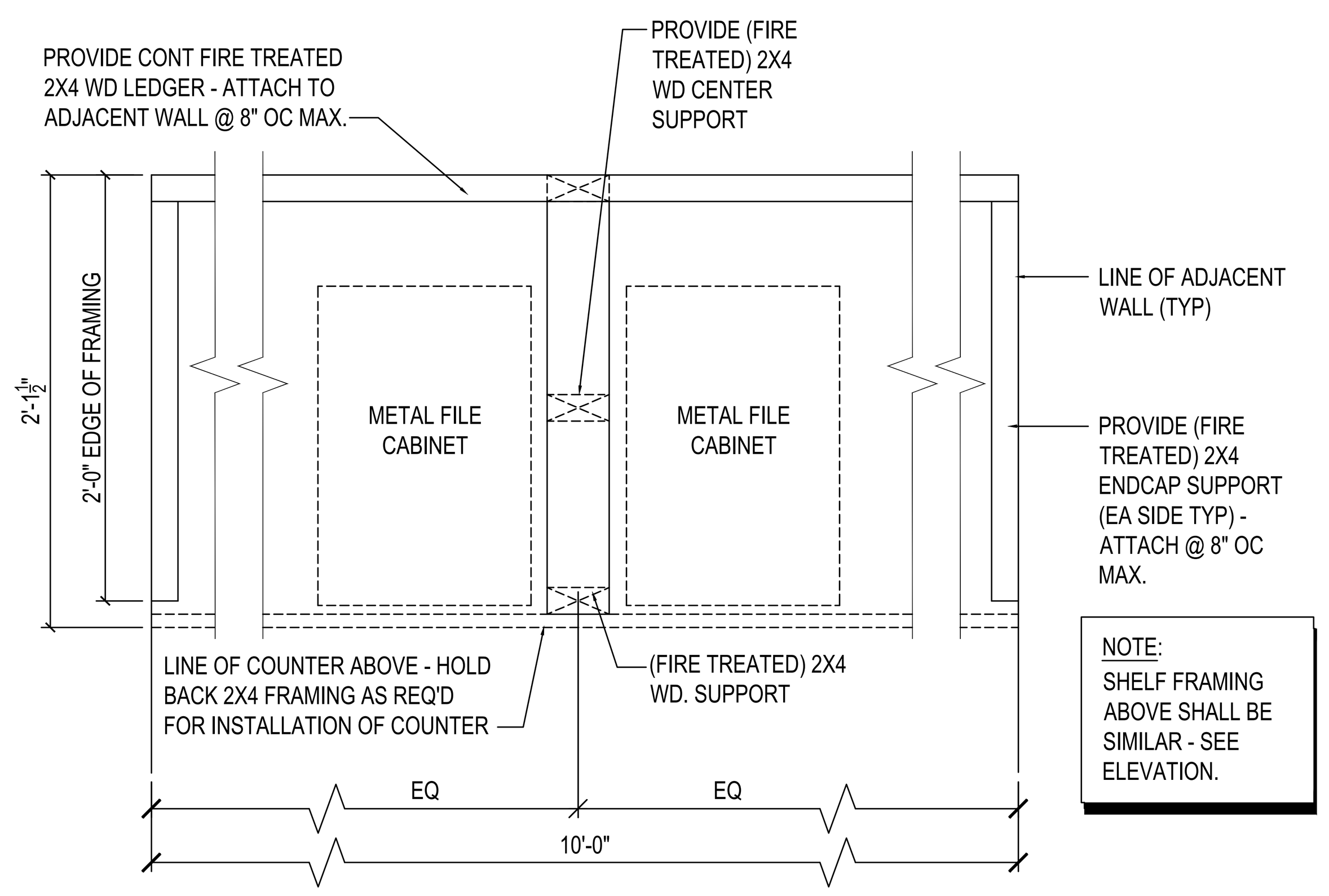
OFFICE ELEVATION
SCALE: 3/8" = 1'-0"
3 / A1.1



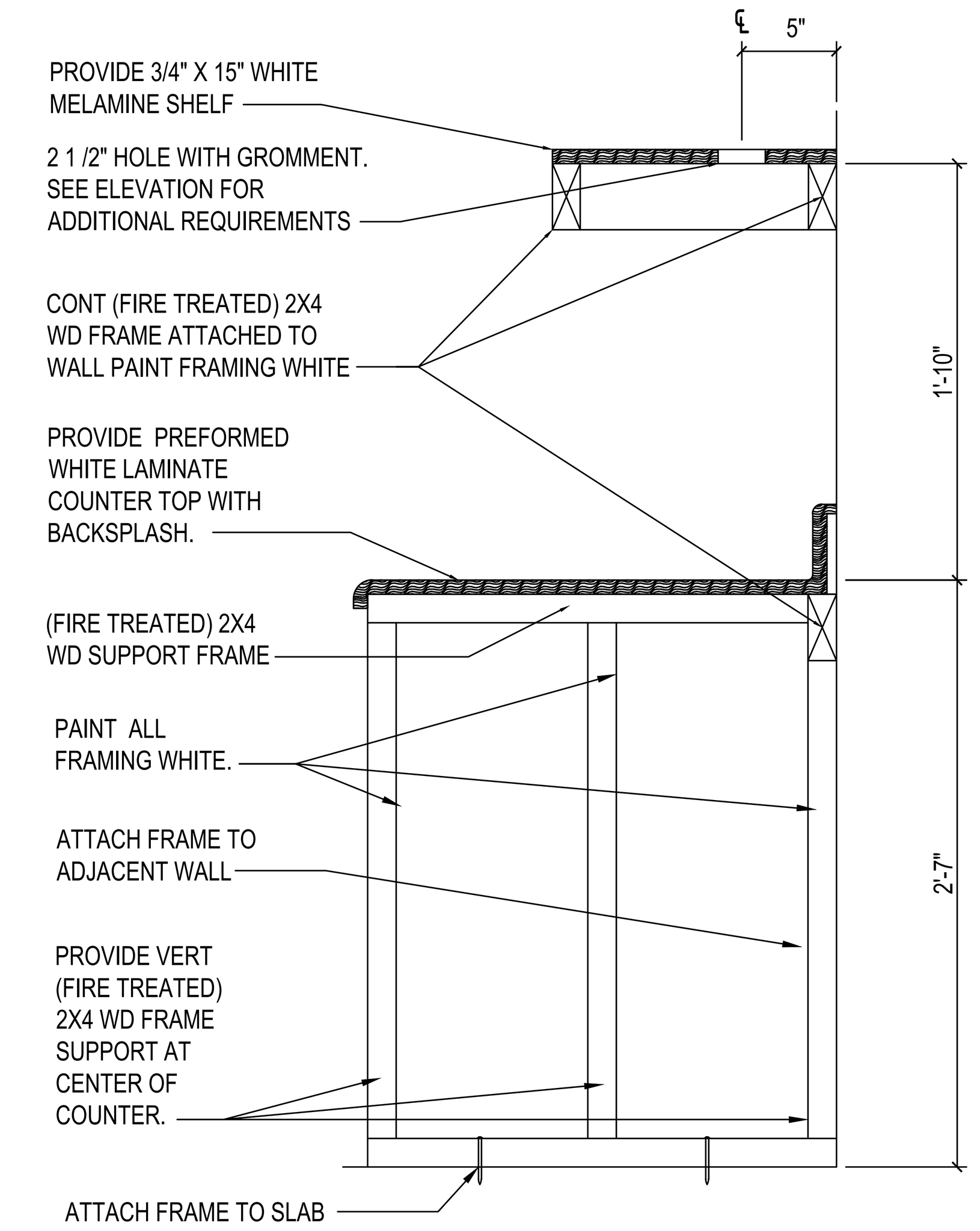
ENLARGED OFFICE PLAN
SCALE: 3/8" = 1'-0"
4 / A1.1



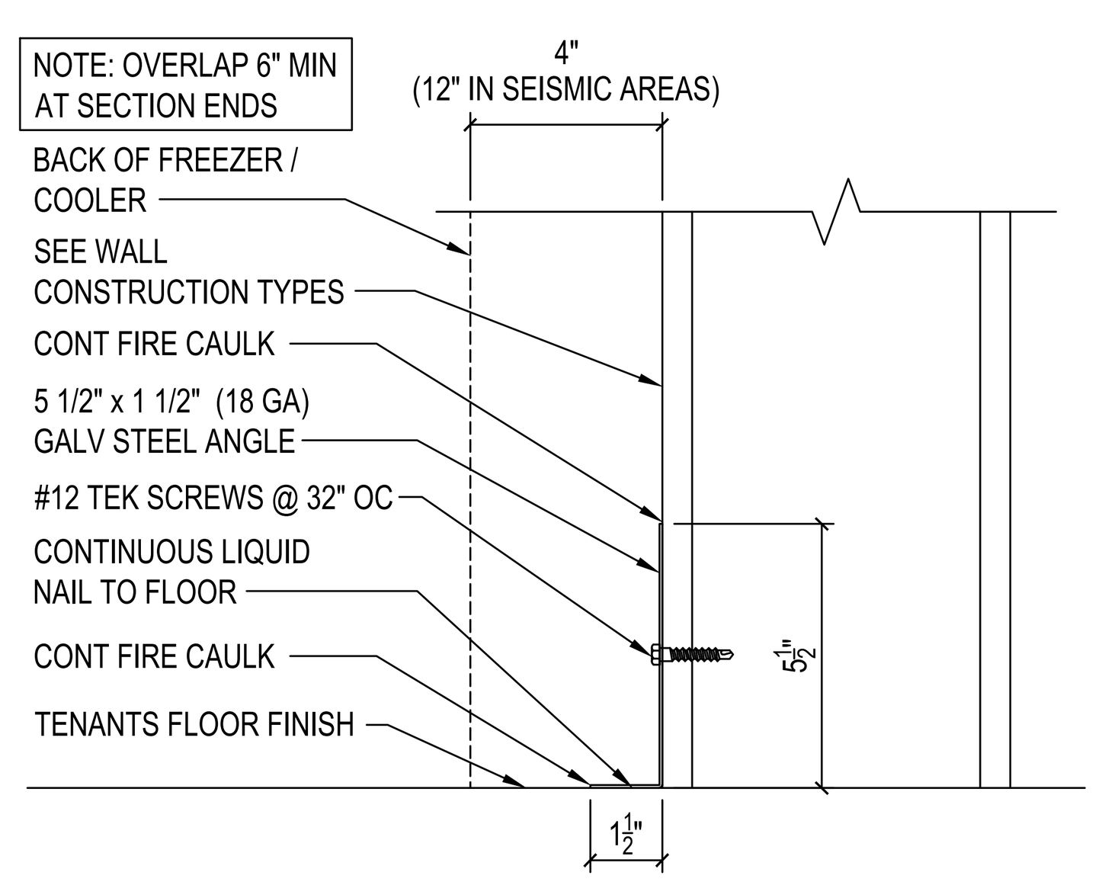
OFFICE CORNER DETAIL
SCALE: 1 1/2" = 1'-0"
5 / A1.1



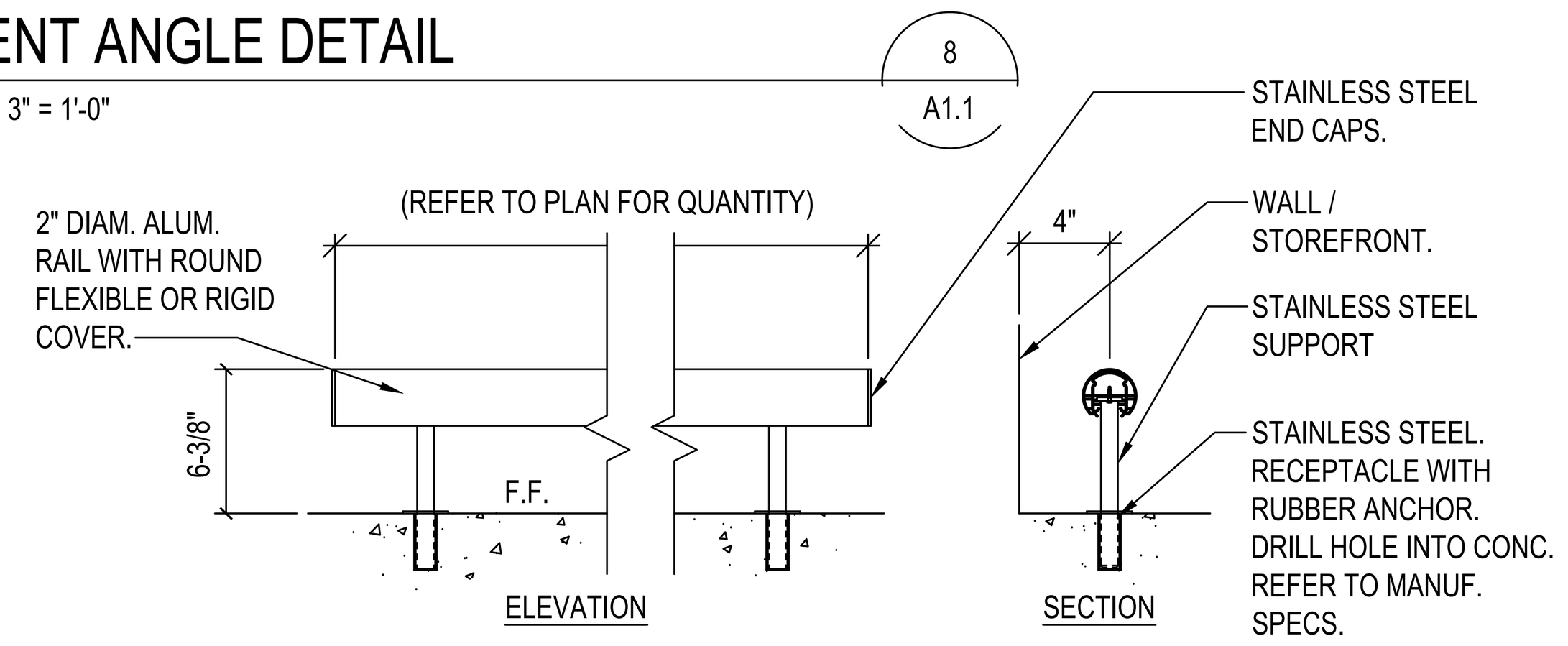
OFFICE DESK DETAIL
SCALE: 1 1/2"=1'-0"
6 / A1.1



OFFICE DESK SECTION
SCALE: 1 1/2"=1'-0"
7 / A1.1

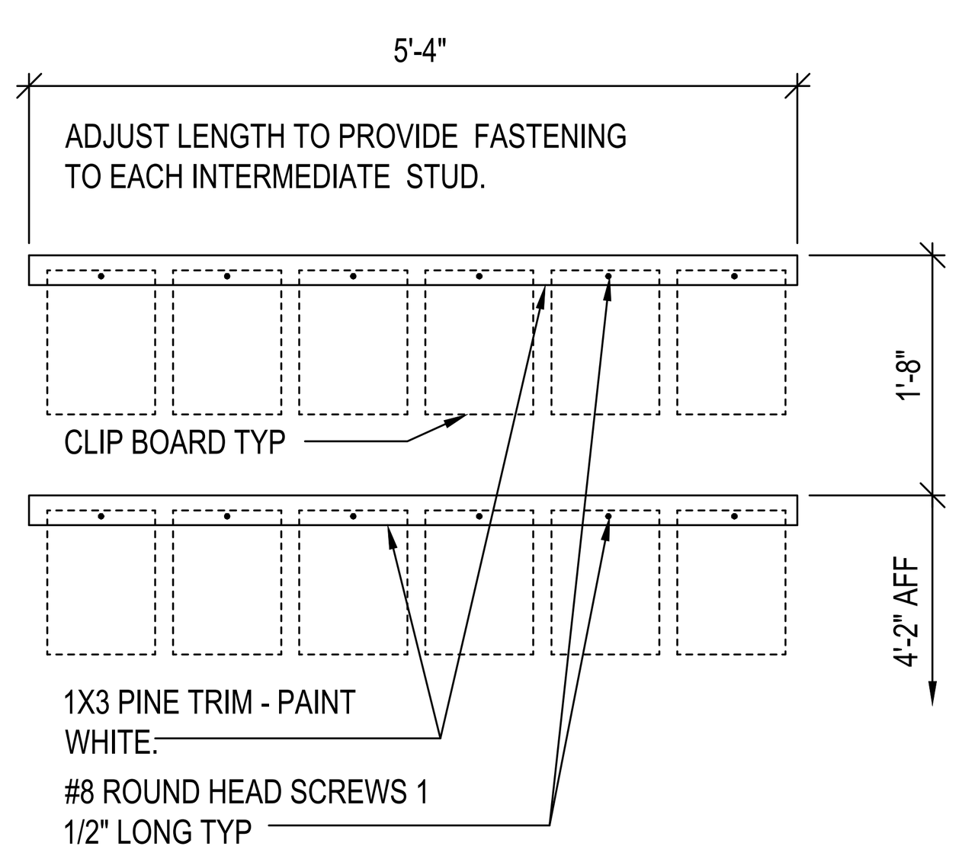


RODENT ANGLE DETAIL
SCALE: 3" = 1'-0"
8 / A1.1

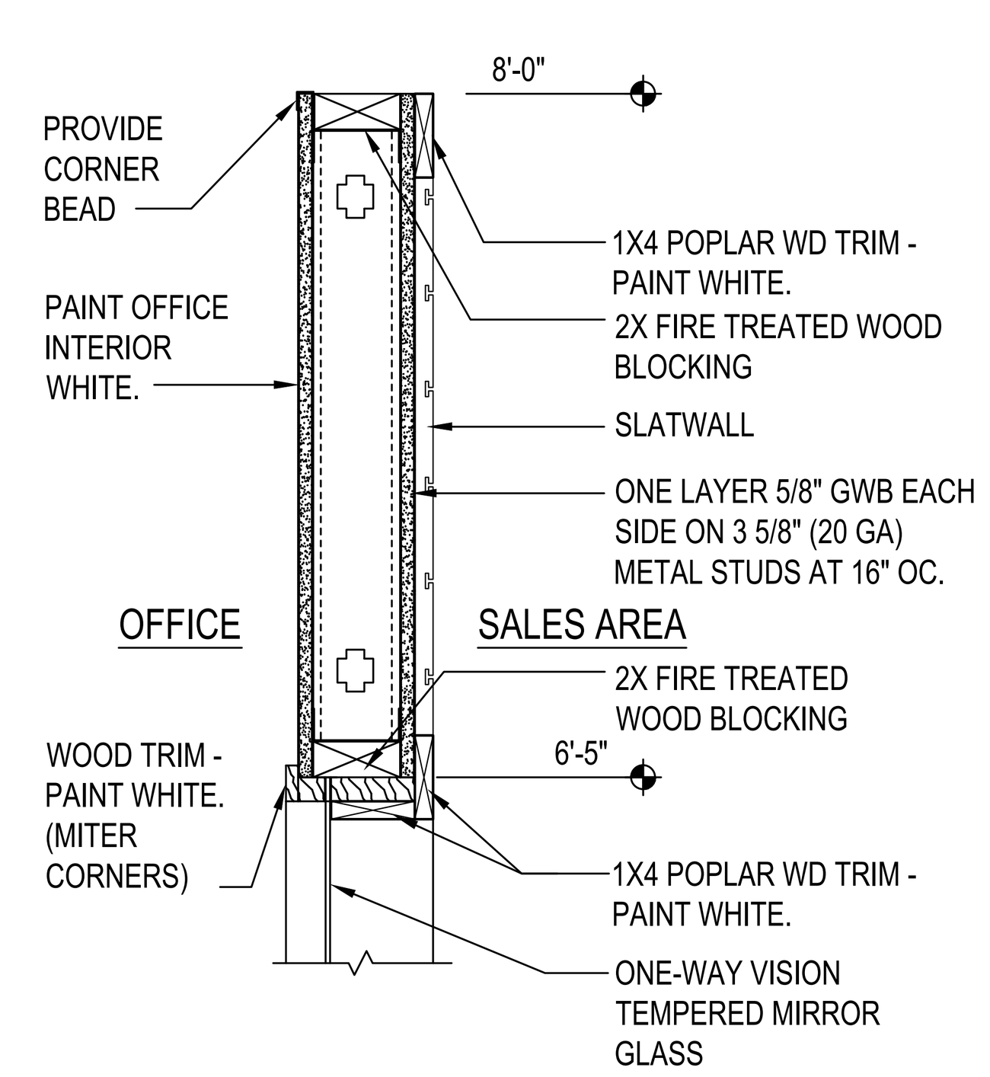


NOTE: TENANT SUPPLIED / CONTRACTOR INSTALLED

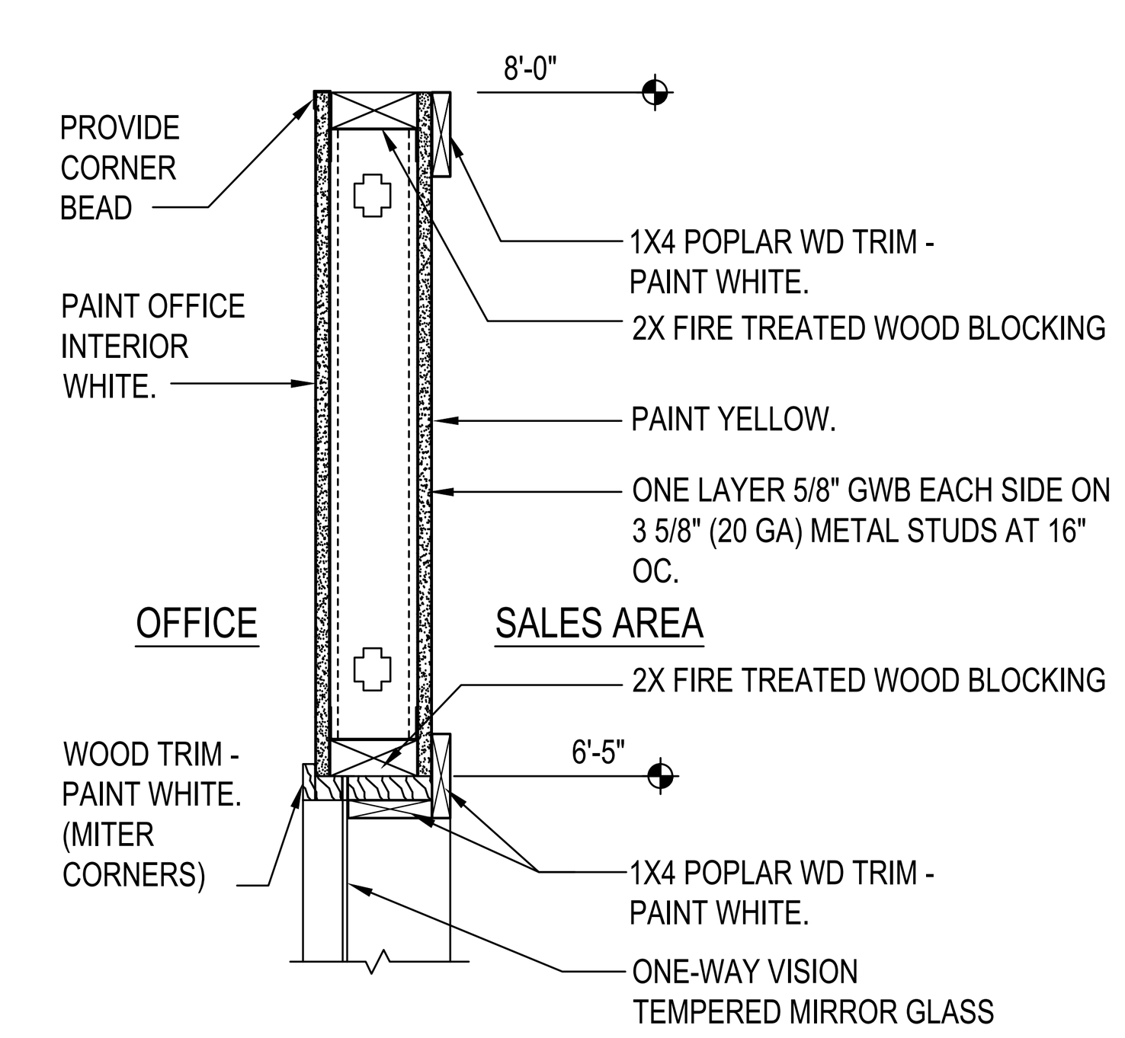
SHOPPING CART BUMPER DETAIL
SCALE: 1 1/2" = 1'-0"
9 / A1.1



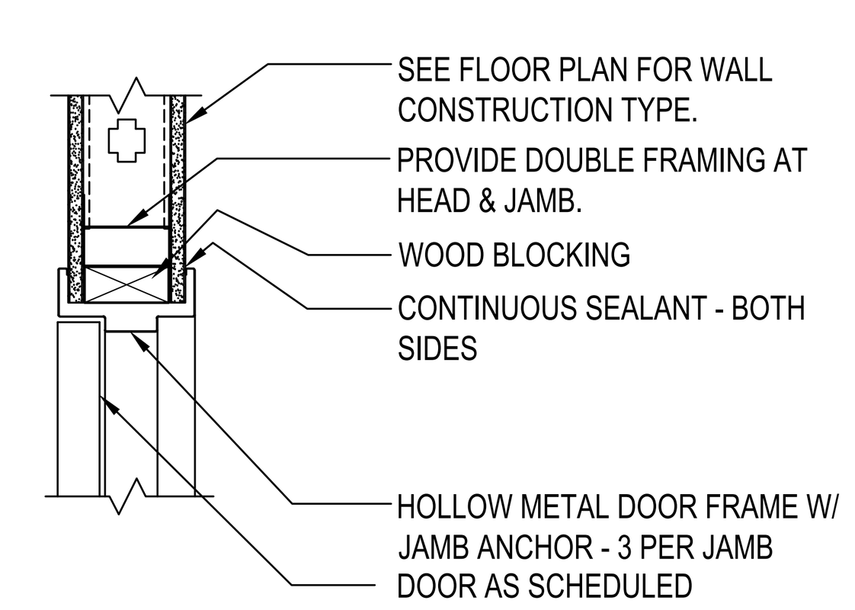
CLIPBOARD RACK ELEVATION
SCALE: 3/4" = 1'-0"
10 / A1.1



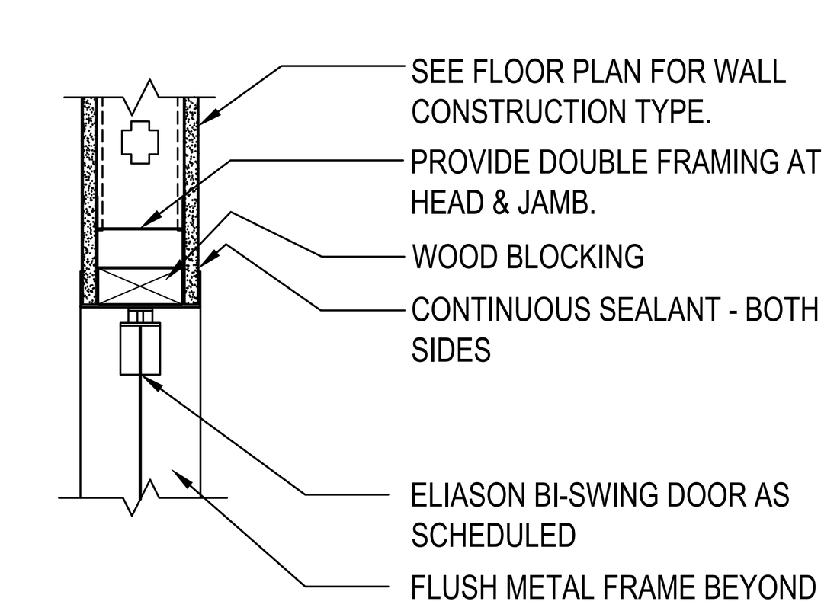
HEAD / JAMB DETAIL
SCALE: 1 1/2" - 1'-0"
11 / A1.1



HEAD / JAMB DETAIL
SCALE: 1 1/2" - 1'-0"
12 / A1.1



HEAD / JAMB DETAIL
SCALE: 1 1/2" = 1'-0"
13 / A1.1



HEAD / JAMB DETAIL
SCALE: 1 1/2" = 1'-0"
14 / A1.1

MARK	DATE	BY	DESCRIPTION

REVISIONS

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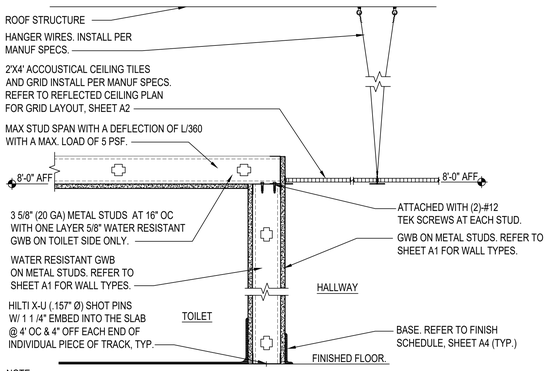
BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

STATE OF OHIO
BRIAN EADY
2218722
REGISTERED ARCHITECT
03.24.2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
ENLARGED OFFICE PLAN AND DETAILS

SHEET
A1.1



NOTE:
1. REFER TO FINISH SCHEDULE FOR ALL FINISHES, SHEET A4

CEILING DETAIL @ TOILET / HALLWAY

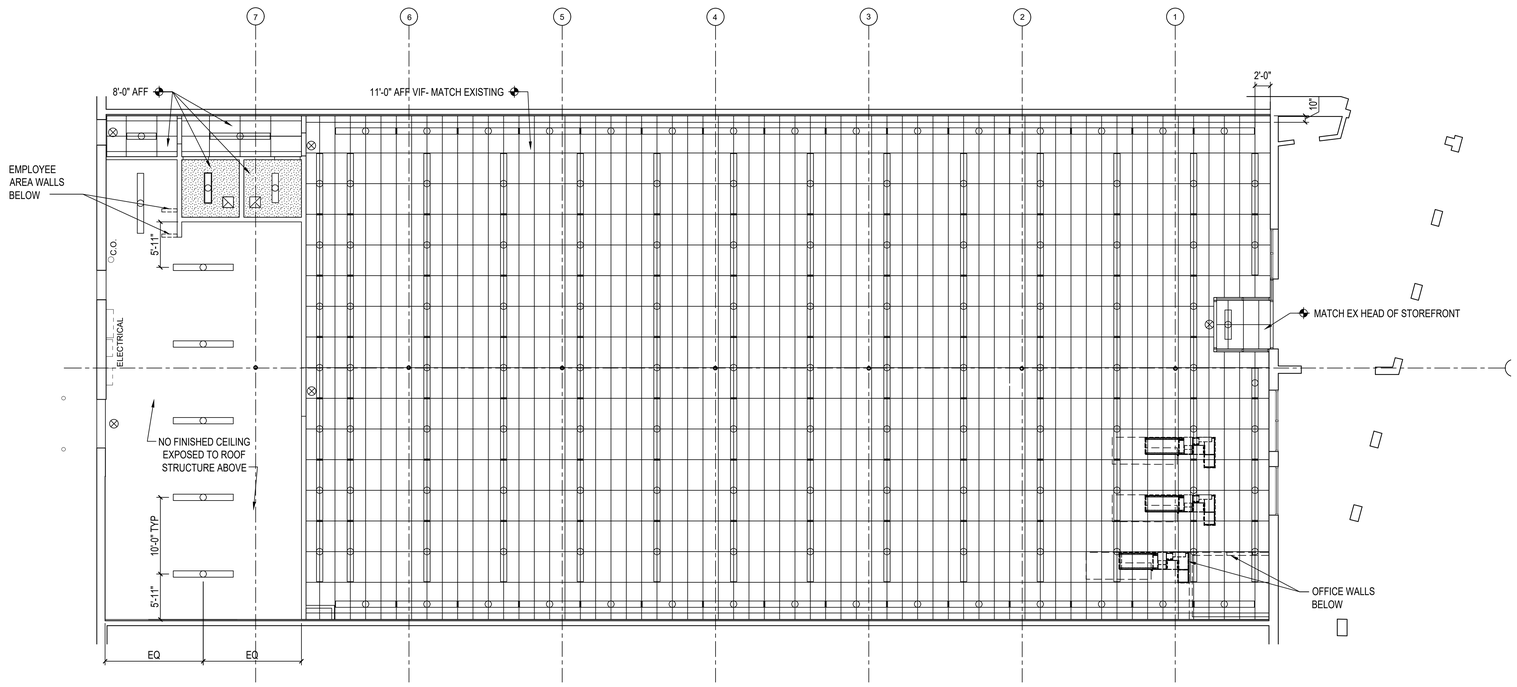
SCALE: 1 1/2"=1'-0"

1 / A2

NOTE: 1. THE ELECTRICIAN SHALL INSTALL ADDITIONAL #12 WIRE TIE SUPPORTS FROM THE CEILING GRID TO THE STRUCTURE ABOVE FOR SUPPORT OF THE LIGHT FIXTURES CLIPPED ON THE GRID.
NOTE: 2. LIGHT FIXTURES, SECURITY CAMERA DOMES, AND MIRROR PANELS (UON) ARE TENANT SUPPLIED / CONTRACTOR INSTALLED.
NOTE: 3. MOUNT LIGHTS 10'-0 AFF IN STOCKROOM.

REFLECTED CEILING LEGEND

- NEW 2'-0"X4'-0" ACOUSTICAL CEILING TILE AND GRID- SEE FINISH NOTE 4.
- GWB - PAINT WHITE UNLESS OTHERWISE NOTED.
- NL — 8'-0" STRIP LED LIGHT FIXTURE WITH LAMPS ON NIGHT LIGHT CIRCUIT. SURFACE MOUNT TO GWB AND ACT CEILING.
- 8'-0" STRIP LED LIGHT FIXTURE. SURFACE MOUNT TO GWB AND ACT CEILING.
- EM — 8'-0" STRIP LED LIGHT FIXTURE WITH LAMPS ON EMERGENCY LIGHT CIRCUIT WITH BATTERY PACK. SURFACE MOUNT TO GWB AND ACT CEILING. FOR FIXTURES WITH 4 LAMPS, THE EMERGENCY BATTERY PACK WILL ONLY OPERATE 2 OF THE LAMPS.
- NL — 4'-0" STRIP LED LIGHT FIXTURE WITH LAMPS ON NIGHT LIGHT CIRCUIT. SURFACE MOUNT TO TO GWB AND ACT CEILING.
- 4'-0" STRIP LED LIGHT FIXTURE. SURFACE MOUNT TO ACT AND GWB CEILING.
- EM — 4'-0" STRIP LED LIGHT FIXTURE WITH LAMPS ON EMERGENCY LIGHT CIRCUIT WITH BATTERY PACK. SURFACE MOUNT TO TO GWB AND ACT CEILING.
- EXIST 4'-0" STRIP LED LIGHT FIXTURE. SURFACE MOUNT TO ACT OR PER DETAIL NOTED.
- EXIST 8'-0" STRIP LED LIGHT FIXTURE. SURFACE MOUNT TO GWB OR PER DETAIL NOTED.
- EXIT LIGHT
- SCD — SECURITY CAMERA DOME
- SCD — SECURITY CAMERA DOME MTD ON WALL @ 10'-0" AFF.
- VENTILATION FAN
- CEILING HEIGHT ABOVE FINISH FLOOR
- MIRROR PANEL
- DIFFUSER
- RETURN AIR GRILLE
- * — SPRINKLER HEAD (SHOWN FOR INFORMATIONAL PURPOSES ONLY. SPRINKLER CONTRACTOR SHALL PREPARE DRAWINGS AS REQUIRED BY CODE FOR RELOCATION OR ADDITION OF HEADS.)
- POWER POLE
- CONCENTRIC DIFFUSER/RETURN



REFLECTED CEILING PLAN

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

PROJECT NORTH

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BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

STATE OF OHIO
BRIAN EADY
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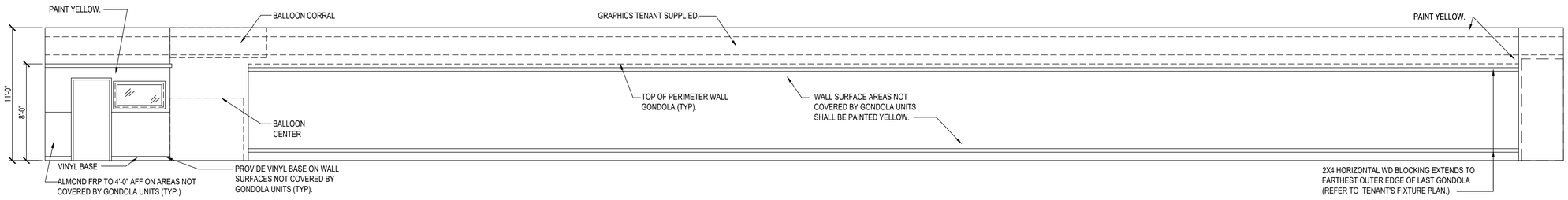
DRAWING
REFLECTED CEILING PLAN, LEGEND, NOTES AND DETAILS

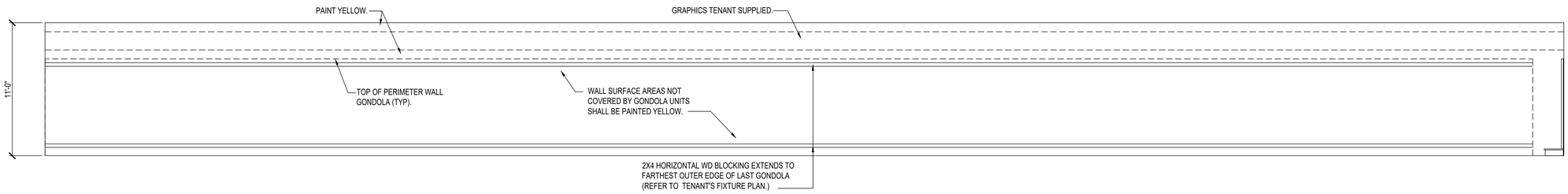
SHEET
A2



INTERIOR ELEVATION

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

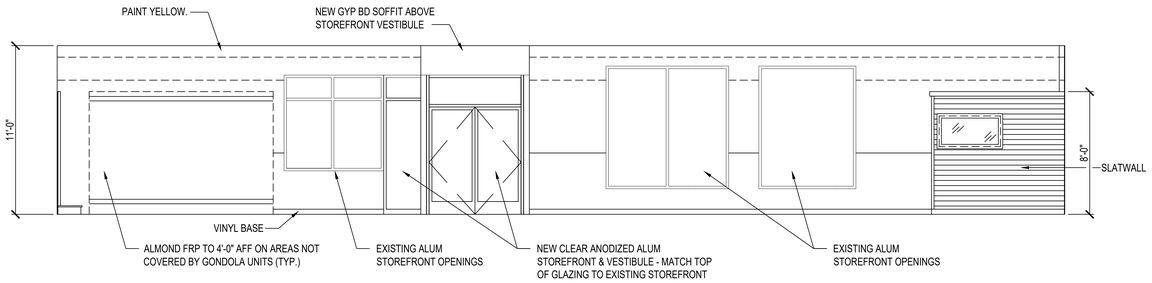
1 / A3



INTERIOR ELEVATION

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

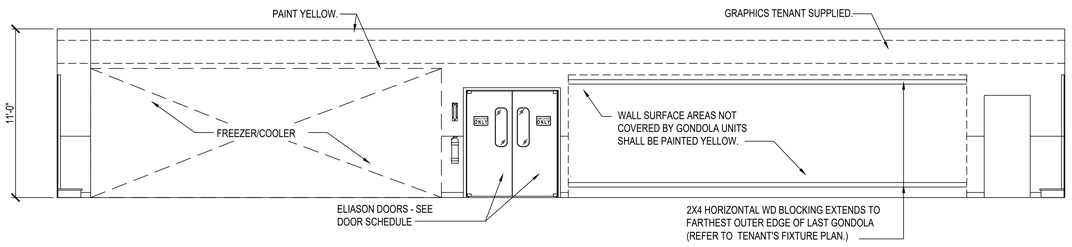
2 / A3



INTERIOR ELEVATION

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

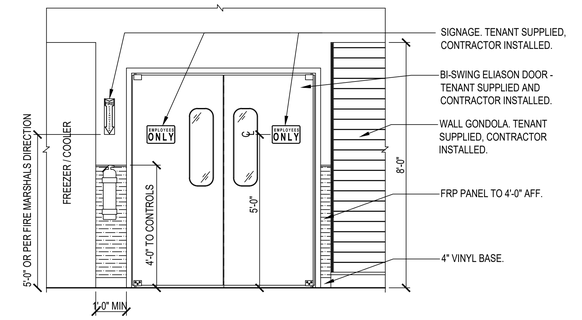
3 / A3



INTERIOR ELEVATION

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

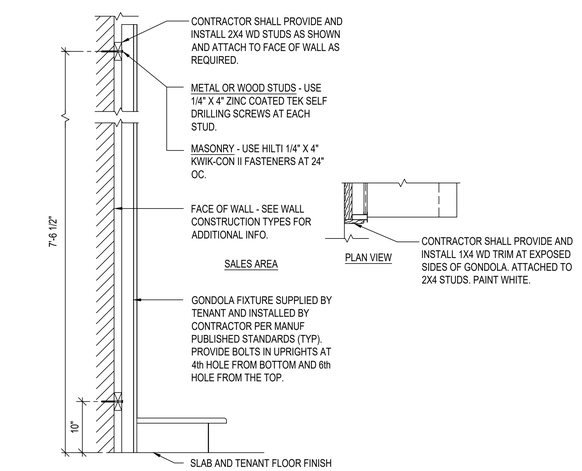
4 / A3



SALES / STOCKROOM DOOR ELEVATION

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

5 / A3



TYPICAL FIXTURE ATTACHMENT DETAIL

SCALE: 1" = 1'-0"

6 / A3.0

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BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

STATE OF OHIO
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2215722
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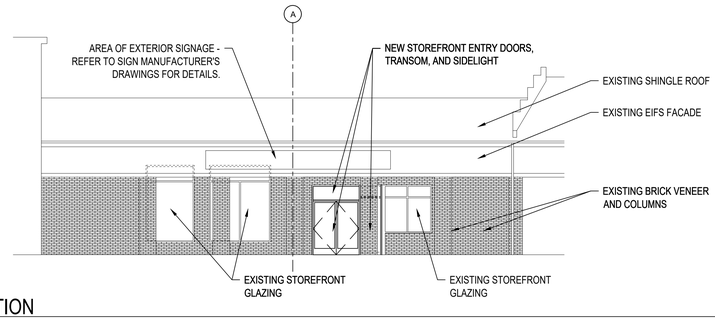
DRAWING
INTERIOR ELEVATIONS AND DETAILS

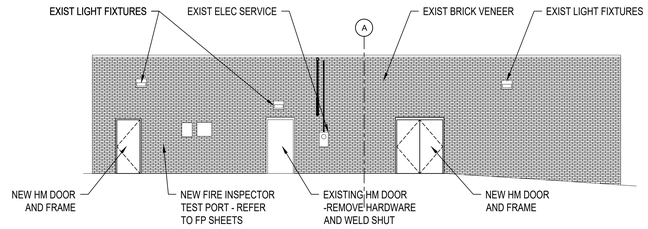
SHEET
A3



EXTERIOR ELEVATION

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

1 / A3.1



EXTERIOR ELEVATION

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

2 / A3.1

EXTERIOR ELEVATION

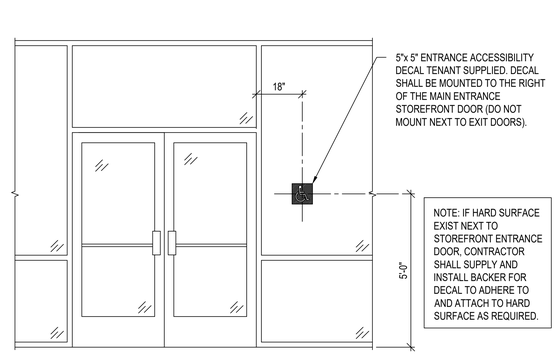
SCALE: 1/8"=1'-0"

2 / A3.1

NOTE:
SIGNS, LOCATION, NUMBER AND SIZE ARE NOT APPROVED UNDER THIS BUILDING PERMIT. A SEPARATE SIGN LOCATION PERMIT IS REQUIRED FOR EACH SIGN.

GENERAL CONTRACTOR VERIFY FINAL PAINT AND SIGN RENDERING WITH CONSTRUCTION PROJECT MANAGER PRIOR TO COMPLETING THE BID PROCESS

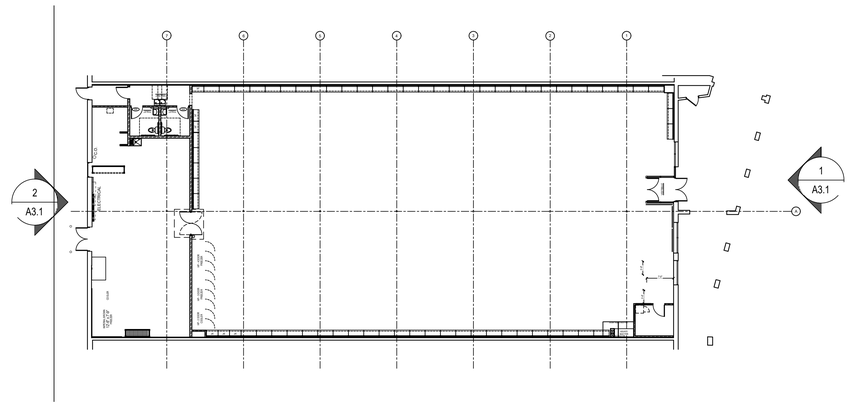
LANDLORD TO CLEAN EXISTING EIFS AND BRICK VENEER. PATCH AND REPAIR EIFS AND PAINT TO MATCH WHERE EXISTING SIGNAGE IS BEING REMOVED/REPLACED.



ACCESSIBILITY DECAL AT STOREFRONT ENTRANCE

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

5 / A3.1



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586.933.3010

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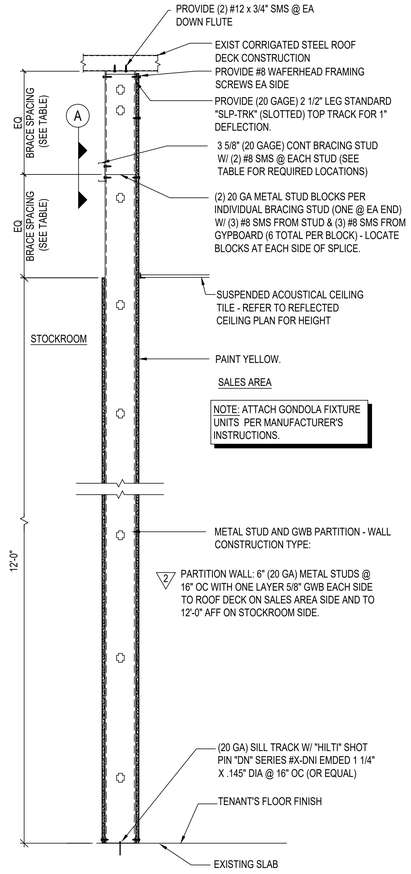
30330 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING

EXTERIOR ELEVATIONS AND DETAILS

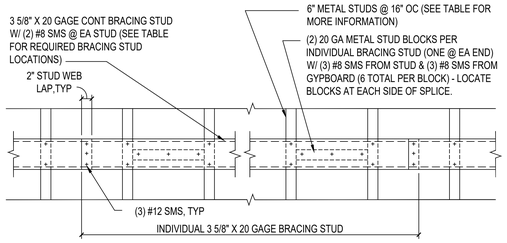
SHEET

A3.1



WALL SECTION - CONSTRUCTION TYPE: 2

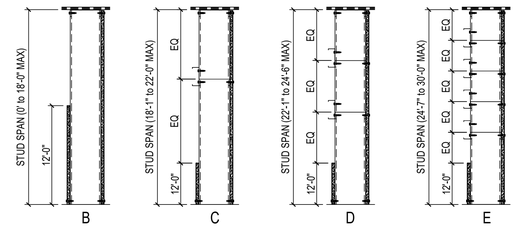
SCALE: 1" = 1'-0"



DETAIL

SCALE: 1" = 1'-0"

A



BRACING LOCATION SECTION

SCALE: NTS

STUD SPAN	STUD GAGE	BRACE SPACING	BRACING LOCATION SECTION
18'	20 (600S125-33)	NO BRACING REQUIRED	B
22'	20 (600S125-33)	5' OC (MAX)	C
24'-6"	20 (600S125-33)	4'-2" OC (MAX)	D
30'-0"	18 (600S125-43)	3'-7" OC (MAX)	E

STUDS MUST MEET MINUMIM SSMA SPECIFICATIONS FOR 600S125 Fy=33 KSI STUDS OF THE SPECIFIED GAGE.

FINISH SCHEDULE

ROOM #	SPACES	FLOORS	BASES	WALLS	CEILING	NOTES
100	VESTIBULE	ENTRY CARPET	—	STOREFRONT	ACT	1,4
101	SALES	POLISHED CONCRETE	4" VINYL	GWB - PAINT PT-1 / FRP TO 4'-0"	ACT	1,2,4,5,7,9,11,12
102	OFFICE	POLISHED CONCRETE	4" VINYL	GWB - PAINT PT-3	—	2,7,10,12
103	HALLWAY	POLISHED CONCRETE	4" VINYL	GWB - PAINT PT-2 / FRP TO 4'-0"	ACT	2,4,5,7
104 & 105	TOILET	SHEET VINYL	SHEET VINYL	FRP	GWB - PT-3	3,5
106	PRE-SALES	SEALED CONCRETE - PAINT 12" (PT-8) AROUND PERIMETER OF PRE-SALES	4" VINYL	EXIST / GWB / 1/2" FIRE TREATED PLYWOOD TO 4'-0" -PAINT PT-4	EXPOSED DECK - PAINT PT-9	2,5,6,8,13,14

PAINT FINISH SCHEDULE

NO.	TYPE	COATS	BENJAMIN MOORE	BM-LOW VOC BASE PRODUCT
PT-1	EGGSHELL	2	"DT BM #2019-60 - LEMON SORBET"	SUPER HIDE ZERO VOC LATEX - 357
PT-2	SEMI-GLOSS ENAMEL	2	"DT BM #2019-60 - LEMON SORBET"	SUPER HIDE ZERO VOC LATEX - 358
PT-3	SEMI-GLOSS ENAMEL	2	"DT BM WHITE"	SUPER HIDE ZERO VOC LATEX - 358
PT-4	EGGSHELL	2	"DT BM WHITE	SUPER HIDE ZERO VOC LATEX - 357
PT-7	SEMI-GLOSS	2	"DT BM GREY"	TOUGH SHIELD ACRYLIC GLOSS - TY 43
PT-8	SEMI-GLOSS	2	"DT BM WHITE"	TOUGH SHIELD ACRYLIC GLOSS - TY 43
PT-9	FLAT	2	"DT BM WHITE"	SUPER HIDE ZERO VOC LATEX - 355

FINISH NOTES

1. CARPET TILE: MANUFACTURED BY PORTICO SYSTEMS AND TENANT SUPPLIED /CONTRACTOR INSTALLED. INSTALL TILES QUARTER TURNED AND PER TENANT'S CRITERIA.
   ENTRY TILE: DOMINATOR LP TILE : ANTHRACITE #1593.CONTRACTOR SHALL PREPARE FLOOR SURFACE AND COORDINATE CARPET INSTALLATION W/ CARPET INSTALLER.
2. VINYL COVE BASE: 4" HIGH TOPSET COVE VINYL - ARMSTRONG, BLACK. VINYL BASE ON EXPOSED AREAS ONLY IN SALES ROOM (NOT BEHIND GONDOLAS AND FREEZER / COOLERS). VINYL COVE TO BE INSTALLED IN PRE-SALES ON ON ALL PERIMETER WALLS (EXCLUDING MASONRY WALLS IN PRE-SALES).
3. SHEET VINYL: WELL APPOINTED INLAID HETEROGENEOUS SHEET VINYL #1NL2M703 MANUFACTURED BY AHF CONTRACT OR EQUAL. SHEET VINYL BASE: INTEGRAL, 3/8" RADIUS, 6" HIGH COVED BASE W/ COVE STICK AND EXTRUDED ALUMINUM CAP TRIM.
4. NEW CEILING TILE AND GRID: PROVIDE 2'-0" X 4'-0" CEILING TILE EQUAL TO ARMSTRONG "CORTEGA" MINABOARD #769, WHITE, IN A WHITE METAL GRID. (IN AREAS WITH SIGNIFICANT AIR PRESSURE DIFFERENTIALS PROVIDE RETENTION CLIPS TO RETAIN PANELS IN PLACE.)
5. FRP (FIBERGLASS REINFORCED PANEL - GLASBORD # 85 - WHITE W/ PEBBLED EMBOSSED FINISH, BY CRANE COMPOSITES OR EQUAL): IN TOILET ROOM FROM FLOOR TO 8'-0" AFF SHALL BE WHITE COLOR. FRP TO 8'-0" AFF IN PRE-SALES BEHIND MOP SINK AND UTILITY CABINET ONLY. FRP IN HALLWAY FROM FLOOR TO 4'-0" AFF BEHIND DRINKING FOUNTAIN ONLY. FRP ON SALES FLOOR (WHERE NOTED ON PLANS/ELEVATIONS) SHALL BE ALMOND COLOR WITH "J" CHANNEL TRIM CAP AND "H" CHANNEL PANEL CONNECTORS.
6. SEALER: CLEAR ACRYLIC SEALER BY MASTERKURE, CC 300SB OR DOLLAR TREE APPROVED SUBSTITUTE.
7. POLISHED CONCRETE FLOOR PER MANUFACTURE SPECIFICATIONS BY TENANT'S VENDOR. COORDINATE WITH TENANT.
8. 12" STRIPE AROUND PERIMETER & AROUND COLUMNS: COLOR PT-8. BAND SHALL BE PAINTED PRIOR TO PAINTING ANY YELLOW CLEAR FLOOR AREAS.
9. EXPOSED STEEL COLUMNS TO BE PAINTED PT-1. ROUND COLUMNS ARE NOT TO RECEIVE COVE BASE.
10. PROVIDE PREFORMED COUNTER WITH WHITE HIGH PRESSURE LAMINATE FINISH. MOUNT TO WALLS. FILING CABINETS PROVIDED BY TENANT. SEE ENLARGED OFFICE PLAN AND OFFICE ELEVATION.
11. SALES AREA TO RECEIVE LEVEL 4 FINISH. PROVIDE FINISH TO 1'-0" BEHIND FREEZER / COOLER AND GONDOLA. TO FF EVERYWHERE ELSE. CONTRACTOR SHALL ALLOW 72 HOUR CURE TIME.
12. SLATWALL: 3/4" SLATWALL WITH WHITE MELAMINE FINISH. SEE MANUFACTURER'S DRAWINGS FOR INSTALLATION DETAILS. SLATWALL IS TENANT SUPPLIED / CONTRACTOR INSTALLED.
13. PAINT PRE-SALES WALLS PT-4 TO DECK.
14. PROVIDE 1/2" FIRE TREATED PLYWOOD TO 4'-0" AFF AROUND PERIMETER PRE-SALES WALLS (WALLS WITH GYP BOARD FINISH ONLY). PLYWOOD SHALL NOT BE INSTALLED ON MASONRY WALLS OR WALLS ADJACENT TO MOP SINK UNO.

DOOR SCHEDULE

#	DOORS W	H	T	MATERIAL	DETAILS TYPE	HEAD	JAMB	SILL	FR	HDW NOTES	DOOR NOTES
100	3'-0"	6'-8"	1 3/4"	SOLID CORE WOOD	FP	13/A1.1	13/A1.1	-		100A	5,12
200	PR 3'-0"	7'-0"	.063"	TEMP. ALUM ALLOY	NL	14/A1.1	-	-		200A	2,10
300	3'-0"	6'-8"	1 3/4"	SOLID CORE WOOD	FP	13/A1.1	13/A1.1	-		300C	5,6,8,12
400	PR 3'-0"	7'-0"	1 3/4"	HOLLOW METAL	FP	-	-	-		400A	4,5,7
401	3'-0"	7'-0"	1 3/4"	HOLLOW METAL	FP	-	-	-		400C	4,5,7,9
402	3'-0"	7'-0"	1 3/4"	SOLID CORE WOOD	FP	-	-	-		600F	4,5,9
500	PR 3'-0"	7'-0"	1 3/4"	ALUM & GLASS	SF	-	-	-		500A	1,7,11
501	PR 3'-0"	7'-0"	1 3/4"	ALUM & GLASS	SF	-	-	-		500B	1,7,11

DOOR NOTES

1. PROVIDE A SIGN POSTED ON THE EGRESS SIDE, ON OR ADJACENT TO THE DOOR STATING: " THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. " THE SIGN SHALL BE IN LETTERS 1" HIGH ON A CONTRASTING BACKGROUND.
2. NEW ELIASON BI-SWING DOORS W/ WINDOW - SUPPLIED BY TENANT. REINFORCE JAMBS WITH WOOD BLOCKING. PAINT DOOR FRAME WHITE WITH SEMI-GLOSS ENAMEL PAINT. DOOR TO REMAIN WITH ORIGINAL FINISH.
3. DOOR, FRAME AND HINGES ARE EXISTING TO REMAIN. PROVIDE AND INSTALL ANY MISSING ITEMS OF HARDWARE PER HARDWARE NOTES.
4. PROVIDE (ONE) PEEP HOLE TO VIEW OUT. MOUNT @ 4'-3" AFF.
5. PAINT DOOR AND FRAME W/ WHITE SEMI-GLOSS ENAMEL PAINT.
6. INSTALL TENANT SUPPLIED SIGNAGE PER ELEVATION 2/CS2.
7. CONTRACTOR SHALL PROVIDE AND INSTALL DOOR SWEEP ON ALL EXTERIOR DOORS TO PREVENT WATER, WIND AND DEBRIS INFILTRATION.
8. MOUNT TENANT SUPPLIED COAT HOOK AT 48" AFF. ON BACK SIDE OF DOOR.
9. PROVIDE SIGNAGE THAT READS "EMERGENCY EXIT ONLY."
10. PROVIDE SIGNAGE THAT READS "EMPLOYEES ONLY."
11. PROVIDE NYLON WASHER/GROMMETS AT THE DOOR HANDLES AND CRASH BARS TO PREVENT METAL ON METAL CONTACT.
12. ALL DOOR FRAME, CASED OPENING AND HARDWARE MATERIAL WILL BE SUPPLIED BY TENANT. GC IS RESPONSIBLE FOR INSTALLATION.

FP = FLUSH PANEL
NL = NARROW LIGHT
SF = STOREFRONT

GENERAL HARDWARE NOTES

1. THRESHOLDS AT EGRESS DOORS SHALL BE NO MORE THAN 1/2" (MAX) HEIGHT AFF.
2. ALL DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES SHALL BE INSTALLED 34" (MIN) TO 44" (MAX) AFF AND SHALL BE "SINGLE-HANDED" OPERABLE WITHOUT USE OF KEY OR SPECIAL KNOWLEDGE.
3. WHERE EGRESS DOORS ARE USED IN PAIRS, THE UNLATCHING OF THE LEAF SHALL NOT REQUIRE MORE THAN ONE (1) OPERATION AS MENTIONED IN GENERAL HARDWARE NOTE #2 ABOVE.
4. CONTROLS AND OPERATING MECHANISMS SHALL BE LEVER-TYPE (OR EQUAL) PROVIDING OPERATION WITH ONE HAND AND NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST.
5. THE FORCE REQUIRED TO ACTIVATE CONTROLS OF INTERIOR HINGED DOORS SHALL BE NO GREATER THAN 5 POUNDS (22.2 N).
6. DOORS EQUIPPED WITH CLOSERS SHALL BE ADJUSTED SO THAT THE SWEEP PERIOD FROM AN OPEN POSITION OF 70 DEGREES WILL TAKE AT LEAST 3 SECONDS TO MOVE TO A POINT 3" FROM THE LATCH, MEASURED FROM THE LEADING EDGE OF THE DOOR.

HARDWARE NOTES

HDW # 100A
1 1/2 PAIR HINGES: STANDARD WEIGHT
1 MECHANICAL PUSH BUTTON LOCKSET WITH LEVER HANDLE
1 CLOSER
1 FLOOR STOP

HDW # 200A
LWP-3 ALUMINUM TRAFFIC DOOR
EASY SWING HINGE SYSTEM
9" X 30" CLEAR ACRYLIC WINDOW
FLUSH HOLLOW METAL FRAME - DRYWALL

HDW # 300C
1 1/2 PAIR HINGES: STANDARD WEIGHT
1 PRIVACY SET WITH LEVER HANDLE
1 CLOSER
(FLOOR/WALL STOP IF SHIPPED WITH HARDWARE)

HDW # 400A
3 PAIR HINGES: 4 1/2" HEAVY WEIGHT, NON- REMOVABLE PINS
1 NON-ALARMED, NON-KEYED PANIC BAR
DEVICE: WITH STAND ALONE ALARM REFER TO DOOR ALARM MOUNTING DETAIL
2 OVERHEAD HOLDERS/STOPS
2 FLUSH BOLTS (ON INACTIVE LEAF)
1 DUST PROOF STRIKE
1 PEEP HOLE
1 ALUM THRESHOLD (1/2" MAX HEIGHT)
2 SWEEPS
1 WEATHER STRIP
1 RAIN DRIP
1 ASTRAGAL

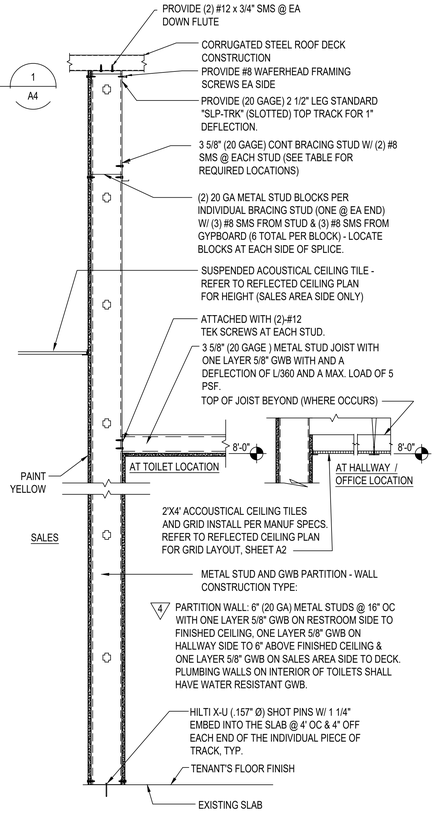
HDW # 400C
1 1/2 PAIR HINGES: STANDARD WEIGHT, NON-REMOVABLE PINS
1 NON-ALARMED, NON-KEYED PANIC BAR DEVICE: WITH STAND ALONE ALARM - REFER TO DOOR ALARM MOUNTING DETAIL.
1 CLOSER WITH STOP ARM
1 PEEP HOLE
1 ALUM THRESHOLD (1/2" MAX HEIGHT)
1 SWEEP
1 WEATHER STRIP
1 RAIN DRIP

HDW # 500A
HINGES PER STOREFRONT MANUFACTURER (BY GENERAL CONTRACTOR)
2 CLOSERS WITH STOP ARM AND DROP PLATE
2 PUSH PLATES (BY GENERAL CONTRACTOR)
2 PULL HANDLES (BY GENERAL CONTRACTOR)
1 KABA CYLINDER (SUPPLIED BY TENANT)
1 COMMERCIAL GRADE DEADLOCK W/ THUMB URN ON SALES SIDE (BY GENERAL CONTRACTOR)

NOTE: CONTRACTOR SHALL VERIFY CLOSER DOES NOT HAVE A HOLD-OPEN FEATURE. IF CLOSER DOES, THE CONTRACTOR SHALL REPLACE WITH NEW CLOSER.

