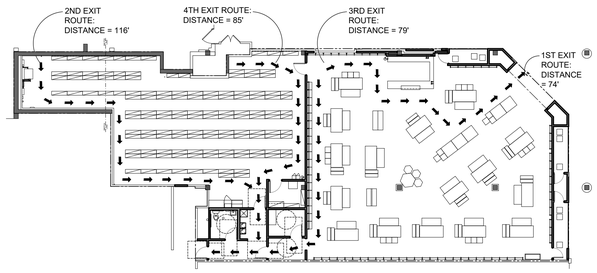
EGRESS PLAN

1. TOTAL MEANS OF EGRESS = 2, (2 ACCESSIBLE)
2. MINIMUM PATH OF EGRESS = 44"
3. COMMON PATH OF TRAVEL DOES NOT EXCEED 75'-0"
4. MAXIMUM DEAD-END CORRIDOR < 20 FT
5. MINIMUM EGRESS DOOR WIDTH = 36"
6. GC TO F&I CODE COMPLIANT VISUAL & TACTILE SIGNAGE AT EXIT, EXIT ROUTE, TOILET ROOMS AND FITTING ROOM.



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SPACE 1070
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ABBREVIATIONS

ACP	ACOUSTICAL CEILING PANELS
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
BLDG	BUILDING
B/O	BOTTOM OF
CL / ℄	CENTER LINE
CLG	CEILING
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
D	DEPTH OR DEEP
DIA	DIAMETER
DIM	DIMENSION
DWG	DRAWING
ELEC	ELECTRICAL
EC	ELECTRICAL CONTRACTOR
EM	EMERGENCY
EQ	EQUAL
EX	EXISTING
EXT	EXTERIOR
FF	FINISH FLOOR
F/N	FINISHED/FINISH
FL	FLOOR
F/O	FACE OF
FR	FIRE RETARDANT
GALV	GALVANIZED
GA	GAUGE, OR GAGE
GC	GENERAL CONTRACTOR
GJ	GROUT JOINT
GL	GLASS
GWB	GYPSUM BOARD/ DRYWALL
HDW	HARDWARE
HGT OR H	HEIGHT OR HIGH
HOC	HOLLOW CORE
HM	HOLLOW METAL
INSUL	INSULATION
L	LENGTH OR LONG
L.L.	LEASE LINE
LL	LANDLORD
MAX	MAXIMUM
MGMT	MANAGEMENT
MFG	MANUFACTURER
MDF	MEDIUM DENSITY FIBERBOARD
MTL	METAL
MIN	MINIMUM
MISC	MISCELLANEOUS
MR	MOISTURE RESISTANT
MTD	MOUNTED
N/A	NOT APPLICABLE
NTS	NOT TO SCALE
OC	ON CENTER
OH	OPPOSITE HAND
OD	OUTSIDE DIMENSION
PR	PAIR
QTY	QUANTITY
REF	REFERENCE
RELO	RELOCATED
RO	ROUGH OPENING
SIM	SIMILAR
SPEC	SPECIFICATION
STRUCT	STRUCTURAL or STRUCTURE
TEMP	TEMPERED
TME	TO MATCH EXISTING
T/O	TOP OF
TS	TUBULAR STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE
VCT	VINYL COMPOSITION TILE
VIF	VERIFY IN FIELD
W	WIDTH OR WIDE
WD	WOOD
W/	WITH

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NEW WORK NOTES

1. UNLESS OTHERWISE NOTED, THE ARCHITECT SHALL SUBMIT DRAWINGS FOR JURISDICTIONAL REVIEW. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE TO EACH JURISDICTION ANY ADDITIONAL REQUIRED INFORMATION, INCLUDING RELATED PAPERWORK, SUB-CONTRACTOR LISTS, INSURANCE INFORMATION, ETC. TO OBTAIN PERMIT AND APPROVALS FROM ALL PARTIES HAVING JURISDICTION PRIOR TO THE START OF CONSTRUCTION.
2. CONTRACTOR SHALL INSTALL 2A-10BC RATED FIRE EXTINGUISHERS SIMILAR TO JL INDUSTRIES MODEL COSMIC 5E. LOCATE EXTINGUISHERS AS SHOWN. PROVIDE WALL BRACKETS AND MOUNT CONTROLS AT 54" AFF MAX. PROVIDE "FIRE EXTINGUISHER" SIGNS ON WALL DIRECTLY ABOVE EACH UNIT. CONTRACTOR SHALL HAVE EXTINGUISHERS INSPECTED AND TAGGED. VIF QUANTITY W/ FIRE MARSHAL.
3. CONTRACTOR SHALL PROVIDE THE TOILET ROOM(S), THEIR FINISHES, AND FIXTURES ACCORDING TO THE CONSTRUCTION DOCUMENTS OR VERIFY THAT EXISTING TOILET ROOM(S), INCLUDING FIXTURES AND ACCESSORIES, MEET ALL APPLICABLE LOCAL, STATE AND FEDERAL ACCESSIBILITY CODES AND LAWS.
4. NO PENETRATIONS OF EXISTING ROOF STRUCTURE WHATSOEVER SHALL BE ALLOWED WITHOUT PRIOR WRITTEN CONSENT OF LANDLORD. THE CONTRACTOR SHALL USE A LANDLORD APPROVED ROOFING CONTRACTOR FOR ANY AND ALL ROOF PENETRATIONS TO ENSURE CONTINUATION OF ROOF WARRANTY.
5. PROVIDE TENANT IDENTIFICATION SIGN AT REAR DOOR PER LANDLORD AND TENANT CRITERIA.
6. GC SHALL READ AND UNDERSTAND THE MALL / LL'S CONSTRUCTION GUIDELINES AND ADHERE TO ALL REQUIREMENTS SET FORTH BY THESE DOCUMENTS. GC SHALL ALSO FULLY COMPLY WITH ANY AND ALL COMMENTS GENERATED BY LL REVIEW OF CONSTRUCTION DOCUMENTS. GC SHALL KEEP ON-SITE THROUGHOUT CONSTRUCTION A COPY OF THE PERMIT DOCUMENTS APPROVED BY THE LOCAL JURISDICTION, THE LL APPROVED DRAWINGS, AND THE MALL CONSTRUCTION GUIDELINES.
7. IF NOT SET FORTH IN THE CONSTRUCTION DOCUMENTS, THE GC SHALL RECEIVE APPROVAL FOR ALL FIXTURES, FINISHES, CABINETRY, ETC. FROM TENANT, LL, PRIOR TO PURCHASE AND INSTALLATION. GC SHALL BE RESPONSIBLE FOR COORDINATING THE PROCUREMENT AND INSTALLATION OF ALL FIXTURES, FINISHES, EQUIPMENT, RELATED CONDUIT, ACCESSORIES, AND HARDWARE WITH THE PROVIDER AS STATED IN THE CONTRACT DOCUMENTS.
8. GC SHALL FIELD VERIFY NO CONFLICTS EXIST IN LOCATIONS OF ANY MECHANICAL, TELEPHONE, ELECTRICAL, PLUMBING AND SPRINKLER EQUIPMENT (TO INCLUDE ALL PIPING, DUCTWORK, AND CONDUIT) AND ALL REQUIRED CLEARANCES FOR INSTALLATION AND MAINTENANCE OF ITEMS PROVIDED. ELEMENTS TO BE EXPOSED OR CONCEALED SHALL BE REVIEWED BY LL AND ARCHITECT PRIOR TO PROCEEDING WITH CONSTRUCTION. DEMONSTRATION OF ACCESS TO HIDDEN COMPONENTS SHALL BE REQUIRED.
9. THE GC SHALL BE RESPONSIBLE TO COMPLETE CONSTRUCTION AS SHOWN IN THE APPROVED CONSTRUCTION DOCUMENTS IN A TIMELY MANNER. CONSTRUCTION SHALL BE CONSIDERED "COMPLETE" UPON RECEIPT OF CERTIFICATE OF OCCUPANCY BY THE LOCAL JURISDICTION AND WRITTEN DOCUMENTATION BY THE LANDLORD AND THE TENANT.
10. GC SHALL BE RESPONSIBLE FOR CONDUCTING A PRE-CONSTRUCTION SITE VISIT TO CONFIRM THE ACCURACY OF THE CONTRACT DOCUMENTS AND BECOME FAMILIAR WITH THE EXISTING FIELD CONDITIONS. THE CONTRACTOR SHALL CONFIRM THE WORK IS BUILDABLE AS SHOWN BEFORE PROCEEDING WITH CONSTRUCTION. CLARIFICATIONS REGARDING ANY CONFLICTS SHALL BE RESOLVED PRIOR TO THE RELATED WORK BEING STARTED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT, TENANT AND LL IN WRITING OF DEFICIENCIES IN BASE BUILDING WORK PRIOR TO COMMENCEMENT OF WORK. ANY UNREPORTED DEFICIENCIES WILL BECOME THE RESPONSIBILITY OF THE GC(S) TO CORRECT.
11. NO WOOD OR OTHER COMBUSTIBLE MATERIAL SHALL BE USED ABOVE THE CEILING.
12. ALL EXISTING CONDITIONS NOT SCHEDULED FOR RE-USE MUST BE COMPLETELY DEMOLISHED AND PROPERLY DISPOSED OF OFF SITE. NO EQUIPMENT SHALL BE ABANDONED IN PLACE AND ALL UTILITIES MUST BE REMOVED TO THEIR POINT OF ORIGIN.
13. GC SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FR BLOCKING AT ALL REQUIRED LOCATIONS TO ENSURE SUPPORT OF COUNTERS, CABINETS, FIXTURES, SHELVING, ETC.
14. GC SHALL MAKE EVERY EFFORT TO CREATE A SAFE WORKING ENVIRONMENT AND SHALL TAKE ALL REASONABLE CAUTION TO PROTECT EXISTING FINISHES AND FIXTURES TO REMAIN.
15. ALL LOW-VOLTAGE WIRING ABOVE THE CEILING SHALL BE PLENUM RATED UNO. PRIOR TO INSTALLATION, THE GC SHALL CONTACT THE LOCAL JURISDICTION AND THE LL TO DETERMINE IF LOW-VOLTAGE WIRING MUST BE IN CONDUIT ABOVE THE CEILING. GC SHALL INSTALL ALL LOW-VOLTAGE WIRING AS REQUIRED BY THE STATED CODE AND / OR LL REQUIREMENT.
16. GC SHALL BE REQUIRED TO ATTEND A "PRE-CONSTRUCTION MEETING" WITH THE LL UPON PERMIT ISSUANCE AND PRIOR TO COMMENCEMENT OF WORK.
17. A 7-DAY, 24-HOUR TIME CLOCK SHALL BE PROVIDED BY GC FOR ILLUMINATION OF THE STOREFRONT, SIGNS, AND SHOW WINDOWS DURING REQUIRED HOURS AS DESIGNATED BY THE LL. CONFIRM TIME SETTING WITH LL.

GENERAL NOTES

1. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND REGULATIONS. CONSTRUCTION SHALL ALSO COMPLY WITH LL'S CRITERIA (UNLESS PRECLUDED BY CODE).
2. ALL WOOD FRAMEWORK, WOOD BLOCKING AND PLYWOOD SHALL BE FIRE RETARDANT TREATED.
3. ALL FINISH MATERIALS SHALL MEET FLAME SPREAD AND SMOKE DEVELOPMENT RATING CLASS C EXCEPT AT VERTICAL EXITS AND EXIT PASSAGEWAYS, WHICH SHALL MEET FLAME SPREAD AND SMOKE DEVELOPMENT RATING CLASS B.
4. TENANTS GC SHALL VIF ALL DIMENSIONS AND EX CONDITIONS THREE DAYS PRIOR TO CONSTRUCTION START TO DETERMINE THE EXTENT OF WORK. GC SHALL NOTIFY ARCHITECT AND TENANT OF ANY DISCREPANCIES PRIOR TO BIDDING.
5. ALL MATERIALS INDICATED ARE NEW, UNLESS SPECIFICALLY NOTED AS EXISTING, AND SHALL BE PROVIDED BY TENANTS GC, UNO.
6. ALL EX MATERIALS TO REMAIN WHICH ARE DAMAGED OR OTHERWISE DISTURBED BY GC'S OPERATIONS SHALL BE PATCHED OR REPAIRED TO MATCH EX ADJACENT MATERIALS, SO REPAIR IS IMPERCEPTIBLE.
7. DURING THE COURSE OF CONSTRUCTION, IF THE GC UNCOVERS ANY CODE VIOLATION KNOWN TO HIM OR ANY DISCREPANCY WITH THE DESIGN, CONTRACTOR SHALL NOTIFY THE CONSTRUCTION PROJECT MANAGER OF SUCH IMMEDIATELY.
8. CONTRACTOR SHALL ASSEMBLE AND INSTALL MATERIALS / PRODUCTS IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
9. CONTACT PROJECT MANAGER AND COORDINATE WITH CONSTRUCTION PROJECT MANAGER ANY ADDITIONAL SPECIFICATIONS NOT SPECIFIED HEREIN AND / OR CLARIFICATIONS REGARDING THE CONTRACT DOCUMENTS.
10. GC TO VERIFY ABATEMENT AND / OR REPORT ASBESTOS-CONTAINING MATERIAL ON-SITE TO PROJECT MANAGER AND TENANT UPON DISCOVERY.
11. SMOKE AND FIRE PARTITIONS SHALL BE CONSTRUCTED PER 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 MIN FIRE RATED REQUIREMENTS FOR THE PARTITION. DUCT PENETRATIONS SHALL BE PROTECTED WITH SMOKE AND / OR FIRE DAMPERS.
12. SIGNS LOCATION, NUMBER AND SIZE ARE NOT APPROVED UNDER THIS BUILDING PERMIT. SEPARATE SIGN LOCATION PERMIT IS REQUIRED FOR EACH SIGN.
13. ALL CONCEALED MATERIALS SHALL BE NON-COMBUSTIBLE AND IN COMPLIANCE WITH CURRENT CODES.
14. 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' HORIZ ALONG WALL OR PARTITION. SUGGESTED WORDING SHALL BE "FIRE AND / OR SMOKE BARRIER - PROTECT ALL OPENINGS".
15. PROJECT DOES NOT INCLUDE ANY HIGH-PILED OR RACK STORAGE.
16. GC TO CONTACT OWNER PRIOR TO START OF CONSTRUCTION TO CONFIRM ALL OWNER / VENDOR SUPPLIED ITEMS, INSTALL & SCHEDULE.
17. ANY / ALL CEILING EQUIPMENT TO BE HUNG FROM TOP CHORD OF TRUSS SYSTEM.
18. ***GC TO SEND WEEKLY CONSTRUCTION PROGRESS PHOTOS TO LGA PROJECT MANAGER.***

CODE INFORMATION

USE GROUP: M - MERCANTILE

CONSTRUCTION TYPE: 2B

FULLY SPRINKLED: YES

NUMBER OF STORIES: 4 (GROUND FLOOR)

REQUIRED EXITS: 2

FURNISHED EXITS: 2

OCCUPANCY CALCULATION:

TOTAL SQUARE FOOTAGE =	6304
SALES AREA:	
3781 sf / 60 sf PER PERSON =	63
NON-SALES AREA:	
2523 sf / 300 sf PER PERSON =	9
TOTAL OCCUPANT LOAD =	72

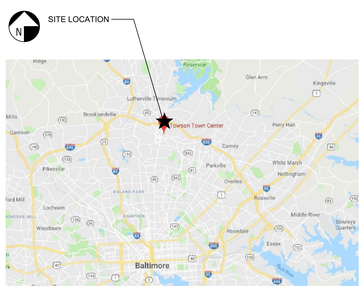
APPLICABLE CODES:

2015 INTERNATIONAL BUILDING CODE
2015 INTERNATIONAL MECHANICAL CODE
2017 NATIONAL ELECTRICAL CODE
2015 NATIONAL STANDARD PLUMBING CODE
2010 ADAAG
2015 INTERNATIONAL ENERGY CONSERVATION CODE
PREVAILING LOCAL AMENDMENTS

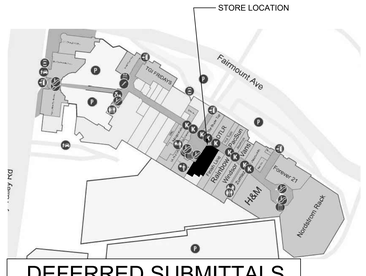
DESCRIPTION OF PROJECT:

'DTLR' RETAIL CLOTHING & SHOE STORE TENANT INTERIOR RENOVATION / FIT-OUT OF THE GROUND FLOOR OF AN EXISTING DEMISED SPACE IN AN EXISTING (4) STORY MALL.

SITE MAP



LOCATION MAP



DEFERRED SUBMITTALS

- SIGN SHOP DRAWINGS - TO BE SUBMITTED BY TENANT SIGN VENDOR UNDER SEPARATE REVIEW
- FIRE SPRINKLER SYSTEM SHOP DRAWINGS (WHERE APPLICABLE) - TO BE SUBMITTED BY TENANT GC UNDER SEPARATE REVIEW. GC VERIFY PRIOR TO BID IF ANY REQ'D SYSTEM UPGRADES ARE APPLICABLE.
- FIRE ALARM SYSTEM SHOP DRAWINGS (WHERE APPLICABLE) - TO BE SUBMITTED BY TENANT GC UNDER SEPARATE REVIEW. GC VERIFY PRIOR TO BID IF ANY REQ'D SYSTEM UPGRADES ARE APPLICABLE.

DRAWING ISSUE LIST

ISSUE	DATE	BRIEF DESCRIPTION
01	06/17/19	LL / PERMIT / CLIENT REVIEW SET
02	06/20/19	REVISION 1 - BID SET

DRAWING INDEX

REVISIONS

NO.	DATE	DESCRIPTION
1	06/20/19	BID SET

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STATE OF MARYLAND
JONATHAN B. GLANCE
No. 18664
ARCHITECT

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 18664
EXPIRATION DATE: 07/14/2020

1	06/20/19	BID SET
NO.	DATE	DESCRIPTION

DATE:	06/17/19
DRAWN BY:	RRR
PROJECT NO.:	19139

COVER SHEET

CS

FLAGSHIP FINISH LEGEND

AREAS	FLOORS	BASES	WALLS	CEILING	NOTES
SALES AREA	F-1, F3, F4, F5, F6	B-1	GWB P-2	GWB SEE CLG PLAN	3, 4
STOCK ROOM	F-2	B-2	GWB PRIMED	--	--
LAYAWAY	F-2	B-2	GWB P-3	GWB P-4	--
FITTING RM	F-1	B-1	GWB P-3	GWB P-4	--
TOILET RM	F-2	B-2	GWB W-1	GWB P-4	5, 6
EXIT PASSAGE	F-2	B-2	GWB P-3, W-1	--	4, 5
HALL	F-1	B-1	GWB P-1	GWB P-4	4

1. NOT USED.
2. PATCH AND REPAIR PORTION OF CEILING TO MATCH EXISTING.
3. CASH-WRAP SHALL BE SUPPLIED BY MILLWORK MANUF, "READY TO INSTALL" - NOTIFY PROJECT MANAGER W/ ANY DISCREPANCIES. REFER TO RESPONSIBILITY SCHEDULE. SEE ALSO SHEET CS.
4. GC SHALL PROVIDE THRESHOLD AT DOORWAY OR CASED OPENING TO MATCH ADJACENT MATERIAL (NOT TO EXCEED 1/2" AFF) AT ALL FLOOR FINISH TRANSITIONS.
5. FRP (FIBERGLASS REINFORCED PANEL); IN TOILET ROOM FROM FLOOR TO CEILING (IN CORRIDOR BEHIND DRINKING FOUNTAIN AND MOP SINK ONLY).
6. GC SHALL PROVIDE AND INSTALL ALL TOILET FINISHES, FIXTURES, AND ACCESSORIES. REFER TO TOILET ROOM ELEVATIONS.

- SEE ELEVATIONS, SECTIONS, AND DETAILS FOR FINISH TYPES AND LOCATIONS NOT NOTED ON THIS SHEET.
- GC SHALL SAND AND PRIME, PER MANUF PUBLISHED STANDARDS, ALL SURFACES REQUIRING PAINT A MIN OF (2) COATS OF PAINT SHALL BE REQUIRED IN ALL APPLICATIONS.
- ALL FINISHES SHALL HAVE A CLASS C FLAME SPREAD AND ALL CONCEALED MATERIALS SHALL BE NON-COMBUSTABLE. SEE GENERAL NOTES ON SHEET CS.

FLAGSHIP COLOR LEGEND

FINISHES LEGEND FOR REFERENCE.
NOT ALL FINISHES LISTED MAY BE USED.

AREAS	MARK	TYPE	MANUF	COLOR	SIZE / FINISH	NOTES
FLOORS	F-1	PORCELAIN	DALTILE	EP01 BUTTER PECAN 51809	12" X 48"	1 (FIELD)
	F-2	VCT	ARMSTRONG	DESERT BEIGE	12" X 12"	2
	F-3	PORCELAIN	DALTILE	EP03 BRAZILIAN WALNUT	12" X 48"	1 (JORDAN)
	F-4	PORCELAIN	DALTILE	EP04 BALSAM FIR	12" X 48"	1 (NIKE)
	F-5	PORCELAIN	DALTILE	EP06 ASH WHITE	12" X 48"	1 (WOMEN'S)
	F-6	PORCELAIN	DALTILE SOCIETY COLOBODY	CIVIC SAND SO46 UNPOLISHED	12" X 24"	1 (DRIVE AISLE, LIGHT)
BASE	B-1	THERMOPLASTIC RUBBER	JOHNSONITE	EQUINOX TOELESS MW-40-R (BLACK 40)	4 1/2" - MATTE	SCOTT STERTMEYER 713.254.9762, scott.sterlmeyer@tarkett.com
	B-2	VINYL	JOHNSONITE	VINYL BASE DCT-40-4 (BLACK 40)	MATTE	--
TRIM	TRM-3	TOP AND VERTICAL TRIM	MILLWORK VENDOR	FORMICA #839-58 STOP RED	1" X 3"	8
	TRM-6	DOOR TRIM	MILLWORK VENDOR	FORMICA #839-58 STOP RED	1" X 6"	8
PAINT	P-1	PAINT	SHERWIN WILLIAMS	MATCH FORMICA #839-58 STOP RED	EGGSHELL	3
	P-2	PAINT	BENJAMIN MOORE	BM1473 GRAY HUSKIE (17-74)	EGGSHELL	--
	P-3	PAINT	SHERWIN WILLIAMS	SW7006 EXTRA WHITE	EGGSHELL	3
	P-4	PAINT	SHERWIN WILLIAMS	SW7007 CEILING BRIGHT WHITE	EGGSHELL	3
	P-5	PAINT	SHERWIN WILLIAMS	SW6258 TRICORN BLACK	EGGSHELL	3
WALLS	W-1	FRP	GC	WHITE	4' X 8' SHEET	5
	CP-1	CONCRETE PANEL	CONCRETE LCDA	200	PANBETON SHAN (MEDIUM PITTING)	FURNISHED BY TENANT
	CP-2	CONCRETE PANEL	CONCRETE LCDA	200	CLASSIC SLIMBETON (HEAVY PITTED)	FURNISHED BY TENANT
	CP-3	CONCRETE PANEL	CONCRETE LCDA	200	CLASSIC PANBETON (LIGHT PITTED)	FURNISHED BY TENANT
GLASS	GL-1	MIRROR	GC	--	SEE PLANS	--
	GL-2	GLAZING	GC	1/2" TEMPERED	SEE PLANS	--
METALS	MT-2	16 GA FLAT	GC	TBD	--	STOREFRONT METALS

1. INSTALL PER COLORED RENDERINGS.
2. MATTE FINISH, QUARTER TURN PATTERN.
3. ROGER HALL 800.474.3794, roger.hall@sherwin-williams.com.
4. NOT USED.
5. FRP SHALL BE INSTALLED WITH REQUIRED EDGE TRIM FINISHES TO PROVIDE SMOOTH TRANSITIONS AND WATERTIGHT APPLICATION.
6. NOT USED.
7. SLATWALL SHALL BE INSTALLED W/ HORIZONTAL ALUMINUM INSERTS. PROVIDE ALL TRIM AND ACCESSORIES FOR COMPLETE INSTALLATION. SEE ELEVATIONS.
8. SEE MILLWORK VENDOR INFO IN VENDOR CONTACT LIST.

GENERAL FINISH NOTES

1. ALL INTERIOR WALL AND CEILING FINISHED SHALL BE IN ACCORDANCE WITH CURRENT STATE AND LOCAL BUILDING CODES. THE GC SHALL PROVIDE ALL FLAME SPREAD AND SMOKE DENSITY RATINGS FOR FINISH MATERIALS TO THE BUILDING DEPARTMENT AS REQUIRED.
2. GC TO PROVIDE ALL MATERIALS/PRODUCTS REQUIRED FOR INSTALLATION OF FINISH MATERIALS UNO ALL FINISH MATERIALS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES. CONTACT THE SALES REP FOR THE PROPER INSTALLATION. IF THEY ARE NOT CONTACTED FOR PROPER INSTALLATION PROCEDURES, THEN THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR IMPROPER INSTALLATION AND WILL BE REQUIRED TO RE-INSTALL OR CORRECT FINISHES IMMEDIATELY AND AT CONTRACTOR'S SOLE COST AND EXPENSE.
3. ALL INTERIOR WALL AND CEILING FINISHES SHALL MEET THE FOLLOWING SPECIFICATIONS:

TENANT SIDE	WALLS & CEILINGS
A. CLASS 'C' FLAME SPREAD INDEX	76 TO 200 MAX
B. SMOKE DENSITY RATING	450 MAX

4. ALL WOOD MUST BE CLASS 'A' FIRE RATED NON-COMBUSTIBLE MATERIAL AND ALL WOOD FIXTURE MUST BE CLASS 'A' STAMPED OR FURNISH MANUFACTURER'S CERTIFICATION.
5. ALL PAINTED SURFACES TO RECEIVE ONE (1) PRIME COAT AND TWO (2) FINISH COATS, UNO.
6. ALL MATERIALS INSTALLED SHALL BE A MINIMUM OF CLASS II; EXCEPT ALL MATERIALS INSTALLED ON THE STOREFRONT SHALL BE A MINIMUM OF CLASS I. MATERIALS NOT MEETING THE CLASS MINIMUMS, SHALL BE COVERED WITH A COATING OF NOT LESS THAN 1/28" THICK THAT IS FIRE RATED FOR THE REQUIRED CLASSIFICATION.
7. AFTER INSTALLATION OF ALL FIXTURES, GC TO TOUCH UP ANY SURFACES THAT MAY BE DAMAGED.
8. WITHIN THREE (3) DAYS OF THE COMPLETION OF DEMOLITION, GC IS RESPONSIBLE FOR TESTING THE CONCRETE SLAB FOR MOISTURE CONTENT USING WAGNER RELATIVE HUMIDITY RAPID RH TESTING KIT. GC TO CONTACT PRODUCT MANUFACTURER PRIOR TO BIDDING FOR TESTING, EXISTING CONDITIONS RECOMMENDATIONS AND COMPLETE APPLICATION INSTRUCTIONS. GC MUST PROVIDE ADD ALTERNATE BID ON BID FORM. SEE MOISTURE BARRIER CHART ON FINISH PLAN SHEET FOR TESTING REQUIREMENTS & PRODUCT SPECIFICATIONS.
9. AFTER REQUIRED MOISTURE AND RELATIVE HUMIDITY TEST RESULTS ARE RECEIVED, GC IS RESPONSIBLE FOR PROVIDING A LEVEL CONCRETE SLAB PRIOR TO FLOOR INSTALLATION. GC MUST FOLLOW MANUFACTURER RECOMMENDATIONS AND INSTRUCTIONS FOR SUITABLE SUBSTRATES, FLOOR PREPARATION, AND APPLICATION. GC TO PROVIDE BID ON BID FORM FOR THE FOLLOWING:

   FOR MINOR SURFACE CONCRETE DEFECTS, PATCHING, SMOOTHING, AND FEATHERING; RECOMMENDED PRODUCTS INCLUDE:

   *ARDEX - FEATHER FINISH: SELF-DRYING, CEMENT-BASED FINISHING UNDERLAYMENT
   *MAPEI - PLANIPREP FF: PREMIUM SKIMCOATING AND PATCHING COMPOUND
   *MAPEI - PLANIPATCH: FAST-SETTING, POLYMER-MODIFIED, CEMENT-BASED PATCHING COMPOUND

   FOR MAJOR CONCRETE DEFECTS AND SELF-LEVELING REPAIR; RECOMMENDED PRODUCTS INCLUDE:

   *ARDEX - K-15: SELF-LEVELING SUB-FLOOR SMOOTHING COMPOUND
   *MAPEI - PLANIPATCH PLUS SYSTEM: AN EMBOSSING LEVELER
   *MAPEI - ULTRAPLAN I PLUS: HIGH-PERFORMANCE, QUICK-SETTING, SELF-LEVELING UNDERLAYMENT

DOOR SCHEDULE

DOOR #	MATL	FIN	SIZE WIDTH	SIZE HEIGHT	SIZE THICK	HEAD	RATING	HDW SET	REMARKS
1	ALUM	--	14'-0"	9'-6"	--	--	--	6	1, 3, 4, 10, OVERHEAD ROLLING SHUTTER
2	HM	P-1	3'-0"	7'-0"	1¾"	12/A3.0	--	2	1, 4, 11
3	HM	P-3	3'-0"	7'-0"	1¾"	--	--	3	2, 4, 6, 8
4	WD	P-1	3'-0"	7'-0"	1¾"	12/A3.0	--	5	5, 11
5	HM	P-3	3'-0"	7'-0"	1¾"	12/A3.0	--	1	7, 11
6	HM	P-3	3'-0"	7'-0"	1¾"	12/A3.0	--	1	1, 5, 11
7	HM	P-3	3'-0"	7'-0"	1¾"	12/A3.0	--	2	1, 5, 11
8	HM	P-1	3'-0"	7'-0"	1¾"	11/A3.0	--	2	1, 4, 7, 9, 11
9	MDF	TBD	2'-6"	7'-0"	¾"	--	--	7	
10	MDF	TBD	2'-6"	7'-0"	¾"	--	--	7	
11	MDF	TBD	2'-6"	7'-0"	¾"	--	--	7	
12	MDF	TBD	2'-6"	7'-0"	¾"	--	--	7	

1. DOOR HARDWARE SHALL COMPLY WITH ALL APPLICABLE 'GENERAL HARDWARE NOTES'.
2. PROVIDE (1) PEEP HOLE TO VIEW OUT, MOUNTED AT 60" AFF.
3. VENDOR TO FURNISH AND INSTALL OVERHEAD ROLLING SECURITY SHUTTER. SHUTTER TO BE MANUALLY OPERATED WITH ENCLOSED HOUSING. OPEN AIR SHUTTER TO ALLOW VISUAL ACCESS WHILE MAINTAINING SECURITY. VENDOR TO VIF SIZE PRIOR TO FABRICATION.
4. INSTALL TACTILE EXIT SIGNAGE.
5. INSTALL ACCESSIBILITY SIGNAGE.
6. PROVIDE SIGNAGE THAT READS "EMERGENCY EXIT ONLY".
7. PROVIDE SIGNAGE THAT READS "EMPLOYEES ONLY".
8. GC TO INSPECT, REPAIR, AND/OR REPLACE AS REQUIRED FOR PROPER WORKING ORDER. PROVIDE AND INSTALL MISSING ELEMENTS PER HARDWARE SCHEDULE.
9. PROVIDE "C" LABEL DOOR & FRAME PER UL.
10. PROVIDE SIGNAGE ON EGRESS SIDE ADJACENT TO DOOR STATING "THIS DOOR SHALL REMAIN UNLOCKED WHEN STORE IS OCCUPIED".
11. REINFORCE JAMBS W/ WOOD BLOCKING.

DOOR HARDWARE LEGEND

- GC TO FURNISH & INSTALL ALL DOOR HARDWARE, UNLESS NOTED OTHERWISE.
- NO ELECTROMAGNETIC LOCKING DEVICES SHALL BE INSTALLED OR OPERATED WITHOUT THE PRIOR APPROVAL OF THE FIRE PREVENTION BUREAU.
- ALL ELECTROMAGNETIC LOCKS ARE TO DEFAULT TO OPEN UPON LOSS OF POWER CONTROLLING THE ELECTROMAGNETIC LOCKS OR LOSS OF GENERAL POWER.
- GC IS RESPONSIBLE TO HAVE THE STORE REKEYED UPON TURNOVER DATE. SEE HARDWARE SETS BELOW FOR KEYING.
- ALL MEANS OF EGRESS SHALL BE IN COMPLIANCE WITH CURRENT CODES.
- ALL HARDWARE SHALL BE HANDICAP ACCESSIBLE IN COMPLIANCE W/ CURRENT CODES.
- ALL DOORS SHALL BE SWINGING IN DIRECTION OF EGRESS TRAVEL WHERE SERVING OCCUPANT LOAD OF 50 OR MORE PERSONS.
- ALL DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES SHALL BE INSTALLED 34" (MIN) TO 48" (MAX) AFF AND SHALL BE SINGLE HANDED OPERABLE W/O USE OF KEY OR SPECIAL KNOWLEDGE.
- CONTROLS AND OPERATING MECHANISMS SHALL BE LEVER TYPE (OR EQ) PROVIDING OPERATION W/ ONE HAND AND NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST.
- THRESHOLDS AT EGRESS DOORS SHALL NOT EXCEED 1/2" MAX HEIGHT AFF.
- WHERE EGRESS DOORS ARE USED IN PAIRS, THE UNLATCHING OF THE LEAF SHALL NOT REQUIRE MORE THAN (1) OPERATION AS MENTIONED IN NOTE #5 ABOVE.
- THE FORCE REQUIRED TO ACTIVATE CONTROLS OF INTERIOR HINGED DOORS SHALL BE NO GREATER THAN 5 LBS.
- DOORS EQUIPPED W/ CLOSERS SHALL BE ADJUSTED SO THE SWEEP PERIOD FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO A POSITION OF 12 DEGREES FROM THE LATCH IS 5 SECONDS MINIMUM.
- TOILET ROOM AND DRESSING ROOM DOORS SHALL BE KEYED ALIKE. LAYAWAY CLOSET SHALL BE KEYED SEPARATELY.
- SHOP DRAWINGS FOR ANY DOOR HARDWARE NOT SPECIFIED IN THE HARDWARE NOTES SHALL BE SUBMITTED TO OWNER FOR APPROVAL PRIOR TO INSTALLATION.
- GC TO PROVIDE CORE KEY TO DM AFTER CONSTRUCTION COMPLETION.

HARDWARE SET 1:
3 BB31 4.5" US26D F/M BB HINGE SATIN CHROME CAL-ROYAL
1 DANE SFIC STORERM LEVER SATIN CHROME LESS CORE W581BD-DAN-626
1 3070 HM 161T (TURTLE) PREP 18 GA / UNIVERSAL THRU BOLT PREP
1 CLOSER (PREP COMBO SGL) W/ SILENCERS
1 SC81A RW/PA FULL CVR ALUM-689 REG ARM STD CYL CLOSER ADA 1-6
1 ASA STRIKE JAMB
1 10X34 KICK PLATE US32D SATIN STAINLESS
1 S32D CONCAVE WALL STOP 2-1/2"D WS407-CCV US32D

HARDWARE SET 2:
3 BB31 4.5" US26D F/M BB HINGE SATIN CHROME CAL-ROYAL
1 DANE PASSAGE LEVER SET CHROME W101S-DAN-626 FALCON
1 3070 HM 161T (TURTLE) PREP 18 GA / UNIVERSAL THRU BOLT PREP
1 CLOSER (PREP COMBO SGL) W/ SILENCERS
1 SC81A RW/PA FULL CVR ALUM-689 REG ARM STD CYL CLOSER ADA 1-6
1 ASA STRIKE JAMB
1 10X34 KICK PLATE US32D SATIN STAINLESS
1 S32D CONCAVE WALL STOP 2-1/2"D WS407-CCV US32D

HARDWARE SET 3:
"VERIFY EXISTING OR PROVIDE NEW"
3 BB31 4.5" US26D NRP F/M BB HINGE SATIN CHROME CAL-ROYAL
1 SPO DETEX ECL230 EXIT CONTROL UNIT
1 SPO DETEX BE9611 BATTERY ELIM KIT
1 SPO DETEX ECL436 K BAR GUARD KIT
1 MORTISE CYLINDER SFIC LESS CORE STRAIGHT CAM625 80-102
1 SPO DET 861F 280 ALUM COLLAR
1 4040XP CUSH ARM ALUM STD COVER STD CYL CLOSER TBSRT LCN
1 MILL 5X1/4 SADDLE THRESHOLD PEMKO
1 ALUM 5/8" BRUSH SWEEP PEMKO
1 CAST DOOR PULL W/ THRU BOLT 5-1/2" CTC US26D ROCKWOOD DWO
1 10X34 KICK PLATE US32D SATIN STAINLESS
4 8" F2C UL SURFACE SLIDE BOLT W/ TOP/BOT STK 453-8-TB US2C
1 DOORSCOPE DS2000-ALB VIEWER BLACK - ALUMINUM BODY
1 MILL 1/4" VINYL DOOR JAMB WEATHER STRIP PEMKO
*GC TO FURNISH & INSTALL EXTERIOR TENANT IDENTIFICATION SIGNAGE PER LANDLORD'S STANDARDS.

HARDWARE SET 5:
3 BB31 4.5" US26D F/M BB HINGE SATIN CHROME CAL-ROYAL
1 DANE SFIC STORERM LEVER SATIN CHROME LESS CORE W581BD-DAN-626
1 3070 HM 161T (TURTLE) PREP 18 GA / UNIVERSAL THRU BOLT PREP
1 CLOSER (PREP COMBO SGL) W/ SILENCERS
1 SC81A RW/PA FULL CVR ALUM-689 REG ARM STD CYL CLOSER ADA 1-6
1 ASA STRIKE JAMB
1 S32D CONCAVE WALL STOP 2-1/2"D WS407-CCV US32D

HARDWARE SET 6:
BY VENDOR

NOTE: GC TO ENSURE THUMB CYLINDER IS ACCEPTABLE BY LOCAL BUILDING INSPECTOR.

HARDWARE SET 7:
SEE DETAILS ON SHEET A4-SERIES (1)

VENDOR CONTACT LIST

GC TO CONTACT OWNER PRIOR TO START OF CONSTRUCTION TO CONFIRM ALL VENDOR SUPPLIED ITEMS & INSTALLATION & SCHEDULE.

AUDIO VISUAL:
JEFF ROMAN
PLAYNETWORK
PHONE: 425-629-2760
jroman@playnetwork.com

STOCK SHELVING:
BARBARA MIGDAL
EXCALIBUR SHELVING
PHONE: (603) 749-6200
bmigdal@tds.net

EAGLE SYSTEMS:
MARK HODGES
EAGLE SYSTEMS
PHONE: (877) 990-3245
www.eagleys.com

SIGN VENDOR:
FAWN LEAL
WALTON
PHONE: 210-238-6642

ROLLING SHUTTER:
BRIAN WILMHOFF
METRO DOOR
PHONE: (800) 669-3667 X-716
bwilmhoff@metroservicesolutions.com

STORE FIXTURES:
CRAIG FRASE
MARKETING SOLUTIONS INC. (MSI)
PHONE: 312-357-5250
cfrase@msi-design.com

INTRUSION ALARM:
NATE KELLY
PE MORAN SECURITY SOLUTIONS
PHONE: (217) 552-4973
nkelly@pemoransecurity.com

CCTV:
BETH ROSE
INTEGRATED SECURITY SOLUTIONS
PHONE: (859) 881-0477
brose@iss-ky.com

MILLWORK:
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FOXTAIL CUSTOM CABINETRY
PHONE: 443-807-9668
foxtailcustomcabinetry@gmail.com

SENSORMATIC: (WHEN REQ'D)
CHRIS BENZING
SENSORMATIC
PHONE: (516) 668-7494
cbenzing@rsglp.com

SAFE:
DEVIN TURNER
FIRE KING COMMERCIAL SERVICES
PHONE: (800) 452-4655 EXT:5603
www.fireking.com

VOICE / DATA COORDINATION:
DAVID COSTA
NET TECHNOLOGY
PHONE: (608) 827-7949 X-5166
David.Costa@nettechnology.com

LIGHTING:
BILL PIERRO
LIDO LIGHTING
PHONE: 631-595-2000
billpierro@lidolighting.com

(1)

RESPONSIBILITY SCHEDULE

	EXISTING	NOT OPS / CABLE	NEW	LANDLORD INSTALL	TENANT FURNISH	OWNER / TENANT INSTALL	GENERAL CONTRACTOR FURNISH	GENERAL CONTRACTOR INSTALL	REMARKS
GENERAL									
BUILDING PERMIT/ FEES								●	TENANT TO REIMBURSE ACTUAL COSTS OF PERMIT
OTHER PERMITS, FEES, INSURANCE						●		●	SIGN PERMIT BY VENDOR
TRASH REMOVAL & DUMPSTER								●	(●) INCLUDING NEW DUMPSTER FOR OPS TRUCK (20 YARD MINIMUM)
CONCRETE SLAB - STRUCTURAL	●								
TEMPORARY BARRICADES								●	
TEMPORARY WINDOW GRAPHICS		●							
CLEANUP & FINAL CLEANING								●	
REKEYING								●	GC TO HAVE THE STORE REKEYED ON THE TURNOVER DATE
STOREFRONT									
DEMOLITION								●	REMOVE ONE DOOR, SEE PLANS
BUILDING SHELL & LANDLORD BULKHEAD	●								
METAL REVEALS								●	
STEEL & CONNECTIONS								●	
ROLLING SECURITY SHUTTER, SUPPORT, & HARDWARE						●	●		COORDINATE W/ VENDOR. VENDOR MUST VIF PRIOR TO FABRICATION
GLAZING CHANNELS								●	
GLASS (INCLUDING GLASS FOR DOORS)		●							
GLAZING RUBBER								●	
FIRE RATED WOOD BLOCKING								●	
FRAMING & SHEATHING								●	
SIGN ASSEMBLY						●	●		COORDINATE WITH SIGN VENDOR
BLADE SIGN & HARDWARE						●	●		COORDINATE WITH SIGN VENDOR
CONCRETE CANES (TBD)						●	●	●	
CONCRETE PANELS EDGE BANDING / REVEAL								●	
"V" GROOVE PANELS (TYP)								●	
GENERAL CONSTRUCTION									
DEMOLITION								●	
TRENCHING / CORE DRILLING OF EXISTING SLAB								●	
DEMISING PARTITION STUDS	●							●	
DEMISING PARTITION GYP. BD.	●							●	LEVEL 4 FINISH
FIRE SPRAY		●							
FIRE STOPPING								●	WHERE REQUIRED BY GOVERNING CODE OFFICIALS
CARPENTRY, ROUGH, & FINISH								●	
BLOCKING & METAL STRAPPING								●	
INTERIOR PARTITION GYP. BD., METAL STUDS, FURRING, ETC.								●	
GYPSUM BOARD CEILING & APPLICABLE FRAMING/ SUSPENSION								●	
ACCESS PANELS								●	
ACOUSTICAL CEILING GRID		●							
ACOUSTICAL CEILING PANELS		●							
DOORS & FRAMES								●	
DOOR HARDWARE								●	
FITTING ROOM MIRRORS & HOOK								●	
GRAPHICS							●	●	
PAINTING								●	INCLUDE A FINAL TOUCH UP AFTER STORE STOCK & PRIOR TO OPENING
MOISTURE TEST - FLOOR								●	WITHIN 3 DAYS OF THE COMPLETION OF DEMOLITION
FLOOR PREPARATION: INCLUDING FLOATING IF NECESSARY								●	
FLOOR PROTECTION: INCLUDING CLEANING/ SEALING/ WAXING								●	
PORCELAIN TILE FLOORING, REQUIRED GROUT, ADHESIVE & SEALANT								●	
BOH FLOORING, REQUIRED ADHESIVE, & SEALANT (F-2)								●	
REDUCER STRIP ADHESIVES, ETC.								●	
FLOOR TRANSITION STRIPS								●	
WALL BASE (B-1)								●	GC PROVIDES (1) 4'X4' FR PLYWOOD BACKER FOR VENDOR USE
WALL BASE (B-2)								●	
WALL & DOOR TRIM (TRM-6)								●	SEE ELEVATIONS
TOILET ACCESSORIES								●	
FIRE EXTINGUISHERS								●	
ACCESSIBILITY SIGNAGE								●	BLACK FINISH
FRP PANELS (W-1)								●	
BATT INSULATION		●							
PVC TUBE FOR CLEAN SET OF CITY APPROVED PLANS								●	INSTALL BY ELECTRICAL PANEL
FIXTURES									
PERIMETER FIXTURES: WALL PANELS, SHELVING, & HARDWARE						●		●	FIXTURE PACKAGE
SLATWALL AT BACKWRAP						●		●	FIXTURE PACKAGE
CASHWRAP & BACKWRAP FIXTURES						●		●	MILLWORK VENDOR
POS CASH REGISTERS & EQUIPMENT						●	●		GC TO COORDINATE ELECTRICAL REQUIREMENTS WITH VENDOR
SAFE AT CASHWRAP						●	●		
FREE STANDING FIXTURES / ASSEMBLY						●		●	FIXTURE PACKAGE (GC TO ASSEMBLE)
VISUAL FIXTURE/ MANNEQUINS, ETC.						●		●	GC TO ASSEMBLE MANNEQUINS
EYE HOOKS (MERCHANDISE DISPLAY)								●	
FITTING ROOM BENCH								●	GC SECURE TO WALL
MANAGERS SUPPORT DESK						●		●	EXCALIBUR
STANDARD STOCK SHELVES						●		●	
STOCK SHELVING LATERAL BRACING								●	
MOBILE STOCK SHELVES		●							
EMPLOYEE LOCKERS						●		●	
REFRIGERATOR / MICROWAVE						●		●	
NETWORK EQUIPMENT RACK						●		●	GC PROVIDES (1) 3' X 3/4" FR PLYWOOD BACKER FOR VENDOR USE
EMPLOYEE BREAK TABLE						●	●		
MIRRORS & MASTICS								●	
MECHANICAL - REFER TO MECHANICAL SHEETS FOR ADDITIONAL INFORMATION									
HVAC UNITS	●								
ROOF WORK		●							SEE NOTE #1 BELOW
HVAC UNIT CURB	●								
HVAC DISTRIBUTION - DUCTWORK, DIFFUSERS, ETC.	●							●	
AIR BALANCING								●	
EXHAUST FAN / LIGHT								●	
EXHAUST DUCTWORK	●							●	
RETURN AIR GRILLES	●							●	
HVAC WARRANTY CALLS								●	SEE NOTE #3 BELOW
HVAC FILTER CHANGE								●	AFTER CONSTRUCTION COMPLETION
DUCT SMOKE DETECTION								●	
SMOKE EVACUATION SYSTEM		●							
TRANSFER GRILLE FIRE DAMPERS		●							
FIRE SPRINKLER SHUT-OFF							●	●	SEE NOTE #1 BELOW
SPRINKLER SYSTEM MODIFICATION							●	●	SEE NOTE #1 BELOW
PLUMBING FIXTURES (H.C. ACCESSIBLE)								●	
WATER & SEWER STUB-INS	●							●	RELOCATE PER PLANS
WATER & SEWER PIPING								●	
ELECTRICAL - REFER TO ELECTRICAL SHEETS FOR ADDITIONAL INFORMATION									
METER SOCKET	●								
ELECTRICAL SERVICE	●								GC TO ADVISE TENANT DAY 1 IF SERVICE IS LARGE ENOUGH TO PANEL
TRANSFORMER	●								
ELECTRICAL PANELS	●							●	
WIRING, CIRCUITING, RECEPTACLES, SWITCHES, ETC.								●	
CAT-5 CABLES & CONDUITS								●	
LOW VOLTAGE WIRING						●		●	GC TO COORDINATE WITH VENDOR
CONNECTION & WIRING OF CASHWRAP								●	
P.O.S. SYSTEM						●	●		CONTACT TENANT'S CONSTRUCTION PROJECT MANAGER
CASHWRAP POWER POLE	●								
TELEPHONE SYSTEM						●	●		CONTACT TENANT'S CONSTRUCTION PROJECT MANAGER
LIGHTING CONTROL SYSTEM								●	
LOAD LIMITER - PANEL	●								
LOAD LIMITER - TRACK END TYPE						●		●	
EXIT SIGNS								●	
EMERGENCY LIGHTING								●	GC TO RELAMP EXISTING FIXTURES
LIGHT FIXTURES & TRACK						●		●	INCLUDING EMERGENCY BALLASTS
LAMPS						●		●	GC TO RELAMP EXISTING FIXTURES
MAIN SIGN WHIP(S)								●	
CLOSED CIRCUIT TV CAMERA SYSTEM						●	●		
SECURITY SYSTEM (*SEE NOTE #2 BELOW)						●	●		GC TO COORDINATE WITH VENDOR
SOUND SYSTEM						●	●		
SPEAKERS						●		●	GC TO COORDINATE WITH VENDOR
AUDIO VISUAL EQUIPMENT						●	●		
FIRE ALARM							●	●	SEE NOTE #1 BELOW
PANEL ALARM DEVICE @ REAR DOOR (SEE HARDWARE SET 3)								●	GC TO CONFIRM CODE COMPLIANT HARDWARE EXISTS, OR PROVIDE NEW
DOOR BELL AND CONTACT								●	
LOW VOLTAGE KIT						●		●	INCLUDES PATCH PANEL, 66 BLOCK/JACKS, WALL PLATES/LAYOUT AND TESTING INSTRUCTION.

GENERAL RESPONSIBILITY NOTE(S):
1. GC TO CONTACT THE LANDLORD TO VERIFY ANY/ALL REQUIRED CONTRACTORS FOR THIS LOCATION. THE GC IS TO PROVIDE ALTERNATE BID(S) FOR ALL LANDLORD REQUIRED CONTRACTORS.
2. GC WILL BE RESPONSIBLE TO CONTACT SECURITY SYSTEM VENDOR AT BEGINNING OF CONSTRUCTION TO SCHEDULE A SITE VISIT BY A TECHNICIAN. THE TECHNICIAN WILL AT THAT TIME, PERFORM A TEST TO DETERMINE THE CAPABILITY OF THE SECURITY SYSTEM WITH THE EXISTING CONDITIONS.
3. GC SHALL BE RESPONSIBLE TO DISPATCH TECHNICIANS WITH SAME DAY RESPONSE TO ALL HVAC OUTAGES DURING THE ONE YEAR WARRANTY PERIOD.

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STATE OF MARYLAND
JONATHAN B. GRACE
NO. 18664
ARCHITECT

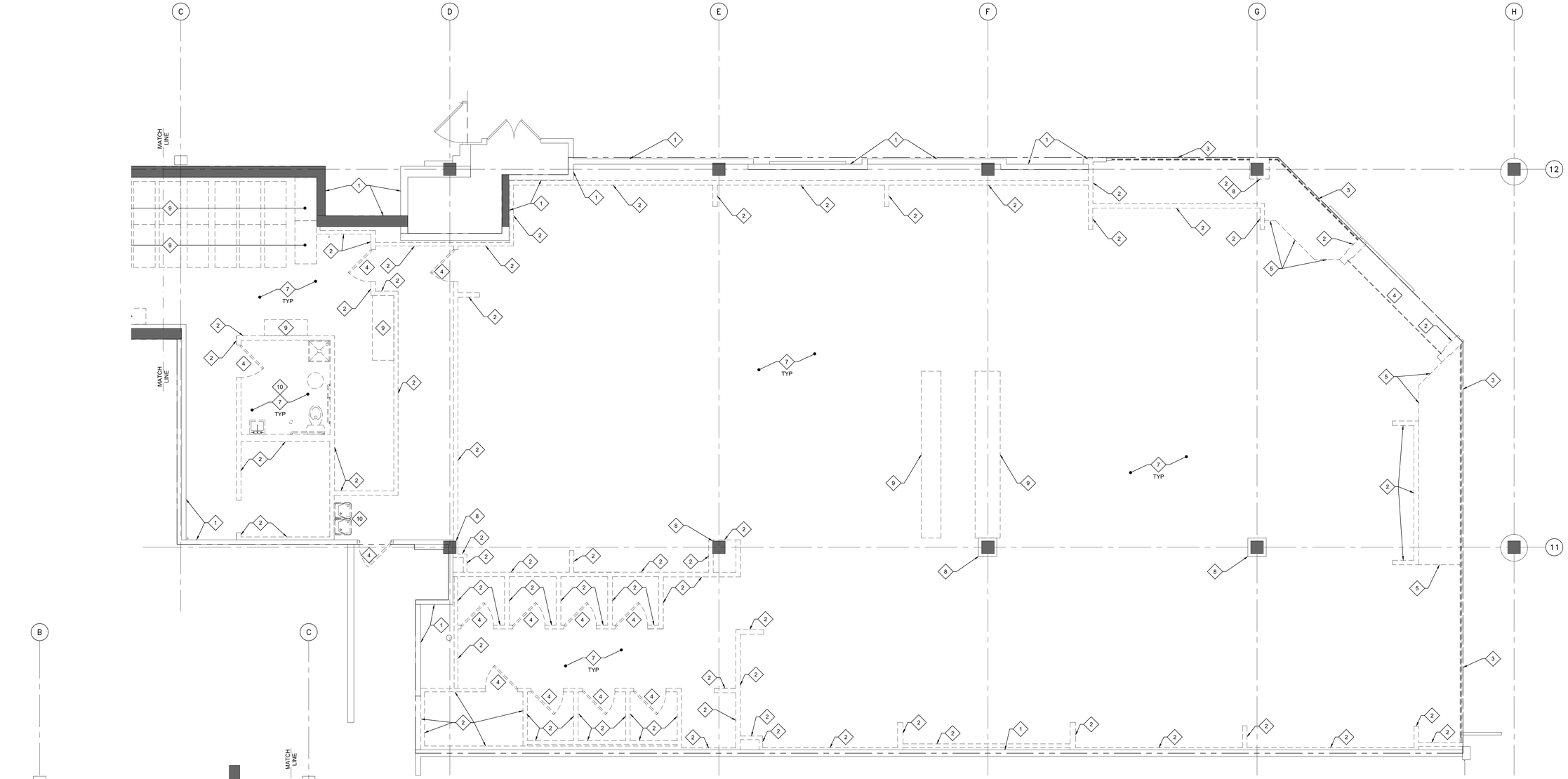
I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 18664
EXPIRATION DATE: 07/14/2020

NO.	DATE	DESCRIPTION
1	06/20/19	BID SET

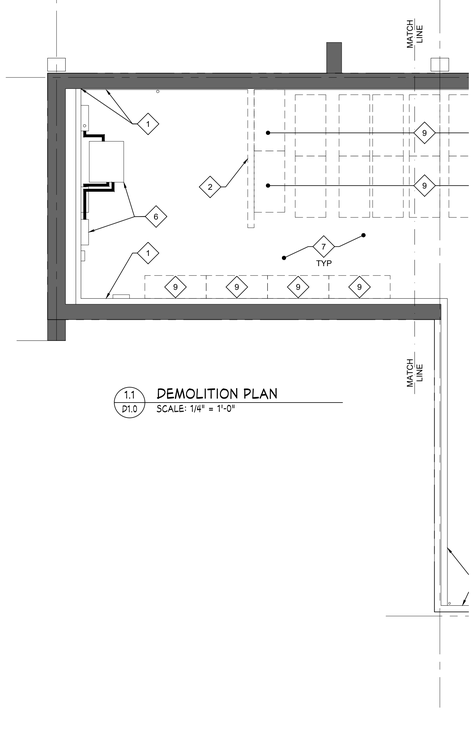
DATE: 06/17/19
DRAWN BY: RRR
PROJECT NO.: 19139

INFORMATION SHEET

IS1



1 D1.0 DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



1.1 D1.0 DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

A. THE GC SHALL BE RESPONSIBLE FOR ALL DEMOLITION DESCRIBED ON THIS DRAWING AND ANY OTHER DEMOLITION THAT MAY BE DIRECTED, IN WRITING BY THE ARCHITECT, NOT SPECIFICALLY NOTED ON THESE DRAWINGS.
B. THE GC SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT & SERVICES. THE GC SHALL PERFORM ALL OPERATIONS REQUIRED FOR COMPLETE INTERIOR DEMOLITION REMOVALS AND RELATED WORK AS INDICATED AND SPECIFIED HEREIN, AND AS REASONABLY IMPLIED TO COMPLETE THE WORK IN ALL RESPECTS.
C. THE GC SHALL REPAIR AT THEIR OWN EXPENSE ANY DAMAGE DONE TO THE OWNER'S PROPERTY, AND ANY OTHER PERSON OR PERSONS ON OR OFF THE PREMISES AS A RESULT OF THE GC'S WORK DEFINED HEREIN.
D. SALVAGE: REMOVE, REPAIR, CLEAN & STORE REMOVED ITEMS AS MAY BE DIRECTED FOR RE-USE BY THE ARCHITECT AND/OR OWNER.
E. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND/OR SPRINKLER DRAWINGS FOR ANY ADDITIONAL DEMOLITION NOTES.
F. THE GC SHALL REMOVE ALL ABANDONED MATERIALS, DEVICES, FIXTURES, PIPES, CONDUITS, WIRES, ETC. FROM PREMISES INCLUDING THE AREA OF THE CEILING PLENUM AND CONNECTION POINTS OUTSIDE OF THE TENANT SPACE. RETURN THE TENANT SPACE TO BASE BUILDING CONDITIONS.
G. WHERE APPLICABLE, THE GC SHALL REMOVE ALL EXISTING STORE FIXTURES.
H. WHERE APPLICABLE, THE GC SHALL REMOVE EXISTING CASHWRAP (VERIFY IN FIELD).
I. THE GC SHALL REMOVE ALL EXISTING FINISHED FLOOR MATERIALS DOWN TO THE EXISTING CONCRETE SLAB UNLESS NOTED OTHERWISE.
J. THE GC SHALL REMOVE EXISTING FINISHES FROM ALL EXISTING PARTITIONS TO REMAIN.
K. THE GC SHALL VERIFY WITH LANDLORD IF FLOOR X-RAYS OR SLAB SCANS ARE REQUIRED, PRIOR TO BID.
L. THE GC SHALL REPORT ANY POTENTIAL CONFLICTS WITH EXISTING ITEMS TO REMAIN TO THE TENANT'S CONSTRUCTION PROJECT MANAGER PRIOR TO BID.
M. UPON DEMOLITION OF LEASED SPACE, GC TO NOTIFY TENANT OF ANY ROOF LEAKS OR DAMAGE UNCOVERED, OR ANY WATER DAMAGE WITHIN THE REMAINDER OF THE SPACE (WALLS AND / OR FLOORS).
N. GC TO VIF EXISTING WALLS ARE STRAIGHT / LEVEL & PLUMB. REPORT ISSUES TO CONSTRUCTION PROJECT MANAGER.

X KEY NOTES:

1. EXISTING PARTITION TO REMAIN. REMOVE EXISTING TENANT FINISHES. PATCH AND REPAIR AS NECESSARY.
2. REMOVE EXISTING PARTITION(S), AS SHOWN DASHED, INCLUDING ANY ELECTRICAL DEVICES, DOORS, WINDOWS, FINISHES AND OTHER ASSOCIATED ITEMS - VERIFY IN FIELD.
3. STOREFRONT, INCLUDING STOREFRONT FRAMING, GLASS, ROLLING GRILLE, BULKHEAD, ETC.
4. REMOVE EXISTING DOOR, FRAME, AND HARDWARE COMPLETE.
5. REMOVE EXISTING PLATFORM COMPLETE.
6. ELECTRICAL EQUIPMENT LOCATION. SEE ELECTRICAL PLANS.
7. REMOVE EXISTING FINISHED FLOOR MATERIALS DOWN TO THE EXISTING CONCRETE SLAB (UNO). ENSURE ALL ADHESIVE IS REMOVED COMPLETE. PATCH AND REPAIR AS NECESSARY TO PREPARE FOR NEW FINISH.
8. EXISTING COLUMN TO REMAIN. REMOVE EXISTING TENANT FINISHES.
9. REMOVE EXISTING EQUIPMENT COMPLETE.
10. REMOVE EXISTING MOP SINK, FOUNTAIN & PLUMBING FIXTURES COMPLETE. CAP LINES FLUSH WITH FLOOR.

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STATE OF MARYLAND
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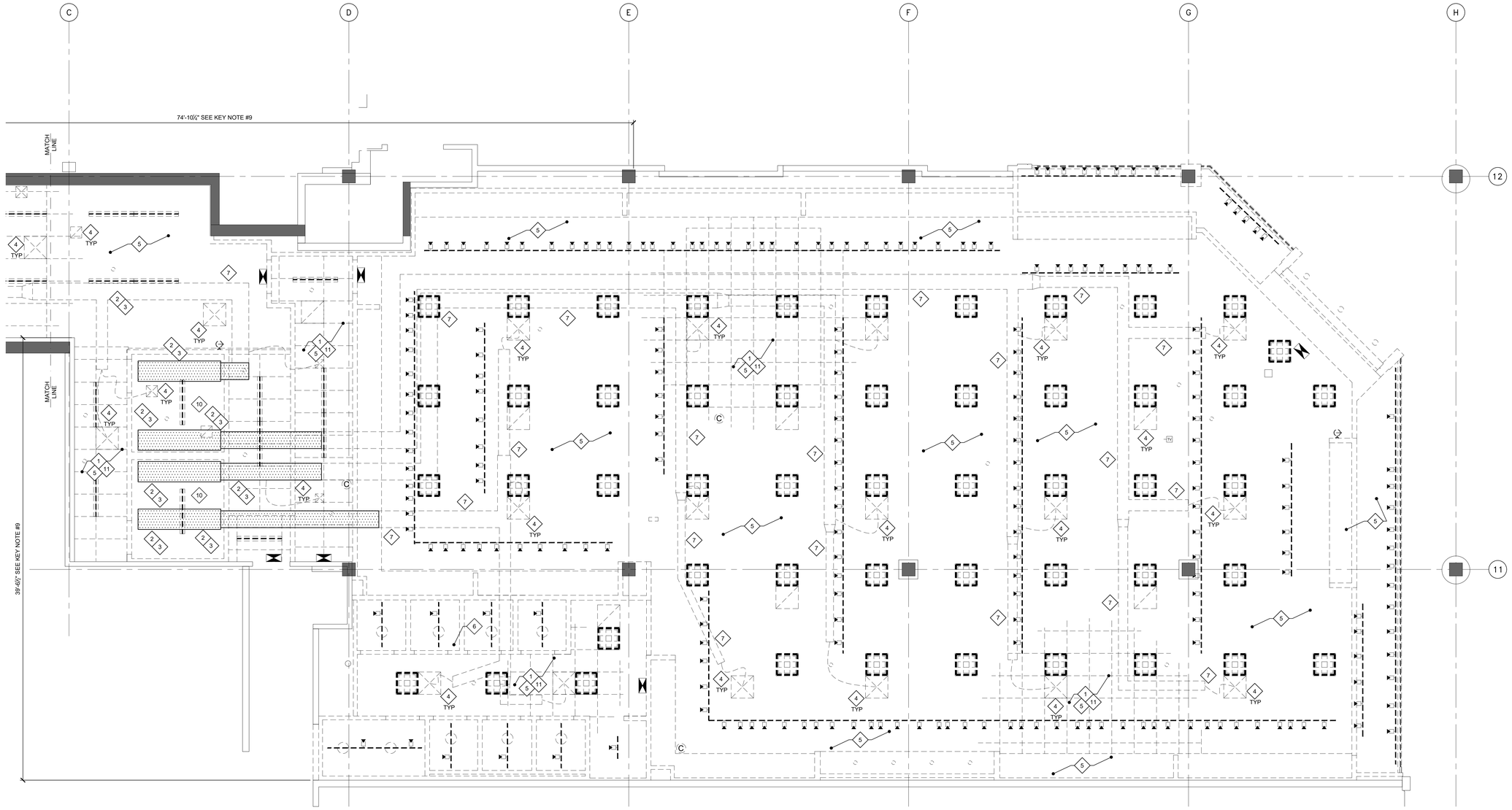
NO.	DATE	DESCRIPTION
1	06/20/19	BID SET

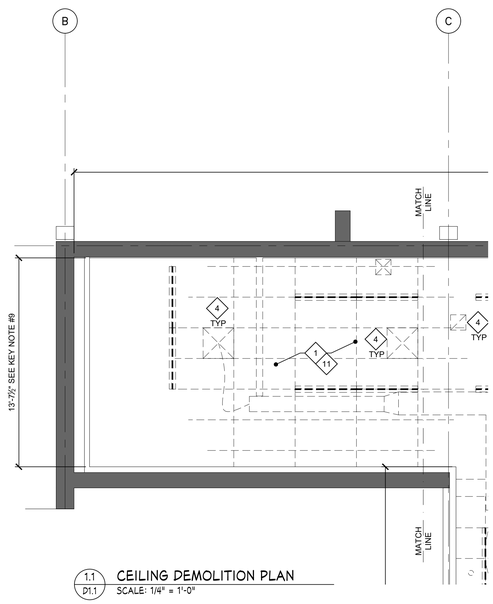
DATE:	06/17/19
DRAWN BY:	RRR
PROJECT NO.:	19139

DEMOLITION FLOOR PLAN

D1.0



1 P1.1 CEILING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



1.1 P1.1 CEILING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

A. SEE GENERAL NOTES SHEET D1.0.

X KEY NOTES:

1. REMOVE EX ACP CEILING AND GRID COMPLETE (SHOWN DASHED). SALVAGE PANELS FOR HALL AREA REUSE.
2. EXISTING HVAC EQUIPMENT TO REMAIN (SHOWN HATCHED). REFER TO MECHANICAL DRAWINGS.
3. REUSE AS MUCH SHEET METAL DUCTWORK AS POSSIBLE. SEE MECHANICAL DRAWINGS.
4. REMOVE EX DIFFUSERS AND FLEX DUCT COMPLETE. CAP AT TRUNK LINE.
5. REMOVE EX LIGHTING COMPLETE.
6. REMOVE EXISTING WATER HEATER TANK.
7. REMOVE DUCTWORK. SEE MECHANICAL PLANS.
8. NOT USED.
9. ALL OVERHEAD ITEMS IN THIS AREA (TO BE OPEN TO DECK) SHALL BE RAISED TO 11'-6" AFF MIN.
10. REMOVE EX TOILET ROOM COMPLETE. GC TO REMOVE DROP CEILING, EXHAUST FAN, DIFFUSER AND LIGHT FIXTURE.
11. REMOVE ANY AND ALL ABANDONED ITEMS IN CEILING AREA.

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STATE OF MARYLAND
JONATHAN B. GLASS
No. 18664
ARCHITECT

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 18664 EXPIRATION DATE: 07/14/2020

NO.	DATE	DESCRIPTION
1	06/20/19	BID SET

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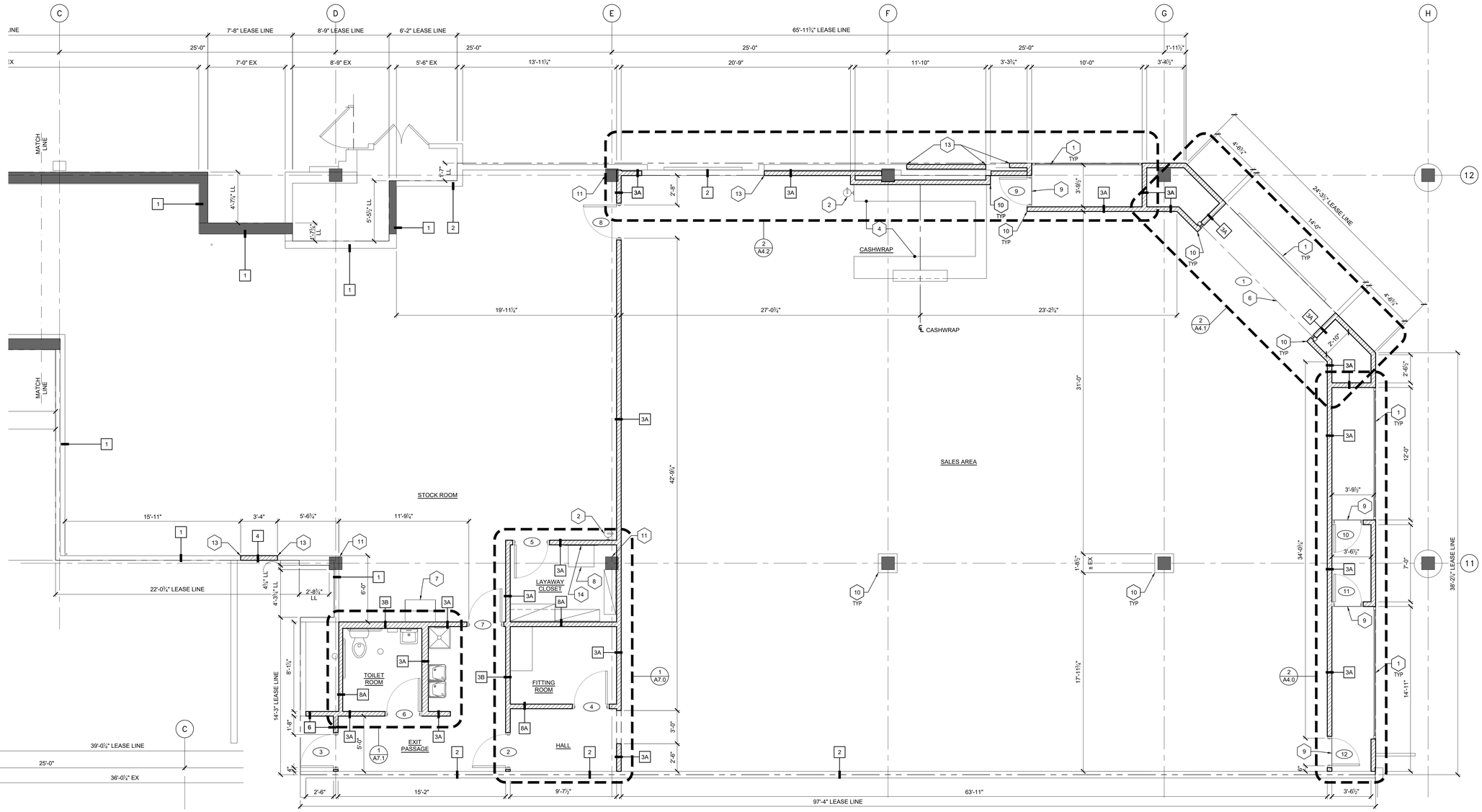
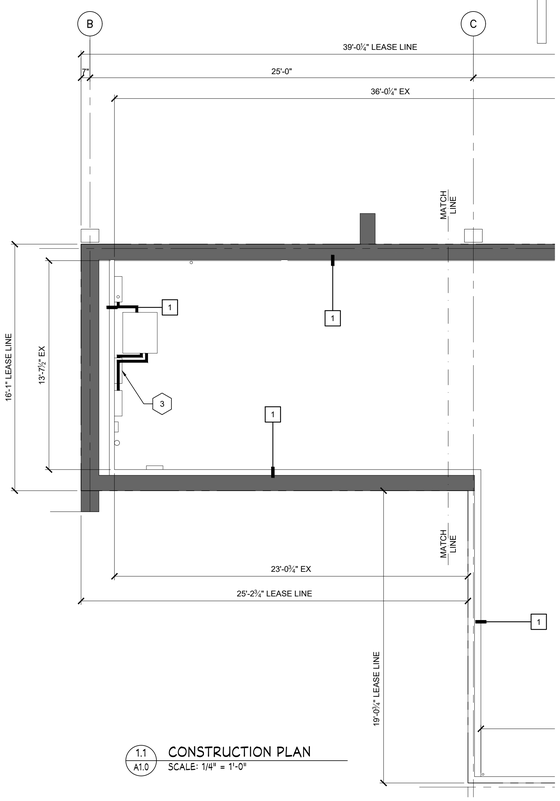
DRAWN BY:	RRR
PROJECT NO.:	19139

DEMOLITION CEILING PLAN

D1.1





1 A1.0 CONSTRUCTION PLAN
SCALE: 1/4" = 1'-0"

1.1 A1.0 CONSTRUCTION PLAN
SCALE: 1/4" = 1'-0"

NOTE: GC TO FIELD VERIFY LEASE LINE DIMENSIONS AFTER DEMOLITION & PRIOR TO FRAMING. IF ANY DISCREPANCIES, GC TO NOTIFY PROJECT MANAGER IMMEDIATELY.

SALES AREA SQUARE FOOTAGE	3781 SF
NON SALES AREA SQUARE FOOTAGE	2523 SF
TOTAL SQUARE FOOTAGE:	6304 SF

GENERAL NOTES:

A. THE GC SHALL FIELD VERIFY ALL DIMENSIONS AND JOB CONDITIONS AND SHALL REPORT TO THE OWNER ANY DISCREPANCIES AND/OR OMISSIONS WHICH COULD INTERFERE WITH THE SATISFACTORY COMPLETION OF THE WORK HEREIN.
B. ALL WOOD, WOOD BLOCKING, AND/OR MDF OTHER THAN FINISHED WOOD TRIM SHALL BE FIRE RETARDANT TREATED.
C. ALL METAL STUD PARTITIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
D. REFER TO FINISH SCHEDULE AND COLOR LEGEND ON IS1 FOR FINISH NOTES AND ADDITIONAL REQUIREMENTS.
E. REFER TO ENLARGED PLANS AND ELEVATIONS FOR ADDITIONAL REQUIREMENTS.
F. ROLL-DOWN SECURITY SHUTTERS SHALL REMAIN IN OPEN POSITION DURING HOURS OF OPERATION.
G. SEE SHEET A1.1 FOR WALL TYPES.
H. GC SHALL ENSURE AN EMERGENCY RELEASE LATCH IS FURNISHED WITH ROLL-DOWN SECURITY SHUTTER AT ENTRY DOOR. THE RELEASE SHALL CONFIRM TO ALL APPLICABLE CODES AND GENERAL HARDWARE NOTES.
I. **GC TO VIF EXISTING WALLS ARE STRAIGHT / LEVEL & PLUMB. REPORT ISSUES TO CONSTRUCTION PROJECT MANAGER.**

KEY NOTES:

1. NEW STOREFRONT SYSTEM . SEE STOREFRONT ELEVATIONS & DETAILS.
2. FIRE EXTINGUISHER - FIRE EXTINGUISHERS MOUNTED WITH BOTTOM OF EXTINGUISHER AT 27" AFF MAX. PRIOR TO INSTALLATION, COORDINATE EXACT LOCATION & QUANTITY WITH FIRE MARSHAL/INSPECTOR. SEE NOTES ON CS.
3. ELECTRICAL EQUIPMENT LOCATION. SEE ELECTRICAL DRAWINGS.
4. OUTLINE OF CASHWRAP & BACKWRAP. SEE FIXTURE PLAN.
5. NOT USED.
6. ROLL-DOWN SECURITY SHUTTER AND POSTS. GC TO COORDINATE INSTALL WITH VENDOR.
7. MANAGER SUPPORT DESK (EXCALIBUR). SEE FIXTURE PLAN.
8. NETWORK RACK. SEE DATA PLAN.
9. EDGE OF RAISED PLATFORM.
10. PROVIDE 18 GA 2" X 2" STEEL CORNER GUARD (BLACK) FROM FLOOR TO CEILING AT ALL OUTSIDE CORNERS IN PUBLIC AREAS, TYP.
11. EX COLUMN, PAINT (P-3).
12. NOT USED.
13. ALIGN FINISHES.
14. (1) 3' X 3/4" X 30" FR PLYWOOD PANEL FROM TOP OF NETWORK RACK TO U/S CLG FOR VENDOR USE.

SYMBOL LEGEND:

(X) DOORS - SEE DOOR & HARDWARE SCHEDULE

[X] WALL TYPE - SEE WALL TYPE SCHEDULE

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STATE OF MARYLAND
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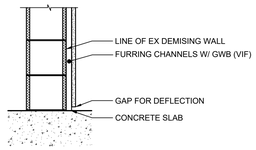
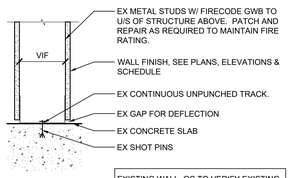
CONSTRUCTION PLAN

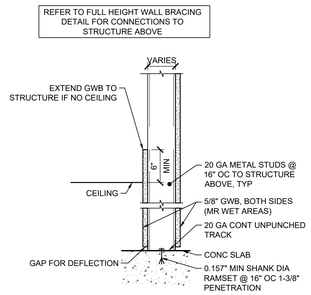
A1.0



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

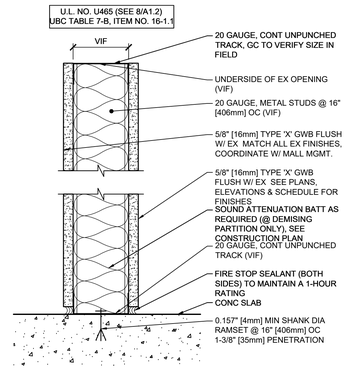


2 A1.1 WALL TYPE '2'
SCALE: 1-1/2" = 1'-0"

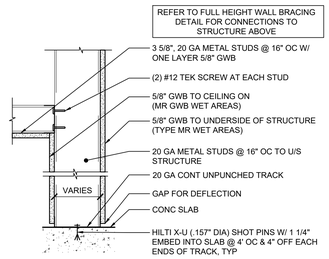


3A A1.1 WALL TYPE '3A' (3 5/8" STUD)
SCALE: 1-1/2" = 1'-0"

3B A1.1 WALL TYPE '3B' (6" STUD)
SCALE: 1-1/2" = 1'-0"

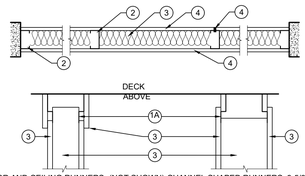


4 A1.1 WALL TYPE '4'
SCALE: 3" = 1'-0"



5A A1.1 WALL TYPE '5A' (3 5/8" STUD)
SCALE: 1-1/2" = 1'-0"

5B A1.1 WALL TYPE '5B' (6" STUD)
SCALE: 1-1/2" = 1'-0"



1 FLOOR AND CEILING RUNNERS -(NOT SHOWN)-CHANNEL SHAPED RUNNERS, 3-5/8 IN. [92mm] WIDE (MIN), 1-1/4 IN. [32mm] LEGS, FORMED FROM NO. 25 MSG (MIN) GALV STEEL, ATTACHED TO FLOOR AND CEILING WITH FASTENERS SPACED 24 IN. [610mm] OC MAX.

1A AS AN ALTERNATE TO ITEM 1 CEILING RUNNER*-25 MSG MIN GALV STEEL WIDTH TO ACCOMMODATE STUD, WITH 3 OR 4 IN. LEGS OFFSET AT MIDPOINT 5/8 IN. [16mm] TO ACCOMMODATE WALL CLADDING THICKNESS. ATTACHED TO CEILING WITH FASTENERS SPACES 24 IN. [610mm] OC. THE WALL CLADDING SHALL OVERLAP WALLBOARD 1-1/4 IN. [32mm] MIN. FIRE TRACK CORP.

2 METAL STUDS-CHANNEL SHAPED, 3-5/8 IN. [92mm] WIDE (MIN), 1-1/4 IN. [32mm] LEGS, 3/8 IN. [10mm] FOLDED BACK RETURNS, FORMED FROM NO. 25 MSG (MIN) GALV STEEL SPACED 16 IN. [406mm] OC MAX.

3 BATTS AND BLANKETS*-(OPTIONAL)-MINERAL WOOD OR GLASS FIBER BATTS PARTIALLY OR COMPLETELY FILLING STUD CAVITY. SEE BATTS AND BLANKETS (BZJZ) CATEGORY FOR THE NAMES OF CLASSIFIED COMPANIES.

4 WALLBOARD, GYPSUM* 5/8 IN. [16mm] THICK, 4 FT. [1219mm] WIDE, ATTACHED TO METAL STUDS AND FLOOR AND CEILING TRACK WITH 1 IN. [25mm] LONG, TYPE 2 SELF-TAPPING STEEL SCREWS SPACED 8 IN. [203mm] O.C. ALONG EDGES OF BOARD AND 12 IN. [305mm] O.C. IN THE FIELD OF THE BOARD. JOINTS ORIENTED VERTICALLY AND STAGGERED ON OPPOSITE SIDES OF THE ASSEMBLY. WHEN ATTACHED TO ITEM 6 (FURRING CHANNELS), WALLBOARD IS SCREW ATTACHED TO FURRING CHANNELS WITH 1 IN. [25mm] LONG, TYPE S STEEL SCREWS SPACED 12 IN. [305mm] O.C.
BOREAL GYPSUM INC. - TYPE BG-C.
CANADIAN GYPSUM CO, LTD - TYPES C, SCX, SHX, WRX.
CONTINENTAL GYPSUM COMPANY - TYPE CG-C.
DOMTAR GYPSUM INC. - TYPE 5 OR C.
EAGLE-GYPSUM PRODUCTS - TYPE EG-C.
GEORGIA-PACIFIC CORP., GYPSUM DIV. - TYPE GPFS-6 OR GPFS-C.
NATIONAL GYPSUM CO., CHARLOTTE, NC - TYPE FSK-G, FSW-G.
NATIONAL GYPSUM CO., RIYADH, SAUDI ARABIA - TYPE FR OR WR.
PABCO GYPSUM CO. - TYPE PG-C.
REPUBLIC GYPSUM CO., - TYPE RG-C.
STANDARD GYPSUM CORP., - TYPE SG-C.
TEMPLE-INLAND FOREST PRODUCTS CORP. - TYPE TP-5.
UNITED STATES GYPSUM CO. - TYPE AR, C, IP-X2, SCX, SHX, WRC, OR WRX.
WESTROC INDUSTRIES LTD. - TYPE WESTROC FIREBOARD.

4A WALLBOARD, GYPSUM*-(AS AN ALTERNATE TO ITEM 4)-NOM 3/4 IN. [19mm] THICK, 4 FT. [1219mm] WIDE. INSTALLED AS DESCRIBED IN ITEM 4 WITH SCREW LENGTH INCREASED TO 1-1/4 IN. [32mm] UNITED STATES GYPSUM CO. - TYPE AR.

4B WALLBOARD, GYPSUM*-(AS AN ALTERNATE TO ITEMS 4 AND 4A) 5/8 IN. [16mm] THICK INSTALLED AS DESCRIBED IN ITEM 4. JOINT COVERING (ITEM 5) NOT REQUIRED. UNITED STATES GYPSUM CO. - TYPE WSX.

5 JOINT TAPE AND COMPOUND-VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED IN TWO COATS TO JOINTS AND SCREW HEADS; PAPER TAPE, 2 IN. [51mm] WIDE, EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOMINAL 3/32 IN. [2mm] THICK GYPSUM VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF CLASSIFIED VENEER BASEBOARD. JOINTS REINFORCED.

6 FURRING CHANNEL-(OPTIONAL-NOT SHOWN)-RESILIENT 25 MSG GALV STEEL FURRING CHANNELS SPACED VERTICALLY MAX 24 IN. [610mm] O.C., FLANGE PORTION ATTACHED TO EACH INTERSECTING STUD WITH 1/2 IN. [13mm] LONG TYPE S-12 PAN-HEAD STEEL SCREWS.

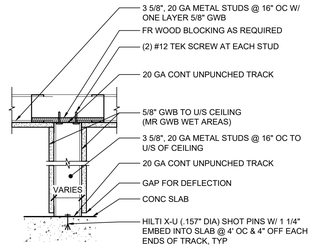
*BEARING THE UL CLASSIFICATION MARKING.

6 A1.1 WALL TYPE '6'
SCALE: 1'-0" = 1'-0"

N/A

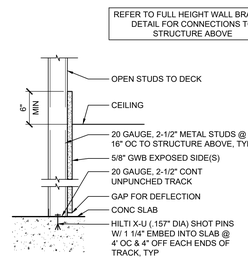
1

7 A1.1 WALL TYPE '7'
SCALE: 1-1/2" = 1'-0"

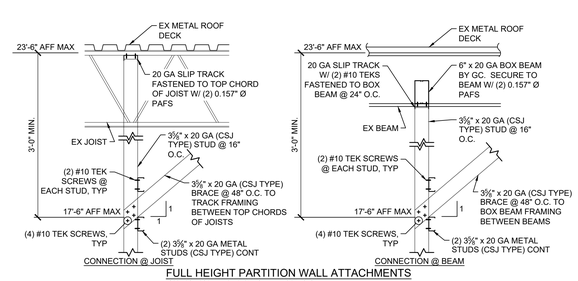


8A A1.1 WALL TYPE '8A' (3 5/8" STUD)
SCALE: 1-1/2" = 1'-0"

8B A1.1 WALL TYPE '8B' (6" STUD)
SCALE: 1-1/2" = 1'-0"



9 A1.1 WALL TYPE '9'
SCALE: 1-1/2" = 1'-0"

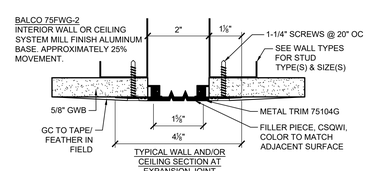


FULL HEIGHT PARTITION WALL ATTACHMENTS
-SEE ARCH. FOR ALL NEW PARTITION WALL LOCATIONS

10 A1.1 FULL HEIGHT WALL BRACING DETAIL
SCALE: 3/4" = 1'-0"

FOR ANY WALL W/ PERIMETER WALL FIXTURES, REFERENCE WALL STRAPPING DETAIL A3.0 FOR SPECIFICS

ALL GYPSUM BOARD (NEW AND EXISTING) IN PUBLIC AREAS TO MAINTAIN/ACHIEVE LEVEL 4 FINISH PER GYPSUM ASSOCIATION GA-214-96.