HDW # 500B
HINGES PER STOREFRONT MANUFACTURER (BY GENERAL CONTRACTOR)
2 CLOSERS WITH STOP ARM AND DROP PLATE
2 PUSH PLATES (BY GENERAL CONTRACTOR)
2 PULL HANDLES (BY GENERAL CONTRACTOR)

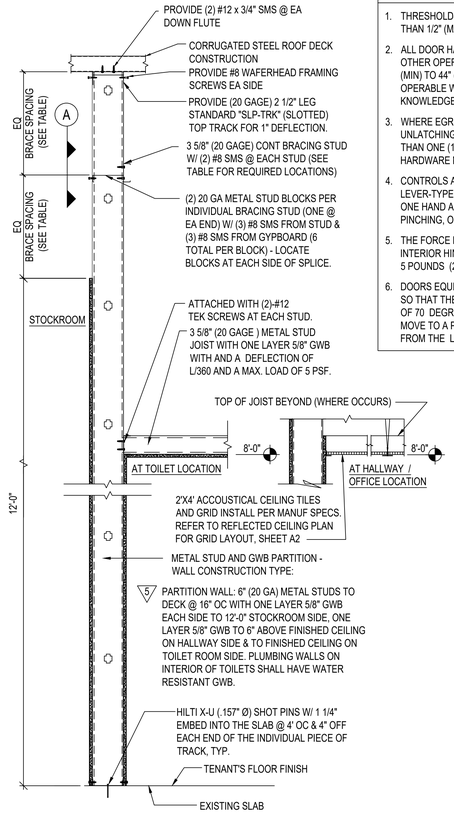
HDW # 600F
1 1/2 PAIR HINGES: STANDARD WEIGHT, BALL BEARING PINS
1 CLOSER
1 KEYED EXTERIOR TRIM (2 KEYS)
1 NON-ALARMED, NON-KEYED PANIC BAR DEVICE: WITH STAND ALONE ALARM REFER TO DOOR ALARM MOUNTING DETAIL.



WALL SECTION - CONSTRUCTION TYPE: 4

SCALE: 1" = 1'-0"

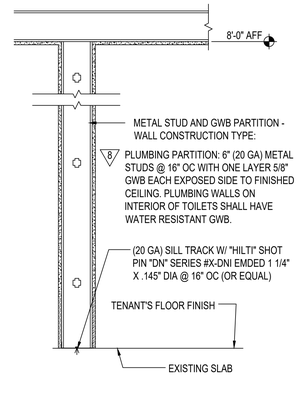
5 A4



WALL SECTION - CONSTRUCTION TYPES: 5

SCALE: 1" = 1'-0"

6 A4



WALL SECTION - CONSTRUCTION TYPE: 8

SCALE: 1" = 1'-0"

4 A4

MARK	DATE	DESCRIPTION	BY
		REVISIONS	

DATE	PROJECT	DRAWN	CHECKED
02/24/2023	0019.30	BE	BE

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

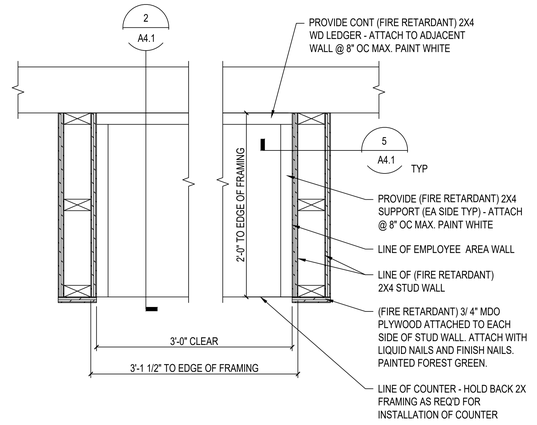
STATE OF OHIO
BRIAN EADY
2218722
REGISTERED ARCHITECT
03.24.2023

DOLLAR TREE

PROJECT: FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
WALL SECTIONS,DETAILS, AND SCHEDULES

DRAWING

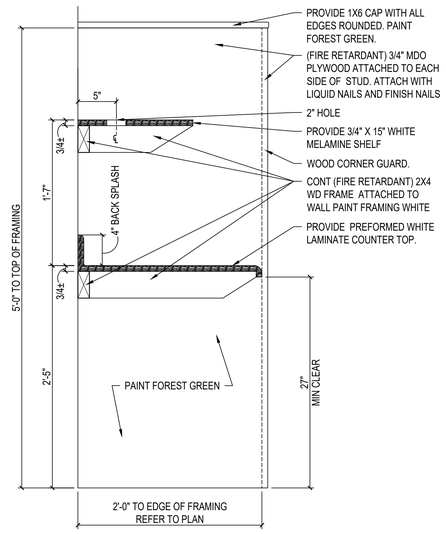
SHEET
A4



TRAINING DESK DETAIL

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

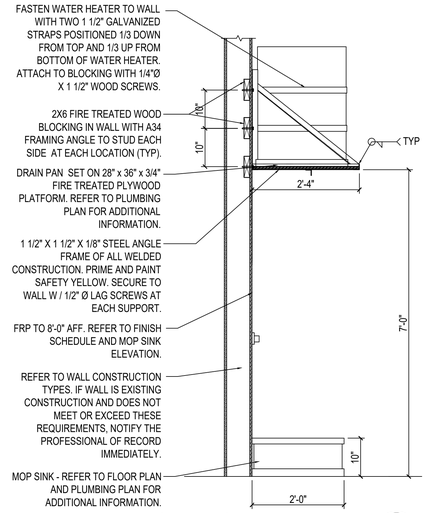
1 A4.1



TRAINING DESK SECTION

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

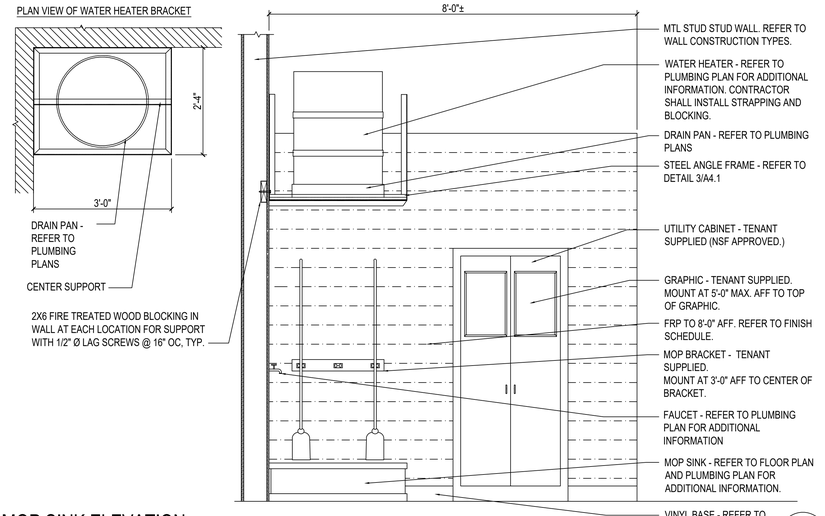
2 A4.1



WATER HEATER MOUNTING DETAIL

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

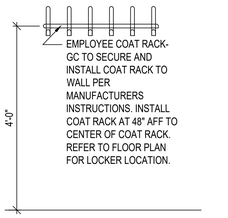
3 A4.1



MOP SINK ELEVATION

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

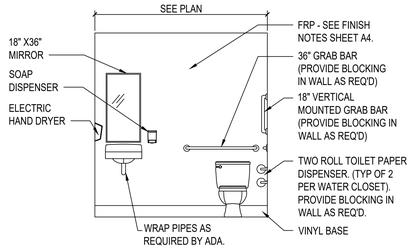
4 A4.1



ELEVATION EMPLOYEE COAT RACK

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

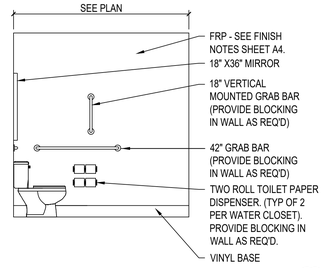
6 A4.1



TOILET ELEVATION

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

7 A4.1



TOILET ELEVATION

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

8 A4.1

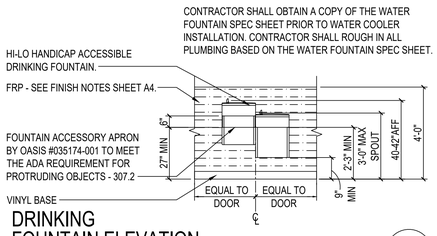
NOTE:

TOILET ACCESSORIES ARE TENANT SUPPLIED - INCLUDING GRAB BARS, TOILET PAPER DISPENSER, MIRROR, HAND DRYER, AND SLATWALL.

THE ELECTRIC HAND DRYER WILL NOT EXTEND MORE THAN 4" FROM THE WALL ON WHICH IT IS MOUNTED UNLESS IT HAS A LEADING EDGE AT OR BELOW 27" ABOVE FINISHED FLOOR.

FLUSH CONTROLSS SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET.

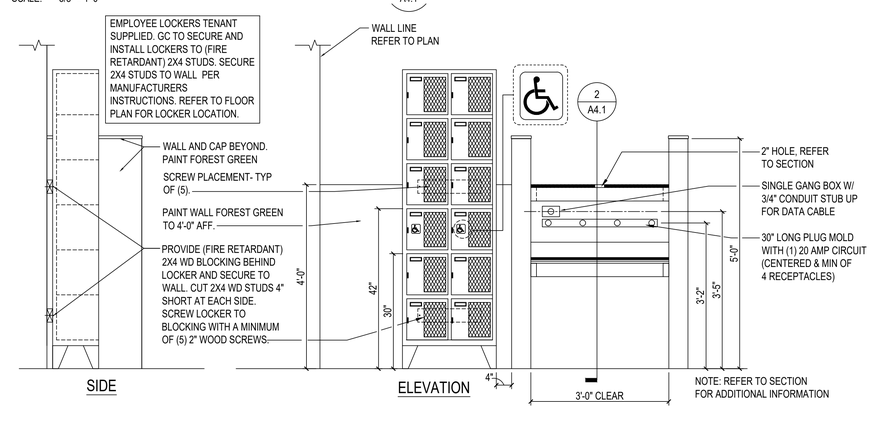
CONTRACTOR SHALL FIELD VERIFY ALL EXIST PLUMBING FIXTURES AND EXIST ACCESSORIES (INCLUDING LANDLORD INSTALLED PLUMBING FIXTURES AND ACCESSORIES) COMPLY WITH PLANS AND HANDICAPPED CODES AND LAWS. CONTRACTOR SHALL VERIFY COMPLIANCE TO FLOOR PLAN. ENLARGED PLANS AND ELEVATIONS THIS SET. NOTIFY CONSTRUCTION PM WITH ANY DISCREPANCIES.



DRINKING FOUNTAIN ELEVATION

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

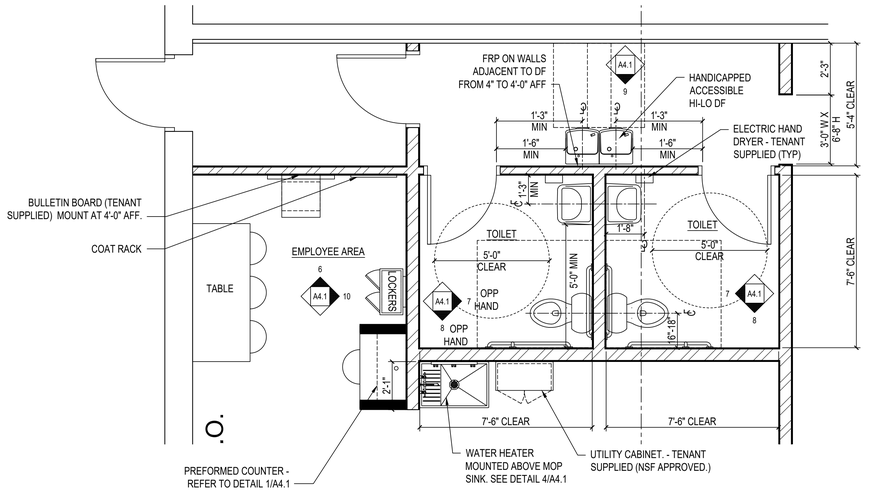
9 A4.1



LOCKER AND TRAINING DESK ELEVATION

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

10 A4.1



ENLARGED TOILET PLAN

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

12 A4.1

MARK	DATE	DESCRIPTION
		REVISIONS

BY

DATE	02/24/2023	BE
PROJECT	0019.30	BE
	DRAWN	CHECKED

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

03.24.2023

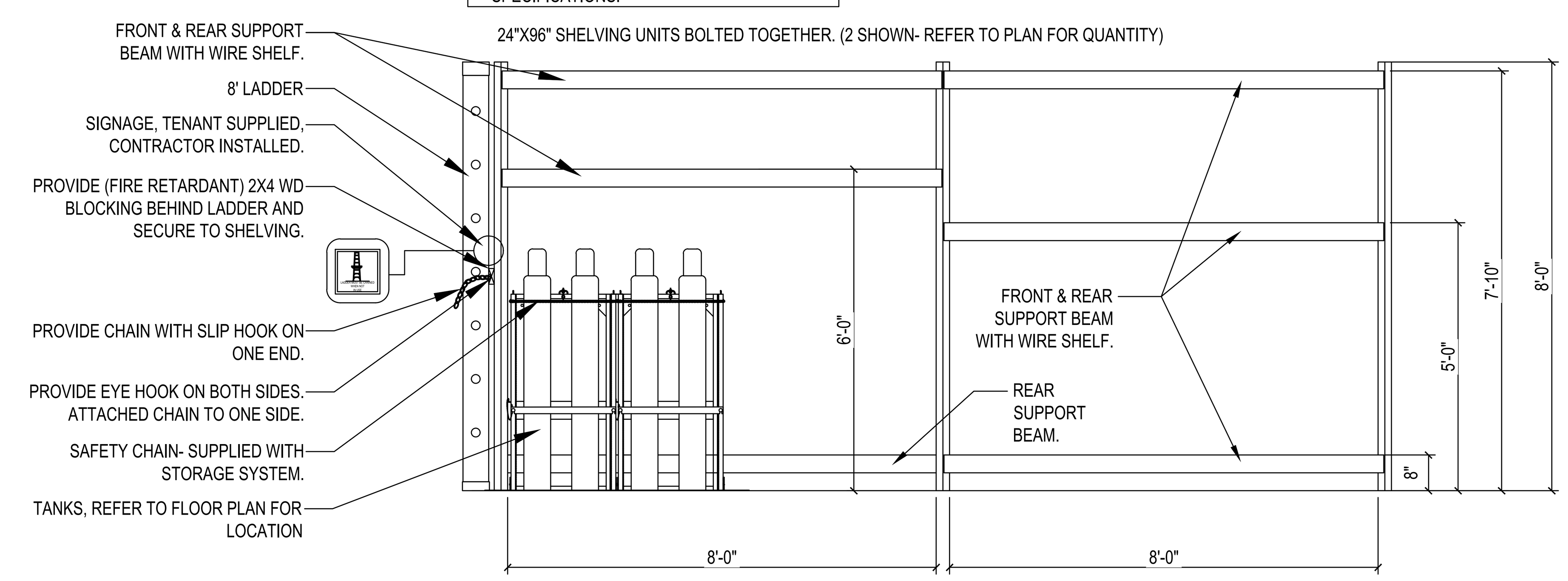
DOLLAR TREE

PROJECT: FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
DRAWING: ENLARGED TOILET PLAN, ENLARGED EMPLOYEE AREA, DETAILS AND ELEVATIONS

SHEET

A4.1

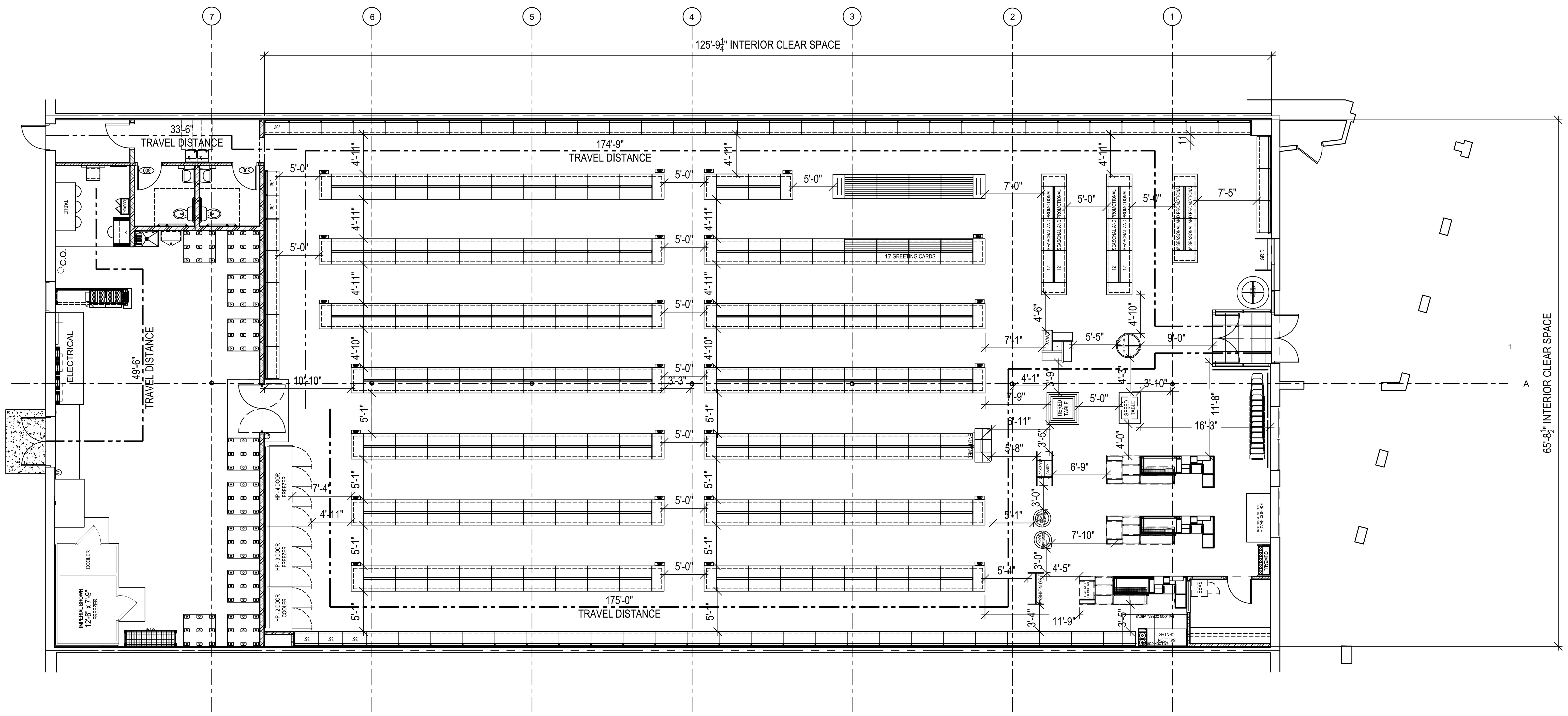
NOTE:
1. REFER TO PLAN FOR QUANTITY AND SIZE.
2. TENANT SUPPLIED, CONTRACTOR INSTALLED.
3. SECURE TO FLOOR PER MANUFACTURES SPECIFICATIONS.



SHELVING ELEVATION

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

8
A5



FIXTURE/EGRESS PLAN

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

PROJECT NORTH

NOTES:
1. NO GONDOLA UNITS, FIXTURES, OR PALLETS SHALL BE OVER 8'-0" A.F.F.
2. FIXTURE PLAN IS "FOR REFERENCE ONLY". CONTRACTOR SHALL CONTACT DOLLAR TREE FOR FINAL APPROVED LAYOUT.
3. CHECKOUTS ARE NOT ATTACHED TO FLOOR.

MARK	DATE	BY	DESCRIPTION

REVISIONS

DATE	02/24/2023
PROJECT	0019.30
DRAWN	BE
CHECKED	BE

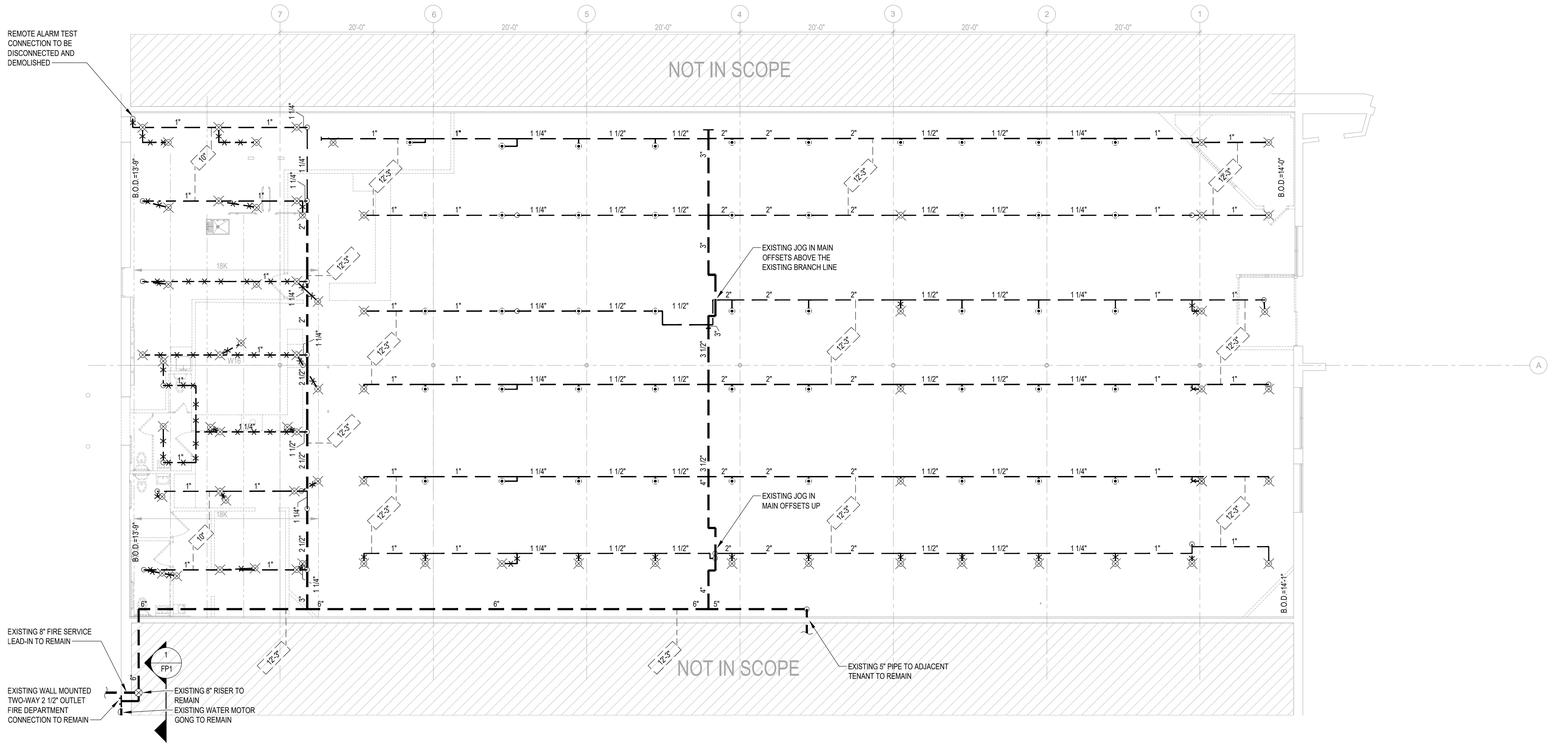
BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

STATE OF OHIO
BRIAN EADY
2218722
REGISTERED ARCHITECT
03.24.2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
FIXTURE/EGRESS PLAN

SHEET
A5



FIRE SPRINKLER PLAN - DEMOLITION WORK

SCALE: 1/8" = 1'-0" FIN. FLOOR ELEV. = 100'-0"

SYMBOL KEY

- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE REMOVED
- NEW PIPING
- 1" ARM-OVER TO NEW SPRINKLER FROM EXISTING 1" OUTLET
- CONNECT TO EXISTING PIPE AND/OR FITTING
- EXISTING SPRINKLER AND ARM-OVER TO BE DEMOLISHED BACK TO OUTLET ON BRANCH LINE UNLESS SHOWN OTHERWISE
- EXISTING CHROME RECESSED PENDANT — ORD/5.6/SR
- NEW CHROME PENDENT ON 2-PIECE TELESCOPING ESCUTCHEON — ORD/5.6/SR
- NEW BRASS UPRIGHT — ORD/5.6/QR
- NEW CHROME PENDENT ON 2-PIECE TELESCOPING ESCUTCHEON — ORD/5.6/QR
- NEW DRY CHROME PENDENT ON 2-PIECE TELESCOPING ESCUTCHEON WITH FREEZER BOOT — INT/5.6/QR
- APPROXIMATE CENTER LINE ELEVATION OF EXISTING PIPE ABOVE FINISHED FLOOR AND/OR BELOW METAL DECK
- RECOMMENDED CENTER LINE ELEVATION OF NEW PIPE BELOW METAL DECK
- RISE FROM LEFT TO RIGHT AND DROP FROM RIGHT TO LEFT
- NOT IN SCOPE

SEE SHEET FP2 FOR NOTES, DETAILS, AND SPECIFICATION

ALL ARM-OVERS TO NEW SPRINKLERS ARE 1" DIAMETER

CCI
2043 WOODLAND PKWY. SUITE 300
ST. LOUIS, MISSOURI 63146-4235
314-991-2633
www.codeconsultants.com

MARK	DATE	REVISIONS
		BY
		DESCRIPTION

DATE	02/24/2023
PROJECT	0019.30
DRAWN	BJB
CHECKED	MAR

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

STATE OF OHIO
WILLIAM B. SMITH
PE-73499
REGISTERED PROFESSIONAL ENGINEER
10-23-2023

ENGINEER OF RECORD:
WILLIAM B. SMITH, PE
LICENSE NO. PE-73499
CODE CONSULTANTS, INC.
2043 WOODLAND PKWY, SUITE 300
ST. LOUIS, MO 63146-4235
PHONE: 314-991-2633
CORPORATE CERTIFICATE OF AUTHORITY NO. 02027

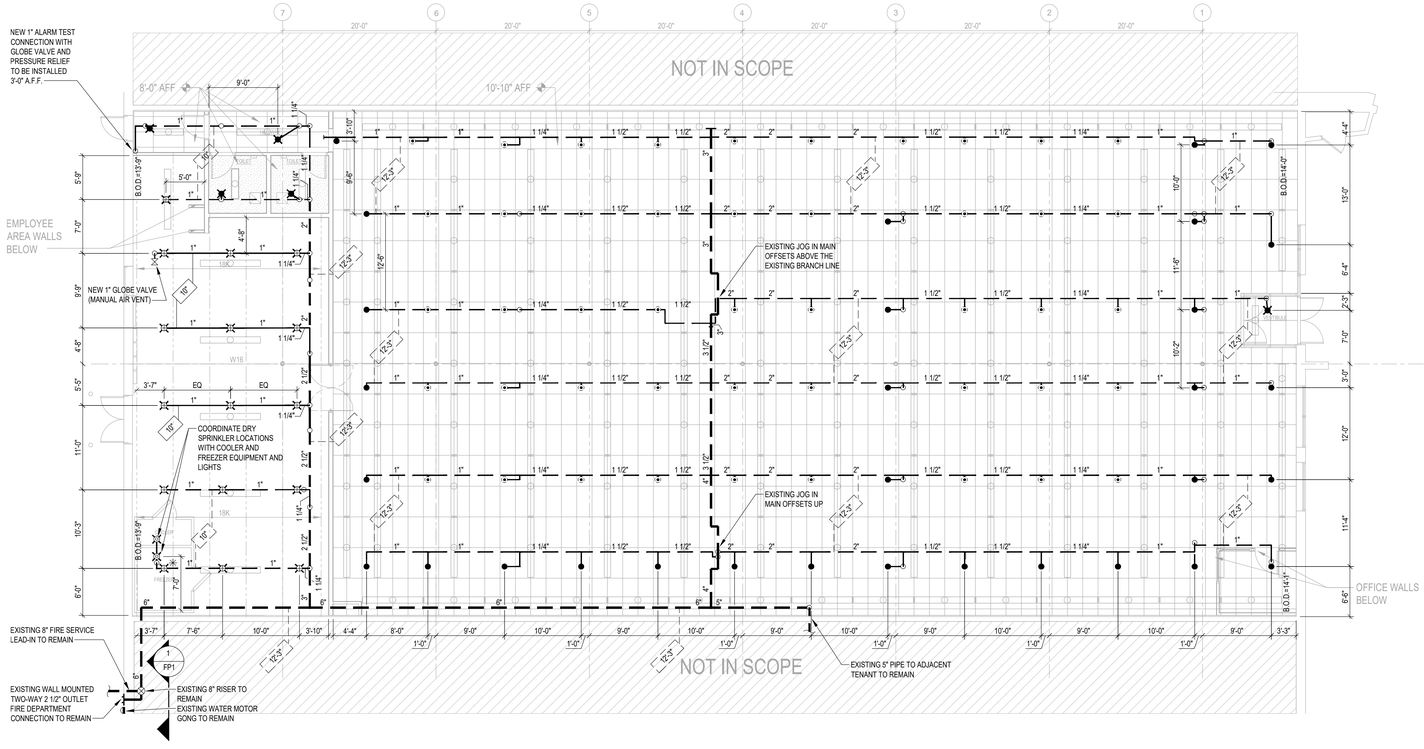
DOLLAR TREE

PROJECT: FORMER ENTERTAINMENT
60930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING: FIRE SPRINKLER PLAN - DEMOLITION WORK

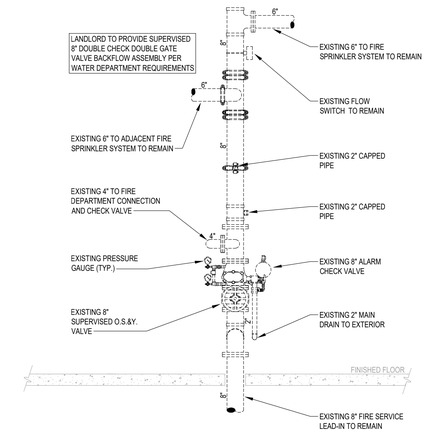
SHEET

FPD1



FIRE SPRINKLER PLAN - NEW WORK

SCALE: 1/8" = 1'-0" FIN. FLOOR ELEV. = 100'-0"



ELEVATION AT EXISTING FIRE SPRINKLER RISER

1 / FP1 NOT TO SCALE FIN. FLOOR ELEV. = 100'-0"

(FOR REFERENCE ONLY)

SYMBOL KEY

- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE REMOVED
- NEW PIPING
- 1" ARM-OVER TO NEW SPRINKLER FROM EXISTING 1" OUTLET
- CONNECT TO EXISTING PIPE AND/OR FITTING
- EXISTING SPRINKLER AND ARM-OVER TO BE DEMOLISHED BACK TO OUTLET ON BRANCH LINE UNLESS SHOWN OTHERWISE
- EXISTING CHROME RECESSED PENDANT — ORD/5.6/SR
- NEW CHROME PENDENT ON 2-PIECE TELESCOPING ESCUTCHEON — ORD/5.6/SR
- NEW BRASS UPRIGHT — ORD/5.6/QR
- NEW CHROME PENDENT ON 2-PIECE TELESCOPING ESCUTCHEON — ORD/5.6/QR
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2043 WOODLAND PKWY, SUITE 300
ST. LOUIS, MO 63146-4235
PHONE: 314-991-2633
CORPORATE CERTIFICATE OF AUTHORITY NO. 02637

PROJECT: DOLLAR TREE
FORMER ENTERTAINMENT
60930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING: FIRE SPRINKLER PLAN - NEW WORK AND RISER DETAIL

SHEET
FP1

SECTION 15300 - FIRE SPRINKLER SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. RELATED DOCUMENTS: CONDITIONS OF THE CONTRACT, DIVISION 1 - GENERAL REQUIREMENTS AND DRAWINGS APPLY TO THE WORK OF THIS SECTION.

1.02 DESCRIPTION OF WORK

A. PROVIDE ALL REQUIRED LABOR, MATERIALS, EQUIPMENT, TESTING AND SERVICES NECESSARY FOR A COMPLETE AND OPERATIONAL REMODELED FIRE PROTECTION SYSTEM FOR THE TENANT AS HEREINAFTER DESCRIBED AND AS SHOWN ON THE ENGINEERING DRAWINGS.

B. WORK SHALL BEGIN AT THE EXISTING OVERHEAD FIRE SPRINKLER SYSTEM AND SHALL INCLUDE THE FOLLOWING:

1. REMODELED WET PIPE FIRE SPRINKLER SYSTEM FOR THE TENANT.

2. COORDINATION OF WORK AND SCHEDULES WITH OTHER TRADES.

C. INTERIOR WORK - PROVIDE THE FOLLOWING:

1. OVERHEAD PIPE, FITTINGS, HANGERS, AND SPRINKLERS.

2. ALARM TEST CONNECTION

3. AUXILIARY DRAINS.

D. IT IS INTENDED THAT THE ENGINEERING DRAWINGS AND SPECIFICATION SHALL DESCRIBE AND PROVIDE FOR A WORKING INSTALLATION COMPLETE IN EVERY DETAIL AND ALL ITEMS NECESSARY FOR SUCH COMPLETE INSTALLATION SHALL BE PROVIDED WHETHER OR NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE ENGINEERING DRAWINGS.

1.03 REFERENCES

A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND REFERENCED DESIGN STANDARDS.

1. OHIO BUILDING CODE - 2017 EDITION
2. OHIO FIRE CODE - 2017 EDITION
3. NFPA 13, SPRINKLER SYSTEMS - 2016 EDITION

1.04 SYSTEM DESCRIPTION

A. REMODELED FIRE SPRINKLER SYSTEM DESIGN CRITERIA SHALL BE STRICTLY PER THIS SPECIFICATION.

B. REMODELED FIRE SPRINKLER SYSTEM TO PROVIDE FIRE PROTECTION FOR THE AREAS INDICATED ON THE ENGINEERING DRAWINGS.

C. INTERFACE REMODELED FIRE SPRINKLER SYSTEM WITH BUILDING FIRE AND SMOKE ALARM SYSTEMS.

D. OFFICE AREAS, SALES AREAS, PRE-SALES, AND RECEIVING (ORDINARY HAZARD WET PIPE FIRE SPRINKLER SYSTEM):

1. SYSTEM SHALL MAINTAIN ORDINARY HAZARD PIPE SCHEDULE.

E. SPRINKLER SPACING SHALL BE AS SHOWN ON THE ENGINEERING DRAWINGS.

1. UNFINISHED AREAS - LOCATE SPRINKLERS AS SHOWN ON THE ENGINEERING DRAWINGS.

F. EXISTING FIRE DEPARTMENT CONNECTION TO REMAIN.

G. PROVIDE ALL NECESSARY OFFSETS, RAISES OR DROPS IN MAIN OR BRANCH LINE PIPING AND AUXILIARY DRAINS REQUIRED BY BUILDING CONDITIONS WHETHER OR NOT SHOWN ON THE ENGINEERING DRAWINGS.

H. EXAMINE THE JOB CONDITIONS AND VERIFY ALL MEASUREMENTS, DISTANCES, ELEVATIONS, CLEARANCES, PIPE SIZES, ETC.

I. IT IS UNDERSTOOD, UNLESS SPECIFICALLY INDICATED OTHERWISE, THAT THE PIPE SIZES AS SHOWN ON THE ENGINEERING DRAWINGS WILL BE USED.

1.05 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS:

1. INSTALLER'S RESPONSIBILITIES INCLUDE PREPARING SHOP DRAWING SUBMITTAL, FABRICATING AND INSTALLING SPRINKLER SYSTEMS. BASE CALCULATIONS ON WATER SUPPLY COORDINATES PROVIDED HEREIN.

B. INSTALLER SHALL BE STATE AND LOCALLY LICENSED.

C. EQUIPMENT AND COMPONENTS NOT SPECIFICALLY SPECIFIED SHALL BE LISTED BY UNDERWRITERS LABORATORIES INC. FOR FIRE PROTECTION SYSTEMS INSTALLATION.

D. ALL FIRE SPRINKLER SYSTEM COMPONENTS SHALL BE INSTALLED FREE OF ANY RUST, CORROSION OR VISIBLE DAMAGE. ALL ITEMS NOT COMPLYING WITH THIS REQUIREMENT SHALL BE REPLACED WITHOUT COST TO THE OWNER.

1.06 PROJECT CONDITIONS

A. INTERRUPTION OF EXISTING SPRINKLER SERVICE: DO NOT INTERRUPT SPRINKLER SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY SPRINKLER SERVICE ACCORDING TO REQUIREMENTS INDICATED:

1. NOTIFY CONSTRUCTION MANAGER IN ADVANCE OF PROPOSED INTERRUPTION OF SPRINKLER SERVICE.

2. DO NOT PROCEED WITH INTERRUPTION OF SPRINKLER SERVICE WITHOUT CONSTRUCTION MANAGER'S WRITTEN PERMISSION.

3. PROVIDE TEMPORARY PIPING, FITTINGS AND VALVES AS REQUIRED TO MAINTAIN SPRINKLER SERVICE.

1.07 REGULATORY REQUIREMENTS

A. ALL WORK SHALL MEET THE REQUIREMENTS OF SECTION 1.03.

B. THE FIRE SPRINKLER CONTRACTOR SHALL NOT PURSUE ANY APPROVALS OR INTERPRETATIONS OF CCI'S CONSTRUCTION DOCUMENTS EXCEPT THROUGH CCI.

C. SPRINKLER PIPING SHALL NOT BE CONCEALED WHERE IT IS INACCESSIBLE UNLESS IT IS FIRST INSPECTED AND ACCEPTED BY A REPRESENTATIVE OF THE AUTHORITY HAVING JURISDICTION.

D. ANY WORK PERFORMED PRIOR TO THE SATISFACTORY REVIEW BY CCI AND APPROVAL BY THE AUTHORITY HAVING JURISDICTION AND THE INSURANCE UNDERWRITER WILL BE SOLELY AT THE FIRE SPRINKLER CONTRACTOR'S RISK.

E. THE SYSTEM WILL NOT BE ACCEPTABLE UNTIL FINAL TESTING AND RECEIPT OF THE CONTRACTOR'S MATERIAL AND TEST CERTIFICATE HAS BEEN OBTAINED.

1.08 SUBMITTALS

A. THE ENGINEERING DRAWINGS HAVE BEEN PREPARED USING AUTOCAD. THE ENGINEERING DRAWINGS ARE 100% CAD. THESE DOCUMENTS WILL BE MADE AVAILABLE TO THE SUCCESSFUL FIRE SPRINKLER CONTRACTOR IN EITHER ELECTRONIC FORM OR HARD COPY. UTILIZATION OF THESE DOCUMENTS FOR THE DEVELOPMENT OF SHOP DRAWINGS AND SUBMITTALS DOES NOT RELIEVE THE FIRE SPRINKLER CONTRACTOR FROM ANY OF HIS RESPONSIBILITIES REQUIRED HEREIN.

B. SUBMIT THE FOLLOWING:

1. SHOP DRAWINGS. SUBMIT IN .PDF FORMAT OR TWO (2) HARD COPIES OF EACH DRAWING. DRAWINGS WILL BE RETURNED IN THE SAME FORMAT RECEIVED. SUBMITTAL MUST BE COMPREHENSIVE OF ENTIRE PROJECT, COMPLETE IN ALL DETAIL AND THE SAME SCALE AS THE ENGINEERING DRAWINGS.

2. MANUFACTURER'S LITERATURE ON ALL SYSTEM EQUIPMENT. SUBMIT IN PDF FORMAT OR TWO (2) HARD COPIES OF THE LITERATURE. LITERATURE WILL BE RETURN IN THE SAME FORMAT AS RECEIVED. LITERATURE SHALL CLEARLY IDENTIFY EXACTLY WHAT COMPONENTS ARE BEING PROVIDED WHICH SHALL INCLUDE: FINISH, SIZE, TYPE, OPTIONS, ETC. LITERATURE WHICH IS NOT CLEARLY IDENTIFIED WILL BE REJECTED.

C. CCI WILL REVIEW THIS SUBMITTAL FOR CONSISTENCY WITH CCI'S CONSTRUCTION DOCUMENTS.

D. AFTER THE SATISFACTORY REVIEW BY CCI, PROVIDE SUBMITTALS TO THE AUTHORITY HAVING JURISDICTION AND THE INSURANCE UNDERWRITER FOR APPROVAL.

E. THE FIRE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR RESPONDING, IN WRITING, TO ANY COMMENTS FROM THE AUTHORITY HAVING JURISDICTION OR THE INSURANCE UNDERWRITER WITHIN TEN (10) WORKING DAYS AFTER THE RECEIPT OF THEIR COMMENTS. COPIES OF THE RESPONSE SHALL BE SENT TO THE GENERAL CONTRACTOR AND CCI.

1.09 AS-BUILT DRAWINGS

A. PROVIDE AS-BUILT DRAWINGS IN ACCORDANCE WITH REQUIREMENTS OF THE GENERAL CONDITIONS OF THE CONTRACT AND NFPA 13.

1.10 OPERATION AND MAINTENANCE DATA

A. PROVIDE OPERATING AND MAINTENANCE INSTRUCTIONS TO THE OWNER IN ACCORDANCE WITH REQUIREMENTS OF THE GENERAL CONDITIONS OF THE CONTRACT AND NFPA 13.

1.11 WARRANTY

A. REPAIR ALL DEFECTIVE WORKMANSHIP OR REPLACE ALL DEFECTIVE MATERIALS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. WORKMANSHIP OR EQUIPMENT FOUND TO BE DEFECTIVE DURING THAT PERIOD SHALL BE REPLACED WITHOUT COST TO THE OWNER.

PART 2 - PRODUCTS

2.01 PIPING

A. UNDERGROUND PIPING: NONE.

B. OVERHEAD PIPE: PER LOCAL REQUIREMENTS AND NFPA 13. ALL PIPE SHALL HAVE A CORROSION RESISTANCE RATIO (CRR) EQUAL TO OR GREATER THAN 1.00. REFER TO THE CURRENT UL FIRE PROTECTION EQUIPMENT DIRECTORY - STEEL SPRINKLER PIPE FOR ACCEPTABLE MANUFACTURERS, SIZES, AND JOINING METHODS.

C. ALL WET PIPE SYSTEM RISERS, FEED AND CROSS MAINS AND BRANCH LINES SHALL HAVE HYDRAULIC CHARACTERISTICS EQUAL TO OR GREATER THAN SCHEDULE 40 PIPE.

2.02 JOINING OF PIPE AND FITTINGS

A. ALL PIPE SHALL BE JOINED IN ACCORDANCE WITH NFPA 13 AND MANUFACTURER'S RECOMMENDATIONS.

B. FITTINGS SHALL BE 175 PSI SCREWED OR FLANGED BLACK CAST IRON OR APPROVED EQUAL SUCH AS MECHANICAL, GROOVED, PLAIN END OR WELDED CONNECTIONS. WHERE GROOVED FITTINGS AND COUPLINGS ARE USED TOGETHER, THEY SHALL BE OF THE SAME MANUFACTURER.

C. BUSHINGS SHALL NOT BE USED.

D. FLEXIBLE COUPLINGS SHALL BE IDENTIFIED ON THE SHOP DRAWINGS.

2.03 HANGERS AND SLEEVES

A. PROVIDE PRIMED ESCUTCHEON PLATES AT ALL WALL PENETRATIONS WHERE THE HOLE WOULD OTHERWISE BE EXPOSED TO VIEW.

B. ALL HANGERS TO BE OF APPROVED MATERIALS AND SPACED IN ACCORDANCE WITH NFPA 13 AND THE PIPING MANUFACTURER'S SPECIFICATIONS.

2.04 VALVES

A. INTERIOR VALVES:

1. GLOBE VALVE: BRONZE THREADED; RENEWABLE COMPOSITION DISC; 175 PSI RATED WORKING PRESSURE.

a. ACCEPTABLE MANUFACTURERS: CRANE, MILWAUKEE, NIBCO, STOCKHAM OR APPROVED EQUAL.

2.05 SPRINKLERS

A. TYPES:

1. CHROME PENDENT - GLASS BULB STANDARD AND QUICK RESPONSE PENDENT SPRINKLER WITH POLISHED CHROME 2-PIECE TELESCOPING ESCUTCHEON.

2. BRASS UPRIGHT - GLASS BULB QUICK RESPONSE UPRIGHT SPRINKLER.

3. CHROME DRY PENDENT - GLASS BULB QUICK RESPONSE DRY PENDENT SPRINKLER WITH POLISHED CHROME 2-PIECE TELESCOPING ESCUTCHEON WITH FREEZER BOOT.

B. ACCEPTABLE MANUFACTURERS: GLOBE, RELIABLE, TYCO, VICTAULIC AND VIKING.

C. ONLY SPRINKLERS MANUFACTURED AFTER JANUARY 1, 2022 WILL BE ACCEPTED FOR USE.

D. ONLY SPRINKLERS MANUFACTURED UTILIZING BELLEVILLE SPRING SEALS WILL BE ACCEPTABLE FOR USE.

E. PROVIDE AT THE RISER ONE (1) TWELVE (12) HEAD SPARE SPRINKLER CABINET STOCKED WITH SPRINKLERS AND ESCUTCHEON ASSEMBLIES PROPORTIONATE TO THOSE PROVIDED IN THE BUILDING AND ALL NECESSARY SPRINKLER WRENCHES.

F. IF FLEXHEAD, OR A SIMILAR PRODUCT, IS USED, HYDRAULIC CALCULATIONS SHALL BE PROVIDED TO INCLUDE THE ADDITIONAL FRICTION LOSS, AND PIPE SIZES ADJUSTED IF REQUIRED AT NO ADDITIONAL COST.

G. THE DRY PENDENT SPRINKLERS PROTECTING THE WALK-IN COOLER AND FREEZER SHALL USE THE TYCO DRY SPRINKLER BOOT (DSB-2).

2.06 SIGNS

A. APPROVED ENAMELED METAL SIGNS SHALL BE SECURELY ATTACHED AT THE MAIN DRAIN, AUXILIARY DRAINS, ALARM TEST CONNECTION, AND CONTROL VALVE.

B. PROVIDE A PERMANENTLY ATTACHED PLACARD INDICATING HYDRAULIC DESIGN INFORMATION IN ACCORDANCE WITH NFPA 13 AND PLACED AT THE RISER. A MOCK-UP OF PLACARD SHALL BE INCLUDED WITH EQUIPMENT LITERATURE.

C. PROVIDE A PERMANENTLY ATTACHED PLACARD INDICATING GENERAL INFORMATION IN ACCORDANCE WITH NFPA 13 AND PLACED AT THE RISER. A MOCK-UP OF PLACARD SHALL BE INCLUDED WITH EQUIPMENT LITERATURE.

D. PROVIDE A PLAN INDICATING THE LOCATION OF EACH LOW POINT OR AUXILIARY DRAIN VALVE. THIS PLAN SHALL BE FRAMED WITH A PLEXIGLASS COVER AND SHALL BE PERMANENTLY ATTACHED TO A WALL.

2.07 ALARM TEST CONNECTION

A. PROVIDE A REMOTE ALARM TEST CONNECTION WITH PRESSURE RELIEF FOR THE SYSTEM AS REQUIRED.

PART 3 - EXECUTION

3.01 COORDINATION WITH OTHER TRADES

A. COORDINATE CLOSELY WITH ALL OTHER TRADES TO EXPEDITE CONSTRUCTION AND AVOID INTERFERENCE.

3.02 PAINTING AND PATCHING

A. PAINTING OF SPRINKLER PIPING IS NOT INCLUDED IN THIS CONTRACT. ALL EXPOSED SPRINKLER PIPING SHALL BE THOROUGHLY CLEANED, REMOVING ALL DIRT, OIL, ETC. AND MADE READY TO RECEIVE PAINT IN ACCORDANCE WITH THE GENERAL CONDITIONS OF THE CONTRACT.

B. HOLES IN WALLS OR FLOORS CUT DURING THE PERFORMANCE OF THIS WORK SHALL BE PATCHED IF THE HOLES CANNOT BE COVERED BY STANDARD ESCUTCHEON PLATES SO AS TO COMPLETELY CONCEAL THE CUTS WHERE THEY WOULD OTHERWISE BE EXPOSED TO VIEW.

C. FIRE STOP ALL PENETRATIONS OF FIRE RATED ASSEMBLIES.

3.03 SYSTEM TESTS

A. HYDROSTATICALLY TEST ENTIRE SYSTEM IN ACCORDANCE WITH NFPA 13.

B. TEST SHALL BE WITNESSED BY THE AUTHORITY HAVING JURISDICTION AND OWNER'S AUTHORIZED AGENT.

C. PRELIMINARY TESTING PROCEDURES SHALL BE CONDUCTED AS MENTIONED ABOVE TO ASSURE PROPER OPERATION WHEN THE FINAL TESTING IS PERFORMED.

D. THE CONTRACTOR'S MATERIAL AND TEST CERTIFICATES AS SHOWN IN NFPA 13 MUST BE COMPLETED AND SUBMITTED TO THE ENGINEER BEFORE FINAL ACCEPTANCE MAY BE GIVEN.

E. WHEN THE SYSTEMS ARE INITIALLY COMMISSIONED (FILLED WITH WATER), USE THE MANUAL AIR VENT AND HOSE END ADAPTER AT THE END OF EACH SYSTEM, ATTACH A HOSE TO THE EXTERIOR AND OPEN THE VALVE UNTIL WATER IS DISCHARGED THROUGH THE HOSE. REPEAT THIS PROCEDURE FOR EACH SYSTEM AND ANY TIME THE SYSTEM IS DRAINED AND REFILLED.

END OF SECTION

HANGER NOTE

1. ALL HANGERS TO BE OF APPROVED MATERIALS AND SPACED IN ACCORDANCE WITH NFPA 13 AND THE PIPING MANUFACTURER'S SPECIFICATIONS.

SPRINKLER BELOW DUCT NOTE

PROVIDE SPRINKLER PROTECTION BELOW DUCTS IN EXPOSED STRUCTURE AREAS PER NFPA 13.

CONSTRUCTION NOTES

1. DURING CONSTRUCTION, FIRE SPRINKLER CONTRACTOR SHALL KEEP FIRE SPRINKLER SYSTEM OUT OF CONSTRUCTION AREA FULLY CHARGED AND OPERATIONAL DURING BUSINESS HOURS.
2. COORDINATE REQUIRED SHUT-DOWNS OF THE EXISTING SYSTEM WITH THE OWNER, INSURANCE UNDERWRITER, AND FIRE DEPARTMENT.
3. PROVIDE TEMPORARY PIPING AND FITTINGS AS REQUIRED TO MAINTAIN SERVICE TO FIRE SPRINKLER SYSTEM DURING CONSTRUCTION.
4. COORDINATE CONSTRUCTION PHASES WITH OWNER AND GENERAL CONTRACTOR.

HYDRAULIC CALCULATIONS

HYDRAULIC CALCULATIONS ARE NOT REQUIRED PER NFPA 13 DUE TO THE OCCUPANCY TYPE REMAINING MERCANTILE AND THE EXISTING SYSTEM MAINTING PIPE SCHEDULE

GENERAL NOTES

1. PROVIDE ALL NECESSARY OFFSETS, RAISES OR DROPS IN PIPING AND AUXILIARY DRAINS REQUIRED BY BUILDING CONDITIONS WHETHER OR NOT SHOWN ON THE DRAWINGS.
2. EXAMINE THE JOB CONDITIONS AND VERIFY ALL MEASUREMENTS, DISTANCES, ELEVATIONS, CLEARANCES, PIPE SIZES, ETC.
3. ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL AND ELECTRICAL BACKGROUND INFORMATION IS SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO THE PROPER DRAWINGS FOR EXACT LOCATIONS, SIZES, AND QUANTITIES OF OTHER TRADES' WORK.
4. THE ENGINEERING DRAWINGS HAVE BEEN PREPARED USING AUTOCAD. THE DRAWINGS ARE 100% CAD. THESE DOCUMENTS WILL BE MADE AVAILABLE TO THE SUCCESSFUL FIRE SPRINKLER CONTRACTOR IN EITHER ELECTRONIC FORM OR HARD COPY.
5. SUPPLY ONLY ONE (1) SPRINKLER FROM A SINGLE BRANCH LINE OUTLET. PROVIDE NEW BRANCH LINES AS REQUIRED.
6. SPRINKLERS NEAR A HEAT SOURCE (UNIT HEATERS, DIFFUSERS, STEAM MAINS, SKYLIGHTS, ETC.) SHALL HAVE TEMPERATURE RATINGS IN ACCORDANCE WITH NFPA 13.
7. IT IS UNDERSTOOD, UNLESS SPECIFICALLY INDICATED OTHERWISE, THAT THE PIPE SIZES AS SHOWN ON THE BID DOCUMENTS WILL BE USED.
8. ALL UNUSED OUTLETS ON EXISTING BRANCH LINES SHALL BE PLUGGED.

MAXIMUM HANGER SPACING

1" - 1 1/4" BLACK STEEL PIPE - 12 FT MAXIMUM HANGER SPACING

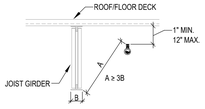
1 1/2" - 3" BLACK STEEL PIPE - 15 FT MAXIMUM HANGER SPACING

SPRINKLER NOTES

1. ALL SPRINKLERS ARE 5.6 K-FACTOR.
2. SPRINKLER SPACING IN LIGHT HAZARD AREAS - MAXIMUM 225 SQ FT PER SPRINKLER AND MAXIMUM 15 FT BETWEEN SPRINKLERS.
3. SPRINKLER SPACING IN ORDINARY HAZARD AREAS - MAXIMUM 130 SQ FT PER SPRINKLER AND MAXIMUM 15 FT BETWEEN SPRINKLERS.

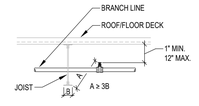
FIRE SPRINKLER DEMOLITION NOTES

1. FIRE SPRINKLER CONTRACTOR'S SCOPE OF WORK SHALL INCLUDE:
   - SHUT DOWN AND DRAINING OF EXISTING SYSTEM.
   - DEMOLITION OF EXISTING SPRINKLERS, PIPING, HANGERS, ETC. WHERE INDICATED ON THE PLANS.
2. DISCONNECT AND DEMOLISH ALL EXISTING SPRINKLERS BACK TO EXISTING BRANCH LINE OUTLETS. CAP ALL UNUSED OUTLETS AS REQUIRED.
3. FIRE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY EXISTING PIPE OR FITTINGS TO REMAIN THAT ARE DAMAGED AS A RESULT OF THEIR WORK AT NO COST TO THE OWNER.



TYPICAL JOIST GIRDER CLEARANCE REQUIREMENTS FOR UPRIGHT SPRINKLERS

NOT TO SCALE



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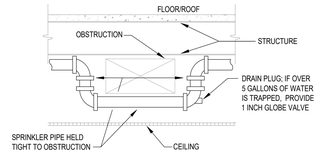
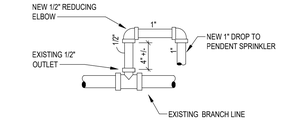


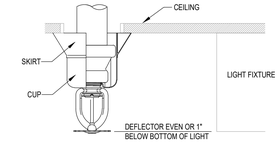
TYPICAL OFFSET AT OBSTRUCTION

NOT TO SCALE



TYPICAL BRANCH LINE OUTLET DETAIL

NOT TO SCALE



2 PIECE TELESCOPING ESCUTCHEON DETAIL

NOT TO SCALE

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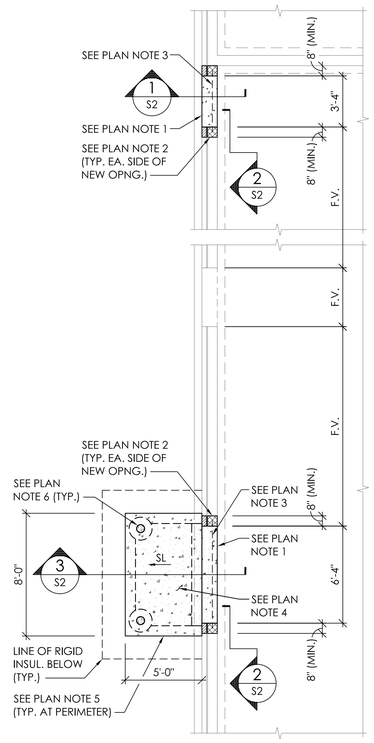
DRAWING: FIRE SPRINKLER SPECIFICATION, NOTES AND DETAILS

SHEET

FP2



NOTE: FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

PROJECT NORTH

PARTIAL FOUNDATION PLAN

1/4" = 1'-0"

PROJECT NORTH

KEY PLAN

NOT TO SCALE

ABBREVIATION LEGEND

#	NUMBER	EMBED.	EMBEDDED / EMBEDMENT	OPNG(S).	OPENING(S)
ACI	AMERICAN CONCRETE INSTITUTE	EQ.	EQUAL	PAF	POWDER ACTUATED FASTENERS
ADDIT.	ADDITION / ADDITIONAL	EXIST.	EXISTING	PEJ	PREMOLDED EXPANSION JOINT
ARCH.	ARCHITECTURAL	FIN.	FINISH / FINISHED	PME	PLUMBING, MECHANICAL & ELECTRICAL
ASTM	AMERICAN STANDARD FOR TESTING OF MATERIALS	FLR.	FLOOR		
B.O.	BOTTOM OF	FNDN.	FOUNDATION	PSF	POUNDS PER SQUARE FOOT
BOTT.	BOTTOM	FTG.	FOOTING	PSI	POUNDS PER SQUARE INCH
℄	CENTERLINE	F.V.	FIELD VERIFY	REINF.	REINFORCED / REINFORCING
CLR.	CLEAR	GALV.	GALVANIZED	REQ'D	REQUIRED
CMU	CONCRETE MASONRY UNIT	HORIZ.	HORIZONTAL	RTU	ROOT TOP UNIT
COL.	COLUMN	INFO.	INFORMATION	S.J.	SAWED JOINT
CONC.	CONCRETE	INSUL.	INSULATION	SL.	SLOPE
CONN.	CONNECT / CONNECTION	KIP (k)	1,000 POUNDS (#)	STIFF.	STIFFENER
CONT.	CONTINUE / CONTINUOUS	KSI	KIPS PER SQUARE INCH	STL.	STEEL
COORD.	COORDINATE	LBS	POUNDS	STRUCT.	STRUCTURE / STRUCTURAL
DBL.	DOUBLE	MANUF.	MANUFACTURER	THK.	THICK/THICKNESS
Ø / DIA.	DIAMETER	MAS.	MASONRY	T.O.	TOP OF
DIAG.	DIAGONAL	MAX.	MAXIMUM	TYP.	TYPICAL
DWGS.	DRAWINGS	MIN.	MINIMUM	VERT.	VERTICAL / VERTICALLY
EA.	EACH	MECH.	MECHANICAL	W/	WITH
EL. / ELEV.	ELEVATION	MPH	MILES PER HOUR	WWR	WELDED WIRE REINFORCEMENT
		O/C	ON CENTER		

FOUNDATION - GENERAL NOTES:

1. ALL WORK SHOWN IS NEW WORK UNLESS DENOTED AS EXISTING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO STARTING CONSTRUCTION. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
2. TOP OF EXISTING INTERIOR SLAB ELEVATION EQUALS REFERENCE ELEVATION (0'-0"). ALL ELEVATIONS ARE BASED ON THIS REFERENCE ELEVATION.
3. ⋰⋰⋰ INDICATES AREA OF NEW CONCRETE SLAB.

FOUNDATION - PLAN NOTES:

1. DEMOLISH EXISTING MASONRY WALL DOWN TO (-0'-8") BELOW FINISHED FLOOR ELEVATION AND INFILL WITH CONCRETE REINFORCED WITH (2)-#4 BARS CONTINUOUS. MATCH TOP OF FINISH FLOOR ELEVATION (0'-0"). DOWEL INTO EXISTING SLAB WITH #4 BARS AT 12" ON CENTER. SEE SECTIONS ON SHEET S2 FOR ADDITIONAL INFORMATION.
2. "TEETH-IN" CMU (8" MINIMUM) AND BRICK VENEER (8" MINIMUM), TO MATCH EXISTING, AT JAMB LOCATION. PROVIDE (1)-#5 VERTICAL IN END CELL AND GROUT SOLID.
3. W8x15 LINTEL BEAM (ABOVE NEW MASONRY OPENING) WITH CONTINUOUS ⅜" THICK PLATE. PLATE WIDTH SHALL EQUAL WALL WIDTH, MINUS 1". SEE STRUCTURAL NOTES FOR PAINTING.
4. LANDING/RAMP CONSTRUCTION SHALL CONSIST OF A 4" THICK CONCRETE SLAB-ON-GRADE REINFORCED WITH 6x6-W1.4xW1.4 WELDED WIRE REINFORCEMENT OVER 4" OF POROUS FILL MATERIAL AND COMPACTED STRUCTURAL FILL. TOP OF LANDING SHALL MATCH TOP OF EXISTING FINISH FLOOR ELEVATION.
5. PROVIDE 8" WIDE TURNDOWN FOUNDATION REINFORCED WITH (2)-#4 BARS CONTINUOUS. TURNDOWN SHALL EXTEND A MINIMUM OF 1'-6" BELOW GRADE. PROVIDE 2" POLYSTYRENE RIGID INSULATION AS SHOWN IN SECTION 3/S2 ON THREE SIDES FOR TURNDOWN FOUNDATION FOR FROST PROTECTED FOUNDATION. REPLACE EXISTING PAVEMENT AROUND FOUNDATION AND INSULATION. COMPACT FILL AROUND FOUNDATIONS AND MATCH EXISTING PAVEMENT THICKNESS, FIELD VERIFY.
6. 6"Ø STEEL, CONCRETE FILLED, BOLLARD. SEE TYPICAL STEEL PIPE BOLLARD DETAIL ON SHEET S2. COORDINATE EXACT LOCATIONS OF BOLLARDS WITH THE ARCHITECTURAL DRAWINGS.