12 A1.1 SECTION @ EXPANSION JOINT
SCALE: 6" = 1'-0"

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STATE OF MARYLAND
JONATHAN B. GLEE
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REGISTERED
ARCHITECT

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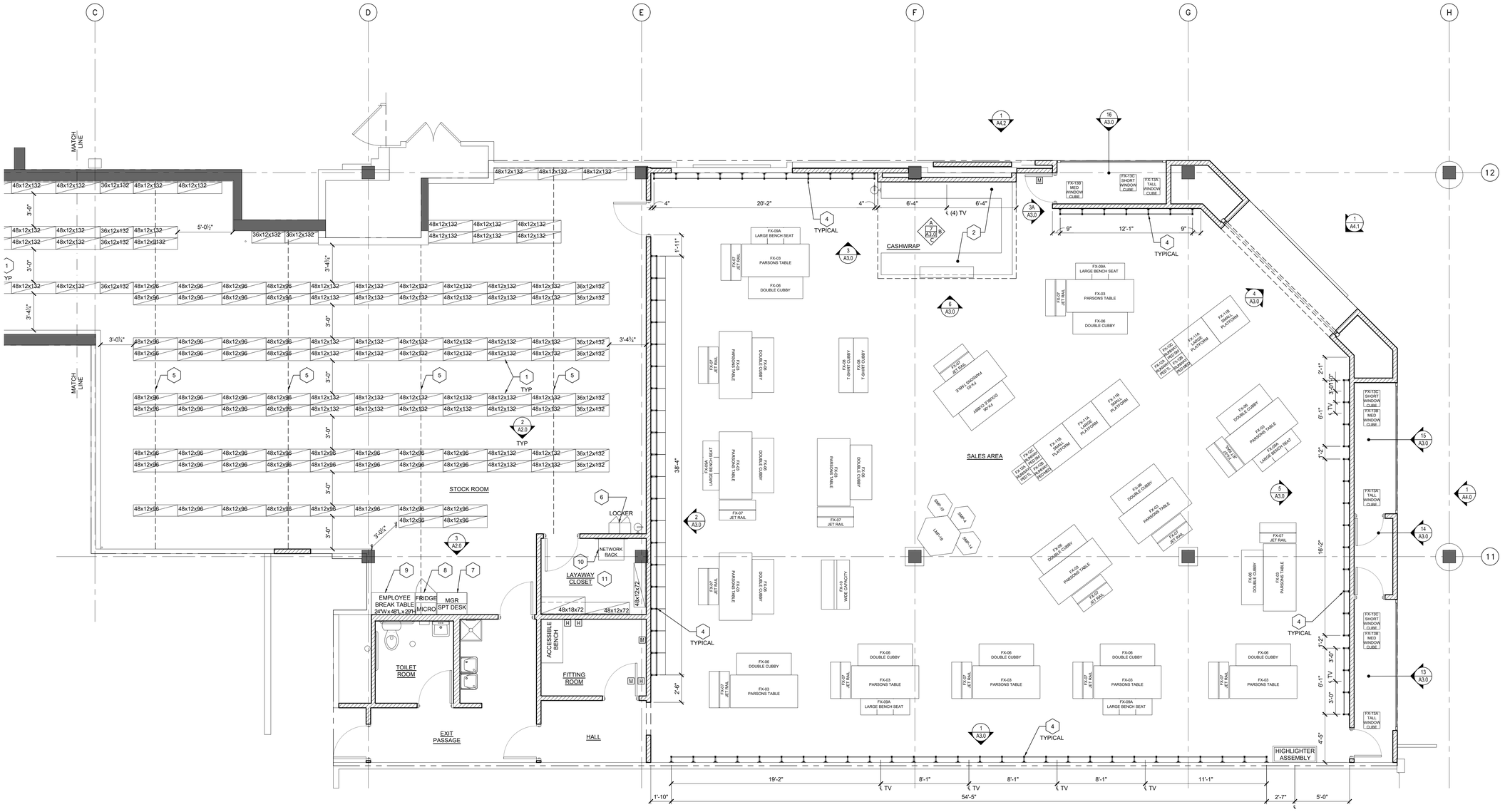
WALL TYPES AND DETAILS

A1.1



NOTE: FIXTURE PLAN IS FOR REFERENCE ONLY. COORDINATE FINAL QUANTITIES AND FIXTURE PLACEMENT WITH OWNER.

1
A2.0
FIXTURE PLAN
SCALE: 1/4" = 1'-0"

SQUARE FOOTAGES:

SALES	3781	SQ FT	50%
BACK OF HOUSE	2523	SQ FT	40%
TOTAL	6304	SQ FT	100%

STOCK SHELVING:

(119) 48"X12" STOCK SHELVES
(14) 36"X12" STOCK SHELVES
TOTAL: 518 LINEAR FOOT
TOTAL: 5098 CUBIC CAPACITY

1A
A2.0
FIXTURE PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

A. PRIOR TO FIXTURE INSTALLATION, REFER TO THE FIXTURE HANDBOOK FOR INFORMATION ON ASSEMBLY OF THE FIXTURES. IF THE HANDBOOK IS NOT AVAILABLE, CALL THE TENANT'S CONSTRUCTION PROJECT MANAGER (SEE COVER SHEET) FOR A REPLACEMENT.
B. INSTALL THE PERIMETER WALL UNITS BY FIRST TAKING THE HIGH POINT OF THE FLOOR AND SETTING THE CONTROL LINE.
C. GC SHALL PLACE ALL FLOOR FIXTURES IN ACCORDANCE WITH PLAN TO ENSURE ACCESSIBILITY AND CLEAR EGRESS ROUTES, LEVEL IN PLACE, AND ALL DAMAGED / MISSING LEVELERS TO BE REPLACED.
D. FREE STANDING FLOOR FIXTURES SHALL BE PLACED TO ALLOW A 44" SPACING (36" MIN).
E. FIXTURE PLAN IS PRELIMINARY. CONTACT OWNER FOR FINAL FIXTURE COUNTS AND LOCATIONS. FINAL FIXTURE PLAN SHALL CONFORM TO REQUIREMENTS LISTED ABOVE.

X KEY NOTES:

1. EXCALIBUR SHELVING SYSTEM. GC SHALL SECURE TO ADJACENT WALL AND / OR PROVIDE BRACING AS REQ'D. SEE 2/A2.0.
2. CASHWRAP & BACKWRAP. SEE INTERIOR ELEVATIONS.
3. NOT USED.
4. PERIMETER WALL UNITS. SEE 5/A3.1 FOR WALL STRAPPING DETAIL.
5. 2X WOOD BRACING CONTINUOUS ALONG TOP OF SHELVING.
6. EMPLOYEE LOCKERS.
7. MANAGER SUPPORT DESK (EXCALIBUR). SEE 3/A2.0.
8. EMPLOYEE REFRIGERATOR AND MICROWAVE.
9. EMPLOYEE BREAK TABLE.
10. NETWORK EQUIPMENT RACK. SEE A7.0.
11. SEE LAYAWAY SHELVING DETAILS FOR MORE INFORMATION.
12. GC TO PROVIDE AND INSTALL A PVC TUBE BY ELECTRICAL PANEL FOR A CLEAN SET OF CITY APPROVED PLANS WHICH IS SUPPLIED BY THE GC. SEE DETAIL 4/A2.0.

SYMBOL LEGEND:
SEE FITTING ROOM DETAILS FOR SPECIFICS

M MIRROR

H HOOK

2
A2.0
TYP SHELVING ELEVATION
SCALE: 1/2" = 1'-0"

3
A2.0
MANAGERS SUPPORT DESK
SCALE: N.T.S.

PREFAB. PLAN HOLDER ASSEMBLY:
- 6"Ø [152] x 24" [610] PVC TUBE WITHPRE-ATTACHED BOTTOM CAP.
- ½" [13] x 10" [254] x 24" [610]PLYWOOD BACKER.
- TUBE TO BE PRE-ATTACHED TO PLYWOOD BACKER.

G.C. TO INSTALL PLAN HOLDER NEAR ELECTRICAL PANELS AS INDICATED (VIF)

4
A2.0
PLAN HOLDER
SCALE: N.T.S.

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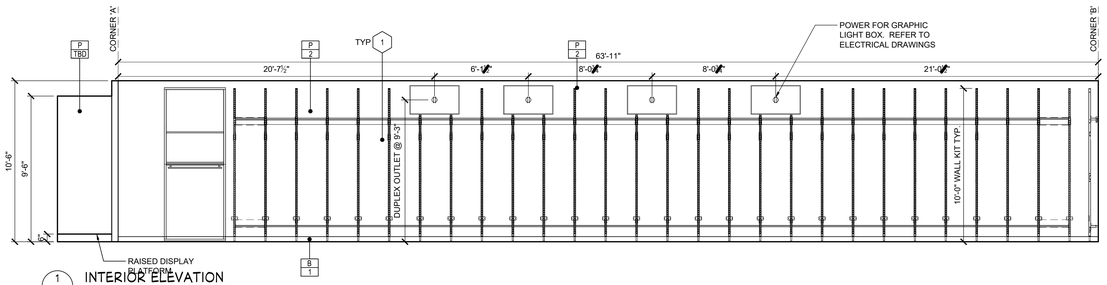
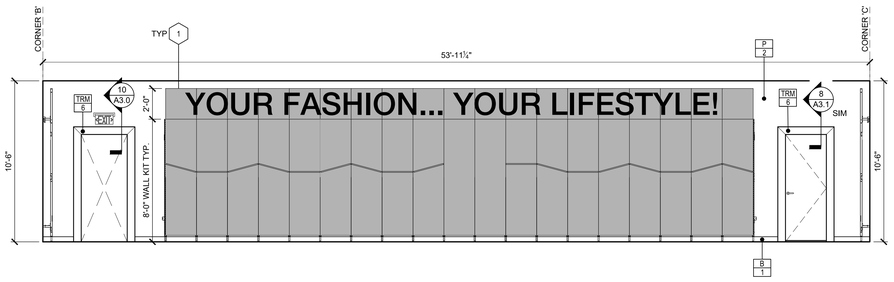
FIXTURE PLAN
& DETAILS

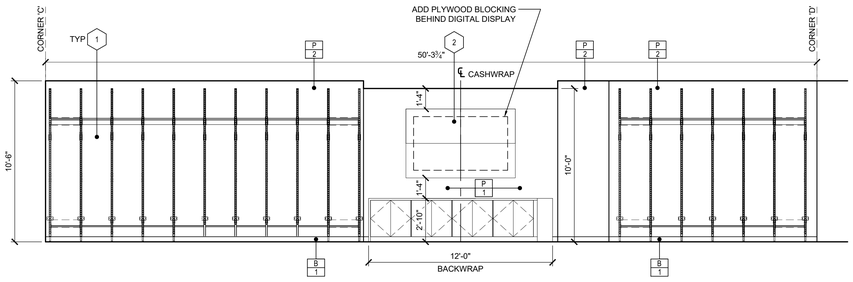
A2.0



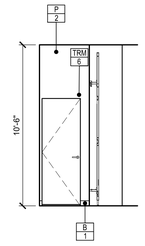
1 A3.0 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



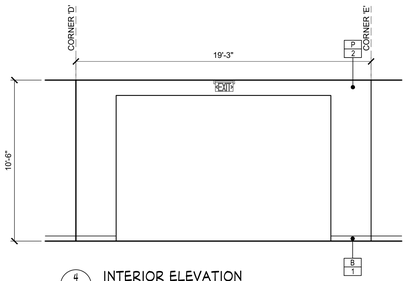
2 A3.0 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



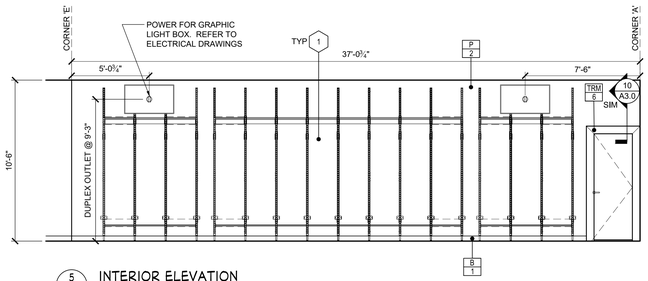
3 A3.0 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



3A A3.0 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"

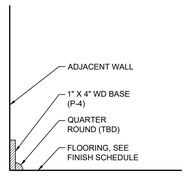


4 A3.0 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



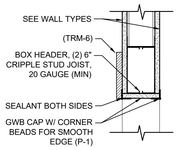
5 A3.0 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"

N/A

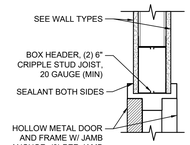


8 A3.0 CORNICE DETAIL
SCALE: 1 1/2" = 1'-0"

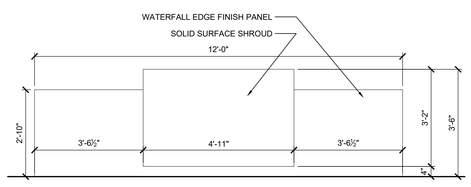
9 A3.0 BASE DETAIL
SCALE: 1 1/2" = 1'-0"



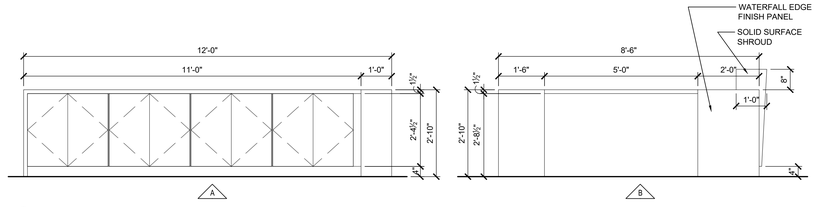
10 A3.0 DOOR HEAD DETAIL
SCALE: 1 1/2" = 1'-0"



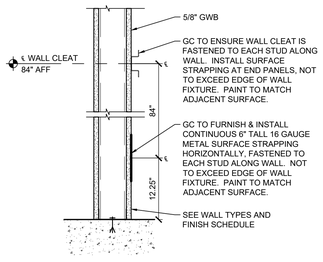
11 A3.0 DOOR HEAD DETAIL
SCALE: 1 1/2" = 1'-0"



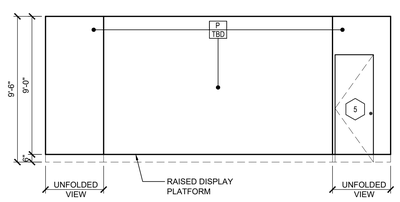
6 A3.0 CASHWRAP ELEVATION
SCALE: 1/2" = 1'-0"



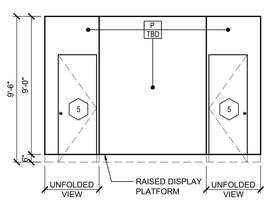
7 A3.0 CASHWRAP ELEVATION
SCALE: 1/2" = 1'-0"



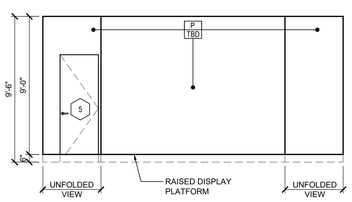
12 A3.0 BLOCKING DETAIL
SCALE: 1 1/2" = 1'-0"



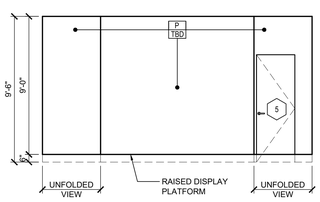
13 A3.0 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



14 A3.0 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



15 A3.0 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



16 A3.0 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"

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GENERAL NOTES:

A. SEE SHEET IS1 FOR FINISH SCHEDULE.
B. SEE SHEET FIXTURE PLAN FOR INTERIOR ELEVATION MARKERS.
C. GC TO TOUCH UP ALL OWNER PROVIDED FIXTURE MATERIAL AFTER INSTALLATION.
D. GC SHALL REFER TO FIXTURE INSTALLATION HANDBOOK FOR ADDITIONAL INFORMATION.
E. GC SHALL INCLUDE AS PART OF SCOPE OF WORK A FINAL TOUCH UP FOR PAINTING AFTER THE STORE IS STOCKED AND PRIOR TO STORE OPENING.
F. WALL MOUNTED FIXTURES SHOWN FOR REFERENCE ONLY. COORDINATE WITH OWNER.

X KEY NOTES:

1. PROVIDE BLOCKING FOR WALL MOUNTED FIXTURES. SEE 12/A3.0 AND VENDOR INSTALL INSTRUCTIONS.
2. MODIFIED WALL KITS AT BACKWRAP.
3. 18"W X 72"H TEMPERED MIRROR IN BLACK 1" X 4" FRAME. MOUNT B/O MIRROR 8" AFF.
4. ROLLING SECURITY SHUTTER (VIF). COORDINATE W/ VENDOR.
5. HIDDEN DISPLAY DOOR. SE DETAIL SHEET A4.0

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STATE OF MARYLAND · JONATHAN B. GLASE · No. 18664 · ARCHITECT

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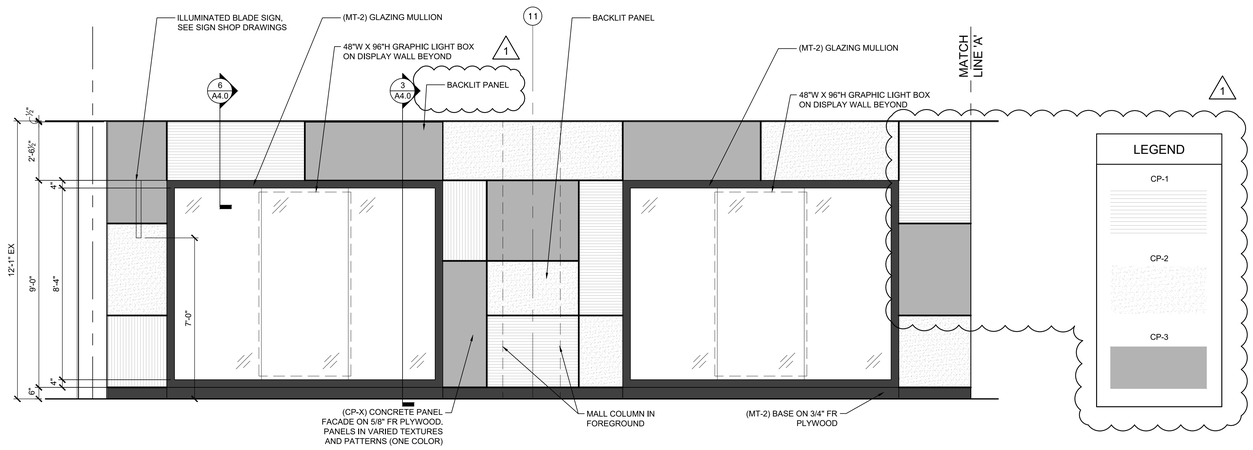
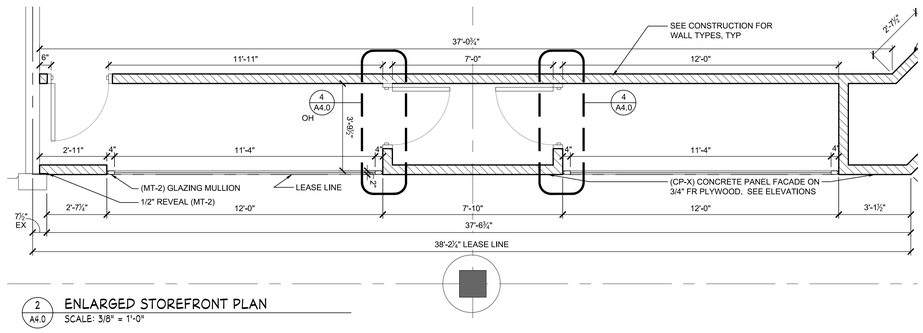
INTERIOR ELEVATIONS

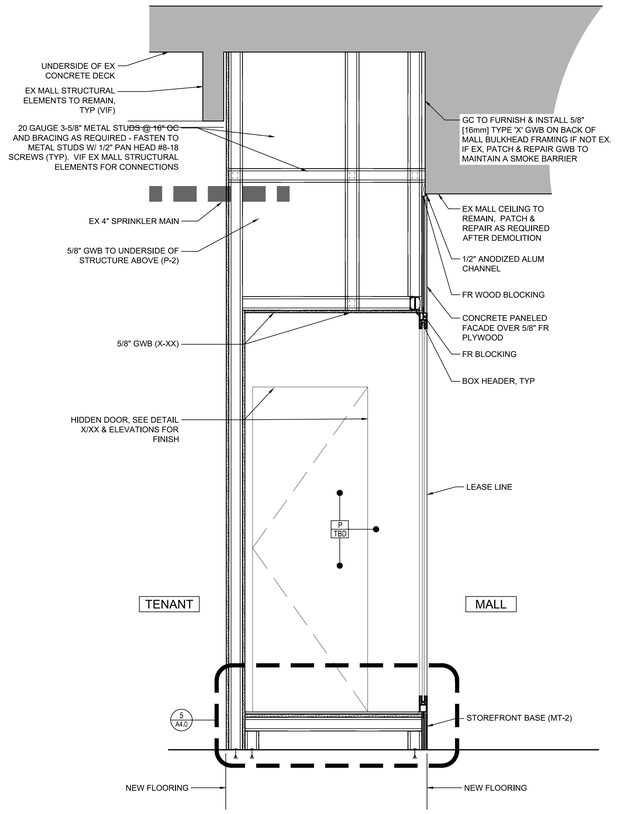
A3.0



1 A4.0 STOREFRONT ELEVATION
SCALE: 3/8" = 1'-0"



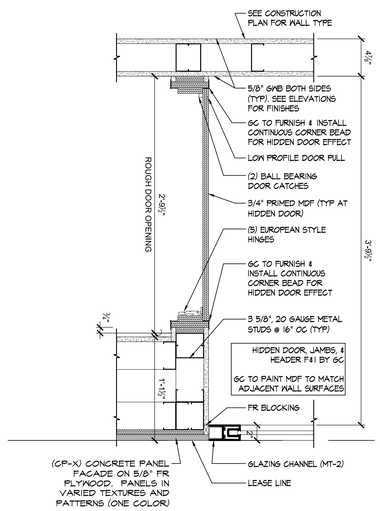
2 A4.0 ENLARGED STOREFRONT PLAN
SCALE: 3/8" = 1'-0"



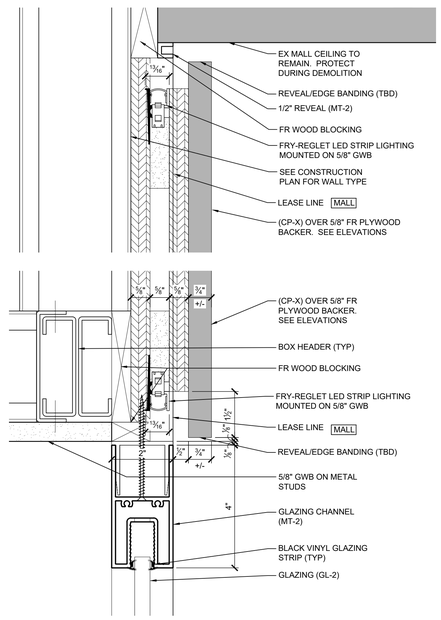
3 A4.0 STOREFRONT SECTION
SCALE: 3/4" = 1'-0"

STOREFRONT GENERAL NOTES:

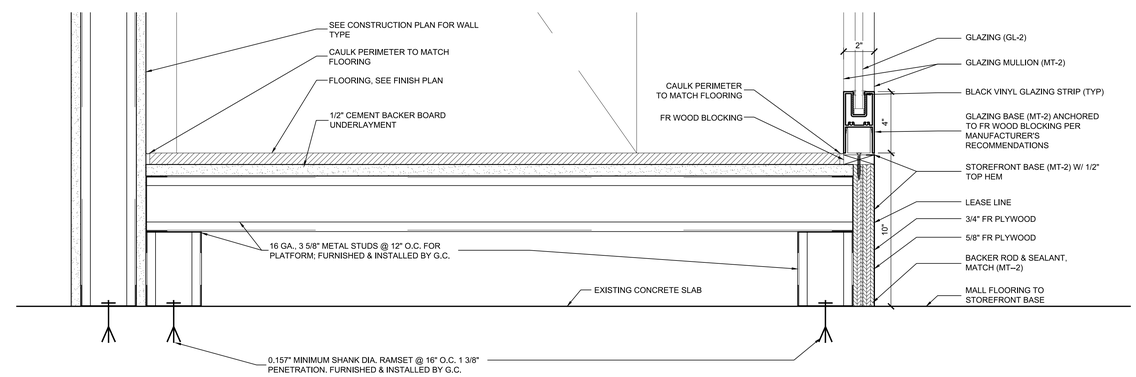
A. GC TO REPAIR ANY DAMAGES TO THE LANDLORD'S EXISTING FINISHES. DAMAGE CAUSED BY THE GC IS TO BE REPAIRED AT THE GC'S EXPENSE.
B. GC TO COORDINATE INSTALLATION OF SECURITY SYSTEM, ROLLING GRILLE AND SIGNAGE WITH VENDOR(S), SEE CONTACTS ON SHEET IS1.
C. IMMEDIATELY AFTER DEMOLITION, THE GC MUST COORDINATE WITH THE SIGN VENDOR FOR ANY SIGN INSTALLATION REQUIREMENTS: BUT NOT LIMITED TO; PRE-WIRING AND ELECTRICAL REQUIREMENTS, ACCESS PANELS, SIGN SUPPORT AND/OR BLOCKING REQUIREMENTS, CAT-WALKS, ETC.
D. REFER TO SIGN SHOP DRAWINGS FOR SIGN DETAILS. PRE-FABRICATED SIGN ASSEMBLY FURNISHED & INSTALLED BY SIGN CONTRACTOR UNDER A SEPARATE PERMIT.
E. SIGN VENDOR SHALL OBTAIN LANDLORD APPROVAL AND AGENCY / PERMIT APPROVALS VIA SEPARATE SUBMITTAL.
F. SUPPORT NEW ROLLING GRILLE SEPARATELY FROM BUILDING STRUCTURE.



4 A4.0 STOREFRONT PLAN DETAIL
SCALE: 1 1/2" = 1'-0"



6 A4.0 STOREFRONT SECTION DETAIL
SCALE: 6" = 1'-0"



5 A4.0 STOREFRONT PLATFORM DETAIL
SCALE: 3" = 1'-0"

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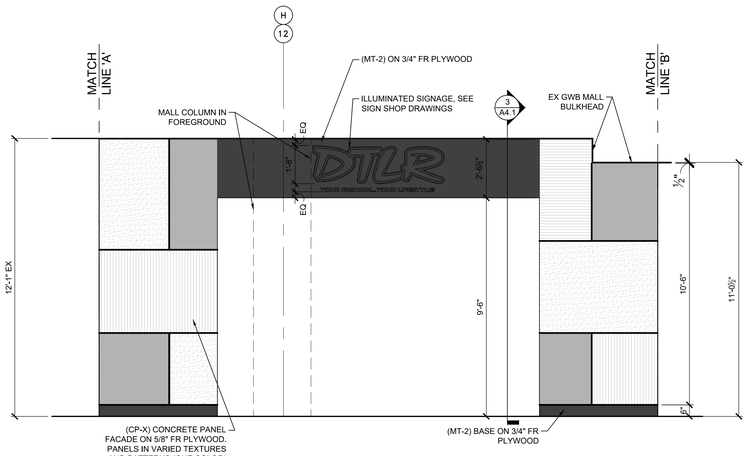
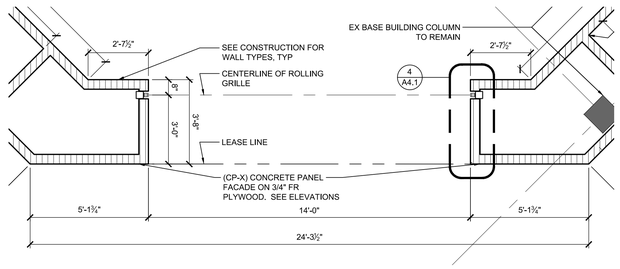
STOREFRONT ELEVATION & SECTION

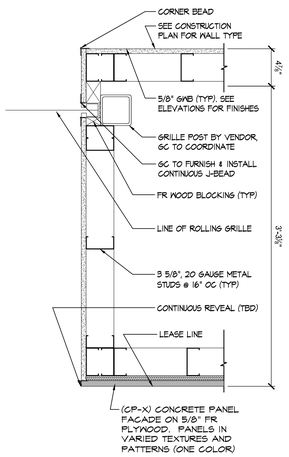
A4.0



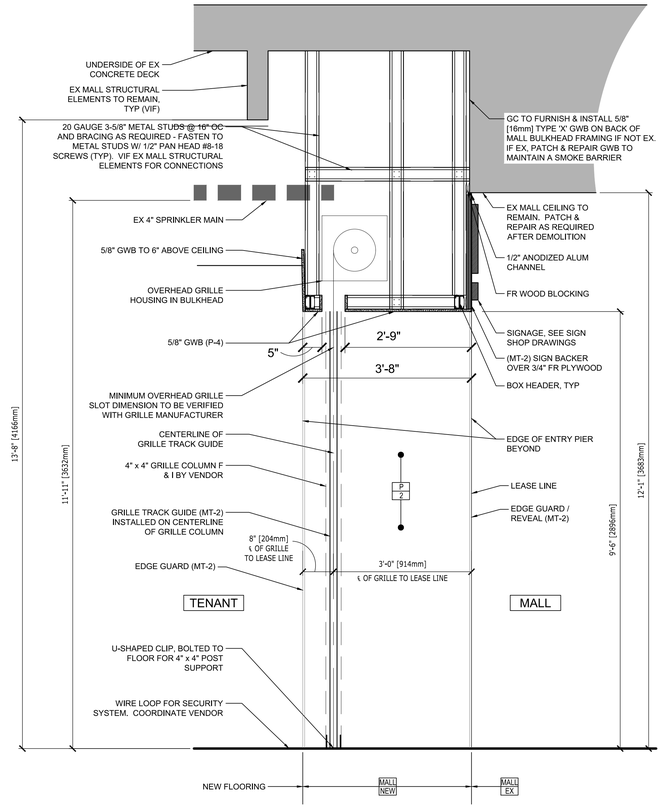
1 A4.1 STOREFRONT ELEVATION
SCALE: 3/8" = 1'-0"



2 A4.1 ENLARGED STOREFRONT ELEVATION
SCALE: 3/8" = 1'-0"



4 A4.1 ENLARGED STOREFRONT DETAIL
SCALE: 1 1/2" = 1'-0"



3 A4.1 STOREFRONT SECTION
SCALE: 3/4" = 1'-0"

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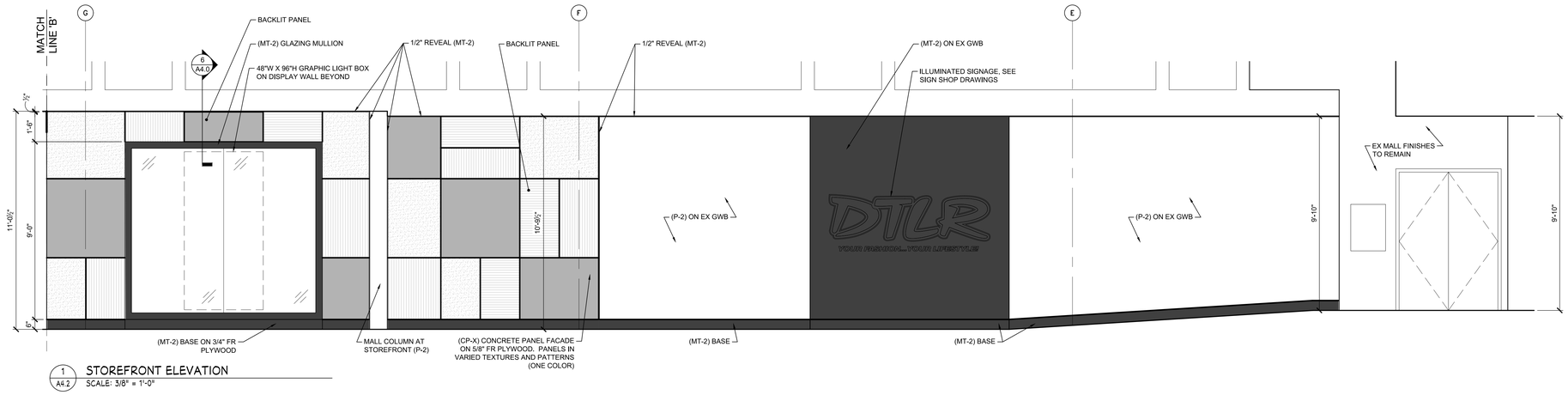
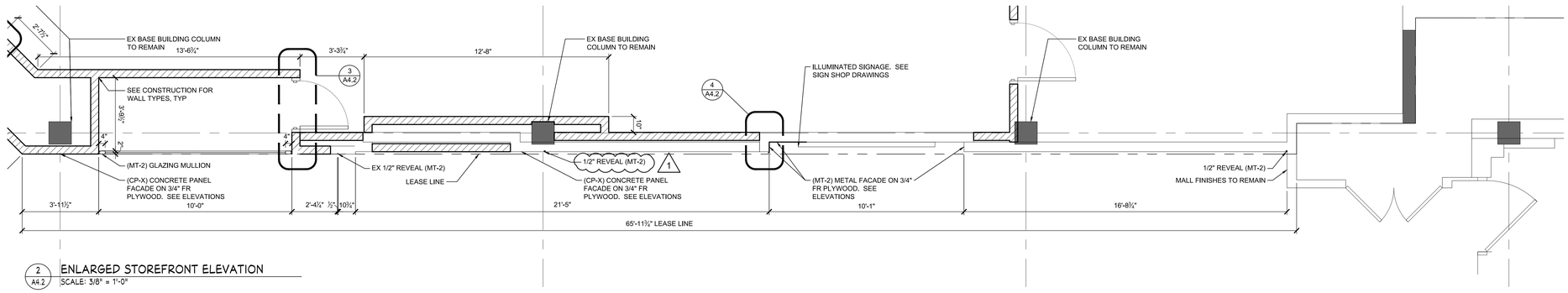
STOREFRONT ELEVATION & SECTION

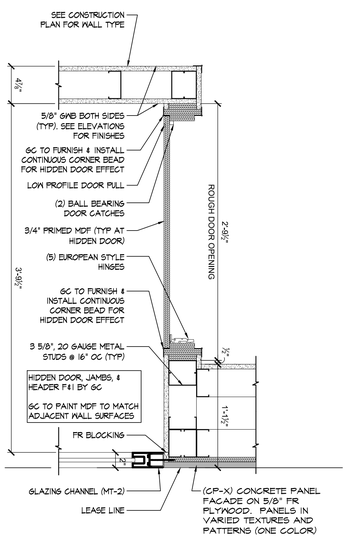
A4.1



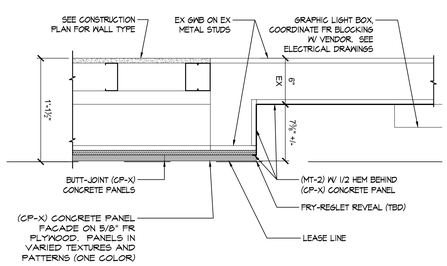
1 A4.2 **STOREFRONT ELEVATION**
SCALE: 3/8" = 1'-0"



2 A4.2 **ENLARGED STOREFRONT ELEVATION**
SCALE: 3/8" = 1'-0"



3 A4.2 **HIDDEN DOOR DETAIL**
SCALE: 1 1/2" = 1'-0"



4 A4.2 **STOREFRONT DETAIL**
SCALE: 1 1/2" = 1'-0"

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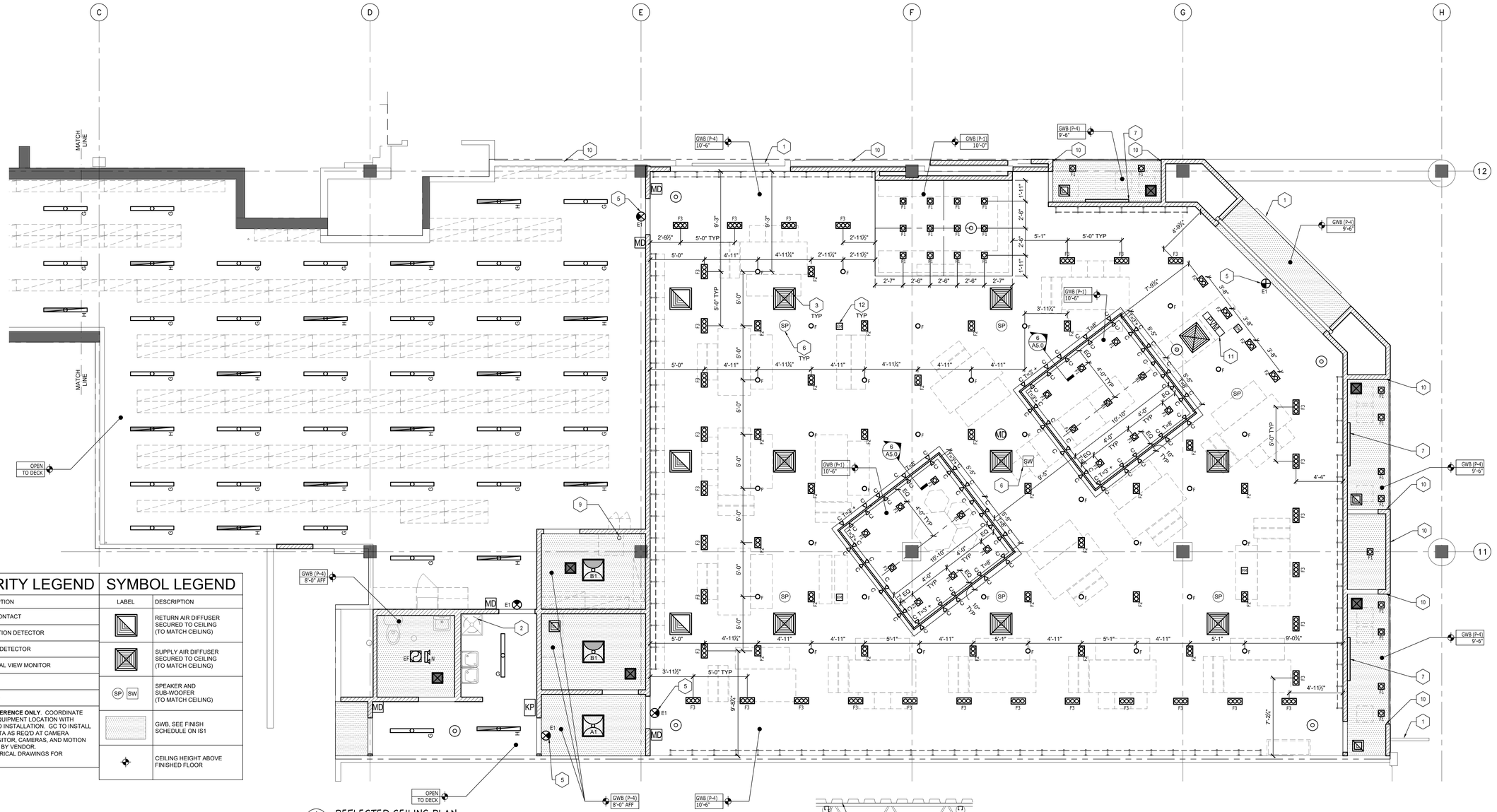
STOREFRONT ELEVATION & SECTION

A4.2



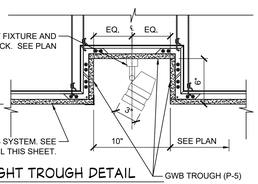
SECURITY LEGEND

LABEL	DESCRIPTION
	DOOR CONTACT
	360° MOTION DETECTOR
	MOTION DETECTOR
PVM	PERSONAL VIEW MONITOR
KP	KEYPAD
	CAMERA

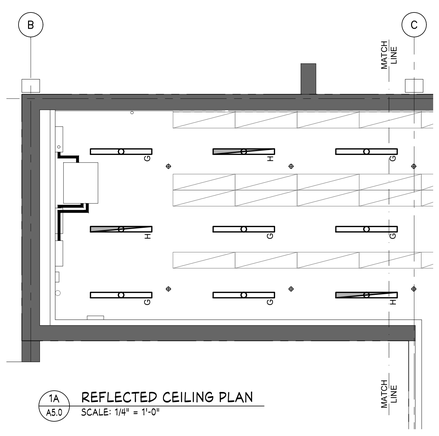
SHOWN FOR REFERENCE ONLY. COORDINATE ALL SECURITY EQUIPMENT LOCATION WITH OWNER PRIOR TO INSTALLATION. GC TO INSTALL ELECTRICAL / DATA AS REQ'D AT CAMERA LOCATIONS. MONITOR, CAMERAS, AND MOTION DETECTORS F & I BY VENDOR.
REFER TO ELECTRICAL DRAWINGS FOR SPECIFICS.

SYMBOL LEGEND

LABEL	DESCRIPTION
	RETURN AIR DIFFUSER SECURED TO CEILING (TO MATCH CEILING)
	SUPPLY AIR DIFFUSER SECURED TO CEILING (TO MATCH CEILING)
SP SW	SPEAKER AND SUB-WOOFER (TO MATCH CEILING)
	GWB, SEE FINISH SCHEDULE ON IS1
	CEILING HEIGHT ABOVE FINISHED FLOOR



6 / A5.0 LIGHT TROUGH DETAIL
SCALE: 1-1/2" = 1'-0"



1A / A5.0 REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

1 / A5.0 REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

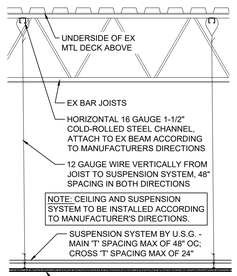
A. REFER TO SHEET IS1 FOR FINISHES AND RESPONSIBILITIES.
B. OUTLETS AND OUTLET COVER PLATES TO MATCH PAINT ADJACENT SURFACE. SEE ELECTRICAL PLANS FOR OUTLET SPECS.
C. WHERE APPLICABLE, ALL SPRINKLER HEADS IN STOCK ROOM TO BE 18" ABOVE THE HIGHEST STOCK SHELF (MINIMUM).
D. REFER TO ELECTRICAL PLANS FOR ADDITIONAL INFORMATION.
E. DIMENSIONS ARE TO THE CENTERLINE OF OBJECTS, UNLESS NOTED OTHERWISE.
F. THE EMERGENCY LIGHTS WILL PROVIDE AN AVERAGE OF ONE (1) FOOTCANDLE ALONG THE ENTIRE MEANS OF EGRESS PER NFPA 101; 7.9.
G. LIGHTING IN STOCK ROOM TO BE CENTERED IN STORAGE SHELF AISLES.
H. WHERE CEILING PANELS ARE REMOVED FOR LIGHT FIXTURE RELOCATION, REPLACE PANEL TO MATCH EXISTING.
I. CONTRACTOR SHALL REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS AND MANUFACTURER INSTRUCTIONS NOT SHOWN ON THIS PLAN.
J. TRACK SHALL INSTALLED DIRECTLY TO SUSPENDED CEILING GRID OR GWB SOFFIT.
K. EC SHALL INSTALL ADDITIONAL WIRE TIE SUPPORTS FROM CEILING GRID TO STRUCTURE ABOVE FOR SUPPORT OF LIGHT FIXTURES ATTACHED TO GRID.
L. ALL EMERGENCY LIGHTS AND EXIT SIGNS SHALL BE ON BATTERY BACKUP (NON-UTILITY SOURCE) IN CASE OF POWER LOSS. SEE ELECTRICAL PLANS.
M. ALL CEILING MOUNTED FIXTURES AND TRIM SHALL MATCH (C-1) OR SPRAYED WITH MATTE PAINT TO MATCH (C-1) PRIOR TO INSTALL.
N. FOR NEW ACP CEILINGS, CENTER IN SPACE AS BEST POSSIBLE.
O. ANY/ALL CEILING EQUIPMENT TO BE HUNG FROM TOP CHORD OF TRUSS SYSTEM.
P. ANY EXISTING TO REMAIN CEILINGS OR CEILING DEVICES SHALL MATCH SPECIFIED (C-1) FINISH / COLOR.
Q. ALL ITEMS IN PLENUM CEILINGS WILL REQUIRE PLENUM RATING PER CODE AND IF ANY PVC PIPES WOULD NEED SLEEVED/WRAPPED IF NOT PLENUM RATED.
R. ALL SECURITY ITEMS SHALL MATCH ADJACENT WALL OR CEILING FINISH COLOR. SEE IS1 FOR FINISH SCHEDULE.

X KEY NOTES:

1. LINE OF ILLUMINATED SIGN. SEE SIGN SHOP DRAWINGS.
2. WATER HEATER ABOVE. SEE PLUMBING DRAWINGS
3. HVAC DIFFUSER. SEE MECHANICAL PLANS.
4. NOT USED.
5. EXIT SIGN WALL MOUNTED 6"ABOVE DOOR, CENTERED OVER DOOR.
6. SPEAKER SYSTEM. COORDINATE LOCATIONS W/ VENDOR. CENTER IN CEILING PANEL AS SHOWN. SEE ELECTRICAL DRAWINGS.
7. GRAPHIC LIGHT BOX. SEE ELECTRICAL DRAWINGS.
8. NOT USED.
9. 4" DIA GROMMET IN CEILING PANEL FOR NETWORK RACK CABLING.
10. VERTICAL RECESSED FRY-REGLET LED STRIP LIGHTING. SEE STOREFRONT DETAILS.
11. OVERHEAD PERSONAL VIEW MONITOR, CENTER IN CEILING PANEL AS SHOWN. MOUNTING HEIGHT TBD. COORDINATE W/ VENDOR, OWNER. REFER TO ELECTRICAL DRAWINGS FOR MORE INFO.
12. RECESSED EMERGENCY LIGHTS ON SALES FLOOR CEILING. SEE ELECTRICAL DRAWINGS.

5 / A5.0 EYEHOOK GRAPHIC DISPLAY DETAIL
SCALE: 3" = 1'-0"

N/A



3 / A5.0 TYP GWB SUSPENSION DETAIL
SCALE: 3/4" = 1'-0"

1

N/A

2 / A5.0 TRACK MOUNTING DETAIL
SCALE: 3" = 1'-0"

N/A

4 / A5.0 TYP ACP SUSPENSION DETAIL
SCALE: 3/4" = 1'-0"

LIGHTING FIXTURE SCHEDULE

SYMBOL	TYPE	MFG	PRODUCT NO.	LAMPING	VOLTS	MTG METHOD	MTG. HEIGHT	COMMENTS
	A1	SPECIALTY LIGHTING	62216-A-T-WH	36W LED	120	LAY-IN	CEILING	SPLENDOR 2X2 LED PANEL TYPE A1 W/ GWB ADAPTER, SECURED TO CEILING
	B1	SPECIALTY LIGHTING	62216-A-T-WH	36W LED	120	LAY-IN	CEILING	SPLENDOR 2X2 LED PANEL WITH EMERGENCY BALLAST TYPE B1 W/ GWB ADAPTER, SECURED TO CEILING
	TBD	TBD	LED STRIP LIGHTING	LED TAPE	120	TBD	TBD	LED STRIP LIGHTING ON STOREFRONT DISPLAY WINDOWS AND STOREFRONT FACADE FEATURE ILLUM.
	C	SOLAIS	REBBECK-XD24-25C-40K/1600-BK-J	20W LED	120	TRACK HEAD	TRACK	COVE TRACK HEAD
	T	CONTECH	SINGLE CIRCUIT TRACK 2', 4', 6', 8' (BLACK)	--	120	CEILING	CEILING	T1# = TRACK LENGTH, SEE ELECTRICAL PLANS FOR LENGTHS & CURRENT LIMITERS (IF APPLICABLE) 1 CIRCUIT TRACK. SEE TYP MOUNTING DETAIL.
	E1	BEST	EZXTEU-2-G-W-EM	LED	120	UNIVERSAL	SEE ELEVATIONS OR 6" ABOVE EXIT	LED EXIT SIGN W/ UNIVERSAL FACE CONFIGURATION AND MOUNTING. F&I BY GC
	F	SOLAIS	REBBECK-XR4NC-D-XM24-40C040K/1600-WHL/WH	20W LED	120	RECESSED DOWNLIGHT	CEILING	MID-HIGH OUTPUT ROUND RECESSED DOWNLIGHT, DRIVERS RUN TO BACK OF HOUSE AREA.
	F1	SOLAIS	XAR11-X24-25C 40K/1600-WH/WH	20W LED	120	RECESSED DOWNLIGHT	CEILING	MID-HIGH OUTPUT ROUND RECESSED DOWNLIGHT, DRIVERS RUN TO BACK OF HOUSE AREA.
	F2	SOLAIS	REBBECK-XAR12-X24-25C 40K/1600-WH/WH	60W LED	120	RECESSED / ADJUSTABLE	CEILING	2-LIGHT RECESSED MULTIPLE, DRIVERS RUN TO BACK OF HOUSE AREA. **ADD ALTERNATE: TRIMLESS 'N' OPTION.**
	F3	SOLAIS	REBBECK-XAR13-XM24-25C 40K/1600-WH/WH	60W LED	120	RECESSED / ADJUSTABLE	CEILING	3-LIGHT RECESSED MULTIPLE, DRIVERS RUN TO BACK OF HOUSE AREA. **ADD ALTERNATE: TRIMLESS 'N' OPTION.**
	EF	BROAN	A70L - WHITE	A19	120	RECESSED	CEILING	FAN / LIGHT COMBO
EM	EM	EVENLITE	APR-25-NC-UI	MR HALOGEN	120	RECESSED	CEILING	RECESSED RETRACTABLE EMERGENCY LIGHT
	G	GREEN CREATIVE	28319 22.5STRIPDIM/840/277V	22.5W LED	120	PENDANT / SURFACE	12'-0" AFF / CEILING	SINGLE-LAMP LED NARROW STRIP
	H	GREEN CREATIVE	28319 22.5STRIPDIM/840/277V	22.5W LED	120	PENDANT / SURFACE	12'-0" AFF / CEILING	SINGLE-LAMP LED NARROW STRIP, W/ EMERGENCY BALLAST (10W EM BACKUP)
	N	BEST	LEDR-1	5W LED	120	SURFACE	CEILING	LED EMERGENCY LIGHTING UNIT F&I BY GC

- ALL FIXTURES TO BE NEW UNLESS NOTED OTHERWISE. EXISTING TO BE RELOCATED FIXTURES NOTED WITH 'XR'. FIXTURES EXISTING TO REMAIN NOTED WITH 'X'.
- WHERE EXISTING FIXTURES ARE TO REMAIN, REPLACE FIXTURES/BALLASTS AND LAMPS AS NEEDED FOR LIKE NEW APPEARANCE AND OPERATION.
- **ALL NEW LIGHTS TO BE 4000K**. RELAMP ANY EXISTING FIXTURES TO 4000K, IF APPLICABLE.
- FIXTURE SUBSTITUTE AS EQUAL ARE ACCEPTABLE FOR BID PURPOSE.

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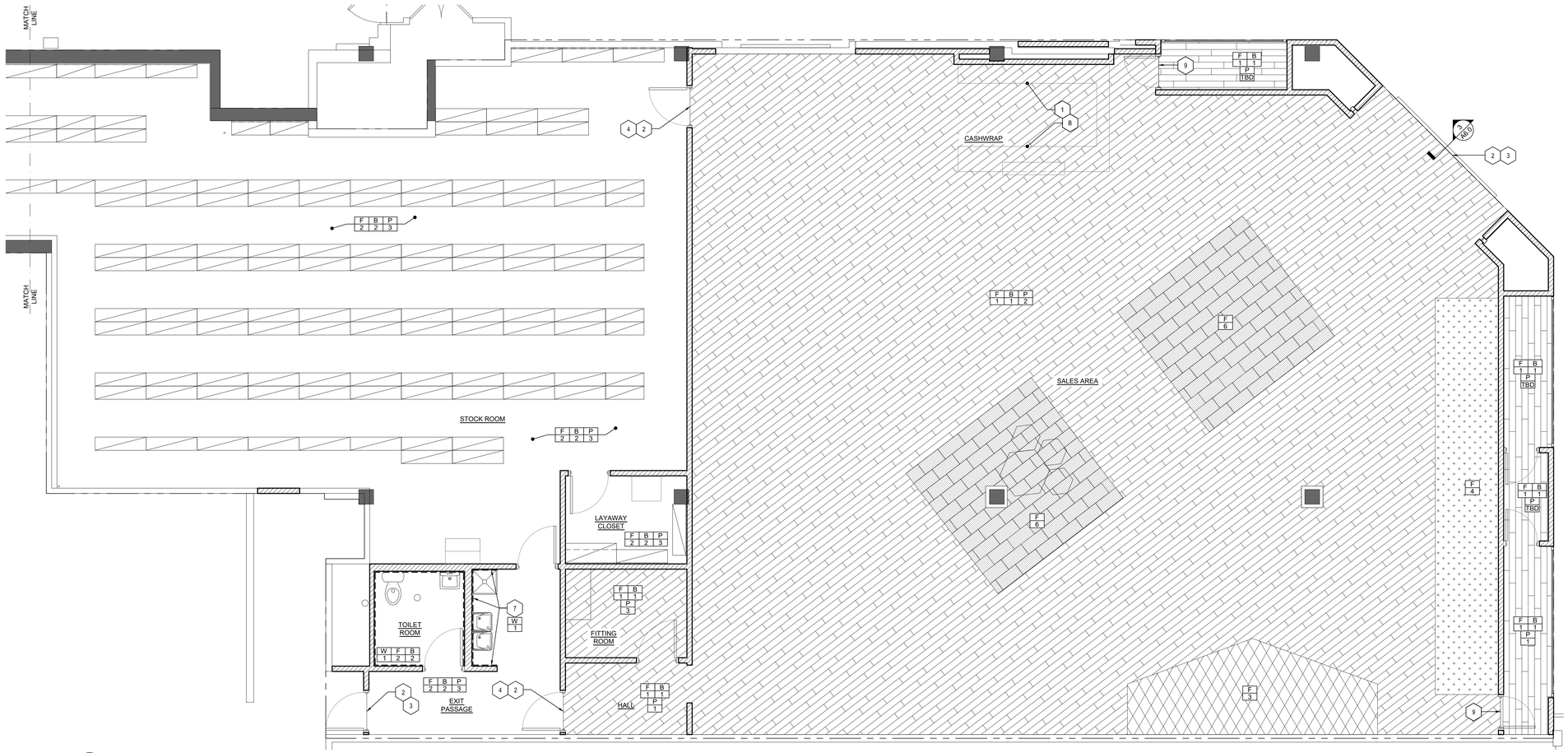
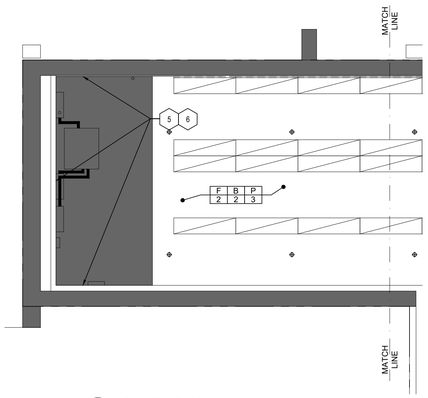
DRAWN BY:	RRR
PROJECT NO.:	19139

REFLECTED CEILING PLAN AND DETAILS

A5.0



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



1.1 A6.0 FINISH PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

A. SEE FINISH SCHEDULE ON SHEET IS1 FOR FINISH LEGEND.
B. THE GC SHALL PROVIDE WATERPROOF MEMBRANE PER LANDLORD REQUIREMENTS IN ALL WET AREAS, INCLUDING, BUT NOT LIMITED TO, AREAS AROUND AND BENEATH DRINKING FOUNTAINS AND MOP SINK (WHERE APPLICABLE).
C. WITHIN THREE DAYS OF THE COMPLETION OF DEMOLITION, GC IS RESPONSIBLE FOR TESTING THE CONCRETE SLAB FOR MOISTURE CONTENT USING WAGNER RELATIVE HUMIDITY RAPID RH TESTING KIT. GC TO CONTACT PRODUCT MANUFACTURER PRIOR TO BIDDING FOR TESTING, EXISTING CONDITIONS RECOMMENDATIONS AND COMPLETE APPLICATION INSTRUCTIONS. GC MUST PROVIDE ADD ALTERNATE BID ON BID FORM. SEE MOISTURE CHART ON THIS SHEET FOR TESTING REQUIREMENTS & PRODUCT SPECIFICATIONS.
D. AFTER REQUIRED MOISTURE AND RELATIVE HUMIDITY TEST RESULTS ARE RECEIVED, GC IS RESPONSIBLE FOR PROVIDING A LEVEL CONCRETE SLAB PRIOR TO FLOOR INSTALLATION. GC MUST FOLLOW MANUFACTURER RECOMMENDATIONS AND INSTRUCTIONS FOR SUITABLE SUBSTRATES, FLOOR PREPARATION AND APPLICATION. GC TO PROVIDE BID ON BID FORM FOR THE FOLLOWING:

   FOR MINOR SURFACE CONCRETE DEFECTS, PATCHING, SMOOTHING AND FEATHERING; RECOMMENDED PRODUCTS INCLUDE:

   *ARDEX - FEATHER FINISH: SELF-DRYING, CEMENT BASED FINISHING UNDERLAYMENT
   *MAPEI - PLANIPREP FF: PREMIUM SKIMCOATING AND PATCHING COMPOUND
   *MAPEI - PLANIPATCH: FAST-SETTING, POLYMER-MODIFIED, CEMENT-BASED PATCHING COMPOUND

   FOR MAJOR CONCRETE DEFECTS AND SELF-LEVELING REPAIR; RECOMMENDED PRODUCTS INCLUDE:

   *ARDEX - K-15: SELF-LEVELING SUB-FLOOR SMOOTHING COMPOUND
   *MAPEI - PLANIPATCH PLUS SYSTEM: AN EMBOSSING LEVELER
   *MAPEI - ULTRAPLAN 1 PLUS: HIGH-PERFORMANCE, QUICK-SETTING, SELF-LEVELING UNDERLAYMENT.
E. ALL EXPOSED CONCRETE (THAT IS NOT RECEIVING A FLOOR FINISH) IS TO BE SEALED WITH JOHNSON WAX PROFESSIONAL: FORTIFY HARD SURFACE FLOOR SEALER, OR APPROVED EQUAL (WHERE APPLICABLE).
F. SEE INTERIOR ELEVATIONS FOR BASE AND WALL FINISH LOCATIONS.
G. SEE EXPANSION JOINT DETAIL THIS SHEET FOR CONDITION(S), IF APPLICABLE.
H. FLOORING MATERIAL (F-1, F-2, F3, F4, F5 & F6) GC IS RESPONSIBLE FOR FOLLOWING THE MANUFACTURER'S INSTRUCTIONS FOR CLEANING AND SEALING.
I. AFTER BASE AND TRIM INSTALLATION, GC TO PATCH NAIL HOLES USING MATCHING COLORED CAULK.

KEY NOTES:

1. INSTALL FLOORING BEFORE CASHWRAP AND BACKWRAP IS SET. PLACE EXCESS FLOORING ON A TOP SHELF IN THE STOCK ROOM.
2. BUTT JOINT FLOORING MATERIALS AS TIGHT AS POSSIBLE FOR SMOOTH COMPLIANT TRANSITION.
3. MALL FLOORING TO LEASE LINE.
4. ADJACENT FLOORING SHALL NOT BE VISIBLE FROM SALES AREA.
5. PROVIDE YELLOW FLOOR TAPE 42" IN FRONT OF EQUIPMENT AS DEDICATED CLEAR FLOOR SPACE.
6. PAINT PLYWOOD BEHIND ELECTRICAL PANELS TO MATCH ADJACENT WALL FINISHES.
7. (W-1) ON WALLS INSIDE THE TOILET ROOM, BEHIND DRINKING FOUNTAIN AND MOP SINK. SEE ELEVATIONS FOR HEIGHTS.
8. INSTALL QUARTER ROUND SHOE AROUND BASE OF CASHWRAP AND BACKWRAP. COORDINATE WITH TENANT CONSTRUCTION PROJECT MANAGER.
9. PLATFORM ANGLE EDGE. SEE DETAIL 3/A4.0

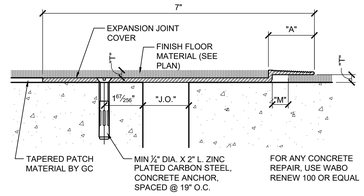
PROFILE SELECTION CHART

SYSTEM DIMENSIONS				JOINT OPENING AND HORIZONTAL MOVEMENT			
MFR.	MODEL NO.	EXPOSED "A"	FLOOR COVERING THICKNESS "T"	"M"	"J.O." INSTALL	"J.O." MINIMUM	"J.O." MAXIMUM	TOTAL MOVEMENT
WABO	FJS-200.125	1½" 38mm	½" 3mm	½" 13mm	2" 51mm	1½" 38mm	2½" 64mm	1" 25mm
WABO	FJS-200.250	1½" 38mm	¼" 6mm	½" 13mm	2" 51mm	1½" 38mm	2½" 64mm	1" 25mm
WABO	FJS-200.375	1½" 38mm	⅜" 10mm	½" 13mm	2" 51mm	1½" 38mm	2½" 64mm	1" 25mm

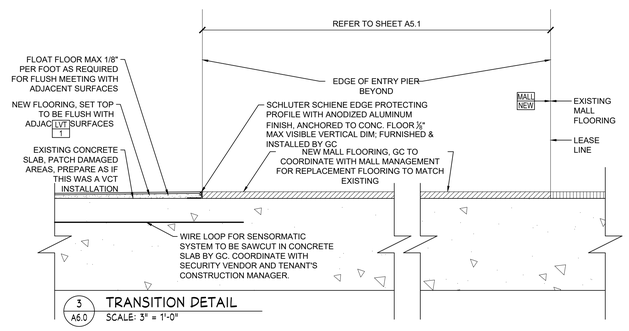
NOTE: J.O. MINIMUM AND MAXIMUM VALUES ARE AFTER THERMAL MOVEMENT OCCURS. MODEL NO. DETERMINED BY THICKNESS OF FINISH FLOOR MATERIAL (UP TO ⅜" MAX).

AT EXISTING EXPANSION JOINTS IN THE FLOOR, USE THIS DETAIL AND THE APPROPRIATE PROFILE FROM THE CHART. IF THE EXPANSION JOINT CONTINUES IN THE WALL OR CEILING, REFER TO SHEET WALL TYPES FOR DETAIL.

2 A6.0 EXPANSION JOINT SECTION
SCALE: 6" = 1'-0"



TYPICAL FLOOR TO FLOOR SECTION AT EXPANSION JOINT



3 A6.0 TRANSITION DETAIL
SCALE: 3" = 1'-0"

MOISTURE BARRIER CHART

GC SHALL PERFORM RELATIVE HUMIDITY TEST USING WAGNER RELATIVE RAPID HUMIDITY RH TESTING PROBE. GC SHALL FOLLOW WRITTEN SPECIFICATIONS PROVIDED BY MANUFACTURER. USE THE BELOW INFORMATION AS A GUIDELINE FOR PRODUCT SPECIFICATION.

MOISTURE LEVEL	MOISTURE BARRIER SPECIFICATION
LESS THAN 75%	FOLLOW ASTM F710-11 STANDARDS
75% - 85%	ApacEncapseal 2 COAT SYSTEM
85% - 100%	KOSTER VAP 1 2000 MOISTURE BARRIER

FLOOR COVERING LEGEND

- SEE SHEET IS1 FOR SPECIFICATIONS AND FINISH NOTES.
- ALL FLOORING INSTALLED BY THE GC.
- FLOOR PATTERN ON PLAN ARE NOT TO SCALE. THEY ARE ONLY A VISUAL AID OF THE PATTERN TYPES.

F 1	SEE FINISH SCHEDULE, IS1	
F 2	SEE FINISH SCHEDULE, IS1	NO HATCH
F 3	SEE FINISH SCHEDULE, IS1	
F 4	SEE FINISH SCHEDULE, IS1	
F 5	SEE FINISH SCHEDULE, IS1	
F 6	SEE FINISH SCHEDULE, IS1	

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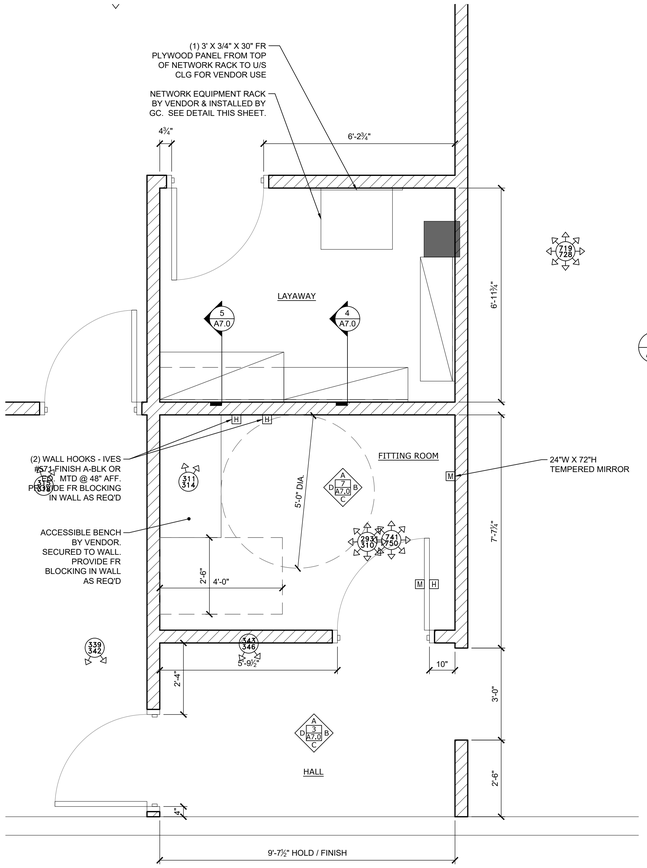
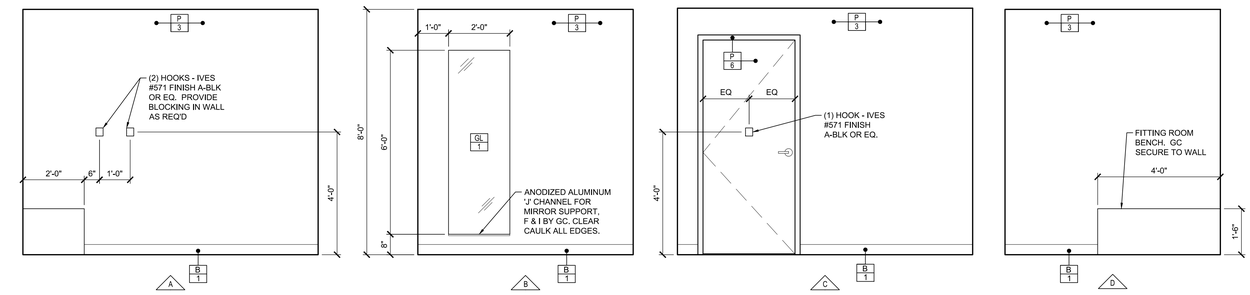
FINISH PLAN & DETAILS

A6.0

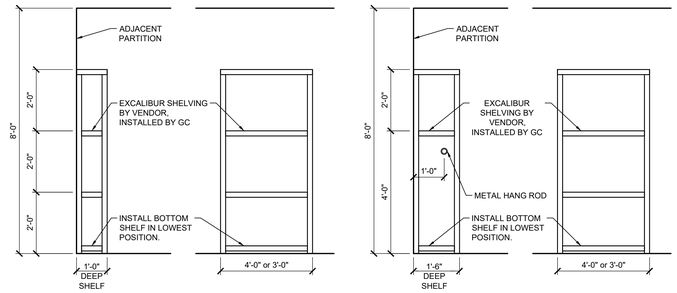


1 A7.0 ENLARGED HALL, LAYAWAY CLOSET & FITTING ROOM PLAN
SCALE: 1/2" = 1'-0"



2 A7.0 FITTING ROOM ELEVATIONS
SCALE: 1/2" = 1'-0"

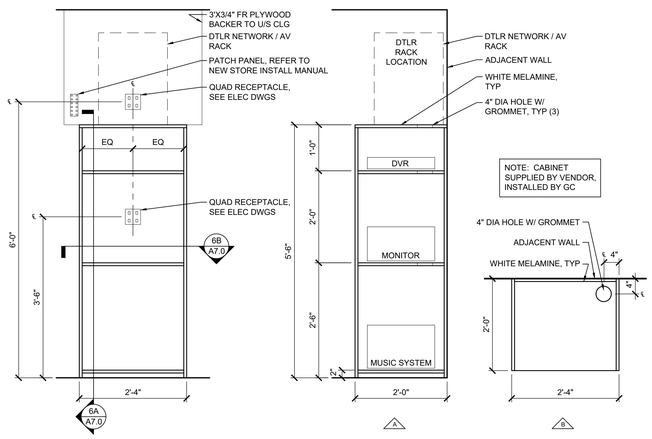
N/A



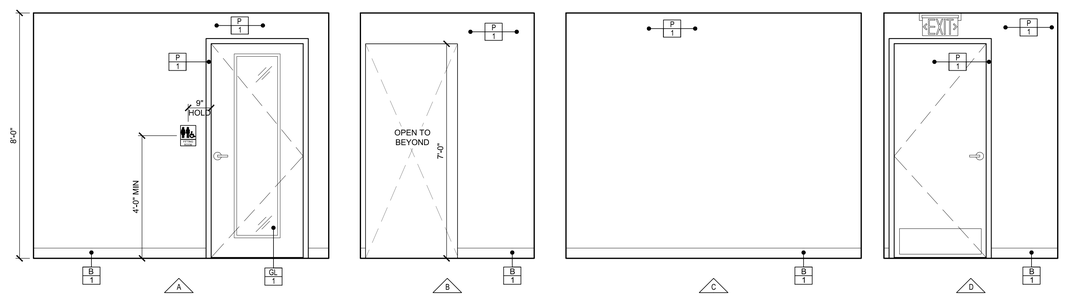
3 A7.0 FITTING ROOM BENCH DETAIL
SCALE: 1 1/2" = 1'-0"

4 A7.0 LAYAWAY CLOSET 12"D SHELVING ELEVATION
SCALE: 1/2" = 1'-0"

5 A7.0 LAYAWAY CLOSET 18"D SHELVING SECTION
SCALE: 1/2" = 1'-0"



6 A7.0 AUDIO / VISUAL RACK ELEVATION
SCALE: 3/4" = 1'-0"



7 A7.0 HALL ELEVATIONS
SCALE: 1/2" = 1'-0"

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STATE OF MARYLAND JONATHAN B. GLEE No. 18664 ARCHITECT

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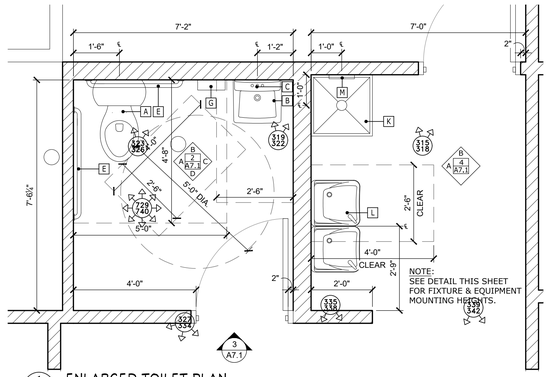
ENLARGED PLANS & DETAILS

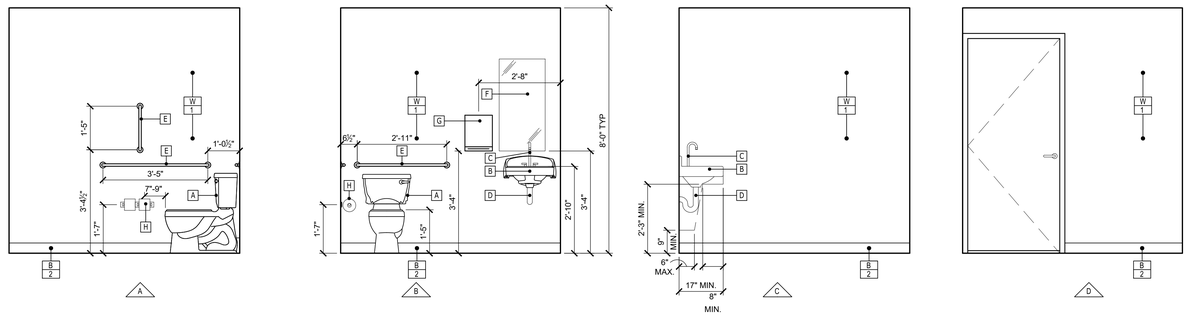
A7.0



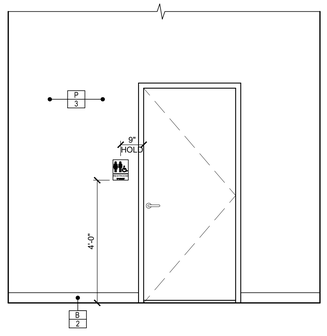
1 A7.1 ENLARGED TOILET PLAN
SCALE: 1/2" = 1'-0"

X	TOILET ROOM COMPONENT SCHEDULE					
MARK	ITEM	MODEL #	EXIST. TO REMAIN	RELOCATE	NEW (ADD/ REPLACE)	NOTES
A	TOILET	SEE MECHANICAL PLANS	--	--	1	
	TOILET SEAT	SEE MECHANICAL PLANS	--	--	1	
B	SINK	SEE MECHANICAL PLANS	--	--	1	
C	LEVER HANDLE FAUCET	SEE MECHANICAL PLANS	--	--	1	
D	PIPE WRAP	SEE MECHANICAL PLANS	--	--	1	
E	GRAB BARS (SET)	BRADLEY 812 SET - 1 1/2" Ø (1) 36", (1) 42", & (1) 18"	--	--	1	
F	MIRROR	BRADLEY 781-18"W X30"H	--	--	1	
G	PAPER TOWEL HOLDER	BRADLEY 250-15	--	--	1	
H	TOILET PAPER HOLDER	BRADLEY 5224	--	--	1	
K	SERVICE SINK	SEE MECHANICAL PLANS	--	--	1	
L	WATER FOUNTAIN	SEE MECHANICAL PLANS	--	--	1	
M	WALL ORGANIZER	CRAWFORD SMART RACK STORAGE ORGANIZER - SR16	--	--	1	

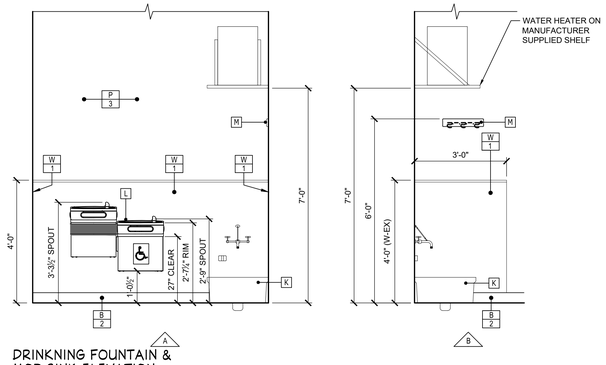
GENERAL TOILET ROOM NOTES
• GC SHALL FURNISH & INSTALL ALL TOILET ROOM COMPONENTS LISTED ON SCHEDULE • GC SHALL FURNISH & INSTALL NEW ACCESSORIES IF EXISTING ACCESSORIES TO BE REUSED ARE NOT IN ACCORDANCE WITH CURRENT ADA REGULATIONS AND/OR DO NOT MEET REQUIREMENTS OF DRAWINGS. • GC SHALL FURNISH & INSTALL GRAB BARS SO THAT THEY DO NOT ROTATE AND THERE ARE TO BE NO SHARP OR ABRASIVE ELEMENTS ON OR ADJACENT TO THEM. EDGES ARE TO HAVE A MINIMUM 1/8" RADIUS. • GC SHALL ENSURE THAT GRAB BAR BACKING AND ATTACHMENT SHALL BE CONSTRUCTED FOR A 250 POUND POINT LOAD. • GC SHALL INSULATE OR COVER ALL HOT WATER AND DRAIN PIPES UNDER LAVATORY. NO SHARP OR ABRASIVE SURFACES ALLOWED UNDER LAVATORY. • GC SHALL ENSURE THAT FAUCET CONTROLS AND OPERATING MECHANISMS ARE EASILY OPERATED BY ONE HAND AND MUST NOT REQUIRE GRASPING, PINCHING, OR TWISTING OF THE WRIST. FORCE NEEDED TO ACTIVATE CONTROLS SHALL NOT EXCEED 5 LBS. FOR LEVER OPERATED OR 15 LBS. FOR PUSH TYPE. • GC SHALL FURNISH & INSTALL SOLID BLOCKING IN WALL FOR ALL TOILET ACCESSORIES. • TOILET FLUSH HANDLE TO BE INSTALLED ON ACCESSIBLE SIDE OF TOILET.



2 A7.1 TOILET ROOM ELEVATIONS
SCALE: 1/2" = 1'-0"



3 A7.1 INTERIOR ELEVATION
SCALE: 1/2" = 1'-0"



4 A7.1 DRINKNING FOUNTAIN & MOP SINK ELEVATION
SCALE: 1/2" = 1'-0"

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STATE OF MARYLAND
JONATHAN B. BLAKE
No. 18664
ARCHITECT

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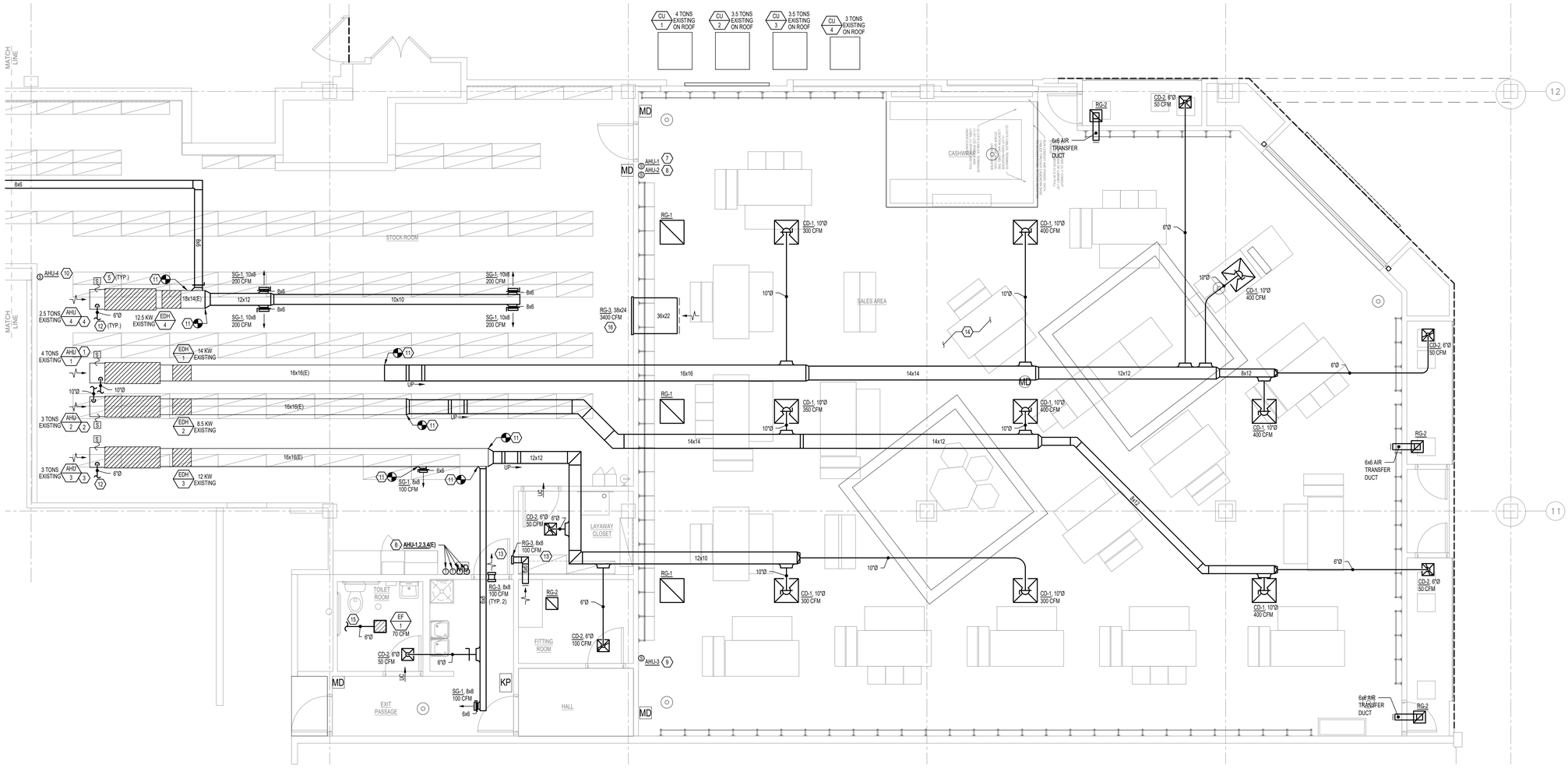
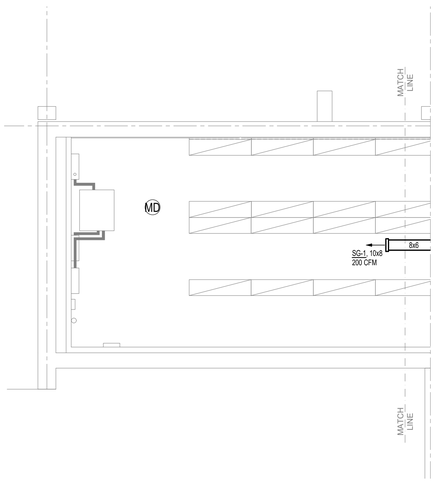
ENLARGED PLANS & DETAILS

A7.1





THIS HVAC LAYOUT SHOWS NEW AND EXISTING DUCTWORK, BUT THE TENANT WOULD LIKE TO RE-USE THE EXISTING DUCTWORK AS MUCH AS POSSIBLE. CONTRACTOR IS TO VISIT THE SITE PRIOR TO ROUGH-IN, ASSESS EXISTING DUCTWORK SIZES AND LOCATIONS, AND RE-USE EXISTING AS POSSIBLE. ANY SAVINGS SHOULD BE PASSED ON TO THE TENANT.

EXISTING MECHANICAL INFORMATION IS BASED ON LIMITED FIELD WORK AND NO EXISTING MECHANICAL DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING CONDITIONS FOR ACCURACY. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR REVISIONS TO THE DESIGN TO CORRECT FOR EXISTING CONDITIONS NOT AS INDICATED ON THE PLANS.

USE OF A NON-DUCTED RETURN AIR PLENUM CEILING IS BASED ON THE REQUIREMENT THAT ALL MATERIALS IN THE RETURN AIR PLENUM CEILING ARE ALL LABELED AS PLENUM RATED AND MEET THE FLAME & SMOKE SPREAD REQUIREMENTS FOR PLENUM INSTALLATION AND THE APPROVAL OF A RETURN AIR PLENUM FROM THE LANDLORD.

IF THE ABOVE CONDITIONS CANNOT BE MET, THIS CONTRACTOR SHALL STATE THE AMOUNT TO BE ADDED TO HIS BASE BID FOR A TOTALLY DUCTED RETURN AIR SYSTEM.

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

MECHANICAL LEGEND

	SUPPLY OR OUTDOOR AIR DUCT
	RETURN OR EXHAUST DUCT
T	THERMOSTAT
	DUCT LINING
	POINT OF CONNECTION
	EQUIPMENT TAG
AFF	ABOVE FLOOR FINISH
AHU	AIR HANDLING UNIT
CD	CEILING DIFFUSER
CLG	CEILING
CTX	CONNECT TO EXISTING
EX, (E)	EXISTING
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
OA	OUTSIDE AIR
P.C.	PLUMBING CONTRACTOR
RA	RETURN AIR
RG	RETURN GRILLE
SA	SUPPLY AIR
SR	SUPPLY REGISTER

GENERAL NOTES:

A. ROOMS OR AREAS SHOWN SHADED ON THIS PLAN. WITH THE FOLLOWING SHADING TYPE [ ] ARE DEDICATED FOR A SPECIFIC USE. EXAMPLES INCLUDE ELECTRICAL ROOMS, TECHNOLOGY/DATA CLOSETS, EXIT STAIRWELLS, AND ELEVATOR EQUIPMENT ROOMS. UNDER NO CIRCUMSTANCES SHALL PIPING, DUCTWORK, OR EQUIPMENT BE INSTALLED IN OR ROUTED THROUGH THESE ROOMS OR AREAS EXCEPT FOR BRANCH PIPING OR DUCTWORK SPECIFICALLY SERVING THE ROOM OR AREA. DEDICATED SPACE SHALL EXTEND VERTICALLY FROM FLOOR TO STRUCTURAL CEILING.

B. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND PROPER INSTALLATION OF ALL HVAC SYSTEMS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY OFFSETS AND FITTINGS WHICH MAY BE REQUIRED DUE TO SPACE CONSTRAINTS OR OTHER CONDITIONS. NOTIFY ENGINEER IMMEDIATELY SHOULD ANY CONFLICTS ARISE BETWEEN THE INFORMATION PRESENTED AND THE FIELD CONDITIONS.

C. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF LOCAL CODES AND ORDINANCES.

D. THE CONTRACTOR SHALL COORDINATE FLOOR, WALL AND ROOF PENETRATIONS WITH THE GENERAL CONTRACTOR AND THE OWNER.

E. DUCTWORK SHALL NOT BE LOCATED OVER THE TOP OF ANY ELECTRICAL PANELS OR EQUIPMENT.

F. CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH THE REQUIREMENTS OF ALL NOTES SHOWN ON CONTRACT DOCUMENTS PRIOR TO BID OF PROJECT. REFER TO DRAWINGS, SPECIFICATIONS AND DRAWINGS OF OTHER DISCIPLINES FOR ANY ADDITIONAL REQUIREMENTS.

G. CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING PROCESS AND FIELD VERIFY EXISTING CONDITIONS. CONTRACTOR SHALL TAKE ALL INTERFERENCES INTO CONSIDERATION.

H. MAINTAIN ALL MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES FOR ALL EQUIPMENT.

I. CONTRACTOR SHALL COORDINATE AND PROVIDE ACCESS DOORS IN HARD CEILINGS FOR ALL EQUIPMENT WHICH REQUIRES ACCESS, SUCH AS: FIRE AND SMOKE DAMPERS, SMOKE DETECTORS, BALANCING DAMPERS, ETC.

J. COORDINATE THE LOCATION OF CEILING GRILLES, REGISTERS AND DIFFUSERS WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.

K. ALL BRANCH DUCTWORK SERVING DIFFUSERS/GRILLES SHALL BE SIZED TO MATCH NECK SIZE INDICATED UNLESS NOTED OTHERWISE.

L. SUBMIT FINAL TEST AND AIR BALANCE REPORT TO LANDLORD FOR APPROVAL.

M. DIFFUSERS AND GRILLES SHALL BE SECURED IN PLACE WITH SCREWS, ETC.

KEY NOTES: (#)

1. EXISTING 4-TON AIR HANDLING UNIT TO REMAIN. CONTRACTOR TO RE-BALANCE EXISTING AHU-1(E) TO 1600 CFM SUPPLY AIR AND 400 CFM OUTSIDE AIR.
2. EXISTING 3-TON AIR HANDLING UNIT TO REMAIN. CONTRACTOR TO RE-BALANCE EXISTING AHU-2(E) TO 1200 CFM SUPPLY AIR AND 350 CFM OUTSIDE AIR.
3. EXISTING 3-TON AIR HANDLING UNIT TO REMAIN. CONTRACTOR TO RE-BALANCE EXISTING AHU-3(E) TO 1200 CFM SUPPLY AIR AND 75 CFM OUTSIDE AIR.
4. EXISTING 2.5-TON AIR HANDLING UNIT TO REMAIN. CONTRACTOR TO RE-BALANCE EXISTING AHU-4(E) TO 1000 CFM SUPPLY AIR AND 100 CFM OUTSIDE AIR.
5. EXISTING SMOKE DETECTORS TO REMAIN. FIELD VERIFY CONDITION AND OPERATION. IF SMOKE DETECTORS REQUIRE REPLACEMENT PROVIDE NEW UNITS COMPATIBLE WITH EXISTING SYSTEM. REINSTALL EXISTING SMOKE DETECTOR IN RETURN AIR DUCT TO SHUT DOWN UNIT UNDER ALARM. DETECTORS SHALL BE FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR, INSTALLED BY MECHANICAL. ALL WIRING SHALL BE IN CONDUIT PER N.E.C.
6. MOUNT THERMOSTAT FOR AHU-1(E), AHU-2(E), AHU-3(E), AND AHU-4(E) AT 48" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH TENANT PRIOR TO ROUGH-IN.
7. PROVIDE AND MOUNT REMOTE TEMPERATURE SENSOR FOR AHU-1(E) ON WALL AT 48" A.F.F.
8. PROVIDE AND MOUNT REMOTE TEMPERATURE SENSOR FOR AHU-2(E) ON WALL AT 48" A.F.F.
9. PROVIDE AND MOUNT REMOTE TEMPERATURE SENSOR FOR AHU-3(E) ON WALL AT 48" A.F.F.
10. PROVIDE AND MOUNT REMOTE TEMPERATURE SENSOR FOR AHU-4(E) ON WALL AT 48" A.F.F.
11. CONNECT NEW SUPPLY AIR DUCTWORK TO EXISTING SUPPLY DUCT AS REQUIRED. CONTRACTOR TO VERIFY EXACT SIZE AND LOCATION PRIOR TO ROUGH-IN.
12. OUTSIDE AIR DUCT TO BE SIZED ACCORDING TO REQUIRED AIR FLOW. CONTRACTOR THE VERIFY LOCATION PRIOR TO ROUGH-IN.
13. MOUNT RETURN GRILLE AS HIGH AS POSSIBLE.
14. CONTRACTOR TO MODIFY EXISTING SPRINKLER SYSTEM PER NFPA AND ALL LOCAL CODES AS REQUIRED FOR NEW TENANT LAYOUT.
15. CONNECT NEW 8"Ø EXHAUST AIR TO EXISTING EXHAUST AIR AS REQUIRED. CONTRACTOR TO VERIFY EXACT SIZE AND LOCATION PRIOR TO ROUGH-IN.
16. MOUNT RETURN GRILLE ABOVE SALES FLOOR CEILING.