GENERAL NOTES:

1. ALL ITEMS SHOWN ON THIS DRAWING ARE NEW CONSTRUCTION, UNLESS OTHERWISE NOTED AS EXISTING.
2. THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION AND ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD.
3. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.
4. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO ANCHORAGE AND FLASHING AROUND MECHANICAL EQUIPMENT AND ROOF PENETRATIONS.
5. THE STRUCTURE WAS DESIGNED IN ACCORDANCE WITH THE 2017 OHIO BUILDING CODE WITH AUGUST 2018 UPDATE ERRATA 02/08/19 AND THE 2015 INTERNATIONAL BUILDING CODE (IBC 2015). THE FOLLOWING LOADS IN ADDITION TO THE LOADS OF THE PERMANENT MATERIALS AND CONSTRUCTION, WERE USED:

LIVE LOADS:	
ROOF	20 PSF
GROUND FLOOR	100 PSF
SNOW LOADS:	
GROUND SNOW LOAD	35 PSF
IMPORTANCE FACTOR (I)	1.0
EXPOSURE FACTOR (Ce)	1.0
THERMAL FACTOR (C_T)	1.0
FLAT ROOF SNOW LOAD (P_f)	24.5 PSF
WIND:	
WIND (3 SECOND GUST)	V_{ULT} = 115 MPH V_{ASD} = 89 MPH
EXPOSURE	C
RISK CATEGORY	II
INTERNAL PRESSURE (GC_{Pi})	±0.18
SEISMIC:	
SEISMIC IMPORTANCE FACTOR (Ie)	1.0
MAPPED SPECTRAL RESPONSE ACCELERATIONS, Ss	0.202g
S1	0.060g
DESIGN SPECTRAL RESPONSE ACCELERATIONS, S_{DS}	0.216g
S_{D1}	0.096g
SITE CLASS	D
SEISMIC DESIGN CATEGORY	B
BASIC SEISMIC-FORCE RESISTING SYSTEM	ORDINARY REINFORCED MASONRY SHEAR WALLS
RESPONSE MODIFICATION FACTOR (R)	2
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE

6. CONTRACTOR SHALL COORDINATE STRUCTURAL, ARCHITECTURAL, MECHANICAL AND CIVIL DRAWINGS PRIOR TO BEGINNING CONSTRUCTION. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

FOUNDATION NOTES:

1. THE FOUNDATIONS WERE DESIGNED FOR A PRESUMPTIVE NET ALLOWABLE SOIL BEARING PRESSURE OF 1,500 PSF. THE SOILS BENEATH THE PROPOSED FOOTINGS SHALL BE CAPABLE OF SAFELY SUPPORTING THIS LOAD WITHOUT EXCESSIVE SETTLEMENT. CONTRACTOR SHALL HIRE A GEOTECHNICAL ENGINEER TO CONFIRM ALLOWABLE BEARING CAPACITY AND SHALL FORWARD TO ARCHITECT PRIOR TO CONCRETE PLACEMENT.
2. THE CONTRACTOR SHALL REMOVE ALL UNSUITABLE MATERIALS BELOW PROPOSED SLAB AND FOUNDATIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT STORMWATER FROM ENTERING FOUNDATION EXCAVATIONS. CONCRETE FOR FOUNDATIONS SHALL NOT BE PLACED ON SOFT OR SATURATED SOIL. CONTRACTOR SHALL COMPACT EXPOSED SUBGRADE SOILS AS NOTED ON DRAWINGS. ALL UNSTABLE AREAS SHALL BE UNDERCUT AT THE DIRECTION OF A GEOTECHNICAL ENGINEER.
4. SUITABLE STRUCTURAL FILL MATERIAL SHOULD CONSIST OF SAND OR GRAVEL CONTAINING LESS THAN 20% BY WEIGHT OF FINES (SP, SP-SM OR SW BY THE UNIFIED SOILS CLASSIFICATION SYSTEM) AND SHOULD BE FREE FROM RUBBLE, ORGANICS, CLAY, DEBRIS AND OTHER UNSUITABLE MATERIALS. LIFTS (8" MAXIMUM HEIGHT PRIOR TO COMPACTION) SHALL BE COMPACTED TO A MIN. OF 95% OF THEIR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698 (METHOD C).
5. ALL FILL MATERIAL PLACED ON SITE IN AREA OF BUILDING SHALL BE STRUCTURAL FILL. FILL SHALL BE PLACED AND COMPACTED IN 8" LIFTS MAXIMUM AND AT THE DIRECTION OF A GEOTECHNICAL ENGINEER.

CAST-IN-PLACE CONCRETE NOTES:

1. ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 301 "STRUCTURAL CONCRETE FOR BUILDINGS" AND ACI 318/318R "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
2. CONCRETE SHALL HAVE THE FOLLOWING (28) DAY COMPRESSIVE STRENGTH AND MAXIMUM SLUMPS:
   A. EXTERIOR CONCRETE ..... 4,000 PSI, 4" WITH AIR
   B. INTERIOR CONCRETE ..... 3,500 PSI, 4" TO 5"
   NOTE: ALL SUMPS SHALL BE ±½" (SLUMP MEASURED PRIOR TO SUPERPLASTICIZER, WHERE OCCURS)
3. ALL CONCRETE EXPOSED TO FREEZE/THAW CYCLE SHALL HAVE 6% (±1½%) ENTRAINED AIR.
4. REINFORCING STEEL:
   A. DEFORMED BARS (DO NOT WELD) ..... ASTM A615 (GRADE 60)
   B. WELDED WIRE REINFORCING ..... ASTM A185 (FLAT SHEETS ONLY)
5. COVER TO REINFORCEMENT AS NOTED IN SECTIONS AND AS FOLLOWS:
   A. BOTTOM OF FOUNDATIONS ..... 3"
   B. SIDES OF FOUNDATIONS (WITHOUT SIDE FORMS) ..... 3"
   C. SIDES OF FOUNDATIONS (FORMED SURFACES) ..... 2"
   D. TOP COVER TO WWR ..... 1½"
   E. OTHER: AS NOTED IN ACI 318.
6. ADHESIVE ANCHORS SHALL CONSIST OF GRADE 60 REBAR, ASTM A307 GRADE A ALL-THREAD OR ANCHOR ROD, NUT, WASHER AND ADHESIVE. EPOXY ANCHORS SHALL BE INSTALLED USING AT LEAST MINIMUM DEPTHS, EDGE DISTANCES, SPACING (UNLESS NOTED OTHERWISE), AND INSTALLATION PROCEDURES AS RECOMMENDED BY THE MANUFACTURER. DO NOT APPLY LOAD TO ANCHOR UNTIL RESIN HAS CURED IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER.
7. TORCHING TO BEND REINFORCING BARS SHALL NOT BE ALLOWED.
8. ALL ITEMS EMBEDDED IN CONCRETE OR GROUTED CMU MUST BE TIED AND SECURED PRIOR TO PLACEMENT OF CONCRETE OR GROUT. NO "WET SETTING" IS ALLOWED.
9. FOR SLAB-ON-GRADE, SLAB REINFORCING SHALL BE HELD IN PLACE BY BAR SUPPORTS AND ACCESSORIES AS DESCRIBED IN CHAPTER 3 OF THE CRSI MANUAL OF STANDARD PRACTICE. BAR SUPPORTS SHALL BE SPACED A MAXIMUM OF 4'-0" ON CENTER BOTH WAYS IN STRAIGHT LINES ON THE WELDED WIRE REINFORCING GRID.

MASONRY NOTES:

1. ALL MASONRY CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 530, "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" AND ACI 530.1, "SPECIFICATIONS FOR MASONRY STRUCTURES."
2. ALL LOAD-BEARING CONCRETE MASONRY UNITS SHALL BE TYPE I UNITS IN CONFORMANCE WITH ASTM C 90 AND SHALL BE MADE WITH LIGHTWEIGHT AGGREGATE.
3. ALL MASONRY UNITS SHALL BE IN ACCORDANCE WITH ASTM C 90. ALL ASSEMBLED CONCRETE MASONRY SHALL ATTAIN AN ULTIMATE NET AREA COMPRESSIVE STRENGTH (f'm) OF 2,000 PSI AT 28 DAYS.
4. ALL MORTAR SHALL BE ASTM C270, TYPE S.
5. ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615, GRADE 60.
6. THE MASONRY CONTRACTOR SHALL BUILD, REINFORCE, AND GROUT THE WALL IN NO GREATER THAN 4'-0" LIFTS, VIBRATING GROUT IMMEDIATELY AFTER EACH LIFT.
7. ALL REINFORCED CELLS SHALL BE FULLY GROUTED FROM TOP TO BOTTOM. GROUT SHALL BE 3,000 PSI. ALL GROUT SHALL CONFORM TO ASTM C 476. GROUT SHALL HAVE A SLUMP BETWEEN 8 TO 10 INCHES.
8. UNLESS OTHERWISE NOTED OR DETAILED, CENTER REINFORCING IN BLOCK CELLS AND TIE IN PLACE AT INTERVALS OF 4'-0" ON CENTER, MAXIMUM.
9. PROVIDE GALVANIZED HORIZONTAL TRUSS TYPE JOINT REINFORCING WITH STANDARD LADDER TYPE NO. 9 GAGE CROSS RODS AT 16" ON CENTER ON ALL WALLS. PROVIDE HORIZONTAL JOINT REINFORCING IN TWO JOINTS IMMEDIATELY ABOVE AND BELOW ALL OPENINGS, EXTENDING A MINIMUM OF 2'-0" BEYOND THE JAMB ON EACH SIDE OF THE OPENING.
10. VERTICAL CELLS TO BE FILLED SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR, UNOBSTRUCTED, CONTINUOUS VERTICAL CELL MEASURING NOT LESS THAN 2 INCHES BY 3 INCHES.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL FOR THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE FOURTEENTH EDITION OF THE "MANUAL OF STEEL CONSTRUCTION" OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC). ALLOWABLE STRESS DESIGN".
2. STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS UNLESS OTHERWISE NOTED:
   A. STRUCTURAL STEEL WIDE FLANGE SHAPES - ASTM A992, GRADE 50 KSI.
   B. MISCELLANEOUS STEEL ANGLES, CHANNELS AND PLATES - ASTM A36, GRADE 36 KSI.
   C. POST CONSTRUCTION ADHESIVE ANCHORS GRADE 60 REBAR, ASTM A307 GRADE A ALL-THREAD OR ANCHOR ROD WITH HILTI HY200 EPOXY (IN CONCRETE) OR HILTI HY270 EPOXY (IN MASONRY).
3. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO AISC STANDARDS (AISC 303).
4. STRUCTURAL STEEL EXPOSED TO WEATHER OR SUPPORTING MASONRY SHALL BE PAINTED WITH RUST-OLEUM HIGH PERFORMANCE 9100 SYSTEM DTM EPOXY MASTIC (OR APPROVED EQUAL). ALL PAINTING SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. AT CONTRACTOR'S OPTION, STEEL MAY BE HOT-DIP GALVANIZED.
5. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1, "STRUCTURAL WELDING CODE - STEEL." WELD ELECTRODES SHALL BE E70XX LOW HYDROGEN.
6. 0.157" DIAMETER POWDER ACTUATED FASTENERS (PAF) SHALL HAVE A MINIMUM ALLOWABLE CAPACITY INTO THE BASE MATERIAL AS FOLLOWS, UNLESS OTHERWISE NOTED:
   A. CONCRETE: SHEAR = 260 LBS; TENSION = 255 LBS (3" EDGE DISTANCE)
   B. STEEL: SHEAR = 600 LBS; TENSION = 250 LBS (½" EDGE DISTANCE)

Donald L. Broyles, PE
structural engineer
508 Baylor Court
Suite C
Chesapeake, Virginia 23320
757.436.2070
757.436.0610
www.broylesandassociates.com

MARK	DATE	DESCRIPTION
		BY

DATE	02/24/2023	DLB	DLB
PROJECT	0019.30	DRAWN	CHECKED

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

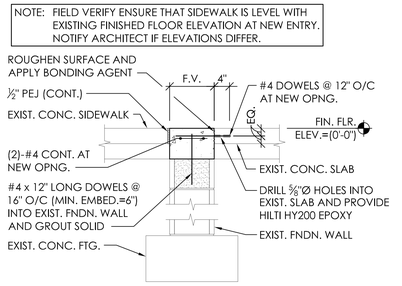
STATE OF OHIO
DONALD L. BROYLES
E-66802
REGISTERED
PROFESSIONAL ENGINEER
9/23/23

PROJECT: DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING: PARTIAL FOUNDATION PLAN

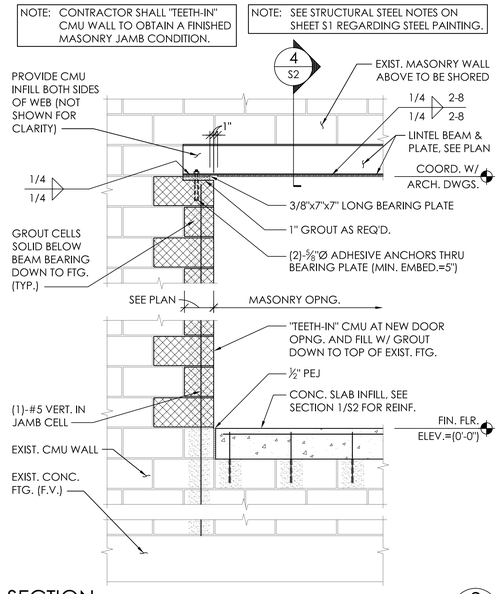
SHEET
S1

2023-054



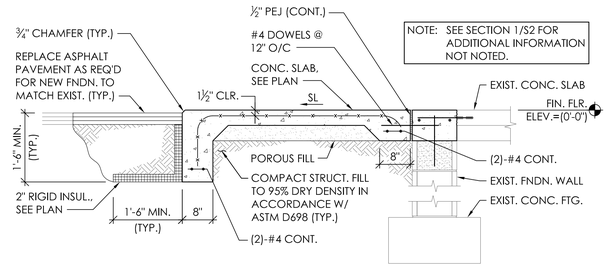
SECTION 1 S1 S2

3/4" = 1'-0"



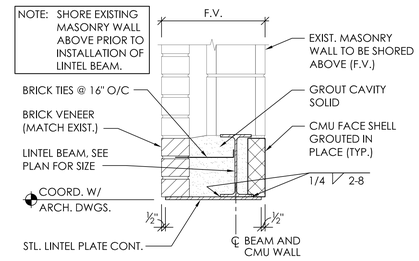
SECTION 2 S1 S2

3/4" = 1'-0"



SECTION 3 S1 S2

3/4" = 1'-0"



SECTION 4 S2 S2

1 1/2" = 1'-0"

TYPICAL PIPE BOLLARD DETAIL

NOT TO SCALE

TYPICAL UTILITY TRENCH INFILL DETAIL

NOT TO SCALE

Donald L. Broyles, PE
structural engineer
508 Baylor Court
Suite C
Chesapeake, Virginia 23320
757.436.2070
757.436.0610
www.broylesandassociates.com

MARK	DATE	DESCRIPTION
	BY	

DATE 02/24/2023
PROJECT 0019.30
DRAWN DLB
CHECKED DLB

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

STATE OF OHIO
DONALD L. BROYLES
E-66802
REGISTERED
PROFESSIONAL ENGINEER
3/23/23

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
SECTIONS AND DETAILS

SHEET
S2

2023-054

EXISTING EQUIPMENT NOTE

HVAC UNITS: WHEN KEEPING EXISTING MECHANICAL UNITS, IMMEDIATELY UPON ARRIVAL ON JOB SITE CONTRACTOR SHALL INSPECT, SERVICE AND TEST EXISTING AIR CONDITIONING SYSTEM COMPLETELY INCLUDING, BUT NOT LIMITED TO, CLEANING INTERIOR AND EXTERIOR OF ALL COMPONENTS, TOUCH UP PAINTING, REPLACING AIR FILTERS, INSPECTING AND REPLACING FAN BELTS AND WORN SHEAVES (IF REQUIRED,) CHECKING EVAPORATOR AND CONDENSER FANS AND FAN MOTORS, CLEANING AND COMBING EVAPORATOR AND CONDENSER COILS, CHECKING AND TRIMMING REFRIGERANT CHARGE AND LUBRICATION, CHECKING COMPRESSOR AMP DRAW, INSPECTING HEAT EXCHANGER AND GAS TRAIN TO VERIFY PROPER OPERATION (OR ELECTRIC HEAT AND CONTROLS AND REVERSING VALVE AS APPLICABLE), CHECKING DAMPER OPERATION AND DAMPER MOTORS, CLEANING CONDENSATE TRAP, ETC., TO INSURE PROPER OPERATION. ADJUST FANS, SHEAVES, AND SETTINGS AS INDICATED. PROVIDE CONTROLS NEW AS INDICATED ON SCHEDULE. UNITS NOT RESTORABLE TO GOOD WORKING ORDER SHALL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR. SHOULD ANY REPAIRS BE REQUIRED, CONTRACTOR SHALL IMMEDIATELY NOTIFY CPM (CONTRUCTION PROJECT MANAGER) AND /OR OWNER'S REPRESENTATIVE AND SUBMIT A WRITTEN REPORT AS TO THE CONDITION AND A COST PROPOSAL INCLUDING COMPLETE COST TO PLACE UNIT IN "LIKE NEW" CONDITION AND TIME ESTIMATE TO COMPLETE REPAIRS.

GENERAL DUCTWORK NOTE

CONTRACTOR SHALL SITE VERIFY EXISTING HVAC UNIT LOCATION(S) & POTENTIAL DUCTWORK OBSTRUCTIONS (SPRINKLER LINES, STRUCTURAL BEAMS & JOIST, ETC..) PRIOR TO FABRICATING DUCTWORK. CONTRACTOR SHALL CONTACT THE DTFD CONSTRUCTION PROJECT MANAGER IF CONFLICTS BETWEEN CONSTRUCTION DOCUMENTS & EXISTING CONDITION EXIST FOR DIRECTION.

FIELD VERIFY ALL CONDITIONS

DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

HVAC CONTROLS NOTE

CONTRACTOR SHALL REFER TO THE EM SHEETS FOR INSTALLATION INSTRUCTIONS FOR THE VENDOR FURNISHED, CONTRACTOR INSTALLED HVAC CONTROL SYSTEM AND TEMPERATURE AND CO2 SENSOR LOCATIONS PRIOR TO THE INSTALLATION OF ALL RELATED ITEMS

HVAC DEMOLITION SCOPE OF WORK

MECHANICAL CONTRACTOR TO REMOVE EXISTING HVAC EQUIPMENT, DUCTWORK, HANGERS, INSULATION, AIR DEVICES, CONTROLS AND MISCELLANEOUS EQUIPMENT, ETC... NOT INTENDED FOR REUSE.

KEYED NOTES

M02 TENANTS CONTRACTOR SHALL INSTALL TENANT VENDOR FURNISHED CO2 SENSOR 7'-0" A.F.F. THESE SENSOR SHALL CONTROL SALES RTU'S.

M03 PROVIDE NEW ROOF MOUNTED EXHAUST FAN AND BALANCE TO THE SCHEDULED AIR FLOW. MAINTAIN A MINIMUM OF 10'0" FROM ANY BUILDING INTAKE. CUT AND PATCH ROOF FOR NEW FAN. ALL ROOF WORK TO BE DONE BY LANDLORD APPROVED ROOFING CONTRACTOR AT THE GENERAL CONTRACTOR'S EXPENSE. PROVIDE MOD PER DETAIL ON SHEET M-301.

M04 CONTRACTOR SHALL LOCATE BOTTOM OF PRE-SALES DUCTWORK ABOVE LIGHTING. ANY DEVIATION TO THIS DIMENSION DUE TO INTERFERENCE WITH ANY BUILDING OBSTRUCTIONS SUCH AS STRUCTURE, OVERHEAD DOORS, ETC. SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO FABRICATING THE DUCTWORK.

M05 PROVIDE 1" AIRSPACE BETWEEN BOTTOM OF DOOR AND FINISHED FLOOR FOR AIRFLOW.

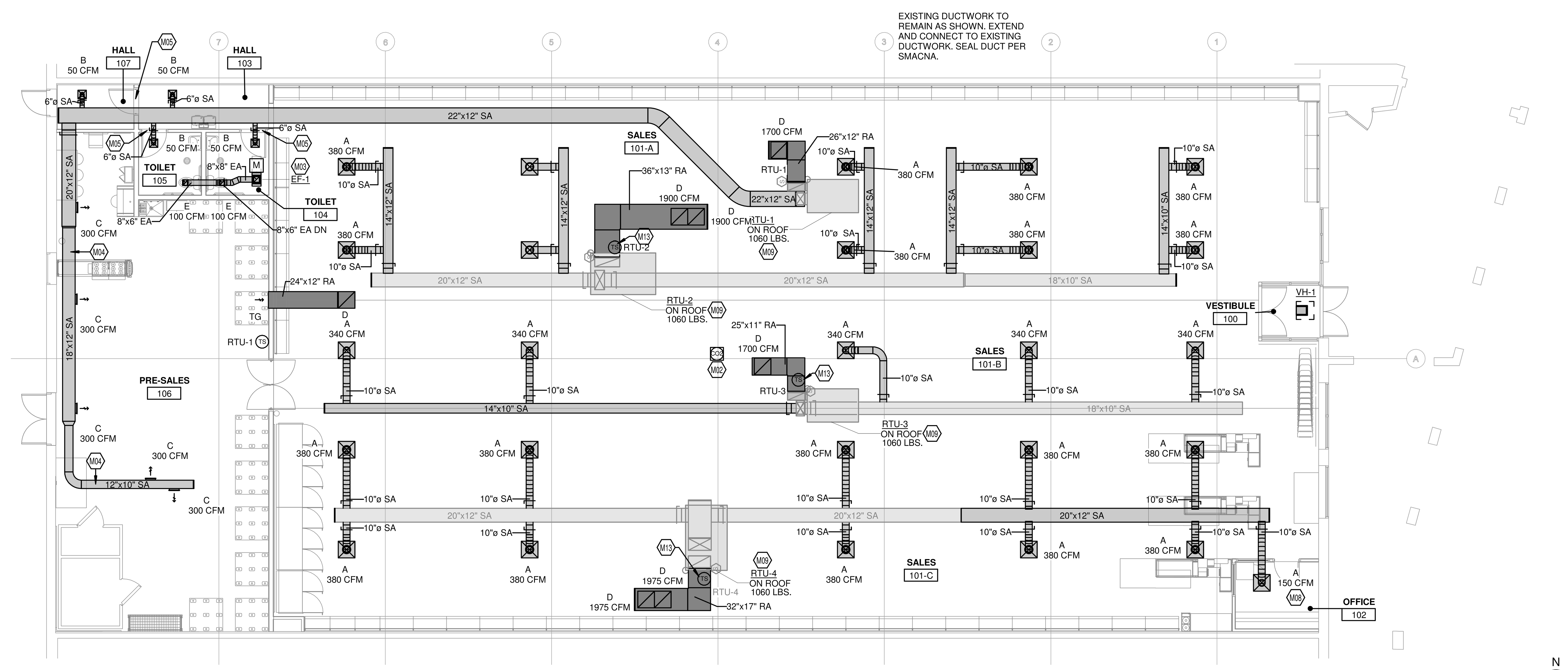
M08 ADJUST DIFFUSER FOR FULL VERTICAL DISCHARGE INTO OFFICE BELOW.

M09 EXISTING HVAC UNIT TO REMAIN. CONTRACTOR SHALL SERVICE HVAC COMPONENTS AND PROVIDE AND INSTALL NEW ACCESSORIES AND CONTROLS AS INDICATED ON PLANS, SCHEDULE, NOTES, AND AS REQUIRED TO MEET THE SEQUENCE OF OPERATIONS OUTLINED IN THE PROJECT SPECIFICATIONS. CONNECT NEW DUCTS TO DUCT DROPS FROM EXISTING ROOFTOP UNITS PROVIDED BY OTHERS WITH TRANSITION FITTINGS.

M13 PROVIDE TEMPERATURE SENSOR IN DUCT.

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
PLAN-VIEW LINE TYPES	
───	WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE
— — — —	WORK SHOWN BOLD-DASHED INDICATES SELECTIVE DEMOLITION WORK
───	WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
MECHANICAL MISCELLANOUS	
⊗	CONNECT TO EXISTING (FIELD VERIFY EXISTING UTILITY SERVICE TYPE, PRIOR TO MAKING CONNECTION)
MECHANICAL STATS & SENSORS	
TS	TEMPERATURE SENSOR
T	LOW VOLTAGE THERMOSTAT
R	REVERSE ACTING THERMOSTAT
CO	CARBON MONOXIDE SENSOR
CO2	CARBON DIOXIDE SENSOR
MECHANICAL DUCTWORK ACCESSORIES	
	ROUND ELBOW WITH TURNING VANES
	DUCT WITH MANUAL VOLUME DAMPER
	ELBOW WITH TURNING VANES
M	MOTOR OPERATED DAMPER - LOW VOLTAGE
FD 1.5 HR / F 1.5	FIRE DAMPER - 1.5 HR
FD 3.0 HR / F 3	FIRE DAMPER - 3 HR
S	DUCT MOUNTED SMOKE DETECTOR (HARD WIRE INTERLOCK TO FAN MOTOR BY E.C.) FURNISHED BY E.C., INSTALLED BY M.C.
MECHANICAL AIR DEVICES	
SR	SUPPLY REGISTER
RR	RETURN REGISTER
ER	EXHAUST REGISTER
SG	SUPPLY GRILLE
RG	RETURN GRILLE
CD	CEILING DIFFUSER
CD-10"Ø	2'x2' SQUARE CEILING DIFFUSER WITH 10" NECK
RCD	ROUND CEILING DIFFUSER
MECHANICAL DUCTWORK	
UP	SUPPLY DUCT WITH ELBOW TURNED UP
DN	SUPPLY DUCT WITH ELBOW TURNED DOWN
UP	RETURN DUCT WITH ELBOW TURNED UP
DN	RETURN DUCT WITH ELBOW TURNED DOWN
UP	EXHAUST DUCT WITH ELBOW TURNED UP
DN	EXHAUST DUCT WITH ELBOW TURNED DOWN
24X12 SA	SUPPLY DUCT
24X12 RA	RETURN DUCT
24X12 EA	EXHAUST DUCT
24X12 OA	OUTSIDE AIR DUCT
	1" LINED DUCTWORK
	FLEXIBLE DUCTWORK CONNECTION
	BRANCH TAKEOFF
24"/12" RA	OVAL DUCT
	REDUCER, CONCENTRIC
	REDUCER, NONCONCENTRIC
	DUCT FLEX CONNECTOR



1 MECHANICAL FLOOR PLAN
1/8" = 1'-0"

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MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783 859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

MARK	DATE	BY	DESCRIPTION

REVISIONS

DATE 02/24/2023
PROJECT 0019.30
DRAWN CAF
CHECKED RAL

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD
STATE OF OHIO
KRIS T. SCHNITGEN
E-77432
REGISTERED PROFESSIONAL ENGINEER
[illegible]
3/23/2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
MECHANICAL FLOOR PLAN

SHEET
M-101

KLH PROJECT 25140

HVAC ROOFTOP UNITS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	MIN EER	MIN SEER	MIN COP	CFM (cfm)	ESP (in WC)	BHP (hp)	OACFM (cfm)	CO2 CFM (cfm)	NOMINAL TONS	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	LAT DB (Deg F)	LAT CLG WB (Deg F)	MAT HTG (Deg F)	HTG MBH (mbh)	MIN HTG AFUE	GAS HTG IN (mbh)	GAS HTG OUT (mbh)	MIN GAS PRESSURE (in WC)	MAX GAS PRESSURE (in WC)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT	ACCESSORIES
RTU-1	PACKAGED ROOFTOP UNIT, GAS HEAT	EXISTING	1060	DAIKIN	DBG0603B140	11.5			1700	0.7	1.39	223	0	5	78	65	44	38	55	54	63	48	80	140	112	5	14	NO	RTU-1 - 208V/3PH, 25.1 MCA, 40A OCP	1571	2,22
RTU-2	PACKAGED ROOFTOP UNIT, GAS HEAT	EXISTING	1060	DAIKIN	DBG120VH	11.0			3800	0.7	2.33	826	340	10	78	66	121	92	55	54	59	96	80	140	112	5	14	NO	RTU-2 - 208V/3PH, 45.9 MCA, 60A OCP	4930	2,20,22
RTU-3	PACKAGED ROOFTOP UNIT, GAS HEAT	EXISTING	1060	DAIKIN	DBG0603B140	11.5			1700	0.7	1.39	476	192	5	79	66	59	42	55	54	57	46	80	140	112	5	14	NO	RTU-3 - 208V/3PH, 25.1 MCA, 40A OCP	1563	2,20,22
RTU-4	PACKAGED ROOFTOP UNIT, GAS HEAT	EXISTING	1060	TRANE	YSC120H3	10.2			3950	0.7	3.45	979	398	10	79	66	132	97	55	54	58	103	80	235	188	4.5	14	NO	RTU-4 - 208V/3PH, 49 MCA, 60A OCP	3558	2,20,22

HVAC ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS

DC LOCAL DISCONNECT
MC MOTOR CONTROL (POWER)
SD DUCT SMOKE DETECTOR
CN CONTROLS
TS TOGGLE SWITCH
C/B H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD
FUSE FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)
FLA OPERATING FULL LOAD AMPS
MCA MINIMUM CIRCUIT AMPACITY
CP CORD AND PLUG CONNECTION
[BLANK] HARD WIRED (WHEN INDICATED FOR DC TYPE)

CONTRACTOR TYPE

EC ELECTRICAL CONTRACTOR
EX EXISTING
FC FIRE PROTECTION CONTRACTOR
GC GENERAL CONTRACTOR
HC HVAC CONTRACTOR
MFR MANUFACTURER
PC PLUMBING CONTRACTOR
OR OWNER OR OTHERS

MOTOR CONTROL TYPE

CS COMBINATION STARTER
MCC MOTOR CONTROL STARTER
MG MAGNETIC STARTER OR CONTACT
MS MANUAL STARTER
VFD VARIABLE FREQUENCY DRIVE
MSR MANUAL STARTER W/ CONTROL RELAY
OV OVERCURRENT PROTECTION

CONTROL TYPE

TC TIMECLOCK
CPT CONTROL POWER TRANSFORMER
BAS BUILDING AUTOMATION SYSTEM
LOW LOW VOLTAGE CONTROLS
LINE LINE VOLTAGE CONTROLS
RLINE REVERSE ACTING LINE VOLTAGE THERMOSTAT
MAN MANUAL
FA FIRE ALARM
CO CARBON MONOXIDE SENSOR
INT INTEGRAL TO EQUIPMENT
ASD AREA SMOKE DETECTOR
DSD DUCT SMOKE DETECTOR

CONTROL TYPE

WHERE SHORT CIRCUIT RATING CODE REQUIRED VALUE INDICATES "YES" APPLICABLE EQUIPMENT'S SHORT CIRCUIT RATING SHALL EXCEED THE AVAILABLE FAULT CURRENT VALUE INDICATED.

CONNECTION MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	HP	WATTS	HTG KW	FLA	MCA	OCP	FED FROM	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SHORT CIRCUIT RATING CODE REQUIRED?	AVAILABLE FAULT CURRENT
RTU-3	PACKAGED ROOFTOP UNIT, GAS HEAT	208 V	3						25.1	40			EX	EX	EX	EX	EX	EX	EX	BAS	OR	OR	OR	Yes	1563
RTU-4	PACKAGED ROOFTOP UNIT, GAS HEAT	208 V	3						49	60			EX	EX	EX	EX	EX	EX	EX	BAS	OR	OR	OR	Yes	3558
RTU-2	PACKAGED ROOFTOP UNIT, GAS HEAT	208 V	3						45.9	60			EX	EX	EX	EX	EX	EX	EX	BAS	OR	OR	OR	Yes	4930
RTU-1	PACKAGED ROOFTOP UNIT, GAS HEAT	208 V	3						25.1	40			EX	EX	EX	EX	EX	EX	EX	BAS	OR	OR	OR	Yes	1571
VH-1	ELECTRIC UNIT HEATER	208 V	1				3	14.4					EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	No	1254
EF-1	HVAC FAN	120 V	1			71							EC	EC	EC	MG	MFR	MFR	MFR	MAN	EC	EC	EC	No	1974

HVAC VENTILATION SCHEDULE

NUMBER	NAME	AREA	PEOPLE	OA PER PERSON	OA PER SQ FT.	REQ SUP	ACT SUP	REQ OA	ACT OA	ACT RET	ACT EXH	CRIT OA	PRESSURE	PCT OPERABLE	NATURAL VENTILATION
101-A	SALES	3238 SF	43	7.5	0.12	2060	3800	826	826	3800	0	21.7	Neutral	0	False
101-B	SALES	1597 SF	24	7.5	0.12	1615	1700	465	476	1700	0	27.3	Neutral	0	False
101-C	SALES	3273 SF	50	7.5	0.12	2445	3800	941	941	3800	0	25.3	Neutral	0	False
102	OFFICE	80 SF	1	5	0.06	115	150	37	37	150	0	8.2	Neutral	0	False
103	HALL	83 SF	0	0	0.06	30	50	7	7	50	0	12.5	Neutral	0	False
104	TOILET	56 SF	0	0	0	20	50	7	7	0	100	0	Negative	0	False
105	TOILET	56 SF	0	0	0	20	50	7	7	0	100	0	Negative	0	False
106	PRE-SALES	1400 SF	0	0	0.12	625	1500	196	196	1500	0	14	Neutral	0	False
107	HALL	49 SF	0	0	0.06	25	50	7	7	50	0	7.3	Neutral	0	False
TOTAL		9834 SF													

HVAC LOAD SCHEDULE

THE HEATING AND COOLING LOAD CALCULATIONS ARE BASED ON THE RTS (RADIANT TIME SERIES) METHOD. ASSUMPTIONS AND EXECUTION OF THESE METHODS ARE PER ASHRAE 183-2007 STANDARD FOR PEAK COOLING AND HEATING LOAD CALCULATIONS IN BUILDINGS EXCEPT LOW-RISE RESIDENTAL BUILDINGS.

COOLING LOAD BREAKDOWN

CROOF SENSIBLE HEAT GAIN FROM ROOF
CWALL SENSIBLE HEAT GAIN FROM EXTERIOR WALLS
CPART SENSIBLE HEAT GAIN FROM PARITIONS
CGLASS SENSIBLE HEAT GAIN FROM GLAZING
CSOLAR SENSIBLE HEAT GAIN FROM SOLAR GAIN THROGH GLAZING
CLIGHTS SENSIBLE HEAT GAIN FROM INTERIOR LIGHTING
CEQUIP SENSIBLE HEAT GAIN FROM PLUG LOADS, COMPUTERS, ETC.
CPSENS SENSIBLE HEAT GAIN FROM PEOPLE

CSSENS TOTAL SENSIBLE HEAT GAIN TO SPACE
CFAN SENSIBLE HEAT GAIN FROM AIR HANDLER FAN
COAS SENSIBLE HEAT GAIN FROM OUTDOOR VENTILATION AIR
CTSENS TOTAL SENSIBLE HEAT GAIN
CPLAT LATENT HEAT GAIN FROM PEOPLE
COAL LATENT HEAT GAIN FROM OUTDOOR VENTILATION AIR
CTLAT TOTAL LATENT HEAT GAIN
CTOT TOTAL HEAT GAIN (SENSIBLE + LATENT)

HEATING LOAD BREAKDOWN

HROOF HEAT LOSS FROM ROOF
HWALL HEAT LOSS FROM EXTERIOR WALLS
HPART HEAT LOSS FROM PARTITIONS
HGLASS HEAT LOSS FROM GLAZING
HSLAB HEAT LOSS FROM SLAB
HSPACE TOTAL HEAT LOSS FROM SPACE
HOA HEAT LOSS FROM OUTDOOR VENTILATION AIR
HTOT TOTAL HEAT LOSS

EQUIPMENT MARK	CROOF	CWALL	CPART	CGLASS	CSOLAR	CLIGHTS	CEQUIP	CPSENS	CSSENS	CFAN	COAS	CTSENS	CPLAT	COAL	CTLAT	CTOT	HROOF	HWALL	HPART	HGLASS	HSPACE	HSLAB	HOA	HTOT
RTU-1	8.13	2.44	0	0	0	19.84	4.1	0	34.5	0.6	3.31	38.41	0	5.68	5.68	44.09	16.75	8.52	0	0	48.21	8.46	14.48	48.21
RTU-2	12.53	0.65	0	0	0	26.7	18.33	19.74	77.94	1.33	12.29	91.56	8.56	21.1	29.66	121.22	25.78	2.27	0	0	96.17	14.34	53.78	96.17
RTU-3	3.53	0.16	0	0.69	3.34	8.61	11.97	6.32	34.82	0.6	7.08	42.5	4.8	12.16	16.96	59.47	7.26	0.56	0	2.89	45.75	4.04	31.01	45.75
RTU-4	10.89	0.39	0	0.43	2.09	26.57	19.46	19.75	80.98	1.38	14.56	96.92	10.2	25	35.2	132.12	22.33	1.46	0	2.64	102.59	12.42	63.74	102.59

HVAC FANS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	CFM (cfm)	ESP (in WC)	FAN RPM (rpm)	BHP (hp)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
EF-1	HVAC FAN	ROOF	NEW	50	JOHNSON CONTROLS	EVD06B	200	0.5	1150	0.25	NO	EF-1 - 120V/1PH, 71 W	1974

HVAC DIFFUSERS AND REGISTERS SCHEDULE

TAG	MANUFACTURER	MODEL	FACE	MOUNTING	MATERIAL	FINISH	DAMPER TYPE	BORDER STYLE	REMARKS	DESCRIPTION
A	TITUS	TMS	24"x24"	CEILING	STEEL	STANDARD WHITE	BUTTERFLY	LAY IN MOUNTING		
B	TITUS	TMS	12"x12"	CEILING	STEEL	STANDARD WHITE	BUTTERFLY	LAY IN MOUNTING		
C	TITUS	300FL	14"x6"	DUCT	ALUMINUM	STANDARD WHITE	SCOOP DAMPER	SURFACE MOUNT		
D	TITUS	50F	24"x24"	CEILING	STEEL	STANDARD WHITE	OPPOSED BLADE	LAY IN MOUNTING		
E	TITUS	350RL	8"x8"	CEILING	STEEL	STANDARD WHITE	OPPOSED BLADE	LAY IN MOUNTING		
TG	TITUS	350RL	24"x12"	SIDEWALL	STEEL	STANDARD WHITE	(none)	SURFACE MOUNT		

HVAC UNIT HEATERS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
VH-1	ELECTRIC UNIT HEATER	VESTIBULE 100	NEW	50	MARKEL	3480	NO	VH-1 - 208V/1PH, 3 KW HTG, 14.4A FLA	1254

HVAC ACCESSORIES

ACCESSORIES:

1. MOTOR DAMPER
2. ECONOMIZER
3. ROOF CURB
4. HAIL GUARDS
5. INTAKE HOOD
6. VIBRATION ISOLATION
7. FLAT FILTER
8. FILTER/MIXING BOX
9. ACCESS DOOR
10. FLEX CONNECTIONS
11. MOUNTING COLLAR
12. HOT GAS BYPASS
13. FACE/BYPASS DAMPER
14. CONDENSATE PUMP
15. MOTOR GUARD
16. GREASE TRAP
17. DUCT FLANGES
18. BASE RAIL
19. HUMIDIFIER
20. CO2 SENSORS
21. ECON POWERED EXHAUST
22. ECON BAROMETRIC RELIEF
23. HOT GAS REHEAT COIL
24. SHAFT GROUNDING BRUSHES

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DRAWN CAF
CHECKED RAL

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD

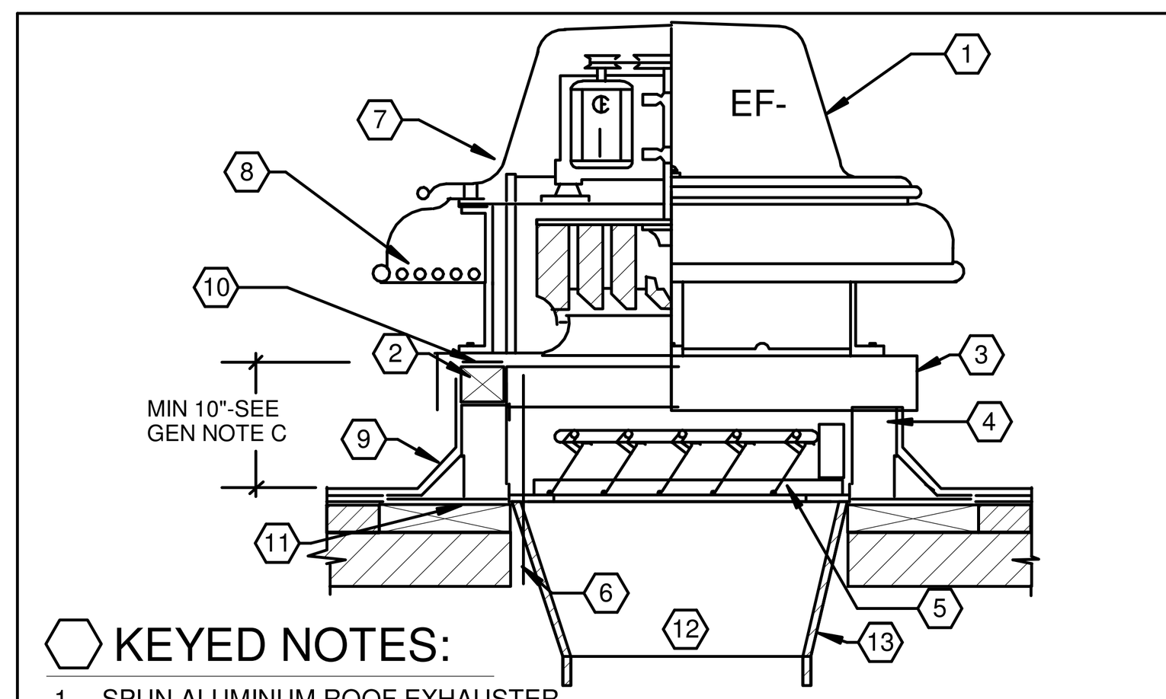
STATE OF OHIO
KRIS T. SCHNITGEN
E-77432
REGISTERED PROFESSIONAL ENGINEER
[illegible]
3/23/2023

PROJECT DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING MECHANICAL SCHEDULES

SHEET
M-201

KLH PROJECT 25140



KEYED NOTES:

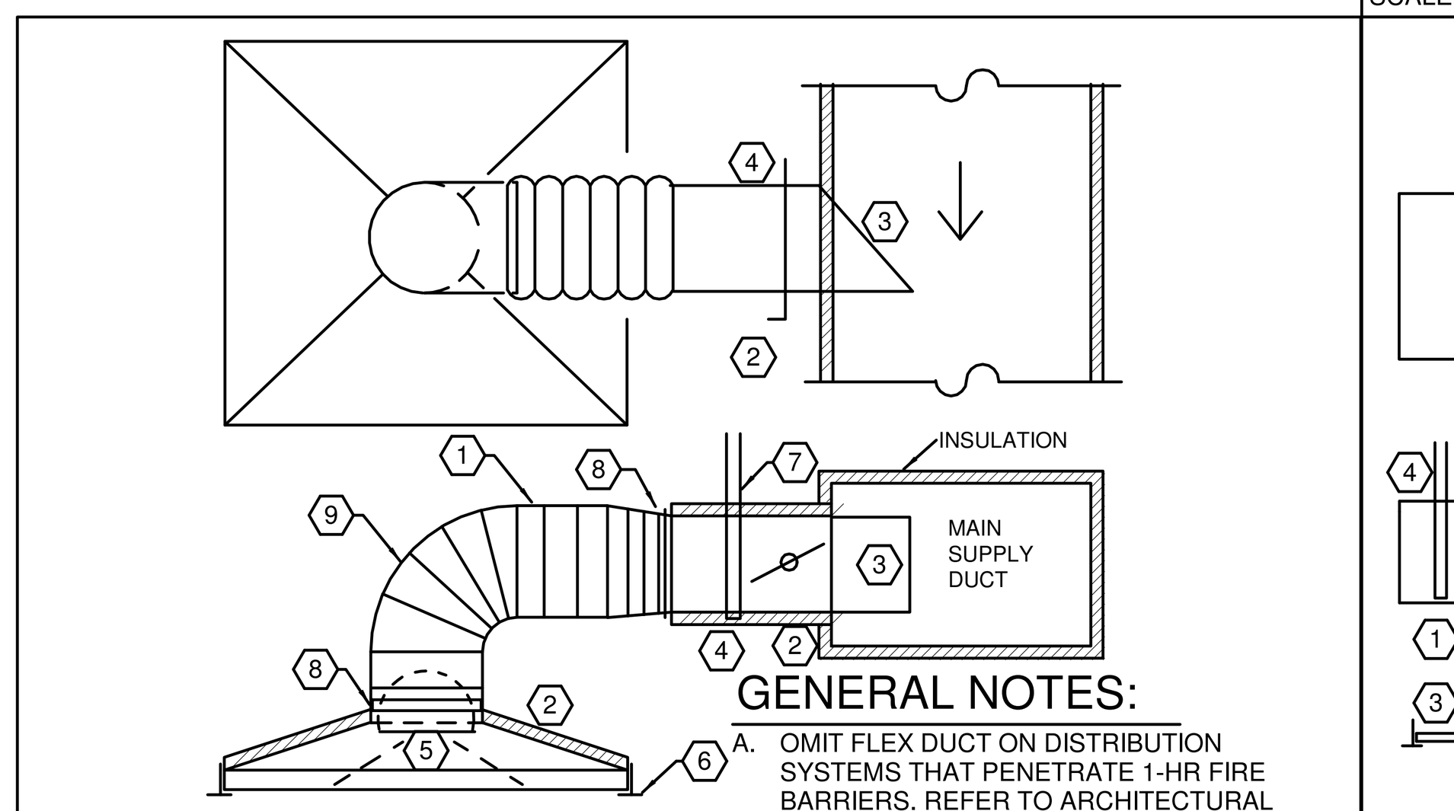
1. SPUN ALUMINUM ROOF EXHAUSTER
2. WOOD NAILER
3. ANCHOR ALL FOUR SIDES OF CURB CAP INTO NAILER SCREWS AT 12" O.C.
4. PREFABRICATED, INSULATED ALUMINUM CURB
5. MOTOR OPERATED DAMPER WIRED TO INTERFACE WITH EXHAUST FAN START/STOP
6. CONDUIT THROUGH HOLE IN DAMPER SHELF
7. POWER DISCONNECT
8. ALUMINUM BIRD SCREEN
9. CURB TYPE AND FLASHING PER ROOFING MANUFACTURER'S REQUIREMENTS
10. RUBBER GASKET APPLIED TO TOP OF CURB
11. ANCHOR TO ROOF DECK AS REQUIRED
12. CENTER TRANSITION TO DUCTWORK FROM DAMPER OR CURB. PROVIDE 3x DIAMETER STRAIGHT RUN MINIMUM.
13. INSULATED DUCTWORK

GENERAL NOTES:

A. DELETE CANT FOR SINGLE MEMBRANE ROOFS.
B. TOP OF CURB MUST BE LEVEL. FABRICATE PITCH IN CURB OR SHIM AS NECESSARY.
C. TOP OF CURB SHALL BE A MINIMUM OF 10" ABOVE FINISHED ROOF SURFACE. CONTRACTOR HAS THE OPTION TO EITHER FURNISH A CURB WITH SUFFICIENT HEIGHT TO ACCOMMODATE ROOF INSULATION THICKNESS OR TO ADD PRESSURE TREATED WOOD BLOCKING, SECURED TO THE ROOF DECK, BELOW THE CURB
D. LOCATE FAN A MINIMUM OF 10'-0" FROM EDGE OF ROOF, INTAKES, AND ROOF HATCH.
E. INSTALL ROOF MEMBRANE UP UNDER FLASHING, FLASH PER ROOFING MFGR. RQMTS.

233423.00-10 - ROOF EXHAUSTER A

SCALE: NONE



GENERAL NOTES:

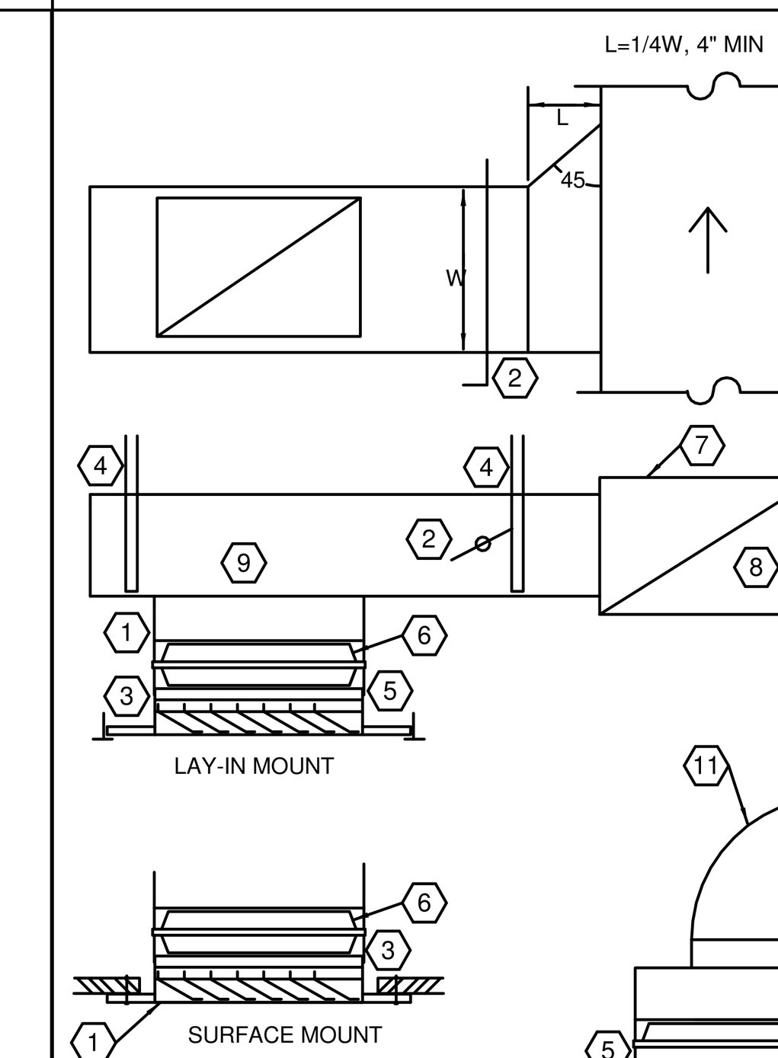
A. OMIT FLEX DUCT ON DISTRIBUTION SYSTEMS THAT PENETRATE 1-HR FIRE BARRIERS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE BARRIERS.

KEYED NOTES:

1. MAXIMUM LENGTH OF INSUL. FLEX DUCT EQUALS 5 FEET. FLEX NOT PERMITTED IN INACCESSIBLE CEILINGS
2. INSULATED DUCT, COLLAR AND DIFFUSER BY HVAC CONTRACTOR
3. SCOOP
4. SPIN IN FITTING WITH MANUAL VOLUME DAMPER
5. INTERNAL BUTTERFLY DAMPER FOR DRYWALL APPLICATIONS ONLY. (PROVIDE KEY FOR ADJUSTMENT)
6. SECURE TO CEILING PER MANUFACTURER'S RECOMMENDATIONS AND PER CEILING FINISH. PROVIDE GRID CLIPS PER MFG'R REQUIREMENTS. PROVIDE FRAMING FOR DRYWALL INSTALLATION.
7. HANGER, SECURE TO STRUCTURE AND DUCTWORK
8. PEEL BACK INSULATION AND PROVIDE STRAPPING AND SHEET METAL SCREWS AT FLEX CONNECTION TO DUCT. THEN PROVIDE STRAPPING AROUND INSULATION
9. SUPPORT FLEX TO PREVENT COLLAPSING

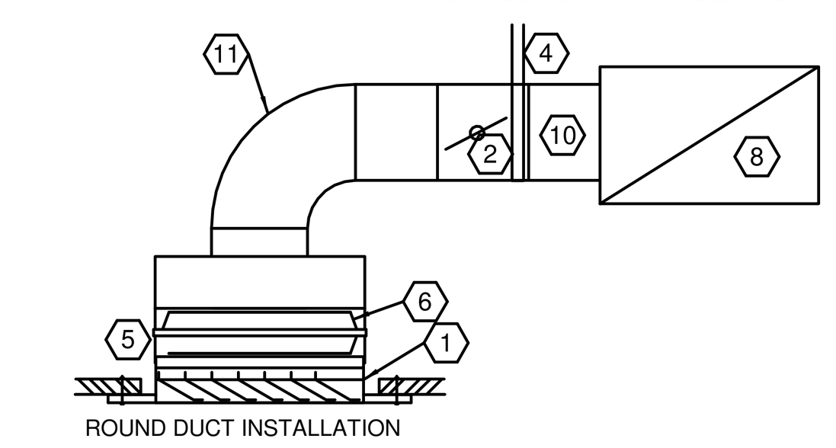
233713.00-04 - DIFFUSER INSTALLATION TYPICAL

SCALE: NONE



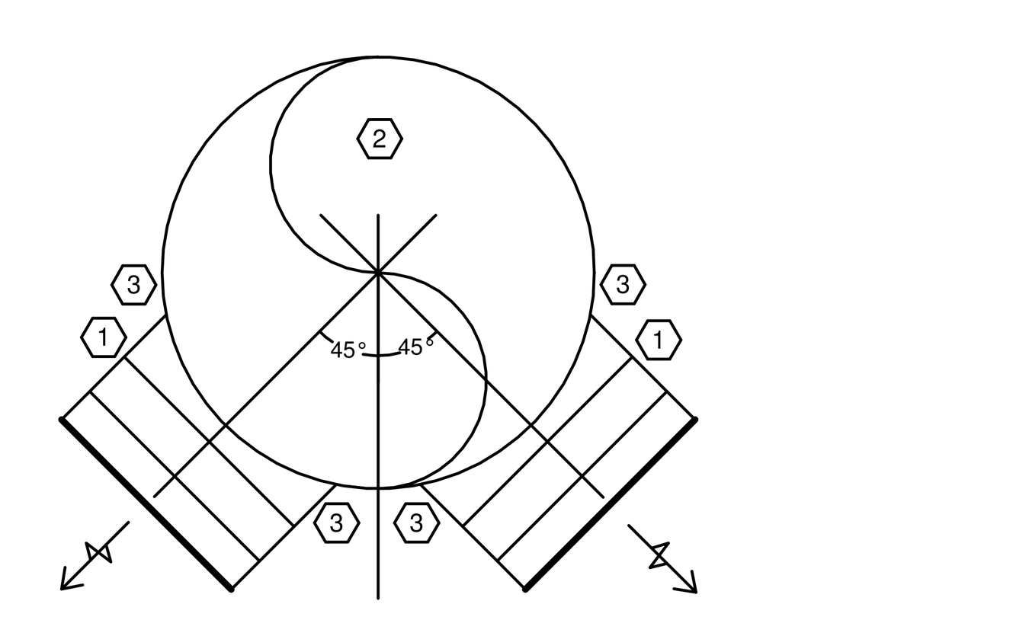
KEYED NOTES:

1. DUCT, COLLAR AND RETURN/EXHAUST REGISTER
2. MANUAL VOLUME DAMPER
3. SECURE TO CEILING PER MANUFACTURER'S RECOMMENDATIONS AND PER CEILING FINISH. PROVIDE GRID CLIPS PER MFG'R REQUIREMENTS
4. HANGER, SECURE TO STRUCTURE AND DUCTWORK
5. ATTACH DUCT TO REGISTER
6. BALANCING DAMPER FOR FINAL BALANCING
7. SHEET METAL DUCTWORK
8. MAIN RETURN/EXHAUST DUCT
9. TAP DROP TO RETURN/EXHAUST REGISTER INTO BOTTOM OF BRANCH
10. SPIN IN FITTING
11. HARD SHEET METAL ELBOW AT CONNECTION TO AIR DEVICE



233713.00-21 - RETURN/EXHAUST REGISTER INSTALLATION

SCALE: NONE

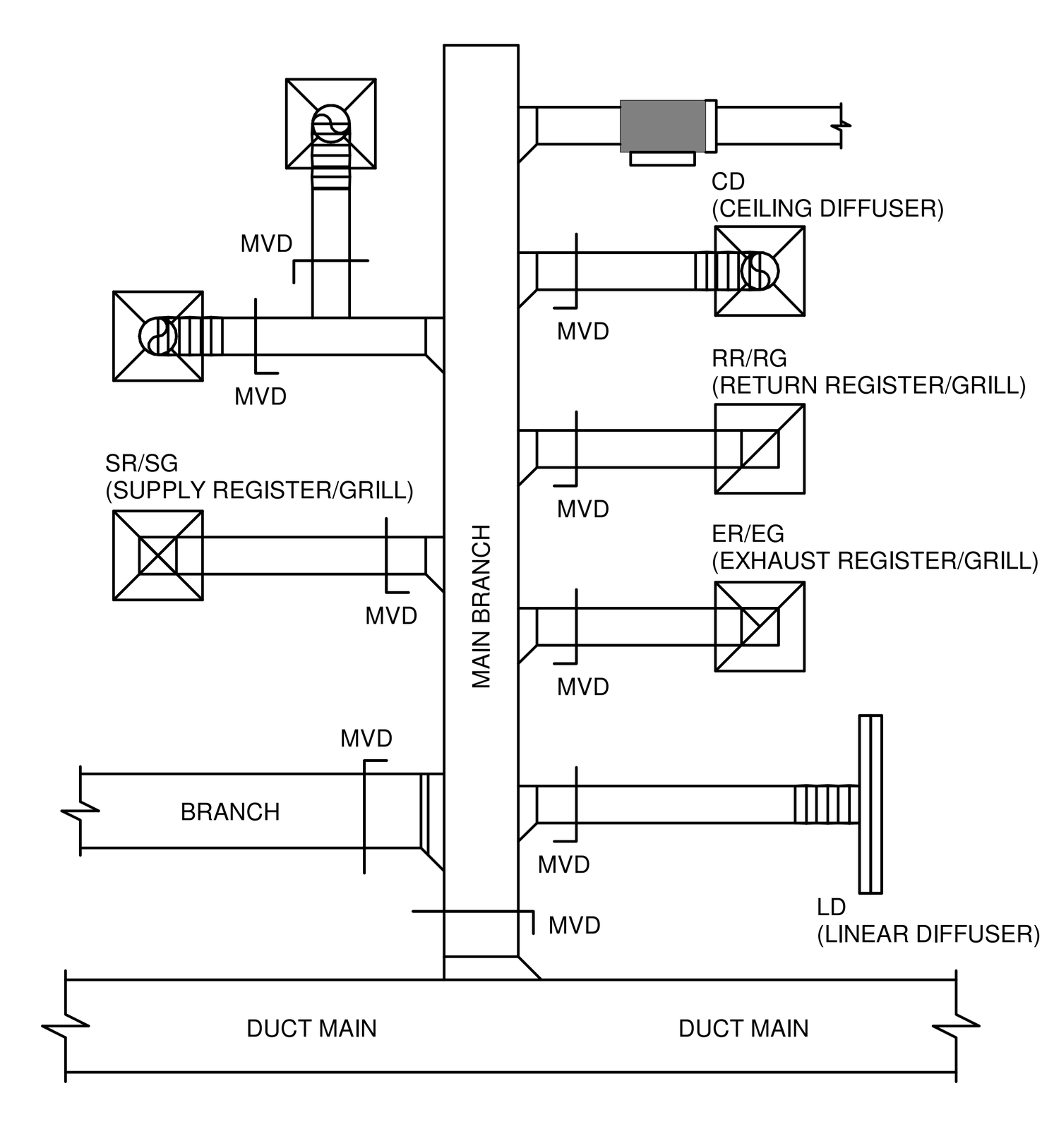


KEYED NOTES:

1. REGISTER WITH 0 DEGREE DEFLECTION BLADE DAMPER (TO BE SIZED AS SHOWN ON PLAN)
2. SUPPLY DUCT
3. SEAL JOINTS BETWEEN COLLAR AND MAIN DUCT

233713.00-02 - ANGLED REGISTER INSTALLATION

SCALE: NONE



233713.00-20 - DAMPER LOCATIONS

SCALE: NONE

OWNERSHIP OF INSTRUMENTS OF SERVICE

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MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
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BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD

STATE OF OHIO
KRIS T. SCHNITGEN
E-77432
REGISTERED
PROFESSIONAL ENGINEER
3/23/2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
MECHANICAL DETAILS

SHEET

M-301

KLH PROJECT 25140

SECTION 23 05 01.00 – COMMON REQUIREMENTS FOR HVAC

General
General Provisions of the Contract including General and Supplementary Conditions and General Requirements apply to work of this section.
Scope
The base bid includes furnishing all materials, labor, tools, and equipment and the performance of all work required to install a complete heating and air conditioning system as outlined herein.
Guarantee
The contractor shall provide a guarantee in written form stating that all work under this section shall be free of defective work, materials, or parts for a period of one year from the date of owner's final acceptance and shall repair, revise or replace at no cost to the owner any such defects occurring within the guarantee period. Contractor shall also state in written form that any items or occurrences arising during the guarantee period will be attended to in a timely manner and will in no case exceed four (4) working days from date of notification by owner.
Quality Assurance
Provide a complete installation in conformance with the following standards.
AGA: American Gas Association
ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers
NFPA: National Fire Protection Association
SMACNA: Sheet Metal and Air Conditioning Contractors National Association.
Statewide Building Code
IMC: International Mechanical Code
Permits, Fees, Inspections, Laws and Regulations
Permits and fees of every nature required in connection with this work shall be obtained and paid for by this contractor who shall also pay for all the installation fees and similar charges. Laws and regulations, which bear upon or affect the various branches of this work shall be complied with by this contractor and are hereby made a part of this contract. All work, which such laws require to be inspected, shall be submitted to the proper public official for inspection and a certificate of final approval must be furnished.
Work in Existing Spaces
General: Care shall be taken when working in existing spaces so as not to damage existing walls and ceilings where work is being performed.
Ceilings: Where work is being performed above ceilings, and the architectural drawings do not indicate ceiling modifications by the general contractor, it shall be the responsibility of this contractor to remove and replace existing ceilings where work is being performed. In those instances, all repair and installation of new grid, ceiling panels, etc shall be the responsibility of this contractor. Match existing finishes.
Walls & Floors: It shall be the responsibility of this contractor to patch existing walls and floors and match existing finishes where work is being removed or installed and patching is being performed, unless noted otherwise on the architectural drawings.
Demolition
Any Equipment to be demolished shall also include the demolition of any and all ductwork, piping etc serving or served by the equipment, all accessories, air devices, wiring, gas piping, venting, control wiring and power wiring associated with the equipment.
Demolition shall be coordinated with all trades. All materials shall be turned over to the owner or disposed at the owner's direction.
Contractor is responsible for reclaiming any refrigerant in association with the demolition in accordance with all local, state and federal regulations.
Any roof or wall penetration shall be patched watertight to the satisfaction of the architect.
Tests and Adjustments
No ducts, piping, fixtures or equipment shall be concealed or covered until they have been inspected and approved by the Architect and the inspector who shall be notified by the contractor when the work is ready for inspection.
Work shall be completely installed, tested and leak tight before inspection is required. All tests shall be repeated to the satisfaction of those making the inspection.
Architectural coordination items
Cutting and Patching: Cut and drill all openings in walls and floors required for the installation. Secure approval of Engineer before cutting and drilling. Neatly patch all openings cut.
Fire Caulking: Patching through fire rated walls and enclosures shall not diminish the rating of that wall or enclosure. Patch shall be equal to rockwool, firestop, caulk or approved "rated" patch.
Access Panels and Pathways: Furnish all access panels required for proper servicing of equipment. Provide access panels for all concealed valves, vents, controls, cleanout doors, and sprinkler devices required by NFPA. Provide access panels for all fire and/or fire & smoke dampers. Provide frame as required for finish. Furnish panels to General Contractor. Exact locations to be approved by the Architect. Minimum size to be 12" x 12", units to be 16 gauge steel, locking device shall be screwdriver cam locks.
project conditions
Where new HVAC systems are required to be connected to existing HVAC systems, it is the contractor's responsibility to verify the location, size, pressure, condition, and they shall verify that the existing HVAC system is indeed the correct and appropriate HVAC system before any work is done. Provide all necessary camera scoping and dye testing as necessary. If there is any need for concern, if it is determined that the existing HVAC system is not a correct or appropriate HVAC system or not connected to a correct or appropriate HVAC system, if the condition of the existing HVAC system is not viable for re-use, or any other condition that would not allow the proper functioning of the new HVAC system, the contractor shall notify the engineer in writing immediately via RFI and wait for direction before proceeding.
MECHANICAL EQUIPMENT COMMON REQUIREMENTS
INSPECTION
Examine areas and conditions under which mechanical equipment is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.
Uncrate equipment and inspect for damage. Verify that nameplate data corresponds with unit designation.
INSTALLATION
General: Install mechanical equipment as indicated, and in accordance with manufacturer's installation instructions.
Location: Install each unit level/plum and accurately in position indicated in relation to other work; and maintain sufficient clearance for normal service and maintenance, but in no case less than that recommended by manufacturer.
Coordinate with other trades to assure correct recess size for recessed units.
Protect interior mechanical equipment with protective covers during balance of construction.
For ducted equipment, connect ductwork to units with flexible duct connections. Provide transitions to exactly match unit duct connection size. Provide 1" acoustic duct lining on return air side a minimum of 10' from fan.
Provide trap at drain piping connection to unit sized per manufacturer's recommendations.
Access: Provide access space around and over mechanical equipment for service as indicated, but in no case less than that recommended by manufacturer or required by code in effect.
Access Panels: Furnish all access panels required for proper servicing of equipment. Provide access panels for all concealed valves, vents, controls and cleanout doors, and sprinkler devices required by NFPA. Provide frame as required for finish. Furnish panels to General Contractor. Exact locations to be approved by the Architect. Minimum size to be 12" x 12", units to be 16 gauge steel, locking device shall be screwdriver cam locks.
Rooftop mechanical equipment shall be installed a minimum of 10'-0" from any roof edge regardless of location indicated on plans, unless a screen wall or railing is installed per the local building code. See the architectural plans for coordination.
Roof Curbs: Furnish roof curbs to roofing Installer for installation. Install and secure roof curb to roof structure, in accordance with National Roofing Contractor's Association (NRCA) installation recommendations and shop drawings. Install and secure units on curbs and coordinate roof penetrations and flashing. Install according to roofing manufacturer's recommendation and specifications.
Indoor Suspended Equipment: Install suspended from structure with all threaded rod and vibration isolators.
ELECTRICAL COORDINATION ITEMS
Electrical Wiring: Install electrical devices furnished by manufacturer but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal to Electrical Installer.
Verify that electrical wiring installation is in accordance with manufacturer's submittal and installation requirements of Division 26 sections. Do not proceed with equipment start-up until wiring installation is acceptable to equipment installer.
Install electric heating terminal units including components in accordance with equipment manufacturer's written instructions, and with recognized industry practices; complying with applicable installation requirements of NEC and NECA's "Standard of Installation".
Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std 486A.
Grounding: Provide equipment grounding connections for electric heating terminals as indicated. Tighten connections to comply with tightening torque values specified in UL Std 486A to assure permanent and effective grounding.
FIELD QUALITY CONTROL
Testing: After installation has been completed, test to demonstrate proper operation of mechanical equipment at performance requirements specified. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units, which cannot be satisfactorily corrected. Test controls and demonstrate compliance with requirements.
Cleaning: After construction is completed, including painting, clean unit exposed surfaces, vacuum clean coils and inside of cabinets. Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.
START-UP
Provide the services of a factory-authorized service representative to start-up rooftop units, in accordance with manufacturer's written start-up instructions. Test controls and demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.
TRAINING OF OWNER'S PERSONNEL
Provide services of manufacturer's technical representative for 1-half day to instruct Owner's personnel in operation and maintenance of units. Schedule training with Owner, provide at least 7-day notice to Contractor and Engineer of training date.