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TOWSON, MD 21204

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STATE OF MARYLAND
MICHAEL J. LINDSEY
No. 45015
PROFESSIONAL ENGINEER

NO.	DATE	DESCRIPTION

DATE:	06/13/19
DRAWN BY:	TBA
PROJECT NO.:	19139

MECHANICAL HVAC PLANS & SCHEDULES

M-1.0

GRILLE AND DIFFUSER SCHEDULE

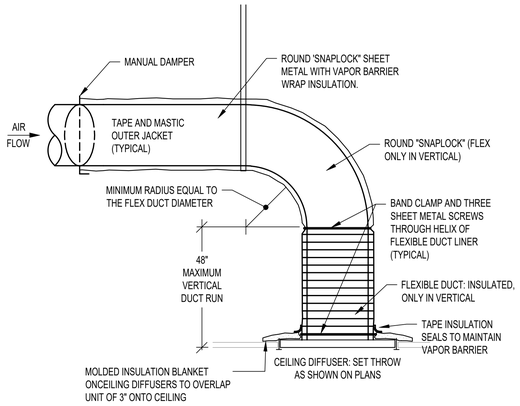
MARK	CD-1	CD-2	SG-1	RG-1	RG-2	RG-3
MANUFACTURER	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS
MODEL No.	OMNI	OMNI	300RS	350RL	350RL	350RL
MOUNTING	LAY-IN	SURFACE	DUCT MOUNT	LAY-IN	LAY-IN	SURFACE
MODULE SIZE	24x24	12x12	SEE PLAN	24x24	12x12	SEE PLAN
FINISH	SEE ARCH.	SEE ARCH.	SEE ARCH.	SEE ARCH.	SEE ARCH.	SEE ARCH.
REMARKS / ACCESSORIES	1	1,3	1,2	1,2	1,2	1,2

REMARKS / ACCESSORIES:
1. SEE PLANS FOR NECK SIZE
2. OPPOSED BLADE DAMPER ACCESSIBLE FROM FACE OF REGISTER
3. RAPID MOUNT FRAME

FAN SCHEDULE

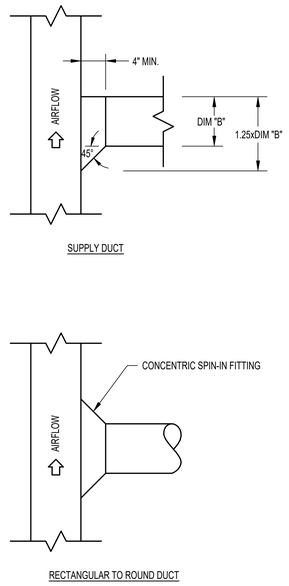
MARK	EF-1
MANUFACTURER	BROAN
MODEL No.	A70L
SERVICE	TOILET ROOM
TYPE	CLG. MTD.
CFM	75
SP ("WC)	0.1
DRIVE	DIRECT
HP	FRACTIONAL
ELECTRICAL (VOLT/PH)	120/1
OPERATING WEIGHT (LBS)	10
REMARKS	1,2

REMARKS:
1. FACTORY INSTALLED GRAVITY BACKDRAFT DAMPER.
2. INTERLOCK WITH TOILET ROOM LIGHT SWITCH.



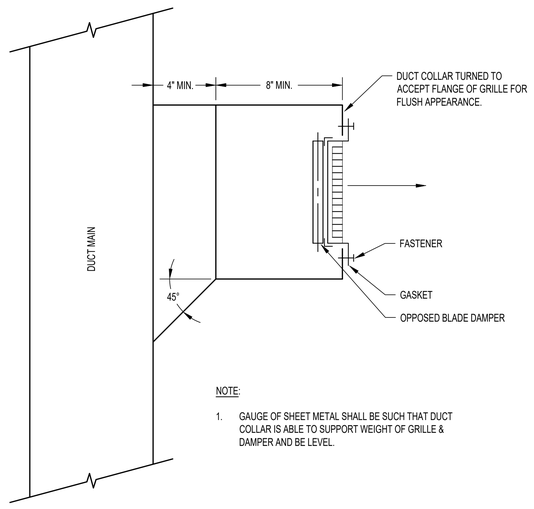
CEILING DIFFUSER CONNECTION DETAIL

N.T.S.



DUCT BRANCH TAKE-OFF DETAILS

N.T.S.



NOTE:
1. GAUGE OF SHEET METAL SHALL BE SUCH THAT DUCT COLLAR IS ABLE TO SUPPORT WEIGHT OF GRILLE & DAMPER AND BE LEVEL.

SUPPLY REGISTER DUCT CONNECTION DETAIL

N.T.S.

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NO.	DATE	DESCRIPTION

DATE:	06/13/19
DRAWN BY:	TBA
PROJECT NO.:	19139

MECHANICAL DETAILS

M-2.0

MECHANICAL SPECIFICATIONS

Section 200500 - General Requirements

A. General

1. Specifications are applicable to all contractors and/or subcontractors for all mechanical systems in Divisions 01, 20, 21, 22, and 23.
2. This contractor is also referred to the architectural, structural, electrical and all other drawings and specifications pertinent to this project and fully coordinate with all other trades, owner and architect requirements. All of the above mentioned drawings and specifications are considered a part of the contract documents.
3. Conform to all Instructions to Bidders, general and special conditions of contract as specified by architect and/or owner.
4. Refer to "Alternate Proposals" for possible changes affecting the extent of this section of work.
5. Before submitting a bid, each contractor is requested to visit the job site to familiarize themselves with construction condition, check facilities and conditions and make all necessary observations and measurements. Note conditions under which work is to be performed and take all items into consideration in bid. No consideration will be given for his failure to do so.
6. Systems are to be complete and workable in all respects, placed in operation and properly adjusted.
7. Each contractor shall provide for his own clean-up, removal and legal disposal of all rubbish daily.
8. Each contractor shall protect his work, his existing and adjacent property against weather.
9. Each contractor shall protect his work, materials, apparatus and fixtures from damage. Any work damaged by failure to provide protection required, shall be removed and replaced with new material at the contractor's expense.
10. Each contractor must confirm all utility company requirements and connection points in field, prior to starting work. Each contractor shall include cost of utility companies work in their bid.
11. Each contractor must confirm size, location and materials at point of tie in connections in the field prior to rough-in of new work.
12. Arrange for and obtain owner's and insurance representative's permission for any service shutdowns.
13. Each contractor shall be solely responsible for construction means, methods, sequences of construction and the safety of workmen.
14. No piping, ductwork, wiring, etc., shall be installed or routed above or below electrical panels and equipment or stairways unless these items serve these areas only.
15. All contractors shall coordinate with the electrical contractor and obtain a written approval identifying the electrical characteristics of all mechanical equipment prior to ordering of equipment. No additional payment will be made for lack of contractor coordination of electrical characteristics.
16. Each contractor shall include modifying existing conditions to complete the project. During construction the contractors may uncover an existing condition that will have to be modified. Any such work which comes under the jurisdiction of this contractor shall be done by this contractor without extra cost to the owner and project.
17. Work related to the existing building shall be coordinated to minimize interference or interruption of normal building use by the owner. Refer to architectural plans for phasing requirements.
18. Ceiling grid systems shall not be supported from ductwork, heating or plumbing lines or any other utility lines, and vice versa. Each utility and the ceiling grid system shall be a separate installation and each shall be independently supported from the building structure - concrete, steel or masonry. Where interferences occur, in order to support ductwork, piping, ceiling grid systems, etc., trapeze type hangers or supports shall be employed which shall be located so as not to interfere with access to such mechanical equipment as valves, regulators, mixing boxes, fire dampers, etc.

B. Work Coordination and Scope

1. Each contractor under this division shall familiarize himself with the work to be done under other divisions of this specification and their related drawings and shall so coordinate and schedule his work as not to cause delays or interference with the work of others. Such coordination and scheduling shall accomplish the installation of mechanical and plumbing equipment and piping with a minimum of cutting through masonry and other adjustments.
2. Work included under this division shall consist of furnishing all materials, supplies, equipment, tools, transportation and facilities and performing all labor and services necessary for the complete installation of the mechanical systems of plumbing, fire protection, heating, ventilating, air conditioning, and specialty systems.
3. The contractor under this division shall report discrepancies in the work of others which affect his work. Any changes made necessary by failure or neglect to report such discrepancies shall be made by and at the expense of the contractor of this division. Obtain written instructions for changes necessary to accommodate work of others.
4. The contractor under this division shall be responsible for proper size and location of anchors, chases, recesses, opening, etc., required for the proper installation of his work.
5. The division of responsibility under separate mechanical, fire protection and plumbing contracts for tie-in points shall be as follows:
   a. The plumbing contractor shall provide domestic water and gas to within five feet (5'-0") of equipment connection furnished by the mechanical or electrical contractor, final connection by mechanical or electrical contractor. On the water lines, the plumbing contractor shall provide the shut-off valve, check valve, backflow preventor and pressure regulator. On the gas lines, the plumbing contractor shall provide the shut-off valve and pressure regulator.
   b. Plumbing contractor shall run the gas, water, and sanitary to 5'-0" outside the building or to points as noted on the drawings.
   c. Fire protection, plumbing and mechanical contractor shall provide sleeves to the general contractor for placement in floors, walls, etc. and coordinate such location. The plumbing contractor shall be responsible for flashing at vent roof terminals.
   d. The fire protection, plumbing and mechanical contractor shall check with the architectural drawings concerning the test borings to determine areas of rock which should be included in his excavation work. Failure to adjust for rock conditions shall not warrant cause for additional compensation.
   e. The plumbing contractor shall rough-in and connect all other fixtures and equipment where shown on the drawings but not previously mentioned. Provide with shut-off valves and p-traps with clean-out plug.
   f. The plumbing contractor shall provide gas, cold water and drain for the emergency generator and install valves, etc. Generator furnished by the electrical contractor.
   g. Unless responsibility to provide or furnish is otherwise stated on the electrical or mechanical drawings and electrical and mechanical specifications the contractor, under these divisions shall provide motors, special controls, disconnects, transformers, starters and relays as required for the proper operations of all equipment furnished under this division. All electrical equipment shall conform to requirements set forth under the electrical division and be suitable for operation on 60 cycle current available at the site.
   h. All motors 1/3 HP and smaller shall be single phase motors, 1/2 HP and larger, shall be three phase motors except where otherwise specified. Thermal overload protection for all motors shall be provided. Combination fused disconnect and magnetic line starters with auto-off-test switch shall be provided for all three-phase motors. Thermal overload relays shall be sized for 115 percent of full load motor current. For motors with VFD; motors shall be inverter duty motors that meets current "MG 1 Part 31" specifications. Motors to have a minimum of 20:1 turn down ratio. Motors over 20 Hp shall have shaft ground rings. The installation of all motors, starters and other electrical work under this mechanical division shall be done so as to conform with the National Electric Code. Each motor shall be of squirrel cage type, open-drip proof, normal starting torque, having ball bearings unless otherwise specified. For manufacturers that use PMAC motors, this contractor shall supply VFD's to operate motor.
6. Each contractor shall provide OSHA approved handrail (Guard) system for all roof mounted equipment within 10'- 0" of roof edge where the roof edge does not have a 42" high parapet or higher.

C. Codes, Permits, Standards and Regulations

1. Contractors shall install work in full accordance with rules and regulations of all applicable codes (local, city, county, state, national codes, NFPA, OSHA, etc.), government regulations, utility company requirements, and applicable standards having jurisdiction over premises. This shall include safety requirements of the state department. Do not construe this as relieving contractor from compliance with any requirements of specifications which are in excess of code requirements and not in conflict therewith.
2. Contractors shall secure and pay for all fees, permits, and certificates of inspection incidental to this work required by foregoing authorities. Arrange for all required inspections and approvals.
3. Contractor shall be responsible for payments to all public utilities for work performed by them in connection with provision of service connections required under this division of specifications.
4. Deliver all permits and certificates to architect in duplicate.

D. Design Drawings

1. The design drawings, as submitted, are diagrammatic and are not intended to show exact location of equipment, piping and ductwork unless dimensions are given. Piping and ductwork are to be installed along the general plans shown on the drawings while conforming to actual building conditions. Each contractor shall confirm all dimensions by field measurement.
2. Before entering into a contract, the successful bidder may be required to submit satisfactory evidence to show that the manufacturer of all parts of the equipment offered have been regularly engaged in the manufacture of such equipment for three (3) years and have not less than three (3) installations of a similar type which have been in successful operation under conditions similar to those specified for not less than two (2) years.
3. All equipment, piping and material specified herein after as shown on the drawings shall be furnished and installed by the contractor, unless specifically indicated to the contrary. Installation shall comply with all required "Building Codes" and "Reference Standards."
4. If this contractor proposes to install equipment requiring space conditions other than those as specified and/or shown on the design drawings, or to rearrange the equipment, he shall assume full responsibility and submit drawings for the rearrangement of the space and shall obtain the full approval of the architect prior to start of any work.
5. The exact locations for fixtures, equipment and piping which is not covered by drawings shall be obtained from the architect or his representative in the field and the work shall be laid out accordingly.
6. Drawings and specifications are intended to supplement one another. Any materials or labor called for in one but not the other shall be furnished as if both were mentioned in the specifications and shown on the drawings.

E. Base Bid Equipment, Materials and Substitutions

1. All equipment and materials shall be new, free of defects and UL labeled.
2. Base bid manufacturers are included in the specification or listed in schedules on the drawings. All other manufacturers are considered substitution.
3. The name or make of any article, device, material, form of construction, fixture, etc., stated in this specification, whether or not the words "or approved equal" are used, shall be known as a "standard".
4. All cost shall be based on "standards" specified.
5. The equipment schedules on the drawings indicate manufacturer and their equipment model numbers that this design has been based on. Each contractor is required to bid upon the basis of design and furnish the makes specified.
6. Where more than one make or name is mentioned as being acceptable, it shall be understood that only the name or make referring to the manufacturers model numbers or sizes shall be considered the "Specified Standards." It shall be further understood that other makes and names, even though mentioned, have not been checked for detail and that their size and arrangement are the contractor's responsibility the same as a proposed substitute item. The use of other manufacturer's equipment that is listed as acceptable alternates that entails general trades, structural, mechanical, electrical, etc., revisions is this contractor's responsibility to provide revisions. Any additional cost of such changes shall be paid by the contractor submitting the acceptable alternates which necessitates changes in installing such submitted alternate equipment, even though such costs may be part of another division of work.

Section 200500 (cont.)

7. Bids concerning the use of substitute products must be accompanied by complete specifications and performance characteristic covering these products. Contractor shall provide all available test data and experience records which may be helpful to the architect in evaluating the quality and/or suitability of alternate products.
8. Contractor is also invited to bid on any other similar products the contractor desires to propose as substitutions, stating any difference in cost (add or deduct from base bid cost) for each proposed substitution on the substitution sheet. If the architect decides to accept any of the proposed substitutions, proper notations thereof shall be made in the written contract. Where several makes are mentioned in the specifications and the contractor fails to state that he prefers a particular make in his bid, the owner shall have the right to choose any of the makes mentioned without change in price. No consideration will be given to proposals for alternative products unless submitted with the original bids.
9. Substitutions are subject to the approval of the owner. If a substitution is submitted, it is the contractor's responsibility to evaluate it and certify that the substitution is equivalent in all respects to the base specifications.
10. If substitutions are approved, notify all other contractors, subcontractors, etc., affected by the substitution and fully coordinate with them. Any costs resulting from substitution, whether by this contractor or others, shall be the responsibility of and paid for by the substituting contractor. Approved shop drawings do not absolve this contractor from this responsibility.
11. All equipment shall be installed in full accordance with the manufacturer's data and installation instructions and service clearances. It is this contractor's responsibility to check and confirm these requirements prior to starting of any work.

F. Warranty

1. Fully warrant all materials, equipment and workmanship and the successful operation of all equipment and apparatus installed by this contractor for one (1) year from date of final acceptance.
2. Extend all manufacturers' warranties to owner; including five (5) year compressor and ten (10) year heat exchanger extended warranty on HVAC equipment to include material and labor.
3. Repair or replace without material and labor charge to the owner all items found defective during the warranty periods. In the case of replacement or repair due to failure within the warranty period, the warranty on that portion of the work shall be extended for a minimum period of one (1) year from the date of such replacement or repair.

G. Shop Drawing Submittals

1. Submit shop drawings for mechanical, plumbing, fire protection, and control systems; including but not limited to sheetmetal, plumbing fixtures and equipment with adequate details and scales to clearly show construction. Indicate the operating characteristics for each required item. Clearly identify each item on the submittal as to mark, location and use, using the same identification as provided on the construction documents.
2. Sheetmetal and fire protection shop drawings shall be fully dimensioned and coordinated based on field verified building dimensions and clearances and architectural ceiling layouts. Indicate structural systems, lighting, ductwork and piping at all critical locations.
3. Contractor shall review and indicate his approval of each shop drawing prior to submittal for review. Shop drawings will not be reviewed by the engineer unless the contractor's approval is noted. Do not start work or fabrication until shop drawings have been reviewed by the engineer and returned to the contractor.
4. Submittals will be reviewed only for general compliance with the contract documents and not for dimensions or quantities. The architect and engineer will make every effort to detect and correct errors, omissions, and inaccuracies in such drawings, but the failure to detect errors, omissions, and inaccuracies shall not relieve the contractor of responsibility for the proper and complete installation in accordance with the intent of the contract documents. The submittal review shall not relieve the contractor of responsibility for purchase of any item in full compliance with the contract documents or its complete and proper installation.
5. Where submittals vary from the contract requirements, the contractor shall clearly indicate on submittal or accompanying documents the nature and reason for the variations.
6. Each manufacturer or his representative must check the application of his equipment and certify at time of shop drawing submittal that the equipment specified has been properly applied and can be installed, serviced and maintained where indicated on the drawings. Advise engineer in writing with submittal drawings of any potential problems. The manufacturer shall be responsible for any changes that might be necessary because of physical characteristics of equipment that have not been called to the engineer's attention at the time of submittal.
7. Submit a minimum of one (1) print and an electronic "pdf" of shop drawings to the architect. The architect and engineer shall review and return a pdf. The contractor shall distribute copies as required to properly conduct the work, including requirements of the operating manual.

H. Record Drawings

1. Each contractor or subcontractor shall keep one (1) complete set of the contract drawings and equipment submittals on the job site on which he shall regularly record any deviations or changes from such contract drawings made during construction. All recording shall be done in color ink.
2. These drawings shall record the installed location of all concealed equipment, piping, electric service, sewers, wastes, vents, ducts, conduit, etc., by measure dimensions to each such item from column centerlines or readily identifiable and accessible walls or corners of the building. Plans also shall show invert elevation of sewers and top elevation of all other below-grade lines.
3. Record drawings shall be kept clean and undamaged and shall not be used for any purpose other than recording deviations from working drawings and exact locations of concealed work.
4. After the project is completed, these drawings shall be scanned to an electronic "pdf" format and pdf and hard drawings shall be delivered to the architect in good condition, as a permanent record of the installation as actually constructed.

I. Supervision

1. The contractor shall have in charge of work at all times during construction a competent foreman or superintendent whose experience and background shall qualify him for the work to be performed under this division. Once assigned, the foreman or superintendent shall be retained until completion of the project and any consideration as to his removal on grounds of incompetence shall either be initiated by or referred to the architect for decision.

Section 200510 - Basic Materials and Methods

A. General

1. Provide all materials, labor, equipment, and accessories required to furnish and install the mechanical items identified in this section.
2. This section includes basic mechanical materials and methods to complement other division sections in this specification and requirements indicated on the mechanical drawings.

B. Interferences

1. Before installing any work, contractor shall see that it does not interfere with clearance required for finish on beams, columns, pilasters, walls, or other structural or architectural members, as shown on architectural drawings. If any work is so installed and it later develops that architectural design cannot be followed, contractor shall, at his own expense, make such changes in his work as architect may direct to permit completion of architectural work in accordance with plans and specifications.
2. Install additional offsets on piping or ductwork where required to obtain maximum headroom or to avoid conflict with other work without additional cost to owner.
3. Report any interferences between work under this division and that of any other contractors to architect as soon as they are discovered. Architect will determine which equipment shall be relocated, regardless of which was first installed, and his decision shall be final.

C. Protection of Work and Property

1. The contractor shall be responsible for safeguarding work, property, and facilities against damage, both his own as well as others with which he may come into contact in the performance of his work.
2. Stored materials shall be protected against damage from weather. Pipe, and duct openings shall be closed with caps or plugs during installation. All fixtures and equipment shall be covered and protected against damage. Any materials or equipment damaged at any stage in the construction shall be replaced or repaired. Final completion, all work shall be in a clean and unblemished condition.
3. During construction, all return air ductwork and transfer air openings serving new and existing air handling equipment and/or adjacent tenant spaces shall be protected. Openings which need to remain active shall be covered and protected with MERV 8 filtration media; openings which can remain inactive during construction shall be covered with plastic sheathing and sealed air tight. Filter media shall be replaced regularly as required during construction in order to ensure adequate airflow through all required active openings. In addition, at the end of each phase of construction and at the end of the construction project, all filtration media within each piece of equipment serving the space shall be replaced.

D. Supports and Hangers

1. Hangers and supports are to be provided to properly support, secure and align piping and to meet field conditions and as manufactured by Grinnell, Michigan Hanger or Caddy.
2. All hangers, brackets, clamps, etc., shall be of standard weight steel. Perforated strap hangers shall not be used in any work. When two or more pipes are run parallel, they may be supported on unistrut-type trapeze hangers. Other hangers for pipe 3" in size and smaller shall be clevis. For pipe transporting medium above 150 degrees F and 4" in size and above, use pipe roll. Each hanger is to be sized to include pipe insulation saddle for protection.
3. Spacing to comply with ASHRAE standards and code requirements.

E. Pipe Sleeves, Floor and Ceiling Plates

1. All pipes passing through floors or masonry walls shall be provided with machine-cut schedule 40 pipe steel sleeves. The sleeves shall be so sized to allow at least 1/4" clearance between the inside sleeve wall and the pipe or insulation surface. Sheet metal sleeves shall not be used in this work. Pipe sleeves are to extend 2" above finished floor and sealed. Pipe sleeves are to be full wall thickness and sealed.
2. Unused sleeves shall be plugged and finished to match adjoining surface.

F. Access Panels

1. Each contractor shall be responsible for providing all required access panels necessary for his work. This includes any access panels required for HVAC, plumbing and fire protection. Each contractor shall also provide access panels for any existing conditions as required.
2. Refer to architectural drawings and specifications for type of access panel and coordinate locations prior to any work.
3. Contractor shall mark lay-in ceiling tiles, in a method approved by the architect, where access is required to such mechanical, plumbing, and fire protection equipment, valves, regulators, mixing boxes, fire damper, etc.

Section 200500 (cont.)

G. Noise and Vibration Isolation

1. Furnish and install vibration isolating mountings to isolate from the structure, by means of resilient vibration and noise isolators, all mechanical equipment over 1 HP having rotating or reciprocating parts. Isolators shall be supplied by a single source, and shall be guaranteed by the manufacturer to provide isolation efficiencies in accordance with this specification. Selection shall be based on equipment purposed, power dissipated, frequency, weight distribution and nature of the building structure. Mountings shall be designed to permit attachment to the equipment base or pad and to the structure and shall be selected for uniform deflection allowing for unequal weight distribution.
2. Selection shall be made by the manufacturer of the mountings to provide a transmissibility not exceeding 10 percent. This contractor shall provide inertia pads for equipment where called for on drawings or recommended by the manufacturer of the mountings. These shall consist of reinforced concrete pads of suitable shape, of weight 1-1/2 times the weight of the equipment and provided with weld plates or channels at the corners to which the mountings may be secured.
3. Vibration or noise created in any part of the building by the operation of any equipment furnished and/or installed under this contract will be prohibited, and this contractor shall take all precautions by isolating the various items of equipment, pipe and sheet metal work form the building structure. The major items of equipment shall be isolated as called for on the plans and specified herein. The minor items shall be held the responsibility of this contractor.
4. Mechanical equipment not internally isolated by the manufacturer shall be isolated as follows:
   a. Centrifugal fans, air conditioning and/or heating and ventilating units up to 3"static pressure on grade shall be mounted on precompressed molded fiberglass, rubber-in-shear, or steel spring isolators. If the drive motor is not supported directly on the fan, both units shall be mounted on an integral structural steel base supplied by the isolator manufacturer, or sufficient rigidity to maintain alignment between the fan and the drive motor. The base shall, in turn be mounted on precompressed molded fiberglass, rubber-in-shear, or steel spring isolators.

      The fans' isolators shall provide isolation efficiencies as follows:

Fan speed over 700 RPM	95 percent
Fan speed between 450 and 700 RPM	90 percent
Fan speed below 450 RPM, fan wheel over 48" diameter	80 percent
Fan speed below 450 RPM, fan wheel under 48" diameter	Noise isolation only

   b. Centrifugal fans, air conditioning and/or heating and ventilating units up to 3" static pressure above grade shall be mounted on steel spring vibration isolators in combination with precompressed molded fiberglass noise isolation pads. If the drive motor is not supported directly on the fan, both units shall be mounted on an integral concrete inertia base, supplied by the isolator manufacturer, of sufficient rigidity to maintain alignment between the fan and isolators in combination with precompressed molded fiberglass noise isolation pads. See "C" above for isolation efficiencies.
   c. Centrifugal fans, air conditioning and/or heating and ventilating units up to 3" static pressure ceiling suspended shall be mounted on a suitable platform and the platform in turn, suspended by threaded rods from the overhead structure. Resilient hangers incorporating steel springs and precompressed molded inserts shall be incorporated into each supporting rod. See "C" above for isolation efficiencies.
   d. Centrifugal fans, air conditioning and/or heating and ventilating units over 3" static pressure shall be mounted on a reinforced concrete inertia block whose weight is equal to or greater than that of the supported equipment. The concrete shall be poured into a welded steel channel frame with welded-in reinforcing bars and prelocated equipment anchor bolts, all supplied by the isolator manufacturer. The inertia block shall be mounted on steel spring vibration isolators in combination with precompressed molded fiberglass noise isolation pads.

      See "C" above for isolation efficiencies.
5. Piping and ductwork shall be supported independently of the mechanical equipment and shall be isolated as follows:
   a. All suspended piping in the mechanical equipment and air handling rooms shall be supported from the overhead structure by threaded rods incorporating resilient hangers. The resilient hangers shall contain steel springs and precompressed molded fiberglass inserts, designed for static deflections of between 1" and 1-3/4" under operating conditions.
   b. All floor supported piping and pipe hangers in the mechanical equipment rooms shall be mounted on steel spring vibration isolators in combination with precompressed molded fiberglass noise isolators, designed for minimum static deflections of 1".
   c. Suspended piping entering or leaving mechanical or air handling equipment outside the equipment rooms shall be supported for the first three hangers away from the equipment by threaded rods incorporating resilient hangers from the overhead structure. The resilient hangers shall contain steel springs and precompressed molded fiberglass inserts, designed for static deflections between 1" and 1-3/4" under operating conditions.
   d. Floor supported piping entering or leaving mechanical equipment outside the equipment room shall be mounted on steel spring vibration isolators in combination with precompressed molded fiberglass noise isolators, designed for minimum static deflections of 1" for the first three supports.
   e. Flexible connections shall be used between air handling equipment and ductwork.
   f. All ductwork within the mechanical equipment and air handling rooms shall be suspended with rod and rubber-in-shear hangers.
6. Isolation efficiency shall be based on the lowest operating speed of the supported equipment. The isolator manufacturer shall provide, as a part of his submittal data, and isolating efficiencies for the isolators supporting each piece of equipment. Isolators shall be manufactured by Consolidated Kinetics Corp., 401 Dublin Avenue, Columbus, Ohio, or Mason Industries, Inc., Hollis, New York.

H. Thermometers and Gauges

1. Pressure gauges shall be provided in pipe lines and at inlets and outlets to equipment as called for or specified. These shall be installed to indicate pressure changes across equipment only. This means that they must have connections installed as close as possible to equipment flanges. These shall be bourdon tube type with 3" minimum dial 1/4 male NPT connection, steel cages with pressure ranges suitable for indicating the normal operating pressure at the two-third point of the scale range. Ashcroft, 3M or Taylor. Connections shall be made with shut-off cock and surge snubber.
2. Thermometers shall be a red mercury in glass-type with adjustable angle feature, 7" minimum scale length with range and bulb length suitable for the application and insertion well. These shall be located where they sense a true temperature and where they can be easily read and be installed with heat transfer grease.

I. Miscellaneous Steel

1. Furnish and install all miscellaneous steel required for supports, hangers, anchors, guides, etc., required for installation of equipment and materials furnished and installed under this division.

J. Painting

1. This contractor shall perform all painting incidental to this work.
2. All insulation shall be painted at the time of installation with one coat of Benjamin Foster "Lagtone" water base paint. At the completion of the work, all such insulation shall be given an additional coat of alkyd resin paint of a color to match existing building structure or as selected by the architect.
3. All uncovered black iron pipe, fittings, iron portions of valves, hangers, structural steel, expansion tanks, cooling tower sumps and all other black iron work shall be thoroughly cleaned and given two coats of alkyd resin paint of a color to match existing building structure or as selected by the architect.
4. All uncovered exposed sheet metal shall be thoroughly cleaned and neutralized and given two (2) coats of alkyd resin paint of a color to match existing building structure or as selected by the architect.
5. All painting shall be done with a brush or roller. Spray painting will be prohibited.
6. All finishing materials, thinners, etc., shall be the best quality, first line materials as manufactured by:
   a. E.I. Dupont De Nemours and Company
   b. Pratt and Lambert, Inc.
   c. The Glidden Company
   d. The Sherwin-Williams Company
   e. The Pittsburgh Plate Glass Company
7. All paint materials shall be delivered to the job in the manufacturer's original unopened and labeled containers, and they shall be used strictly in accordance with the manufacturer's directions.
8. This contractor shall submit a list of materials to the architect. The list shall state the branch names of the materials that the contractor intends to use. This list shall be secured from the paint manufacturer and shall be on his stationery.
9. The architect's approval must be secured before any painting work is started.

K. Clean-Up

1. Insofar as this contract is concerned, at all times keep premises and building in a neat and orderly condition: Follow explicitly any instructions of architect in regard to storing of materials, protective measures, cleaning-up of debris, etc.
2. Upon completion of work, this contractor shall thoroughly clean all apparatus furnished by him, pack all valves and thoroughly clean piping, fixtures and equipment removing all dirt, grease and oil.
3. Air systems shall not be operated without filters. Upon completion of work, replace all filters.

L. Operating and Maintenance

1. This contractor shall furnish competent personal instruction to the owner's operating personnel for a period of two (2) days in the proper operation of the heating and air conditioning equipment. He shall also supply the owner with copies of an operation manual containing the following:
   a. Step-by-step procedures for start-up and shut-down for each system and piece of equipment.
   b. Performance data, curves, ratings.
   c. Wiring diagrams.
   d. Manufacturer's descriptive literature.
   e. Automatic controls with diagrams and written description of operation.
   f. Manufacturer's maintenance and service manuals.
   g. Plumbing fixtures.
   h. Spare parts and replacement parts list for each piece of equipment.
   i. Name of service agency and installer.
   j. Final approved shop drawings.

M. Roof Curbs (as manufactured by Pate, Roof Products and Systems and Thycurb)

1. Curb shall be 18 gauge galvanized steel with continuous welded seams, wood nailer, counterflashing, R-8 minimum and liner insulation. Top of curb shall be a minimum size as shown in detail on drawings, but not less than 14" above the high point of roof where curb attaches.
2. Provide curb for all roof penetrations of ducts and piping.
3. All cutting and patching of existing roof shall be by the owner's roofing contractor and paid for by the mechanical contractor.
4. Curb shall be installed with top level. Curb base to match roof pitch.

Section 200593 - Testing, Adjusting and Balancing

A. General

1. After installation, check all equipment and perform start up in accordance with the manufacturer's instructions.
2. Work that is scheduled to be concealed or insulated shall remain uncovered until required tests have been completed. If the construction schedule requires, arrange for tests on sections of the system at a time.
3. Balance all systems, calibrate controls, check for proper operation and sequence under all conditions and make all necessary adjustments.
4. Instruct owner in operation of systems and submit operating and maintenance manual for all equipment and systems.
5. Submit air balance report from independent AABC or NEBB certified subcontractor for all air and water systems per AABC or NEBB standards.
6. Submit duct leakage test report from independent AABC or NEBB certified contractor.
7. When the contractor is ready to run capacity tests, he shall notify the architect. When this notice is given, the architect will assume that the contractor has made preliminary tests and is satisfied that the plant will develop specified and guaranteed capacities. It will be the contractor's responsibility to furnish any and all instruments required to obtain test data which shall include thermometers, electric meters, pressure gauges, etc.
8. Work under this division of the specifications shall not be considered complete until the contractor has obtained required inspection, performance tests, made necessary adjustments and has submitted satisfactory evidence of the architect or his representative will make spot checks to determine the accuracy and completeness of final adjustments. Should spot checks indicate more than a reasonable deviation from design requirements, the contractor shall repeat tests and adjustments to the satisfaction of the engineer.
9. During one complete heating and one complete cooling season, the contractor shall make any minor adjustments that may be necessary to ensure uniform temperatures throughout the spaces.
10. Test results shall be submitted to the architect/engineer.
11. The Test and Balancing contractor shall adjust all sheaves or provide new sheaves and belts as required in order to properly balance all air handling equipment.

B. Balancing, Start Up and Instructions

1. After equipment is placed in operation, systems shall be balanced to within 10% of design flow with report submitted to owner. Balancing shall be performed by an independent AABC or NEBB certified contractor.
2. Balance the air systems prior to balancing hydronic, steam, and refrigerant systems.
3. Test, adjust and balance cooling systems during summer season and heating systems during winter season. Balance systems when the outside air conditions are within 5 degrees F wet bulb temperature of the maximum summer design condition and within 10 degrees F dry bulb temperature of the minimum winter design condition.
4. Start up and place all systems in operation and tag all switches and controls with permanent labels.
5. Train and instruct owner on proper operation and preventative maintenance of system.

C. Air Handling Equipment: For each piece of air handling equipment, this contractor shall list the data of the fan, motor and drive and shall obtain by measurement and furnish to the architect/engineer the fan speed, motor voltage, operating amps, for cfm and static pressure as determined from the manufacturer's fan curves. This contractor shall also determine the fan cfm by means of a velocity traverse which shall be taken a minimum of three fan diameters from fan outlet. Before running any tests, the contractor shall have installed all the components of the system and shall ensure the cleanliness of the filters.

D. Diffusers, Registers, Grilles: After completion of the air distribution systems and final adjustments, the contractor shall adjust all dampers and air supply, return and exhaust outlets so that each outlet handles its proper quantity of air. Supply registers and diffusers shall be adjusted to provide for the proper throw and a uniform distribution pattern.

1. For supply, return and exhaust air outlets, the velocity shall be measured with a heated wire resistance type anemometer held 1" from the face of the outlets; the air velocity shall be the average of velocity readings taken at points no more than 6" apart. The area shall be the net core area of the outlet.
2. Test readings shall be taken for each register, grille and diffuser. For each of these units, obtain and furnish information on manufacturer, testing equipment used, procedure followed, location, size, average, velocity, gross and net core areas, observed cfm and specified cfm. Separate tabulations shall be furnished for each manufacturer, each system and each type of register, grille and diffuser.

E. Mixing Dampers: Mixing dampers shall be adjusted on the basis of the temperature of the mixed outside and return airstreams.

1. The minimum fresh air damper position shall be set to obtain a mixed air temperature determined from the following equation:

   Mixed Air Temperature =

   (Outside Air Temp.) x (Min. Percent Outside Air) +

   (Return Air Temp.) x (1 - Min. Percent Outside Air)
2. Percentage of air quantity shall be expressed as a fraction of the total air supply.

F. Holes in ducts and casings used for static pressure and velocity readings shall be provided with removable closures.

G. During the testing period, this contractor shall maintain on the job a competent individual thoroughly familiar with all phases of air conditioning, including refrigeration, temperature control and distribution, for as long a period as may b required to thoroughly adjust all of the systems and to demonstrate to the architect that they are functioning properly.

H. The testing and balancing engineer shall, as part of his work, perform a "Spot" re-check balancing conditions between 30 to 90 days after both summer and winter balancing operations at which time a representative of the temperature control manufacturer capable of performing adjustments to his system shall accompany the balancing engineer. This operation shall include a check of space temperature, calibration of controls, pump and fan performance and the necessary adjustments thereto.

Section 200700 - Insulation

A. General

1. Furnish all material, labor and equipment as required to install complete plumbing and HVAC insulation as indicated on mechanical drawings and in these specifications.
2. Install in full accordance with manufacturer's recommendations.

B. Scope: This contractor shall furnish and install all insulation necessary to the project and in accordance with the following requirements. All insulation and accessories used in an air plenum space, and all duct covering and lining, regardless of physical location, shall have a composite (insulation, jacket, and adhesive) fire and smoke hazard rating as tested under procedure ASTM E-84, NFPA 255 and UL 723, not exceeding a flame spread 25 and smoke developed 50. All other areas shall have insulating materials and accessories on pipes and vessels rated at a flame spread 25 and smoke developed 150 as tested by the same procedure. All calcium silicate shall be asbestos free.

C. Workmanship:

1. All insulation shall be installed over clean, dry surfaces. Insulation must be dry and in good condition. Wet or damaged insulation will not be acceptable. No insulation shall be applied prior to pressure test completion of the respective piping and/or duct system.
2. All pipe insulation shall be installed with joints butted firmly together. All valves and fittings shall be insulated using mitered sections of insulation equal in density and thickness to the adjoining insulation, or with an insulation cement equal in thickness to the adjoining insulation or premolded insulated fittings. The insulation applied to the valves and fittings shall be covered with the same type of covering as used on the pipe insulation. No staples.
3. All insulation ends shall be tapered and sealed regardless of services.
4. All insulated, exposed piping 8'-0" and below to the finished floor shall include a 0.020" thick vinyl jacket. This jacket is in addition to the normal finish for the respective service.
5. Rigid duct insulation shall be impaled over welded pins and secured with white insulation caps. All seams shall be firmly butted and sealed with white pressure sensitive vapor barrier tape. No staples.
6. Wrap around duct insulation shall be applied with all joints butted firmly together. Insulation shall be cemented to the surface with fireproof adhesive applied in 6" wide strips on 12" centers. All joints in the insulation covering shall be sealed with adhesive. Where ducts are over 24" wide, the ductwrap shall be additionally secured to bottom of rectangular or oval ducts with mechanical fasteners on 16" centers to prevent sagging. Vapor barrier shall be legibly printed by the manufacturer to show nominal thickness and type of insulation. Aluminum corner angles shall be used to prevent over compressing insulation during installation.
7. Ductliner insulation shall be applied with joints precoated with adhesive and butted firmly together. Lining shall be cemented to ductwork with a minimum of 75 percent coverage of fire resistant adhesive. Mechanical fasteners on 16" centers and adhesive shall be used when duct width exceeds 12" or when duct height exceeds 24".
8. All round diffuser duct drops connected to lined ductwork shall be insulated the same as "ductwork" schedule non-lined.
9. All flexible elastomeric insulation shall have all fittings, butt ends, and seams sealed with vapor barrier adhesive.
10. Provide removable insulation sections to cover parts of equipment which must be opened periodically for maintenance including metal vessel covers, fasteners, flanges, chilled water pumps, frames and accessories.
11. Repair all damaged sections of the existing piping and mechanical insulation damaged during this construction period. Use insulation of same thickness as existing insulation. Install new jacket lapping and seal over existing.
12. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.

D. HVAC Insulation (as manufactured by Owens Corning, Knauf)

1. All insulation to be applied in full accordance with the manufacturer's recommendations and comply with 25/50 flame and smoke hazard ratings per ASTM E-84, NFPA 255 and UL 723.
2. Insulate all supply, return, outside and exhaust air ducts with 3/4" thick lined insulation or less to none with 1-1/2" thick, 1.5 pcf, R-6, foil faced reinforced kraft jacket fiberglass duct wrap fully secured to duct. Lap and tape seams and secure tightly to the ducts with wire or stick pins. Exposed ductwork in conditioned spaces without ceilings shall not be insulated, unless otherwise noted to be insulated. Ductwork in ceiling plenum space shall be insulated.
3. Insulate all supply, return, outside and exhaust air ducts lined or not lined located in the attic space with 3" thick, 0.75 pcf nominal density, R-10, foil faced reinforced Kraft jacket, fiberglass duct wrap fully secured to duct. Lap and tape seams and secure tightly to the ducts with wire or stick pins.
4. Insulate all supply, return, outside and exhaust air ducts lined or not lined exposed to weather outside with 3" thick mineral-fiber board, 3 pcf nominal density, R-13. Provide a venture clad insulation jacketing, color as selected by architect, field-applied jacket.
5. Insulate all air conditioning condensate drain piping with 1" thick molded fiberglass insulation, C = 0.22.

Section 211000 - Fire Protection Systems

A. General

1. Furnish all labor, materials and equipment as required to install a complete fire protection system for project.
2. Field-verify sizes and location of existing sprinkler piping before fabrication of new.
3. This contractor shall be responsible for the removal and reinstallation of existing ceiling tiles, as required, for the installation of work shown in areas where existing ceilings are to remain. See architectural drawings for areas where existing ceilings are to remain.
4. This removal and reinstallation of existing lay-in ceiling tiles shall be the responsibility of the fire protection contractor (under the supervision of the general contractor) as required to perform his work. Any damage to existing ceiling tiles or supports shall be the responsibility of the general contractor. Ceiling tiles may be left out of the ceiling areas under construction only if stored in areas as directed by the owner so as not to hinder the daily operations of the building's occupations.
5. This contractor shall modify and relocate sprinkler piping and provide new sprinkler piping and heads, as required, to accommodate new mechanical work in full compliance with NFPA 13. This contractor shall also perform hydraulic calculations for sprinkler piping in the remodeled areas in accordance with NFPA 13.

B. Design Basis

1. Design basis for system shall be per NFPA 13 (latest edition) building code requirements, local water department, local fire department, state fire marshal, local code, and owner and owner's fire insurance underwriter requirements.
2. System shall be hydraulically calculated as required by code.
3. Pipe sizes indicated on drawing are approximate and shall be verified per the contractor's hydraulic calculations.

C. Drawings and Calculations

1. Contractor shall prepare submittal drawings and hydraulic calculations with a 10% factor of safety for building in accordance with owner's insurance company building department, and local fire authority requirements, tenant's requirements for design density, whichever is most stringent.
2. Contractor shall perform a flow test data on water main and submit data with calculations.
3. It is the fire protection contractor's responsibility to verify each tenant's design density with agreed upon lease documentation and that tenant's prototype or insurance underwriters requirements.
4. Provide wet standpipe system for project in accordance with NFPA 14 requirements.
5. Contractor and designer shall be state certified.
6. Coordinate layout and installation of sprinklers with ductwork and equipment above ceilings and other construction that penetrates ceilings, including but not limited to light fixtures, speakers, HVAC equipment, doors and partition assemblies. No sprinkler piping shall be routed beneath equipment above any ceilings that must be dropped directly down for service, repair, or replacement.
7. Examine areas and conditions under which fire protection materials and products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to installer. Schedule rough-in installations with installations of other building components.
8. Shop drawings review does not relieve fire protection contractor from responsibility to meet each tenant's requirements for sprinkler coverage.
9. Fire protection contractor is responsible for verifying any high pile storage requirements of future tenants and providing an incoming sprinkler service size and risers to meet the requirements for adequate sprinkler coverage.

D. Piping

1. All piping shall be installed in accordance with NFPA 13, 14 (latest edition) and local code requirements.
2. Fire protection piping shall be as follows:
   a. Below-grade outside building - ductile iron, cement lined. Class of pipe as directed by local water purveyor with mechanical or push-on type joints.
   b. Inside building - pipe and tubing shall be steel or copper in accordance with NFPA requirements.
   c. Piping shall match existing building standards.
   d. Contractor shall arrange with owner and insurance underwriter prior to shut down of existing systems.
   e. Flush all piping upon completion of project and test per NFPA requirements.
   f. No piping shall be installed at locations subject to freezing.
3. Excavation and backfill - see Section 200510, Basic Materials and Methods.

E. Sprinkler Heads

1. Sprinkler heads shall be UL listed, match existing building standards and be manufactured by Central, Star or Viking.
2. Sprinkler heads shall be as follows:
   a. Areas with exposed structure
1. Upright - rough brass.
   b. Areas with ceilings
1. Recessed Pendent - chrome plated with matching two (2) piece, flush escutcheon.
2. Concealed - brass finish with off-white ceiling cover plate.
3. Sidewall - chrome plated with off-white, two (2) piece, semi-recessed escutcheon.
3. Install concealed heads with white flush mounted cover plate in (<u>sales area</u>).
4. Install higher temperature sprinkler heads where required by code or application.
5. Sprinkler heads shall be located in the center of ceiling tiles or the center of an area of a 24" x 24" tile section. See architectural reflected ceiling plans.
6. Submit samples of sprinkler heads to architect prior to fabrication of any piping.
7. Install inspector's test connection with valve and terminate drain through exterior wall with text fitting and splash block.

F. Valves

1. Install all valves as required by NFPA 13, UL or FM listed and as manufactured by Grinnell, Hammond or Milwaukee.
2. All shut-off valves shall be fitted with tamper switches by fire protection contractor and wired by electrical contractor. Tamper switches shall be as manufactured by Notifier, Potter or Viking.
3. Install flow switch in riser as manufactured by Notifier, Potter or Viking and wired by electrical contractor.
4. Install UL listed alarm check valve with all required trim, including water motor alarm bell and drains as manufactured by Central Star or Viking.

H. Extra Materials

1. Valve wrenches: Furnish to owner, 2 valve wrenches for each type of sprinkler head installed.
2. Sprinkler heads and cabinets: Furnish 2 extra sprinkler heads of each style included in the project. Furnish each style with its own sprinkler head cabinet and special wrenches.
3. Obtain receipt from owner that extra stock has been received and give architect a copy of this receipt.

Section 230900 - Instrumentation and Controls

General

1. Section shown for reference, controls and equipment are existing to remain.
2. Furnish and install complete temperature control for all HVAC systems.
3. Provide new control devices including thermostats, humidistats, damper operators, motors, temperature sensors, staging relays, and other related devices for a complete operational system per the operating sequence and industry standards.
4. Mount all controls furnished as accessories to equipment and provide all control wiring required for proper operation. All wiring shall be in conduit per N.E.C. and local code requirements.
5. Mechanical contractor shall install all duct-mounted smoke detectors. Electrical contractor shall furnish and wire photo-electric duct smoke detectors at each unit to shut down fan upon activation. Detector shall be located in the supply/return air duct downstream/upstream of the unit connection. Detector will have manual reset and will activate a local alarm panel.

Split-System Air Handlers

1. Split System AHU with DX Cooling and Electric Heat - (AHU-1(E), AHU-2(E), AHU-3(E), AHU-4(E))
   a. Wall mounted seven day programmable thermostat **or central BAS system** shall sequence heating and cooling. Provide with sub-base to manually select heating, cooling, fan on-off, auto operation.
   b. Unit shall operate in occupied or unoccupied modes based upon time clock **or BAS scheduling** sequence as determined by owner.
   c. Unoccupied mode - The supply fan will be off, the outdoor air damper will go to 100% closed position and unit will cycle on with a call for heating, cooling or dehumidification. During the unoccupied mode, AHU shall remain off during the cooling season; during the heating season, AHU shall cycle on with outside air dampers remaining closed to maintain a space set-back temperature of 60 deg F (adjustable) as sensed by a night setback space temperature sensor.
   d. Occupied mode - The supply fan shall run continuously, the outdoor air damper will modulate to the required position based on ventilation sequencing and the unit will go into the heating or cooling mode based upon room thermostat setpoints.
      1) Upon a call for heating, the electric heating coil(s) shall energize. Stage 1 heating shall be enabled when the zone temperature drops 1.5 degree (adjustable) below setpoint. **Stage 2 heating shall be enabled when the zone temperature drops 3 degrees (adjustable) below setpoint.**
      2) Upon a call for cooling, the stage 1 compressor shall energize. Stage 1 cooling shall be enabled when the zone temperature rises 1.5 degree (adjustable) above setpoint. **Stage 2 cooling shall be enabled when the zone temperature rises 3 degrees (adjustable) above setpoint.**
      3) The unit shall be provided with APR Control on the primary cooling circuit for part load conditioning and enhanced dehumidification capabilities.
   e. Enthalpy Economizer
      1) The economizer shall be enabled whenever:
         The outside air dry-bulb temperature is less than the return air dry-bulb temperature and the fan status is on.
      2) When the outside air dew point is less than the return air dew point by an adjustable dead band (3 deg F), the outdoor air damper(s) shall be set for 100% outdoor air
      3) When the Outdoor Air temperature is less than the supply air temperature set point the outdoor air damper, exhaust air damper, and return air damper will modulate, as appropriate, between the adjustable minimum position and full open position to maintain a mixed air temperature setpoint (55 deg F adjustable) until room cooling setpoint is reached.
      4) When the return air dew point is greater than the outdoor air dew point OR the outdoor air temperature is greater than the return air temperature the exhaust air damper, return air damper and outside air damper shall be positioned to the minimum control air position and the unit shall operate in mechanical cooling.
      5) The economizer shall close to 0% (outside air and exhaust dampers shall be closed and return air damper shall be open) whenever:
         Supply fan or return fan is off
         OR mixed air temperature is less than 40°F
         OR on loss of fan status
         OR the Discharge Air Temperature Sensor has failed
         OR the RTU is in the Morning Warm-up or Cool-down mode
         OR the unit is in unoccupied mode
      6) The Outdoor Air Damper shall be set to its minimum position if the Economizer function is disabled. Maintain minimum outside air by setting the outdoor air damper to the minimum position as adjusted by the T&B Contractor to meet the scheduled minimum OSA quantity.

STORE 550

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NO.	DATE	DESCRIPTION

DATE: 06/13/19
DRAWN BY: TBA
PROJECT NO.: 19139

MECHANICAL
SPECIFICATIONS

M-3.0

MECHANICAL SPECIFICATIONS (cont.)

Duct Heaters

1. Existing Electric Duct Heaters (EDH-1(E), EDH-2(E), EDH-3(E), EDH-4(E))
   a. A space-mounted thermostat shall control the electric duct heater to maintain space temperature. An air flow switch shall be installed in the duct to prevent operation of the heater if there is insufficient airflow. Wiring of the room thermostat and air flow switch shall be done by the temperature control contractor

EXHAUST FANS

1. Exhaust Fan (EF-1)
   a. Interlock fan with light switch to operate when lights are turned on (interlocking wiring) by electrical contractor.

Section 233000 - Air Distribution Systems

A. General
1. Furnish all materials, labor, equipment and accessories required to install complete air distribution systems.
2. Contractors bidding this project shall visit this site and familiarize themselves with all condition affecting their work. Submission of a bid on this project shall be construed as having such knowledge.
3. Verify exact conditions in field and coordinate with these drawings and other trades before beginning new work.
4. Determine exact locations for all new and relocated ductwork and accessories in field.
5. Coordinate work of this contract with other trades.
6. Any discrepancies between what is shown on drawings or specified and the actual conditions in the field shall immediately be brought to the attention of the architect before proceeding.
7. Building and surfaces damaged during installation shall be repaired, replaced, and/or restored to original condition after completion of work and before acceptance by owner.
8. This contractor is also referred to the appropriate mechanical and plumbing specification sections the items of equipment to be bid as a part of this project.

B. Ductwork
1. Fabricate and erect all ductwork to ASHRAE and SMACNA standards from galvanized steel. Comply with NFPA 90A requirements.
2. Ductwork shall be SMACNA low pressure construction 2" static pressure rating with Seal Class B seams and joints, unless otherwise noted.
3. Include all acoustic, airfoil shaped perforated aluminum turning vanes, manual dampers, flexible connectors, grilles and diffusers, acoustic lining, and other sheet metal accessories for the project.
4. Changes in direction, in low velocity supply air rectangular ductwork, shall be made with full radius elbows with radius equal to 1_1/2 times the horizontal width of the duct, or with square elbows with turning vanes. Turning vanes shall be constructed of the same material as the surrounding ductwork and two (2) gauge numbers heavier.
5. Furnish and install all manual balancing dampers, splitter dampers, extractors, and deflectors required to properly distribute the air. All dampers, extractors and deflectors shall be constructed of the same material as the surrounding ductwork, unless noted otherwise on the drawings. All manual balancing dampers shall be the opposed blade type.
6. Furnish and install all automatic control dampers unless noted otherwise on the drawings, all control dampers shall be opposed blade type and shall have leakage of less than 1 percent when closing against 4" water column static pressure and when sized for 2000 fpm velocity.
7. All manual balancing dampers, splitter dampers, extractors and deflectors shall be controlled by Young No. 1 or Ventlock No. 688 regulators. If ductwork is accessible, mount the regulator on the ductwork. If ductwork will be inaccessible after the installation of the ceiling or walls, mount the regulator in a steel, flush mounted box specifically designed for this purpose. Provide all linkage, top bearings and/or gear drives required for the remote installation of the regulator.
8. All branch connection fittings in rectangular ductwork shall be 45 degree transition type, conical fittings or spin-in fittings with integral air scoops. Butt fittings are not acceptable.
9. All exposed round ductwork shall be spiral seam ductwork and painted a color as selected by the architect.

D. Duct Liner
1. Acoustic line all rectangular ducts indicated on drawings with 1" thick non-flaking, coated medium density liner, apply to manufacturer's recommendations.
2. Duct dimensions indicated on drawings are clear inside dimensions (free area).
3. Duct liner shall comply with NFPA 90A and 90B (latest edition) requirements.

E. Duct Accessories
1. Flexible ductwork (as manufactured by Clevaflex, Flexmaster or Wiremold).
   a. Flexible ducts shall be independently supported from the structure and connected with plastic draw bands and tightened. Flexible ducts shall be limited to 48" maximum straight length. Flexible ducts shall be constructed of 1 1/2" insulation with vinyl vapor barrier jacket and rated at 10" W.C. for sizes though 12", UL listed, and meet 25/50 flame and smoke test. Flexible ducts are not permitted in rooms without ceiling.
2. Dampers (as manufactured by Ruskin, Nailor or Safe-Air)
   a. Fabricate in accordance with SMACNA Standards. Provide end bearings and locking, indicating quadrant regulators. Blade to be single thickness with continuous hinge or rod.
3. Control Dampers (as manufactured by Ruskin, Nailor or Safe-Air)
   a. Fabricate blade of double thickness sheet metal, opposed blade type with self-aligning rod and end bearing suitable for use with an actuator.
4. Backdraft Dampers (as manufactured by Ruskin, Nailor or Safe-Air)
   a. Multiple blade, parallel type damper constructed of galvanized steel with felt or flexible vinyl sealed edges, ball bearings, pivot pin and adjustment device for varying pressures.
5. Fire Dampers (as manufactured by Ruskin, Nailor or Safe-Air)
   a. Fabricate in accordance with NFPA 90A and UL555. Dampers shall be suitable for use in the vertical or horizontal position as indicated on the drawings, be type 'B' with blades out of airstream, and be rated for 1-1/2 hours minimum (unless noted otherwise).
   b. Provide duct mounted access doors at all fire damper locations.
6. Access Doors (as manufactured by Ruskin, Nailor or Safe-Air)
   a. Fabricate in accordance with SMACNA standards. Doors to be fabricated of galvanized steel with sealing gasket and quick locking device.
   b. For insulated ductwork, doors shall have minimum 1" insulation with sheet metal cover.

F. All grilles, registers, diffusers and louvers shall be of the sizes, type, etc., as shown on the plan and schedules.

G. Grilles, registers, louvers and diffusers as manufactured by Krueger, Anemostat or Titus Company will be considered provided dimensions, capacities, construction and sound characteristics are compatible and so shown by shop drawings and performance specifications. All grilles, registers and diffusers shall be finished a color as selected by the architect.

H. Furnish and install, as shown on the drawings and schedule, the centrifugal roof exhaust fans. The fan wheels, housing and curb caps shall be constructed of aluminum. The fans shall be complete with bird screens, disconnect switches, backdraft dampers and prefabricated curbs. The prefabricated curbs shall be constructed of 18 gauge galvanized steel with built_in cant and wood nailer strip at top of curb.

I. Furnish and install the intake and relief vents as shown on the drawings and schedule. These vents shall be constructed of aluminum. Each relief vent shall be complete with bird screen, backdraft damper and prefabricated curb.

J. Centrifugal roof exhaust fans, intake, and relief vents as manufactured by Loren Cook or Greenheck will be considered provided size, performance ratings and dimensions are compatible and so shown by shop drawings and performance specifications.

K. Roof mounted equipment shall be supported using Pate curbs.

Section 235000 - Heat Generation Equipment

A. General
1. Furnish all material, labor, equipment, and accessories as required to install equipment as indicated on mechanical drawings.
2. Install in full accordance with local code requirements, other specification section requirements, and manufacturer recommendations.

B. See equipment schedules on mechanical drawings.

Section 236000 - Refrigeration Equipment

A. General
1. Furnish all material, labor, equipment, and accessories as required to install equipment as indicated on mechanical drawings.
2. Install in full accordance with local code requirements, other specification section requirements, and manufacturer recommendations.

B. See equipment schedules on mechanical drawings.

Section 237000 - HVAC Systems and Equipment

A. General
1. Furnish all equipment, material, labor, tools, etc., for the complete HVAC system. Install complete and place in operation.
2. Contractors bidding this project shall visit this site and familiarize themselves with all conditions affecting their work. Submission of a bid on this project shall be construed as having such knowledge.
3. Verify exact conditions in field and coordinate with these drawings and other trades before beginning new work.
4. Determine exact locations for all new and relocated equipment, piping, conduits and ductwork in field.
5. Coordinate work of this contract with other trades. Conflicts shall immediately be brought to the attention of the architect. Architect's resolution to conflicts shall be final.
6. Any discrepancies between what is shown on drawings or specified and the actual conditions in the field shall immediately be brought to the attention of the architect before proceeding.
7. Building and surfaces damaged during installation shall be repaired, replaced, and/or restored to original condition after completion of work and before acceptance by owner.

B. Equipment
1. Mechanical contractor to furnish all HVAC equipment indicated and/or scheduled on the drawings complete with bases, isolators, supports and other required accessories.
2. Install complete and place in proper operation per manufacturer's recommendations, lubricate and adjust as required. Furnish and install clean set of filters prior to balancing.
3. Equipment to be make and model as scheduled unless alternate equipment of equivalent quality and performance is submitted as a substitution prior to bidding. All substitutions are subject to acceptance without qualification by owner, engineer and architect.
4. Contractor shall perform routine service inspection of all existing HVAC equipment to remain. Lubricate bearing, service control systems, replace fan belts and install new filters in each rooftop unit.
5. Contractor shall field verify refrigerant charge and add refrigerant if the charge is less than manufacturer's specifications.
6. Submit service report to any major component failures or malfunctions. Report shall include cost to service all malfunctioning or damaged items listed. Cost shall include parts and labor. Equipment shall be placed in full operation with controls calibrated upon completion of project.

C. Cooling Coil Condensate Drains
1. Install condensate piping as indicated on drawings. Include all fittings, traps, hangers etc. Extend condensate piping from all equipment drain pans to approved locations for complete installation.
2. Install condensate piping at a uniform minimum slope of 1/8" per foot.
3. Condensate piping shall be as follows:
   a. Roof and Plenum space - type "L" hard copper ASTM B 88-832 with wrought copper fittings ASTM B 16.22 1980 and non-lead or antimony solder joints.
   b. Roof or non-return air plenum ceiling space - PVC schedule 40 plastic solvent weld socket fittings.
4. Insulation - see section 200700 - Insulation.

D. See equipment schedules on mechanical drawings.

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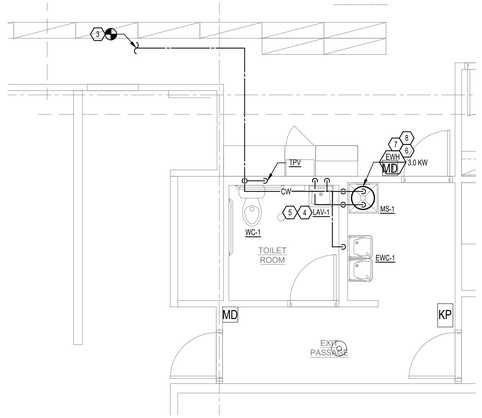
STATE OF MARYLAND · TIMOTHY · MICHAEL · BAKER · LIC. NO. 45027 · PROFESSIONAL ENGINEER

NO.	DATE	DESCRIPTION

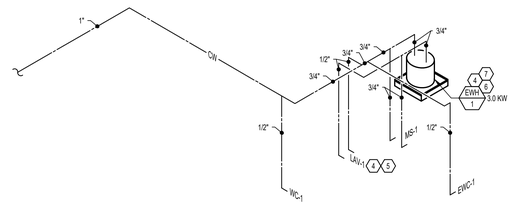
DATE:	06/13/19
DRAWN BY:	TBA
PROJECT NO.:	19139

MECHANICAL SPECIFICATIONS

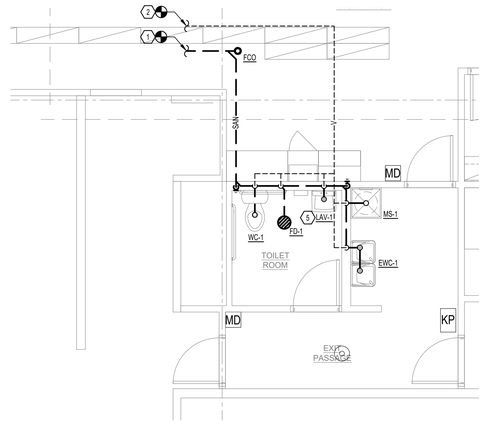
M-3.1



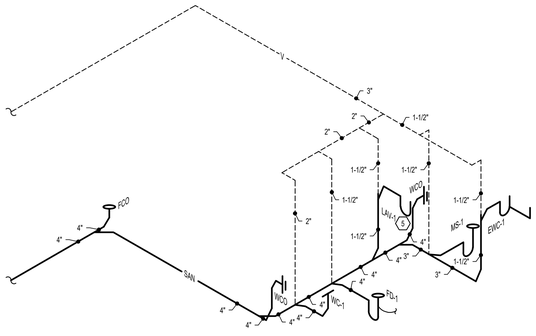
DOMESTIC WATER PLUMBING PLAN
1/4" = 1' - 0"



DOMESTIC WATER PIPING RISER
N.T.S.



SANITARY & VENT PLUMBING PLAN
1/4" = 1' - 0"



SANITARY AND VENT PIPING RISER
N.T.S.

ELECTRIC WATER HEATER SCHEDULE

UNIT NO.	MANUFACTURER	MODEL	KW	CAPACITY (GAL.)	STAGES	VOLTAGE	FLA	OUTPUT (GPH 90° RISE)	REMARKS
EWH-1	A.O. SMITH	DEL-6	3.0	6	1	208/1/60	14.4	14.0	REFER TO DETAIL ON SHEET P-102

PLUMBING FIXTURE CONNECTION SCHEDULE

FIXTURE NO.	FIXTURE TYPE	MANUFACTURER	TYPE & MODEL NO.	TRIM/FAUCET NO.	SUPPORT	PIPE SIZES					DESCRIPTION
						TRAP	WASTE	VENT	CW	HW	
WC-1	WATER CLOSET	KOHLER	HIGHLINE (WHITE) K-3949	CHICAGO FAUCET 1016	FLOOR MOUNT	-	4"	2"	3/4"	-	1.6 GPF, PRESSURE ASSIST, ELONGATED BOWL, ADA COMPLIANT 17" RIM HEIGHT PROVIDE WHITE STRONGHOLD TOILET SEAT MODEL K-4731 WITH HANDLE ON OPEN SIDE, CHROME TRIP LEVER.
LAV-1	LAVATORY	ZURN	Z5344	ZURN FAUCET Z86980	WALL HUNG	1-1/2"	2"	1-1/2"	1/2"	1/2"	20 X 18 VITREOUS CHINA, 4 FAUCET HOLES @ 4" O/C WITH WALL HANGER KIT, SUPPLY STOPS AND TUBES, DAIN KIT AND TAILPIECE. GOOSE NECK FAUCET, SELF CLOSING/METERING .
EWC-1	WATER COOLER	OASIS	PG8ACSL	-	WALL MOUNT	1-1/2"	1-1/2"	1-1/2"	1/2"	-	BI-LEVEL WALL MOUNTED COOLER, 8.0 GPH @ 90 DEGREE AMBIENT, FILTRATION SYSTEM, STANDARD CABINET FINISH.
TPV	TRAP PRIMER	JOSAM	88250	-	-	-	-	-	1/2"	-	BRONZE PRIMER VALVE WITH INTEGRAL VACUUM BREAKER AND GASKETED ACCESS COVER.
FD-1	FLOOR DRAIN	ZURN	Z-415	-	-	3"	3"	-	-	-	TYPE "N" STRAINER, PROVIDE 1/2" TRAP PRIMER CONNECTION WHERE INDICATED ON PLANS. POLISHED NICKEL BRONZE TOP.
FCO	FLOOR CLEAN OUT	ZURN	ZS-1400-BZ	-	-	-	4"	-	-	-	POLISHED STAINLESS STEEL TOP
WCO	WALL CLEAN OUT	ZURN	Z-1446	-	-	-	4"	-	-	-	POLISHED STAINLESS STEEL COVER
MS-1	SERVICE SINK	FIAT	MSB2424	ZURN Z843M1	FLOOR MOUNT	3"	3"	1-1/2"	3/4"	3/4"	MOLDED STONE MOP BASIN, 24"X24"X10" PROVIDE FAUCET WITH VACUUM BREAKER, HOSE AND BRACKET, MOP HANGER, AND DRAIN KIT.

GENERAL NOTES:

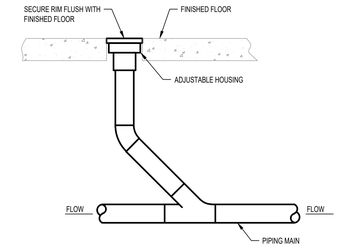
1. ELECTRICAL ROOMS, TECHNOLOGY/DATA CLOSETS, EXIT STAIRWELLS, AND ELEVATOR EQUIPMENT ROOMS UNDER NO CIRCUMSTANCES SHALL HAVE PIPING, DUCTWORK, OR EQUIPMENT INSTALLED IN OR ROUTED THROUGH EXCEPT FOR BRANCH PIPING OR DUCTWORK SPECIFICALLY SERVING THE ROOM OR AREA. DEDICATED SPACE SHALL EXTEND VERTICALLY FROM FLOOR TO STRUCTURAL CEILING.
2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND PROPER INSTALLATION OF ALL PLUMBING SYSTEMS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY OFFSETS AND FITTINGS WHICH MAY BE REQUIRED DUE TO SPACE CONSTRAINTS OR OTHER CONDITIONS. NOTIFY ENGINEER IMMEDIATELY SHOULD ANY CONFLICTS ARISE BETWEEN THE INFORMATION PRESENTED AND THE FIELD CONDITIONS.
3. CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH THE REQUIREMENTS OF ALL NOTES SHOWN ON CONTRACT DOCUMENTS PRIOR TO BID OF PROJECT. REFER TO DRAWINGS, SPECIFICATIONS AND DRAWINGS OF OTHER DISCIPLINES FOR ANY ADDITIONAL REQUIREMENTS.
4. CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING PROCESS AND FIELD VERIFY EXISTING CONDITIONS. CONTRACTOR SHALL TAKE ALL INTERFERENCES INTO CONSIDERATION
5. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF LOCAL CODES AND ORDINANCES.
6. DO NOT ROUTE ANY WATER CONVEYING PIPING OVER ELECTRICAL EQUIPMENT.
7. ROUTE ALL OVERHEAD PIPING TIGHT TO THE BUILDING STRUCTURE.
8. PROVIDE STOP VALVES AT EVERY FIXTURE ON BOTH HOT AND COLD WATER SUPPLY LINES. VALVES, FITTINGS, ESCUTCHEONS, ETC. SHALL BE CHROME PLATED.
9. MAINTAIN ALL MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES FOR ALL EQUIPMENT.

KEY NOTES (#)

1. CONNECT NEW SAN PIPING TO EXISTING SANITARY PIPING IN SPACE AS REQUIRED. FIELD VERIFY SIZE, INVERT, DIRECTION OF FLOW AND LOCATION PRIOR TO ROUGH IN.
2. EXTEND NEW VENT PIPING AND CONNECT TO EXISTING VENT PIPING IN SPACE AS REQUIRED. FIELD VERIFY EXACT LOCATION OF VENT PIPING PRIOR TO ROUGH-IN.
3. EXTEND NEW CW PIPING AND CONNECT TO EXISTING IN SPACE AS REQUIRED. FIELD VERIFY EXACT SIZE LOCATION PRIOR TO ROUGH-IN.
4. PROVIDE ASSE 1070 THERMOSTATIC MIXING VALVE EQUAL TO LEONARD MODEL 270-LF. SET TEMERATURE TO 110°F
5. SHUT-OFF VALVES AND THERMOSTATIC MIXING VALVE SHALL BE MOUNTED BELOW THE SINK, DRAINAGE PIPING AND TRAP SHALL BE COVERED WITH ADA WRAP.
6. PIPE 3/4" FROM ASME RATED T&P VALVE EQUAL TO CODE APPROVED AIR GAP OVER TO SERVICE SINK.
7. PROVIDE THERMAL EXPANSION TANK EQUAL TO STATE MODEL ETC-2X. ADJUST EXPANSION TANK AIR CHARGE TO MATCH INCOMING WATER PRESSURE (FIELD VERIFY)
8. PIPE DRIP PAN FULL SIZE TO CODE APPROVED AIR GAP OVER SERVICE SINK.

PLUMBING LEGEND

CO	CLEANOUT
EWH	ELECTRIC WATER HEATER
TPV	TRAP PRIMER VALVE
SAN	SANITARY SEWER PIPING
V	VENT PIPING
CW	DOMESTIC COLD WATER PIPING
HW	DOMESTIC HOT WATER PIPING
(E)	EXISTING PIPING TO REMAIN
	POINT OF CONNECTION

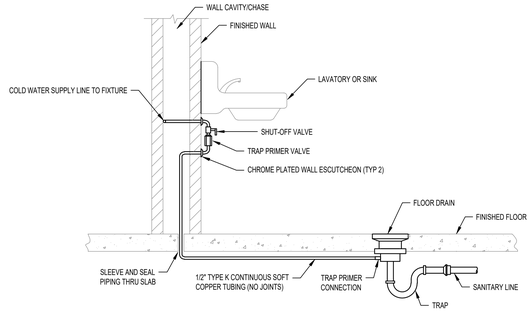


WATER HEATER DETAIL
N.T.S.

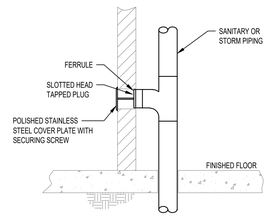
NOTE:

1. CLEANOUT SHALL BE THE SAME SIZE AS THE PIPE TO WHICH IT IS CONNECTED UP TO 4". FOR PIPES LARGER THAN 4", THE MINIMUM SIZE OF THE CLEANOUT IS 4".

FLOOR CLEANOUT DETAIL
N.T.S.



TRAP PRIMER DETAIL
N.T.S. (SINGLE DRAIN)



WALL CLEANOUT DETAIL
N.T.S.

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NO.	DATE	DESCRIPTION

DATE:	06/13/19
DRAWN BY:	TBA
PROJECT NO.:	19139

PLUMBING PLAN, DETAILS, & SCHEDULES

P-1.0

PLUMBING SPECIFICATIONS

Section 15010 - General Requirements

A. General
1. Specifications are applicable to all contractors and/or subcontractors for mechanical systems.
2. Check other plans and specifications and fully coordinate with other trades, owner and architect requirements.
3. Conform to all general and special conditions of contract as specified by architect and/or owner.
4. Visit site, check facilities and conditions and make all necessary observations and measurements. Note conditions under which work is to be performed and take all items into consideration in bid.
5. Systems are to be complete and workable in all respects, placed in operation and properly adjusted.
6. Each contractor shall provide for his own clean-up, removal and legal disposal of all rubbish daily.
7. Contractor shall protect his work, his existing and adjacent property against weather.
8. Contractor to protect his work, materials, apparatus and fixtures from damage. Any work damaged by failure to provide protection required, shall be removed and replaced with new material at the contractor's expense.
9. Contractor must confirm all utility company requirements and connection points in field, prior to starting work.
10. Arrange for and obtain owner's and insurance representative's permission for any service shutdowns.
11. The contractor shall be solely responsible for construction means, methods, sequences of construction and the safety of workmen.
12. No piping, ductwork, wiring, etc., shall be installed or routed above electrical panels and equipment.
13. The mechanical contractor shall coordinate with the electrical contractor and obtain a written approval identifying the electrical characteristics of all mechanical equipment prior to ordering of equipment. No additional payment will be made for lack of contractor coordination of electrical characteristics.
14. During construction the contractor may uncover an existing condition that will have to be modified. Any such work which comes under the jurisdiction of this contractor shall be done by this contractor without extra cost to the owner, as though fully detailed on plans and/or described in the specifications.
15. Work related to the existing building shall be coordinated to minimize interference or interruption of normal building use by owner. Refer to architectural plans for phasing requirements.

B. Codes, permits, standards and regulations
1. Conform to all applicable codes (local, state, national codes, NFPA, OSHA, etc.), government regulations, utility company requirements, and applicable standards.
2. Obtain permits and pay all fees. Arrange for all required inspections and approvals.

C. Related work specified elsewhere
1. Openings and chases, when shown on architectural drawings.
2. Temporary water service, sanitary facilities, fire protection and heating during construction.
3. Poured-in-place concrete.
4. Finished painting.
5. Electric power wiring.

D. Drawings
1. The systems as shown on mechanical drawings are diagrammatic. Confirm all dimensions by field measurement.
2. The exact locations for fixtures, equipment and piping which is not covered by drawings, shall be obtained from the architect or his representative in the field and the work shall be laid out accordingly.
3. Drawings and specifications are intended to supplement one another. Any materials or labor called for in one but not the other shall be furnished as if both were mentioned in the specifications and shown on the drawings.

E. Base equipment, materials and substitutions
1. All equipment and materials shall be new, free of defects and UL labeled.
2. Base bid manufacturers are included in the specification or listed in schedules on the drawings. All other manufacturers are considered substitution.
3. The name or make of any article, device, material, form of construction, fixture, etc., stated in this specification, whether or not the words "or approved equal" are used, shall be known as a "standard".
4. All proposals shall be based on "standards" specified.
5. The equipment schedules on the drawings indicate manufacturers equipment model numbers that this design has been based on. The use of other manufacturer's equipment that is listed as acceptable alternates that entails general trades, structural, mechanical, electrical, etc., revisions is this contractor's responsibility. Any additional cost of such changes shall be paid by the contractor submitting the acceptable alternates which necessitates changes in installing such submitted alternate equipment, even though such costs may be part of another division of work.
6. Substitutions are subject to the approval of the owner. If a substitution is submitted, it is the contractor's responsibility to evaluate it and certify that the substitution is equivalent in all respects to the base specifications.
7. If substitutions are approved, notify all other contractors, subcontractors, etc., affected by the substitution and fully coordinate with them. Any costs resulting from substitution, whether by this contractor or others, shall be the responsibility of and paid for by the substituting contractor. Approved shop drawings do not absolve this contractor from this responsibility.
8. All equipment shall be installed in full accordance with the manufacturer's data and installation instructions. It is this contractor's responsibility to check and conform these requirements prior to starting work.

F. Warranty
1. Fully warrant all materials, equipment and workmanship for one (1) year from date of acceptance.
2. Extend all manufacturer's warranties to owner, including five (5) year compressor and ten (10) year heat exchanger extended warranty on HVAC equipment.
3. Repair or replace without charge to the owner all items found defective during the warranty period. In the case of replacement or repair due to failure within the warranty period, the warranty on that portion of the work shall be extended for a minimum period of one (1) year from the date of such replacement or repair.

G. Shop drawing submittals
1. Submit shop drawings for mechanical, plumbing and fire protection systems, including but not limited to sheetmetal, plumbing fixtures and equipment with adequate details and scales to clearly show construction. Indicate the operating characteristics for each required item. Clearly identify each item on the submittal as to mark, location and use, using the same identification as provided on the construction documents.
2. Sheetmetal and fire protection drawings shall be fully dimensioned and coordinated based on field verified building clearances and architectural ceiling layouts. Indicate structural, lighting, ductwork and piping at all critical locations.
3. Contractor shall review and indicate his approval of each shop drawing prior to submittal for review. Shop drawings will not be reviewed by the engineer unless the contractor's approval is noted. Do not start work or fabrication until shop drawings have been reviewed by the engineer and returned to the contractor.
4. Submittals will be reviewed only for general compliance with the contract documents and not for dimensions or quantities. The submittal review shall not relieve the contractor of responsibility for purchase of any item in full compliance with the contract documents or its complete and proper installation.
5. Where submittals vary from the contract requirements, the contractor shall clearly indicate on submittal or accompanying documents the nature and reason for the variations.
6. Each manufacturer or his representative must check the application of his equipment and certify at time of shop drawing submittal that the equipment specified has been properly applied and can be installed, serviced and maintained where indicated on the drawings. Advise engineer in writing with submittal drawings of any potential problems. The manufacturer shall be responsible for any changes that might be necessary because of physical characteristics of equipment that have not been called to the engineer's attention at the time of submittal.

H. Record Drawings
1. Each contractor or subcontractor shall keep one (1) complete set of the contract drawings on the job site on which he shall regularly record any deviations or changes from such contract drawings made during construction.
2. These drawings shall record the installed location of all concealed equipment, piping, electric service, sewers, wastes, vents, ducts, conduit, etc., by measure dimensions to each such item from column centerlines or readily identifiable and accessible walls or corners of the building. Plans also shall show invert elevation of sewers and top elevation of all other below-grade lines.
3. Record drawings shall be kept clean and undamaged and shall not be used for any purpose other than recording deviations from working drawings and exact locations of concealed work.
4. After the project is completed, these drawings shall be delivered to the architect in good condition, as a permanent record of the installation as actually constructed.

Section 15050 - Basic Materials and Methods

A. General
1. Provide all materials, labor, equipment, and accessories required to furnish and install the mechanical items identified in this section.
2. This section includes basic mechanical materials and methods to complement other division 15 sections in this specification and requirements indicated on the mechanical drawings.

B. Excavation and Backfill
1. Perform all excavation and backfill required for installation of below-grade piping.
2. Excavate as required to install piping at required depth and pitch. Pipe to be laid on sand bedding to give uniform bearing along length of pipe (sand inside building and interlocking aggregate outside building).
3. Backfill with bedding material to a minimum of twelve (12) inches above top of pipe and compact. Balance of backfill in indoor grass areas shall be clean earth up to six (6) inches above surrounding grades. Backfill below finished floors shall be sand, and outdoors under paving shall be interlocking aggregate and backfill shall be compacted in maximum twelve (12) inch layers.
4. All other excavations shall be backfilled with clean earth, excluding rubbish and boulders. Backfill shall be thoroughly tamped and puddled.
5. Patch floor to match existing adjacent surfaces.

C. Supports and Hangers
1. Hangers and supports are to be provided to properly support, secure and align piping and to meet field conditions and as manufactured by Grinnell or Michigan.
2. Spacing to comply with ASHRAE standards and local code requirements.

D. Escutcheons
1. Fit all pipe passing through walls, floors or ceilings in finished rooms with steel or brass escutcheons. Where surface is to receive a paint finish make escutcheons prime painted; otherwise make escutcheons nickel or chrome plated. Where piping is insulated, fit escutcheons outside insulation.

E. Pipe Identification
1. Identify each pipe, valve in equipment rooms, above accessible ceilings and in accessible shafts.
2. Color code identification bands or marker backgrounds to identify contents of pipe and direction of flow located near each valve and fitting, on both sides of pipe passing through walls and on long runs at not over 20 foot intervals.

F. Access Panels
1. Contractor shall be responsible for providing all required access panels necessary for his work. This includes any access panels required for HVAC, plumbing and fire protection. Contractor shall also provide access panels for any existing conditions as required.
2. Refer to architectural drawings and specifications for type of access panel and coordinate locations prior to any work.

G. Firestopping
1. All openings through fire rated walls, floors, and/or roofs for ductwork, piping, etc., shall be fire sealed with calcium salicate, silicone "RTV" foam, "3M" fire rated sealants, Hilti Firetop Systems, or approved equal to maintain the intended fire rating and associated UL ratings.

SECTION 15050 (cont.)

H. Cutting, Patching and Drilling
1. All cutting and patching of the building construction required for this work shall be by this contractor unless shown on architectural drawings and confirmed as to size and location prior to new construction. Cutting shall be in a neat and workmanlike manner.
2. Neatly saw cut all rectangular openings, set sleeve through opening, and finish patch or provide trim flange around opening.
3. Neatly saw cut floors and patch floor to match existing, including floor covering.
4. Contractor shall field verify slab-on-grade or supported floor construction type prior to cutting. Under no circumstances shall this contractor cut a structural floor slab, whether on grade or supported, without prior written approval from the architect. If floor slab indicated to be cut on mechanical plans is found to be structural in nature, do not cut. Contact architect immediately for further directions.
5. Core drill and sleeve all round openings.
6. Do not cut any structural components without architect's written approval, including, but not limited to roof joists, columns, floor joists, beams, girders, structural floor slabs, etc.
7. Patch and finish to match adjacent areas that have been cut, damaged or modified as a result of the installation of the plumbing systems. Fire stop all penetrations of fire rated construction in a code approved manner.
8. All contractors shall confirm with owner, prior to bid, times available for noise producing work such as cutting and core drilling of floors, walls, etc., as well as times for work which requires access into adjoining tenant spaces. Include any premium time in bid.
9. The plumbing contractor shall coordinate with the general contractor prior to construction. The plumbing contractor shall provide information regarding openings in walls, floors, etc., concrete equipment pads and foundations to the general contractor. IF the plumbing contractor fails to comply with this request, or if incorrect information is given, the necessary cutting and patching will be performed by the general contractor, at the mechanical contractor's expense.

Section 15100 - Insulation

A. General
1. Furnish all material, labor and equipment as required to install complete plumbing and HVAC insulation as indicated on mechanical drawings and in these specifications.
2. Install in full accordance with manufacturer's recommendations.

B. Plumbing Insulation (as manufactured by Owens Corning, Knauf or Schuller)
1. Insulate all above grade hot and cold water piping with molded fiberglass having an all service jacket.
B.a. Insulation thickness schedule:
1.1. Less than (<) 1-1/2" diameter pipe: 3/4" thick.
1.2. 1-1/2"-8" diameter pipe: 1" thick.
2. Include insulation of fittings and valves. Keep vapor barriers intact. Apply to manufacturer's recommendations.
3. Handicapped lavatory insulation - insulate all exposed waste and water supply piping under lavatory with safety covers per ADA requirements as manufactured by Plumberex Specialty Products, McGuire or Truebro.
4. Repair sections of existing piping insulation damaged or damaged during this construction period. Use insulation of same thickness as existing insulation, install new jacket lapping and sealed over existing.

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Section 15200 - Piping and Valves

A. General
1. Furnish all material, labor, equipment, and accessories as required to install complete plumbing and HVAC piping systems as indicated on plumbing and mechanical drawings and in these specifications.
2. Install in full accordance with local code requirements, other specification section requirements and manufacturer's recommendations.

B. Connections to equipment furnished by others
1. Provide valved water connection for equipment furnished by other contractors or owner.
2. Include accessories required by code, drawing or manufacturer's instructions.

C. Sanitary
1. Install sanitary, vents, drains, etc., as indicated on the drawings.
2. Sewers to be pitched a minimum of 1/4" per foot for 3" sizes and under and 1/8" per foot for 4" sizes and larger or to grades indicated on drawings.
3. Changes in direction and branch connections shall be made with approved drainage fittings compatible with the piping system material in which it is installed.
4. Install cleanouts at each change in a direction of piping greater than 45 degrees.
5. All fixtures and sanitary drains shall be vented as indicated on drawings and in accordance with code.
6. PVC piping shall not be installed unless permitted by code and shall not be installed in return air plenums.
7. Sanitary and vent material shall be as follows:
C.a. Below grade sanitary
7.1. Service weight - cast iron pipe ASTM A-74-82 with ASTM C-564-80 neoprene compression joints or no-hub with clamps.
7.2. PVC-DWV plastic ASTM D-1785 with ASTM D-2665 DWV solvent weld socket fittings.

C.b. Above grade sanitary and vent material shall be as follows:
7.1. No-hub cast iron pipe CISPI 1-301-78.
7.2. PVC-DWV plastic ASTM D-1785 with ASTM D-2665 DWV solvent weld socket fittings.
7.3. SCH. 40 galvanized steel pipe ASTM A-120-83 with cast iron screwed fittings ANSI B-16.22 1983.

D. Domestic Water Piping
1. Install domestic water piping as indicated on drawings. Include all fittings, valves, hangers, and other accessories including water meter and backflow preventer. Extend domestic water piping to all fixtures and equipment required for complete installation.
2. Include unions, or other disconnect means, stops or valves for isolation of fixtures and equipment. Valves to be fully compatible with piping for service intended as manufactured by Nibco, Crane or Milwaukee. Include hose or drain valves at low points where fixtures cannot be used for drainage.
3. Install shock absorbers at each quick closing fixture and where required to prevent water hammer as manufactured by J.R. Smith, Sioux Chief or Zurn.
4. Hangers on insulated pipe to be outside of insulation, sized accordingly with a sufficient saddle to protect insulation as manufactured by Grinnell or Michigan.
5. Domestic water piping shall be as follows:
D.c. Above grade - type "L" hard copper ASTM B 88-832 with wrought copper fittings ASTM B 16.22 1980 and non-lead or antimony solder joints.
D.d. Below grade - type "K" soft copper without joints.
6. Flush, vent and sanitize all water piping with chlorine as required per AWWA, local building department and health department codes.
7. Domestic hot and cold water piping under concrete floor to be covered with sand so that piping will not become embedded in the floor slab.
8. All piping under concrete floor shall be type "K" soft copper, continuous. No splices or fittings will be allowed.
9. Extreme caution must be taken so that no copper piping and insulation under concrete floors becomes crushed, cut, split or deformed during the pouring of the floor slab.