SECTION 23 05 03.00 – SUBMITTALS FOR HVAC

General
Where submittals are required by the Contract Documents, they shall be prepared and supplied in accordance with the Contract Documents. In addition to Division 01, the Contractor is advised to review and comply with the requirements articulated within each Division and within each section of that Division.
Some Divisions may include a division-specific "Submittal Requirements for …." section. Where this section exists, it articulates additional requirements for submittals that apply to the work of that Division.
The following requirements help to identify, track and keep the project organized for all parties involved. They are necessary to ensure a timely turnaround and an appropriate technical review. Submittals that do not conform to the administrative requirements are rejected and returned, without technical review.
Requirements
Supply submittals for each section: Submittals shall be supplied on a section-by-section and type-by-type basis. For example, independent product data submittals shall be furnished for each section that requires product data submittals. Independent shop drawing submittals shall be furnished for each section that requires shop drawings.
Refer to the specifications for identification of which submittals are required for the project. Separate PDF file packages shall be supplied for each section, for each submittal type, where electronic submittals are required. Each PDF shall represent a single standalone submittal. Separately bound and identified submittals shall be provided where hardcopies are required.
Include a transmittal: Transmittals shall enumerate each submittal for each section of each type and iteration.
Include cover sheet / title page: The cover sheet shall include the information identified in the contract documents. It shall be included as the first page of each electronic and/or hardcopy document-based submittal. An editable and printable PDF form created with editable fields and specification compliant appearance is available from KLH upon request. It is also downloadable from the KLH website at www.klhengrs.com.
Include an index: The index shall enumerate the contents of the submittal.
Include checklists: Where checklists are included with the specifications, complete and include them within the appropriate submittal. Supply complete submittals: Complete submittals of each type are required. Partial submittals will be rejected. Where a section requires a product data submittal, all product data for that section shall be supplied together, at one time, as one complete submittal. Do not send half the product data as one submittal and the other half as a separate one. When resubmittal is required (e.g. Revise and Resubmit) the revised submittal shall be more complete, more accurate and more contract-compliant than its rejected predecessor. The submittal number (for each section and type) shall increment for each subsequent submittal (00 – Original submission, 01 – First Resubmission, 02 – Second Resubmission, etc…). Resubmittals shall include a copy of the reviewer's comments supplied with the prior submittal rejection and shall be amended with a description of the specific action taken to comply with the reviewer's comments. The absence of this on resubmittal is cause for rejection.
Name electronic files to match the submittal ID and cover sheet: The electronic file name of submittals shall match the submittal ID included on the submittals cover page. For example: The original/first product data submittal for Section 234116 would be labeled as "234116.00-PD-00"; the first resubmittal of same shall be labeled "234116.00-PD-01". The original/first shop drawings submittal file for the same section would be labeled "234116.00-SD-00"; the first resubmittal of same shall be labeled "234116.00-SD-01".
Use of Electronic Drawings from the Owner's Design Team
Plan drawings for the Project were created with AutoCAD. If expressly permitted by the Owner and the terms of the Contract, editable electronic versions of standard-scale, AutoCAD-based plan drawings may be made available for the creation of shop and as-built drawings.
Due to the proprietary nature of internal design systems, editable native-software versions of some drawings, including but not limited to system diagrams and details will not be made available in an editable form. In these cases, electronic versions of the drawings may be made available only in PDF, JPG or similar non-editable electronic form, at the sole discretion of the Design Professional.
The Request Drawings form can be accessed, filled out and submitted at the following internet address (scroll down to bottom of home page): http://www.klhengrs.com.

SECTION 23 05 29.00 – HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

Submittal Requirements
Product Data: For each type of product indicated.
Shop Drawings: Fabrication and installation details.

General
Support all piping, ductwork and equipment by hangers or brackets properly from the building structure. Support from decking above is prohibited. Furnish structural steel members where required to support piping and equipment. No portion of piping or valves shall be supported by equipment.
Ductwork - Support by means of hangers as follows:

Duct Width	Hanger Size and Type	Max. Spacing
30 or less	(#16 gage)	8
31 to 60	(#14 gage)	8

A pair of hangers shall be located at every transverse joint and elsewhere according to the table.

SECTION 23 05 93.00 – TESTING, ADJUSTING AND BALANCING FOR HVAC

Submittal Requirements
Shop Drawings: Certified Reports: Submit testing, adjusting, and balancing reports bearing the seal and signature of the Test and Balance Engineer. The reports shall be certified proof that the systems have been tested, adjusted, and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at the completion of the testing, adjusting, and balancing procedures; and are an accurate record of all final quantities measured, to establish normal operating values of the systems. Final Report: Upon verification and approval prepare final reports, type written, and organized and formatted as specified below. Submit 2 complete sets of final report to the landlord.

General
Test, adjust, and balance the following mechanical systems:
Supply air systems, all pressure ranges
Return air systems.
Exhaust air systems.
Test systems for proper sound and vibration levels.
Quality Assurance
Codes and Standards:
AABC: "National Standards for Total System Balance".
ASHRAE: ASHRAE Handbook, 2011 Applications, Chapter 38, Testing, Adjusting, and Balancing.
Qualifications
The contractor shall procure the services of an independent Balance and Testing Agency, approved by the Engineer, and a member of Associated Air Balance Council (AABC) or NEBB, which specializes in the balancing and testing of heating, ventilating and air conditioning systems, to balance, adjust and test all air and water systems and equipment as herein specified. All work by this agency shall be done under direct supervision of a qualified heating and ventilating Engineer employed by this agency. All instruments used by this agency shall be accurately calibrated and maintained in good working order.
Sequencing and Scheduling
Test, adjust and balance air conditioning systems during summer season and heating systems during winter season, including at least a period of operation at outside conditions within 5 deg F wet bulb temperature of maximum summer design condition, and within 10 deg F dry bulb temperature of minimum winter design condition. Take final temperature readings during seasonal operation.
Check all filters for cleanliness, provide new as required. Check dampers (volume and fire) for correct and locked position, and temperature control for completeness of installation before starting fans. Place outlet dampers in full open position. Lubricate all motors and bearings. Check fan belt tension. Check fan rotation.
Air balance and testing shall not begin until the system has been completed and is in full working order. The Contractor shall put all heating, ventilating and air conditioning systems and equipment into full operation and shall continue the operation of same during each working day of testing and balancing. The contractor shall submit within 30 days after receipt of contract, 8 copies of submittal data for the testing and balancing of the air conditioning, heating, and ventilating systems. The Air Balance and Testing Agency shall provide proof of having successfully completed at least five projects of similar size and scope.
The air balancing contractor shall include the additional cost to change every fan factory installed sheave, pulley and/or belt of in order to obtain the design air flows.
Renovations: In areas where existing HVAC equipment is being utilized, balancing contractor shall include the cost to pre-check each equipment air flows, serving the area of work, prior to demolition, and re-check and adjust each air handler after new construction. Air flows of existing air handlers serving existing spaces shall be similar after project is complete.
Performing Testing, Adjusting and Balancing
Perform testing and balancing procedures on each system identified, in accordance with the detailed procedures outlined in the referenced standards.
Cut insulation, ductwork, and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures.
Patch insulation, ductwork, and housings, using materials identical to those removed.
Seal ducts and piping, and test for and repair leaks.
Seal insulation to re-establish integrity of the vapor barrier.
Mark equipment settings, including damper control positions; valve indicators, fan speed control levers, and similar controls and devices, to show final settings. Mark with paint or other suitable, permanent identification materials.
Retest, adjust, and balance systems subsequent to significant system modifications, and resubmit test results.

SECTION 23 07 13.00 – DUCT INSULATION

Submittal Requirements
Product Data: For each product indicated.
Shop Drawings: Include plans, elevations, sections, details and attachments to other work.

All liners, insulation and adhesives shall have a flame spread index not more than 25 and a smoke developed index of not more than 50. Insulation shall have a minimum installed thermal resistance value of R6 or code minimum, whichever higher.
Rigid Fiberglass Ductwork Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IB, without facing and with vapor barrier all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film.
Flexible Fiberglass Ductwork Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II, without facing and with vapor barrier all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film.
Vapor Barrier Material for Ductwork: Paper-backed aluminum-foil, except as otherwise indicated; strength and permeability rating equivalent to factory-applied vapor barriers on adjoining ductwork insulation, where available; with following additional construction characteristics:
High Puncture Resistance: Low vapor transmission (for ducts in exposed areas: Mech. Rooms, etc.)
Moderate Puncture Resistance: Medium vapor transmission (for ducts in concealed areas).
All ductwork shall be insulated except:
Double wall ductwork
Fabric ductwork
Metal ducts with duct liner of sufficient thickness to comply with energy code.
Factory insulated flexible ductwork
Factory insulated plenums and casings
Flexible connectors
Vibration control devices
Factory insulated access panels and doors
Supply ductwork exposed in conditioned spaces excluding mechanical rooms, server rooms and electric equipment rooms
Toilet exhaust, general exhaust and return ductwork in an insulated joist or attic space.

SECTION 23 09 93.00 – SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

Submittal Requirements
Product Data: Provide written sequences of operation for each controlled system and piece of equipment.

Packaged Rooftop Unit
All setpoints listed in this section are adjustable through the Building Automation System (BAS). Control & Monitoring points shall include but not be limited to the following:
1. Startup
The unit shall operate on an occupied/unoccupied cycle as controlled from the BAS. Occupancy shall be predetermined by the owner and programmed into the BAS.
During startup, the fan shall run with the dampers in the full recirculation position. Provide occupied changeover sequence with optimum start function. When the return air temperature reaches occupied setpoint (adjustable), the minimum outside air damper shall open to the controlled minimum outdoor air position.
2. Supply Fan Control
The supply fan shall be two staged and modulate up and down based on a call for heating or cooling.
3. Space Temperature Control
Provide 7-day programmable thermostat with digital display of space temperature and setpoint (+/- deg. F. adjustable), with override feature and remote space temperature sensor.
4. Minimum Outside Air Control
RTU-1: During occupied mode the minimum outside air damper shall be open. Provide motorized outdoor air damper.
RTU-2,3,4: During occupied mode, the minimum outside air damper shall be open to the scheduled minimum outdoor air flow and modulate proportionally with the supply fan speed to maintain the scheduled minimum outside airflow. When the supply fan speed is set to high, outside air damper shall be partially closed allowing minimum outside air flow as scheduled. As supply fan speed is set to low, damper shall fully open allowing minimum outside air flow as scheduled. Provide motor operated dampers.
RTU-2,3,4: Provide carbon dioxide sensors in the space to measure carbon dioxide levels. Outside air damper shall modulate to maintain maximum carbon dioxide level setpoint at all times during occupied mode. CO2 levels shall be held below 1000 ppm (adjustable). When CO2 levels are below setpoint, outside air damper shall be at a minimum position, which equates to the sum of the "OA SQFT" multiplied by the room areas of each room in the "HVAC Ventilation Schedule" during occupied mode.
5. Economizer Control
Provide dual enthalpy economizer control. Economizer control shall be enabled whenever the outside air enthalpy is lower than the return air enthalpy. Enthalpy shall be calculated from sensors which are tied to the same controller for accuracy. During economizer mode, the outside air damper shall modulate to 100% open. The economizer damper shall modulate open on a call for cooling and modulate closed on a call for heating. The return damper shall modulate inversely with the economizer damper. Economizer shall have barometric relief.
6. Cooling Control
Cooling shall be controlled to maintain space temperature setpoint. On a call for cooling, the heating shall be off and supply fan speed shall be low. On a further call for cooling, the economizer shall be enabled. On a further call for cooling, disable the economizer and energize first stage cooling on. On a further call for cooling, the supply fan speed shall be high and energized second stage of cooling.
7. Heating Control
Heating shall be controlled to maintain space temperature setpoint. On a call for heating, the mechanical cooling shall be off. On a further call for heating, the economizer mode shall be disabled. On a further call for heating, the supply fan shall be set to low speed and the gas heating shall be disabled. On a further call for heating, the supply fan shall be set to high speed and the gas heating shall be staged on.
8. Smoke Detector
When the smoke detector is alarmed, the system shall be alarmed and the air handler shall fail safe with manual reset.
9. Unoccupied Mode
During the unoccupied mode of operation, the RTU shall go into night setback mode.
Night Setback/Shutdown
At night setback/shutdown the RTU shall go to fail safe position. Fail safe position is defined by the following: The supply fan is off, the outdoor air intake damper is closed, the heating is off and the mechanical cooling is off. The supply fan shall cycle in conjunction with either the heating or cooling system to maintain a minimum/maximum space temperature depending on the season.

Exhaust Fans (Manual)
Exhaust fans shall be controlled by local manual switch furnished, installed and wired by electrical contractor.
When activated, exhaust fan motor damper shall open and fan shall start.
(Indicated by EC on HECS schedule)

Heating Equipment for Vestibules
Provide controls in vestibule for vestibule heating systems with a heating setpoint less than or equal to 60F.

Controls
Electrical contractor will provide power wiring. HVAC contractor shall provide all the low voltage wiring of HVAC units and controls, thermostats and controllers.
Thermostat shall be by the manufacturer of the HVAC unit (heat/cool/auto/off) with night setback. Provide plastic protective cover for all thermostats. Replace controls on existing unit, adjust and calibrate controls.

Low Voltage Thermostats
Low voltage thermostats shall be furnished, installed and wired by the HVAC contractor. The electrical contractor shall provide 4" square x 1- 1/2" deep wall outlet boxes (with single-gang rings) for all thermostats/sensors. The electrical contractor shall provide one 3/4" empty conduit from each thermostat/sensor location, turned out above accessible ceilings (in joist space or against overhead slab/deck). The HVAC/Temperature Control Contractor shall provide all other necessary conduit, raceway and wiring related work. Conduit shall be identified in ceiling cavity and shall be provided with sweep bends, bushings and dragline.
The HVAC/Temperature Control Contractor shall coordinate with the General Contractor to ensure thermal envelope is maintained at these locations.

Temperature Sensors tied to BAS
Sensors shall be furnished, installed and wired by the Temperature Control Contractor. The electrical contractor shall provide 4" square x 1- 1/2" deep wall outlet boxes at 54" above finished floor (with single-gang rings) for all thermostats/sensors. The electrical contractor shall provide one 3/4" empty conduit from each thermostat/sensor location, turned out above accessible ceilings (in joist space or against overhead slab/deck).
The Temperature Control Contractor shall provide all other necessary conduit, raceway and wiring related work.
Conduit shall be identified in ceiling cavity and shall be provided with sweep bends, bushings and dragline.
The HVAC/Temperature Control Contractor shall coordinate with the General Contractor to ensure thermal envelope is maintained at these locations.

Carbon Dioxide Sensors
Carbon dioxide sensors shall be non-dispersive infrared (NIDR) type with a measurement range of 0-2000 ppm, repeatability of +/- 20 ppm and a measurement accuracy of +/- 75 ppm.
The recommended calibration interval shall be a minimum of 5 years.
Space mounted applications shall utilize diffusion through an attractive, satin finish, high impact housing.

General Control Wiring Requirements and Installation Methods
Except where specifically indicated otherwise above, the HVAC/Temperature Control Contractor shall provide all electrical work as required for all temperature control related wiring (i.e. conduit, raceway, outlet boxes, junction boxes, wiring, etc.) in accordance with Electrical Specifications requirements. All conduit shall be 3/4" minimum.
Coordinate all thermostat/sensor locations in field (case by case) with Architect, Owner and Electrical Contractor to ensure that they are placed in locations that will not interfere with furniture, equipment, artwork, wall-hung specialties, room finishes, etc. All thermostat/sensor wall locations indicated on HVAC drawings are schematic only and must be verified case-by-case prior to rough-in.
All electrical work as described in this specification shall be per the latest edition of the National Electrical Code (NEC) and per applicable state and local codes.
Where "free-air" installation methods (either exposed above the ceilings, in bridle rings or in cable trays) are permitted under Electrical Specifications above ceilings, provide plenum-rated cables wherever plenum ceilings (if any) exist and install as defined under Electrical Specifications. Install low voltage circuits, located in concrete slabs and masonry walls, in inaccessible locations, or exposed in occupied areas, in electrical conduit regardless of what wiring methods are permitted under Electrical Specifications.
Where cable trays or bridle rings are provided by the electrical contractor for low voltage cables, these raceways may be utilized for control wiring by this contractor (provide special color coded jackets, label cable jackets per Electrical Specifications and group control wiring cables together). Provide conduit drops from cable tray/bridle ring paths to wall outlet boxes and equipment unless directed otherwise under Electrical Specifications.
Regardless of permitted methods in Electrical Specifications, all cables/wiring installed concealed by gypsum board, masonry or other inaccessible materials in walls or above ceilings shall be installed in conduit, 3/4" minimum.
All conduit, bridle rings, raceway, outlet boxes, etc. necessary for complete operational installation of control wiring shall be provided (furnished and installed) by the temperature control contractor in strict compliance with Electrical Specifications documents. Coordinate all work with all other applicable trades including the electrical contractor.
Provide all required conduit work to and between equipment in a manner compliant with that described above (i.e. between VAV boxes, to boilers, starters, condensing units, etc. as applicable).
Install control wiring without splices between terminal points, color-coded. Install in neat workmanlike manner, securely fastened. Install in accordance with National Electrical Code and per Electrical Specifications.
Install circuits over 25 volt with color-coded No. 12 wire in electrical metallic tubing, per Electrical Specifications.
Install circuits under 25 volt with color-coded No. 18 wire with 0.031" high temperature (105 degs. F) plastic insulation on each conductor and plastic sheath over all.
Install electronic circuits with color-coded No. 22 wire with 0.023" polyethylene insulation on each conductor with plastic-jacketed copper shield over all.

Smoke Detector
All duct smoke detectors will be furnished by electrical contractor, installed by the HVAC contractor, and wired by the electrical contractor per local codes. HVAC contractor will interlock fan with smoke detector.

Motor Operated Dampers
All fresh air intakes and exhaust louvers shall have motor operated dampers. Dampers shall be low leak with blade and edge seals. All motor operated dampers shall be provided and wired by the mechanical contractor unless otherwise noted. Provide all necessary transformers, contactors, controls and wiring for interlocking equipment to motor operated dampers.

SECTION 23 31 13.00 – METAL DUCTS

Submittal Requirements
Product Data: For liners, adhesives, sealants and gaskets.
Shop Drawings: Sheet metal thickness, reinforcing details, duct layouts indicating sizes, configuration, liner material, elevation and static pressure class.

Ductwork Materials
Exposed Ductwork Materials: Where ductwork is indicated to be exposed to view in occupied spaces, provide materials which are free from visual imperfections including pitting, seam marks, roller marks, stains and discolorations, and other imperfections, including those which would impair painting. Mechanical contractor shall confirm ductwork paint scope and color with architect.
Exposed ductwork which is to be painted shall have paint grip applied and be oil free.
Sheet Metal: Except as otherwise indicated, fabricate ductwork from galvanized sheet steel, lock forming quality; with G 90 zinc coating and mill phosphatized for exposed locations. Minimum gauge shall be 24.
Miscellaneous Ductwork Materials
Volume Dampers: Provide volume dampers in all branch ducts or as required for balancing to required air flows.
Fittings: Provide radius type fittings fabricated of multiple sections with maximum 15 deg. change of direction per section. Unless specifically detailed otherwise, use 45 deg. laterals and 45 deg. elbows for branch takeoff connections. Where 90 deg. branches are indicated, provide conical type tees.
Duct Sealant: Non-hardening, non-migrating mastic or liquid elastic sealant, type applicable for fabrication/installation detail, as compounded and recommended by manufacturer specifically for sealing joints and seams in ductwork.
Duct Cement: Non-hardening migrating mastic or liquid neoprene based cement, type applicable for fabrication/installation detail, as compounded and recommended by manufacturer specifically for cementing fitting components, or longitudinal seams in ductwork.
Ductwork Support Materials: Except as otherwise indicated, provide hot-dipped galvanized steel fasteners, anchors, rods, straps, trim and angles for support of ductwork.
Flexible Ducts
Either spiral-wound spring steel with flameproof vinyl sheathing, or corrugated aluminum. Unless specifically mentioned, the maximum length of flex duct on the supply equals 5 feet. Flex is not allowed for return, relief or exhaust applications. The flexible ducts indicated for use in the H.V.A.C. system shall conform to the requirements of UL 181 for Class 0 or Class 1 flexible air ducts and shall be so identified.
Where installed in unconditioned spaces other than return air plenums, provide 1" thick 1-1/2 lb. continuous flexible fiberglass sheath with vinyl vapor barrier jacket.
Installation is not permitted above drywall ceilings and inaccessible ceilings.
Fabrication
Shop fabricate ductwork in 4, 8, 10 or 12-ft lengths, unless otherwise indicated or required to complete runs. All ductwork shall be Pittsburgh Construction with a minimum of thickness of 24 gauge. In addition, ductwork used in systems over 3" W.G. shall have cold sealant applied.
Shop fabricate ductwork of gauges and reinforcement complying with SMACNA "HVAC Duct Construction Standards".
Lined Duct
Fabricate ductwork with duct liner in each section of duct where indicated. Laminate liner to internal surfaces of duct in accordance with instructions by manufacturers of lining and adhesive, and fasten with mechanical fasteners.
Duct liner to be 3-lb density for acoustic requirements 1" thick or as noted. Size of ductwork shown on the drawings is free net area, outside dimension of ducts will need to be increased if lined duct is used.
Size of ductwork shown on the drawings is free net area, outside dimension of ducts will need to be increased if lined duct is used.
Duct Liner: Fibrous glass of thickness indicated. 3-lb density. All liners, insulation and adhesives shall have a flame spread index not more than 25 and a smoke developed index of not more than 50.
Duct Liner Adhesive: As recommended by insulation manufacturer and complying with NFPA 90A or NFPA 90B.
Duct Liner Fasteners: Comply with SMACNA HVAC Duct Construction Standards.
Installation of Metal Ductwork
General: Assemble and install ductwork in accordance with recognized industry practices which will achieve air-tight (5% leakage for systems rated 3" and under; 1% for systems rated over 3") and noiseless (no objectionable noise) systems, capable of performing each indicated service. Install each run with minimum number of joints.
Align ductwork accurately at connections, within 1/8" misalignment tolerance and with internal surfaces smooth.
Support ducts rigidly with suitable ties, braces, hangers and anchors of type which will hold ducts true-to-shape and to prevent buckling. Support vertical ducts at every floor.
Sealing: Seal all longitudinal seams, S's and drives and all joints with mastic or cement. Install according to SMACNA standards.
Balancing Dampers: The sheet metal contractor shall be fully responsible for installing balancing dampers in the ductwork, (whether shown on the drawing or not) in order to arrive at the intended air flow. The balancing sub-contractor shall provide direction and assistance in determining locations where dampers are required.
Additional dampers, if required shall be installed at no additional cost to the owner.
Wall Penetrations: Seal and pack around all ducts and piping sleeves which pass through walls that extend to bottom side of structure and rated walls.
Field Fabrication: Complete fabrication of work at project as necessary to match shop-fabricated work and accommodate installation requirements.
Routing: Locate ductwork runs, except as otherwise indicated, vertically and horizontally and avoid diagonal runs wherever possible. Run ductwork in shortest route which does not obstruct useable space or block access for servicing building and its equipment. Hold ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building. Limit clearance to 1/2" where furring is shown for enclosure or concealment of ducts, but allow for insulation thickness, if any. Where possible, locate insulated ductwork for 1" clearance outside of insulation. Wherever possible in finished and occupied spaces, conceal ductwork from view, by locating in mechanical shafts, hollow wall construction or above suspended ceilings. Do not encase horizontal runs in solid partitions, except as specifically shown.
Coordinate layout with suspended ceiling and lighting layouts and similar finished work.
Electrical Equipment Spaces: Do not route ductwork through transformer vaults and their electrical equipment spaces and enclosures.
Penetrations: Where ducts pass through interior partitions and exterior walls, and are exposed to view, conceal space between construction opening and duct or duct insulation with sheet metal flanges of same gage as duct. Overlap opening on 4 sides by at least 1-1/2". Fasten to duct and substrate.
All dampers shall be low leakage with edge and blade seals. Damper manufacturers are subject to specification compliance. Provide products by one of the following:
Greenheck Fan Corporation
Nailor Industries
Pottorff
Ruskin Company
Young Regulator Company
Coordination: Coordinate duct installations with installation of accessories, dampers, coil frames, equipment, controls and other associated work of ductwork system.
Installation of Duct Liner
General: Install duct liner in accordance with SMACNA HVAC Duct Construction Standards. Size of ductwork shown on the drawings is free net area, outside dimension of ducts will need to be increased if lined duct is used.
Store internally lined ductwork up off of the floor. Protect internally lined ductwork from water and dust.
The following ductwork shall be lined in addition to that shown per plans:
Return from open ceiling plenum return to HVAC unit.
Supply and return ductwork 10 feet downstream of HVAC unit.
Transfer air ducts.
Butter the leading edge of all internal duct lining with the manufacturer's recommended adhesive.
Inspect and repair all damaged lining prior to installation of ductwork.
Installation of Flexible Ducts
Maximum Length: For any duct run using flexible ductwork, do not exceed 5' - 0" extended length.
Installation shall have smooth full radius turns down to diffuser.
Installation not permitted above inaccessible ceilings.

23 34 23.00 – HVAC POWER VENTILATORS

Submittal Requirements
Product Data: For each type of product indicated.
Centrifugal Roof Ventilators
Provide centrifugal roof type, curb mounted, power ventilators of type, size, and capacity as scheduled, and as specified herein.
Type: Centrifugal fan, direct or belt driven as scheduled.
Provide aluminum, galvanized steel, or fiberglass weatherproof housings as scheduled. Provide square base to suit roof curb. Provide permanent split-capacitor type motor for direct driven fans; capacitor-start, induction-run type motor for belt driven fans.
Provide the Following Types of Housing Design:
Hooded dome type.
Electrical: Provide factory-wired non-fusible type disconnect switch at motor in fan housing. Provide thermal overload protection in fan motor. Provide condult chase within unit for electrical connection.
Provide NEMA 1 disconnect factory mounted. For single phase fractional HP fans use a toggle type disconnect switch. On three phase integral HP fans use a NEMA 1 safety switch.
Bird Screens: Provide removable bird screens, 1/2" mesh, 16-ga aluminum or brass wire.
Roof Curb: Provide factory fabricated roof curb by the same manufacturer as the equipment. Roof curb to be insulated.
Manufacturer: Subject to compliance with requirements, provide centrifugal roof ventilators of one of the following:
Acme
CaptiveAire
Cook (Loren) Co.
Greenheck.
Twin City Fan & Blower
Prefabricated Roof Curbs
General: Provide manufacturer's standard shop-fabricated units, modified if necessary to comply with requirements.
Fabricate structural framing for units of structural quality sheet steel, formed to manufacturer's standard profiles for coordination with roofing, insulation and deck construction. Include 45 deg. cant strips and deck flanges with offsets to accommodate roof insulation. Weld corners and seams to form watertight units.
Clean and paint units with manufacturer's standard rust-inhibitive metal primer paint.
Reinforce continuous runs of over 3'-0" length, by inserting welded stiffeners of heavy gage with flanges as required to provide sufficient rigidity and strength to withstand maximum lateral forces in addition to superimposed vertical loads.
Gage and Height: Fabricate units of metal gage and to height above roof surface as indicated.
Where gage or height are not indicated, fabricate units of 14-ga metal, and nominal height of 14".
Provide pressure treated wood nailer, not less than 1-5/8" thick and of width indicated, but not less than width of support wall assembly. Anchor nailer securely to top of metal frame unit.
Provide lumber pressure treated with water-borne preservatives for "above ground" use.
Insulate units inside structural support wall with rigid glass fiber insulation board of approximately 3-lb. density and 1-1/2" minimum thickness, except as otherwise indicated.
Manufacturer: Subject to compliance with requirements, provide prefabricated roof curbs of one of the following:
Custom Curb, Inc.
Equipment Manufacturer.
MicroMetl
Pate Co.
Shipman.
Thycurb.
INSTALLATION
Coordinate ventilator work with work of roofing, walls, and ceilings, as necessary for proper interfacing.
Provide access door in duct below ventilator to service damper.
Solder bottom joints and up 2" of side joints of duct under roof ventilator to retain any moisture entering ventilator.

23 37 13.00 – DIFFUSERS, REGISTERS AND LOUVERS

Submittal Requirements
Product Data: For each type of product indicated.

DIFFUSERS, GRILLES AND REGISTERS
Manufacturer: Subject to compliance with requirements, provide diffusers of one of the following:
Anemostat Products Div., Dynamics Corp. of America.
Metal-Aire
Titus Products Div., Philips Industries, Inc.
Tuttle and Bailey.
Price

23 82 39.00 – UNIT HEATERS

Submittal Requirements
Product Data: For each type of product indicated.

General: Provide unit heaters in locations as indicated, and of capacities, style, and having accessories as scheduled. Provide temperature control valves for modulation during a call for heat and closed during cooling.
Wall and ceiling unit heaters
General: Provide a heavy duty fan forced wall heater.
Heating grid shall be made up of rugged steel fins, copper brazed to non glowing, steel sheathed elements.
Unit to have built in, tamper proof thermostat or remote thermostat, built in disconnect switch.
Front cover shall be decorative 16 gauge welded bar grille.
Fan delay and thermal cutout are standard.
Provide all required control transformers.
Accessories:
24V time delay relay.
1" semi recessed mounting sleeve.
Surface mounting box.
Provide wall heaters with the following devices:
Thermally activated fan switch to keep fan motor operating until residual heat is dissipated.
Disconnect switch.
Automatic reset, high limit cut-out switch located in discharge air stream.
Manual "Summer-OFF-Winter" switch.
Unit-mounted line voltage thermostat
Control Power Transformer
Magnetic Contactor (Relay Kit)
Manufacturers: Subject to compliance with requirements, provide wall heaters of one of the following:
Berko
Qmark
Trane Co.
Markel
Raywall
Installation of Heaters
Hang units from building substrate, not from piping.
Mount as high as possible to maintain greatest headroom possible unless otherwise indicated.
Support units with rod-type hangers anchored to building substrate.
Protect units with protective covers during balance of construction.
Installation
Coordinate with other electrical work, including wiring/cabling, as necessary to properly interface installation of heating terminal units with other work.
Clean dust and debris from each heating terminal as it is installed to ensure cleanliness.
Comb out damaged fins where bent or crushed before covering elements with enclosures.
Touch-up scratched or marred heating terminal enclosure surfaces to match original finishes.
Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std 486A.
Grounding
Provide equipment grounding connections for electric heating terminals as indicated. Tighten connections to comply with tightening torque values specified in UL Std 486A to assure permanent and effective grounding.

KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783 859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

MARK	DATE	BY	DESCRIPTION

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BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD
STATE OF OHIO
KRIS T. SCHNITGEN
E-77432
REGISTERED
PROFESSIONAL ENGINEER
3/23/2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
MECHANICAL SPECIFICATIONS

SHEET
M-401

KLH PROJECT 25140

FIELD VERIFY ALL CONDITIONS

DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

PLUMBING DEMO SCOPE OF WORK

A. AT ALL LOCATIONS WHERE PLUMBING FIXTURES ARE TO BE REMOVED, PLUMBING SUBCONTRACTOR SHALL REMOVE PIPING (WATER, WASTE, VENT) TO A POINT BEYOND FINISH SURFACE AND CAP OFF. WHERE PIPING SERVING EXISTING FIXTURE TO BE REMOVED ALSO SERVES FIXTURES THAT ARE TO REMAIN, PIPING SHALL BE REROUTED AND RECONNECTED AS REQUIRED TO ACCOMMODATE REMODELED AREAS AS REQUIRED.

B. WHERE EXISTING WALLS ARE REMOVED AND PIPING IS FOUND THAT MUST REMAIN, PLUMBING SUBCONTRACTOR SHALL REROUTE AND RECONNECT PIPING AS REQUIRED, E.G. DOMESTIC WATER PIPING, GAS, SOIL, WASTE, VENT, AND ROOF LEADER PIPING.

C. ALL PLUMBING PIPING THAT IS FOUND TO NO LONGER SERVE ANY PURPOSE SHALL BE REMOVED AND CAPPED OFF BEYOND FINISH SURFACE.

SUBSTITUTION NOTE

- PEX AND CPVC IS APPROVED FOR INTERIOR WATER PIPING. COORDINATE WITH LOCAL JURISDICTION PRIOR TO INSTALLATION. IF PEX AND CPVC IS NOT APPROVED BY AHJ, USE HARD COPPER TUBE, ASTM B 88, TYPE L.
- SCHEDULE 40 PVC PIPE AND FITTINGS CAN BE USED THROUGHOUT. CONTRACTOR SHALL MAINTAIN INTEGRITY OF FIRE RATINGS. PIPING SHALL NOT BE RUN IN PLENUM SPACES AND CONTRACTOR SHALL PROVIDE INTUMESCENT COLLARS WHEN PENETRATING A RATED WALL, FLOOR, OR OTHER ASSEMBLY

KEYED NOTES

P01 PROVIDE NEW 4" VENT THRU ROOF. COORDINATE ROOF PENETRATION REQUIREMENTS WITH LANDLORD'S ROOFING CONTRACTOR.

P02 EXTEND EXISTING WATER SERVICE TO NEW LOCATION. FIELD VERIFY EXISTING LOCATION. LANDLORD TO PROVIDE NEW 1" BFP AND WATER METER.

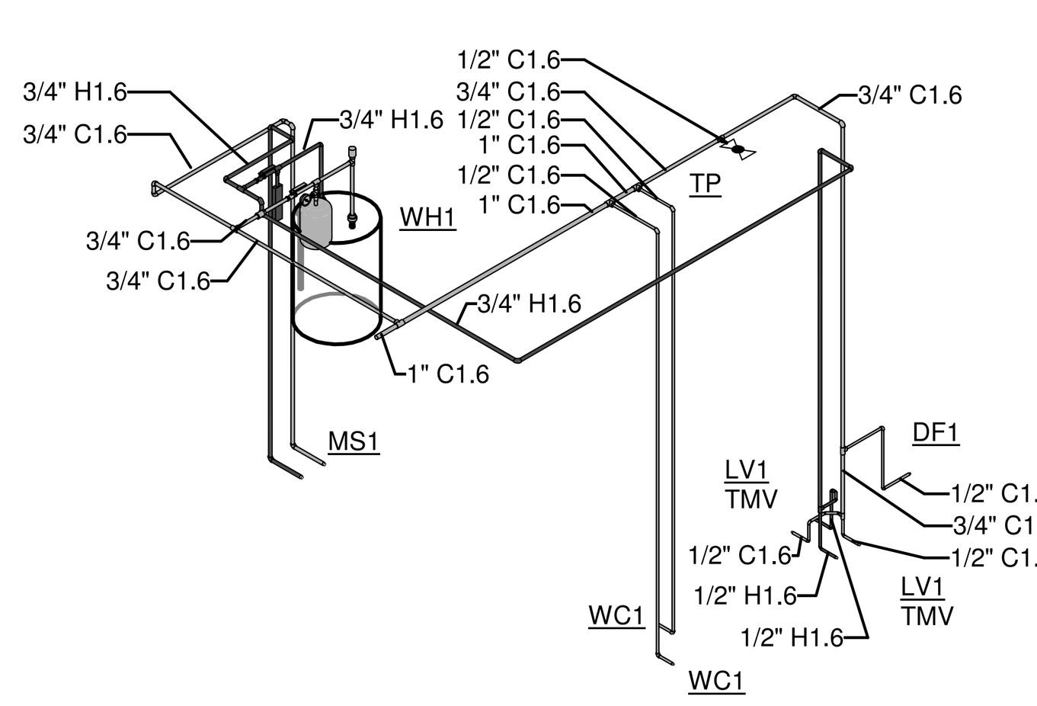
P03 CONNECT NEW SANITARY PIPING TO NEAREST EXISTING PIPING. FIELD VERIFY EXACT LOCATION, INVERT, DIRECTION OF FLOW, AND SYSTEM TYPE PRIOR TO STARTING WORK. CONTACT ENGINEER WITH ANY DIFFERENCES OTHER THAN WHAT IS SHOWN ON PLAN. PROVIDE CAMERA SCOPING TO INSURE PIPING SIZES AND LOCATION. FAILURE TO DO SO MAY RESULT IN CONTRACTOR REPLACING PIPING AT NO ADDITIONAL COST TO TENANT.

P04 PROVIDE ELECTRIC HOT WATER HEATER ABOVE MOP SINK WITH 6'8" CLEAR TO BOTTOM OF WATER HEATER SUPPORT PLATFORM. PROVIDE EXPANSION TANK: AMTROL ST-5.

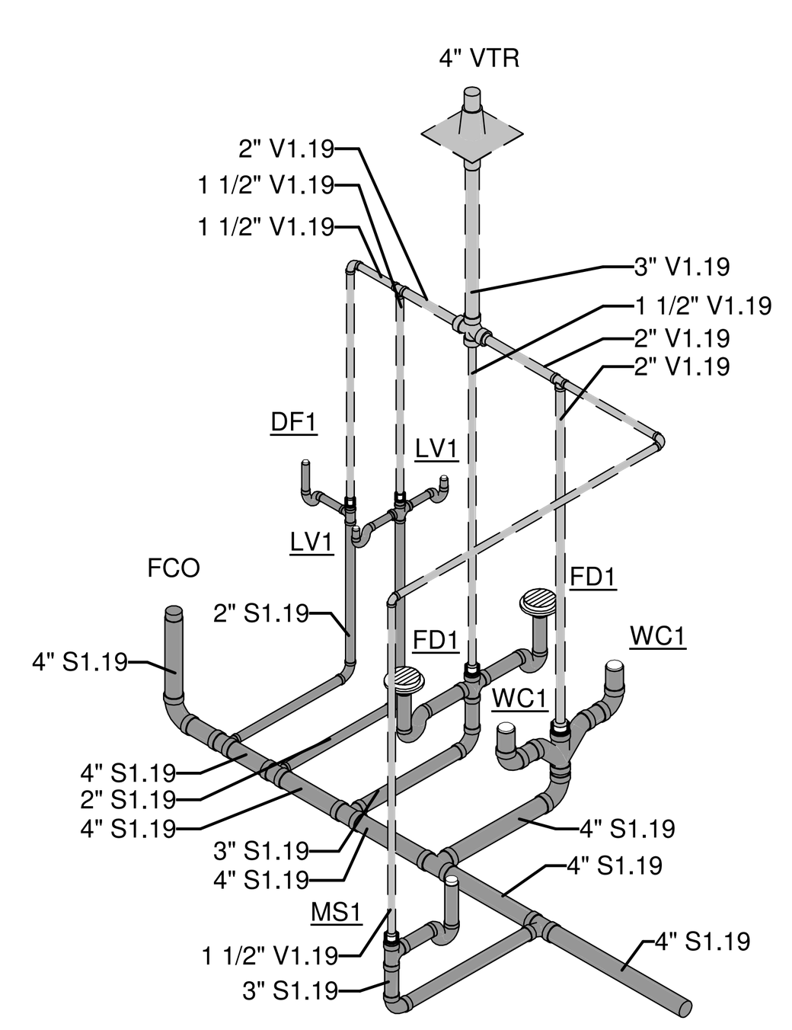
P05 PROVIDE TRAP PRIMER TO SERVE NEW FLOOR DRAINS. PROVIDE 1/2" CW FROM NEAREST MAIN TO NEW TRAP PRIMER.

P06 CONTRACTOR SHALL OBTAIN A COPY OF ALL PLUMBING FIXTURE SPEC. SHEETS PRIOR TO INSTALLATION OF ANY PIPING. CONTRACTOR SHALL ROUGH IN PLUMBING BASED ON THE FIXTURE INSTALLATION INSTRUCTIONS.

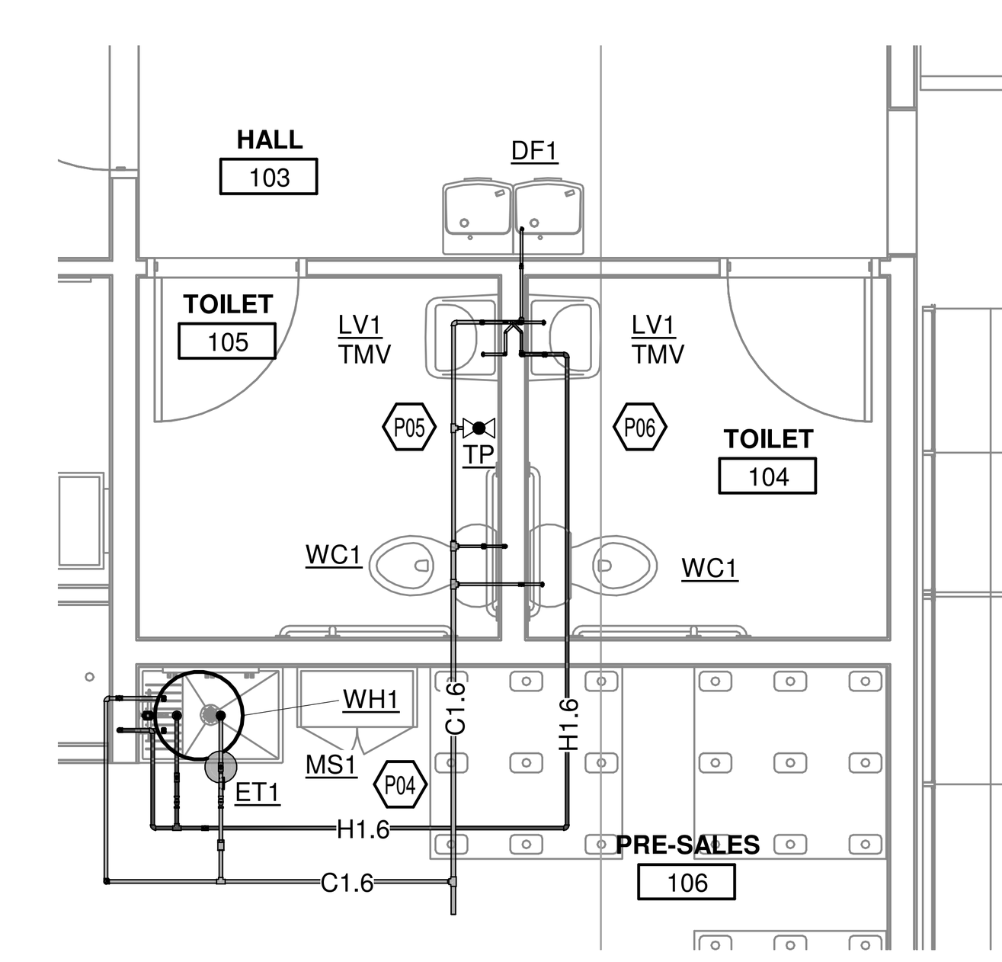
Pipe Type Legend		
Mark	System Name	Pipe Material
C1.6	C1 - Domestic Cold Water	6 - Copper - Type L - ASTM B88
H1.6	H1 - Domestic Hot Water	6 - Copper - Type L - ASTM B88
S1.19	S1 - Sanitary	19 - PVC - Schedule 40 - ASTM D1785/D2665
V1.19	V1 - Vent	19 - PVC - Schedule 40 - ASTM D1785/D2665



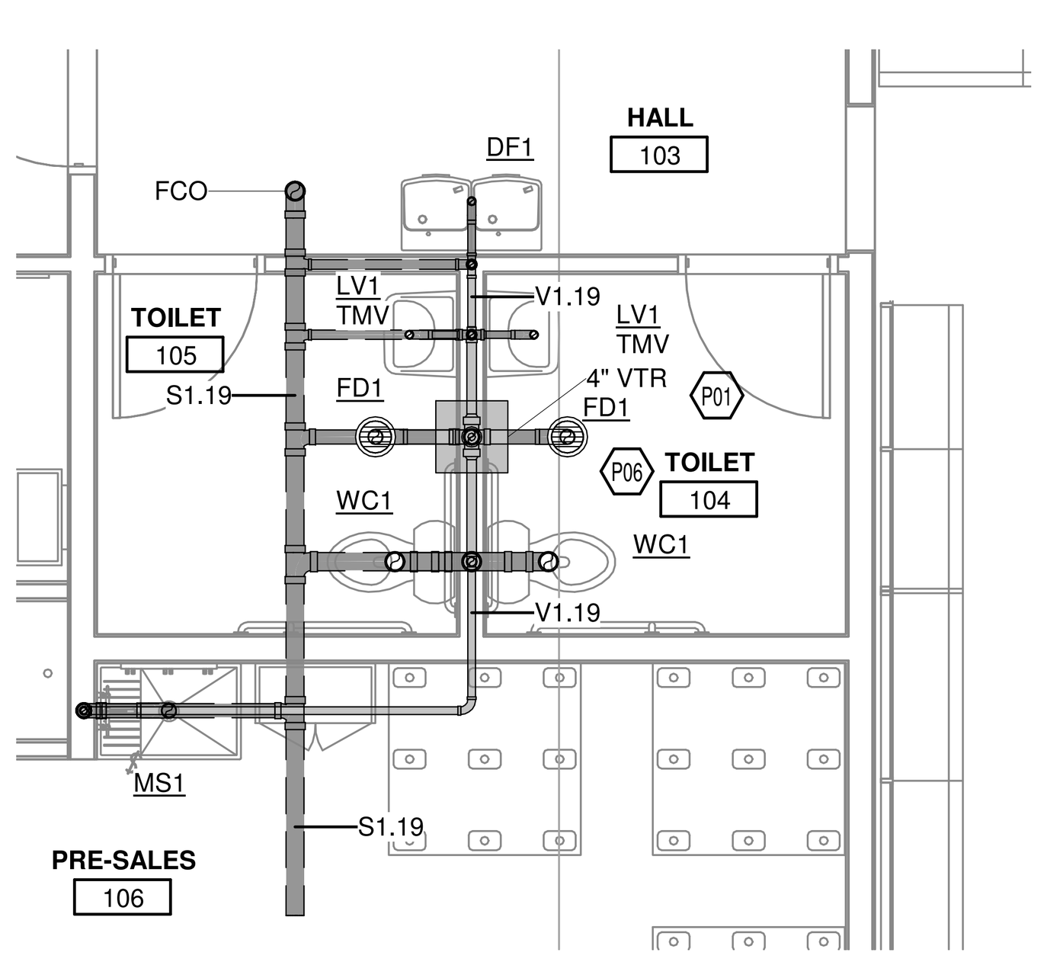
5 WATER ISOMETRIC



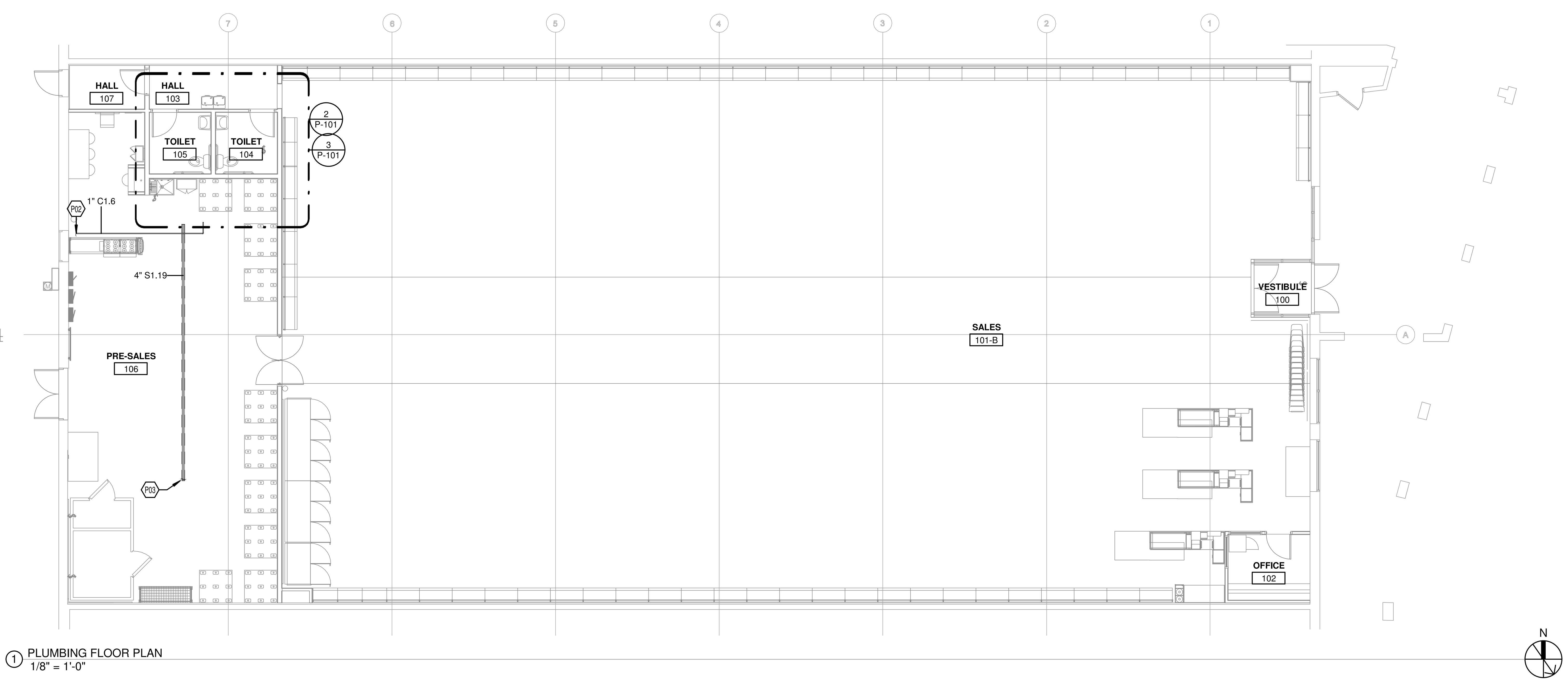
4 SANITARY AND VENT ISOMETRIC



3 ENLARGED WATER PLAN
1/4" = 1'-0"



2 ENLARGED SANITARY AND VENT PLAN
1/4" = 1'-0"



1 PLUMBING FLOOR PLAN
1/8" = 1'-0"

OWNERSHIP OF INSTRUMENTS OF SERVICE

KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783 859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
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BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD

STATE OF OHIO
KRIS T. SCHNITGEN
E-77432
REGISTERED
PROFESSIONAL ENGINEER
[illegible]
3/23/2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
PLUMBING FLOOR PLAN

SHEET
P-101

KLH PROJECT 25140

PLUMBING ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS		CONTRACTOR TYPE		MOTOR CONTROL TYPE		CONTROL TYPE		SHORT CIRCUIT RATING
DC	LOCAL DISCONNECT	EC	ELECTRICAL CONTRACTOR	CS	COMBINATION STARTER	TC	TIMECLOCK	WHERE SHORT CIRCUIT RATING CODE REQUIRED VALUE INDICATES "YES"
MC	MOTOR CONTROL (POWER)	EX	EXISTING	MCC	MOTOR CONTROL STARTER	CPT	CONTROL POWER TRANSFORMER	
SD	DUCT SMOKE DETECTOR	FC	FIRE PROTECTION CONTRACTOR	MG	MAGNETIC STARTER OR CONTACT	BAS	BUILDING AUTOMATION SYSTEM	
CN	CONTROLS	GC	GENERAL CONTRACTOR	MS	MANUAL STARTER	LOW	LOW VOLTAGE CONTROLS	APPLICABLE EQUIPMENT'S
TS	TOGGLE SWITCH	HC	HVAC CONTRACTOR	VFD	VARIABLE FREQUENCY DRIVE	LINE	LINE VOLTAGE CONTROLS	SHORT CIRCUIT RATING
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD	MFR	MANUFACTURER	MSR	MANUAL STARTER W/ CONTROL RELAY	RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT	SHALL EXCEED THE
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)	PC	PLUMBING CONTRACTOR	OV	OVERCURRENT PROTECTION	MAN	MANUAL	AVAILABLE FAULT CURRENT
FLA	OPERATING FULL LOAD AMPS	OR	OWNER OR OTHERS			FA	FIRE ALARM	VALUE INDICATED.
MCA	MINIMUM CIRCUIT AMPACITY					CO	CARBON MONOXIDE SENSOR	
CP	CORD AND PLUG CONNECTION					INT	INTEGRAL TO EQUIPMENT	
[BLANK]	HARD WIRED (WHEN INDICATED FOR DC TYPE)					ASD	AREA SMOKE DETECTOR	
						DSD	DUCT SMOKE DETECTOR	

CONNECTION MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	HP	WATTS	HTG KW	FLA (A)	MCA (A)	OCP (A)	FED FROM	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SHORT CIRCUIT RATING CODE REQUIRED?	AVAILABLE FAULT CURRENT
WH1	TANK TYPE ELECTRIC WATER HEATER	120 V	1				2						EC	EC	EC	--	--	--	--	INT	MFR	MFR	MFR	No	3682

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	LOCATION	STATUS	MANUFACTURER	MODEL	VALVE/FAUCET MFGR	VALVE/FAUCET MODEL	INT TRAP	TRAP SIZE (in)	ACCESSORIES
DF1	DRINKING FOUNTAIN			MURDOCK	A172-UG-BF		--	NO	1.25	FURNISH STD. CABINET FINISH FOUNTAIN, SUPPLY STOP & TUBE, DRAIN KIT, AND WALL HANGER KIT.
LV1	LAVATORY			ZURN	Z5344	ZURN	Z86500-XL	NO	1.5	FURNISH LAVATORY, LEAD FREE METERING FAUCET, WALL HANGER KIT, SUPPLY STOPS & TUBES, DRAIN, AND ADA PIPING PROTECTION.
MS1	MOP SINK			ZURN	Z1996-36	ZURN	Z843MI	NO	3	FURNISH VACUUM BREAKER, HOSE AND BRACKET, MOP HANGER, AND DRAIN KIT.
WC1	TANK WATER CLOSET			ZURN	Z5560		--	YES		FURNISH ADA CLOSET & TANK, ADA OPEN FRONT SEAT, SELF SUSTAINING HINGE, FLOOR FLANGE, CLOSET BOLTS & CAPS, WAX RING, SUPPLY STOP & TUBE, FLUSH CONTROL. MUST BE LOCATED ON THE WIDE/ACCESS SIE OF THE WC (SIDE OPPOSITE THE WALL).

PLUMBING WATER HEATER SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

MARK	DESCRIPTION	LOCATION	STATUS	MANUFACTURER	MODEL	EFFICIENCY	EWT (DEG F)	LWT (DEG F)	STORAGE (GAL)	WEIGHT	ACCESS	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
WH1	TANK TYPE ELECTRIC WATER HEATER			BRADFORD	RE110U6	98	56	140	10	30	PROVIDE WITH T & P RELIEF VALVE AND INTEGRAL HEAT TRAPS	WH1 - 120V/1PH, 2 KW HTG	3682

PLUMBING DRAIN SCHEDULE

MARK	DESCRIPTION	LOCATION	STATUS	MANUFACTURER	MODEL	TRAP PRIMER	TRAP SIZE (in)	ACCESSORIES/REMARKS
FD1	FLOOR DRAIN			ZURN	Z-415	YES	3	TYPE "N" STRAINER. PROVIDE WITH COMPLETE BODY ASSEMBLY WITH TRAP PRIMER CONNECTION.

PLUMBING MISCELLANEOUS EQUIPMENT SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

MARK	DESCRIPTION	LOCATION	STATUS	MANUFACTURER	MODEL
TP	MECHANICAL TRAP PRIMER			SOUIX CHIEF	695-01

PLUMBING LEGEND

SYMBOL	DESCRIPTION
PLAN-VIEW LINE TYPES	
———	WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE
– – – –	WORK SHOWN BOLD-DASHED INDICATES SELECTIVE DEMOLITION WORK
———	WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
——►	DIRECTION OF FLOW
PIPING LINE TYPES	
——S——	SANITARY WASTE PIPING
——V——	SANITARY VENT PIPING
——CW——	DOMESTIC COLD WATER PIPING
——HW——	DOMESTIC HOT WATER PIPING (120°F)
——G——	NATURAL GAS PIPING
PLUMBING ACCESSORIES	
⊢	PIPE CAP
⊢ WCO ○ CO	CO - CLEANOUT, FCO - FLOOR CLEANOUT, GCO - GRADE CLEANOUT, WCO - WALL CLEANOUT
● FD	FLOOR DRAIN
(ET)	EXPANSION TANK
PIPE VALVES	
	CONTROL VALVE , SHUT-OFF VALVE
	CHECK VALVE
TMV	THERMOSTATIC MIXING VALVE
	PRESSURE REGULATOR VALVE
	BACKFLOW PREVENTER
	TRAP PRIMER VALVE
PLUMBING SYMBOLS	
	PIPE UP
	PIPE DOWN
	PIPE TEE DOWN
	PIPE TEE UP
	PIPE CONTINUATION
	CONNECT TO EXISTING (FIELD VERIFY EXISTING UTILITY SERVICE TYPE, PRIOR TO MAKING CONNECTION)
○ VTR	VENT THROUGH ROOF

STANDARD PLUMBING ABBREVIATIONS

AAV	AIR ADMITTANCE VALVE
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS
AV	ACID VENT
AW	ACID WASTE
BAS	BUILDING AUTOMATION SYSTEM
BFP	BACKFLOW PREVENTER
BT	BATHTUB
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BWV	BACK WATER VALVE
CA	COMPRESSED AIR
CB	CATCH BASIN
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CO	CLEAN OUT
CO2	CARBON DIOXIDE
CP	CIRCULATION PUMP
CW	DOMESTIC COLD WATER
DF	DRINKING FOUNTAIN
DI	DEIONIZED WATER
DIA	DIAMETER
DN	DOWN
DS	DOWNSPOUT
DSN	DOWNSPOUT NOZZLE
EC	ELECTRICAL CONTRACTOR
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EX	EXISTING
F	FAHRENHEIT
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FLA	FULL LOAD AMPERES
FS	FLOOR SINK
FT	FEET
FW	FILTERED WATER
G	GAS
GCO	GRADE CLEAN OUT
GWH	GAS FIRED WATER HEATER
GI	GREASE INTERCEPTOR
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GW	GREASE WASTE
H&CW	HOT & COLD WATER
HB	HOSE BIBB
HC	HVAC CONTRACTOR
HD	HUB DRAIN
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
HWR	HOT WATER RETURN
IE	INVERT ELEVATION
IN WC	INCH WATER COLUMN
KW	KILOWATT
KWH	KILOWATT HOUR
LPG	LIQUID PROPANE GAS
LV	LAVATORY
MAU	MAKEUP AIR UNIT
MAX	MAXIMUM
MBH	1000 BTUH
MH	MANHOLE
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MS	MOP SINK
MV	MIXING VALVE
N	NITROGEN
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NITROUS OXIDE
NOM	NOMINAL
NTS	NOT TO SCALE
O	OXYGEN
OCP	OVER CURRENT PROTECTION
OD	OVERFLOW DRAIN
OI	OIL INTERCEPTOR
PC	PLUMBING CONTRACTOR
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
RD	ROOF DRAIN
RH	ROOF HYDRANT
RO	REVERSE OSMOSIS
RPZ	REDUCED PRESSURE ZONE VALVE
RTU	ROOF TOP UNIT
S	SANITARY
SI	SOLIDS INTERCEPTOR
SK	SINK
SOFT	SOFT WATER
SPEC	SPECIFICATION
SQ FT	SQUARE FOOT (FEET)
ST	STORM PIPING
TD	TRENCH DRAIN
TEMP	TEMPERATURE
TMV	THERMOSTATIC MIXING VALVE
TP	TRAP PRIMER
UH	UNIT HEATER
UR	URINAL
VAC	VACUUM
VFD	VARIABLE FREQUENCY DRIVE
VP	VACUUM PUMP
VTR	VENT THRU ROOF
WAGD	WASTE ANESTHESIA GAS
WB	WASHER BOX
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WH	WALL HYDRANT
WF	WATER FILTER
YH	YARD HYDRANT

KLH ENGINEERS
PUBLIC HEALTH • FIRE PROTECTION • MECHANICAL • ELECTRICAL
MECHANICAL/ELECTRICAL ENGINEERS INC.
WWW.KLHENGRS.COM
LEXINGTON, KENTUCKY
1308 ALEXANDRIA PIKE, SUITE 11
(859) 268-8181 FAX 440-8005
COLUMBUS, OHIO
614-436-8181
NEW YORK, NEW YORK

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DRAWN CAF
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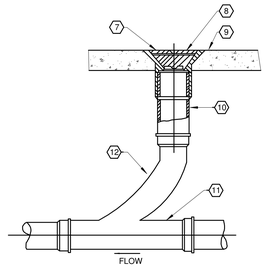
BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

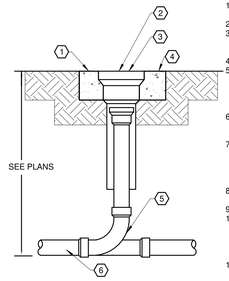
PROFESSIONAL OF RECORD

DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
PROJECT
PLUMBING SCHEDULES
DRAWING

SHEET
P-201
KLH PROJECT 25140



INTERIOR FLOOR CLEANOUT



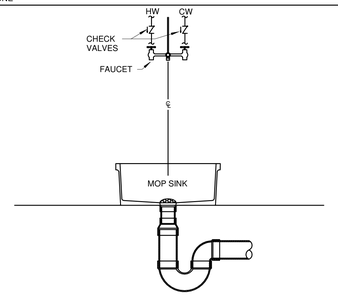
EXTERIOR CLEANOUT

KEYED NOTES:

1. 6" THICK BY 18" SQUARE CONCRETE PAD.
2. "CO" TO BE CAST IN COVER.
3. CAST IRON CLEANOUT WITH COVER FOR DUTY REQUIRED.
4. GRADE FOR PAVING.
5. CAST IRON LONG SWEEP 1/4 BEND OR CAST IRON COMB," Y 1/8" "& BEND. (USE REDUCING TYPE WHERE REQUIRED).
6. BUILDING DRAIN OR SEWER MATERIAL AND SIZE SPECIFIED.
7. CLEANOUT RATED FOR EXPECTED WHEEL LOADING REFER TO SPECIFICATIONS AND PLANS FOR TYPE AND LOCATIONS.
8. TOP FLUSH WITH FINISHED FLOOR.
9. FINISHED FLOOR LEVEL.
10. FULL PIPE SIZE EXTENSION UP TO 6" LENGTH AS REQUIRED, PROVIDE SAME SIZE AS LINE SERVED UP TO 6".
11. COMBINATION WYE AND 1/8" BEND OR AS CODE REQUIRED.
12. LONG SWEEP 1/4" BEND.

221313.00-01 - FLOOR CLEANOUTS

SCALE: NONE

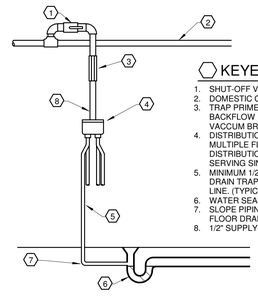


NOTES:

1. SEAL TOP OF SINK TO WALL USING A CONTINUOUS BEAD OF SILICONE CAULKING, WHEREVER SINK ABUTS WALL.
2. FOR EXTERIOR MASONRY AND SOLID WALLS APPLICATION PROVIDE SURFACE MOUNT WATER SUPPLY LINES. WHEN POSSIBLE ROUTE WATER SUPPLY LINES INSIDE INTERIOR STUD WALLS.
3. INCLUDE MOP HANGER, HOSE & HOSE BRACKET, WALL AND BUMPER GUARDS.

224000.00-02 - MOP SINK DETAIL

SCALE: NONE



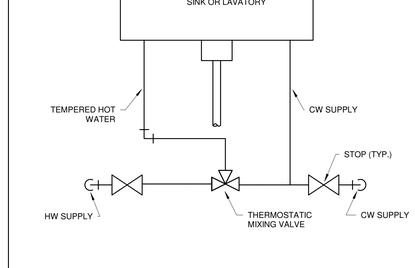
KEYED NOTES:

1. SHUT-OFF VALVE.
2. DOMESTIC COLD WATER LINE.
3. TRAP PRIMER VALVE WITH BACKFLOW PREVENTER AND VACCUM BREAK.
4. DISTRIBUTION UNIT FOR MULTIPLE FLOOR DRAINS, (OMIT DISTRIBUTION UNIT WHEN SERVING SINGLE DRAIN.)
5. MINIMUM 1/2" COPPER FLOOR DRAIN TRAP MAKE-UP WATER LINE. (TYPICAL)
6. WATER SEAL.
7. SLOPE PIPING BELOW SLAB TO FLOOR DRAIN.
8. 1/2" SUPPLY SIZE.

NOTE: TRAP PRIMER LINE SHALL NOT EXCEED 20 FT.

221119.00-34 - TRAP PRIMER DETAIL

SCALE: NONE



223001.00-01 - DT THERMOSTATIC MIXING VALVE TMV DETAIL

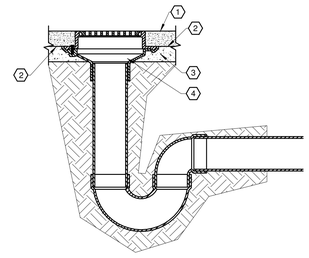
SCALE: NONE

GENERAL NOTES:

A. SLOPE FLOOR TO DRAIN TO FLOOR DRAIN.

KEYED NOTES:

1. FINISH FLOOR SLAB - SLOPE TO DRAIN.
2. WATER PROOFING MEMBRANE. FLASHING FLANGE (IF APPLICABLE).
3. STRUCTURAL SLAB
4. FLOOR DRAIN BODY.

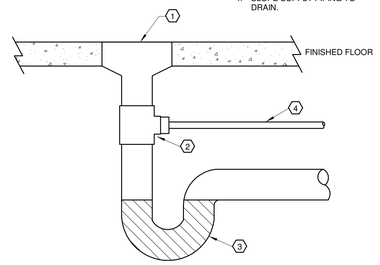


221316.00-01 - FLOOR DRAIN DETAIL

SCALE: NONE

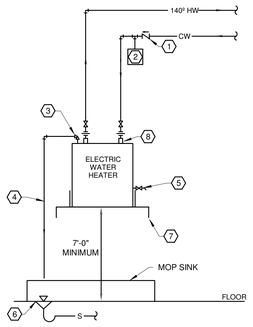
KEYED NOTES:

1. FLOOR/HUB DRAIN SUBJECT TO TRAP SEAL EVAPORATING.
2. TRAP PRIMER FITTING EQUAL TO ZURN Z1023.
3. LIQUID TRAP SEAL.
4. SLOPE SUPPLY PIPING TO DRAIN.



221119.00-02 - TRAP PRIMER CONNECTION DETAIL

SCALE: NONE

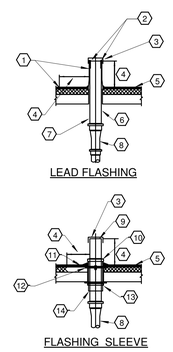


KEYED NOTES:

1. CHECK VALVE.
2. 2.2 GALLON EXPANSION TANK.
3. ASME APPROVED TEMPERATURE AND PRESSURE RELIEF VALVE, 210°F, 125 PSI.
4. REFIEF PIPE, FULL SIZE OF OPENING.
5. DRAIN VALVE.
6. FLOOR DRAIN WITH FUNNEL SPOUT (INCLUDE MOP SINK IF USING RECIRC PUMP)
7. MOUNT ON BRACKETS OR SUSPEND FROM JOISTS ABOVE.
8. HEAT TRAP NIPPLE.

223300.00-01 - SHELF - MOUNTED ELECTRIC WATER HEATER

SCALE: NONE



KEYED NOTES:

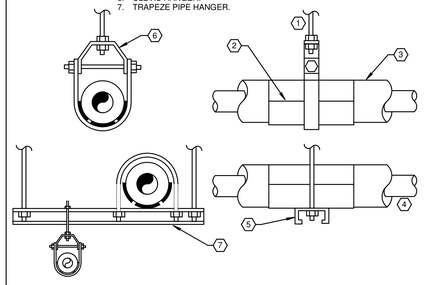
1. SHEET LEAD FLASHING MOP IN WITH ROOFING MATERIAL.
2. TURN LEAD DOWN INTO STACK.
3. VANDAL PROOF VENT CAP AS REQUIRED.
4. MINIMUM 12".
5. ROOFING SYSTEM..
6. SLEEVE THROUGH ROOFING SYSTEM AS REQUIRED.
7. INCREASER WHEN REQUIRED.
8. VENT STACK.
9. VENT STACK EXTENSION.
10. CAULK WATERTIGHT WITH LEAD AND OAKUM.
11. SHEET LEAD FLASHING CLAMPED INTO FLASHING SLEEVE.
12. FILL IN ABOVE SLEEVE AND MOP IN ROOFING IN A WATERTIGHT MANNER.
13. OPTIONAL CLAMPING COLLAR.
14. MANUFACTURED STACK FLASHING SLEEVE ANCHORED IN PLACE.

221313.00-40 - VENT THRU ROOF

SCALE: NONE

KEYED NOTES:

1. HANGER ROD.
2. GALVANIZED STEEL PIPE SHIELD AND 360° CALCIUM SILICATE INSULATION HANGER SUPPORT.
3. PIPE INSULATION.
4. PIPE.
5. UNISTRUT CHANNEL.
6. CLEVIS HANGER.
7. TRAPEZE PIPE HANGER.



220529.00-01 - PLUMBING PIPE HANGER INSTALLATION

SCALE: NONE

KLH ENGINEERS
PANDA ENGINEERING, LLC
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
LEXINGTON, KENTUCKY
1338 ALEXANDRIA PIKE, SUITE 11
LEXINGTON, KY 40504
859-254-8155 FAX 442-8000
COLUMBUS, OHIO
NEW YORK, NEW YORK

MARK	DATE	REVISIONS
		DESCRIPTION
		BY

DATE 02/24/2023
PROJECT 0018.30
DRAWN CAF
CHECKED RAL

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
PLUMBING DETAILS

SHEET
P-301

KLH PROJECT 25140

SECTION 22 05 00.00 - COMMON WORK RESULTS FOR PLUMBING
GENERAL
The General Provisions of the Contract including the General and Supplemental Conditions and General Requirements apply to the work in this section. Before submitting a bid, examine documents of all other trades, visit the site and get acquainted with all conditions that may in any way affect the execution of this contract.
Contractor shall obtain and pay for all permits, certificates of inspection and approvals required.
Submittal of a bid indicates that the contractor has examined the drawings, specifications, and had an opportunity to visit the site to be able to provide a comprehensive complete bid to include providing all materials, labor, tools, and equipment required to provide complete plumbing systems as outlined in Division-22. Clearly state all full load amps (FLA), voltages and model numbers on all submittals.
Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories. Provide wiring diagrams: For power, signal, and control wiring.
APPLICABLE STANDARDS
The installation of all plumbing work shall conform to all the following, but not limited, applicable local and municipal utility standards, rules and regulations, plumbing codes and statutes having jurisdiction.
All plumbing fixtures, equipment, accessories, and appurtenances shall be NSF/ANSI 61-372 compliant
Ohio Building Code;
Ohio Plumbing Code;
American Society for Test Materials (ASTM);
National Sanitation Foundation (NSF);
American Standards Association (ASA);
Underwriters Laboratories (UL);
National Fire Protection Association (NFPA);
National Electric Code (NEC);
PLANS AND SPECIFICATIONS
Obtain the latest owner design and construction standards document(s). Comply with all owner-specific requirements in addition to requirements set forth in these specifications and accompanying drawings. Should there be a conflict, the owner's standards shall take precedence, unless prevailing codes and regulations mandate otherwise.
The drawings that accompany these specifications are diagrammatic. Wherever possible make use of submittal data and verify all dimensions on site. Provide additional fittings as required by site conditions and codes at no additional cost to conform to the structure, avoid obstructions, provide required service clearances and preserve headroom. Do not scale from drawings, all measurements should be taken in the field.
EXISTING CONDITIONS
Where new plumbing systems are required to be connected to existing plumbing systems, provide all camera scoping and dye testing necessary to verify the exact location, size, invert elevation, pressure, pipe integrity, and system type to ensure a proper connection is executed. The contractor shall notify the engineer immediately if it is found a proper connection cannot be executed.
CUTTING, PATCHING AND DEMOLITION
The contractor shall be responsible for damages to the grounds, walks, road, building, piping systems, electrical systems, and their equipment and contents, caused by leaks in the piping systems being installed or having been installed by him. The contractor shall repair at his expense all damaged so caused. All repair work shall be done as directed by and in such manner as satisfactory to the architect.
Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the contractor's guarantee bond nor relieving the contractor of his responsibilities during the bonding period.
Cut and drill all openings in roofs, walls, and floors required for the installation. Neatly patch all openings cut.
Hold cutting and patching to a minimum by arranging with other contractors for all sleeves and openings before construction is started. When drilling/cutting concrete slabs, utilize ground penetrating radar (GPR) and/or X-ray scanning equipment to verify the location is free from obstructions, including but not limited to: structural rebar/strands/tendons, electrical conduit/wiring, and/or piping/ductwork.
EXCAVATION AND BACKFILL
Perform all excavation and backfilling required for this work. Contractor shall consult with utility company prior to beginning excavation. At a minimum, all piping shall be laid on a bed of sand, 6" deep, well tamped into place and properly graded to permit the pipe to have an even bearing throughout its entire length. Sand shall be installed around the piping in 6" lifts to a point 6" above the piping.
WARRANTY
This contractor shall warrant that all work under this section shall be free of defective work, materials and parts for a period of one year after acceptance of the work and shall repair, revise, and replace, at no cost to the owner, any such defects occurring within the warranty period.
Use of Electronic Drawings from the Owner's Design Team
If expressly permitted by the Owner and the terms of the Contract, editable electronic drawings may be made available for the creation of shop and as-built drawings upon request. Drawings will be made available at the discretion of the Engineer. "Request Drawings" form can be accessed, filled out and submitted at http://www.klhengrs.com (right hand side of page - Contractor Resources). Direct access to this form can be found here: http://files.klhengrs.com/requestdrawings.html

22 05 03.00 - SUBMITTALS FOR PLUMBING
Provide submittals in accordance with the Contract Documents. In addition to Division 01, the Contractor is advised to review and comply with the requirements articulated within each Division and within each section of that Division.
Some Divisions may include a division-specific "Submittal Requirements for ,..." section. Where this section exists, it articulates additional requirements for submittals that apply to the work of that Division.
The following requirements help to identify, track and keep the project organized for all parties involved. They are necessary to ensure a timely turnaround and an appropriate technical review. Submittals that do not conform to the administrative requirements are rejected and returned, without technical review.
Supply submittals for each section: Submittals shall be supplied on a section-by-section and type-by-type basis. For example, independent product data submittals shall be furnished for each section that requires product data submittals. Independent shop drawing submittals shall be furnished for each section that requires shop drawings.
Separate PDF file packages shall be supplied for each section, for each submittal type. Each PDF shall represent a single standalone submittal.
Include a transmittal: Transmittals shall enumerate each submittal for each section of each type and iteration.
Include cover sheet / title page: The cover sheet shall include the information identified in the contract documents. It shall be included as the first page of each electronic and/or hardcopy document-based submittal. An editable and printable PDF form created with editable fields and specification compliant appearance is available from KLH upon request. It is also downloadable from the KLH website at www.klhengrs.com.
Include an index: The index shall enumerate the contents of the submittal.
Include checklists: Where checklists are included with the specifications, complete and include them within the appropriate submittal. Supply complete submittals: Complete submittals of each type are required. Partial submittals will be rejected. Where a section requires a product data submittal, all product data for that section shall be supplied together, at one time, as one complete submittal. When resubmittal is required (e.g. Revise and Resubmit) the revised submittal shall be more complete, more accurate and more contract-compliant than its rejected predecessor. The submittal number (for each section and type) shall increment for each subsequent submittal (00 – Original submission, 01 – First Resubmission, 02 – Second Resubmission, etc…).
Resubmittals shall include a copy of the reviewers comments supplied with the prior submittal rejection and shall be amended with a description of the specific action taken to comply with the reviewer's comments. The absence of this on resubmittal is cause for rejection.
Name electronic files to match the submittal ID and cover sheet. The electronic file name of submittals shall match the submittal ID included on the submittals cover page.
For example: The original/first product data submittal for Section 220523 would be labeled as "220523.00-PD-00"; the first resubmittal of same shall be labeled "220523.00-PD-01". The original/first shop drawings submittal file for the same section would be labeled "220523.00-SD-00"; the first resubmittal of same shall be labeled "220523.00-SD-01".
If expressly permitted by the Owner and the terms of the Contract, editable electronic drawings may be made available for the creation of shop and as-built drawings upon request. Drawings will be made available at the discretion of the Engineer.
"Request Drawings" form can be accessed, filled out and submitted at http://www.klhengrs.com (right hand side of page - Contractor Resources). Direct access to this form can be found here:
http://files.klhengrs.com/requestdrawings.html

22 05 23.00 - GENERAL DUTY VALVES
Submittal Requirements
Product Data: For each type of product indicated.
GENERAL
Provide stops or isolation valves on domestic water supplies to isolate hot and cold water to each fixture, including all equipment and equipment provided by others. Access shall be provided to all valves. Provide fire-rated access panel(s) to maintain full access to concealed valves.
Ball valves - 2 inch and smaller: Lead-Free, 150 psi @ 250°F minimum pressure rating, cast bronze body, blowout-proof stem.
Butterfly Valves – 3" and up: Ductile Iron Butterfly Valve, 200 WOG, Lug Body, Lever Operator.
Approved Manufacturers: Milwaukee Valve, NIBCO, and Watts Water Technologies Co.
Valves to conform to: MSS-SP-110 Type I/ MSS-SP-67 Type I, NSF/ANSI -61/372.
Check valves - to be same size as system piping it accompanies. Lead-free, bronze body, 250 WOG, non-shock, spring check valve. Conforms to the following standard(s): MSS-SP-80 I, NSF/ANSI -61/372

22 05 29.00 – HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT
GENERAL
Provide hangers, supports, clamps, attachments, and structural steel members where required to support piping and equipment from building structure.
Support of piping from the decking or equipment is prohibited.
Arrange for grouping of parallel runs of horizontal piping supported together on field-fabricated, heavy-duty trapeze hangers where possible. Trapeze hangers shall conform to: MSS SP-69, Type 59. Horizontal-Piping Clamps: Provide Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3) for suspension of pipes requiring clamp flexibility and up to 4 inches of insulation.
Vertical-Piping Clamps: Provide extension pipe or Riser Clamps (MSS Type 8) for support of pipe risers.
Hangers shall be sized to allow insulation to pass through unobstructed.
Hanger and support types:
Hangers: Provide adjustable, Steel Clevis Hangers (MSS Type 1) for suspension of noninsulated or insulated, stationary pipes. Horizontal-Piping Clamps: Provide Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3) for suspension of pipes requiring clamp flexibility and up to 4 inches of insulation. Vertical-Piping Clamps: Provide extension pipe or Riser Clamps (MSS Type 8) for support of pipe risers.

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Hangers: Provide adjustable, Steel Clevis Hangers (MSS Type 1) for suspension of noninsulated or insulated, stationary pipes. Horizontal-Piping Clamps: Provide Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3) for suspension of pipes requiring clamp flexibility and up to 4 inches of insulation. Vertical-Piping Clamps: Provide extension pipe or Riser Clamps (MSS Type 8) for support of pipe risers.

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Horizontal-Piping Clamps: Provide Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3) for suspension of pipes requiring clamp flexibility and up to 4 inches of insulation. Vertical-Piping Clamps: Provide extension pipe or Riser Clamps (MSS Type 8) for support of pipe risers.
Hangers and supports shall be placed at all changes in direction, valves and equipment.
The maximum horizontal spacing of cast-iron pipe hangers can be 10' where 10-foot lengths of pipe are installed.
Piping shall also be supported at each change in direction, valves and equipment.
Clevis-type hangers shall and supports shall conform to: MSS SP-58, Type 1-58..

22 05 53.00 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT
PIPING
Provide self-adhesive pipe labels with white background and black lettering, contact type with permanent adhesive backing. Include identification of piping service using same designations or abbreviations as used on the drawings and an arrow indicating flow direction.
EQUIPMENT
Provide self-adhesive plastic equipment labels with white background and black lettering, contact type with permanent adhesive backing, 160 degree F temperature. Include equipment's drawing designation and specification section number where equipment is specified.

22 07 19.00 – PLUMBING SYSTEM INSULATION
GENERAL
Insulation shall be listed and labeled per ASTM E 84 for plenum installations employing slip on techniques.
Provide insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of piping including fittings, valves, and specialties.
Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.
PIPING SYSTEMS REQUIRING INSULATION
Insulate domestic cold water piping, associated fittings and valves with flexible elastomeric 1/2" wall thickness insulation.
Insulate domestic hot water piping, associated fittings and valves with 1" thick flexible elastomeric, 1-1/2" thick fiberglass insulation or per local energy code, whichever greater.
Insulate domestic hot water return piping, associated fittings and valves with 1" wall thickness insulation or per local energy code, whichever greater.
Insulate waste piping above ceilings that receive condensate with 1/2" wall thickness insulation.
Insulate exposed sanitary drains, domestic water, domestic hot water, and stops for plumbing fixtures for people with disabilities.
FLEXIBLE ELASTOMERIC INSULATION
Closed-cell, sponge- or expanded-rubber materials.
Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials.
Adhesives, Sealers, and Protective Finishes: As recommended by insulation manufacturer for applications indicated.
Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following:
Aeroflex USA, Inc.; Aerocel., Armacell LLC; AP Armaflex.,K-Flex USA;.
FIBERGLASS INSULATION
Fiberglass piping insulation: ASTM C 547, Class 1
Encase pipe fittings insulation with one-piece pre-molded PVC fitting covers.
Vapor Barrier Material: Paper-backed aluminum foil, except as otherwise indicated, strength and permeability rating equivalent to adjoining pipe insulation jacketing.
Staples, Bands, Wires, and Cement: As recommended by insulation manufacturer for applications indicated.
Adhesives, Sealers, and Protective Finishes: As recommended by insulation manufacturer for applications indicated.
Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following:
Armstrong World Industries, Inc., Owens-Corning Fiberglass Corp., Johns Manville.
ADHESIVES
Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.
Insulation for handicap accessible fixtures
All handicap lavatory p-trap and angle stop assemblies shall be insulated with trap wrap protective kit manufactured by Proflo model PF202WH or equal.
Abrasion resistant, anti-microbial vinyl exterior cover shall be smooth. For traps, the insulation shall have a cleanout nut cap to allow service to the trap without disassembly. For stops, the insulation shall have a lock lid that prevents tampering but allows access without removal of the insulation. Fasteners shall remain substantially out of sight.
Manufacturers: subject to compliance with requirements: Proflo, Truebro, Plumberex

22 11 16.00 – DOMESTIC WATER PIPING
Submittal Requirements
Product Data: For each type of product indicated.
GENERAL
Install piping concealed from view unless noted otherwise, free of sags and bends. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction. Clean and disinfect potable domestic water piping using approved procedures by authorities having jurisdiction or AWWA C651, whichever is more rigorous.
Install at right angles; diagonal runs are prohibited unless otherwise shown. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
Coordinate all piping with all other trades.
Provide water pressure regulators where necessary to limit the incoming water pressure to 80 psi inside the building.
DOMESTIC WATER PIPING ABOVE GROUND:
Hard copper tube, ASTM B 88, Type L; wrought-copper, solder-joint fittings; and soldered joints.
Solder Filler Metals: ASTM B 32, lead-free alloys.
Flux: ASTM B 813, water flushable.
Type "L"; copper pressure-seal joint; and pressure-seal joint systems.
CATHODIC PROTECTION
Provide dielectric insulation at points where copper or brass pipe comes in contact with ferrous piping, reinforcing steel or other dissimilar metal in structure.

22 11 19.00 – DOMESTIC WATER PIPING SPECIALTIES
Submittal Requirements
Product Data: For each type of product indicated.
Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following:
Conbraco Industries, Inc., Watts Water Technologies Co., Zurn Industries, LLC.; Thermomegatech, Acorn Engineering Co., and Caleffi, N. America., MIFAB, Inc., Precision Plumbing Products, Inc., Sioux Chief Manufacturing Company, Inc., Jay R. Smith Mfg. Co., Provent Systems, Rector Seal.
TRAP-SEAL PRIMER DEVICE
The plumbing contractor shall provide trap primers for all floor drains. Provide access panel in wall or ceiling for all concealed trap primers. Install trap seal primer valves with outlet piping pitched down toward drain trap a minimum of 1% and connect to floor drain body, trap or inlet fitting. Coordinate exact location with architect prior to installation.
WATER HAMMER ARRESTERS
Provide water-hammer arresters in water piping according to PDI-WH 201.
Standard: ASSE 1010 or PDI-WH 201.
Type: Metal bellows or copper tube with piston.
Size: ASSE 1010, sizes AA and A through F, or PDI-WH 201, sizes a through F.

22 13 16.00 - SANITARY, WASTE AND VENT PIPING SYSTEM
Submittal Requirements
Product Data: For each type of product indicated.
GENERAL
Provide a complete soil, waste and vent system in the building and on the site as indicated on the drawings and as specified herein.
Above ground soil, waste and vent piping within buildings including soil stacks, vent stacks, horizontal branches, traps, and connections to fixtures and drains.
Underground building drain piping including mains, branches, traps, connections to fixtures and drains, and connections to stacks, terminating at connection to existing sanitary sewer.
INTERIOR PIPING ABOVE GRADE
Solid wall schedule 40 PVC pipe and fittings 1-1/2" and larger shall conform to ASTM D 2665 / ASTM D 1785 DWV. Fittings shall conform to ASTM D 2665, made to ASTM D, DWV patterns and fit schedule 40 pipe.
Contractor shall maintain integrity of fire ratings. Piping shall not be run in plenum spaces and contractor shall provide intumescent collars when penetrating a rated wall, floor, or other assembly
Piping alignment shall be as indicated on the drawings using approved wye branches or eight bands for direction changes and shall be surely supported or secured to maintain such alignment.
Soil, waste and vent piping smaller than 1-1/2" shall be Type "M" copper and conform to ASTM B-306.
BELOW GRADE PIPING
Solid wall schedule 40 PVC pipe and fittings 2" and larger shall conform to ASTM D 2665 / ASTM D 1785 DWV. Fittings shall conform to ASTM D 2665, made to ASTM D, DWV patterns and fit schedule 40 pipe.
Piping alignment shall be as indicated on the drawings using approved wye branches or eight bands for direction changes and shall be surely set and buried to maintain such alignment.
Soil, waste and vent piping smaller 1-1/2" and smaller below grade shall not be permitted
Slope piping according to local codes.
Protection shall be given to all footings and other structural elements during underground work adjacent to such items. Refer to architectural and/or structural drawings for locations.
Vent all fixtures, connect branch vents to main vent risers at least six inches above flood rim of fixtures. Pitch vent lines back to soil or waste pipe, free of drops and sags. Cleanouts shall be full size of pipe up to 4", and 4" for larger sizes. For underground and concealed lines, provide cleanouts in accessible positions at each right angle turn and at intervals not to exceed fifty feet. In floors, install flush with finish floor with extension pipe from cleanout wye.

22 13 19.00 - SANITARY WASTE PIPING SPECIALTIES
Submittal Requirements
Product Data: For each type of product indicated.
CLEANOUTS
Floor cleanout equal to Zurn Z-1400 adjustable floor cleanout.

Provide a sanitary tee with threaded cap cleanout plug for changes-in-direction in aboveground horizontal waste piping.
Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following:
Jay R Smith MFG. Co., Watts Drainage Products Inc., Zurn Plumbing Products Group.
FLOOR DRAINS
Provide floor drains in compliance with ASME A112.6.3.
Provide floor drains with trap-seal primer fitting. All floor drains located in rooms with tile floors shall be provided with manufacturer's standard square grate, unless noted otherwise.
Refer to plumbing drain schedule for project specific floor drain manufacturers and models.
Manufacturers: Subject to compliance with requirements, available products that may be incorporated into the work include, and are limited to, the following:
Jay R Smith MFG. Co., Watts Drainage Products Inc., Zurn Plumbing Products Group.

22 30 01.00 - POINT OF USE THERMOSTATIC MIXING VALVES
Submittal Requirements
Product Data: For each type of product indicated.
GENERAL
Thermostatic mixing valves shall be provided for all public hand washing sinks and lavatories and shall be ASSE 1070 listed, lead free, sweat connections, 125 psi operating pressure and have integral checks. Mount under sink or lavatory. Set outlet temperature of thermostatic mixing valve to 105 degrees F.
Point-of use thermostatic mixing valves shall be equal to Powers LFG480. Route tempered water to hot water side of sink and lavatories.
Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, and are limited to, the following:
Symmons, Acorn Engineering, Powers, Bradley

22 33 00.00 - COMMERCIAL ELECTRIC, DOMESTIC WATER HEATERS
Submittal Requirements
Product Data: For each type of product indicated.
TANK TYPE
Provide commercial electric tank type water heater as scheduled. Comply with UL 1453 Standard.
Provide corrosion resistant metal drain pan with raised edges at the base of the water heater and include drain outlet.
Provide field fabricated piping heat trap arrangement according to ASHRAE/IESNA 90.1.
Provide combination temperature and pressure relief valve, ASME rated and stamped with relieving capacity at least as great as heat input and pressure setting less than water heater's rated operating pressure.
Provide water heater stands or mounting brackets with manufacturer's factory fabricated steel capable of supporting water heater.
Provide steel pressure-rated thermal expansion tank constructed with welded joints and factory-installed butyl rubber diaphragm, pre-charged to minimum system operating pressure at tank.
Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, and are limited to, the following:
Bock Water Heaters, Bradford White Corp., Lochinvar Corp., State Industries.

22 40 00.00 - PLUMBING FIXTURES
Submittal Requirements
Product Data: For each type of product indicated.
GENERAL
Refer to plumbing fixture schedule and install per the manufacturer's installation and operation manual.
Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, and are limited to, the following:
American Standard, Kohler Co., Zurn Industries, LLC.

KLH ENGINEERS
PROFESSIONAL ELECTRICAL ENGINEERS, INC.
MECHANICAL ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
LEXINGTON, KENTUCKY
1338 ALEXANDRIA PIKE, SUITE 11
859-268-8100 FAX 440-8005
COLUMBUS, OHIO
NEW YORK

MARK	DATE	DESCRIPTION
		BY
		REVISIONS

DATE 02/24/2023
PROJECT 0018.30
DRAWN CAF
CHECKED RAL

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.993.3010

PROFESSIONAL OF RECORD

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
DRAWING
PLUMBING SPECIFICATION

SHEET
P-401
KLH PROJECT 25140

ELECTRICAL SPECIFICATIONS

The General Provisions of the contract apply to the work in this section. Before submitting a bid, examine documents of all other trades, visit the site and get acquainted with all conditions that may in any way affect the execution of this contract. Include all labor, material, equipment, tools and incidental costs to provide all work in contract documents. Apply for, secure and pay for all required permits.

All materials and methods shall be in accordance with applicable codes, regulations and/or ordinances and meet the approval of local inspection authority having jurisdiction. The latest edition of NFPA 70 (National Electrical Code, NEC) and NFPA 72 shall be the minimum requirement for all work.

All materials and equipment shall be new and shall bear a UL listing or similar testing agency listing. Material and equipment shall be suitable for installed environment, temperature range, strength, durability, voltage, etc. Install all equipment with code required and manufacturer recommended minimum clearances for operation and maintenance.

Perform work under this contract in close harmony with other contractors so completed work shall present a neat and workmanlike installation. Consult all other disciplines drawings and coordinate with contractors in field before performing work so that this work will not interfere with other disciplines work.

Exposed finished materials and equipment shall be carefully cleaned and wiped to remove grease, smudges, fingerprints, dust and other spots. During the progress of the work, the electrical sub-contractor shall carefully clean the job site and shall leave the premises and all portions of the building in which he is working free of debris and in a clean and safe condition.

Neatly provide all cutting and patching required for the admission of work. Patching shall match quality of surroundings to owner's satisfaction. Seal all new floor, ceiling, wall, slab, etc. penetrations to match or exceed existing assembly fire ratings.

Provide two clean sets of contract drawings reserved for showing a complete picture of the work as actually installed at completion of project. Provide two neatly bound and tabbed copies of all maintenance books, instruction books and parts list pertaining to all equipment furnished.

All work, materials, and equipment shall have a one year warranty after acceptance of the work by the Owner. Any defective items shall be removed and replaced at the electrical sub-contractor's expense and to the satisfaction of the engineer and owner's representative. Train the owner's representatives of each system to the satisfaction of the owner's representative.

Provide product data submittals for each of the following sections. Provide submittals as individual PDFs by section. Provide cover sheet for and naming of each submittal per
http://www.klhengrs.com/the-firm/contractor-resources.html

26 05 19.00 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
26 05 26.00 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
26 05 29.00 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
26 05 33.00 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
26 09 23.00 LIGHTING CONTROL DEVICES
26 24 16.00 PANELBOARDS
26 27 13.00 ELECTRICITY METERING
26 27 26.00 WIRING DEVICES
26 29 13.13 ACROSS-THE-LINE MOTOR CONTROLLERS
26 51 00.00 LIGHTING
28 46 21.25 FIRE ALARM SYSTEM EXTENSION

All metallic conduit, surface raceways, wireways, supports, cabinet and equipment shall be grounded per NEC.

Provide temporary lighting, power and life safety measures in areas affected by construction.

Where demolition is required, selectively demolish equipment, conduit, wiring, devices, etc. to accommodate project demolition and as required to accommodate new construction. Restore power to all downstream devices not affected by demolition. Reinstall work that is intended to be operational after demolition and construction is complete. Appropriately and legally dispose of items demolished.

Provide 600V rated conductors (#12 AWG minimum) wire with color coded insulation/jacket to identify phases, grounded conductor and grounding conductor. Insulation shall be THHN/THWN-2 unless installed underground or subject to moisture where it shall be XHHW-2. Provide copper conductors unless stated otherwise on drawings. Provide insulated equipment grounding conductor for each branch circuit. Do not share neutrals. Provide copper jumpers for final terminations of aluminum conductors where required by equipment.

Provide Type MC cable for feeders and branch circuits indoors, Schedule 40 PVC conduit for underground wiring, and EMT conduit for other applications. Conduit and cable shall be independently supported directly from structural members by approved straps, fasteners and hangers. Conduit and cables shall be neatly installed parallel and perpendicular to structural members. Noncompliant work shall be removed and replaced to satisfaction of owner. Do not support conduit or cables from roof deck or install within 4" of roof deck. Provide flexible conduit or fittings, and leave slack in cables, at all expansion joints. Provide separate raceways for normal and emergency branches of power compliant. Install raceways and cables concealed in new construction. Provide surface raceway for existing surfaces.

Recessed steel boxes shall not be less than 4" x 1-1/2" deep. No ganged boxes. Cut in box neatly. Verify all box/device mounting heights and locations in field with Owners representative.

Where technology devices shown on plan, provide 4" x 2-1/8" deep square box, with at least (1) 1" conduit (with plastic bushings or insulated throats at end fittings) to above accessible ceiling and pull string to facilitate future cable installation. Where no accessible ceiling route to technology room. Provide blank wall plates for boxes that are not immediately deviced.

Provide engraved plastic laminate naming identification for all electrical equipment and circuit identification for junction boxes and conductors. Provide accurate typed panel schedules.

Provide all necessary electrically related work as required to render all fire protection, plumbing, mechanical, electrical, technology, architectural and Owner equipment fully operational and fully compliant with manufacturer instructions and codes. Review equipment submittal data and coordinate with installing contractors to ensure the correct size, rating and quantity of conductors and overcurrent protective devices (OCP's) are provided. Provide electrical disconnect ahead of all equipment. Locate electrical equipment to maintain clearances required by respective manufacturers and by NEC 110.26. Provide boxes and conduits to controlled equipment for control and monitor devices of other trades (thermostats, other environmental control devices, alarms, etc.).

Provide exterior photocells equal to Tork 210# series for surface mount and Tork 30## for flush applications.

Provide occupancy sensor switches equal to Wattstopper DW-100-24.
Provide ceiling mounted occupancy sensors equal to Wattstopper DT-300. Provide enough sensors for 100% coverage without nuisance tripping. Provide BZ-150 power packs and other accessories for a complete system.

Provide specification grade wiring devices. Provide WR type and NEMA 3R while-in-use covers for wiring devices installed outdoors and other areas exposed to water. All GFCI receptacles shall be accessible or protect the circuit with a GFCI circuit breaker. Device colors shall be ivory. Provide standard size stainless steelwall plates. Provide neutral in each switch box. Unless noted otherwise, install receptacles 18" to center and switches 46" to center. Ensure that lighting control devices are fully compatible with luminaires controlled.

Provide motor starters, manual or combination type, of sizes, ratings and control types as required per coordination schedules and per requirements of equipment that will actually be provided.

Provide luminaires and/or luminaire outlet boxes to properly support luminaire weight. All luminaires installed in suspended ceiling systems shall be independently supported directly to the building structural system. Connect all emergency lighting ahead of switching providing additional unswitched "hots" where required for operation.

Provide all work in strict compliance with all prevailing codes, standards and ordinances. Provide a complete multiplexed intelligent addressable fire alarm system throughout the building. All equipment and devices shall be UL listed and labeled. Provide the final Fire Alarm System design completed by an approved and certified Fire Alarm System contractor, who shall coordinate the final design with all national and local codes, regulations and AHJ (Authority/Authorities Having Jurisdiction). Fire alarm contractor with system manufacturer shall provide detailed shop drawings including floor plans, wiring diagrams, risers, battery calculations and product data. Demonstrate testing to AHJ as required for occupancy. Provide 120V power to new battery cabinets. Furnish and wire duct smoke detectors where shown, interlock to shutdown mechanical equipment, and programmed to report as alarm or supervisory signal to the fire alarm system and monitoring central station based on prevailing codes and direction from AHJ – verify in field with AHJ). For smoke or fire/smoke dampers, provide 120V power and smoke detector interlocked to damper. Receive, install, wire, connect and test owner-furnished digital communicator - programmed to report to the owner's UL approved Central Station monitoring agency. Install new wiring in EMT unless special permission granted from Owner to "free-air" cable using J-hooks. Provide all specified items, plus all incidentals and required items necessary to provide a complete and working system, installed in a professional manner, and in accordance with applicable codes and industry accepted "best practices", including all monitoring and alarming associated with fire suppression systems. Provide isolation modules and wiring configurations (using Class A, or Class A and B, pathways) for fault isolation so that any one fault will not cause any part of the system to go down other than the zone of the fault; provide zoning compliant with prevailing codes, with at least one zone per floor (more if areas are subdivided into multiple zones by fire and/or smoke barriers). Initiating Device, Notification Appliance and Signaling Line Circuits: Class A or Class A and B (provide Class A for circuits that provide isolation module protection for zones). Provide power-limited cables that have a temperature rating of at least 60 degrees C; provide additional marking for conductor size and temperature ratings for cables rated in excess of 60°C (140°F). Program detailed device and room descriptions so that any trouble, supervisory or alarm condition clearly annunciates floor level, room number, room name, device, and indication of normal, alarm, trouble and supervisory status at fire alarm control panel(s), at fire alarm annunciator panel(s) and at the supervising central station. Provide documentation (hard-copy and digital) of fire alarm system documentation, and provide a single documentation cabinet at the main fire alarm control unit, including Chapter 7. Qualifications of system designers, installers, programming personnel, inspection personnel, testing personnel and maintenance personnel shall be trained and certified by manufacturer for installation of units required for this Project, and shall be qualified in compliance with requirements prevailing codes, standards and authorities. Refer to Division 26 sections for requirements associated with all electrical work not specifically defined in this section, which shall be considered additional and concurrent scope of work that is associated with work of this section. Provide submittals for equipment, materials and systems specified in this section. Include cuts, descriptive information, technical data, wiring diagrams, plan-view layouts, legend, point-to-point wiring, etc. Identify all information that is specific to this project. Submit to applicable authority or authorities having jurisdiction and obtain fire alarm permit prior to submitting to consultant for review.

Provide conventional photoelectric duct smoke detector with sampling tube. Install the duct detector in an indoor accessible location. Provide sampling tube, test station and all other required accessories.

Install all duct smoke detectors in the return air duct/plenum of the respective air handling equipment, or
in multiple locations of the return duct branches if necessary to meet the minimum straight distances that are required by manufacturer of smoke duct detectors. Refer to HVAC ductwork drawings, and to HVAC installer's coordination drawings, for configurations when determining actual locations and quantities of duct smoke detectors. Where more than one detector is already indicated associated with a particular piece of air handling equipment, there are special reasons for the additional detectors (i.e. split returns, return risers serving multiple floors, etc.); coordinate all locations for same with the HVAC installer.
Provide all required power and control wiring so that upon detection of smoke, the following sequence of operations occurs: An alarm signal is sent to alarm system (fire alarm system or remote test station or both as applicable); The HVAC unit shut down (including applicable dampers); Associated smoke dampers close, if present (wired to automatically re-open on duct detector reset).

Provide keyed test/monitor station (with status/alarm/trouble indicating LED's) on the ceiling or wall (flush in finished areas) beneath the duct detector at discreet but readily visible location as determined in field unless specific location is shown on drawings. Provide engraved (or approved equivalent method) plate at each remote station to read: "#### Duct Smoke Detector", where #### is the equipment identification used on drawings. Connect to fire alarm system.

If required by authority having jurisdiction, provide identified key-operated air handler reset station on the ceiling or wall (flush in finished areas) beneath the air handler at discreet but readily visible location as determined in field unless specific location is shown on drawings. Provide engraved (or approved equivalent method) plate at each reset station to read: "#### Reset Switch to reset #### after a duct smoke detection event has been cleared and the fire alarm system has been reset.", where #### is the equipment identification used on drawings. Coordinate with authority having jurisdiction for verification of, or required modification to, the language to be engraved. Connect to fire alarm system.

Provide 20A/120VAC power as required to energize components. This requirement applies whether or not such power work is shown on the drawings. Dedicate branch circuits serving fire alarm related equipment to fire alarm related equipment only.

Properly identify system components, wiring, cabling, and terminals. Install framed instructions in a location visible from fire-alarm control unit. Provide red color on jacket of all fire alarm cables associated with the fire alarm system. Provide red-colored breaker handle and red-colored lock-on device at source circuit breakers that feed fire alarm related equipment. Provide red coloring for all fire alarm system junction boxes, along with identification.

TECHNOLOGY LEGEND

SYMBOL	DESCRIPTION
TECHNOLOGY (ROUGH-IN ONLY)	
COORDINATE WITH SYSTEM INSTALLERS PRIOR TO INSTALLATION FOR LOCATIONS, HEIGHTS, CONDUIT TERMINATIONS, ETC. ALL OUTLET BOXES FOR ROUGH-IN SHALL BE MINIMUM 2-1/4" DEEP.	
	COMMUNICATION OUTLET - VOICE, DATA, VOICE/DATA RESPECTIVELY LEFT TO RIGHT - PROVIDE 4"X4" OUTLET BOX WITH 1-GANG RING AND (1) 1" CONDUIT TO ABOVE ACCESSIBLE CEILING UNLESS NOTED OTHERWISE.

GENERAL ELECTRICAL NOTES

A. BEFORE SUBMITTING THE BID PROPOSAL, THE CONTRACTOR SHALL VISIT THE JOB SITE AND FULLY ACQUAINT HIMSELF WITH THE JOB CONDITIONS AND VERIFY SERVICE CONNECTIONS, INCLUDING ALL NECESSARY PULL BOXES, SIZE AND NUMBER OF CONDUITS AND CONDUCTORS, SWITCH GEAR, METERING, CABLE CHARGES ETC., WHETHER SHOWN ON DRAWINGS OR NOT BUT REQUIRED BY SERVICE UTILITY CO. TO MAKE A COMPLETE AND OPERATING ELECTRICAL SERVICE WITHOUT ADDITIONAL COST TO THE TENANT. VERIFY SERVICES AND CHARGES WITH POWER AND TELEPHONE COMPANIES.
B. CONTRACTOR SHALL VERIFY ALL REQUIREMENTS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND SPECIFICATIONS, AND SHALL FURNISH AND INSTALL ALL ITEMS REQUIRED BY THE CONTRACTOR FOR COMPLETE INSTALLATION.
C. VERIFY LOCATION AND REQUIREMENTS OF MECHANICAL EQUIPMENT WITH CONTRACTOR, (DOOR HEATERS, UNIT HEATERS, ROOF TOP UNITS, TRANSFER FANS, ETC.).
D. ELECTRICAL WORK AND MATERIALS SHALL COMPLY WITH LATEST 'N.E.C.' AND ALL LOCAL CODES AND ORDINANCES. IN CASES OF CONFLICT AMONG REQUIREMENTS, THE MOST RESTRICTIVE SHALL APPLY.
E. ALL CONDUCTORS SHALL BE # 12 AWG COPPER. EXCEPT AS OTHERWISE NOTED OR AS REQUIRED FOR VOLTAGE DROP (SEE SPECS.). ALL CONDUIT SHALL BE 1/2" MINIMUM EXCEPT AS OTHERWISE NOTED OR AS REQUIRED FOR CONDUCTORS.
F. TENANT'S ELECTRICAL EQUIPMENT SHALL BE RELOCATED AS REQUIRED TO MINIMIZE LENGTH OF CONDUIT/CONDUCTOR BETWEEN SERVICE DISCONNECT SWITCH AND PANEL "MDP". OBTAIN APPROVAL FROM TENANT'S ARCHITECTURAL DEPARTMENT OF PROPOSED LOCATION PRIOR TO INSTALLATION. COST CLAIMS FOR CONDUIT/CONDUCTOR IN EXCESS OF BASE BID WILL NOT BE CONSIDERED IF PANEL RELOCATION IS NOT PROPOSED TO MINIMIZE THESE COSTS PRIOR TO INSTALLATION.
G. TELEPHONE: FURNISH AND INSTALL ALL NECESSARY CONDUIT, DEVICE BOXES AND PLATES.
H. NEW TELEPHONE SERVICE TO TENANT'S SPACE. NEW TELEPHONE EQUIPMENT BOARD. COORDINATE WITH LANDLORD AND TELEPHONE CO. AS REQUIRED FOR INSTALLING THIS SERVICE.
I. FURNISH AND INSTALL 3/4" CONDUIT FROM EACH TELEPHONE OUTLET 1'-0" INTO CEILING CAVITY, OR UP TO JOIST WHERE NO CEILING IS INSTALLED.
J. FIRE ALARM SYSTEM:
  a. IF THERE IS NO EXISTING FIRE ALARM SYSTEM AND THE NATIONAL, STATE, OR LOCAL CODES, OR LOCAL FIRE AUTHORITY HAVING JURISDICTION NOW REQUIRES A FIRE ALARM SYSTEM. FURNISH AND INSTALL DEVICES, COMPONENTS, ETC., AS DIRECTED BY ENFORCING AGENCY.
    • CONNECT ALARM CONTACT(S) OF SPRINKLER SYSTEM FLOW SWITCH AND SUPERVISED VALVE AND AIR DUCT DETECTORS TO FIRE ALARM SYSTEM AS REQUIRED.
    • IF REQUIRED, CONNECT FIRE ALARM DEVICES (AIR DUCT DETECTORS, ETC.) AND ANY OTHER ASSOCIATED EQUIPMENT TO DEDICATED 120V CIRCUIT.
    • PROVIDE LOCAL STATUS INDICATOR AND ALARM FOR ALARM DEVICES WHERE NOT CONNECTED TO FIRE ALARM SYSTEM.
  b. VERIFY ALL REQUIREMENTS AND FURNISH AND INSTALL IN ACCORDANCE WITH NFPA, NATIONAL, STATE, LOCAL CODES, LOCAL FIRE AUTHORITY HAVING JURISDICTION AND LANDLORD REQUIREMENTS.

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
LIGHTING AND LIGHTING CONTROLS	
	LUMINAIRE (REFER TO THE LUMINAIRE SCHEDULE) NOTE THAT OTHER SHAPES MAY ALSO BE USED TO REPRESENT LUMINAIRES
	SHADED LUMINAIRES DENOTE THOSE CONNECTED TO EMERGENCY OR STANDBY POWER AS APPLICABLE (UNSWITCHED LUMINAIRES ARE EGRESS LIGHTS AND/OR NIGHT-LIGHTS THAT OPERATE 24/7)
WALL MOUNT	SINGLE / DOUBLE SIDED EXIT SIGN CONNECT AHEAD OF SWITCHING & CONFIGURE ARROWS TO INDICATE DIRECTION OF EGRESS TRAVEL
	EMERGENCY LIGHTING UNIT WITH 90-MINUTE BATTERY BACKUP AND ASSOCIATED REMOTE HEADS WHERE APPLICABLE. CONNECT TO LOCAL LIGHTING CIRCUIT AHEAD OF SWITCHING
A NL a EL	A = LUMINAIRE TYPE, NL = NIGHT-LIGHT (UNSWITCHED), a = SWITCHING DESIGNATION, EL = EGRESS LUMINAIRE (ILLUMINATES PATH OF EGRESS, ON ALL TIMES SPACE IS OCCUPIED)
$	LIGHTING SWITCH (KEYS: 2 = 2-POLE, 3 = 3-WAY, 4 = 4-WAY, D=DIMMER, K=KEYED, LV = LOW VOLTAGE M = MOMENTARY-CONTACT 1PDT W/CENTER-REST, P = SWITCH W/PILOT LIGHT, T = TIMER SWITCH)
TYPE	CEILING-MOUNTED OCCUPANCY SENSOR. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED BY TYPE. TYPE "IR" = INFRARED, TYPE "US" = ULTRASONIC
TYPE#	WALL-MOUNTED OCCUPANCY SENSOR SWITCH. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED BY TYPE. TYPE "IR"=INFRARED, TYPE "US"=ULTRASONIC, "V"=VACANCY SENSOR, "#" = CONTROLLED CIRCUITS.
LCP# LCP#	LIGHTING CONTROL PANEL
RECEPTACLES AND MISCELLANEOUS OUTLETS	
	SINGLE ("SIMPLEX"), DUPLEX, AND DOUBLE DUPLEX ("QUAD") RECEPTACLE RESPECTIVELY
	GFI / GFCI RECEPTACLES
	ISOLATED GROUND RECEPTACLES
	FULL SWITCHED RECEPTACLES
	CEILING MOUNTED RECEPTACLES
H C T 42" W SW L	RECEPTACLE ATTRIBUTES 42" = MOUNT RECEPTACLE AT THIS HEIGHT ABOVE GRADE / FINISHED FLOOR C = INSTALL ABOVE COUNTER AND BACKSPLASH H = INSTALL RECEPTACLE HORIZONTALLY L = LIT (PROVIDE ILLUMINATED FACE OR INDICATOR LIGHT TO INDICATE THERE IS POWER TO RECEPTACLE) SW = SPLIT WIRED T = TAMPER-RESISTANT W = WEATHER PROOF WHILE IN USE COVER AND WEATHER RESISTANT RECEPTACLE
DOOR OPERATORS/DEVICES	
	ELECTRIC DOOR OPERATOR MANUAL (LEFT) AUTOMATIC (RIGHT)
	PUSH PLATE FOR MANUAL CONTROL OF ELECTRIC DOOR OPERATOR
	DOOR BELL WITH TRANSFORMER & PUSHBUTTONS
MISCELLANEOUS	
	INDICATES DIRECT CONNECTION TO EQUIPMENT
$ $MS $MSR	MOTOR RATED TOGGLE SWITCH, MANUAL STARTER WITH PILOT LIGHT, AND MANUAL STARTER WITH PILOT LIGHT WITH EXTERNAL RELAY FOR CONTROL OR MONITORING RESPECTIVELY - ALL MAY BE KEYED "K"
	HEAVY DUTY DISCONNECT SWITCH (NON-FUSED) (LEFT) HEAVY DUTY DISCONNECT SWITCH (FUSED) (RIGHT)
	HAND DRYER
	PLYWOOD EQUIPMENT BOARD
	ELECTRICAL PANELBOARD OR DISTRIBUTION BOARD (DIMENSIONS MAY VARY / FLUSH OR SURFACE MOUNTED AS INDICATED)
PAD POLE	OIL FILLED TRANSFORMER
T TS	LOW VOLTAGE THERMOSTAT (LEFT) AND TEMPERATURE SENSOR (RIGHT)
L R	LINE VOLTAGE THERMOSTAT (LEFT) AND REVERSE ACTING THERMOSTAT (RIGHT)
H HS	HUMIDITY STAT (LEFT) AND HUMIDITY SENSOR (RIGHT)
P PS	PRESSURE STAT (LEFT) AND PRESSURE SENSOR (RIGHT)

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
SINGLE LINE DIAGRAM	
	HEAVY DUTY DISCONNECT SWITCH (NON-FUSED)(LEFT) (FUSED)(RIGHT) SIZES MAY BE SHOWN ONLY IN SCHEDULE
PANEL NAME	ELECTRICAL PANELBOARD OR DISTRIBUTION BOARD
	SURGE PROTECTIVE DEVICE
WIRE / CABLE / RACEWAY	
LPA-1,3	BRANCH CIRCUIT HOME RUN WITH PANEL NAME AND CIRCUIT NUMBER(S)
	CABLING / RACEWAY INSTALLED CONCEALED IN WALLS OR ABOVE CEILING
	CABLING / RACEWAY INSTALLED BELOW FLOOR OR GRADE
	CABLE TRAY
J	JUNCTION BOX ABOVE ACCESSIBLE CEILING JUNCTION BOX AT OVERHEAD STRUCTURE IN AREAS WITH NO CEILING
J	FLUSH MOUNTED JUNCTION BOX OR PULL BOX AS APPLICABLE FOR APPLICATION
P	FLUSH MOUNTED PULL BOX
	SINGLE-SERVICE SURFACE RACEWAY (ONE COMPARTMENT - POWER)
	MULTI-SERVICE SURFACE RACEWAY (TWO COMPARTMENT - POWER AND TECHNOLOGY)
	SERVICE POLE - POWER AND TECHNOLOGY WHERE APPLICABLE.
UP DN	CONDUIT UP OR DOWN

ABBREVIATIONS

(R)	RELOCATE FIXTURE, EQUIPMENT OR DEVICE	IG	ISOLATED GROUND
42"	DISTANCE ABOVE FINISHED FLOOR / GRADE / PAVEMENT	LR	LEGALLY REQUIRED STANDBY
AF	AMP FRAME OF FUSED SWITCH OR CIRCUIT BREAKER	LI	LONG - INSTANTANEOUS
AFCI	ARC-FAULT CIRCUIT INTERRUPTER	LSI	LONG - SHORT - INSTANTANEOUS
AIC	AMPS INTERRUPTING CURRENT	LSIG	LONG - SHORT - INSTANTANEOUS - GROUND FAULT
AT	AMP TRIP OF FUSED SWITCH OR CIRCUIT BREAKER	MCB	MAIN CIRCUIT BREAKER
ATS	AUTOMATIC TRANSFER SWITCH	MFR	MANUFACTURER
BAS	BUILDING AUTOMATION SYSTEM	MLO	MAIN LUGS ONLY
C.T.C.	WORK UNDER DIVISION 27 OR 28 AS APPLICABLE	MTS	MANUAL TRANSFER SWITCH
C/B	CIRCUIT BREAKER	MW	MICROWAVE OVEN
CH	COUNTER HEIGHT OR SPECIAL HEIGHT DEVICE	NIC	NOT IN CONTRACT (SHOWN FOR REFERENCE ONLY)
DW	DISHWASHER	NTS	NOT TO SCALE
E	EMERGENCY	OFE	OWNER-FURNISHED EQUIPMENT - INSTALLED AND WIRED BY E.C.
E.C.	WORK UNDER DIVISION 26	OS	OPTIONAL STANDBY
EMS	ENERGY MANAGEMENT SYSTEM	P.C.	WORK UNDER DIVISION 22
EPO	EMERGENCY POWER OFF	S.C.	WORK UNDER DIVISION 21
ER	EQUIPMENT ROOM	SCCR	SHORT CIRCUIT CURRENT RATING
ERM	ENERGY REDUCTION MAINTENANCE SWITCH	SPD	SURGE PROTECTIVE DEVICE
ESP	EMERGENCY STANDBY RATING	ST	SHUNT TRIP
ETR	EXISTING TO REMAIN	TAAC	TO ABOVE ACCESSIBLE CEILING
EWC	ELECTRIC WATER COOLER	TR	TAMPER RESISTANT
EX.	EXISTING	TTB	TELEPHONE TERMINAL BOARD
FBO	FURNISHED BY OTHERS - INSTALLED AND WIRED BY E.C.	TYP	TYPICAL
FIBO	FURNISHED AND INSTALLED BY OTHERS - WIRED BY E.C.	UCR	UNDER COUNTER REFRIGERATOR
FP	RECEPTACLE TO BE USED FOR A FLAT PANEL DISPLAY.	UL	UNDERWRITER'S LABORATORY
FWE	FURNISHED WITH EQUIPMENT BY OTHERS - INSTALLED AND WIRED BY E.C.	U.L.S.E.	LISTED FOR SERVICE ENTRANCE
		UNO	UNLESS NOTED OR INDICATED OTHERWISE ON DRAWINGS OR IN SPECIFICATIONS
GD	GARBAGE DISPOSAL	VFD / VSD	VARIABLE FREQUENCY / SPEED DRIVE
GFEP	GROUND FAULT EQUIPMENT PROTECTION	VIF	VERIFY IN FIELD
GFI / GFCI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE	VM	VENDING MACHINE
GND	GROUND	VP	VANDAL PROOF
H.C.	WORK UNDER DIVISION 23	W / WP	WEATHERPROOF
H.O.A.	"HAND - OFF - AUTO" SWITCH	WG	WIRE GUARD
		WR	WEATHER RESISTANT

PLAN-VIEW AND GRAPHIC LINE TYPES

WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK (UNLESS OTHERWISE INDICATED)

WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE (UNLESS OTHERWISE INDICATED)

WORK SHOWN BOLD-DASHED INDICATES SELECTIVE DEMOLITION WORK (UNLESS OTHERWISE INDICATED)

ELECTRIC DESIGN CRITERIA

APPLICABLE BUILDING CODES

2015 OHIO BUILDING CODE (BASED ON THE INTERNATIONAL BUILDING CODE)
2017 NFPA 70 - NATIONAL ELECTRICAL CODE (NEC)
2010 ASHRAE 90.1

TESTING/COMMISSIONING FOR LIGHTING CONTROLS

LIGHTING CONTROL DEVICES AND SYSTEMS SHALL BE TESTED TO ENSURE THE HARDWARE AND SOFTWARE IS CALIBRATED, PROGRAMMED, AND IN PROPER WORKING ORDER. INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED INSTALLATION CERTIFICATES AND SHALL PROVIDE MANUALS FOR LIGHTING CONTROL DEVICES TO OWNER PRIOR TO PROJECT CLOSE-OUT. INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR CONTRACTING WITH APPROPRIATE PARTIES TO ARRANGE FOR TESTING/COMMISSIONING OF THE LIGHTING CONTROL SYSTEMS AND SHALL BE RESPONSIBLE FOR ENSURING ALL REQUIRED FUNCTIONAL TESTING FORMS ARE COMPLETED AND SUBMITTED TO THE OWNER AND LOCAL AHJ PRIOR TO PROJECT CLOSE-OUT.