E. Fire Protection Piping
1. See Section 15300, Fire Protection Systems.

F. Firestopping
1. See Section 15050, Basic Materials and Methods.

Section 15300 - Fire Protection Systems

A. General
1. Furnish all labor, materials and equipment as required to install a complete fire protection system for project.

B. Design Basis
1. Design basis for system shall be per NFPA 13 (latest edition) and local code requirements.
2. System shall be hydraulically calculated as required by code.
3. Pipe sizes indicated on drawing are approximate and shall be verified per the contractor's hydraulic calculations.

C. Drawings and Calculations
1. Contractor shall prepare submittal drawings and hydraulic calculations for space in accordance with owner's insurance company building department, and local fire authority requirements.
2. Contractor shall perform a flow test data on city water main and submit data with calculations.
3. Contractor and designer shall be state certified.

D. Piping
1. All piping shall be installed in accordance with NFPA 13, 14 (latest edition) and local code requirements.
2. Fire protection piping shall be as follows:
D.a. Inside building - pipe and tubing shall be steel or copper in accordance with NFPA requirements.
D.b. Piping shall match existing building standards.
D.c. Contractor shall arrange with owner and insurance underwriter prior to shut down of existing systems.
D.d. Flush all piping upon completion of project and test per NFPA requirements.
D.e. No piping shall be installed at locations subject to freezing.

E. Sprinkler Heads
1. Sprinkler heads shall be UL listed, match existing building standards and be manufactured by Central, Star or Viking.
2. Sprinkler heads shall be as follows:
E.a. Areas with exposed structure
2.1. Upright - rough brass.
E.b. Areas with ceilings
2.2. Recessed Pendent - chrome plated with matching two (2) piece, flush escutcheon.
2.3. Concealed - brass finish with off-white ceiling cover plate.
2.4. Sidewall - chrome plated with off-white, two (2) piece, semi-recessed escutcheon.
3. Install higher temperature sprinkler heads where required by code or application.
4. Submit samples of sprinkler heads to architect prior to fabrication of any piping.

F. Valves
1. Install all valves as required by NFPA 13, UL or FM listed and as manufactured by Grinnell, Hammond or Milwaukee.
2. All shut-off valves shall be fitted with tamper switches by fire protection contractor and wired by electrical contractor. Tamper switches shall be as manufactured by Notifier, Potter or Viking.

G. Firestopping
1. See Section 15050, Basic Materials and Methods.

Section 15400 - Plumbing Fixtures and Equipment

A. General
1. Furnish all fixtures and equipment indicated and scheduled on drawings, complete with all accessories, controls, etc., as required.
2. Install in full accordance with manufacturer's recommendations and place in satisfactory operation.

Section 15950 - Testing, Adjusting and Balancing

A. General
1. After installation, check all equipment and perform start up in accordance with the manufacturer's instructions.
2. All piping shall be tested and free of leaks as required by the local authority having jurisdiction.
3. Work that is scheduled to be concealed or insulated shall remain uncovered until required tests have been completed. If the construction schedule requires, arrange for tests on sections of the system at a time.
4. Balance all systems, calibrate controls, check for proper operation and sequence under all conditions and make all necessary adjustments.
5. Instruct owner in operation of systems and submit operating and maintenance manual for all equipment and systems.
6. Submit air and water balance report from independent AABC or NEBB certified subcontractor for all air and water systems per AABC or NEBB standards.
7. Submit the final certified test and balance report to the Landlord for approval.

B. Balancing, Start Up and Instructions
1. After equipment is placed in operation, systems shall be balanced to within 10% of design flow with report submitted to owner. Balancing shall be performed by an independent AABC or NEBB certified contractor.
2. Contractor shall adjust and/or replace as necessary the fan and motor pulleys and sheaves to achieve the design air flow within 10%.
3. Balance the air systems prior to balancing refrigerant systems.
4. Test, adjust and balance cooling systems during summer season and heating systems during winter season. Balance systems when the outside air conditions are within 5 degrees F wet bulb temperature of the maximum summer design condition and within 10 degrees F dry bulb temperature of the minimum winter design condition.
5. Start up and place all systems in operation and tag all switches and controls with permanent labels.
6. Instruct owner on proper operation and preventative maintenance of system.

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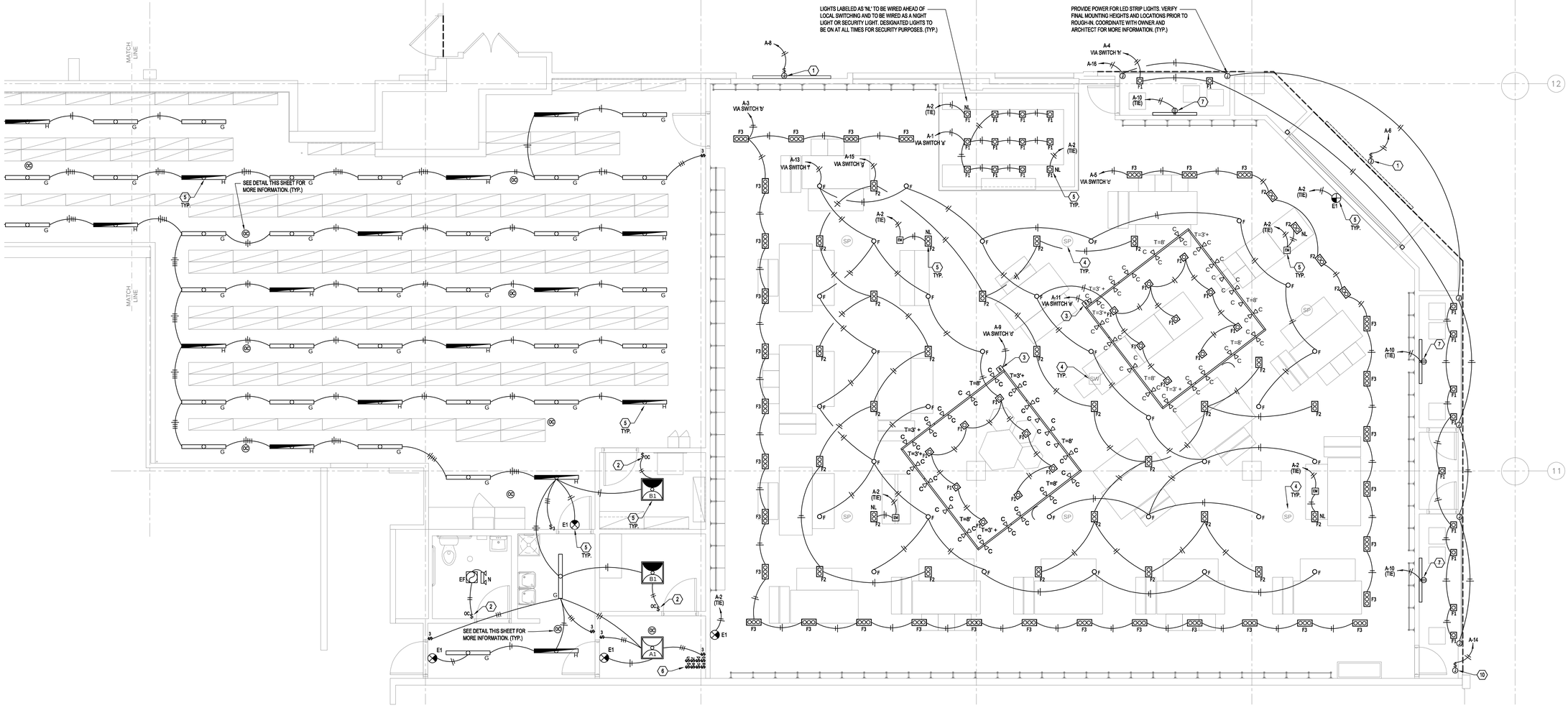
STATE OF MARYLAND
MATTHEW J. LIPPERT
No. 42112
PROFESSIONAL ENGINEER

NO.	DATE	DESCRIPTION

DATE:	06/13/19
DRAWN BY:	TBA
PROJECT NO.:	19139

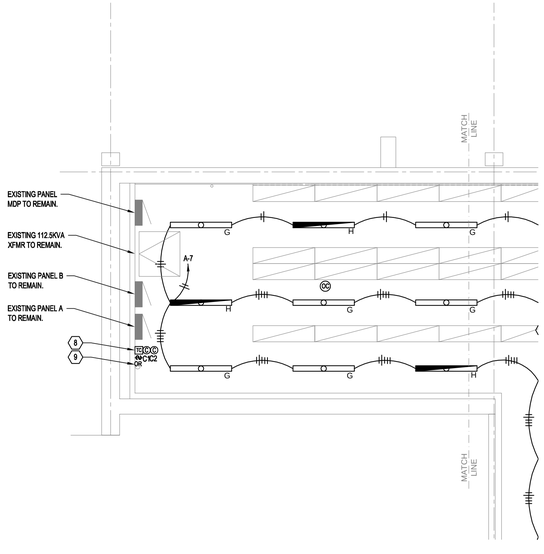
PLUMBING SPECIFICATIONS

P-2.0



ELECTRICAL LIGHTING PLAN

1/4" = 1' - 0"

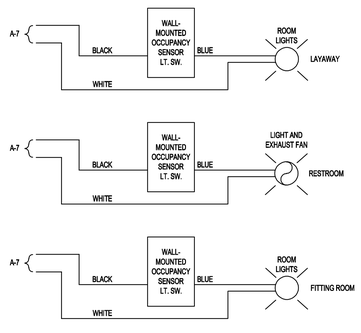


GENERAL NOTES:

A. ALL LIGHTING SHALL BE CONTROLLED VIA TIME CLOCK AND CONTACTORS OR OCCUPANCY SENSORS. MANUAL OVERRIDE SWITCHES SHALL ALSO BE INSTALLED IN THE STOCKROOM FOR OPERATION OF THE SALES FLOOR GENERAL LIGHTING. REFER TO SHEET E-3.0 FOR MORE INFORMATION.

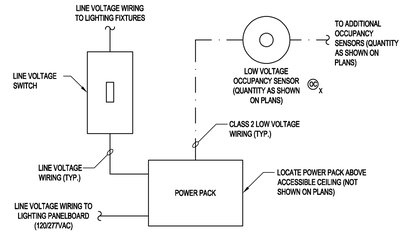
KEY NOTES: (#)

1. NEW JUNCTION BOX AND WHIP FOR STOREFRONT SIGN. COORDINATE WITH SIGN SHOP DRAWINGS FOR FINAL CONNECTION AND LOCATION. GC TO PROVIDE ACCESS PANEL IF NECESSARY.
2. INDICATED ROOMS SHALL HAVE OCCUPANCY SENSORS INSTALLED. MOUNT ON WALL NEXT TO DOOR.
3. PROVIDE IN-LINE CURRENT LIMITERS FOR COMPLIANCE WITH THE ENERGY CODE. SIZE AS SHOWN ON PLAN. CURRENT LIMITERS TO MATCH MAKE/FINISH OF TRACK LIGHTING.
4. CONNECT SPEAKER TO MUSIC SYSTEM IN NETWORK RACK. REFER TO VENDOR DRAWINGS AND CABLE INSTALL MANUAL FOR MORE INFORMATION.
5. WIRE NIGHT LIGHTS/SEURITY LIGHTS, EMERGENCY, AND EXIT LIGHTS AHEAD OF ALL SWITCHING.
6. PROVIDE LOCAL SWITCHES FOR MANUAL CONTROL OF LIGHTING.
7. PROVIDE POWER FOR GRAPHIC LIGHT BOX. COORDINATE FINAL LOCATION AND MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
8. PROVIDE TIMECLOCK FOR MASTER CONTROL OF CONTACTORS C1 AND C2. COORDINATE SETTINGS WITH STORE OPERATIONS.
9. PROVIDE MANUAL OVERRIDE SWITCH (OR) FOR MASTER CONTROL OF TIMECLOCK AND CONTACTORS. SWITCH SHALL BE A TIMED OVERRIDE TYPE. MAXIMUM TIME SETTING OF FOUR (2) HOURS.
10. NEW JUNCTION BOX AND WHIP FOR ILLUMINATED BLADE SIGN. COORDINATE WITH SIGN SHOP DRAWINGS FOR FINAL CONNECTION AND LOCATION. GC TO PROVIDE ACCESS PANEL IF NECESSARY.



OCCUPANCY SENSOR SCHEMATIC DIAGRAM

N.T.S.



NOTES:

1. SENSOR SWITCH IS SHOWN AS THE BASIS OF DESIGN. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND OTHER ACCEPTABLE MANUFACTURERS. IF ANY OF THE OTHER ACCEPTABLE MANUFACTURERS ARE USED, NOTE THAT THEIR EXACT REQUIREMENTS, COMPONENTS AND WIRING WILL LIKELY DIFFER AND THE CONTRACTOR IS RESPONSIBLE TO PROVIDE A COMPLETE, OPERATIONAL SYSTEM EQUIVALENT TO THAT SHOWN.
2. WIRING DIAGRAMS ARE DIAGRAMMATIC AND SHOWN FOR REFERENCE ONLY. REFER TO MANUFACTURER'S WIRING DIAGRAMS FOR ALL REQUIRED COMPONENTS AND WIRING.
3. INSTALL LOW VOLTAGE WIRING IN 3/4" CONDUIT (MIN.).
4. REFER TO MANUFACTURER'S LATEST LITERATURE FOR REQUIRED WIRING SIZES. INCREASE AS REQUIRED FOR VOLTAGE DROP.
5. MOUNT POWER PACK IN DEEP JUNCTION BOX IF REQUIRED PER LOCAL AHJ.
6. LOW VOLTAGE WIRING IS NOT SHOWN ON PLANS AND NOT ALL LINE VOLTAGE WIRING IS SHOWN ON PLANS. PROVIDE ALL REQUIRED LINE AND LOW VOLTAGE WIRING FOR A COMPLETE, FUNCTIONAL SYSTEM.
7. SOME AREAS HAVE OCCUPANCY SENSOR CONTROL ONLY (NO LINE VOLTAGE SWITCHES) AS SHOWN ON PLANS.

TYPICAL LOW VOLTAGE OCCUPANCY SENSOR WIRING DIAGRAM

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REGISTERED PROFESSIONAL ENGINEER 22837 MICHAEL T. BAKER 6/17/19

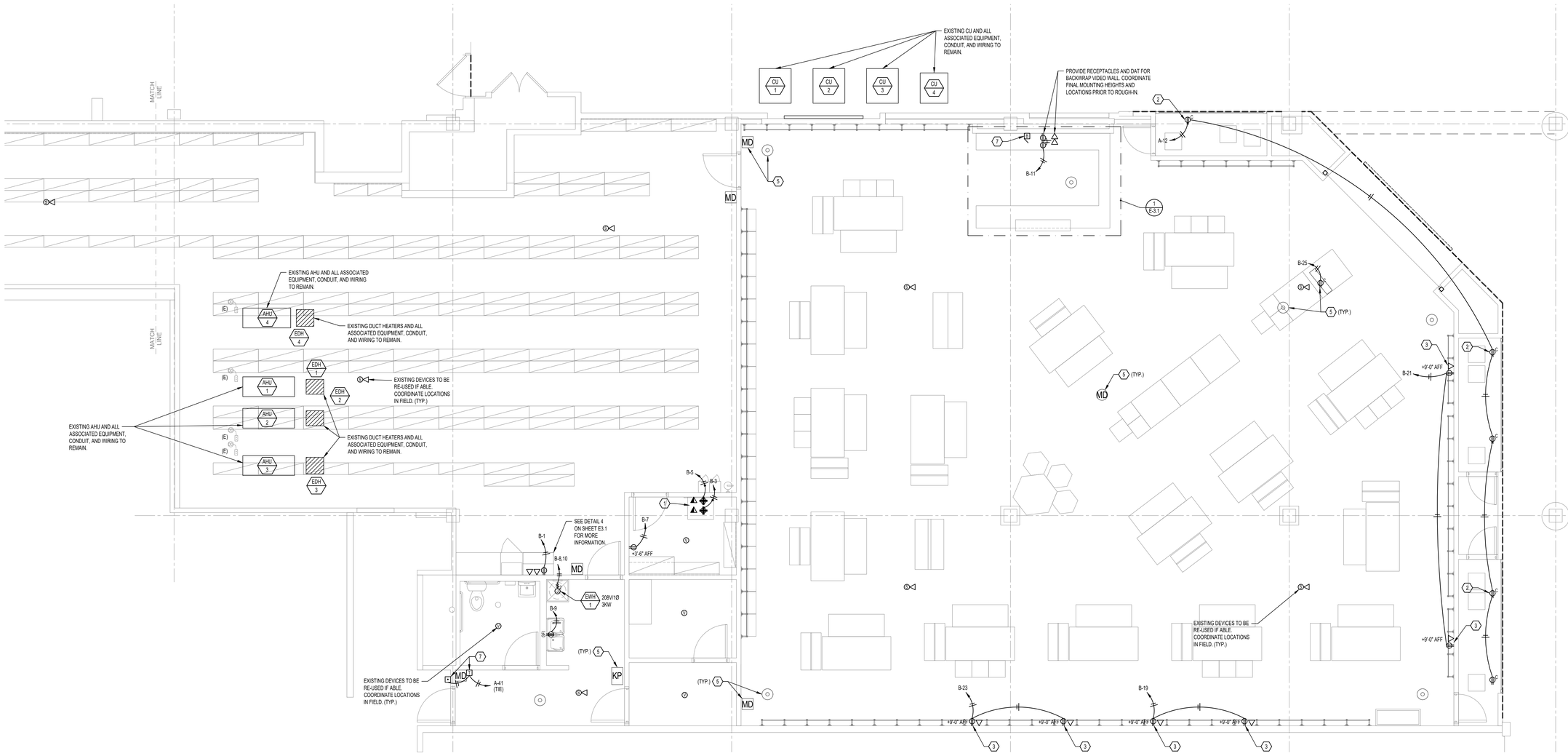
Professional certification. I hereby certify that these documents were prepared or approved by me, and I am duly licensed professional engineer under the laws of the State of Maryland, License No. 22837, Expiration Date: 09-17-2020

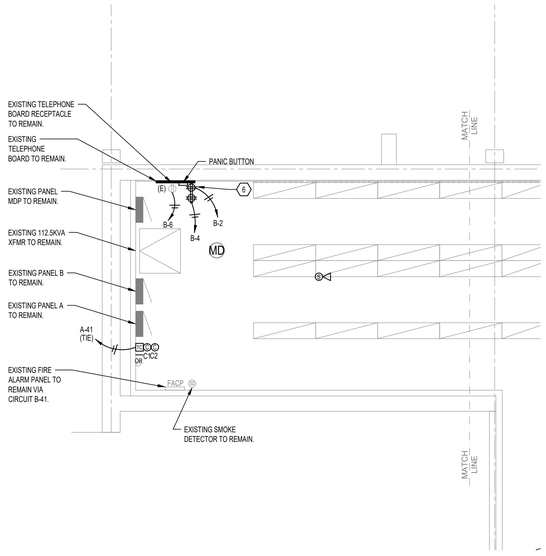
NO.	DATE	DESCRIPTION

DATE:	06/13/19
DRAWN BY:	TBA
PROJECT NO.:	19139

ELECTRICAL LIGHTING PLAN

E-1.0





SECURITY EQUIPMENT LEGEND	
SYMBOL	DESCRIPTION
DC	DOOR CONTACT
MD	360° MOTION DETECTOR - CEILING MTD.
MD	MOTION DETECTOR - CEILING MTD.
P/VM	PERSONAL VIEW MONITOR
KP	KEYPAD
	CAMERA - CEILING MTD.

NOTE: EQUIPMENT SHOWN FOR REFERENCE ONLY. COORDINATE ALL SECURITY EQUIPMENT LOCATION WITH OWNER AND SECURITY VENDOR PRIOR TO INSTALLATION. CONTRACTOR TO INSTALL ELECTRICAL / DATA AS REQUIRED AT CAMERA LOCATIONS. MONITOR, CAMERAS, AND MOTION DETECTORS FURNISHED AND INSTALLED BY VENDOR. REFER TO CABLE INSTALL MANUAL FOR MORE INFORMATION.

ELECTRICAL POWER PLAN

1/4" = 1' - 0"

KEY NOTES: (#)

1. SEE SHEET E-3.1 FOR NETWORK RACK DETAIL FOR INSTALLATION INSTRUCTIONS.
2. NEW SHOW WINDOW RECEPTACLES PER. NEC 210.62. ROUTE VIA TIMECLOCK AS SHOWN ON SHEET E3.0
3. WALL-MOUNTED DUPLEX RECEPTACLES AND DATA FOR LED DIGITAL SCREENS. MOUNT AT HEIGHT PER ARCHITECTURAL DRAWINGS. COORDINATE LOCATIONS WITH OWNER PRIOR TO ROUGH-IN. GC TO PROVIDE CAT 6 BACK TO DATA RACK IN LAYAWAY ROOM.
4. NOT USED.
5. SECURITY EQUIPMENT. REFER TO SECURITY EQUIPMENT SCHEDULE, THIS SHEET AND CABLE INSTALL MANUAL FOR MORE INFORMATION. COORDINATE WITH VENDOR.
6. DEDICATED QUAD RECEPTACLE FOR VECTOR SECURITY SYSTEM. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.
7. DELIVERY BUZZER SYSTEM. REFER TO DETAIL #2 ON SHEET E-3.1 FOR MORE INFORMATION.

GENERAL NOTES:

A. ALL ELECTRICAL DEVICE COVERPLATES IN THE SALES AREA SHALL MATCH THE COLOR OF ANY ADJACENT MATERIALS.

B. ANY PENETRATION THROUGH A FIRE RATED ASSEMBLY SHALL BE SEALED TO PRESERVE THE FIRE RATING.

C. ALL NEW FIRE ALARM DEVICES SHALL MATCH EXISTING FIRE ALARM SYSTEM MANUFACTURER.

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Professional certification. I hereby certify that these documents were prepared or approved by me, and I am duly licensed professional engineer under the laws of the State of Maryland, License No. 22837, Expiration Date: 09-17-2020.

NO.	DATE	DESCRIPTION

DATE:	06/13/19
DRAWN BY:	TBA
PROJECT NO.:	19139

ELECTRICAL POWER PLAN

E-2.0

FIRE ALARM SYSTEM NOTES:

1. THE BUILDING CONTAINS AN EXISTING FIRE ALARM SYSTEM AS MANUFACTURED BY EDWARDS. THE EXISTING SYSTEM SHALL BE MODIFIED AND UPGRADED AS REQUIRED TO ACCOMMODATE THE PROPOSED AREAS OF RENOVATIONS. THE INTENT IS TO FURNISH AND INSTALL NEW DEVICES AND EQUIPMENT WITHIN THE PROPOSED AREAS OF RENOVATION, UNLESS DIRECTED OTHERWISE.

2. THE FIRE ALARM SYSTEM MUST BE INSTALLED IN ACCORDANCE WITH PLANS AND SPECIFICATIONS AND MUST MEET ALL STATE & LOCAL CODE REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL CODE REQUIRED DOCUMENTS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
   A. A FLOOR PLAN WHICH INDICATES THE USE OF ALL ROOMS.
   B. LOCATIONS OF ALARM-INITIATING AND NOTIFICATION APPLIANCES.
   C. ALARM CONTROL AND TROUBLE SIGNALING EQUIPMENT.
   D. ANNUNCIATION.
   E. POWER CONNECTION.
   F. BATTERY CALCULATIONS.
   G. CONDUCTOR TYPE AND SIZES.
   H. VOLTAGE DROP CALCULATIONS.
   I. MANUFACTURERS, MODEL NUMBERS AND LISTING INFORMATION FOR EQUIPMENT, DEVICES AND MATERIALS.
   J. DETAILS OF CEILING HEIGHT AND CONSTRUCTION.
   K. THE INTERFACE OF FIRE SAFETY CONTROL FUNCTIONS.
   THESE DOCUMENTS MUST BE PREPARED BY A CERTIFIED FIRE ALARM DESIGNER AND MUST BE SUBMITTED TO THE LOCAL AUTHORITIES FOR REVIEW AND APPROVAL PRIOR TO START OF WORK.

3. A STAMPED SET OF APPROVED FIRE ALARM DRAWINGS SHALL BE AT THE JOB SITE AND SHALL BE USED FOR INSTALLATION.

4. UPDATE AN AS-BUILT DRAWING SET DAILY WITH JOB PROGRESS. PROVIDE AN AS-BUILT DRAWING SET TO OWNER NO LATER THAN 7 DAYS AFTER FINAL TEST.

5. EQUIPMENT: ALL DEVICES, COMBINATIONS OF DEVICES, APPLIANCES AND EQUIPMENT SHALL BE LISTED FOR THE PURPOSE FOR WHICH THEY ARE USED AND SHALL BE INSTALLED IN COMPLIANCE WITH APPLICABLE CODES, STANDARDS AND MANUFACTURER'S INSTRUCTIONS.

6. SYSTEM DEVICES, BACK-BOXES, AND ENCLOSURES MUST BE RATED FOR THE ENVIRONMENT WHICH IT IS INSTALLED. FURNISH AND INSTALL CONDUIT SEALS WHERE RACEWAYS PASS BETWEEN CONDITIONED AND UNCONDITIONED SPACES.

7. NOTIFICATION DEVICE COVERS SHALL BE WHITE WITH RED LETTERING, UNLESS OTHERWISE REQUIRED.

8. ALL WIRING SHALL BE IN CONDUIT, UNLESS DIRECTED OTHERWISE. DO NOT RUN ANY OTHER WIRING IN THE SAME CONDUIT WITH ALARM WIRING. DO NOT RUN 120VAC WIRING WITH ALARM WIRING. ALL WIRE TO BE SHIELDED CABLE. ALL LABOVES ASSOCIATED WITH THE SUPERVISORY ALARM SYSTEM SHALL BE SPRAY PAINTED "FIRE ENGINE" RED.

9. ALL WIRE & CABLE MUST BE RATED PER THE LATEST REVISION OF THE NATIONAL ELECTRIC CODE SECTION 760.

10. CONFIRM ALL WIRING REQUIREMENTS WITH THE MANUFACTURER OF THE PROPOSED FIRE ALARM EQUIPMENT BEING FURNISHED PRIOR TO BID AND PROVIDE IN ACCORDANCE THEREWITH. WIRING SHOWN ON THIS DIAGRAM REPRESENTS THE MINIMUM SIZE REQUIRED. WIRE SIZES SHALL BE INCREASED AS REQUIRED FOR VOLTAGE DROP.

11. FIRE ALARM CIRCUITS SHALL BE IDENTIFIED IN ACCORDANCE WITH APPROPRIATE SECTION OF NEC 760. MARK ALL FIRE ALARM WIRES IN ACCORDANCE WITH NEC 760 SECTIONS FOR POWER LIMITED AND NON-POWER LIMITED WIRE.

12. WIRING SHALL BE CONTINUOUS FROM ONE DEVICE TO THE NEXT. SPLICING IS PROHIBITED.

13. THE TYPICAL WIRING DIAGRAM IS NOT INTENDED TO SHOW QUANTITIES OF DEVICES. REFER TO PLANS FOR QUANTITIES.

14. WHERE PROPOSED ROUTING OF SYSTEM CONDUIT AND WIRING IS INDICATED ON PLANS, DETAILS AND DIAGRAMS, SAID ROUTING IS DIAGRAMMATIC. EXACT ROUTING OF CONDUITS AND WIRING TO BE DETERMINED IN THE FIELD BY THE INSTALLING CONTRACTOR TO SUIT CONDITIONS. INSTALLATION SHALL COMPLY WITH CODE AND PROJECT REQUIREMENTS. ALL MODIFICATIONS SHALL BE CLEARLY INDICATED ON THE RECORD DRAWINGS.

15. ALL CONDUCTORS INCLUDING SHIELDS MUST TEST FREE OF OPENS, SHORTS & GROUNDS BEFORE MAKING CONNECTIONS TO THE FIRE ALARM CONTROL PANEL.

16. EACH FIRE ALARM PANEL AND ANCILLARY EQUIPMENT REQUIRES A DEDICATED 120VAC CIRCUIT. RUN 3-#12 (INCLUDES THE GREEN GROUND WIRE) FROM A 20 AMP CIRCUIT BREAKER. PROVIDE A LOCK-ON CLIP & RED MARKING ON THE BREAKER AND IDENTIFY AS "FIRE ALARM CIRCUIT CONTROL." THE LOCATION OF THE CIRCUIT DISCONNECTING MEANS (CIRCUIT BREAKER) SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL PANEL AND ANCILLARY EQUIPMENT.

17. DO NOT APPLY POWER TO SYSTEM EXCEPT IN THE PRESENCE OF A FACTORY TRAINED TECHNICAL REPRESENTATIVE.

18. INSTALLATION OF SYSTEM DEVICES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. POWER LIMITED AND NON-POWER LIMITED FIELD WIRING MUST BE INSTALLED WITHIN EQUIPMENT ENCLOSURES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NEC.

19. STROBES SHALL BE WIRED SEPARATELY FOR SYNCHRONOUS OPERATION. PROVIDE SYNCHRONIZATION MODULES AS REQUIRED TO COMPLY WITH CODE.

20. SMOKE DETECTOR HEADS MUST BE INSTALLED FREE OF DUST OR ANY OTHER CONTAMINATION. SMOKE DETECTORS SHALL NOT BE MOUNTED WITHIN 3'-0" OF A SUPPLY OR RETURN AIR GRILLE. COORDINATE SMOKE DETECTOR LOCATIONS WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.

21. IN ALL ROOMS REQUIRING SMOKE DETECTION, IF THERE IS NOT A SMOOTH, FLAT CEILING, THEN DETECTION SHALL BE SPACED PER NFPA 72. IF THERE ARE BEAM DEPTHS LESS THAN 10% OF THE CEILING HEIGHT (0.1 X H), SMOOTH CEILING SPACES SHALL BE PERMITTED. IF THERE ARE BEAM DEPTHS EQUAL OR GREATER THAN 10% OF THE CEILING HEIGHT (0.1 X H), AND THE BEAM SPACING IS EQUAL TO OR GREATER THAN 40% OF THE CEILING HEIGHT (0.4 X H), SPOT SMOKE DETECTORS SHALL BE LOCATED ON THE CEILING IN EACH BEAM POCKET PER NFPA 72 2007, 5.7.3.2.4.

22. DUCT DETECTORS SHALL HAVE REMOTE TEST STATIONS INSTALLED IN AN ACCESSIBLE LOCATION AND BE CLEARLY LABELED TO INDICATE THEIR FUNCTION AND THE MECHANICAL UNIT ASSOCIATED WITH EACH DETECTOR. DUCT DETECTOR TEST STATIONS SHALL BE LOCATED AS CLOSE TO THE APPLIANCES AS POSSIBLE FOR EASE IN LOCATING AND UNLESS ASSOCIATED WITH ROOF TOP MECHANICAL UNITS
   A. IF THERE IS A DROP CEILING, THE REMOTE TEST STATIONS SHALL BE MOUNTED IN CEILING TILES BELOW THE DUCT DETECTORS.
   B. IF THERE IS A HARD CEILING, THE REMOTE TEST STATIONS SHALL BE LOCATED IN THE CEILING NEXT TO A MINIMUM OF A 2'x4' OR 3'x3' ACCESS PANEL LOCATED BELOW THE DUCT DETECTOR.
   C. IF THERE IS NO CEILING, THE REMOTE TEST STATIONS SHALL BE MOUNTED ON A PILLAR OR WALL AS CLOSE TO THE DEVICE AS POSSIBLE.

23. THE LOCATION OF ALL DETECTORS IN AIR DUCT SYSTEMS SHALL BE PERMANENTLY AND CLEARLY IDENTIFIED AND RECORDED.

24. ALL DETECTORS NOT ACCESSIBLE STANDING AT FINISHED FLOOR SHALL BE PROVIDED WITH A REMOTE TEST SWITCH WITH INDICATOR LIGHT. LOCATIONS OF ALL FIRE ALARM REMOTE TEST STATIONS SHALL BE LABELED PER LOCAL LOCAL AUTHORITY REQUIREMENTS. TEST STATION LOCATIONS SHALL BE FIELD VERIFIED WITH LOCAL AUTHORITY PRIOR TO ROUGH-IN.

25. DUCT DETECTORS SHALL BE INSTALLED AND POSITIONED TO ALLOW EASY ACCESS FOR PERIODIC INSPECTION AND TESTING.

26. FURNISH AND INSTALL A KNOX BOX AS REQUIRED BY LOCAL FIRE DEPARTMENT. EXACT QUANTITIES AND LOCATIONS AS DETERMINED BY LOCAL AUTHORITY. KNOX BOX MANUFACTURER SHALL BE AS REQUIRED BY LOCAL AUTHORITY. PROVIDE AN ADDRESSABLE MONITOR MODULE WHEN REQUIRED.

27. THE FIRE ALARM SUPPLIER SHALL PROVIDE A COPY OF THE PROGRAMMING CODES AND OPERATION MANUALS IN A SLEEVED BINDER ATTACHED TO THE FIRE ALARM CONTROL PANEL.

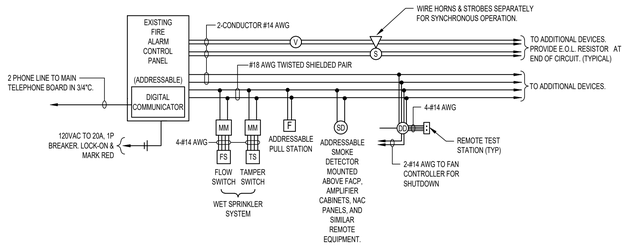
28. PROVIDE CONNECTION TO REMOTE SUPERVISION AS DIRECTED FOR SUPERVISION OF SYSTEM IN COMPLIANCE WITH LOCAL AUTHORITY & OWNER. PROVIDE ALL INTERFACE REQUIRED TO INITIATE REMOTE SUPERVISION.

29. PROVIDE & INSTALL A CEILING MOUNTED SMOKE DETECTOR IN FRONT OF FIRE ALARM CONTROL PANEL AND EACH REMOTE MOUNTED AUXILIARY PANEL IN ADDITION TO THE DEVICES SHOWN ON THE FLOOR PLANS.

30. PROVIDE & INSTALL MANUAL STATIONS WHERE REQUIRED BY LOCAL AUTHORITIES TO MEET THE REQUIREMENTS OF NFPA-72 SECTION 3-8.1.2 IN ADDITION TO THE DEVICES SHOWN ON THE PLANS. VERIFY WITH LOCAL AUTHORITY PRIOR TO BIDDING & INDICATE COST IN BID PRICE.

31. INCLUDE ON-SITE SERVICES OF A CERTIFIED TECHNICIAN TO PROVIDE TECHNICAL INSTALLATION SUPPORT FOR EQUIPMENT START UP, PROGRAM EDITING, TROUBLESHOOTING OF THE SYSTEM, AND ASSISTANCE TO THE INSTALLER FOR ONE COMPLETE FINAL SYSTEM CHECKOUT.

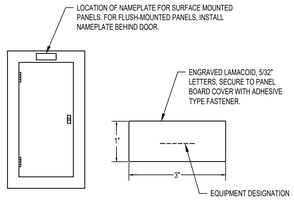
32. THE COMPLETED FIRE ALARM SYSTEM SHALL BE FULLY TESTED IN ACCORDANCE WITH NFPA-72, AND LOCAL AND STATE CODE REQUIREMENTS, BY THE INSTALLER, IN THE PRESENCE OF THE G.C., OWNER'S REPRESENTATIVE AND AUTHORITY HAVING JURISDICTION. UPON COMPLETION OF A SUCCESSFUL TEST, THE INSTALLER SHALL SO CERTIFY, IN WRITING, TO THE OWNER AND GENERAL CONTRACTOR.



TYPICAL FIRE ALARM DEVICE WIRING DIAGRAM

N.T.S.

- – – – INDICATES EXISTING EQUIPMENT/CONDUIT/WIRING, UNLESS INDICATED OTHERWISE
- ——— INDICATES EQUIPMENT/CONDUIT/WIRING INSTALLED UNDER THIS CONTRACT
- — — INDICATES FUTURE EQUIPMENT/CONDUIT/WIRING, UNLESS INDICATED OTHERWISE

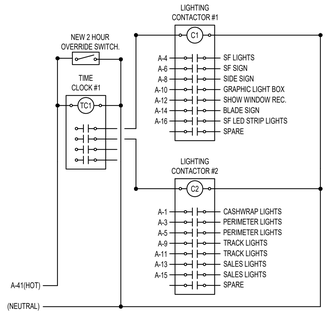


NOTE:
NAMEPLATES ARE REQUIRED ON ALL SWITCHBOARDS, DISTRIBUTION PANELS, PANEL BOARDS, STARTERS, DISCONNECT SWITCHES, RELAYS AND JUNCTION BOXES GREATER THAN 4 1/11/0" SQUARE. ALSO PROVIDE NAMEPLATES ON BRANCH SWITCHES OF SWITCHBOARDS AND DISTRIBUTION PANELS.

STANDARD COLORS:
1. NORMAL POWER - BLACK BACKGROUND, WHITE LETTERS
2. EMERGENCY POWER - RED BACKGROUND, WHITE LETTERING
3. IN ADDITION TO THE FUNCTION NAMEPLATE, PROVIDE NAMEPLATES IDENTIFYING ALL "MAIN SERVICE NAMEPLATE DISCONNECTS" - RED BACKGROUND - WHITE LETTERING

NAMEPLATE DETAIL

N.T.S.



NOTES:
1. MOUNT CONTACTORS IN PROPER NEMA ENCLOSURE FOR ENVIRONMENT.
2. ALL CONTACTORS SHALL BE MECHANICALLY-HELD WITH 2-WIRE CONTROL MODULE.
3. ACCEPTABLE MANUFACTURERS ARE ASCO AND SQUARE "D".
4. T/C - TIMECLOCK, INTERMATIC #ET1725 MOUNTED IN LAYAWAY CLOSET.
5. COORDINATE WITH OWNER FOR SCHEDULING.

LIGHTING CONTROL DIAGRAM

NTS

ELECTRICAL LOAD SUMMARY 120/208V

LOAD DESCRIPTION	CONNECTED LOAD (KVA)	LOAD DESCRIPTION	DEMAND LOAD (KVA)
GENERAL LIGHTING:	14.9	CONTINUOUS LOAD x 1.25 =	18.6
TRACK LIGHTING:	1.6	TRACK (CURRENT LIMITED) 15A=	1.9
SHOW WINDOW (LTG + RECEPT):	0.0	SHOW WINDOW (53' x 0.2) =	10.6
HVAC (INCLUDING ALL MOTORS):	6.8	CONTINUOUS LOAD x 1.25* =	6.8
RECEPTACLES:	0.0	FIRST 10KW LOAD x 100% + REMAIN / 2 =	0.0
WATER HEATER:	3.0	CONTINUOUS LOAD x 1.25:	3.8
MISCELLANEOUS:	6.0	NONCONTINUOUS LOAD x 100% =	6.0
TOTAL CONNECTED LOAD:	32.3	TOTAL DEMAND LOAD:	47.7

COMPUTED SERVICE DEMAND LOAD OF 47.7 KVA @ 120/208V-3Ø-4W = 132.4 AMPS — EXISTING TRANSFORMER

* - INCLUDES 125% OF THE LARGEST MOTOR.

ELECTRICAL LOAD SUMMARY 277/480V

LOAD DESCRIPTION	CONNECTED LOAD (KVA)	LOAD DESCRIPTION	DEMAND LOAD (KVA)
GENERAL LIGHTING:	14.9	CONTINUOUS LOAD x 1.25 =	18.6
TRACK LIGHTING:	1.6	TRACK (CURRENT LIMITED) 15A=	1.9
SHOW WINDOW (LTG + RECEPT):	0.0	SHOW WINDOW (53' x 0.2) =	10.6
HVAC (INCLUDING ALL MOTORS):	86.0	CONTINUOUS LOAD x 1.25* =	86.0
RECEPTACLES:	0.0	FIRST 10KW LOAD x 100% + REMAIN / 2 =	0.0
WATER HEATER:	3.0	CONTINUOUS LOAD x 1.25:	3.8
MISCELLANEOUS:	6.0	NONCONTINUOUS LOAD x 100% =	6.0
TOTAL CONNECTED LOAD:	111.5	TOTAL DEMAND LOAD:	126.9

COMPUTED SERVICE DEMAND LOAD OF 126.9 KVA @ 120/208V-3Ø-4W = 152.6 AMPS — EXISTING 200A SERVICE

* - INCLUDES 125% OF THE LARGEST MOTOR.

PANELBOARD NOTES

1. "1" INDICATES BREAKER SHALL BE "SWD" RATED.
2. "2" INDICATES BREAKER SHALL BE "HACR" RATED.
3. "3" INDICATES BREAKER SHALL BE 5 mA "G.F.I." TYPE.
4. "4" INDICATES BREAKER SHALL BE SHUNT-TRIP TYPE.
5. "5" INDICATES BREAKER TO BE "ARC-FAULT" TYPE.
6. "6" INDICATES BREAKER TO HAVE LOCK-ON CLIP.
7. "7" INDICATES BREAKER TO HAVE LOCK-ON CLIP AND RED MARKING.
8. "C-#" INDICATES DESIGNATION OF CONTACTOR CONTROLLING CIRCUIT. SEE CONTACTOR SCHEDULE.
9. ALL BREAKERS SHALL BE 20A/1P, UNLESS NOTED OTHERWISE.
10. * INDICATES E.C. SHALL PROVIDE NEW BREAKER AS SHOWN.