UTILITY COORDINATION - CONTRACTOR RESPONSIBILITY

COORDINATE UTILITY SERVICE WORK CONTAINED WITHIN THIS DRAWING SET WITH RESPECTIVE LOCAL UTILITY COMPANY. UTILITY COORDINATION HAS NOT BEEN PERFORMED AS PART OF THIS DRAWING SET. FAULT CURRENT VALUES SHOWN ON THE DRAWINGS ARE ASSUMED BASED ON SERVICE SIZE, AND EXPECTED UTILITY TRANSFORMER SIZE. VERIFY THE AVAILABLE FAULT CURRENT AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

OBTAIN AND COMPLY WITH ALL UTILITY INSTALLATION DETAILS AND STANDARDS.

CONTACT 811 "CALL BEFORE YOU DIG" SERVICE PRIOR TO COMMENCING WITH ANY UNDERGROUND WORK.

EXISTING CONDITIONS - GENERAL NOTES

A. INTENT OF DOCUMENTS: EXISTING CONDITIONS SHOWN ON THE DRAWINGS ARE BASED ON VISUAL FIELD OBSERVATIONS AND THE REVIEW OF PREVIOUS DRAWINGS THAT MAY NOT HAVE BEEN CERTIFIED "AS-BUILTS". IT IS NOT THE INTENT OF THE ELECTRICAL DOCUMENTS THAT EXISTING CONDITIONS BE ACCURATELY SHOWN. EXISTING ELECTRICAL WORK IS SHOWN TO A VERY LIMITED EXTENT ON THE DRAWINGS AND IS SHOWN FOR GENERAL PLANNING REFERENCE ONLY.
B. PRE-BID SURVEY: PERFORM A DETAILED PRE-BID WALK-THROUGH FIELD INSPECTION AND SURVEY TO REVIEW THE EXISTING STRUCTURES AND PREMISES, TO ACCURATELY DETERMINE EXISTING CONDITIONS, AND TO DETERMINE SCOPE OF REQUIRED ELECTRICALLY RELATED WORK. INCLUDE APPLICABLE ACCESSIBLE CEILING CAVITY AREAS IN THIS INSPECTION.
C. REUSE OF REMOVED MATERIALS: DO NOT REUSE REMOVED ELECTRICAL MATERIALS UNLESS SPECIFICALLY INDICATED IN PROJECT DOCUMENTS. EXISTING WIRING SYSTEMS MAY BE UTILIZED ONLY TO THE EXTENT INDICATED IN PROJECT DOCUMENTS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE IN FIELD.
D. EXISTING POWER DISTRIBUTION EQUIPMENT: WHERE MODIFICATIONS ARE MADE TO EXISTING POWER DISTRIBUTION EQUIPMENT, COMPLETELY RE-TYPE PANELBOARD DIRECTORIES USING ACCURATE "AS-BUILT" INFORMATION. WHEN ADDING COMPONENTS TO EXISTING POWER DISTRIBUTION EQUIPMENT, PROVIDE FULL SIZE (NO SPLIT OR TANDEM DEVICES) OVERCURRENT PROTECTION DEVICES (OCPs) TO MATCH THOSE ALREADY IN PLACE, INCLUDING MANUFACTURER, MODEL/SERIES, SHORT CIRCUIT CURRENT (SCCR/AIC) RATINGS. PROVIDE COMMON TRIPS (NO FIELD-INSTALLED HANDLE TIES) IN THE SAME GUTTER FOR MULTI-POLE DEVICES. PROVIDE SWITCHING DUTY (SWD), HACR AND HID RATINGS WHERE APPLICABLE FOR LOADS. PROVIDE HANDLE LOCK-ON DEVICES FOR EMERGENCY AND CRITICAL LOADS.
E. EXISTING BRANCH CIRCUITS: MAINTAIN, AND RECONNECT IF REQUIRED, BRANCH CIRCUITS THAT ARE EXISTING TO REMAIN. UNLESS NOTED OTHERWISE, ALL CIRCUIT DESIGNATIONS SHOWN ON THE DRAWINGS INDICATE NEW CIRCUIT ASSIGNMENTS, NOT EXISTING. WHERE COLOR CODING OF BRANCH CIRCUIT CONDUCTORS DOES NOT COMPLY WITH NFPA 70 OR IS NOT CONSISTENT WITH EXISTING CONDITIONS, MODIFY TO COMPLY.
F. ADDED LOADS TO EXISTING CIRCUITS: IN CASES WHERE NEW LOADS ARE INDICATED TO BE CONNECTED TO EXISTING CIRCUITS WITH EXISTING LOADS, METER THE EXISTING CIRCUIT IN ADVANCE AND ENSURE THE EXISTING PLUS ADDED LOAD DOES NOT EXCEED 80 PERCENT OF THE SOURCE CIRCUIT BREAKER AMPERE RATING. IF THAT LOAD IS EXCEEDED, NOTIFY DESIGN PROFESSIONAL.
G. REASSIGNMENT OF EXISTING CIRCUITS: IN CASES WHERE EXISTING CIRCUITS ARE REUSED (BASED ON INFORMATION SHOWN ON DRAWINGS OR BASED ON FIELD CONDITIONS) BUT MUST BE CONNECTED TO BREAKERS OTHER THAN THEIR ORIGINAL BREAKER, MODIFY COLOR-CODING AS REQUIRED IF THE NEW BREAKER ASSIGNMENT IS CONNECTED TO A DIFFERENT LINE/PHASE THAN THE ORIGINAL ONE. USE MEANS AND METHODS COMPLIANT WITH NFPA 70 AND WITH AUTHORITIES HAVING JURISDICTION.
H. ELECTRICAL WORK TO REMAIN OR BE RELOCATED: IF REQUIRED TO ACCOMMODATE CONSTRUCTION RELATED ACTIVITIES OR WHERE SPECIFICALLY SHOWN ON THE DRAWINGS, TEMPORARILY REMOVE, STORE IN PROTECTED LOCATION ON SITE, AND REINSTALL CONFLICTING ELECTRICAL EQUIPMENT, LUMINAIRES, OR DEVICES THAT ARE TO REMAIN OR TO BE RELOCATED.
I. PROTECTIVE BARRIERS: PROVIDE AND MAINTAIN TEMPORARY PARTITIONS AND DUST BARRIERS ADEQUATE TO PREVENT THE SPREAD OF DUST AND DIRT TO ADJACENT FINISHED AREAS AND OTHER SYSTEM COMPONENTS. PROTECT ADJACENT INSTALLATIONS DURING CUTTING AND PATCHING OPERATIONS. REMOVE PROTECTION AND BARRIERS AFTER DEMOLITION OPERATIONS ARE COMPLETE. PREVENT AIRBORNE DUST AND PARTICULATE MATTER RESULTING FROM ELECTRICAL WORK FROM ENTERING OCCUPIED SPACES, AND FROM ENTERING AIR INTAKES TO OPERATING HVAC SYSTEMS. MEET WITH OWNER AND HVAC INSTALLER TO DETERMINE SPECIAL INDOOR AIR QUALITY (IAQ) REQUIREMENTS RELATED TO ELECTRICAL THAT MAY APPLY TO THIS PROJECT. COOPERATE FULLY WITH HVAC IAQ REQUIREMENTS THAT AFFECT ELECTRICAL WORK AND ARE AFFECTED BY ELECTRICAL WORK.
J. PENETRATIONS: MAKE REQUIRED ELECTRICAL OPENINGS THROUGH WALLS, FLOORS, ETC. IMMEDIATELY PRIOR TO INSTALLATION OF WORK. PROPERLY AND PERMANENTLY SEAL ELECTRICAL OPENINGS IMMEDIATELY AFTER INSTALLATION OF WORK. PROVIDE TEMPORARY SEALS FOR APPLICATIONS WHERE PENETRATIONS ARE MADE BUT CANNOT BE PERMANENTLY SEALED WITHIN FOUR HOURS.
K. PRE-EXISTING CODE VIOLATIONS: INSPECT EXISTING ELECTRICAL WORK IN AREAS ACCESSED UNDER THIS PROJECT AND BRING INTO COMPLIANCE WITH NFPA 70. THIS APPLIES ONLY TO THE EXTENT THAT SUCH WORK IS UNCOVERED IN THE IMMEDIATE PROJECT AREAS AFFECTED BY CONSTRUCTION ACTIVITIES, AND ONLY TO THE LIMITED EXTENT THAT IT APPLIES TO PRE-EXISTING GENERAL INSTALLATION METHODS SUCH AS MISSING JUNCTION BOX PLATE, OPEN JUNCTION BOX KNOCKOUT, MINOR CONDUIT RE-ANCHORING AND MINOR EXPOSED WIRING/CONNECTIONS. IF MORE EXTENSIVE CODE OR SAFETY VIOLATIONS ARE DISCOVERED, IMMEDIATELY BRING THEM TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE (DETAILED IN WRITING) ALONG WITH PROPOSED COST FOR CORRECTIONS AND IMPACT (IF ANY) ON THE CONSTRUCTION SCHEDULE.
L. TEMPORARY LIGHTING AND POWER: COMPLY WITH NFPA 70 (INCLUDING ARTICLE 590), NFPA 70E AND ALL OTHER PREVAILING CODES. PROVIDE SUFFICIENT LIGHTING AND POWER CENTERS THROUGHOUT INTERIOR OF NEW WORK OR RENOVATION SCOPE. PROVIDE GFCI PROTECTION FOR ALL WORK. COORDINATE WITH GENERAL CONTRACTOR AND OTHER TRADES, AND PROVIDE ANY ADDITIONAL TEMPORARY ELECTRICAL NEEDS THAT ARE REQUIRED. FULLY DEMOLISH TEMPORARY ELECTRIC BY END OF PROJECT. UPON RECEIVING WRITTEN PERMISSION FROM OWNER'S REPRESENTATIVE, TEMPORARY ELECTRICAL SERVICE(S) MAY BE DERIVED FROM EXISTING BUILDING ENERGIZED SERVICE. PROVIDE OVERCURRENT PROTECTION, DISCONNECTS, CABLES, CONDUCTORS, RACEWAY, ETC. ACCORDINGLY. PROVIDE TEMPORARY SERVICE FROM UTILITY IF PERMISSION TO USE EXISTING BUILDING POWER IS NOT GRANTED BY OWNER'S REPRESENTATIVE; ARRANGE WITH LOCAL UTILITY FOR TEMPORARY SERVICE AND PAY ASSOCIATED FEES FOR INSPECTIONS, CONNECTIONS, ETC., AND PAY FOR UTILITY ELECTRIC USAGE/CONSUMPTION COSTS. RESTORE ASSOCIATED SITE AND BUILDING MATERIALS TO THEIR PRE-CONSTRUCTION STATE AND CONDITION AFTER TEMPORARY LIGHTING AND POWER IS NO LONGER NEEDED.
M. INTERIM LIFE-SAFETY PROVISIONS: PROVIDE INTERIM FIRE ALARM AND CODE MINIMUM LIGHTING IN DEMOLITION AND CONSTRUCTION AREAS. PROVIDE TEMPORARY PLASTIC COVERS, OBTAINED FROM SMOKE DETECTOR MANUFACTURER OR OBTAINED FROM A THIRD PARTY AND SPECIFICALLY APPROVED FOR SUCH USE BY SMOKE DETECTOR MANUFACTURER, OVER EXISTING SMOKE DETECTORS WITHIN PROJECT AREA, AND IN ADJACENT AREAS THAT ARE EXPOSED TO CONSTRUCTION-RELATED DUST OR AIRBORNE PARTICULATES. REMOVE ALL TEMPORARY LIFE SAFETY WORK WHEN NO LONGER NEEDED.
N. INTERIM EGRESS PATH PROVISIONS: PROVIDE TEMPORARY UL 924 COMPLIANT EXIT AND/OR EGRESS LIGHTING ALONG EGRESS ROUTES THAT MUST REMAIN ACCESSIBLE DURING CONSTRUCTION. PROVIDE TEMPORARY FIRE ALARM SYSTEM PULL STATIONS AND AUDIO/VISUAL ALARM NOTIFICATION DEVICES ALONG ALL AFFECTED EGRESS ROUTES. REMOVE THIS SCOPE WHEN NO LONGER NEEDED.

EXISTING CONDITIONS - DEMOLITION NOTES

A. DEFINITION OF DEMOLITION: WHERE THE TERM "DEMOLITION" IS USED IN ELECTRICAL DOCUMENTS, INTERPRET IT TO MEAN "DEMOLITION" OR "SELECTIVE DEMOLITION" AS APPLICABLE FOR THE RESPECTIVE SCOPE OF WORK. WHERE THE TERM "DEMOLISH", "REMOVE" OR SIMILAR TERMS ARE USED IN ELECTRICAL DOCUMENTS, INTERPRET TO MEAN "DISCONNECT, REMOVE, DISPOSE OF, AND REMOVE ALL RELATED ELECTRICAL CONDUIT, RACEWAYS, WIRING, CABLES, BOXES, SUPPORTS, ETC.".
B. GENERAL ACCOMMODATIONS: PROVIDE ELECTRICAL DEMOLITION WORK AS REQUIRED TO ACCOMMODATE PROJECT DEMOLITION AND AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION. DISCONNECT AND REMOVE WORK TO BE ABANDONED, AND AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES, IN AREAS AFFECTED BY THIS PROJECT UNLESS SPECIFICALLY NOTED OTHERWISE. COORDINATE PHASING OF WORK CAREFULLY WITH OWNER PRIOR TO BEGINNING ELECTRICAL DEMOLITION WORK.
C. REMOVAL OF ABANDONED WORK: REMOVE ACCESSIBLE ABANDONED, INACTIVE AND OBSOLETE RACEWAY SYSTEMS, EQUIPMENT, LUMINAIRES, DEVICES, CONDUIT, WIRING, CABLES, BOXES, SUPPORTS, CONTROLS, ETC. ABANDONED RACEWAYS EMBEDDED IN FLOORS, WALLS, AND CEILINGS MAY REMAIN IF SUCH MATERIALS DO NOT INTERFERE WITH NEW INSTALLATIONS. THIS APPLIES FOR ALL ELECTRICAL WORK, AND ALL COMMUNICATIONS AND INFORMATION TECHNOLOGY TYPE WORK, INCLUDING ALL SUCH WORK ABOVE CEILINGS, ETC. REMOVE RELATED ABANDONED UNUSED RACEWAY BACK TO THE NEAREST RESPECTIVE "UPSTREAM" JUNCTION BOX THAT REMAINS ACTIVE EVEN IF OUTSIDE OF THE CONFINES OF THE PROJECT AREA. REMOVE ABANDONED UNUSED WIRING AND CABLES BACK TO RESPECTIVE SOURCES SOURCE EVEN IF SOURCES ARE OUTSIDE THE CONFINES OF THE PROJECT AREA.
D. RE-USE OF EXISTING CONDUIT: EXISTING BRANCH CIRCUIT AND SYSTEMS CONDUIT, NOT CONFLICTING WITH NEW CONSTRUCTION AND NOT CONFLICTING WITH OVERHEAD OR CEILING CAVITY REQUIREMENTS, MAY BE RE-USED AT THE DISCRETION OF THE ELECTRICAL INSTALLER IF IT COMPLIES WITH THESE CONTRACT DOCUMENTS AFTER ALL ABANDONED CONDUCTORS AND CABLES HAVE BEEN REMOVED FROM THEM. DO NOT EXCEED NFPA 70 REQUIRED CONDUIT FILL AND DO NOT INSTALL WIRING FED FROM DIFFERENT SOURCES IN COMMON CONDUIT.
E. MODIFICATIONS TO ACCOMMODATE NEW WORK: REMOVE AND RELOCATE EQUIPMENT, LUMINAIRES, DEVICES, CONDUIT, RACEWAYS, WIRING, CABLES, BOXES, SUPPORTS, ETC. THAT CONFLICT WITH CONSTRUCTION RELATED WORK OF ALL TRADES AS NECESSARY TO ACCOMMODATE NEW WORK OF RESPECTIVE TRADES. REWORK AND EXTEND RACEWAY AND WIRING AS REQUIRED TO ACCOMMODATE NEW OR RELOCATED ELECTRICAL WORK. MAINTAIN (OR RECONNECT IF APPLICABLE) REMAINING WIRING. PROVIDE ELECTRICAL DISCONNECTIONS, AND RECONNECTIONS WHERE APPLICABLE, FOR EQUIPMENT TO BE REMOVED (OR RELOCATED) BY OTHER TRADES.
F. CUTTING AND PATCHING: PERFORM CUTTING AND PATCHING REQUIRED FOR DEMOLITION, RESTORED TO MATCH SURROUNDING REMAINING SURFACES, INCLUDING FIRE/SMOKE RATINGS.
G. LUMINAIRES: FOR ALL EXISTING LUMINAIRES WHICH ARE SCHEDULED FOR REUSE, REMOVE FROM EXISTING CEILINGS DURING DEMOLITION; PROTECT DURING CONSTRUCTION; CLEAN, SERVICE (IF REQUIRED), RE-LAMP (WITH LAMPS TO MATCH BUILDING STANDARD) AND REINSTALL AT LOCATIONS INDICATED. FOR ALL EXISTING LUMINAIRES WHICH ARE SCHEDULED TO BE REMOVED AND TURNED OVER TO OWNER, THE LUMINAIRES SHALL BE DISCONNECTED, CAREFULLY REMOVED AND TURNED OVER TO OWNER. TRANSFER SUCH LUMINAIRES TO STORAGE AREA AS DIRECTED IN FIELD.
H. DISPOSAL OF MATERIALS: REFER TO OWNER'S REPRESENTATIVE FOR DISPOSAL INSTRUCTIONS FOR ABANDONED ELECTRICAL MATERIALS REMOVED DURING DEMOLITION AND THEREAFTER. NEATLY STORE ELECTRICAL MATERIALS THAT THE OWNER ELECTS TO RETAIN AT THE SITE AS DESIGNATED BY THE OWNER'S REPRESENTATIVE. LEGALLY DISPOSE OF MATERIALS THAT THE OWNER ELECTS NOT TO RETAIN. DISCONNECT AND REMOVE ELECTRICAL MATERIALS DESIGNATED FOR SALVAGE (REMOVAL AND REUSE, OR FOR TURNING OVER TO OWNER) UNDAMAGED. DISCONNECT AND REMOVE WIRING AND "WHIPS" FROM EQUIPMENT TERMINAL POINTS. CAREFULLY TRANSPORT SALVAGED ELECTRICAL MATERIALS TO A PROTECTED ON-SITE STORAGE LOCATION AS DIRECTED IN FIELD AND NEATLY STORE THEM GROUPED BY SYSTEM TYPE.
I. CLEANING OF REUSED COMPONENTS: CLEAN COMPONENTS TO BE REUSED INSIDE AND OUT, AND REINSTALL WHERE INDICATED ON DRAWINGS. MODIFY AND EXTEND RELATED EXISTING WIRING IN CONDUIT ACCORDINGLY.

ELECTRIC CONDUIT AND WIRE MATERIAL SCHEDULE

MC - METAL CLAD CABLE	ARC - ALUMINUM RIGID CONDUIT
MI - MINERAL INSULATED CABLE	EMT - ELECTRIC METALLIC TUBING
HMC - HEALTHCARE METAL CLAD CABLE	ENT - ELECTRIC NON-METALLIC TUBING
USE - UNDERGROUND SERVICE ENTRANCE CABLE	FMC - FLEXIBLE METALLIC CONDUIT
SE - SERVICE ENTRANCE CABLE	GRC - GALVANIZED RIGID STEEL CONDUIT
UF - UNDERGROUND FEEDER	HDPE - HIGH DENSITY POLYETHYLENE CONDUIT
NM - NON-METALLIC SHEATHED CABLE	IMC - INTERMEDIATE METAL CONDUIT
RMC - RIGID METAL CONDUIT	LFMC - LIQUID-TIGHT FLEXIBILE METALLIC CONDUIT
RNC - RIGID NON-METALLIC CONDUIT	LFNC - LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT
RTRC - REINFORCED THERMOSETTING RESIN CONDUIT	SCH 40 PVC - SCHEDULE 40 POLYVINYL CHLORIDE CONDUIT
LIM - LINE ISOLATION MONITOR	SCH 80 PVC - SCHEDULE 80 POLYVINYL CHLORIDE CONDUIT

CONDUIT APPLICATION	CONDUCTOR TYPE	RACEWAY TYPE	RACEWAY AND CONDUCTOR NOTES
---FIRE ALARM---			
EXISTING HOLLOW PARTITIONS	NON-PLENUM RATED	EMT	
CONCEALED	NON-PLENUM RATED	EMT	
EXPOSED	NON-PLENUM RATED	EMT	
---POWER - INDOOR---			
EXISTING HOLLOW PARTITIONS	THHN	MC	
CONCEALED	THHN	MC	
VERTICAL RISERS FROM BELOW GRADE INCLUDING ELBOW	XHHW-2	RMC (GRC)	
CONNECTION TO SYSTEMS FURNITURE	THHN	LFMC	
LUMINAIRE WHIPS IN ACCESSIBLE CEILING, 72" MAX	THHN	MC	
CONNECTION TO VIBRATING EQUIPMENT, 72" MAX	THHN	LFMC	
EXPOSED	THHN	EMT	
UNDERGROUND	XHHW-2	RNC (SCH 40 PVC)	
---POWER - OUTDOOR---			
EXPOSED	XHHW-2	RMC (GRC)	
EXPOSED TO DIRECT SUNLIGHT, ROOF	XHHW-2	RMC (GRC)	
---TECHNOLOGY---			
EXISTING HOLLOW PARTITIONS	NON-PLENUM RATED	EMT	
CONCEALED, ABOVE INACCESSIBLE CEILINGS	NON-PLENUM RATED	EMT	
CONCEALED, ABOVE ACCESSIBLE CEILINGS	PLENUM RATED	J-HOOKS	

KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783 859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

MARK	DATE	BY	DESCRIPTION

REVISIONS

DATE	02/24/2023
PROJECT	0019.30
DRAWN	RNK
CHECKED	LGF

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD
STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED PROFESSIONAL ENGINEER
3/23/2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
ELECTRIC LEGEND

SHEET
E-001

KLH PROJECT 25140

ELECTRIC LUMINAIRE SCHEDULE

GENERAL NOTES:
A. REFER TO DRAWINGS FOR MOUNTING TYPE, NUMBER OF FACES AND ARROWS OF EXIT SIGNS. VERIFY IN FIELD PRIOR TO INSTALLATION.
B. VERIFY COMPATIBILITY WITH VOLTAGE, CONTROLS, ETC. FOR ALL LUMINAIRE COMPONENTS.
C. COORDINATE EACH LUMINAIRE LOCATION WITH THE ARCHITECTURAL REFLECTED CEILING PLANS, CEILING INSTALLERS, ETC. AND PROVIDE APPROPRIATE MOUNTING SYSTEM REQUIRED FOR EACH LUMINAIRE. ALSO, PROVIDE PLASTER FRAMES, WALL BRACKETS, SUPPORTS, OR OTHER ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION AND FINISH.
D. WEAR CLEAN WHITE COTTON GLOVES WHEN HANDLING EXPOSED REFLECTIVE LUMINAIRE SURFACES. REMOVE PLASTIC SHIPPING BAGS ONLY AFTER INTERIOR WORK IS COMPLETE, AND CLEAN ALL SURFACES WITH CLEAN DRY CHEESECLOTH.
E. MOUNTING HEIGHTS INDICATED ARE TO THE BOTTOM OF THE LUMINAIRE, UNLESS OTHERWISE NOTED.
F. PRODUCTS: PROVIDE PRODUCTS INDICATED ON DRAWINGS AND SCHEDULES. WHERE MULTIPLE MANUFACTURER SERIES/MODEL NUMBERS ARE LISTED FOR A SINGLE LUMINAIRE, PROVIDE ONE OF THOSE LISTED. WHERE A SPECIFIC MANUFACTURER SERIES/MODEL NUMBER IS LISTED AS BASIS-OF-DESIGN, AND WHERE IT IS STATED THAT EQUIVALENTS WILL BE CONSIDERED, ANY PROPOSED NON-LISTED LUMINAIRES ARE SUBJECT TO REVIEW BY DESIGN PROFESSIONAL(S). SUBMITTALS FOR WHICH SHALL BE FURNISHED AT LEAST (10) DAYS PRIOR TO BID DUE DATE OR THEY WILL NOT BE CONSIDERED. THESE PRE-BID SUBMITTALS SHALL CLEARLY STATE EXACTLY WHAT IS BEING PROPOSED AND SHALL DEMONSTRATE COMPLIANT EQUIVALENCY. SIMILAR REQUESTS FOR PROPOSED SUBSTITUTIONS MAY BE MADE ONLY AFTER BIDS ARE RECEIVED, AND ONLY IF OWNER CHOOSES TO CONSIDER SUBSTITUTION REQUESTS. DESIGN PROFESSIONAL(S) AND OWNER RESERVE THE RIGHT TO REJECT ALL PRODUCTS THAT ARE NOT DEEMED TO BE FULLY EQUIVALENT TO THE BASIS-OF-DESIGN LISTING(S). SUBMIT ALL REQUESTS AND QUESTIONS THROUGH THE FORMALLY-ESTABLISHED BIDDING PROCESS, NOT DIRECTLY TO ENGINEER.

TYPE	DESCRIPTION	MOUNTING	LIGHT SOURCE	LAMP QTY	LAMP BASE	BATTERY TYPE	LOAD (VA)	VOLTAGE	PHASE	COMMENTS
F4	4'-0" STRIP LIGHT	CEILING/SURFACE	LED	2	18W LED	NONE	36 VA	120 V	1	
F4-EMB	4'-0" STRIP LIGHT WITH INTEGRAL BATTERY	CEILING/SURFACE	LED	2	18W LED	INTEGRAL-90 MINUTE	36 VA	120 V	1	EMERGENCY LIGHT LUMEN LEVEL IS 1200. PROVIDE WITH 90 MINUTE BATTERY BACK-UP.
F8	8'-0" STRIP LIGHT	CEILING/SURFACE	LED	2	18W LED	NONE	36 VA	120 V	1	
F8-EMB	8'-0" STRIP LIGHT WITH INTEGRAL BATTERY	CEILING/SURFACE	LED	2	18W LED	INTEGRAL-90 MINUTE	36 VA	120 V	1	EMERGENCY LIGHT LUMEN LEVEL IS 1200. PROVIDE WITH 90 MINUTE BATTERY BACK-UP.
W	EXTERIOR EMERGENCY LIGHTING UNIT	SURFACE	LED	2	4W ADJUSTABLE MR16	INTEGRAL-90 MINUTE	4 VA	120 V	1	EMERGENCY LIGHT WITH 90 MINUTE REMOTE BATTERY. MOUNT BATTERY INSIDE.
X	EXIT SIGN WITH SINGLE OR DOUBLE FACE AND ARROWS AS INDICATED ON PLAN	CEILING/SURFACE	LED	1	3W	INTEGRAL-90 MINUTE	3 VA	120 V	1	L.E.D. SINGLE/DOUBLE FACE EXIT SIGN W/EMERG. BAT.

ENERGY MANAGEMENT SYSTEM (EMS) SCHEDULE

NOTES:
1) PROVIDE A MINIMUM 10% SPARE RELAY OR DIMMER (OR BOTH IF LCP CONTAINS BOTH) CAPACITY PER LIGHTING CONTROL PANEL WITH NO LESS THAN 1 SPARE RELAY AND/OR DIMMER SPACE.
2) THIS SCHEDULE IS INTENDED ONLY TO CONVEY MINIMUM QUANTITIES OF LIGHTING CONTROL PANELS AND POLE SPACE WITHIN THOSE PANELS. PROVIDE ADDITIONAL PANELS AND/OR POLE SPACE AS REQUIRED BY CHOSEN LIGHTING CONTROL SYSTEM MANUFACTURER FOR THE QUANTITY OF CONTROLLED CIRCUITS/ZONES SHOWN IN THIS SCHEDULE.
3) PROVIDE NORMALLY-OPEN RELAYS UNLESS OTHERWISE NOTED.

LIGHTING CONTROL ZONING SCHEDULE:

(EMPLOYEE) - EMPLOYEE WORK LIGHTING

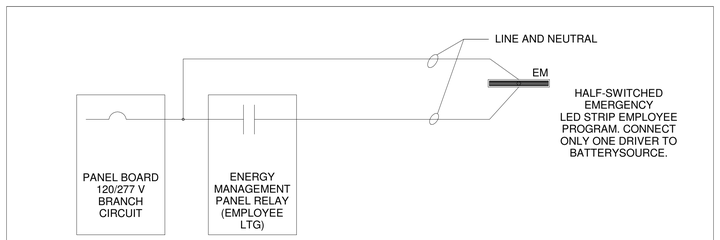
(CUSTOMER) - CUSTOMER LIGHTING

(SIGN/SITE) - SIGN AND SITE LIGHTING

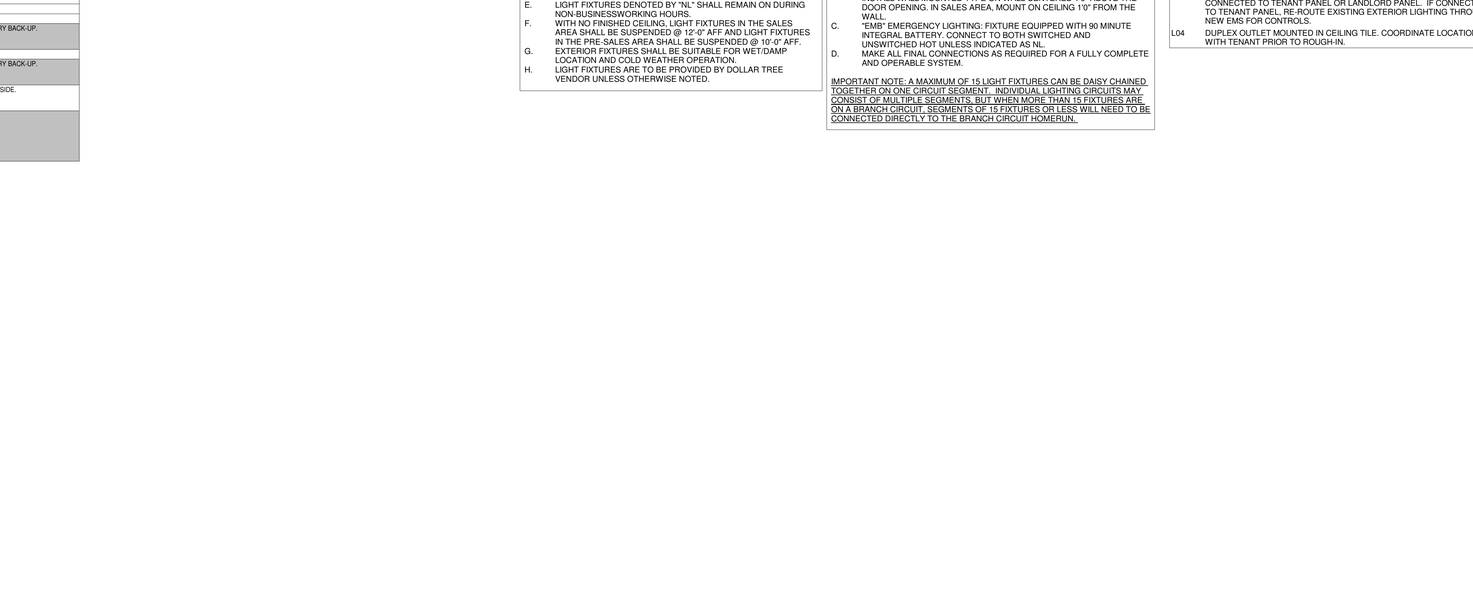
SUPPLY	CIRCUIT NUMBER	NUMBER OF POLES	CURRENT	LOAD NAME
CUSTOMER				
P	21	1	8 A	LTG 101-C,101-B,101-A
P	23	1	5 A	LTG SALES 101-A
P	25	1	5 A	LTG 101-C,102
P	31	1	4 A	LTG 101-C,101-B,101-A
P	35	1	4 A	LTG 101-C,101-B,101-A
EMPLOYEE				
P	27	1	5 A	LTG 101-C,101-B,101-A
P	29	1	4 A	LTG 101-C,101-B,101-A
P	33	1	5 A	LTG 101-C,101-B,101-A.100
EXTERIOR				
P	20	1	10 A	(-) EXTERIOR FLOOD LIGHTS
P	40	1	10 A	SIGNAGE CONTINUOUS

LIGHTING DEVICE SCHEDULE

FAMILY AND TYPE	SWITCH TAG	COMMENTS
Lighting Switches: Switch	a	MOMENTARY SWITCH. CONFIGURE LIGHTING IN THIS AREA TO BE MANUAL ON AND AUTO OFF.
Occ Sensor - Wall: Switched	b	REFER TO RESTROOM DETAIL ON SHEET E002 FOR MORE INFORMATION. SET TO AUTO ON/AUTO OFF WITH A TIME-OUT SETTING OF 5 MINUTES.
Occ Sensor - Ceiling: Occ Sensor - Ceiling	c	DUAL TECHNOLOGY OCCUPANY SENSOR. MOUNT AT SAME HEIGHT AS LUMINAIRES IN THIS ROOM. SET TIME DELAY TO 20 MINUTES.
Lighting Switches: Switch	EMS	ENERGY MANAGEMENT SYSTEM



2 EMERGENCY LIGHTING SCHEMATIC DIAGRAM
SCALE: NONE



1 ELECTRIC LIGHTING PLAN
1/8" = 1'-0"

LIGHT FIXTURE SCHEDULE GENERAL NOTES

A. DESIGNATED FIXTURE SHALL HAVE LED LAMPS 48" LED T8 LAMPS WITH 4 WIRE HARNESS AND DISCONNECT.
B. CUT INSULATION (WHEN BATTERY TYPE IS USED) OR PROVIDE SHIELD AROUND FIXTURE (WHEN BLOWN-IN IS USED) TO KEEP INSULATION A MINIMUM OF 3" AWAY FROM RECESSED FIXTURE.
C. ATTACH FIXTURE TO T-BAR PER NEC 410.36 WHERE APPLICABLE. PROVIDE "CADDY" CLIP #CAD-IDS WHERE REQUIRED BY LOCAL AUTHORITY AND SEISMIC INSTALLATION REQUIREMENTS.
D. FIXTURE PROVIDED WITH DUAL VOLTAGE 120/277V POWER SUPPLY. VERIFY VOLTAGE FOR EACH FIXTURE LOCATION.
E. LIGHT FIXTURES DENOTED BY "NL" SHALL REMAIN ON DURING NON-BUSINESSWORKING HOURS.
F. WITH NO FINISHED CEILING, LIGHT FIXTURES IN THE SALES AREA SHALL BE SUSPENDED @ 12'-0" AFF AND LIGHT FIXTURES IN THE PRE-SALES AREA SHALL BE SUSPENDED @ 10'-0" AFF.
G. EXTERIOR FIXTURES SHALL BE SUITABLE FOR WET/DAMP LOCATION AND COLD WEATHER OPERATION.
H. LIGHT FIXTURES ARE TO BE PROVIDED BY DOLLAR TREE VENDOR UNLESS OTHERWISE NOTED.

LIGHTING GENERAL NOTES

A. LIGHTING CIRCUIT HOMERUNS SHALL BE RUN IN A COMMON CONDUIT TO THE EMS PANEL. PROVIDE APPROPRIATELY SIZED CONDUIT AND JUNCTION BOXES. PROVIDE DEDICATED NEUTRAL FOR EACH LIGHTING CIRCUIT. PROVIDE HANDLE TIES IN ACCORDANCE WITH NEC 210.4B. ALL LIGHTING CIRCUITS SHALL BE ROUTED THROUGH THE LIGHTING CONTROL PANEL AS SHOWN.
B. EXIT FIXTURES SHALL BE INSTALLED AND CIRCUITED PER LOCAL AND LATEST NATIONAL ELECTRICAL CODES. ALL EMERGENCY AND EXIT FIXTURES SHALL BE DUAL-VOLTAGE (120/277 VOLT INPUT). CONNECT TO THE LINE SIDE OF LOCAL SWITCHING AND CONTACTOR OR CONNECT TO DESIGNATED NIGHT LIGHT CIRCUIT. IN PRE-SALES INSTALL WALL MOUNTED TYPE ON WALL CENTERED 1'0" ABOVE THE DOOR OPENING. IN SALES AREA, MOUNT ON CEILING 1'0" FROM THE WALL.
C. "EMB" EMERGENCY LIGHTING: FIXTURE EQUIPPED WITH 90 MINUTE INTEGRAL BATTERY. CONNECT TO BOTH SWITCHED AND UNSWITCHED HOT UNLESS INDICATED AS NL.
D. MAKE ALL FINAL CONNECTIONS AS REQUIRED FOR A FULLY COMPLETE AND OPERABLE SYSTEM.

IMPORTANT NOTE: A MAXIMUM OF 15 LIGHT FIXTURES CAN BE DAISY CHAINED TOGETHER ON ONE CIRCUIT SEGMENT. INDIVIDUAL LIGHTING CIRCUITS MAY CONSIST OF MULTIPLE SEGMENTS, BUT WHEN MORE THAN 15 FIXTURES ARE ON A BRANCH CIRCUIT, SEGMENTS OF 15 FIXTURES OR LESS WILL NEED TO BE CONNECTED DIRECTLY TO THE BRANCH CIRCUIT HOMERUN.

KEYED NOTES

L01 CONTRACTOR SHALL SUSPEND LIGHTING IN THIS AREA FROM THE BOTTOM OF EXISTING STRUCTURE. SUSPEND LIGHTING AT 10'-0" CLEAR AFF. PROVIDE MATERIALS AS REQUIRED. FIXTURES SHALL BE SEISMICALLY RESTRAINED WHERE REQUIRED BY LOCAL CODE AUTHORITY.

L02 MOUNT EMERGENCY FIXTURE ABOVE DOOR 10'-0" A.F.G. OR SURFACE MOUNTED TO CANOPY (WHERE APPLICABLE). COORDINATE WITH EXISTING CONDITIONS AWNINGS AND/OR SIGNAGE. LOCATE REMOTE BATTERY INSIDE ON CEILING.

L03 EXTERIOR LIGHTING TO REMAIN. VERIFY IF EXISTING LIGHTING IS CONNECTED TO TENANT PANEL OR LANDLORD PANEL. IF CONNECTED TO TENANT PANEL, RE-ROUTE EXISTING EXTERIOR LIGHTING THROUGH NEW EMS FOR CONTROLS.

L04 DUPLEX OUTLET MOUNTED IN CEILING TILE. COORDINATE LOCATIONS WITH TENANT PRIOR TO ROUGH-IN.

KLH ENGINEERS
PANORAMA CIRCLE, SUITE 1
DAYTON, OHIO 45424
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
LEXINGTON, KENTUCKY
1308 ALEXANDRIA PIKE, SUITE 11
859-254-8183 FAX 442-8000
COLUMBUS, OHIO
1550 N. HIGH ST.
614-545-8183 FAX
NEW YORK
800-294-8183 FAX

MARK	DATE	DESCRIPTION
		BY

DATE 02/24/2023
PROJECT 0019.30
DRAWN RNK
CHECKED LGF

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
DRAWING
ELECTRIC LIGHTING PLAN

SHEET
E-101

KLH PROJECT 25140

HVAC ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS		CONTRACTOR TYPE		MOTOR CONTROL TYPE		CONTROL TYPE		CONTROL TYPE
DC	LOCAL DISCONNECT	EC	ELECTRICAL CONTRACTOR	CS	COMBINATION STARTER	TC	TIMECLOCK	WHERE SHORT CIRCUIT
MC	MOTOR CONTROL (POWER)	EX	EXISTING	MCC	MOTOR CONTROL STARTER	CPT	CONTROL POWER TRANSFORMER	RATING CODE REQUIRED
SD	DUCT SMOKE DETECTOR	FC	FIRE PROTECTION CONTRACTOR	MG	MAGNETIC STARTER OR CONTACT	BAS	BUILDING AUTOMATION SYSTEM	VALUE INDICATES "YES"
CN	CONTROLS	GC	GENERAL CONTRACTOR	MS	MANUAL STARTER	LOW	LOW VOLTAGE CONTROLS	APPLICABLE
TS	TOGGLE SWITCH	HC	HVAC CONTRACTOR	VFD	VARIABLE FREQUENCY DRIVE	LINE	LINE VOLTAGE CONTROLS	EQUIPMENT'S SHORT
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD	MFR	MANUFACTURER	MSR	MANUAL STARTER W/ CONTROL RELAY	RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT	CIRCUIT RATING SHALL
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)	PC	PLUMBING CONTRACTOR	OV	OVERCURRENT PROTECTION	MAN	MANUAL	EXCEED THE AVAILABLE
FLA	OPERATING FEILD LOAD AMPS	OR	OWNER OR OTHERS			FA	FIRE ALARM	FAULT CURRENT VALUE
MCA	MINIMUM CIRCUIT AMPACITY					CO	CARBON MONOXIDE SENSOR	INDICATED.
CP	CORD AND PLUG CONNECTION					INT	INTEGRAL TO EQUIPMENT	
[BLANK]	HARD WIRED (WHEN INDICATED FOR DC TYPE)					ASD	AREA SMOKE DETECTOR	
						DSD	DUCT SMOKE DETECTOR	

CONNECTION MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	HP	WATTS	HTG KW	FLA	MCA	OCP	FED FROM	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SHORT CIRCUIT RATING CODE REQUIRED?	AVAILABLE FAULT CURRENT
RTU-3	PACKAGED ROOFTOP UNIT, GAS HEAT	208 V	3						25.1	40			EX	EX	EX	EX	EX	EX	EX	BAS	OR	OR	OR	Yes	1563
RTU-4	PACKAGED ROOFTOP UNIT, GAS HEAT	208 V	3						49	60			EX	EX	EX	EX	EX	EX	EX	BAS	OR	OR	OR	Yes	3558
RTU-2	PACKAGED ROOFTOP UNIT, GAS HEAT	208 V	3						45.9	60			EX	EX	EX	EX	EX	EX	EX	BAS	OR	OR	OR	Yes	4930
RTU-1	PACKAGED ROOFTOP UNIT, GAS HEAT	208 V	3						25.1	40			EX	EX	EX	EX	EX	EX	EX	BAS	OR	OR	OR	Yes	1571
VH-1	ELECTRIC UNIT HEATER	208 V	1				3	14.4					EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	No	1254
EF-1	HVAC FAN	120 V	1			71							EC	EC	EC	MG	MFR	MFR	MFR	MAN	EC	EC	EC	No	1974

PLUMBING ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS		CONTRACTOR TYPE		MOTOR CONTROL TYPE		CONTROL TYPE		SHORT CIRCUIT RATING
DC	LOCAL DISCONNECT	EC	ELECTRICAL CONTRACTOR	CS	COMBINATION STARTER	TC	TIMECLOCK	WHERE SHORT CIRCUIT
MC	MOTOR CONTROL (POWER)	EX	EXISTING	MCC	MOTOR CONTROL STARTER	CPT	CONTROL POWER TRANSFORMER	RATING CODE REQUIRED
SD	DUCT SMOKE DETECTOR	FC	FIRE PROTECTION CONTRACTOR	MG	MAGNETIC STARTER OR CONTACT	BAS	BUILDING AUTOMATION SYSTEM	VALUE INDICATES "YES"
CN	CONTROLS	GC	GENERAL CONTRACTOR	MS	MANUAL STARTER	LOW	LOW VOLTAGE CONTROLS	APPLICABLE EQUIPMENT'S
TS	TOGGLE SWITCH	HC	HVAC CONTRACTOR	VFD	VARIABLE FREQUENCY DRIVE	LINE	LINE VOLTAGE CONTROLS	SHORT CIRCUIT RATING
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD	MFR	MANUFACTURER	MSR	MANUAL STARTER W/ CONTROL RELAY	RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT	SHALL EXCEED THE
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)	PC	PLUMBING CONTRACTOR	OV	OVERCURRENT PROTECTION	MAN	MANUAL	AVAILABLE FAULT CURRENT
FLA	OPERATING FULL LOAD AMPS	OR	OWNER OR OTHERS			FA	FIRE ALARM	VALUE INDICATED.
MCA	MINIMUM CIRCUIT AMPACITY					CO	CARBON MONOXIDE SENSOR	
CP	CORD AND PLUG CONNECTION					INT	INTEGRAL TO EQUIPMENT	
[BLANK]	HARD WIRED (WHEN INDICATED FOR DC TYPE)					ASD	AREA SMOKE DETECTOR	
						DSD	DUCT SMOKE DETECTOR	

CONNECTION MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	HP	WATTS	HTG KW	FLA (A)	MCA (A)	OCP (A)	FED FROM	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SHORT CIRCUIT RATING CODE REQUIRED?	AVAILABLE FAULT CURRENT
WH1	TANK TYPE ELECTRIC WATER HEATER	120 V	1				2						EC	EC	EC	--	--	--	--	INT	MFR	MFR	MFR	No	3682

DOLLAR TREE ELECTRIC REFRIGERATION SCHEDULE

FIXTURE ID	MFR	DESCRIPTION	LOAD	POLES	VOLTAGE	OCP	COMMENTS
4DRF	HILLPHOENIX	REACH-IN 4-DR FREEZER	6198 VA	2	208 V	30	PROVIDE NEUTRAL FOR BRANCH CIRCUIT. VENDOR PROVIDES DISCONNECT FOR UNIT. PROVIDE JUNCTION BOX AT 100" AFF. PROVIDE 15' LONG WHIP FROM BOX FOR CONNECTION TO EQUIPMENT. THE MANUFACTURER'S REPRESENTATIVE WILL MAKE THE FINAL CONNECTION TO THE INTEGRAL EQUIPMENT DISCONNECTS AT TIME OF START-UP.
3DRF	HILLPHOENIX	REACH-IN 3-DR FREEZER	5179 VA	2	208 V	30	PROVIDE NEUTRAL FOR BRANCH CIRCUIT. VENDOR PROVIDES DISCONNECT FOR UNIT. PROVIDE JUNCTION BOX AT 100" AFF. PROVIDE 15' LONG WHIP FROM BOX FOR CONNECTION TO EQUIPMENT. THE MANUFACTURER'S REPRESENTATIVE WILL MAKE THE FINAL CONNECTION TO THE INTEGRAL EQUIPMENT DISCONNECTS AT TIME OF START-UP.
2DRC	HILLPHOENIX	REACH-IN 2-DR COOLER	3391 VA	2	208 V	20	PROVIDE NEUTRAL FOR BRANCH CIRCUIT. VENDOR PROVIDES DISCONNECT FOR UNIT. PROVIDE JUNCTION BOX AT 100" AFF. PROVIDE 15' LONG WHIP FROM BOX FOR CONNECTION TO EQUIPMENT. THE MANUFACTURER'S REPRESENTATIVE WILL MAKE THE FINAL CONNECTION TO THE INTEGRAL EQUIPMENT DISCONNECTS AT TIME OF START-UP.
FREEZER		WALK-IN FREEZER	5719 VA	2	208 V	30	PROVIDE 4"X4" JUNCTION BOX AT 120" AFF WITH 10' WHIP FOR CONNECTION TO EQUIPMENT. NOTE ALL WALK-IN CIRCUITS TO TERMINATE AT THIS JUNCTION BOX. PROVIDE LOCAL DISCONNECT FOR FREEZER REFRIGERATION EQUIPMENT. PROVIDE NEUTRAL FOR BRANCH CIRCUIT. THE MANUFACTURER'S REPRESENTATIVE WILL MAKE THE FINAL CONNECTION TO THE EQUIPMENT DISCONNECTS AT TIME OF START-UP.
COOLER		WALK-IN COOLER	1548 VA	1	120 V	20	REFER TO FREEZER COMMENTS.

ELECTRIC EQUIPMENT SUPPLY SCHEDULE

EQUIPMENT MARK	SUPPLY FROM	CKT	EMERG.	LOAD (kVA)	AVAILABLE FAULT CURRENT	VOLTS	POLE	HTG KW	WATT	HP	FLA (A)	MCA (A)	RQD OCP (A)	BREAKER RATING (A)
EF-1	P	16		0.07	1974	120 V	1		71					20
RTU-1	MDP	25,27,29		8.14	1571	208 V	3					25.1	40	40
RTU-2	MDP	19,21,23		14.88	4930	208 V	3					45.9	60	60
RTU-3	MDP	7,9,11		8.14	1563	208 V	3					25.1	40	40
RTU-4	MDP	13,15,17		15.89	3558	208 V	3					49	60	60
VH-1	P	15,17		3.00	1254	208 V	2	3			14.4			20
WH1	P	19		2.00	3682	120 V	1	2						25

GENERAL ELECTRICAL NOTES

A. BEFORE SUBMITTING THE BID PROPOSAL, THE CONTRACTOR SHALL VISIT THE JOB SITE AND FULLY ACQUAINT HIMSELF WITH THE JOB CONDITIONS AND VERIFY SERVICE CONNECTIONS, INCLUDING ALL NECESSARY PULL BOXES, SIZE AND NUMBER OF CONDUITS AND CONDUCTORS, SWITCH GEAR, METERING, CABLE CHARGES ETC., WHETHER SHOWN ON DRAWINGS OR NOT BUT REQUIRED BY SERVICE UTILITY CO. TO MAKE A COMPLETE AND OPERATING ELECTRICAL SERVICE WITHOUT ADDITIONAL COST TO THE TENANT. VERIFY SERVICES AND CHARGES WITH POWER AND TELEPHONE COMPANIES.

B. CONTRACTOR SHALL VERIFY ALL REQUIREMENTS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND SPECIFICATIONS, AND SHALL FURNISH AND INSTALL ALL ITEMS REQUIRED BY THE CONTRACTOR FOR COMPLETE INSTALLATION.

C. VERIFY LOCATION AND REQUIREMENTS OF MECHANICAL EQUIPMENT WITH CONTRACTOR, (DOOR HEATERS, UNIT HEATERS, ROOF TOP UNITS, TRANSFER FANS, ETC.).

D. ELECTRICAL WORK AND MATERIALS SHALL COMPLY WITH LATEST 'N.E.C.' AND ALL LOCAL CODES AND ORDINANCES. IN CASES OF CONFLICT AMONG REQUIREMENTS, THE MOST RESTRICTIVE SHALL APPLY.

E. ALL CONDUCTORS SHALL BE # 12 AWG COPPER, EXCEPT AS OTHERWISE NOTED OR AS REQUIRED FOR VOLTAGE DROP (SEE SPECS.). ALL CONDUIT SHALL BE 1/2" MINIMUM EXCEPT AS OTHERWISE NOTED OR AS REQUIRED FOR CONDUCTORS.

F. TENANT'S ELECTRICAL EQUIPMENT SHALL BE RELOCATED AS REQUIRED TO MINIMIZE LENGTH OF CONDUIT/CONDUCTOR BETWEEN SERVICE DISCONNECT SWITCH AND PANEL "MDP". OBTAIN APPROVAL FROM TENANT'S ARCHITECTURAL DEPARTMENT OF PROPOSED LOCATION PRIOR TO INSTALLATION. COST CLAIMS FOR CONDUIT/CONDUCTOR IN EXCESS OF BASE BID WILL NOT BE CONSIDERED IF PANEL RELOCATION IS NOT PROPOSED TO MINIMIZE THESE COSTS PRIOR TO INSTALLATION.

G. TELEPHONE: FURNISH AND INSTALL ALL NECESSARY CONDUIT, DEVICE BOXES AND PLATES.

H. NEW TELEPHONE SERVICE TO TENANT'S SPACE. NEW TELEPHONE EQUIPMENT BOARD. COORDINATE WITH LANDLORD AND TELEPHONE CO. AS REQUIRED FOR INSTALLING THIS SERVICE.

I. FURNISH AND INSTALL 3/4" CONDUIT FROM EACH TELEPHONE OUTLET 1'-0" INTO CEILING CAVITY, OR UP TO JOIST WHERE NO CEILING IS INSTALLED.

J. FIRE ALARM SYSTEM:
   a. IF THERE IS NO EXISTING FIRE ALARM SYSTEM AND THE NATIONAL, STATE, OR LOCAL CODES, OR LOCAL FIRE AUTHORITY HAVING JURISDICTION NOW REQUIRES A FIRE ALARM SYSTEM. FURNISH AND INSTALL DEVICES, COMPONENTS, ETC., AS DIRECTED BY ENFORCING AGENCY.
      - CONNECT ALARM CONTACT(S) OF SPRINKLER SYSTEM FLOW SWITCH AND SUPERVISED VALVE AND AIR DUCT DETECTORS TO FIRE ALARM SYSTEM AS REQUIRED.
      - IF REQUIRED, CONNECT FIRE ALARM DEVICES (AIR DUCT DETECTORS, ETC.) AND ANY OTHER ASSOCIATED EQUIPMENT TO DEDICATED 120V CIRCUIT.
      - PROVIDE LOCAL STATUS INDICATOR AND ALARM FOR ALARM DEVICES WHERE NOT CONNECTED TO FIRE ALARM SYSTEM.
   b. VERIFY ALL REQUIREMENTS AND FURNISH AND INSTALL IN ACCORDANCE WITH NFPA, NATIONAL, STATE, LOCAL CODES, LOCAL FIRE AUTHORITY HAVING JURISDICTION AND LANDLORD REQUIREMENTS.

GENERAL POWER PLAN NOTES

A. EQUIPMENT COORDINATION SCHEDULES: REFER TO EQUIPMENT COORDINATION SCHEDULES FOR REQUIREMENTS ASSOCIATED WITH EQUIPMENT CIRCUITING, CONNECTIONS, ANCILLARY DEVICES AND EQUIPMENT, ETC. COORDINATE LOCATIONS AND REQUIREMENTS FOR ALL EQUIPMENT WITH RESPECTIVE EQUIPMENT SUPPLIERS AND INSTALLERS PRIOR TO ORDERING ANY RELATED MATERIALS OR COMMENCING WITH ANY RELATED ROUGH-IN WORK.

B. TECHNOLOGY SYSTEMS: PROVIDE RACEWAY AND PATHWAY SYSTEMS FOR ALL TECHNOLOGY WORK. INCLUDE OUTLET BOXES, CONDUITS, RACEWAYS, J-HOOKS, CABLE TRAY, ETC. AS REQUIRED FOR COMPLETE OPERATIONAL SYSTEMS. COORDINATE ALL RELATED WORK (INCLUDING ASSOCIATED POWER) WITH OWNER (INCLUDING OWNER'S PROJECT MANAGER), FIELD CONDITIONS, FURNITURE INSTALLER(S), TECHNOLOGY INSTALLER(S) AND WORK OF OTHER TRADES AND SUPPLIERS/INSTALLERS AS APPLICABLE. TERMINATE ALL CONDUITS FROM OUTLET BOXES TO NEAREST ACCESSIBLE CEILING CAVITY, OR TO OVERHEAD STRUCTURAL SPACE FOR AREAS WITH NO CEILINGS. PROVIDE CONDUITS WITH SWEEP BENDS, PULL STRINGS, PLASTIC BUSHINGS AND IDENTIFICATION AT OVERHEAD ENDS. PROVIDE BLANK WALL PLATES TO MATCH WIRING DEVICE WALL PLATES.

C. STOREFRONT WINDOWS: INSTALL RECEPTACLE(S) INDICATED ABOVE STOREFRONT WINDOWS WITHIN 18 INCHES OF THE TOP OF STOREFRONT WINDOWS, AND INSTALL COMPLIANT WITH NEC, INCLUDING ARTICLE 210.62.

D. GFCI PROTECTION: PROVIDE GROUND FAULT CIRCUIT INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL FOR ALL SINGLE-PHASE RECEPTACLES RATED 150 VOLTS TO GROUND OR LESS, 50 AMPERES OR LESS AND THREE-PHASE RECEPTACLES RATED 150 VOLTS TO GROUND OR LESS, 100 AMPERES OR LESS INSTALLED IN/FOR THE FOLLOWING LOCATIONS/APPLICATIONS: BATHROOMS, KITCHENS, ROOFTOPS, OUTDOORS, SINKS (WHERE RECEPTACLES ARE INSTALLED WITHIN 6 FEET FROM THE TOP INSIDE EDGE OF THE BOWL OF THE SINK), INDOOR WET LOCATIONS, VENDING MACHINES AND AREAS, ELECTRIC WATER COOLERS, LOCKER ROOMS WITH ASSOCIATED SHOWERING FACILITIES, AND GARAGES, SERVICE BAYS, AND SIMILAR AREAS OTHER THAN VEHICLE EXHIBITION HALLS AND SHOWROOMS. PROVIDE GFCI RECEPTACLES AT LOCATIONS THAT ARE AND WILL REMAIN READILY ACCESSIBLE. ELSEWHERE PROVIDE GFCI PROTECTION AT THE RESPECTIVE SOURCE CIRCUIT BREAKER.

E. TRIM AND DOOR FINISHES: PROVIDE FACTORY-PAINTED OR FIELD-PAINTED TRIMS AND DOORS TO MATCH WALL FINISH COLOR FOR ALL PANEL BOARDS AND SIMILAR EQUIPMENT THAT ARE INSTALLED RECESSED IN FINISHED WALLS. IF FIELD-PAINTED, PAINT ALL SIDES AND EDGES WITH TWO COATS OF PAINT BEFORE INSTALLATION, AND LET DRY BEFORE INSTALLING THEM.

F. SIGNAGE: COORDINATE ALL SIGNAGE REQUIREMENTS WITH OWNER (INCLUDING OWNER'S PROJECT MANAGER), SIGNAGE SUPPLIERS AND INSTALLERS, AND ARCHITECT TO DETERMINE SPECIFICS REGARDING LOCATIONS, POWER, CONTROL, AND OTHER PERTINENT INFORMATION. PROVIDE POWER (ON DEDICATED CIRCUIT(S)) FOR SIGNAGE REQUIRING POWER CONNECTIONS. PROVIDE PHOTOCELL AND TIME-BASED CONTROL, CONFIGURED AS DIRECTED BY OWNER. PROVIDE ALL ELECTRICAL WORK, INCLUDING DISCONNECTING MEANS, COMPLIANT WITH ARTICLE 600 OF NFPA 70. COMPLY WITH LANDLORD REQUIREMENTS WHERE APPLICABLE.

KEYED NOTES

E01 SIGNAL SYSTEMS: REAR DOOR BELL AND PUSH-BUTTON: FURNISH AND INSTALL AN EDWARDS #55-6G5, 24V AC "ADAPT-A-BELL" ABOVE CEILING AND A #852 WEATHERPROOF PUSH-BUTTON IN FLUSH (NEW CONST.) SWITCH BOX AT TENANT SPACE BACK DOOR. CONNECT SO THAT BELL SOUNDS WHEN PUSH-BUTTON IS PRESSED.

E03 PROVIDE ROUGH IN FOR TENANT STOREFRONT SIGN(S) WHERE APPLICABLE. FINAL CONNECTIONS WILL BE FURNISHED AND INSTALLED BY TENANT'S SIGN CONTRACTOR. FURNISH AND INSTALL DISCONNECT AND JUNCTION BOXES W/6' WHIP ON INTERIOR WALL ABOVE ACCESSIBLE CEILING WHERE INSTALLED OUTDOORS PROVIDE WEATHERPROOF. INSULATED JUNCTION BOX AND WEATHERPROOF DISCONNECT. CONTRACTOR SHALL COORDINATE FINAL EXTERIOR JUNCTION BOX LOCATION WITH SIGN VENDOR. JUNCTION BOXES NEED TO BE WITHIN 5 FEET OF SIGN FOR SIGN VENDOR TO MAKE FINAL ELECTRICAL CONNECTION. IF STORE HAS ADDITIONAL SIDE OR REAR SIGNAGE THE CONTRACTOR SHALL COORDINATE WITH THE SIGN VENDOR FOR ANY ADDITIONAL EXTERIOR SIGNAGE AND THE ASSOCIATED ELECTRICAL REQUIREMENTS. AFTER THE ELECTRICAL DESIGN IS COMPLETE, IT MAY BE DETERMINED THAT CERTAIN SITES REQUIRE SIDE OR REAR SIGNAGE.

E04 MOUNT ON FLOOR AND MAKE MC CONNECTION TO DUPLEX RECEPTACLE INSTALLED IN FIXTURE KICK PLATE. ASSEMBLE JUNCTION BOX AROUND INSTALLED FIXTURE.

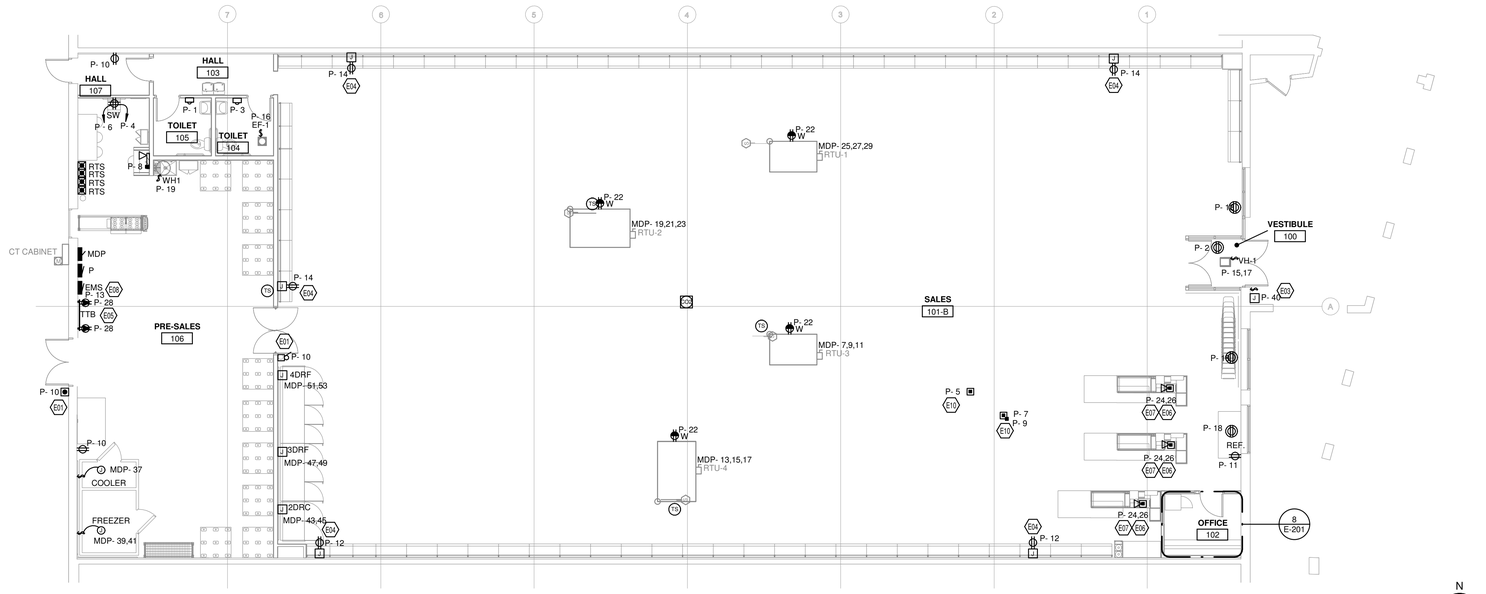
E05 CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH LANDLORD AND/OR LOCAL UTILITY COMPANY REQUIREMENTS FOR BRINGING A COMPLETE TELEPHONE SERVICE INTO TENANT SPACE.

E06 DO NOT CONNECT "ISOLATED" GROUND WIRE TO RACEWAY OR BOX. CONDUIT AND BOX SHALL BE METAL AND METAL-TO-METAL CONNECTORS SHALL BE USED (NO FLEX CONDUIT) TO ESTABLISH GROUND PATH FOR BOX AND RACEWAY. DO NOT RUN ANY CIRCUITS WITH CASH REGISTER OR COMPUTER (IG) CIRCUITS. CASH REGISTER DATA SYSTEM CABLE SHALL BE FURNISHED AND INSTALLED BY OTHERS.

E07 THREE-CHANNEL TELEPOWER POLE WITH DIVIDER FOR TELEPHONE/DATA, ISOLATED POWER, AND NORMAL POWER. INSTALL TELEPOWER POLE AS SHOWN AT CHECKOUT AREA, WHEN COUNTER IS SET. POWER POLE WILL BE FURNISHED WITH (1) ISOLATED GROUND TWIST LOCK RECEPTACLE (CONNECT ISOLATED GROUND CIRCUIT TO THIS RECEPTACLE) AND (1) DUPLEX RECEPTACLE (CONNECT (1) NORMAL POWER CIRCUIT TO THIS RECEPTACLE).

E08 CONTRACTOR SHALL REFER TO EMS SHEETS FOR INSTRUCTION AND RESPONSIBILITIES FOR INSTALLING TENANT SUPPLIED ENERGY MANAGEMENT SYSTEM PRIOR TO BIDDING AND INSTALLATION.

E10 POWER POLES ARE OWNER FURNISHED AND CONTRACTOR INSTALLED. PROVIDE ALL NECESSARY MATERIAL TO PROVIDE A COMPLETE INSTALLATION. CONTRACTOR SHALL REFER TO FINAL FIXTURE PLAN FOR SNACK ZONE, CHECKOUT AND ANY OTHER FIXTURE THAT REQUIRES POWER PRIOR TO INSTALLING ELECTRICAL AND DATA.



1 ELECTRIC POWER PLAN
1/8" = 1'-0"

KLH ENGINEERS
PROFESSIONAL ELECTRICAL ENGINEERS, INC.
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
LEXINGTON, KENTUCKY
1308 ALEXANDRIA PIKE, SUITE 11
859-268-8100 FAX 442-8000
COLUMBUS, OHIO
600 S. HIGH ST.
614-224-8100 FAX 224-8300

MARK	DATE	REVISIONS
		BY
		DESCRIPTION

DATE 02/24/2023
PROJECT 0018.30
DRAWN RNK
CHECKED LGF

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD

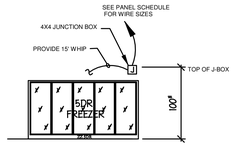
STATE OF OHIO
STEPHEN N. FIEDELE
E-76032
REGISTERED
PROFESSIONAL ENGINEER
3/23/2023

PROJECT DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING ELECTRIC POWER PLAN

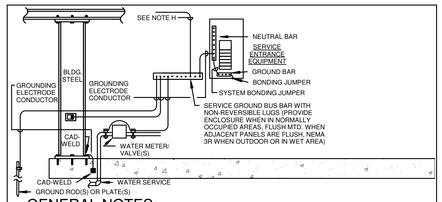
SHEET
E-102

KLH PROJECT 25140



NOTE:
EACH REFRIGERATION CASE REQUIRES A DEDICATED NEUTRAL. NO EXCEPTIONS PERMITTED.

8 COOLER/FREEZER CASES INSTALLATION DETAIL
SCALE:

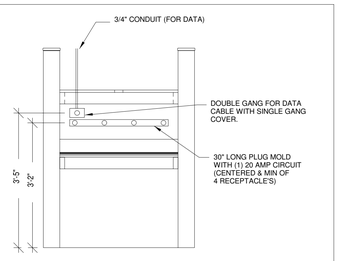


GENERAL NOTES:

A. THIS DETAIL APPLIES AT EACH SERVICE ENTRANCE. REFER TO FLOOR PLANS FOR GROUND BAR LOCATIONS. IF NOT SHOWN IN PLAN VIEW INSTALL AS CLOSE AS POSSIBLE TO SERVICE ENTRANCE EQT..
B. PROVIDE ALL GROUNDING ELECTRODE CONDUCTORS PER NEC TABLE 250.66 UNLESS NOTED OTHERWISE.
C. PROVIDE SERVICE GROUND BAR EQUAL TO ERICO EQUIPMENT GROUND BAR W/INSULATERS AND BRACKET, HOLE PATTERN TYPE "CC".
D. SIZE GROUND CONDUCTORS BETWEEN ROOM GROUND BARS AS GROUND ELECTRODE CONDUCTORS.
E. SIZE ALL BONDING JUMPERS PER NEC TABLE 250.122 UNLESS NOTED OTHERWISE.
F. PROVIDE ALL WORK COMPLIANT WITH APPLICABLE REQUIREMENTS OF ARTICLE 250 OF NFPA 70.
G. COORDINATE WITH ELECTRICAL INSPECTOR. MODIFY SPECIFIC MEANS & METHODS IF SO DIRECTED. COORDINATE WITH WORK OF ALL CONSTRUCTION DIVISIONS.
H. IN ADDITION TO WORK SHOWN IN DETAIL, PROVIDE BONDING JUMPERS FROM SERVICE GROUND BAR TO NATURAL GAS PIPING, WATER PIPING, DUCTWORK, AIR-DUCT EQT., WATER HEATERS, MISC. PIPING, ETC. AS APPLICABLE TO THE PROJECT AND COMPLIANT WITH NFPA 70 (INCLUDING ARTICLE 250).

260526.00-01 - GROUND DETAIL - SERVICE

SCALE: NONE

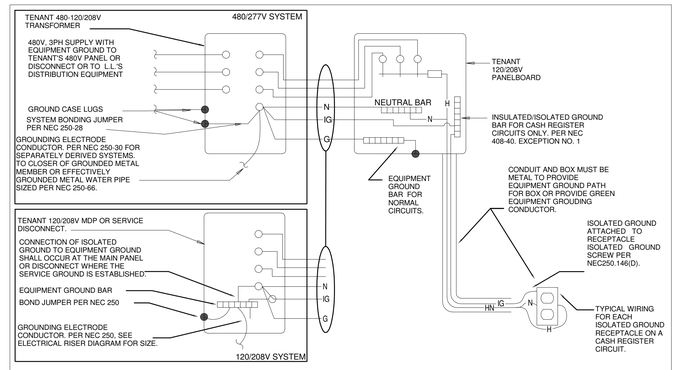


3 EMPLOYEE ROOM DESK ELEVATION
SCALE: NONE

1. EMPLOYEE SALES ON/OFF
2. CUSTOMER SALES ON/OFF
3. SITE/SIGN ON/OFF

3 BUTTON OVERRIDE SWITCH

1 MANAGER OFFICE EMS OVERRIDE SWITCH
SCALE: NONE
SEE ENERGY MANAGEMENT SYSTEM FOR WIRING REQUIREMENTS



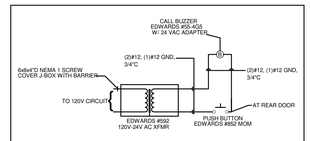
A. FURNISH AND INSTALL AN INSULATED, ISOLATED GROUND BAR IN PANEL INSTALL AN INSULATED "ISOLATED" GROUND WIRE IN EACH BRANCH CIRCUIT "HOMERUN" TO PANELBOARD. CONNECT GROUND WIRE FOR CASH REGISTER AND COMPUTER CIRCUITS TO ISOLATED GROUND BAR IN PANELBOARD AND DIRECTLY TO ISOLATED GROUND LUG/SCREW ON ISOLATED GROUND RECEPTACLES.

B. DO NOT CONNECT "ISOLATED" GROUND WIRE TO RACEWAY OR BOX. CONDUIT AND BOX SHALL BE METAL AND METAL-TO-METAL CONNECTORS SHALL BE USED (NO FLEX CONDUIT) TO ESTABLISH GROUND PATH FOR BOX AND RACEWAY.

C. CASH REGISTER DATA SYSTEM CABLE SHALL BE FURNISHED AND INSTALLED BY OTHERS. FURNISH AND INSTALL JUNCTION BOX IN OFFICE AND 1" CONDUIT WITH PULL WIRE TO SALES AREA CEILING CAVITY.

D. DO NOT RUN CASH REGISTER CIRCUITS WITH OTHER CIRCUITS.

6 CASH REGISTER GROUNDING DIAGRAM
SCALE:

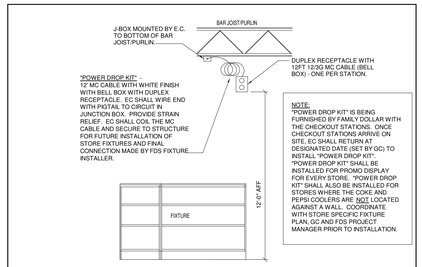


10 BUZZER SCHEMATIC
SCALE:

GROUP TOILETS/RESTROOMS

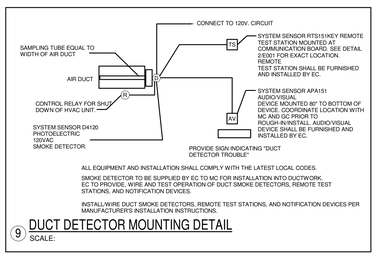
GENERAL NOTES:
A. PROVIDE LOCAL DISCONNECT SWITCH AT EATCH EXHAUST FAN IS NOT FURNISHED BY FAN MANUFACTURER.

5 TYPICAL RESTROOM EXHAUST FAN CONTROL DETAIL
SCALE:



NOTE:
"POWER DROP KIT" IS BEING FURNISHED BY FAMILY DOLLAR WITH THE CHECKOUT STATIONS. ONCE CHECKOUT STATIONS ARRIVE ON SITE, EC SHALL RETURN AT DESIGNATED DATE (SET BY GC) TO INSTALL "POWER DROP KIT". "POWER DROP KIT" SHALL BE INSTALLED FOR PROMO DISPLAY FOR EVERY STORE. "POWER DROP KIT" SHALL ALSO BE INSTALLED FOR STORES WHERE THE COKE AND PEPSI COOLERS ARE NOT LOCATED AGAINST A WALL. COORDINATE WITH STORE SPECIFIC FIXTURE PLAN, GC AND FDS PROJECT MANAGER PRIOR TO INSTALLATION.

7 "POWER DROP KIT" INSTALLATION DETAIL
SCALE:

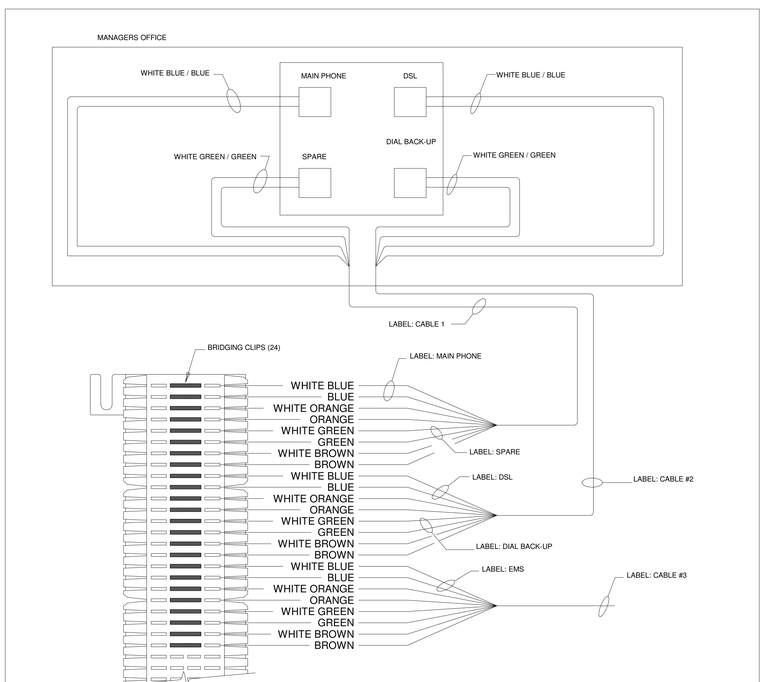


ALL EQUIPMENT AND INSTALLATION SHALL COMPLY WITH THE LATEST LOCAL CODES.

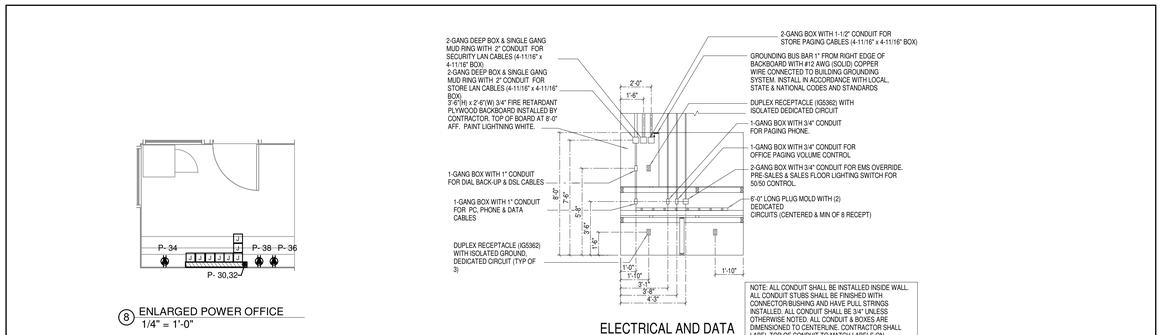
SMOKE DETECTOR TO BE SUPPLIED BY EC TO MC FOR INSTALLATION INTO DUCTWORK. EC TO PROVIDE. WIRE AND TEST OPERATION OF DUCT SMOKE DETECTORS, REMOTE TEST STATIONS, AND NOTIFICATION DEVICES.

INSTALL WIRE DUCT SMOKE DETECTORS, REMOTE TEST STATIONS, AND NOTIFICATION DEVICES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

9 DUCT DETECTOR MOUNTING DETAIL
SCALE:



4 TELCO BACKBOARD
SCALE: NONE



ELECTRICAL AND DATA

NOTE: ALL CONDUIT SHALL BE INSTALLED INSIDE WALL. ALL CONDUIT STUBS SHALL BE FINISHED WITH CONNECTOR BUSHING AND HAVE PULL STRINGS INSTALLED. ALL CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED. ALL CONDUIT & BOXES ARE DIMENSIONED TO CENTERLINE. CONTRACTOR SHALL LABEL TOP OF CONDUIT TO MATCH LABELS ON JACKS/JUNCTIONS BELOW.

2 ENLARGED OFFICE ELEVATION POWER PLAN
SCALE: NONE

8 ENLARGED POWER OFFICE
1/4" = 1'-0"

KLH ENGINEERS
PLUMBING, FIRE PROTECTION, MECHANICAL, ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
LEXINGTON, KENTUCKY
1598 ALEXANDRIA PIKE, SUITE 11
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CLEVELAND, OHIO
1100 SUPERIOR AVE., SUITE 1210
44114 216.522.1234
NEW YORK, NEW YORK
1359 BROADWAY, 2ND FLOOR
10018 646.928.2166

MARK	DATE	DESCRIPTION
		BY
		REVISIONS

DATE	02/24/2023
PROJECT	0018.30
DRAWN	RNK
CHECKED	LGF

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
ELECTRICAL DETAILS

SHEET
E-201

KLH PROJECT 25140

PANEL NAME: P

SUPPLY FROM: MDP	BUSSING:	MOUNTING: SURFACE	PHASE: New Construction
LOCATION: PRE-SALES 106	MAINS RATING (A): 125	FAULT CURRENT (A): 27333	SURGE SUPRESSION:
DISTRIBUTION SYSTEM: 208/120V 3PH 4W	MAINS TYPE: MAIN LUGS ONLY	SHORT CIRCUIT RATING (A): 42000	ULSE:
FEEDER: (4) #1 AWG CU, (1) #6 AWG CU GND. IN 1-1/2" CONDUIT 75C RATED	FEEDER ID: 130-4C	LUGS TYPE:	200% NEUTRAL:
		ENCLOSURE TYPE: NEMA 1	ISOLATED GROUND:

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A		B		C		POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	(LT) HAND DRYER | NON-CONT. TOILET 105	1.898	#12	#12	20 A	20 A	1	1.80	0.18					1	20 A	20 A	#12	#12	0.793	SHOW WINDOW | RCPT VESTIBULE 100	2
3	(LT) HAND DRYER | NON-CONT. TOILET 104	2.215	#12	#12	20 A	20 A	1			1.80	0.18			1	20 A	20 A	#12	#12	0.153	RCPT PRE-SALES 106	4
5	SNACK ZONE | NON-CONT.	0.774	#12	#12	20 A	20 A	1					0.20	0.18	1	20 A	20 A	#12	#12	0.153	RCPT PRE-SALES 106	6
7	SNACK ZONE | NON-CONT.	0.817	#12	#12	20 A	20 A	1	0.20	0.40					1	20 A	20 A	#12	#12	0.302	EMPLOYEE AREA PLUGMOLD | NON-CONT....	8
9	SNACK ZONE | NON-CONT. SALES 101-C	0.822	#12	#12	20 A	20 A	1			0.20	0.44			1	20 A	20 A	#12	#12	0.213	DOORBELL | RCPT, NON-CONT. 106,101-C	10
11	REF. | MOTOR SALES 101-C	2.422	*#10	*#10	15 A	15 A	1					0.80	0.36	1	20 A	20 A	#12	#12	0.734	RCPT SALES 101-C	12
13	(L) NON-CONT. PRE-SALES 106	0.026	#12	#12	20 A	20 A	1	0.20	0.54					1	20 A	20 A	#12	#12	0.511	RCPT SALES 101-A	14
15	VH-1 | HEATING VESTIBULE 100	2.665	*#10	*#10	20 A	20 A	2			1.50	0.37			1	20 A	20 A	#12	#12	0.184	EF-1 | LTG 106,104,105	16
17												1.50	0.54	1	20 A	20 A	#12	#12	2.559	RCPT 101-A,101-C	18
19	WH1 | CONTINUOUS PRE-SALES 106	0.93	#10	#10	25 A	25 A	1	2.00	1.20					1	20 A	20 A	#12	#12	2.007	(->) EXTERIOR FLOOD LIGHTS	20
21	LTG 101-C,101-B,101-A	1.144	#12	#12	20 A	20 A	1			0.98	0.72			1	20 A	20 A	#12	#12	1.61	RCPT 101-C,101-B,101-A	22
23	LTG SALES 101-A	1.097	#12	#12	20 A	20 A	1					0.54	0.60	2	20 A	20 A	#12	#12	1.968	(IG) CHECK LANE | NON-CONT.	24
25	LTG 101-C,102	1.226	#12	#12	20 A	20 A	1	0.54	0.60												26
27	LTG 101-C,101-B,101-A	0.604	#12	#12	20 A	20 A	1			0.62	0.36			1	20 A	20 A	#12	#12	0.071	(IG) TTB | RCPT PRE-SALES 106	28
29	LTG 101-C,101-B,101-A	1.275	#12	#12	20 A	20 A	1					0.50	0.20	2	20 A	20 A	#12	#12	0.702	NON-CONT. OFFICE 102	30
31	LTG 101-C,101-B,101-A	1.419	#12	#12	20 A	20 A	1	0.50	0.20												32
33	LTG 101-C,101-B,101-A,100	2.005	#12	#12	20 A	20 A	1			0.55	0.20			1	20 A	20 A	#12	#12	1.04	(IG) | RCPT OFFICE 102	34
35	LTG 101-C,101-B,101-A	1.85	#12	#12	20 A	20 A	1					0.47	0.20	1	20 A	20 A	#12	#12	1.081	(IG) | RCPT OFFICE 102	36
37	SPARE	--	--	--	20 A	20 A	1	0.00	0.20					1	20 A	20 A	#12	#12	1.075	(IG) | RCPT OFFICE 102	38
39	SPARE	--	--	--	20 A	20 A	1			0.00	1.20			1	20 A	20 A	*#8	*#8	2.118	SIGNAGE CONTINUOUS	40
41	SPARE	--	--	--	20 A	20 A	1					0.00	1.08	1	20 A	20 A	#12	#12	1.354	RCPT 101-A,101-B,101-C	42
43	SPARE	--	--	--	20 A	20 A	1	0.00	0.00					1	20 A	20 A	--	--	--	SPARE	44
45	SPARE	--	--	--	20 A	20 A	1			0.00	0.00			1	20 A	20 A	--	--	--	SPARE	46
47	SPARE	--	--	--	20 A	20 A	1					0.00	0.00	1	20 A	20 A	--	--	--	SPARE	48
49	SPARE	--	--	--	20 A	20 A	1	0.00	0.00					1	20 A	20 A	--	--	--	SPARE	50
51	SPARE	--	--	--	20 A	20 A	1			0.00	0.00			1	20 A	20 A	--	--	--	SPARE	52
53	SPARE	--	--	--	20 A	20 A	1					0.00	0.00	1	20 A	20 A	--	--	--	SPARE	54
							TOTAL CONNECTED LOAD:	8.6 kVA		9.1 kVA		7.2 kVA									

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	NOTES:	BREAKER QUANTITIES (NEW ONLY)
Continuous	3200 VA	125.00%	4000 VA		(1) 15A / 1P, (43) 20A / 1P, (1) 20A / 1P(L), (2) 20A / 1P(LT), (3) 20A / 2P, (1) 25A / 1P
Heating	2995 VA	100.00%	2995 VA		
Lighting	4997 VA	125.00%	6246 VA		
Motor	871 VA	122.96%	1071 VA		
Non-Continuous	7680 VA	100.00%	7680 VA		
Receptacle	5100 VA	100.00%	5100 VA		

PANEL TOTALS	
TOTAL CONNECTED LOAD:	24.8 kVA
DEMAND CALCULATION NOTES:	
TOTAL DEMAND:	27.1 kVA
TOTAL DEMAND AMPS:	**75 A**

PANEL NAME: MDP

SUPPLY FROM: CT CABINET	BUSSING:	MOUNTING: SURFACE	PHASE: New Construction
LOCATION: PRE-SALES 106	MAINS RATING (A): 600	FAULT CURRENT (A): 30114	SURGE SUPRESSION:
DISTRIBUTION SYSTEM: 208/120V 3PH 4W	MAINS TYPE: THERMAL MAGNETIC	SHORT CIRCUIT RATING (A): 42000	ULSE: Yes
FEEDER: (2) SETS OF (4) #350 KCMIL CU, (1) #1 AWG CU GND. IN 3" CONDUIT EACH 75C RATED	FEEDER ID: 620-4C	LUGS TYPE:	200% NEUTRAL:
		ENCLOSURE TYPE: NEMA 1	ISOLATED GROUND:

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A		B		C		POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1								8.56	0.00					1	20 A	20 A	--	--	--	SPARE	2
3	P	SL	SL	SL	125 A	125 A	3			9.11	0.00			1	20 A	20 A	--	--	--	SPARE	4
5												7.17	0.00	1	20 A	20 A	--	--	--	SPARE	6
7								2.71	0.00					1	20 A	20 A	--	--	--	SPARE	8
9	RTU-3 | MOTOR SALES 101-C	1.675	#8	#10	40 A	40 A	3			2.71	0.00			1	20 A	20 A	--	--	--	SPARE	10
11												2.71	0.00	1	20 A	20 A	--	--	--	SPARE	12
13								5.30	0.00					1	20 A	20 A	--	--	--	SPARE	14
15	RTU-4 | MOTOR SALES 101-C	1.336	#4	#10	60 A	60 A	3			5.30	0.00			1	20 A	20 A	--	--	--	SPARE	16
17												5.30	0.00	1	20 A	20 A	--	--	--	SPARE	18
19								4.96	0.00					1	20 A	20 A	--	--	--	SPARE	20
21	RTU-2 | MOTOR SALES 101-B	0.858	#4	#10	60 A	60 A	3			4.96	0.00			1	20 A	20 A	--	--	--	SPARE	22
23												4.96	0.00	1	20 A	20 A	--	--	--	SPARE	24
25								2.71	0.00					1	20 A	20 A	--	--	--	SPARE	26
27	RTU-1 | MOTOR SALES 101-A	1.666	#8	#10	40 A	40 A	3			2.71	0.00			1	20 A	20 A	--	--	--	SPARE	28
29												2.71	0.00	1	20 A	20 A	--	--	--	SPARE	30
31								0.02	0.00					1	20 A	20 A	--	--	--	SPARE	32
33	PHASE LOSS MONITOR | NON-CONT. PRE-SALES 106	0.002	#12	#12	20 A	20 A	3			0.02	0.00			1	20 A	20 A	--	--	--	SPARE	34
35												0.02	0.00	1	20 A	20 A	--	--	--	SPARE	36
37	WALK-IN COOLER | NON-CONT. PRE-SALES 106	1.897	#12	#12	20 A	20 A	1	1.55	0.00					1	20 A	20 A	--	--	--	SPARE	38
39	WALK-IN FREEZER | NON-CONT. PRE-SALES 106	1.15	#10	#10	30 A	30 A	2			2.86	0.00			1	20 A	20 A	--	--	--	SPARE	40
41												2.86	0.00	1	20 A	20 A	--	--	--	SPARE	42
43	REACH-IN 2-DR COOLER | NON-CONT. SALES 101-C	1.905	#12	#12	20 A	20 A	2	1.70	0.00					1	20 A	20 A	--	--	--	SPARE	44
45										1.70	0.00			1	20 A	20 A	--	--	--	SPARE	46
47	REACH-IN 3-DR FREEZER | NON-CONT. SALES 101-C	1.536	#10	#10	30 A	30 A	2					2.59	0.00	1	20 A	20 A	--	--	--	SPARE	48
49								2.59	0.00					1	20 A	20 A	--	--	--	SPARE	50
51	REACH-IN 4-DR FREEZER | NON-CONT. SALES 101-C	1.484	#10	#10	30 A	30 A	2			3.10	0.00			1	20 A	20 A	--	--	--	SPARE	52
53												3.10	0.00	1	20 A	20 A	--	--	--	SPARE	54
							TOTAL CONNECTED LOAD:	30.1 kVA		32.5 kVA		31.4 kVA									

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	NOTES:	BREAKER QUANTITIES (NEW ONLY)
Continuous	3200 VA	125.00%	4000 VA		(28) 20A / 1P, (1) 20A / 2P, (1) 20A / 3P, (3) 30A / 2P, (2) 40A / 3P, (2) 60A / 3P, (1) 125A / 3P
Heating	2995 VA	100.00%	2995 VA		
Lighting	4997 VA	125.00%	6246 VA		
Motor	47916 VA	108.29%	51888 VA		
Non-Continuous	29766 VA	100.00%	29766 VA		
Receptacle	5100 VA	100.00%	5100 VA		

PANEL TOTALS	
TOTAL CONNECTED LOAD:	94.0 kVA
DEMAND CALCULATION NOTES:	
TOTAL DEMAND:	100.0 kVA
TOTAL DEMAND AMPS:	**278 A**

GENERAL ELECTRICAL POWER DISTRIBUTION NOTES

A. PARALLEL CONDUCTOR SETS: CUT PARALLEL SERVICE/FEEDER CONDUCTORS TO EXACTLY THE SAME LENGTHS AND USE CONDUCTORS FROM THE SAME FACTORY RUN. TORQUE ALL CONNECTIONS FOR PARALLEL SERVICE/FEEDER CONDUCTORS TO IDENTICAL VALUES.

B. OVERCURRENT PROTECTION RATINGS: UNLESS INDICATED OTHERWISE, PROVIDE FULLY-RATED OR SERIES-RATED OVERCURRENT PROTECTION (OCP) AS REQUIRED TO COMPLY WITH ALL APPLICABLE REQUIREMENTS OF NFPA 70. PROVIDE EQUIPMENT AND OCP RATED TO MEET OR EXCEED THE AVAILABLE SERIES-RATED FAULT CURRENT AT THE RESPECTIVE NODE IN THE POWER DISTRIBUTION SYSTEM. SERIES-RATED BREAKERS/SYSTEMS ARE NOT PERMITTED WHERE PROHIBITED BY PREVAILING CODES AND STANDARDS, INCLUDING APPLICATIONS INVOLVING MOTOR CONTRIBUTION AS ADDRESSED IN ARTICLE 240.86(C) OF NFPA 70. FURNISH ELECTRONIC COPIES OF THE ELECTRICAL DOCUMENTS TO THE MANUFACTURER'S REPRESENTATIVE AND/OR EQUIPMENT SUPPLIER SO THAT PROPERLY RATED AND BRACED EQUIPMENT IS PROVIDED UNDER BASE BID. IF FAULT CURRENT VALUES ARE NOT INDICATED ON PLANS, ALSO PROVIDE FAULT CURRENT CALCULATIONS AND FURNISH RESULTS WITH EQUIPMENT SUBMITTALS.

C. GROUNDING ELECTRODE CONDUCTOR SYSTEM: PROVIDE GROUNDING ELECTRODE CONDUCTOR SYSTEM IN STRICT COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), INCLUDING ARTICLE 250 AND TABLE 250.66. THESE CONDUCTORS MAY OR MAY NOT BE INDICATED ON SINGLE-LINE DIAGRAMS, BUT SHALL BE PROVIDED UNDER BASE BID NEVERTHELESS.

D. FLUSH MOUNTED EQUIPMENT: PROVIDE FLUSH MOUNTED POWER DISTRIBUTION AND RELATED EQUIPMENT FOR APPLICATIONS IN FINISHED AREAS AND COORDINATE THESE LOCATIONS AND INSTALLATIONS WITH ARCHITECT, OWNER AND AFFECTED TRADES. ELSEWHERE PROVIDE SURFACE MOUNTED EQUIPMENT UNLESS FLUSH MOUNTED EQUIPMENT IS SHOWN ON DRAWINGS OR UNLESS NEEDED TO ACCOMMODATE UNUSUAL CONDITIONS.

E. POWER DISTRIBUTION EQUIPMENT LABELS: IN ADDITION TO LABELS REQUIRED WITHIN THE SPECIFICATIONS, INCLUDE CORRESPONDING MAXIMUM AIC (AVAILABLE INRUSH CURRENT) AND SHORT-CIRCUIT CURRENT RATING (SCCR) FOR EACH PIECE OF POWER DISTRIBUTION EQUIPMENT, ALONG WITH ARC FLASH LABELS COMPLIANT WITH ARTICLE 110.16 OF NFPA 70. ALSO INCLUDE CONDUCTOR COLOR CODING FOR THE BUILDING AND PHASE ROTATION AS APPLICABLE.

F. CONDUCTOR TERMINATIONS: IN CASES WHERE CONDUCTOR SIZES ARE TOO LARGE TO FIT INTO LUGS/TERMINALS, PROVIDE APPROPRIATE FACTORY LUG KITS FOR AFFECTED EQUIPMENT IF AVAILABLE. ELSEWHERE, PROVIDE INSULATED BUTT-SPLICES OR EQUIVALENT METHOD, WITH TAILS SIZED TO FIT LUGS/TERMINALS. PROVIDE SPLICES IN SEPARATE BOXES IF REQUIRED BASED ON FIELD CONDITIONS, BOX SIZE LIMITATIONS, ETC. CONCEAL BOXES IN ACCESSIBLE OVERHEAD JOIST SPACES IN FINISHED REGULARLY OCCUPIED AREAS.

G. ALUMINUM CONDUCTORS: PROVIDE THE FOLLOWING SUPPLEMENTAL WORK FOR ALUMINUM-CONDUCTOR ELECTRICAL EQUIPMENT CONNECTIONS, REGARDLESS OF WHO FURNISHES THE EQUIPMENT: REVIEW EQUIPMENT SUBMITTALS, INSTALLATION DOCUMENTS AND NAMEPLATES TO DETERMINE IF THERE ARE ANY WARRANTY OR UL LIMITATIONS REGARDING COPPER VERSUS ALUMINUM WIRING CONNECTIONS AT EQUIPMENT; IF THERE ARE ANY LIMITATIONS, PROVIDE LOCAL DISCONNECT AT OR NEAR EQUIPMENT (EXTERNAL TO THE EQUIPMENT) AND TERMINATE ALUMINUM CONDUCTORS TO THE LINE-SIDE LUGS/TERMINALS OF THE DISCONNECT SWITCH; PROVIDE COPPER CONDUCTORS FROM LOAD-SIDE LUGS/TERMINALS OF THE DISCONNECT SWITCH TO THE RESPECTIVE EQUIPMENT FACTORY DISCONNECT OR LUG/TERMINALS AS APPLICABLE; COORDINATE ALL RELATED WORK WITH ALL AFFECTED INSTALLERS.

H. BREAKER FRAME SIZES: AMPERE RATINGS INDICATED ON DRAWINGS FOR CIRCUIT BREAKERS ARE SHOWN TO DEFINE OVERCURRENT REQUIREMENTS/TRIP RATINGS. PROVIDE BREAKER FRAMES IN SIZES AND TYPES GREATER THAN THE DESIGNATED OVERCURRENT TRIP RATINGS WHERE NECESSARY TO ACHIEVE THE REQUIRED SELECTIVE COORDINATION, AND/OR AS NECESSARY FOR OTHER APPLICABLE REASONS.

I. PLYWOOD EQUIPMENT BOARDS: SEE SPECIFICATION SECTION 260529.00 FOR REQUIREMENTS ASSOCIATED WITH PLYWOOD EQUIPMENT BOARDS.

J. FIELD ADJUSTMENTS OF CIRCUIT BREAKERS: SET FIELD-ADJUSTABLE OVERCURRENT TRIP VALUES AS INDICATED ON DRAWINGS (UNLESS OTHERWISE SPECIFIED IN OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY). UNLESS INDICATED OTHERWISE ON DRAWINGS, OR DIRECTED OTHERWISE BY AHJ OR PREVAILING CODES, MANUFACTURER SHALL FURNISH SETTING INFORMATION BASED ON PROJECT REQUIREMENTS AND PREVAILING CODES, WHILE MINIMIZING THE POSSIBILITY OF NUISANCE TRIPPING. MANUFACTURER SHALL PROVIDE REMOVABLE AND SEALABLE COVERS OVER ALL ADJUSTABLE CIRCUIT BREAKER SETTINGS PER NEC 240.6(C).

K. ELECTRIC UTILITY SERVICE WORK: PROVIDE ALL ELECTRIC UTILITY SERVICE WORK IN STRICT COMPLIANCE WITH PREVAILING REQUIREMENTS OF THE UTILITY COMPANY. THE DRAWINGS INDICATE RELATED REQUIREMENTS AT A SCHEMATIC LEVEL. IT IS NOT THE INTENT OF THESE DRAWINGS TO DETAIL ANY SUCH WORK. UTILITY COMPANY WILL PROVIDE (FURNISH AND INSTALL) UTILITY TRANSFORMER(S). PROVIDE METER SOCKET(S) AND EMPTY CONDUIT (WITH DRAG LINE) FROM METER TO CURRENT TRANSFORMER LOCATION. UNLESS METERING OCCURS AT A PAD-MOUNTED UTILITY TRANSFORMER, PROVIDE CURRENT TRANSFORMER (CT) CABINET COMPLIANT WITH UTILITY COMPANY STANDARDS. PROVIDE CONCRETE PAD OR VAULT FOR PAD-MOUNTED UTILITY TRANSFORMER(S), AS DIRECTED BY UTILITY COMPANY AND COMPLIANT WITH UTILITY COMPANY STANDARDS. COORDINATE WITH UTILITY COMPANY AS REQUIRED TO PROVIDE COMPLETE OPERATIONAL ELECTRIC SERVICE(S)

L. NATIONAL ACCOUNT VENDOR: FOR INTERIOR PANELS CONTRACTOR SHALL CONTACT NATIONAL ACCOUNT VENDOR FOR EQUIPMENT TO BE FURNISHED BY TENANT FOR THE PROJECT. CONTRACTOR SHALL PROVIDE ALL OTHER EQUIPMENT INCLUDING EXTERIOR CABINETS, DISCONNECTS, METERS, WIREWAYS, CONDUIT AND WIRE NEEDED FOR COMPLETE SYSTEM.

M. PROVIDED BY CONTRACTOR: ALL CONDUIT, WIRE, MISCELLANEOUS ITEMS AND HARDWARE, ETC..., FOR A COMPLETE AND OPERATIONAL SYSTEM.

N. EMS UPDATES: CONTRACTOR IS TO COORDINATE ANY EMS UPDATES AND CHANGES FOR LIGHTING CONTROL AND HVAC SYSTEMS INCLUDING ANY CONTRACTOR LABOR AND MATERIALS NEEDED TO COMPLETE SYSTEM REVISIONS.

O. DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.

P. THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

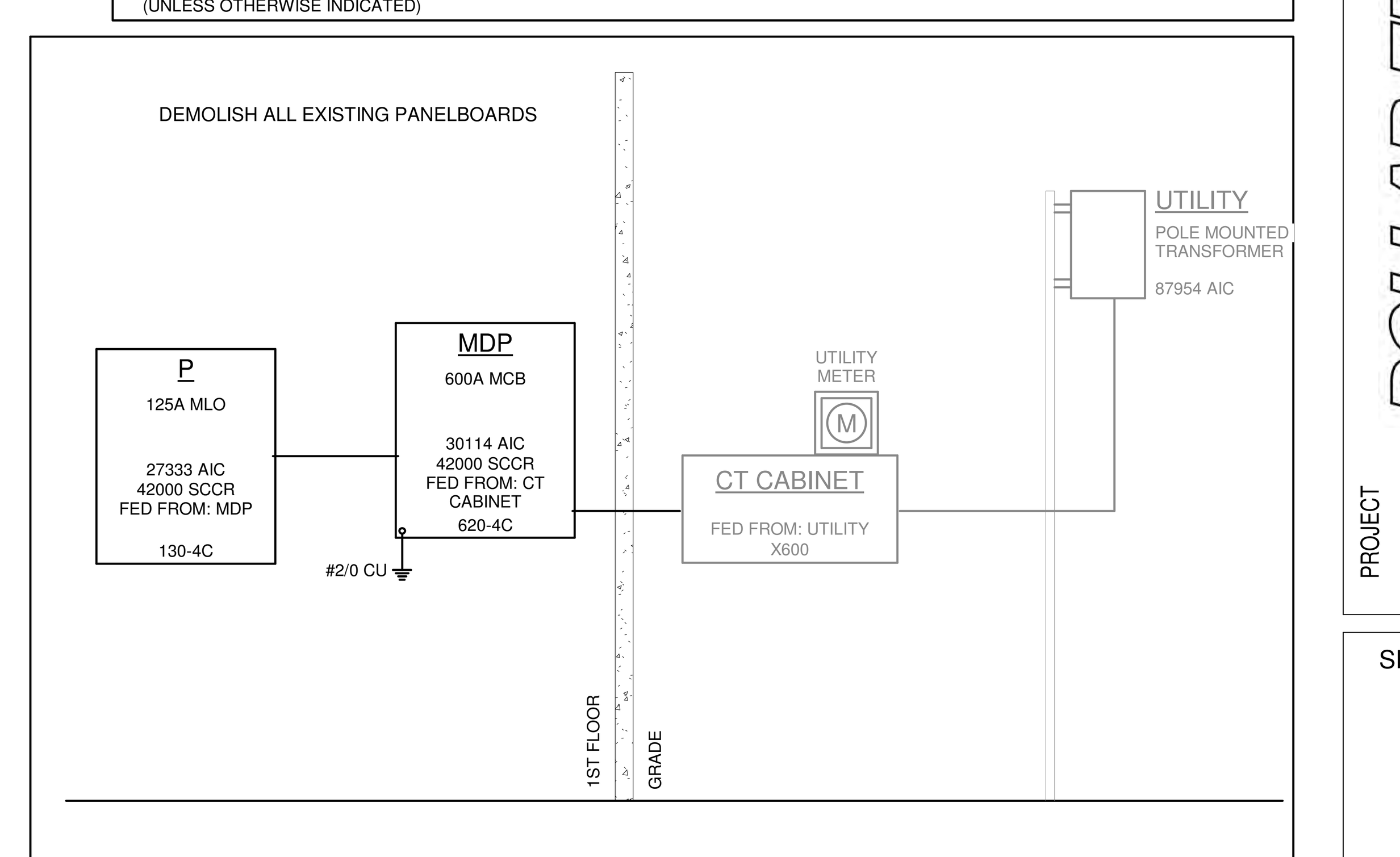
Q. BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

R. REFER TO LANDLORD DRAWINGS FOR AIC RATINGS FOR ALL ELECTRICAL EQUIPMENT

PLAN-VIEW AND GRAPHIC LINE TYPES

WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK (UNLESS OTHERWISE INDICATED)

WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE (UNLESS OTHERWISE INDICATED)



PANEL SCHEDULE LEGEND

*	=	WIRE SIZED TO COMPENSATE FOR VOLTAGE DROP
**	=	REFER TO DRAWINGS FOR SPECIFICATIONS
(#)	=	NEW CIRCUIT TO EXISTING CIRCUIT BREAKER
(->)	=	CONNECT BRANCH CIRCUIT, WHICH WAS DISCONNECTED FROM ANOTHER SOURCE AS PART OF SELECTIVE DEMOLITION, TO POLE SPACE(S) INDICATED, DETERMINE EXACT POLE ASSIGNMENT(S) BASED ON EXISTING COLOR-CODING OF THE BRANCH CIRCUIT CONDUCTOR INSULATION. PROVIDE NEW BREAKER IF REQUIRED.
(A)	=	PROVIDE ARC FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKER
(AG)	=	PROVIDE COMBINATION ARC FAULT (AFCI) / GROUND FAULT (GFCI) CIRCUIT INTERRUPTER CIRCUIT BREAKER
(ERM)	=	PROVIDE ENERGY REDUCTION MAINTENANCE (REDUCED ENERGY) CIRCUIT BREAKER
(EX)	=	EXISTING CIRCUIT TO REMAIN
(F)	=	CIRCUIT FOR FURTURE USE. PROVIDE BREAKER INDICATED. LOAD SHOWN FOR REFERENCE ONLY.
(G)	=	PROVIDE GROUND-FAULT CIRCUIT INTERRUPTER (GFCI) CIRCUIT BREAKER
(GE)	=	PROVIDE GROUND-FAULT EQUIPMENT PROTECTION (GFEP) CIRCUIT BREAKER
(H)	=	PROVIDE HANDLE TIE
(L)	=	PROVIDE LOCK-ON DEVICE
(LI)	=	PROVIDE ELECTRONIC LONG AND INSTANTANEOUS ADJUSTABILITY
(LSI)	=	PROVIDE ELECTRONIC LONG, SHORT, AND INSTANTANEOUS ADJUSTABILITY
(LSIA)	=	PROVIDE ELECTRONIC LONG, SHORT, INSTANTANEOUS, AND GROUND-FAULT ALARM ADJUSTABILITY
(LSIG)	=	PROVIDE ELECTRONIC LONG, SHORT, INSTANTANEOUS, AND GROUND-FAULT ADJUSTABILITY
(LT)	=	PROVIDE LOCK-OUT/TAG-OUT DEVICE
SL	=	SEE THE SINGLE LINE DIAGRAM / SCHEDULE FOR WIRE SIZE AND VOLTAGE DROP
(ST)	=	PROVIDE SHUNT TRIP CIRCUIT BREAKER

PANEL SCHEDULE GENERAL NOTES

A. PROVIDE HACR RATED BREAKERS ON ALL MOTOR LOADS.

B. ALL CONDUCTORS SHOWN ARE COPPER.

C. ALL VOLTAGE DROP CALCULATIONS AND COMPENSATED WIRE SIZES ARE BASED ON RIGHT ANGLE CIRCUIT LENGTHS. ACTUAL VOLTAGE DROP MAY VARY BASED ON INSTALLED WIRE LENGTH.

D. VOLTAGE DROP CALCULATIONS AND WIRE SIZES SHOWN IN THE PANEL SCHEDULES ARE FOR HOMERUN CONDUCTORS ONLY. FOR CIRCUITS WITH MORE THAN 1 DEVICE, THESE SIZES ASSUME THE CONDUCTORS DOWNSTREAM OF THE HOMERUN DEVICE ARE THE MINIMUM SIZE REQUIRED BY THE NEC BASED ON THE RATING OF THE CIRCUIT. WHERE THIS IS NOT THE CASE, IT HAS BEEN INDICATED ON THE DRAWINGS. VOLTAGE DROP TO THE FARTHEST DEVICE HAS BEEN CALCULATED TO NEVER EXCEED 5%.

E. RECEPTACLE LOADS CALCULATED AT 100% OF FIRST 10kVA, 50% OF REMAINDER. MOTOR LOADS CALCULATED AT 125% OF THE LARGEST MOTOR, 100% OF ALL OTHER MOTORS.

DOLLAR TREE ELECTRIC SINGLE LINE EQUIPMENT SCHEDULE

NOTES:
ALL CONDUIT SIZES INDICATED ARE MINIMUM SIZES. INCREASE SIZES AS REQUIRED TO ACCOMMODATE CONDUCTOR PULLING EASE, FIELD CONDITIONS, ETC.

"CU" = COPPER CONDUCTOR, "AL" = ALUMINUM CONDUCTOR

TYPICAL EQUIPMENT NAME NOMENCLATURE:
1 - POWER DISTRIBUTION SYSTEM (BLANK - NORMAL, E - EMERGENCY, S - STANDBY, L - LIFE SAFETY)
2 - DESCRIPTION (H - 480Y/277V, L - 208Y/120V)
3 - FLOOR / LEVEL
4 - SEQUENCE

FEEDER ID NOMENCLATURE:
* - INDICATES FEEDER SIZED TO COMPENSATE FOR VOLTAGE DROP
1 - GROUND TYPE (MAY BE BLANK)
U = EQUIPMENT GROUND CONDUCTOR REMOVED FOR SERVICE ENTRANCE FROM UTILITY
P = PARITY-SIZED EQUIPMENT GROUND CONDUCTOR
X = EXISTING FEEDER TO REMAIN UNLESS OTHERWISE NOTED
T = UPSIZED GROUND CONDUCTORS FOR TRANSFORMER SECONDARY
2 - CONDUCTOR AMPACITY
3 - TOTAL NUMBER OF PHASE AND GROUNDED ("NEUTRAL") CONDUCTORS
4 - CONDUCTOR MATERIAL: C = COPPER, A = ALUMINUM
5 - SPECIAL (MAY BE BLANK)
I = ISOLATED GROUND (PROVIDE CONTINUOUS INSULATED ISOLATED EQUIPMENT GROUNDING CONDUCTOR(S) FROM INSULATED ISOLATED GROUND BAR(S) TO RESPECTIVE UPSTREAM SERVICE ENTRANCE OR DERIVED SYSTEM GROUNDING ELECTRODE CONDUCTOR AS APPLICABLE.

EQUIPMENT	PHASE	EQUIPMENT TYPE	SUPPLY FROM	SPACE NUMBER	SPACE NAME	VOLTAGE	POLES	WIRES	DEMAND (kVA)	DEMAND (A)	MAINS RATING (A)	MAINS FRAME RATING (A)	MAINS TYPE	FEEDER ID	FEEDER	VD %	LUGS TYPE	SPD	ULSE	GEC	ENCLOSURE TYPE	200% NEUTRAL	K-RATING	FAULT CURRENT (A)	SHORT CIRCUIT RATING (A)	NOTES
UTILITY	Existing	Pole Mounted				208	3														NEMA 3R			87954		
-- CT CABINET	Existing	32 x 24 x 10	UTILITY			208	3	4	100.0 kVA	278 A	600	600		X600	EXISTING FEEDER, AT RATING INDICATED, TO REMAIN UNLESS NOTED OTHERWISE	0.761					NEMA 3R			30345	EXISTING	
---- MDP	New Construction	Distribution Panelboard	CT CABINET	106	PRE-SALES	208	3	4	100.0 kVA	278 A	600	600	THERMAL MAGNETIC	620-4C	(2) SETS OF (4) #350 KCMIL CU, (1) #1 AWG CU GND. IN 3" CONDUIT EACH 75C RATED	0.769			Yes	Yes	NEMA 1			30114	42000	
------ P	New Construction	Branch Panelboard	MDP	106	PRE-SALES	208	3	4	27.1 kVA	75 A	125	125	MAIN LUGS ONLY	130-4C	(4) #1 AWG CU, (1) #6 AWG CU GND. IN 1-1/2" CONDUIT 75C RATED	0.8					NEMA 1			27333	42000	

KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783 859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

MARK	DATE	BY	DESCRIPTION
REVISIONS			

DATE	02/24/2023
PROJECT	0019.30
DRAWN	RNK
CHECKED	LGF

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD
STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED PROFESSIONAL ENGINEER
3/23/2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
ELECTRIC SINGLE LINE

SHEET
E-202

KLH PROJECT 25140

COMcheck Software Version COMcheckWeb
Interior Lighting Compliance Certificate

Project Information

Energy Code: 90.1 (2010) Standard
Project Title: FORMER ENTERTAINMENT
Project Type: Alteration

Construction Site:
60930 LAKESHORE BLVD
WILLOWICK, OH 44095

Owner/Agent:

Designer/Contractor:
KLH Engineers
1538 Alexandria Pike
Fort Thomas, KY 41075

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-PRE-SALES (Common Space Types:Storage)	1439	0.63	907
2-VESTIBULE (Common Space Types:Corridor/Transition <8 ft wide)	48	0.66	32
3-SALES (Retail:Sales Area)	1607	1.68	2699
4-SALES (Retail:Sales Area)	3252	1.68	5464
5-OFFICE (Common Space Types:Office - Enclosed)	85	1.11	95
6-SALES (Retail:Sales Area)	3281	1.68	5512
7-HALL (Common Space Types:Corridor/Transition >=8 ft wide)	52	0.66	35
8-TOILET (Common Space Types:Restrooms)	56	0.98	55
9-HALL (Common Space Types:Corridor/Transition <8 ft wide)	83	0.66	55
10-TOILET (Common Space Types:Restrooms)	56	0.98	55
		Total Allowed Watts =	14908

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
PRE-SALES (Common Space Types: Storage, 1438 sq.ft.)				
F8: F8: LINEAR SURFACE: Other:	1	3	40	120
F8-EMB: F8-EMB: 8'0 STRIP LIGHT WITH INTEGRAL B: Other:	2	3	36	108
VESTIBULE (Common Space Types: Corridor/Transition <8 ft wide, 48 sq.ft.)				
F4-EMB: F4-EMB: 4'0 STRIP LIGHT WITH INTEGRAL B: Other:	2	1	36	36
SALES (Retail: Sales Area, 1606 sq.ft.)				
F8: F8: LINEAR SURFACE: Other:	1	19	40	760
F8-EMB: F8-EMB: 8'0 STRIP LIGHT WITH INTEGRAL B: Other:	2	6	36	216
F4: F4: 4'0 STRIP LIGHT: Other:	2	1	36	36
SALES (Retail: Sales Area, 3252 sq.ft.)				
F8: F8: LINEAR SURFACE: Other:	1	47	40	1880
F8-EMB: F8-EMB: 8'0 STRIP LIGHT WITH INTEGRAL B: Other:	2	6	36	216
OFFICE (Common Space Types: Office - Enclosed, 85 sq.ft.)				

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
F8: F8: LINEAR SURFACE: Other:	1	1	40	40
SALES (Retail: Sales Area, 3281 sq.ft.)				
F8: F8: LINEAR SURFACE: Other:	1	33	40	1320
F8-EMB: F8-EMB: 8'0 STRIP LIGHT WITH INTEGRAL B: Other:	2	6	36	216
HALL (Common Space Types: Corridor/Transition >=8 ft wide, 52 sq.ft.)				
F4-EMB: F4-EMB: 4'0 STRIP LIGHT WITH INTEGRAL B: Other:	2	1	36	36
TOILET (Common Space Types: Restrooms, 56 sq.ft.)				
F4-EMB: F4-EMB: 4'0 STRIP LIGHT WITH INTEGRAL B: Other:	2	1	36	36
HALL (Common Space Types: Corridor/Transition <8 ft wide, 83 sq.ft.)				
F8-EMB: F8-EMB: 8'0 STRIP LIGHT WITH INTEGRAL B: Other:	2	1	36	36
TOILET (Common Space Types: Restrooms, 56 sq.ft.)				
F4-EMB: F4-EMB: 4'0 STRIP LIGHT WITH INTEGRAL B: Other:	2	1	36	36
		Total Proposed Watts =		5092

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 90.1 (2010) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

COMcheck Software Version COMcheckWeb
Inspection Checklist

Energy Code: 90.1 (2010) Standard

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plain Review	Complies?	Comments/Assumptions
4.2.2,8.4.1,1.8.4.1,2.8.7 [PR6][3]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder connectors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
4.2.2,9.4.4,9.7 [PR4][3]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

Section # & Req.ID	Rough-in Electrical Inspection	Complies?	Comments/Assumptions
8.4.2 [EL10][3]	At least 50% of all 125 volt 15- and 20-Amp receptacles are controlled by an automatic control device.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
9.4.1.1 [EL1][3]	Automatic controls to shut off all building lighting.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.
9.4.1.2 [EL2][3]	Independent lighting controls installed per approved lighting plans and all manual controls readily accessible and visible to occupants.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.
9.4.1.3 [EL11][3]	Parking garage lighting is equipped with required lighting controls and daylight transition zone lighting.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
9.4.1.4 [EL12][3]	Primary sidelighted areas >=250 ft2 are equipped with required lighting controls.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	**Exception:** Retail spaces.
9.4.1.5 [EL13][3]	Enclosed spaces with daylight area under skylights and rooftop monitors >900 ft2 are equipped with required lighting controls.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
9.4.1.6 [EL4][3]	Separate lighting control devices for specific uses installed per approved lighting plans.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.
9.4.2 [EL6][3]	Exit signs do not exceed 5 watts per face.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.
9.6.2 [EL8][3]	Additional Interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

Section # & Req.ID	Final inspection	Complies?	Comments/Assumptions
8.7.1 [FI16][3]	Furnished as-built drawings for electric power systems within 30 days of system acceptance.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.
8.7.2 [FI17][3]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.
9.2.2.3 [FI18][3]	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Interior Lighting fixture schedule for values.*

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

KLH ENGINEERS
PLUMBING, FIRE PROTECTION, MECHANICAL & ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
LEXINGTON, KENTUCKY
1538 ALEXANDRIA PIKE, SUITE 11
FORT THOMAS, KENTUCKY 41075
859-344-9199 859-442-8000
COLUMBUS, OHIO
NEW YORK

MARK	DATE	DESCRIPTION
		BY
		REVISIONS

DATE 02/24/2023
PROJECT 0018.30
DRAWN RNK
CHECKED LGF

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD

STATE OF OHIO
STEPHEN N. FIEDERLE
E-79232
REGISTERED
PROFESSIONAL ENGINEER
3/23/2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
DRAWING
ELECTRICAL COMPLIANCE

SHEET
EN-101

KLH PROJECT 25140

COM*check* Software Version 4.1.5.3

Mechanical Compliance Certificate

Project Information

Energy Code:	90.1 (2010) Standard
Project Title:	Dollar Tree
Location:	Willowick, Ohio
Climate Zone:	5a
Project Type:	Alteration

Construction Site:
60930 Lakeshore Blvd
Willowick, OH 44095

Owner/Agent:

Designer/Contractor:
KLH Engineers
1538 Alexandria Pike
Suite #11
Fort Thomas, KY 41075

Mechanical Systems List

Quantity	System Type & Description
1	Water Heater 1: Electric Storage Water Heater, Capacity: 10 gallons No minimum efficiency requirement applies
	SWH COMPLIANCE REQUIRED.

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2010) Standard requirements in COM*check* Version 4.1.5.3 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title _____ Signature _____ Date _____

COM*check* Software Version 4.1.5.3

Inspection Checklist

Energy Code: 90.1 (2010) Standard

Requirements: 100.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
4.2.2.7.7, 1.10.4.2 [PR3][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.
4.2.2.8.4, 1.1.8.4.1, 2.8.7 [PR6][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder connectors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-in Inspection	Complies?	Comments/Assumptions
7.4.4.1 [PL2][1]	Temperature controls installed on service water heating systems (<=120°F to maximum temperature for intended use).	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.
7.4.6 [PL4][1]	Heat traps installed on non-circulating storage water tanks.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-in Inspection	Complies?	Comments/Assumptions
6.4.3.4.5 [ME39][1]	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.7.1.5 [ME49][1]	Approved field test used to evaluate design air flow rates and demonstrate proper capture and containment of kitchen exhaust systems.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
7.4.2 [ME36][1]	Service water heating equipment meets efficiency requirements.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-in Electrical Inspection	Complies?	Comments/Assumptions
8.4.2 [EL10][1]	At least 50% of all 125 volt 15- and 20-Amp receptacles are controlled by an automatic control device.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.
10.4.1 [EL9][1]	Electric motors meet requirements where applicable	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
7.4.4.3 [FI13][1]	Public lavatory faucet water temperature <=110°F.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.
10.4.3 [FI24][1]	Elevators are designed with the proper lighting, ventilation power, and standby mode.	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
7.4.3 [FI45][1]	First 8 ft of outlet piping is insulated	☐Complies ☐Does Not: ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

KLH ENGINEERS
PROFESSIONAL ENGINEERS, INC.
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT THOMAS, KENTUCKY 41075
859-261-8700 859-442-8000
LEXINGTON, KENTUCKY
CINCINNATI, OHIO
COLUMBUS, OHIO
NEW YORK, NEW YORK

MARK	DATE	DESCRIPTION
	BY	

DATE 02/24/2023
PROJECT 0018.30
DRAWN CAF
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BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

PROFESSIONAL OF RECORD

STATE OF OHIO
KRIS T. SCHNITGEN
E-77432
REGISTERED PROFESSIONAL ENGINEER
3/23/2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
MECHANICAL COMPLIANCE

SHEET
EN-102

KLH PROJECT 25140

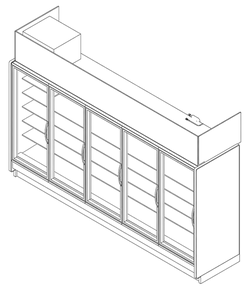
JNRBHSA

High Narrow Reach-In Self Contained Merchandiser
1, 2, 3, 4, 5 Door & 4' (Dairy/Deli/Beverage)

GENERAL NOTES:
- Lighting Controls and Anti Sweat Heat Controls are Required
- Option 1: OEM Provided:

Occupancy Sensor Based Lighting Controls (On/Off) & Hillphoenix provided embedded Anti Sweat Controls are standard, unless otherwise specified
- Option 2: End User Provided:

Lighting Controls should be Occupancy Sensor Based or on a minimum 8 Hour Off Schedule. Customer provided A/S Heat Controls should be set to 30% minimum off time at 75°F/55%RH
- 1 Door & 4' case lengths available in 120V R448A condensing unit configuration.
- 2,3,4 & 5 door lengths available in 208V R404A/R448A condensing unit configuration.



SHIPPING WEIGHT	
Case	Weight
JNRBHSA	---

2017 DOE COMPLIANT NSF c UL us COMPONENT

ALL MEASUREMENTS ARE TAKEN PER ASHRAE 72-2005 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

JNRBHSA

Rev. Date	Rev. #	Rev. Title
10-16-19	11	DATA UPDATE
10-16-19	10	ENDVIEW UPDATE

Hillphoenix

REACH-IN FREEZER/COOLER SHEET 1 OF 8

JNRBHSA (R404A)

High Narrow Reach-In Self Contained Merchandiser
1, 2, 3, 4, 5 Door & 4' (Dairy/Deli/Beverage)

SYSTEM REQUIREMENT (R-404A REFRIGERANT)

Case Length	Volts	Phase	Frequency	Minimum Circuit Ampacity (MCA)	Maximum Overcurrent Protection (MOP)
2 Door	208	1	60	16.3	20
3 Door	208	1	60	16.5	20
4 Door	208	1	60	16.6	20
5 Door	208	1	60	18.4	20

*- 24 Hour Energy values includes evaporate fans, standard LEDs, anti-condensate heat & condensing unit

GUIDELINES AND CONTROL SETTINGS (R-404A REFRIGERANT)

Case Length	Application	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Set Point Differential (°F)	Discharge Air Velocity (FPM)
2 - 5 Door	Beverage	6 - 8	35	6	230
2 - 5 Door	Dairy	6 - 8	30	6	230
2 - 5 Door	Deli	6 - 8	29	6	230

CONDENSING UNIT DATA (R-404A REFRIGERANT)

Case Length	Volts	Phase	Frequency	Horsepower	Running Load Amps (RLA) (Amps)	Locked Rotor Amps (LRA) (Amps)	Refrigerant	Lbs. of Refrigerant
2 Door	208	1	60	1/3	4.2	16.8	R404A	2.2
3 Door	208	1	60	1/3	4.2	16.8	R404A	2.6
4 Door	208	1	60	1/3	4.2	16.8	R404A	3.0
5 Door	208	1	60	1/2	5.3	26.5	R404A	3.5

DEFROST CONTROLS (R-404A REFRIGERANT)

Case Length	Defrosts Per Day	Run-Off Time (Min)	Fail-Safe (Min)	Termination Temp (F)
2 - 5 Door	2	0	46	44

DEFROST SCHEDULE (R-404A REFRIGERANT)

Defrosts Per Day	Time
2	12 a.m. - 12 p.m.

NOTES:
- "---" indicates that this feature is not an option on this case model.
- Listed discharge air velocity represents the average velocity at the peak of defrost.
- Temperature and defrost settings listed below are recommended start-up settings. Final operational settings may need to be adjusted for the store conditions in which the case operates.
- The recommended evaporator temperatures may need to be adjusted based on system setup, store conditions, etc. The minimum recommended evaporator temperature is 4°F below the listed evaporator temperature.
- The 24 Hour Energy Value is based upon AHRI 1200 test conditions with Hillphoenix provided Lights, occupancy sensor based (on/off) lighting control and dew point based anti sweat heat controller.

2017 DOE COMPLIANT NSF c UL us COMPONENT

ALL MEASUREMENTS ARE TAKEN PER ASHRAE 72-2005 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

JNRBHSA (R404A)

Rev. Date	Rev. #	Rev. Title
10-16-19	11	DATA UPDATE
10-16-19	10	ENDVIEW UPDATE

Hillphoenix

REACH-IN FREEZER/COOLER SHEET 2 OF 8

JNRBHSA

High Narrow Reach-In Self Contained Merchandiser
1, 2, 3, 4, 5 Door & 4' (Dairy/Deli/Beverage)

DOOR OPTIONS

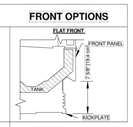
STANDARD SWING DOOR 2, 3, 4 & 5 - DOOR CASES

STANDARD SWING DOOR 1 - DOOR CASES

BI- SWING DOOR 4' CASES

FRONT OPTIONS

FLAT FRONT



2017 DOE COMPLIANT NSF c UL us COMPONENT

ALL MEASUREMENTS ARE TAKEN PER ASHRAE 72-2005 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

JNRBHSA

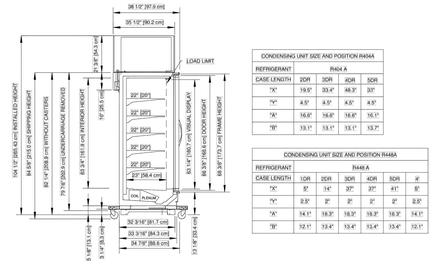
Rev. Date	Rev. #	Rev. Title
10-16-19	11	DATA UPDATE
10-16-19	10	ENDVIEW UPDATE

Hillphoenix

REACH-IN FREEZER/COOLER SHEET 3 OF 8

JNRBHSA

High Narrow Reach-In Self Contained Merchandiser
1, 2, 3, 4, 5 Door & 4' (Dairy/Deli/Beverage)

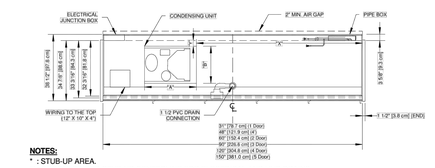


CONDENSING UNIT SIZE AND POSITION R404A

REFRIGERANT	R404 A			
CASE LENGTH	2DR	3DR	4DR	5DR
"X"	19.5"	33.4"	48.3"	33"
"Y"	4.5"	4.5"	4.5"	4.5"
"A"	16.6"	16.6"	16.6"	16.1"
"B"	13.1"	13.1"	13.1"	13.7"

CONDENSING UNIT SIZE AND POSITION R448A

REFRIGERANT	R448 A					
CASE LENGTH	1DR	2DR	3DR	4DR	5DR	4'
"X"	5"	14"	37"	37"	41"	5"
"Y"	2.5"	2"	2"	2"	2"	2.5"
"A"	14.1"	18.3"	18.3"	18.3"	18.3"	14.1"
"B"	12.1"	13.4"	13.4"	13.4"	13.4"	12.1"



NOTES:
* : STUB-UP AREA.
** : RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS.

- Specialized Base Frame:
- Case fits through 80" doorway with shipping undercarriage removed.
- 2" lifting brackets (installed) & 3.25" ship loose risers combine for 5" baseframe once installled.
- Drain traps ship loose.
- Ends add approximately 1" to case height, 1/2" to the back & 1" to the front.

2017 DOE COMPLIANT NSF c UL us COMPONENT

ALL MEASUREMENTS ARE TAKEN PER ASHRAE 72-2005 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

JNRBHSA

Rev. Date	Rev. #	Rev. Title
10-16-19	11	DATA UPDATE
10-16-19	10	ENDVIEW UPDATE

Hillphoenix

REACH-IN FREEZER/COOLER SHEET 4 OF 6

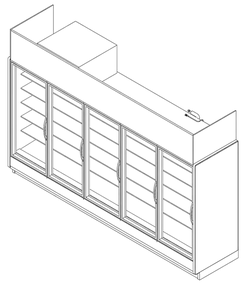
JNRZHSA

High Narrow Reach-In Self Contained Merchandiser
2, 3, 4 & 5 Door (Frozen Food)

GENERAL NOTES:
- Lighting Controls and Anti Sweat Heat Controls are Required
- Option 1: OEM Provided:

Occupancy Sensor Based Lighting Controls (On/Off) & Hillphoenix provided embedded Anti Sweat Controls are standard, unless otherwise specified
- Option 2: End User Provided:

Lighting Controls should be Occupancy Sensor Based or on a minimum 8 Hour Off Schedule. Customer provided A/S Heat Controls should be set to 30% minimum off time at 75°F/55%RH
- 2,3,4, & 5 door case lengths are available in 208V R404A / R448A Condensing Unit Configuration



SHIPPING WEIGHT	
Case	Weight
JNRZHSA	---

2017 DOE COMPLIANT NSF c UL us COMPONENT

ALL MEASUREMENTS ARE TAKEN PER ASHRAE 72-2005 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

JNRZHSA

Rev. Date	Rev. #	Rev. Title
10-17-19	7	ENDVIEW UPDATE
9-12-19	6	DATA UPDATE

Hillphoenix

2 **REACH-IN FREEZER/COOLER SHEET 5 OF 8**

JNRZHSA (R404A)

High Narrow Reach-In Self Contained Merchandiser
2, 3, 4 & 5 Door (Frozen Food)

SYSTEM REQUIREMENT (R404A)

Case Length	Volts	Phase	Frequency	Minimum Circuit Ampacity (MCA)	Maximum Overcurrent Protection (MOP)
2 Door	208	1	60	24.1	30.0
3 Door	208	1	60	24.9	30.0
4 Door	208	1	60	29.8	30.0
5 Door	208	1	60	30.0	30.0

*- 24 Hour Energy values includes evaporate fans, standard LEDs, anti-condensate heat & condensing unit

GUIDELINES AND CONTROL SETTINGS (R404A)

Case Length	Superheat Set Point @ Bulb (°F)	Set Point Differential (F)	Discharge Air (°F)	Discharge Air Velocity (FPM)
2 Door	3 - 5	6	- 9	300
3 Door	3 - 5	6	- 9	300
4 Door	3 - 5	6	- 9	300
5 Door	3 - 5	6	- 9	300

CONDENSING UNIT DATA (R404A)

Case Length	Volts	Phase	Frequency	Horsepower	Running Load Amps (RLA) (Amps)	Locked Rotor Amps (LRA) (Amps)	Refrigerant	Lbs. of Refrigerant
2 Door	208	1	60	3/4	9.0	43.0	R404A	2.8
3 Door	208	1	60	1	9.3	46.0	R404A	3.4
4 Door	208	1	60	1 1/4	12.6	55.0	R404A	3.7
5 Door	208	1	60	2	12.0	56.0	R404A	6.2

DEFROST CONTROLS (R404A)

	Electric Defrost		
Defrosts Per Day	Run Off Time (Min) Electric	Fail-Safe (Min)	Termination Temp (°F)
1	0	46	48

DEFROST SCHEDULE (R404A)

Defrosts Per Day	Time
1	12 midnight

NOTES:
- "---" indicates that this feature is not an option on this case model.
- Listed discharge air velocity represents the average velocity at the peak of defrost.
- Temperature and defrost settings listed below are recommended start-up settings. Final operational settings may need to be adjusted for the store conditions in which the case operates.
- The recommended evaporator temperatures may need to be adjusted based on system setup, store conditions, etc. The minimum recommended evaporator temperature is 4°F below the listed evaporator temperature.
- The 24 Hour Energy Value is based upon AHRI 1200 test conditions with Hillphoenix provided Lights, occupancy sensor based (on/off) lighting control and dew point based anti sweat heat controller.

2017 DOE COMPLIANT NSF c UL us COMPONENT

ALL MEASUREMENTS ARE TAKEN PER ASHRAE 72-2005 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

JNRZHSA (R404A)

Rev. Date	Rev. #	Rev. Title
10-17-19	7	ENDVIEW UPDATE
9-12-19	6	DATA UPDATE

Hillphoenix

REACH-IN FREEZER/COOLER SHEET 6 OF 8

JNRZHSA

High Narrow Reach-In Self Contained Merchandiser
2, 3, 4 & 5 Door (Frozen Food)

DOOR OPTIONS

STANDARD SWING DOOR 2, 3, 4 & 5 - DOOR CASES

FRONT OPTIONS

FLAT FRONT (G SERIES)

2017 DOE COMPLIANT NSF c UL us COMPONENT

ALL MEASUREMENTS ARE TAKEN PER ASHRAE 72-2005 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

JNRZHSA

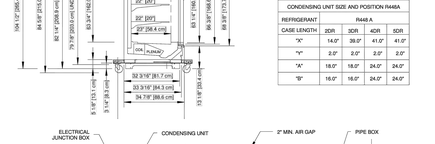
Rev. Date	Rev. #	Rev. Title
10-17-19	7	ENDVIEW UPDATE
9-12-19	6	DATA UPDATE

Hillphoenix

REACH-IN FREEZER/COOLER SHEET 7 OF 8

JNRZHSA

High Narrow Reach-In Self Contained Merchandiser
2, 3, 4 & 5 Door (Frozen Food)

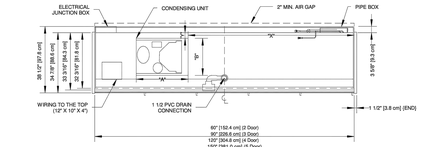


CONDENSING UNIT SIZE AND POSITION R404A

REFRIGERANT	R404 A			
CASE LENGTH	2DR	3DR	4DR	5DR
"X"	19.5"	33.4"	48.3"	33.0"
"Y"	5.5"	4.5"	4.5"	2.0"
"A"	17.5"	24.0"	24.0"	34.1"
"B"	14.4"	17.5"	17.1"	25.2"

CONDENSING UNIT SIZE AND POSITION R448A

REFRIGERANT	R448 A			
CASE LENGTH	2DR	3DR	4DR	5DR
"X"	14.0"	39.0"	41.0"	41.0"
"Y"	2.0"	2.0"	2.0"	2.0"
"A"	18.0"	18.0"	24.0"	24.0"
"B"	16.0"	16.0"	24.0"	24.0"



NOTES:
* : STUB-UP AREA
** : RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- Specialized Base Frame.
- Case fits through 80" doorway with shipping undercarriage removed.
- 2" lifting brackets (installed) & 3.25" ship loose risers combine for 5" baseframe once installled.
- Drain traps ship loose.
- Ends add approximately 1" to case height, 1/2" to the back & 1" to the front.

2017 DOE COMPLIANT NSF c UL us COMPONENT

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JNRZHSA

Rev. Date	Rev. #	Rev. Title
10-17-19	7	ENDVIEW UPDATE
9-12-19	6	DATA UPDATE

Hillphoenix

REACH-IN FREEZER/COOLER SHEET 8 OF 8

DESCRIPTION	BY	DATE	MARK
			REVISIONS

DATE	PROJECT	DRAWN	CHECKED
02/24/2023	0019.30	BE	BE

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

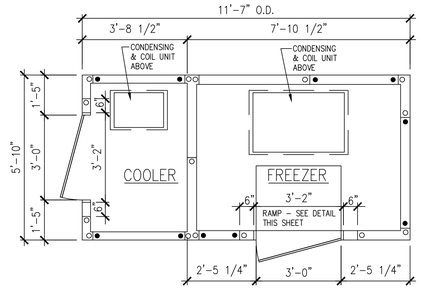
FOR INFORMATION ONLY
NO SIGNATURE REQUIRED

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
DRAWING
REACH-IN UNITS DETAILS AND SPECIFICATIONS

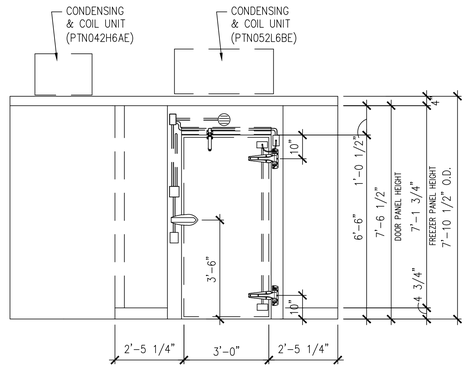
SHEET
DS1

FOR REFERENCE ONLY

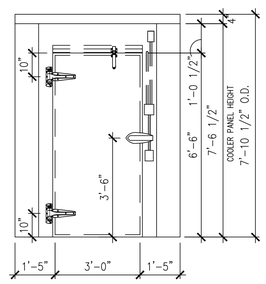
NSF LABEL
N.S.F. LISTED (STD #7)
N.S.F. GASKET @ ALL PANEL JOINTS



PLAN VIEW



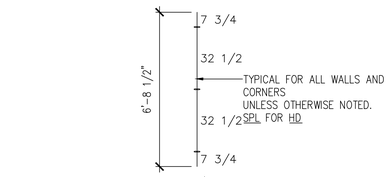
FRONT ELEVATION



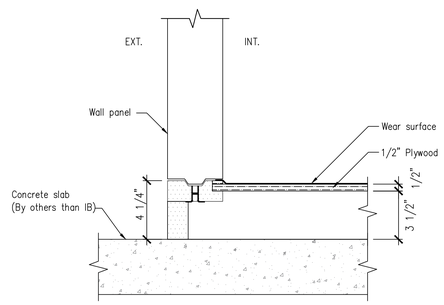
SIDE ELEVATION

Allow 2 feet clearance above refrig. unit to remove top panel and to allow service access.

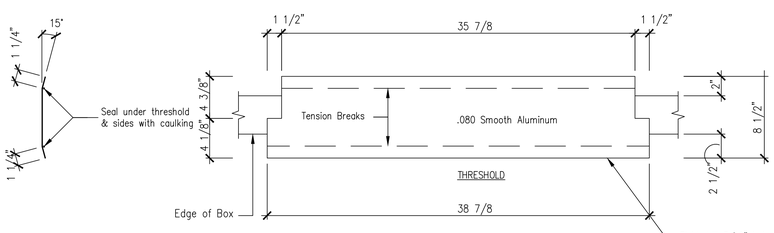
NOTE:
Packaged refrigeration systems need proper ventilation to operate correctly. A minimum of 1,000 cfm per compressor horsepower of make up air and exhaust air is required for proper cooling. Failing to provide adequate ventilation can cause premature compressor failure and may void compressor warranty. Contact manufacturer for additional details.



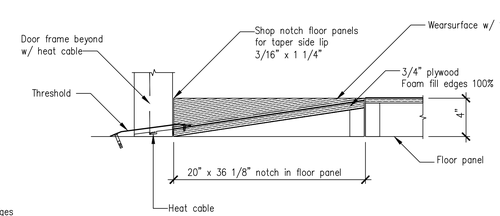
VERTICAL CAM/PIN LAYOUT

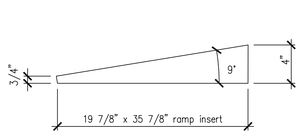


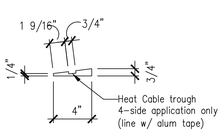
3 1/2" HTFN FLOOR



24" DEEP INTERIOR RAMP DETAIL







TAPERED THERMOLITE

NOTE: Fill all voids solid below threshold w/ urethane foam or grout

NOTE: Due to construction variables seal threshold/jamb joint w/ silicone

NOTE: Raise door leaf 1/4" for sloped ramp sill

SPECIFICATIONS

Indoor freezer (with floor)
Vinyl NSF gasket (1/16" joint thickness), Cam-lock layout SN1

SPECIAL INSTRUCTIONS
Standard crating

WALL PANELS
Construction: 4" urethane
Exterior Finish: Stucco galvalume
Interior Finish: Stucco galvalume
Ceiling connections: Camlock
Floor connections: Camlock

CEILING PANELS
Construction: 4" high density urethane
Exterior Finish: Metal
Interior Finish: Stucco galvalume
Ceiling Caps: Factory mounted
Live Load: 10 psf

FLOOR PANELS
Model: Hand-Truck Floor panels model #HTFN (NSF)
Construction: 3 1/2" high density urethane
w/ .063 aluminum diamond tread (low profile) @ interior
over 1/2" plywood
w/ Metal @ exterior

DOORS
[A] 36" x 75 1/4" flush model G3 self-closing freezer door
*** ELECTRICAL COMPONENTS PRE-WIRED ***
Frame: 4" high density urethane, 3-sided
w/ Stucco galvalume both sides
w/ 24 ga. stainless steel 430 (magnetic) liners
w/ 4-sided heat cable in frame [FL-4-116W]
(24'-11 1/2" x 5 ohms/ft (125 total ohms) @ 4.7 watts/ft + Pepi - 120V, 1A)
Leaf: 4" thick, 3-side lap, raised 1/4"
w/ Stucco galvalume both sides
w/ Magnetic gasket
(2) Component Hardware #W59 spring assisted adjustable hinge
(1) Kason #1229 handle only
(1) Kason #1094 hydraulic door closer
(1) Weiss XWA11V temperature monitor w/ external buzzer
(2) Terminal J-box @ int.
(1) Kason 1832 heated air vent (23W, 120V, .2A)
(1) .080 smooth aluminum threshold for interior ramp

REFRIGERATION
(1) ea. Freezer - Indoor R404a self-contained system
7059 BTU/H @ 10℉ TD with 14.7 hr runtime @ -10℉ inside/95℉ outside room
95℉ @ cond. unit, 1289ft altitude
(1) Climate Control R404a air cooled self contained unit #PTN052L6BE
208-230V/1ø/60Hz/3HP Pro3 compressor
MCA=24, MOPD =30
42W x 52D x 19H x 280lbs.
Opening: 25W x 38.5D

NOTES.
Meets 2009 Federal Energy Independence and Security Act Requirements.

STANDARD NOTES
1. To prevent condensation, a minimum 2" from the walk-in exterior surface is required. High humidity conditions may require force ventilation in addition to clearance.
2. Installation site floor must be true and level within 3/16" per 10' or additional costs may be incurred.
3. Imperial Brown's sliding and vertical lift doors shall not be considered means of egress. Check code egress requirements for your application.

ELECTRICAL
Field electrician to verify maximum acceptable load for light switches.If load is too high, then relay type controls should be used.
After wiring devices, ALL conduits must be sealed to stop moisture transfer through electrical raceways.
Failure to seal device per NEC codes WILL VOID WARRANTY.

REVISIONS
01 05/22/2019 process order

MARK	DATE	DESCRIPTION
	BY	

DATE 02/24/2023
PROJECT 0019.30
DRAWN BE
CHECKED BE

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

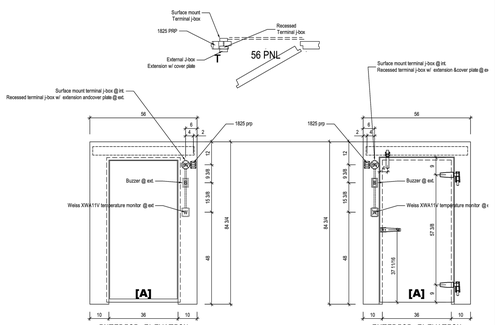
FOR INFORMATION ONLY
NO SIGNATURE REQUIRED

DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD. WILLOWICK, OH 44095
REACH-IN UNITS DETAILS AND SPECIFICATIONS

PROJECT
DRAWING

SHEET
DS2

FOR REFERENCE ONLY



Imperial BROWN

Serial # 19-IB-31168-01A | Mfg. Date 7/22/2019

UL LISTED E62340 228T

DOOR PANEL ASSEMBLY (Electrical Components)

Model #: FL-4-116W

120 VAC - 60Hz -1.04 A

NSF

This door is designed and certified for use in walk-in freezer applications (#SW1-L4.0-036x075-2000011.IB)

WARNING: Cancer and Reproductive Harm www.P65Warnings.ca.gov

For installation manuals, warranty information and other resources regarding this product, just snap the QR Code or visit:

www.imperialbrown.com

MANUFACTURED BY

IMPERIAL BROWN (Mid-West Division)
2115 West Main Street - Prague, OK 74864
405-567-1960

GENERAL NOTES:

1. THE PROPOSED FREEZER/COOLER UNIT SIZE IS INDICATED ON FLOOR PLAN.
2. ALL WALK-IN & MERCHANDISING UNITS ARE SELF CONTAINED AND DO NOT REQUIRE A FLOOR DRAIN.
3. INSTALLATION OF THESE NSF, ETL & UL LISTED UNITS SHALL COMPLY WITH ALL STATE AND LOCAL CODES PER APPROVED PLANS.
4. ALL PANELS ARE LISTED UNDER LARR #25184

[1] REFER TO SPECIFICATIONS

		MARK	DESCRIPTION
		DATE	
		BY	
			REVISIONS
DATE	02/24/2023	DRAWN	BE
PROJECT	0019.30	CHECKED	BE

BEA
BRIAN EADY ARCHITECTS

FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

FOR INFORMATION ONLY
NO SIGNATURE REQUIRED

DOLLAR TREE

PROJECT: FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
REACH-IN UNITS DETAILS AND SPECIFICATIONS

DRAWING

SHEET DS3

Guangzhou LEDIA Lighting Technology Co., Ltd
Tel: +86 (20) 3770 6055 E-mail: sales@ledialighting.com
Factory address: No.1 Xian Ke 1st road, Huadong Town, Huadu Dist., Guangzhou, China
www.ledialighting.com

Specification

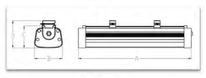
LED Vapor Tight Light

Item No. LD-TL-B024
LD-TL-B030
LD-TL-B040
LD-TL-B050
LD-TL-B060

NOTES:
1. This specification for our regular product specifications.
2. The right of final interpretation of this specification to Guangzhou LEDIA Lighting Technology Co., Ltd.


Close View


Outlook


Dimensions

Guangzhou LEDIA Lighting Technology Co., Ltd
Tel: +86 (20) 3770 6055 E-mail: sales@ledialighting.com
Factory address: No.1 Xian Ke 1st road, Huadong Town, Huadu Dist., Guangzhou, China
www.ledialighting.com

PRODUCT DESCRIPTION	FEATURES	COMPONENTS	DIMMING
• LED Tri-proof light or LED Tight Vapor Light • Even light distribution, no glare • • Waterproof, dustproof and corrosion-proof, can be applied in tough industrial environment that is corrosive, dusted, damp or rainy. • Perfect to apply in: supermarkets, warehouses, parking lots, bus stops, power plants, steel plants, petroleum plants, ship yards, subways, etc.	• 120° wide beam angle • High efficacy • Frosted cover: 100lm/W • Clear cover: 115lm/W • IP65 • High lumen maintenance: 80% @36,000 hours • Aluminum main part, good for heat dissipation • Flexible installation: suspended or surface mounted	• LEDs: SMD2835(,MB0) • 6063 Aluminum heat sink, housing and side caps • Polycarbonate cover (Frosted/Clear) • Flaming rating of polycarbonate cover: UL94-V2 • Internal isolated driver	• Protocol of PWM 0-10V dimming (optional)

Specification

Spec		LD-TL-B024-8A/830-30W	LD-TL-B030-8A/830-30W	LD-TL-B040-8A/830-30W	LD-TL-B050-8A/830-30W	LD-TL-B060-8A/830-30W
General performance	Lumen Output(lm)-Frosted/Clear	2400/2760	3000/3450	4000/4600	5000/5750	6000/6900
	Efficacy (lm/W)-Frosted/Clear	100/115	100/115	100/115	100/115	100/115
	Color Temperature CCT	2800-3500K/3800-4500K/5500-6500K				
	Lumen Maintenance (L70)	>50,000 hours				
	Color Rendering Index (CRI)	>80				
	Beam Angle	120°				
Electrical	Power Consumption	24W	30W	40W	50W	60W
	Power Factor	>0.9				
	Input Voltage (V)	120/277V/100-240VAC				
Packing info	Product Dimension(mm)	600x96x83mm (2ft)/1200x96x83mm (4ft)				
	Net Weight/PCS	1.2	1.2	2.1	2.1	2.1
	Package Dimension(mm)	712×427×267		1312×427×267		
	Qty/Carton	6pcs/CTN				
	Gross Weight/Carton	8		14		
Others	Material	Aluminum + Polycarbonate				
	Operating Temperature	-20°C to 40°C				
	Humidity	10% - 90% RH, non condensing				
	Installation	1) Suspended 2)Surface mounted				

A Brand of Heatcraft Refrigeration Products
2175 West Park Place Boulevard
Stone Mountain, GA 30087
800.537.7775
www.larkinproducts.com

PTN052L6BE

Project:	Dollar Tree Stores	QUOTATION:	
Location:	Various	Submitted by:	Mike S. Jarrell
Customer:		DATE:	7/9/2015
Identity #:		☑ For Record ☐ For Approval	By:_____ Date:_____
Tag:	Freezer		

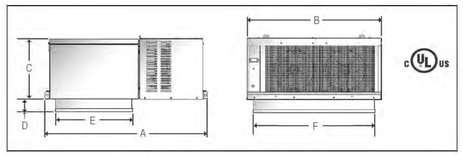
PHYSICAL & ELECTRICAL & CAPACITY DATA

REFRIGERANT	EVAPORATOR CFM	POWER SUPPLY Volts / Ph / Hz	MCA*	MOP†	Unit Amps	NEMA Receptacle	APPROX. NET WEIGHT	Refrig. Charge (OZ)
R404A	900	208-230/1/60	18.1	20	15.3	6-20R	275	45

*MCA=Minimum Circuit Ampacity
†MOP = Maximum Overcurrent Protection

CAPACITY (BTUH)

+35°F Room	+38°F Room	0°F Room	-10°F Room	-20°F Room	AMBIENT TEMP
0	0	7000	5360	3910	CAPACITY (BTUH) at 95°F Ambient



c UL us

DIMENSIONS (inches)

A	B	C	D	E	F	G	H	J	K
52	42	19	4	24.75	38.25				

DIMENSIONS (inches)

L	M	N	P	R	S	T	U	V	W

SST = Saturated Suction Temperature

WALK-IN FREEZER SHEET 1 OF 2

A Brand of Heatcraft Refrigeration Products
2175 West Park Place Boulevard
Stone Mountain, GA 30087
800.537.7775
www.larkinproducts.com

PTN052L6BE

Project:	Dollar Tree Stores	QUOTATION:	
Location:	Various	Submitted by:	Mike S. Jarrell
Customer:		DATE:	7/9/2015
Identity #:		☑ For Record ☐ For Approval	By:_____ Date:_____
Tag:	Freezer		

STANDARD FEATURES

Cabinet & Construction:
- Top mount design with evaporator grill flush to ceiling
- Electronic controls for accurate temperature control
- Liquid-line drier on medium and large cabinet models
- System is factory assembled, evacuated, charged, run tested and wired – no piping or loose components to install
- Cabinet panels are fabricated from heavy-gauge aluminum
- 2 year product warranty

Fans:
- Direct drive fan motors
- PSC fan motor in condensing unit section
- EC evaporator fan motor.

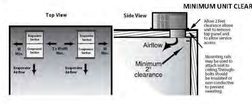
- Indoor models
  - Condensate evaporation pan - no drain line
  - 7-ft cord set, power cord [1]
- Outdoor models
  - Weather hood
  - Crankcase heater
  - Drain line heater
  - Fan-cycling

OPTIONS

Mounted Options:	
None	

Ship Loose Options:	
None	

MINIMUM UNIT CLEARANCES



[1] **WALK-IN FREEZER SHEET 2 OF 2**

FOR REFERENCE ONLY

I. GENERAL CONTRACTOR'S RESPONSIBILITIES:
a. Read Cylon Retail Solutions (CRS) / Dollar Tree (DT) Documentation Package.
b. Review all DT drawings.
· Contact Cylon Retail Solutions Inc. at (888) 211-6789 and submit a fully completed EMS Installation Survey.
· Confirm CRS Survey Form is fully completed and EMAILED to CRS National Account Team at Surveys@Cylon.com or FAXED to (855) 224-0879, 24 Hours Prior to scheduling the EMS Commissioning.
· EMS Commissioning dates cannot be scheduled until fully completed EMS Installation Surveys have been received and approved by the CRS National Deployment Team.
c. Schedule remote EMS commissioning 24 hours prior to the requested commissioning date.

II. ELECTRICAL RESPONSIBILITIES:

Power to all EMS equipment and devices must be OFF while terminations are made.

a. Provide all labor and installation material, as required, for a complete and operational EMS for this DT store location.
b. Receive and store all CRS material in a dry and secure place until the EMS installation is completed.
c. The EMS equipment will be supplied by CRS and installed by an approved DT contractor.
d. Review the entire set of plans, perform a job site survey and inventory the CRS equipment to ensure the proper equipment has been ordered and received for a complete and operational CRS EMS.
e. If any material is missing or additional equipment is required, immediately call CRS at (888) 211-6789 to request an order.
f. Approved Contractor shall verify number of controlled lighting circuits against the design, report discrepancies, which cannot be resolved in the field, to the CRS National Account Support Team at (888) 211-6789 and wait for resolution instructions.
g. Coordinate the EMS installation with the Mechanical Contractor to avoid any interference that may delay progress during construction.
h. Perform all work in accordance with all National, State and Local Codes for this project.
i. All EMS cables are to be installed per National and Local Codes. It is the Electrical Contractor's responsibility to determine if National and Local Codes permit Class 2 cables to be installed exposed within the building structure or if a full conduit system is required.
j. EMT connectors and bushings are to be installed at the top of every conduit sleeve and threaded connector to protect EMS cables from abrasions.
k. All cables are to be clearly and distinctly labeled within one foot of both ends.
l. Furnish and install all required conduit, boxes, wire ways, fittings, straps, hangers and wiring for a complete and operational EMS as required.
m. Furnish and install a dedicated 120 VAC circuit with breaker lock for the EMS Panel.
i. Label breaker: DO NOT TURN OFF / EMS
ii. Confirm wiring is completed as per this documentation package before applying power. Improper wiring will cause damage to equipment.
n. Mount the EMS Panel adjacent to the electrical panels.
o. Install an Ethernet cable run from the eSCi RJ-45 jack located in the EMS Panel to the network switch specified by the DT networking team.
p. Call CRS at 888.211.6789 to verify Network Connectivity before proceeding with the EMS installation.
q. Install and terminate the CRS BACnet communication trunk, in a daisy chain fashion, from the EMS Panel to each of the Thermostat Controls and all other BACnet devices. (see this documentation package for requirements)
r. When applicable, mount the Auxiliary I/O Panel adjacent to the EMS Panel and ensure both panels are connected to the same Earth Ground.
s. When applicable, ensure the Auxiliary I/O panel is connected in series with the other BACnet devices on the BACnet communications trunk.
t. Mount and terminate the Outdoor Sensor Assembly (OSA) on the HVAC unit that resides closest to the EMS Panel. When installing, make sure OSA enclosure is:
i. Mounted on a 1" rigid riser with an 'LB' secured to the back of the OSA (Refer to OTS/OLS Detail as shown on EM-4)
ii. Mounted 3 feet above the HVAC unit
iii. Mounted facing north, away from the combustion heat blower and condenser fan
iv. Weather-proofed
v. Mounted with the white PVC sensor pointed downward
vi. Positioned to allow the Outdoor Light Sensor exposure to full ambient daylight but is not shadowed or exposed to any artificial illumination
u. When applicable, mount and terminate the CO2 Sensor as per the location specified by the DT drawings and this documentation package.
v. Mount and terminate the Override Button assembly as per the location specified by the DT drawings and this documentation package.
w. Do not adjust the DIP Switches for the EMS Override Buttons. They are factory preset for:
i. MSTP Address = 35
ii. Baud Rate = 19200
iii. Network Termination = Off
x. When applicable, mount and terminate the Indoor Ambient Light Sensor(s) as per the location specified by the DT drawings and the Special Instructions in this documentation package.
y. Install and wire load sides of lighting contactors for designated lighting loads and zones as required by DT and this documentation package
i. Employee Zone = 40% of Sales floor and 100% of all Pre-Sales areas
ii. Customer Zone = Remaining 60% of Sales Floor
iii. Exterior Zone = Building Exterior and Parking lights
iv. When applicable, Daylight Zone = First two (2) rows of lights along the store-front windows.
z. Furnish and install a 3-pole, 20-amp breaker/disconnect at the Main Electrical Distribution Panel (MDP) for the Phase Loss Power Monitor and Energy Meter.
aa. When applicable, furnish and install a 3-pole, 20-amp breaker/disconnect at each Electrical Distribution Panel for each additional Phase Loss Power Monitor
bb. Terminate wiring as specified in this documentation package.
i. Label Main Electrical Distribution Panel breaker/disconnect: DO NOT TURN OFF / PHASE FAILURE & ENERGY METER
ii. When applicable, label auxiliary Electrical Distribution Panel breaker/disconnect: DO NOT TURN OFF / PHASE FAILURE
iii. Confirm wiring is completed as per this documentation package before applying power. Improper wiring will cause damage to equipment.
cc. Install and terminate the CRS Modbus communication trunk from the eSCi Controller to the Energy Meter. (Refer to OEM instructions and this documentation package for requirements)
dd. Permanently mount and terminate the Electrical Meter in close proximity to the main utility power feed.
ee. Permanently mount the 3 Current Sensors, one each, around the 3 phases of the main utility feed.
ff. Terminate the 3 Current Sensors to the Energy Meter, correctly maintaining Electrical Phase and Meter Input relationships.
gg. Using the OEM Instructions, configure the EMS Energy Meter for:
i. Proper Current Transformer (CT) Ratio - Current Sensor Primary (Ct) = 400 - 1500 Amp
ii. Nominal Line to Line Voltage = 480 Vac
iii. Baud Rate = 19200
iv. Address = 1
v. Voltage Input Mode = True 3 Phase
vi. CT Auto Rotation = Auto Rotate

Note: The EMS is designed to monitor a single primary 3 phase power feed. Contact CRS for support when attempting to monitor multiple power feeds

hh. Provide a technician, on site, for an approximate 2-hour remote telephone checkout with CRS.
ii. Coordinate with the Mechanical Contractor to verify HVAC control during the CRS remote telephone checkout.
jj. Prior to scheduling the Remote Commissioning Checkout, the Electrical Contractor will:
i. Confirm CRS Survey Form is completed and EMAILED to CRS National Account Team at Surveys@Cylon.com or FAXED to (855) 224-0879, 24 Hours Prior to scheduling the EMS Commissioning.
ii. Confirm the Mechanical Contractor will be present during the CRS Remote Commissioning Checkout.
iii. Contact CRS to schedule the EMS Commissioning, 24 hours prior at (888) 211-6789.

III. MECHANICAL RESPONSIBILITIES:

Power to all EMS equipment and devices must be OFF while terminations are made.

a. Provide labor and installation material, as required, for a complete and operational EMS for this DT store location.
b. Verify number and type of HVAC units against the design, report discrepancies, which cannot be resolved in the field, to the CRS National Account Support Team at (888) 211-6789 and wait for resolution instructions.
c. Perform all work in accordance with all National, State and Local Codes for this project.
d. Mount and terminate the SimpleSTAT module(s) as per the location(s) specified by the DT drawings and this documentation package.
e. Utilizing 18/8 cable between the SimpleSTAT module and HVAC unit.
i. Terminate C, R, G, Y1, Y2, W1 and W2 on the HVAC unit for control of fan, cooling and heating.
ii. Terminate the communications cables to the SimpleSTAT(s) as shown in this documentation package.
f. Set address on the SimpleSTAT module, as shown in the SimpleSTAT installation instructions. When communications to the EMS is in a failed state, the SimpleSTAT will operate 24/7 as a stand-alone STAT using the following temperature setpoints:
i. Default Cooling Setpoint = 72.0 °F
ii. Default Heating Setpoint = 68.0 °F
g. Utilizing the Downrods and associated hardware, specified by the DT drawings and the "Special Instructions" section of this documentation package, mount and terminate the Remote Space Temperature Sensor(s) as per the location(s)specified by the DT drawings.
i. In close proximity to the zone return air grille and away from supply air drafts.
ii. Install and secure the Remote Temperature Sensor wire to the Thermostat Controller.
h. Mount the Supply Duct Temperature sensor of each HVAC unit.
i. The remote Supply Duct Temperature Sensor should be mounted in the main Supply Air Duct on the interior side of the HVAC unit's building penetration.
ii. Utilizing 18/2 wire, terminate the supply duct temperature sensor wire to the Thermostat module as shown in this documentation package.
i. Provide Electrical Contractor with roof plan layout, showing location of HVAC Units on the roof.
j. Provide a technician, on site, for an approximate 2-hour remote telephone checkout with CRS.
k. Coordinate with the Electrical Contractor to verify proper HVAC control during the CRS Remote Commissioning Checkout.

IV. CYLON RETAIL SOLUTIONS RESPONSIBILITIES:
a. The following services will be supplied by CRS:
i. Shipping of all contracted EMS components for the job.
ii. Programming and downloading of CRS equipment and software.
iii. Provide telephone technical support at (888) 211-6789.
iv. Remote system checkout with installing contractor
b. Verification of proper operation of the following items by exercising the controlled load:
i. Timed operation of all applicable EMS lighting loads - Interior and Exterior.
ii. Outside light level control of all applicable EMS lighting loads - Interior and Exterior.
iii. Operation of HVAC heating stages, as indoor environment allows.
iv. Operation of HVAC cooling stages, as indoor and outdoor environments allow.
v. Verification of HVAC unit sensor readings - space and supply temperatures.
c. If any end unit (e.g. lighting, HVAC unit, supply air fan, etc.) cannot be operated for mechanical or electrical reasons, CRS will verify the proper operation of the EMS control devices (e.g. contactors, discrete I/O) leading up to the unit, in order to fully verify the operations of the EMS.
d. CRS will issue an "EMS Check-Out Number" once all store systems are verified as operational.

DEVICE LEGEND	
SYMBOL	DESCRIPTION
SSC	HVAC UNIT CONTROLLER (SIMPLESTAT)
TRC	HVAC UNIT CONTROLLER (TRC)
DTS	DUCT TEMPERATURE SENSOR
STS	SPACE TEMPERATURE SENSOR
OLS	OUTDOOR LIGHT SENSOR
OHS OTS	OUTDOOR TEMPERATURE & RELATIVE HUMIDITY SENSORS
RTS	REMOTE TEMPERATURE SENSOR
CO_2S	INDOOR CO_2 SENSOR
IHS	INDOOR RELATIVE HUMIDITY SENSOR
ILS	INDOOR LIGHT SENSOR
DOOR SENSOR	O/H DOOR SENSOR
SID	SECURITY INTERFACE DEVICE
eSC	eBUILDING SYSTEM CONTROLLER
ROS	REMOTE OVERRIDE SWITCH
OCC	OCCUPANCY SENSOR

CABLE LEGEND

KEY	SIZE	TYPE	MFG.	MFG. PART #
10	18/2	SHIELDED PLENUM	WINDY CITY	# 002320-S
12	18/4	SHIELDED PLENUM	WINDY CITY	# 002340-S
14	18/8	NON SHIELDED PLENUM	WINDY CITY	# 002392-S
16	18/10	NON SHIELDED PLENUM	WINDY CITY	# 002393-S
18	24/8	CAT5 E PLENUM	WINDY CITY	# 5556140-S

Cylon RETAIL SOLUTIONS
25 Sundial Ave - Suite 310 W
Manchester, NH 03103

DOLLAR TREE
DRAWING NOTES
(FOR REFERENCE ONLY)

REVISION: 1	
DATE: 06/05/20	ECN#: 2390
LOOSE DT OPTION	
REVISION:	
DATE:	ECN#:
REVISION:	
DATE:	ECN#:
REVISION:	
DATE:	ECN#:
DRAWN: WPC	ENGINEER: CGP
PART #: 94-402	OPTION: P

ENERGY MANAGEMENT PLAN

EM-1 of 4

KLH ENGINEERS
PROFESSIONAL ENGINEERS, INC.
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1338 ALEXANDRIA PIKE, SUITE 11 LEXINGTON, KENTUCKY 859-255-8581 FAX 859-255-8582
1160 DUBLIN RD, SUITE 400 COLUMBUS, OHIO 614-923-4700 FAX 614-923-4707
1501 ROUTE 9 NORTH WOODBRIDGE, NEW JERSEY 848-444-8000 FAX 848-444-8001

MARK	DATE	REVISIONS DESCRIPTION
		BY

DATE 02/24/2023
PROJECT 0019.30
DRAWN RNK
CHECKED LGF

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

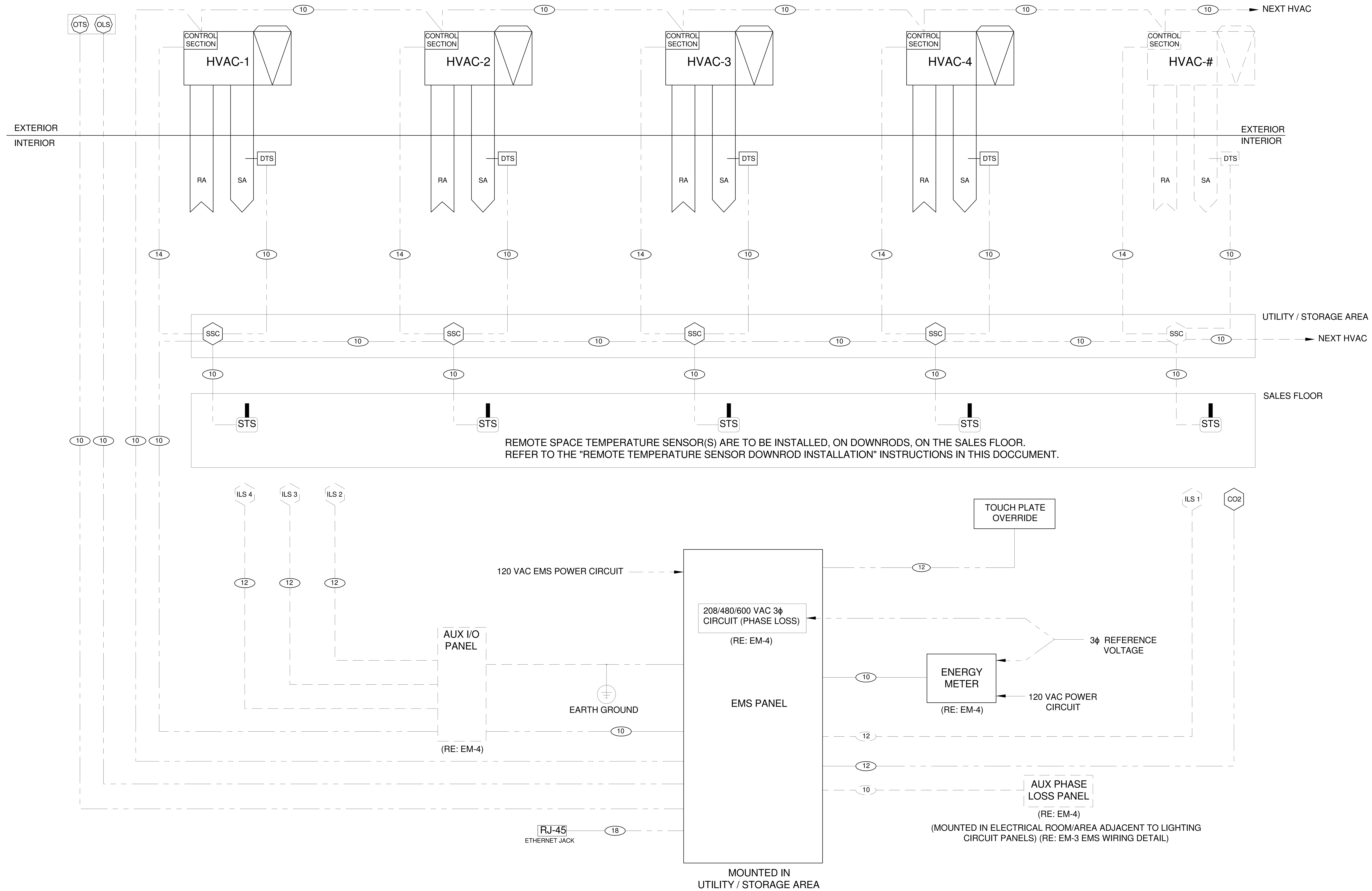
PROFESSIONAL OF RECORD

STATE OF OHIO
STEPHEN H. FEDERLE
E-76032
REGISTERED PROFESSIONAL ENGINEER
3/23/2023

PROJECT: DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
DRAWING: EMS DETAILS

SHEET
EM-101

KLH PROJECT 25140



ENERGY MANAGEMENT SYSTEM SINGLE LINE DIAGRAM
SCALE: None

WIRING LEGEND

- FIELD WIRING
- POSITIVE
- NEGATIVE
- OPTIONAL COMPONENT

Cylon RETAIL SOLUTIONS
25 Sundial Ave - Suite 310 W
Manchester, NH 03103

DOLLAR TREE
LINE DIAGRAM
(FOR REFERENCE ONLY NOT TO SCALE)

REVISION: 1	
DATE: 06/05/20	ECN#: 2390
LOOSE DT OPTION ---- ----	
REVISION: ----	
DATE: ----	ECN#: ----
---- ---- ----	
REVISION: ----	
DATE: ----	ECN#: ----
---- ---- ----	
REVISION: ----	
DATE: ----	ECN#: ----
---- ---- ----	
DRAWN: WPC	CHECKED: CGP
PART #: 94-402	OPTION: P

ENERGY MANAGEMENT PLAN

EM-2 of 4

KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783 859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

MARK	DATE	BY	DESCRIPTION

REVISIONS

DATE	02/24/2023
PROJECT	0019.30
DRAWN	RNK
CHECKED	LGF

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

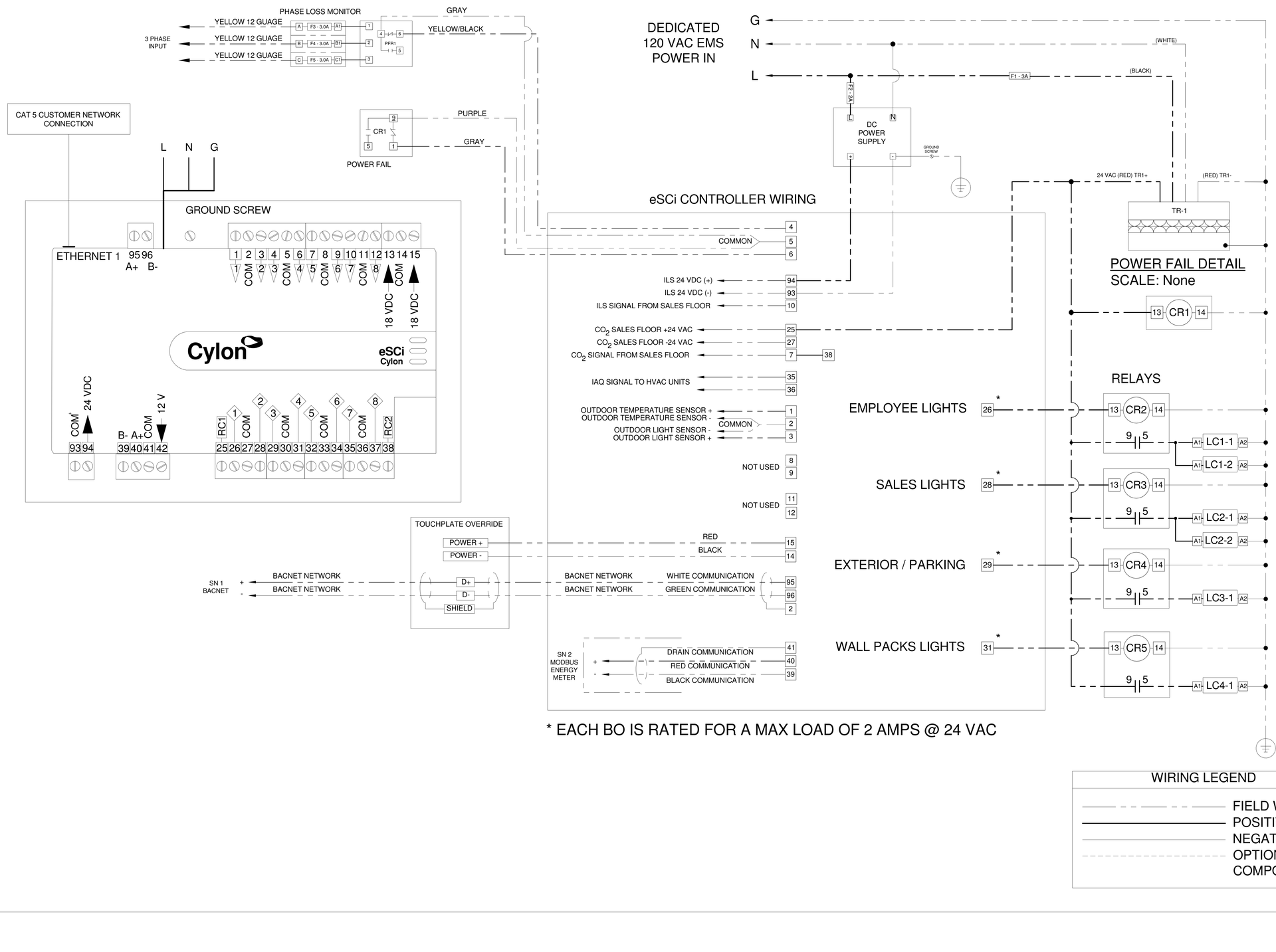
PROFESSIONAL OF RECORD
STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED PROFESSIONAL ENGINEER
3/23/2023

PROJECT
DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095

DRAWING
EMS DETAILS

SHEET
EM-102

KLH PROJECT 25140



DOLLAR TREE FIELD WIRING

(FOR REFERENCE ONLY NOT TO SCALE)

Cylon RETAIL SOLUTIONS
25 Sundial Ave - Suite 310 W
Manchester, NH 03103

REVISION: 1	
DATE: 06/05/20	ECN#: 2390
LOOSE DT OPTION	

REVISION: ----	
DATE: ----	ECN#: ----

REVISION: ----	
DATE: ----	ECN#: ----

REVISION: ----	
DATE: ----	ECN#: ----

DRAWN: WPC	CHECKED: CGP
PART #: 94-402	OPTION: P

ENERGY MANAGEMENT PLAN

EM-3 of 4

KLH ENGINEERS
PANORAMIC VIEW, LLC
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGR.COM
1338 ALEXANDRIA PIKE, SUITE 11 LEXINGTON, KENTUCKY 859-255-8155 FAX 859-255-8160
1111 METROPOLITAN AVE, SUITE 915 CHARLOTTE, NORTH CAROLINA 980-224-9155 FAX 980-442-8000
1500 N. MAIN ST. SUITE 2 COLUMBUS, OHIO 43212 614-824-9155 FAX

REVISIONS	MARK	DATE	BY	DESCRIPTION

DATE	02/24/2023
PROJECT	0019.30
DRAWN	RNK
CHECKED	LGF

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

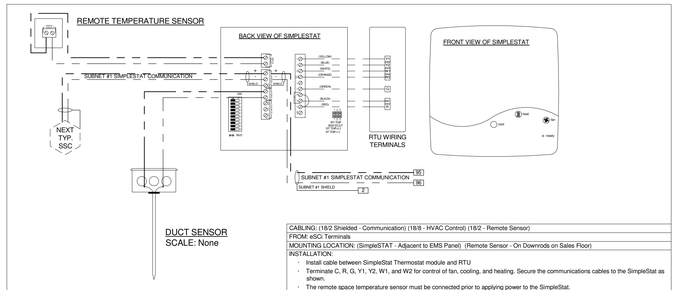
PROFESSIONAL OF RECORD

STATE OF OHIO
STEPHEN N. FEDERLE
E-78032
REGISTERED
PROFESSIONAL ENGINEER
9/23/2023

DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
PROJECT
EMS DETAILS
DRAWING

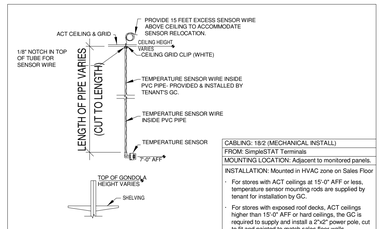
SHEET
EM-103

KLH PROJECT 25140



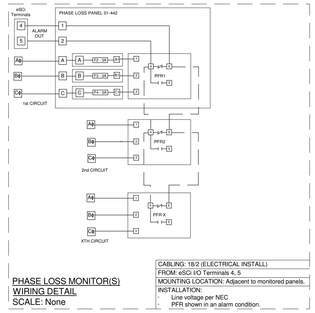
CABLING: (18/2 Shielded - Communication) (18/8 - HVAC Control) (18/2 - Remote Sensor)
FROM: eSCi Terminals
MOUNTING LOCATION: (SimpleSTAT - Adjacent to EMS Panel) (Remote Sensor - On Downrods on Sales Floor)
INSTALLATION: · Install cable between SimpleStat Thermostat module and RTU · Terminate C, R, G, Y1, Y2, W1, and W2 for control of fan, cooling, and heating. Secure the communications cables to the SimpleStat as shown. · The remote space temperature sensor must be connected prior to applying power to the SimpleStat. · Provide 24VAC power to the SimpleStat Thermostat Module from the RTU transformer. Power to the controller must be off while terminations are made.

SIMPLESTAT WIRING DETAIL
SCALE: None



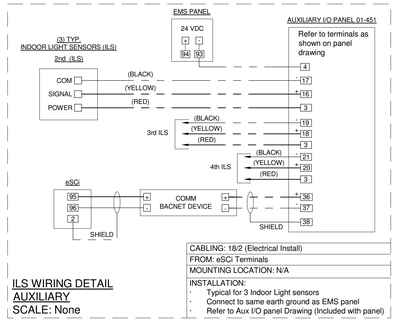
CABLING: 18/2 (MECHANICAL INSTALL)
FROM: SimpleSTAT Terminals
MOUNTING LOCATION: Adjacent to monitored panels.
INSTALLATION: Mounted in HVAC zone on Sales Floor · For stores with ACT ceilings at 15'-0" AFF or less, temperature sensor mounting rods are supplied by tenant for installation by GC. · For stores with exposed roof decks, ACT ceilings higher than 15'-0" AFF or hard ceilings, the GC is required to supply and install a 2"x2" power pole, cut to fit and painted to match sales floor walls. · Refer to the reflected ceiling plan for ceiling information prior to bidding.

REMOTE SENSOR MOUNTING DETAIL
SCALE: None



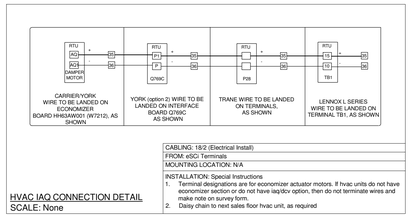
CABLING: 18/2 (ELECTRICAL INSTALL)
FROM: eSCi I/O Terminals 4, 5
MOUNTING LOCATION: Adjacent to monitored panels.
INSTALLATION: · Line voltage per NEC · PFR shown in an alarm condition.

PHASE LOSS MONITOR(S) WIRING DETAIL
SCALE: None



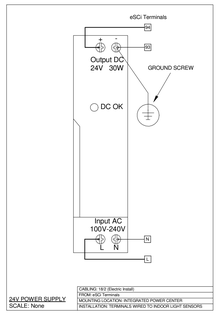
CABLING: 18/2 (Electrical Install)
FROM: eSCi Terminals
MOUNTING LOCATION: N/A
INSTALLATION: · Typical for 3 Indoor Light sensors · Connect to same earth ground as EMS panel · Refer to Aux I/O panel Drawing (Included with panel)

ILS WIRING DETAIL
AUXILIARY
SCALE: None



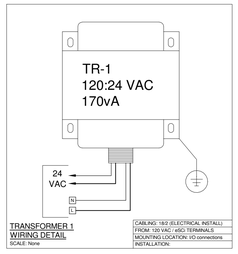
CABLING: 18/2 (Electrical Install)
FROM: eSCi Terminals
MOUNTING LOCATION: N/A
INSTALLATION: Special Instructions 1. Terminal designations are for economizer actuator motors. If hvac units do not have economizer section or do not have iaq/dcv option, then do not terminate wires and make note on survey form. 2. Daisy chain to next sales floor hvac unit, as required

HVAC IAQ CONNECTION DETAIL
SCALE: None



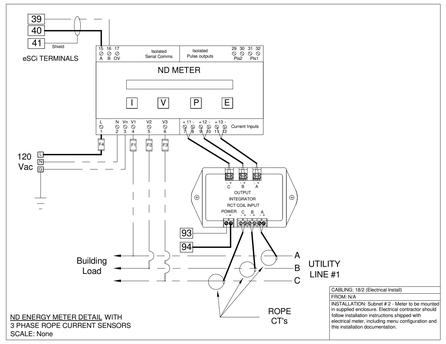
CABLING: 18/2 (Electric Install)
FROM: AC Terminals
MOUNTING LOCATION: INTEGRATED POWER CENTER
INSTALLATION: TERMINALS WIRED TO INDOOR LIGHT SENSORS

24V POWER SUPPLY
SCALE: None



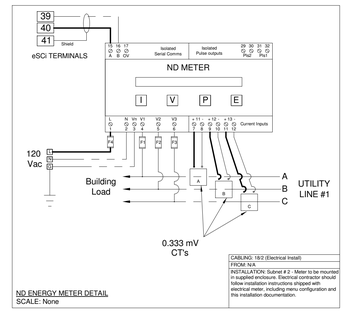
CABLING: 18/2 (ELECTRICAL INSTALL)
FROM: 120 VAC - eSCi TERMINALS
MOUNTING LOCATION: I/O connections
INSTALLATION:

TRANSFORMER 1 WIRING DETAIL
SCALE: None



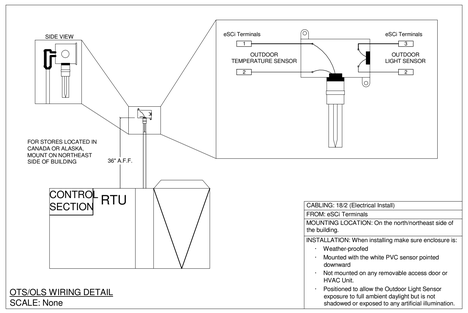
CABLING: 18/2 (Electrical Install)
FROM: N/A
INSTALLATION: Subnet # 2 - Meter to be mounted in supplied enclosure. Electrical contractor should follow installation instructions shipped with electrical meter, including menu configuration and this installation documentation.

ND ENERGY METER DETAIL WITH 3 PHASE ROPE CURRENT SENSORS
SCALE: None



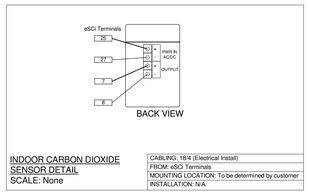
CABLING: 18/2 (Electrical Install)
FROM: N/A
INSTALLATION: Subnet # 2 - Meter to be mounted in supplied enclosure. Electrical contractor should follow installation instructions shipped with electrical meter, including menu configuration and this installation documentation.

ND ENERGY METER DETAIL
SCALE: None



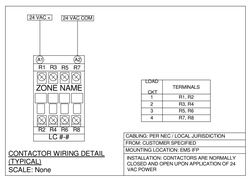
CABLING: 18/2 (Electrical Install)
FROM: eSCi Terminals
MOUNTING LOCATION: On the north/northeast side of the building.
INSTALLATION: When installing make sure enclosure is: · Weather-proofed · Mounted with the white PVC sensor pointed downward · Not mounted on any removable access door or HVAC Unit. · Positioned to allow the Outdoor Light Sensor exposure to full ambient daylight but is not shadowed or exposed to any artificial illumination.

OTS/OLS WIRING DETAIL
SCALE: None



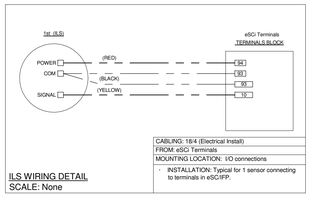
CABLING: 18/4 (Electrical Install)
FROM: eSCi Terminals
MOUNTING LOCATION: To be determined by customer
INSTALLATION: N/A

INDOOR CARBON DIOXIDE SENSOR DETAIL
SCALE: None



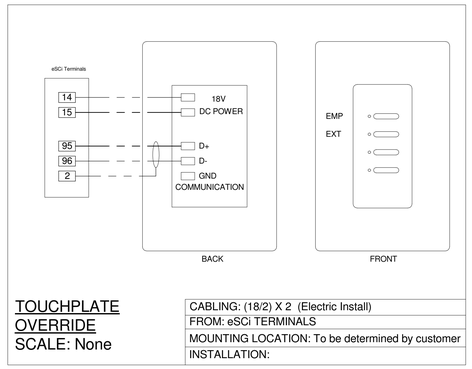
CABLING PER NEC / LOCAL JURISDICTION
FROM: CUSTOMER SPECIFIED
MOUNTING LOCATION: EMS FP
INSTALLATION: CONTACTORS ARE NORMALLY CLOSED AND OPEN UPON APPLICATION OF 24 VAC POWER

SCALE: None



CABLING: 18/4 (Electrical Install)
FROM: eSCi Terminals
MOUNTING LOCATION: I/O connections
· INSTALLATION: Typical for 1 sensor connecting to terminals in eSCi/FP.

ILS WIRING DETAIL
SCALE: None



CABLING: (18/2) X 2 (Electric Install)
FROM: eSCi TERMINALS
MOUNTING LOCATION: To be determined by customer
INSTALLATION:

TOUCHPLATE OVERRIDE
SCALE: None

DOLLAR TREE EQUIPMENT DETAILS (FOR REFERENCE ONLY NOT TO SCALE)

Cylon RETAIL SOLUTIONS
25 Sundial Ave - Suite 310 W
Manchester, NH 03103

KLH ENGINEERS
PROFESSIONAL ELECTRICAL ENGINEERS, INC.
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1338 ALEXANDRIA PIKE, SUITE 11 LEXINGTON, KENTUCKY 40504 859-255-8581 FAX 859-255-8582
1700 N. MAIN STREET, SUITE 15 COLUMBUS, OHIO 43212 800-368-2165 FAX 800-442-8000
60 BLUE SKY PARKWAY HAMLIN, NEW YORK 14464 585-426-5920 FAX 585-426-5923

BEA
BRIAN EADY ARCHITECTS
FARMINGTON HILLS, MI
BRIAN@BRIANEADYARCHITECTS.COM
586.933.3010

MARK	DATE	DESCRIPTION
		BY

DATE	02/24/2023	DRAWN	RNK
PROJECT	0018.30	CHECKED	LGF

PROFESSIONAL OF RECORD

STATE OF OHIO — STEPHEN N. FEDERLE — E-78032 — REGISTERED PROFESSIONAL ENGINEER
3/23/2023

REVISION: 1	
DATE: 06/05/20	ECN#: 2390
LOOSE DT OPTION	

REVISION: ----	
DATE: ----	ECN#: ----

REVISION: ----	
DATE: ----	ECN#: ----

REVISION: ----	
DATE: ----	ECN#: ----

DRAWN: WPC	CHECKED: CGP
PART #: 94-402	OPTION: P

ENERGY MANAGEMENT PLAN

EM-4 of 4

DOLLAR TREE
FORMER ENTERTAINMENT
30930 LAKESHORE BLVD, WILLOWICK, OH 44095
PROJECT
EMS DETAILS
DRAWING

SHEET
EM-104
KLH PROJECT 25140