(EXISTING)

PANELBOARD DESIGNATION A

120/208 VOLTS, 3 PH., 4 WIRE SOLID NEUTRAL, MOUNTING: FLUSH -
250 AMPERE BUS, 150 AMPERE MAIN, CIRCUIT BREAKER, SURFACE X
SPECIAL REQUIREMENTS

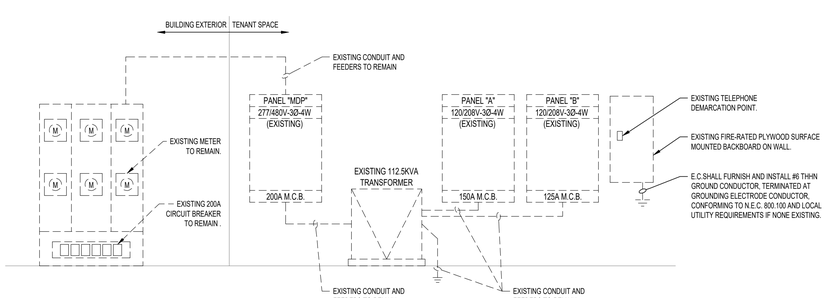
CKT NO.	KVA	DESCRIPTION	A	B	C	DESCRIPTION	KVA	CKT No.	
C-2	1	0.3	CASHWRAP LIGHTS	0.6		EMERGENCY/EXIT LIGHTS	0.3	2	6
C-2	3	1.5	PERIMETER LIGHTS		1.8	STOREFRONT LIGHTS	0.3	4	C-1
C-2	5	0.7	PERIMETER LIGHTS		1.9	SIGN	1.2	6	C-1
6	7	1.3	STOCKROOM LIGHTS	2.5		SIDE SIGN	1.2	8	C-1
C-2	9	0.8	TRACK LIGHTS		1.8	GRAPHIC LIGHT BOX	1.0	10	C-1
C-2	11	0.8	TRACK LIGHTS	1.8		SHOW WINDOW REC.	1.0	12	C-1
C-2	13	1.0	SALES LIGHTS		2.0	BLADE SIGN	1.0	14	C-1
C-2	15	1.1	SALES LIGHTS	2.6		SF LED STRIP LIGHTS	1.5	16	C-1
	17	*	SPARE		*	SPARE	*	18	
	19	*	SPARE	*		SPARE	*	20	
	21	*	SPARE		*	SPARE	*	22	
	23	*	SPARE		*	SPARE	*	24	
	25	1.5	(E) AHU-1	(E)15/2 1.5		SPARE	*	26	
	27	1.5			1.5	SPARE	*	28	
	29	0.6	(E) AHU-2	(E)15/2	(E)20/3	(E) SPARE	*	30	
	31	0.6		0.6			*	32	
	33	0.8	(E) AHU-3	(E)15/2	(E)30/3	(E) SPARE	*	34	
	35	0.8		0.8			*	36	
	37	0.5	(E) AHU-4	(E)15/2 0.5			*	38	
	39	0.5		0.5			*	40	
	41	0.2	TIMECLOCK	0.2		-	*	42	

KVA SUB TOTALS: 7.7 | 9.0 | 5.3

TOTAL CONNECTED LOAD 22.0 KVA

ONE-LINE DIAGRAM NOTES

1. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE AVAILABLE FAULT CURRENT WITH THE UTILITY COMPANY PRIOR TO BIDDING AND PROVIDE EQUIPMENT RATED ACCORDINGLY. SUBMIT FAULT CURRENT CALCULATIONS WITH SHOP DRAWING SUBMITTAL.
2. ALL CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE.
3. PROVIDE NAMEPLATES PER NAMEPLATE DETAIL.
4. COORDINATE SPACE WITH ALL OTHER TRADES TO MAINTAIN ALL CODE-REQUIRED CLEARANCES.
5. REFER TO ELECTRICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
6. THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH NEC ARTICLE 110.16 FOR LABELING OF PANELS FOR ARC FLASH HAZARD WARNING AS WELL AS FOLLOWING REQUIRED SAFETY PRECAUTIONS WHEN SERVICING OR MAINTAINING ELECTRICAL EQUIPMENT.
7. HVAC CIRCUIT BREAKERS TO BE "HACR" TYPE WHERE REQUIRED BY EQUIPMENT NAMEPLATE PER N.E.C
8. ELECTRICAL CONTRACTOR SHALL BALANCE PANELS AND ELECTRICAL EQUIPMENT TO ±10% BETWEEN PHASES: A/B, B/C, A/C REGARDLESS OF CIRCUITING INDICATED.
9. PROPER CLEARANCE MUST BE MAINTAINED ABOUT ELECTRICAL EQUIPMENT PER N.E.C.. FIELD VERIFY EXACT MOUNTING SPACE AVAILABLE IN ELECTRICAL ROOM / AREA PRIOR TO INSTALLATION OF ELECTRICAL EQUIPMENT.
10. ELECTRICAL CONTRACTOR SHALL MAKE FINAL ELECTRICAL CONNECTIONS FOR A COMPLETE ELECTRICAL DISTRIBUTION SYSTEM.
11. GROUNDING ELECTRODE SYSTEM CONDUCTORS SHALL BE COPPER.
12. CONDUCTORS SHALL BE COPPER, UNLESS NOTED OTHERWISE.
13. FEEDER ROUTING IS DIAGRAMMATIC ONLY. ACTUAL ROUTING OF FEEDERS (OVERHEAD OR UNDERGROUND) IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.



ELECTRICAL ONE-LINE DIAGRAM

N.T.S. 120/208VAC-3Ø-4W & 277/480VAC-3Ø-4W

- – – – INDICATES EXISTING EQUIPMENT/CONDUIT/WIRE, UNLESS NOTED OTHERWISE
- ——— INDICATES EQUIPMENT/CONDUIT/WIRE INSTALLED UNDER THIS CONTRACT
- — x — INDICATES EXISTING EQUIPMENT/CONDUIT/WIRE TO BE REMOVED COMPLETE, UNLESS NOTED OTHERWISE

(EXISTING)

PANELBOARD DESIGNATION MDP

277/480 VOLTS, 3 PH., 4 WIRE SOLID NEUTRAL, MOUNTING: FLUSH -
200 AMPERE BUS, 200 AMPERE MAIN, CIRCUIT BREAKER, SURFACE X
SPECIAL REQUIREMENTS

CKT NO.	KVA	DESCRIPTION	A	B	C	DESCRIPTION	KVA	CKT No.	
1	3.3	(E) CU-1	(E)15/3 6.6		(E)20/3	(E) DH-1	3.3	2	2
3	3.3			6.6			3.3	4	
5	3.3		(E)15/3		6.6	(E)15/3	3.3	6	
7	3.3	(E) CU-2	6.6		(E)15/3	(E) DH-2	3.3	8	
9	3.3			6.6			3.3	10	
11	3.3		(E)15/3		6.6	(E)15/3	3.3	12	
13	3.3	(E) CU-3	6.6		(E)15/3	(E) DH-3	3.3	14	
15	3.3			6.6			3.3	16	
17	3.3		(E)15/3		6.6	(E)15/3	3.3	18	
19	3.3	(E) CU-4	6.6		(E)15/3	(E) DH-4	3.3	20	
21	3.3			6.6			3.3	22	
23	3.3			6.6			3.3	24	
25	*	SPACE	*			SPACE	*	26	
27	*	SPACE		*		SPACE	*	28	
29	*	SPACE			*	SPACE	*	30	
			11.5		(E)175/3	(E) TRANSFORMER SUBFEED	11.5		
				12.7			12.7		
					8.1		8.1		

KVA SUB TOTALS: 18.2 | 16.3 | 17.4

TOTAL CONNECTED LOAD 111.5 KVA

NOTE:
FADED TEXT INDICATES EXISTING CIRCUITING TO REMAIN. BOLD TEXT INDICATES NEW AND/OR MODIFIED EQUIPMENT/CIRCUITING.

(EXISTING)

PANELBOARD DESIGNATION B

120/208 VOLTS, 3 PH., 4 WIRE SOLID NEUTRAL, MOUNTING: FLUSH -
250 AMPERE BUS, 125 AMPERE MAIN, CIRCUIT BREAKER, SURFACE X
SPECIAL REQUIREMENTS

CKT NO.	KVA	DESCRIPTION	A	B	C	DESCRIPTION	KVA	CKT No.	
1	0.5	MANAGERS DESK	1.0			SECURITY SYSTEM	0.5	2	
3	0.5	NETWORK RACK		1.0		MUSIC SYSTEM	0.5	4	
5	0.5	NETWORK RACK			0.9	(E) PHONE BOARD REC.	0.4	6	
7	0.2	LAYAWAY REC.	1.7		(N)20/2	EWH-1	1.5	8	
9	0.3	WATER COOLER		1.8			1.5	10	
11	1.0	CASH WRAP LED VIDEO WALL			1.0	SPARE	*	12	
13	0.4	CASHWRAP	0.4			SPARE	*	14	
15	0.4	CASHWRAP		0.4		SPARE	*	16	
17	0.2	CASHWRAP BACKWRAP			0.2	SPARE	*	18	
19	0.5	LIGHT BOX	0.5			SPARE	*	20	
21	0.5	LIGHT BOX		0.5		SPARE	*	22	
23	0.5	LIGHT BOX			0.5	SPARE	*	24	
25	0.2	SECURITY REC.	0.2			SPARE	*	26	
27	*	SPARE		*		SPARE	*	28	
29	*	SPARE			*	SPARE	*	30	
31	*	SPARE	*		(E)70/3	(E)SPARE	*	32	
33	*	SPARE		*			*	34	
35	*	SPARE			*		*	36	
37	*	SPARE	*			SPARE	*	38	
39	*	SPARE		*		SPARE	*	40	
6	41	0.2	FIRE ALARM CIRCUIT		0.2	SPARE	*	42	

KVA SUB TOTALS: 3.8 | 3.7 | 2.8

TOTAL CONNECTED LOAD 10.3 KVA

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Professional certification. I hereby certify that these documents were prepared or approved by me, and I am duly licensed professional engineer under the laws of the State of Maryland, License No. 22837, Expiration Date: 09-17-2020

NO.	DATE	DESCRIPTION

DATE: 06/13/19
DRAWN BY: TBA
PROJECT NO.: 19139

ELECTRICAL PANEL SCHEDULES & ONE-LINE DIAGRAM

E-3.0

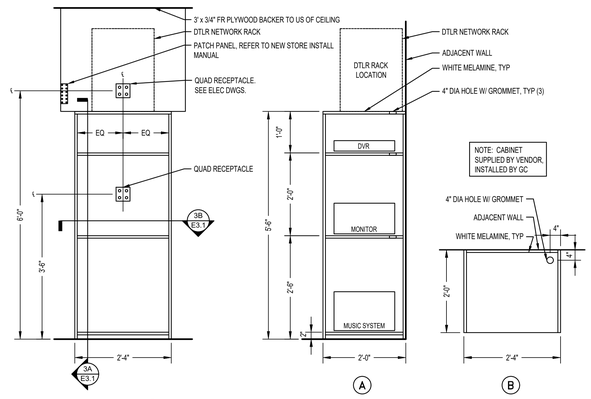
LIGHTING FIXTURE SCHEDULE

SYMBOL	TYPE	MFG	PRODUCT NO.	LAMPING	VOLTS	LOAD	MTG METHOD	MTG. HEIGHT	COMMENTS
	A A1	SPECIALTY LIGHTING	62216-A-T-WH	36W LED	120	36W	LAY-IN	CEILING	SPLENDOR 2X2 LED PANEL TYPE A1 W/ GWB ADAPTER, SECURED TO CEILING
	B B1	SPECIALTY LIGHTING	62216-A-T-WH	36W LED	120	36W	LAY-IN	CEILING	SPLENDOR 2X2 LED PANEL WITH EMERGENCY BALLAST TYPE B1 W/ GWB ADAPTER, SECURED TO CEILING
	TBD	TBD	LED STRIP LIGHTING	LED TAPE	120	NA	EXTERIOR	(TBD)	LED STRIP LIGHTING AT DISPLAY WINDOWS
	C	SOLAIS	REBBECK-XD24-25C-40K/1600-BK-J	20W LED	120	20W	TRACK HEAD	TRACK	COVE TRACK HEAD
	T	CONTECH	LT-X-B SINGLE CIRCUIT TRACK 2', 4', 6', 8' (BLACK)	--	120	NA	CEILING	CEILING	T1# = TRACK LENGTH, SEE ELECTRICAL PLANS FOR LENGTHS & CURRENT LIMITERS (IF APPLICABLE) 1 CIRCUIT TRACK. SEE TYP MOUNTING DETAIL.
	E1	BEST	EZXTEU-2-G-W-EM	LED	120	3.5	UNIVERSAL	SEE ELEVATIONS OR 6" ABOVE EXIT	LED EXIT SIGN W/ UNIVERSAL FACE CONFIGURATION AND MOUNTING. F&I BY GC.
	F	SOLAIS	REBBECK-XR4NC-D-XM24-40C40K/1600-WH/WH	20W LED	120	20W	RECESSED DOWNLIGHT	CEILING	MID-HIGH OUTPUT ROUND RECESSED DOWNLIGHT, DRIVERS RUN TO BACK OF HOUSE AREA.
EM	F1	SOLAIS	REBBECK-XAR11-XM24-25C40K/1600-WH/WH	20W LED	120	20W	RECESSED DOWNLIGHT	CEILING	MID-HIGH OUTPUT ROUND RECESSED DOWNLIGHT, DRIVERS RUN TO BACK OF HOUSE AREA.
	F2	SOLAIS	REBBECK-XAR12-X24-25C 40K/1600-BK/WH	(2) 20W LED	120	40W	RECESSED / ADJUSTABLE	CEILING	2-LIGHT RECESSED MULTIPLE, DRIVERS RUN TO BACK OF HOUSE AREA. **ADD ALTERNATE: TRIMLESS 'N' OPTION.**
	F3	SOLAIS	REBBECK-XAR13-X24-25C 40K/1600-BK/WH	(3) 20W LED	120	60W	RECESSED / ADJUSTABLE	CEILING	3-LIGHT RECESSED MULTIPLE, DRIVERS RUN TO BACK OF HOUSE AREA. **ADD ALTERNATE: TRIMLESS 'N' OPTION.**
	EF	BROAN	A70L - WHITE	A19	120	42.3W	RECESSED	CEILING	FAN / LIGHT COMBO
EM	EM	EVENLITE	APL-NC-UI-CC	MR HALOGEN	120	100W	RECESSED	CEILING	RECESSED RETRACTABLE EMERGENCY LIGHT
	G	GREEN CREATIVE	28319 22.5STRPDIM/840/277V	22.5W LED	120	22.5W	PENDANT / SURFACE	12'-0" AFF / CEILING	SINGLE-LAMP LED NARROW STRIP
	H	GREEN CREATIVE	28319 22.5STRPDIM/840/277V	22.5W LED	120	22.5W	PENDANT / SURFACE	12'-0" AFF / CEILING	SINGLE-LAMP LED NARROW STRIP, W/ EMERGENCY BALLAST (10W EM BACKUP)
	N	BEST	LEDR-1	5W LED	120	5W	SURFACE	CEILING	LED EMERGENCY LIGHTING UNIT F&I BY GC

- ALL FIXTURES TO BE NEW UNLESS NOTED OTHERWISE. EXISTING TO BE RELOCATED FIXTURES NOTED WITH 'XR'. FIXTURES EXISTING TO REMAIN NOTED WITH 'X'.
- WHERE EXISTING FIXTURES ARE TO REMAIN, REPLACE FIXTURES/BALLASTS AND LAMPS AS NEEDED FOR LIKE NEW APPEARANCE AND OPERATION.
- **ALL NEW LIGHTS TO BE 4000K**. RELAMP ANY EXISTING FIXTURES TO 4000K, IF APPLICABLE.
- FIXTURE SUBSTITUTE AS EQUAL ARE ACCEPTABLE FOR BID PURPOSE.

LIGHTING FIXTURE SCHEDULE NOTES:

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND/OR ROOM FINISH SCHEDULE TO DETERMINE PROPER TYPE OF LIGHT FIXTURE REQUIRED FOR THE CEILING CONSTRUCTION PRIOR TO ORDERING THE FIXTURES & PROVIDE FIXTURES THAT ARE COMPATIBLE WITH THE CEILING SYSTEM.
2. ALL BALLASTS FOR LINEAR AND COMPACT FLUORESCENT LAMPS SHALL BE INSTANT START WITH LESS THAN 10% THD. ALL SUCH BALLASTS FOR EXTERIOR FIXTURES SHALL BE COLD WEATHER BALLASTS RATED FOR 0°F OR LOWER. SEE ELECTRICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. WHERE LIGHT FIXTURES ARE NOTED TO HAVE EMERGENCY BALLASTS THE EMERGENCY BALLASTS SHALL PROVIDE A MINIMUM OF NINETY (90) MINUTES OF CODE REQUIRED EMERGENCY LIGHTING. EACH EMERGENCY BALLAST PROVIDED SHALL PRODUCE THE MAXIMUM LUMEN OUTPUT AVAILABLE FOR THE LAMP USED. EMERGENCY LIGHTING BALLASTS SHALL BE BODINE OR APPROVED EQUAL.
4. ALL FIXTURES TO BE NEW UNLESS NOTED OTHERWISE. EXISTING TO BE RELOCATED FIXTURES NOTED WITH 'XR'. FIXTURES EXISTING TO REMAIN NOTED WITH 'X'.
5. WHERE EXISTING FIXTURES ARE TO REMAIN, REPLACE FIXTURES/BALLASTS AND LAMPS AS NEEDED FOR LIKE NEW APPEARANCE AND OPERATION.
6. ALL NEW LIGHTS TO BE 4000K. RELAMP ANY EXISTING FIXTURES TO 4000K, IF APPLICABLE.
7. FIXTURE SUBSTITUTE AS EQUAL ARE ACCEPTABLE FOR BID PURPOSE.



3 A/V & NETWORK RACK DETAIL
N.T.S.

ELECTRICAL SYMBOL LEGEND

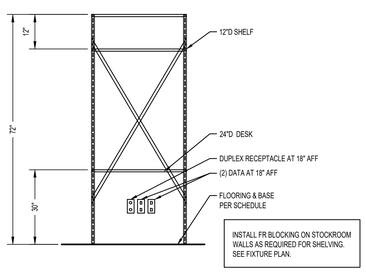
SYMBOL	DESCRIPTION
	CONDUIT WITH WIRING RUN CONCEALED IN OR ABOVE CEILING OR WALL, OR RUN EXPOSED IN UNFINISHED AREAS. CROSS HATCHING INDICATES NUMBER OF CONDUCTORS (#12 AWG - MINIMUM). PROVIDE A CODE-SIZED GROUND WIRE IN ALL CONDUITS IN ADDITION TO THE CONDUCTORS SHOWN. SHADED DOT INDICATES CODE-SIZED ISOLATED GROUND WIRE IN CONDUIT.
	CONDUIT WITH WIRING RUN CONCEALED BELOW FLOOR. CROSS HATCHING INDICATES NUMBER OF CONDUCTORS (#12 AWG - MINUMUM). PROVIDE A CODE-SIZED GROUND WIRE IN ALL CONDUITS IN ADDITION TO THE CONDUCTORS SHOWN. SHADED DOT INDICATES CODE-SIZED ISOLATED GROUND WIRE IN CONDUIT.
	PANELBOARD MOUNTED 6'-6" TO TOP. SEE PANEL SCHEDULES & ELECTRICAL ONE-LINE DIAGRAM.
	DISCONNECT SWITCH - TYPE & RATING AS SHOWN ON PLANS
$	20A - 120V/277V SINGLE POLE TOGGLE SWITCH MOUNTED 48" AFF, UNLESS NOTED OTHERWISE (3 = 3 WAY SWITCH / 4 = 4 WAY SWITCH)
	20A - 125V GROUNDING TYPE DUPLEX RECEPTACLE MOUNTED 18" AFF, UNLESS NOTED OTHERWISE
	20A - 125V GROUNDING TYPE QUADRAPLEX RECEPTACLE MOUNTED 18" AFF, UNLESS NOTED OTHERWISE
	20A - 125V ISOLATED GROUND TYPE QUADRAPLEX RECEPTACLE MOUNTED 18" AFF TO TOP OF BOX, UNLESS NOTED OTHERWISE
GFCI WR	20A - 125V GROUND FAULT CIRCUIT INTERRUPTING TYPE DUPLEX RECEPTACLE MOUNTED 48" AFF, UNLESS NOTED OTHERWISE. PROVIDE WEATHER RESISTANT (WR) FOR ALL DAMP AND WET LOCATIONS.
GFCI	20A - 125V GROUNDING TYPE DUPLEX RECEPTACLE RECESSED MOUNTED FLUSH IN FINISHED CEILING, UNLESS NOTED OTHERWISE. RECEPTACLE AND FACEPLATE FINISH TO MATCH FINISH OF CEILING.
J	JUNCTION BOX - SIZE AS REQUIRED BY NEC
	DATA OUTLET MOUNTED 18" AFF, UNLESS NOTED OTHERWISE, PROVIDE 1"C WITH PULLWIRE TO ACCESSIBLE CEILING SPACE.
	COMBINATION TELEPHONE/DATA OUTLET MOUNTED 18" AFF, UNLESS NOTED OTHERWISE. 1"C WITH PULLWIRE TO ACCESSIBLE CEILING SPACE.
	DUCT-TYPE SMOKE DETECTOR WITH REMOTE TEST STATION PROVIDED & WIRED BY ELECTRICAL CONTRACTOR - INSTALLED IN DUCTWORK BY MECHANICAL CONTRACTOR PER CODE. COORDINATE EXACT LOCATION WITH HVAC CONTRACTOR & MANUFACTURER. PROVIDE CONDUIT & WIRING NECESSARY TO SHUT DOWN HVAC UNIT UPON SMOKE DETECTOR ACTIVATION.
	TIME CLOCK WITH ENCLOSURE RATED FOR APPLICATION. PROVIDE 120V CIRCUIT TO POWER EQUIPMENT. INSTALL AND WIRE PER MANUFACTURER'S INSTRUCTIONS. TYPE AND RATINGS AS INDICATED ON PLANS. ADJUST SETTINGS PER OWNER'S REQUIREMENTS.
C	CONTACTOR - TYPE AND RATING AS INDICATED ON PLANS. REFER TO CONTACTOR SCHEDULE.
T	LOW VOLTAGE TRANSFORMER MOUNTED IN J-BOX SIZED PER NEC. TYPE AND RATINGS PER LOAD BEING SERVED.
	PUSH-BUTTON ASSEMBLY MOUNTED AT 48" AFF TO TOP OF BOX. TYPE AND RATINGS PER LOAD BEING SERVED. MAKE CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS.
B	BUZZER/CHIME ASSEMBLY. MOUNTING, TYPE, RATINGS AS INDICATED ON PLANS. MAKE CONNECTIONS PER MANUFACTURER'S INSTRUCTIONS.
SP	SPEAKER. COORDINATE WITH AUDIO VENDOR FOR INSTALLATION.
SW	SUBWOOFER. COORDINATE WITH AUDIO VENDOR FOR INSTALLATION.
$OC	LINE VOLTAGE PASSIVE INFRARED WALL SWITCH OCCUPANCY SENSOR MOUNTED 48"AFF TO TOP OF BOX, UNLESS NOTED OTHERWISE (OC2 = DUAL RELAY). MANUFACTURER SHALL BE WATTSTOPPER, HUBBELL, SENSOR SWITCH, COOPER CONTROLS, OR LUTRON). CONTROLS SHOULD FUNCTION PER IECC 2015. PROVIDE MANUAL ON AND AUTOMATIC OFF.
OC$_x$	LOW VOLTAGE CEILING MOUNTED OCCUPANCY SENSOR. LOCATE AS DIRECTED PER MANUFACTURER AND PROVIDE STANDARD VS. EXTENDED COVERAGE RANGE AS DIRECTED BY MANUFACTURER. REFER TO TYPICAL LOW VOLTAGE OCCUPANCY SENSOR WIRING DIAGRAM ON SHEET E101. (1 = DUAL TECHNOLOGY 360° COVERAGE PATTERN, 2 = DUAL TECHNOLOGY CORNER MOUNTED WITH WIDE VIEW COVERAGE PATTERN, 3 = PIR NARROW HALLWAY COVERAGE PATTERN). MANUFACTURER SHALL BE WATTSTOPPER, HUBBELL, SENSOR SWITCH, COOPER CONTROLS, OR LUTRON). CONTROLS SHOULD FUNCTION PER IECC 2015. PROVIDE MANUAL ON AND AUTOMATIC OFF.
FACP	FIRE ALARM CONTROL PANEL - SURFACE MOUNTED ON WALL
V	FIRE ALARM VISUAL (STROBE) NOTIFICATION APPLIANCE MOUNTED FLUSH IN FINISHED CEILING. IF NO FINISHED CEILING, PENDANT MOUNT OR SURFACE MOUNT TO ABOVE STRUCTURE, AS INDICATED ON PLANS.
V	FIRE ALARM AUDIO/VISUAL (HORN/STROBE) NOTIFICATION APPLIANCE MOUNTED FLUSH IN FINISHED CEILING. IF NO FINISHED CEILING, PENDANT MOUNT OR SURFACE MOUNT TO ABOVE STRUCTURE, AS INDICATED ON PLANS.
S	SMOKE DETECTOR - SURFACE MOUNTED ON CEILING.

ELECTRICAL ABBREVIATIONS

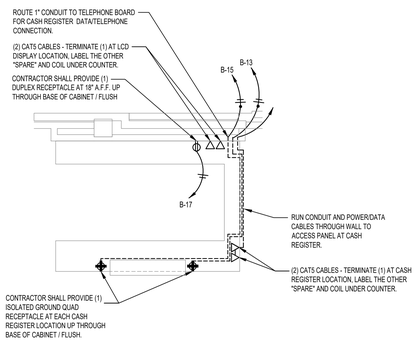
A	AMPS
AC	AIR CONDITIONING UNIT
AFC	ABOVE FINISH COUNTER
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AHU	AIR HANDLING UNIT
AIC	ASYMMETRICAL INTERRUPTING CURRENT
ARCH.	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAGE
BKR	BREAKER
BLDG.	BUILDING
C	CONDUIT
CATV	CABLE TELEVISION
CCTV	CLOSED CIRCUIT TELEVISION
CH	CHILLER
CONTR	CONTRACTOR
CT	COOLING TOWER
CU	COPPER
CUH	CABINET UNIT HEATER
DE	DUAL ELEMENT
DN	DOWN
DS	DISCONNECT SWITCH
DWG.	DRAWING
(E) or EXIST.	EXISTING
EBB	ELECTRIC BASEBOARD
E.C.	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EH	ELECTRIC HEATER
ELEC.	ELECTRICAL
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQ.	EQUAL
ETR	EXISTING TO REMAIN
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
F	FUSE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FC	FAN COIL UNIT
FLUOR	FLUORESCENT
FPB	FAN POWER BOX (VAV)
F.P.C.	FIRE PROTECTION CONTRACTOR
FS	FLOW SWITCH
FT.	FOOT/FEET
G.C.	GENERAL CONTRACTOR
GFI	GROUND FAULT INTERRUPTING PROTECTION
GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING, VENTILATION, AIR CONDITIONING
IG	ISOLATED GROUND
INCAND.	INCANDESCENT
JB	JUNCTION BOX
KCMIL	ONE THOUSAND CIRCULAR MILS
K.E.C.	KITCHEN EQUIPMENT CONTRACTOR
KVA	KILOVOLT AMPERE
KW	KILOWATT
LTG	LIGHTING
MATV	MASTER ANTENNA TV
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
M.C.	MECHANICAL CONTRACTOR
MECH.	MECHANICAL
MFR	MANUFACTURER
MH	METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOD	MOTOR OPERATED DAMPER
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
NEC	NATIONAL ELECTRIC CODE
NF	NON FUSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHTLIGHT
NTS	NOT TO SCALE
Ø or PH	PHASE
P	POLE
PB	PULL BOX
P.C.	PLUMBING CONTRACTOR
PNL	PANEL
PRE	POWER ROOF EXHAUSTER
PVC	POLYVINYL CHLORIDE
R	RELOCATED
RTU	ROOF TOP UNIT
SPKR	SPEAKER
SPST	SINGLE POLE SINGLE THROW
TIE	MULTIPLE OUTLETS WIRED ON SAME BRANCH CICRUIT
TS	TAMPER SWITCH
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TYP.	TYPICAL
UH	GAS FIRED UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UNO	UNLESS NOTED OTHERWISE
UV	UNIT VENTILATOR
V	VOLTS
W	WATTS
WP	WEATHER-PROOF TYPE DEVICE (NEMA 3R RATED)
WR	WEATHER-RESISTANT TYPE DEVICE (NEMA 3R RATED)
XFMR	TRANSFORMER

GENERAL NOTES

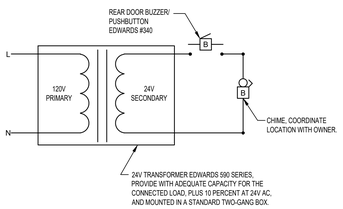
1. FINAL CONNECTIONS TO LIGHT FIXTURES SHALL BE MADE WITH GREENFIELD FLEXIBLE CONDUIT. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL BE 6'-0".
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHT FIXTURES. CONTRACTORS TO COORDINATE LOCATIONS OF LIGHTING, SPEAKERS, AIR DIFFUSERS, GRILLES, SPRINKLER HEADS & THE LIKE, WITH REFLECTED CEILING LAY-OUTS AS REQUIRED & DIRECTED BY THE ARCHITECT.
3. ALL DEVICES, EQUIPMENT, FIXTURES, & THE LIKE, MUST BE GROUNDED BY USE OF A PROPERLY SIZED GROUNDING CONDUCTOR. MECHANICAL/ ELECTRICAL BONDS OF THE METALLIC RACEWAY SYSTEM SHALL ALSO BE MAINTAINED.
4. REFER TO MECHANICAL, PLUMBING, AND FIRE PROTECTION PLANS FOR EXACT LOCATION OF MECHANICAL AND PLUMBING EQUIPMENT. COORDINATE LOCATION OF DISCONNECT SWITCH ASSOCIATED WITH EACH PIECE OF EQUIPMENT WITH RESPECTIVE CONTRACTOR AND INSTALL IN ACCORDANCE WITH THE NEC.
5. REFER TO DIVISION 15 (21, 22 & 23) SPECIFICATIONS, HVAC, PLUMBING AND FIRE PROTECTION PLANS FOR ADDITIONAL ELECTRICAL WORK REQUIREMENTS & COORDINATION.
6. ALL RECEPTACLES SHOWN BACK-TO-BACK IN WALLS SHALL BE SEPARATED HORIZONTALLY BY 6" MINIMUM.
7. WHERE OPEN WIRING METHODS FOR LOW VOLTAGE SYSTEMS ARE PERMITTED BY THE CONTRACT DOCUMENTS AND LOCAL AUTHORITY, THE CONDUCTOR INSULATION MUST BE PLENUM RATED.
8. BRANCH CIRCUIT CONDUCTOR SIZES (& CONDUITS) SHALL BE INCREASED FROM THOSE INDICATED ON THE PLANS TO PREVENT EXCESSIVE VOLTAGE DROP. BRANCH CIRCUITS SHALL BE INSTALLED WITH WIRES OF SUFFICIENT SIZE SO THAT VOLTAGE DROP BETWEEN THE PANEL & THE LOADS DO NOT EXCEED A LIMIT OF 3%.
9. REGARDLESS OF THE TEMPERATURE RATING OF THE CONDUCTOR INSULATION, ALL CONDUCTOR AMPACITY RATINGS FOR THIS PROJECT SHALL BE DETERMINED FROM THE 75°C CONDUCTOR TEMPERATURE RATINGS INDICATED IN THE NEC TABLES. WHERE EQUIPMENT OR DEVICES ARE PROVIDED WITH TERMINALS/LUGS RATED FOR 60°C, THE AMPACITY RATING OF THE 75°C CONDUCTOR SHALL BE LIMITED TO ITS ASSOCIATED 60°C RATING AS INDICATED IN THE NEC TABLES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO INCREASE THE CONDUCTORS AND CONDUIT SIZE AS REQUIRED.
10. ALL 120V AND 277V BRANCH CIRCUITS SHALL BE PROVIDED WITH SEPARATE NEUTRAL CONDUCTORS. SHARED NEUTRALS WILL NOT BE PERMITTED FOR MULTI-CIRCUIT INSTALLATIONS. WHERE MULTIPLE CIRCUITS ARE RUN IN A COMMON RACEWAY, THE AMPACITY OF THE CONDUCTORS SHALL BE PROPERLY DERATED & CONDUIT SHALL BE SIZED PER CODE. UNDER NO CIRCUMSTANCES SHALL MORE THAN SIX (6) CURRENT CARRYING CONDUCTORS BE RUN IN A SINGLE CONDUIT. REFERENCE NEC ARTICLE AND TABLE 310.15(B)(3)(a).
11. ALL CONDUITS SHALL CONTAIN A GROUND CONDUCTOR SIZED PER NEC TABLE #250.122. IN ADDITION, WHERE AN ISOLATED, INSULATED GROUND IS REQUIRED, A SEPARATE GROUND CONDUCTOR WITH GREEN INSULATION SHALL BE RUN FROM THE PANEL GROUND BUS TO THE ISOLATED GROUND CONNECTION OF THE DEVICE. IN NO CASE SHALL THE SYSTEM GROUND (CONDUCTOR & ASSOCIATED OUTLET BOXES, CONDUIT & BUILDING STEEL) BE ALLOWED TO CONTACT THE ISOLATED GROUND (CONDUCTOR & DEVICE). WHERE CIRCUIT CONDUCTORS ARE INCREASED IN SIZE FOR ANY REASON (I.E. VOLTAGE DROP, DERATING, ETC.), THE GROUND CONDUCTOR SIZE SHALL BE INCREASED PROPORTIONATELY (ACCORDING TO CIRCULAR MIL AREA) FROM THE SIZE REQUIRED BY NEC TABLE #250.122.
12. ELECTRICAL INSTALLATION REQUIREMENTS FOR ALL HVAC, PLUMBING, FIRE PROTECTION, SPECIAL SYSTEMS AND OWNER EQUIPMENT BEING FURNISHED BY OTHERS SHALL BE REVIEWED AND COORDINATED WITH OTHER TRADES PRIOR TO ROUGH-IN. OBTAIN EQUIPMENT SHOP DRAWINGS FROM INSTALLER/SUPPLIER/CONTRACTOR/OWNER FURNISHING EQUIPMENT, AS REQUIRED, FOR REVIEW AND COORDINATION. CONTACT ARCHITECT/ENGINEER WITH ANY DISCREPANCIES FOUND BETWEEN CONSTRUCTION DRAWINGS AND EQUIPMENT BEING FURNISHED PRIOR TO ROUGH-IN.
13. THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL ACCESS PANELS, AS REQUIRED FOR SERVICING AND TESTING, FOR EQUIPMENT AND/OR DEVICES FURNISHED UNDER HIS CONTRACT. THE GENERAL CONTRACTOR SHALL INSTALL ACCESS PANELS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE SIZE AND LOCATION OF EACH ACCESS PANEL WITH THE ARCHITECT AND GENERAL CONTRACTOR PRIOR TO ROUGH-IN.
14. ELECTRICAL CONTRACTOR SHALL INCLUDE IN HIS BID ALL CUTTING, TRENCHING AND PATCHING ASSOCIATED WITH THE ELECTRICAL INSTALLATION.
15. ALL PENETRATIONS THROUGH FIRE RATED WALLS ASSOCIATED WITH THE ELECTRICAL INSTALLATION SHALL BE SLEEVED AND FIRE-STOPPED USING A UL APPROVED METHOD. UL APPROVED METHOD SHALL MEET OR EXCEED FIRE RATING OF STRUCTURE BEING PENETRATED. REFERENCE ARCHITECTURAL PLANS FOR FIRE RATED STRUCTURES.
16. NO CONDUIT, BOXES, WIRING, OR CABLES SHALL BE INSTALLED WITHIN 1 1/2" OF THE LOWEST POINT OF THE UNDERSIDE OF THE ROOF DECKING, NOR SHALL THEY BE INSTALLED CONCEALED WITHIN METAL-CORRUGATED ROOF DECKING. FOR EXISTING INSTALLATIONS, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE AND/OR REWORK EXISTING CONDUIT, BOXES, WIRING, AND CABLING THAT IS NOT IN COMPLIANCE WITH THIS REQUIREMENT.
17. ALL ELECTRICAL EQUIPMENT AND DEVICES FOR THIS PROJECT MUST BE UL LISTED. DEVICES, EQUIPMENT, SYSTEMS SHALL BE INSTALLED PER N.E.C. REQUIREMENTS AND MANUFACTURER'S INSTRUCTIONS.
18. ALL CONDUIT AND CABLING SHALL BE PROPERLY SUPPORTED AS REQUIRED BY THE NATIONAL ELECTRICAL CODE. FOR EXISTING INSTALLATIONS, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE AND/OR REWORK EXISTING CONDUIT AND/OR CABLING THAT IS NOT IN COMPLIANCE WITH THIS REQUIREMENT.
19. CONTRACTOR SHALL FIELD VERIFY SLAB ON GRADE FLOOR CONSTRUCTION TYPE PRIOR TO CUTTING. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR CUT A STRUCTURAL FLOOR SLAB THICKER THAN FOUR (4") INCHES WITHOUT PRIOR WRITTEN APPROVAL FROM ENGINEER OF RECORD. NOTIFY ENGINEER OF RECORD OF ANY SLAB THICKNESS GREATER THAN FOUR (4") INCHES PRIOR TO PROCEEDING WITH ANY SAW CUTTING.



4 MANAGER SUPPORT DESK ELEVATION
N.T.S.



1 CASHWRAP/BACKWRAP WIRING DETAIL
N.T.S.



2 DELIVERY BUZZER SCHEDULE
N.T.S.

DTLR
YOUR PERSONAL... YOUR LIFESTYLE
STORE 550

TOWSON TOWN CENTER
SPACE 1070
825 DULANEY VALLEY ROAD
TOWSON, MD 21204

Thorson • Baker + Associates
CONSULTING ENGINEERS
3030 West Streetsboro Road (330) 659-6688 Ph.
Richfield, Ohio 44286 (330) 659-6675 Fax

lga PARTNERS
1426 Forbes Ave. Suite 400 Pittsburgh, PA 15219
P 412.363.3430 F 412.256.4747

Professional certification. I hereby certify that these documents were prepared or approved by me, and I am duly licensed professional engineer under the laws of the State of Maryland, License No. 22837, Expiration Date: 09-17-2020

NO.	DATE	DESCRIPTION

DATE:	06/13/19
DRAWN BY:	TBA
PROJECT NO.:	19139

ELECTRICAL DETAILS

E-3.1

ELECTRICAL SPECIFICATIONS

Section 13851 - Alarm System

B. Fire Alarm System (addressable analog type)
1. This contractor shall submit fire alarm system drawings and specification to the local fire department for their approval before installation of any fire alarm components or wiring.
2. Equipment: all devices, combinations of devices, appliances and equipment shall be listed for the purpose for which they are used and shall be installed in compliance with applicable codes and standards.
3. Provide a complete, supervised, power-limited, fire alarm system. All equipment herein specified is that of Simplex Time Recorder Co. Equipment supplied by listed acceptable alternate manufacturers shall meet or exceed the quality of the Simplex equipment specified.
4. The fire alarm system shall be an electrically supervised system, which shall monitor the integrity of circuit conductors and power supplies.
5. The installation organization shall be a company specializing in the installation of fire alarm systems. This organization shall have a minimum of five years experience with installation of such systems.
6. The contractor shall provide and maintain on the site an up-to-date record set of approved shop drawings.
7. Record drawings shall include location of end-of-line device locations.
8. Upon completion of the work, and final acceptance by the local authority, the contractor shall submit record drawings to the owner.
9. A remote monitoring facility output circuit, selectable for interface to remote station reverse polarity, local energy master box, shunt master box, digital alarm communicator, or radio transmitter monitoring systems, shall be provided. The equipment supplier must contact the local authorities prior to bidding and supply all required equipment in the base bid.
10. Control panel shall be simplex 4010-9101 with Simplex Type 4010-9810 Internal D.A.C.T. The power supply shall be adequate to serve control panel modules, relays and alarm indicating appliances. Include a secondary emergency power supply with capacity for operating system in stand-by mode for 24 hours followed by alarm mode for ten minutes.
11. LCD annunciator panel shall be Simplex #4606-9101 with Simplex #4603-9111 brushed aluminum trim plate.
12. Addressable pull stations shall be semi-flush, action push/pull type, simplex #4099-9003.
13. Smoke detectors shall be analog photoelectric type, Simplex #4098-9710.
14. Analog heat detectors shall be 135 degrees F fixed temperature with rate-of-rise type, Simplex #4098-9733 with addressable base, Simplex #4098-9788.
15. Duct-mounted smoke detectors shall have a base with auxiliary relay (Simplex Type 4098-9756), analog photoelectric detector (Simplex Type 4098-9714), and sampling tubes (length as required).
16. Duct detector remote key reset/test station with alarm LED shall be Simplex Type 2098-9806.
17. Semi-flush audio/visual unit shall be Simplex Type 4903-9301 Series with A.D.A. complying 15/75 Candela strobe and horn. All strobe lights shall be synchronized.
18. Visual only unit shall be Simplex Type 4904-9307 with A.D.A complying 15/75 Candela strobe. All strobe lights shall be synchronized.
19. Waterflow and tamper switches shall be furnished and installed by the sprinkler contractor. The electrical contractor shall connect each device to the fire alarm system using an individual addressable module (IAM) Simplex #4090-9001.
20. Magnetic door holders shall be electrically operated and magnetically hold smoke doors in an open position. Provide a flush, surface or floor mounted as required:
    B.a. Flush mounting - Simplex Type: 2088-9579
    B.b. Surface mounting - Simplex Type: 2088-9582
    B.c. Floor mounting - Simplex Type: 2088-9573
21. Provide and install wiring per manufacturers' specifications. All wiring shall be in conduit (3/4" minimum).
22. The completed fire alarm system shall be fully tested in accordance with NFPA-72H, and local fire department requirements, by the installer, in the presence of the owner's representative and the local fire marshal. Upon completion of a successful test, the installer shall so certify, in writing, to the owner and general contractor.
23. Include on-site services of a certified technician to provide technical installation support for panel start up, program editing, troubleshooting of the fire alarm system control panel, and assistance to the installer for one complete final system checkout in accordance with the field quality control section of these specifications.
24. Acceptable manufacturers/suppliers shall be Simplex, Notifier (as supplied by a certified Nesco affiliate) or Siemens.

Section 16010 - General Provisions

A. General
1. Requirements specified in Division 1, instructions to bidders, supplemental general conditions, special conditions, addenda, alternates, contract and proposal, along with Division 16 and all its sections, comprise the contract documents for the electrical contract, along with these specifications as though they were one, and anything implied by the specifications shall be interpreted as also implied by the drawings and vice versa. Provide necessary items for a complete installation of all electrically operated equipment listed in the specifications or shown on the contract drawings.
2. The architectural, structural, mechanical, plumbing and equipment drawings and specifications are incorporated into, and become a part of this division. This contractor shall examine all such drawings and specifications and become thoroughly familiar with the provisions contained therein. The submission of his bid shall indicate such knowledge.
3. Electrical drawings are diagrammatic. They are intended to show the approximate locations of equipment and conduit. Dimensions given on the plans, in figures, shall take precedence over scaled dimensions and shall be verified in the field. The electrical contractor shall layout all equipment rooms to make sure the equipment, as purchased, fits in the room or space shown. Exact location of all equipment shall be verified in the field and routing of conduits shall suit field conditions.
4. Until the time of installation, the architect reserves the right to make minor changes in the location of conduit and equipment without additional cost to the contract.
5. The electrical drawings and specifications are intended to supplement each other. Material and labor necessary to the project shall be furnished and installed even though not specifically mentioned in both. Labor and/or materials neither shown nor specified, but obviously necessary for the completion and proper functioning of the system, shall be furnished and installed by the electrical contractor.
6. Arrange all equipment substantially as shown on the drawings. Make deviations only where necessary to avoid interference. Check all equipment sizes against available space prior to shipment to avoid interference.
7. Examine the work of other trades insofar as their work comes in contact with or is covered by this work in no case attach to, or finish against any defective work or install work in a manner which will prevent proper installation of the work of other trades.
8. Electrical contractor shall verify with other trades all electrical characteristics of equipment requiring electrical connections, contractor shall verify voltage, phase and horsepower and shall notify engineer of any discrepancies prior to start of work. Electrical contractor shall provide disconnecting means and overload protection for all equipment, unless furnished integral with equipment package.
9. It is the intent of these drawings that this be a complete electrical job, any errors or omissions shall be brought to the attention of the engineer prior to bidding the job.

B. Visit to the Site
1. This contractor shall visit the site of the work and familiarize himself with all conditions affecting his work. The submission of his proposal shall indicate such knowledge. No additional payment shall be made on claims that arise from a lack of knowledge of the existing conditions

C. Code and Permits
1. Installation shall be in full accordance with all codes, rules and regulations of municipal, city, county, state and public utilities and all other authorities having jurisdiction over the premises.
2. Comply with any specification requirements that are in excess but not in conflict with code requirements.
3. The contractor shall secure and pay for all permits, plan reviews and certificates of inspection in connection with his work, required by the foregoing authorities. Before final payment of the contract is allowed, all certificates shall be delivered to the architect in duplicate.
4. Electrical material and equipment shall bear the UL label except where UL does not label such types of material and equipment.

D. Shop Drawings Submittals
1. The electrical contractor shall submit five (5) sets of shop drawings, the shop drawings of the following equipment using the indicated numbering system and titles, shall be submitted through the architect to the engineer and then resubmitted for final approval if necessary. Shop drawings shall be submitted for the following items:
    D.a. Wiring devices
    D.b. Safety switches.
    D.c. Contactors and time switches
    D.d. Lighting fixtures
    D.e. Fire alarm system
2. All submitted shop drawings (manufacturers' equipment descriptive sheets or vendors' prepared drawings) shall have the general contractor's or subcontractor's "stamp of approval" indicating that the item submitted is as called for on the plans and specifications, is approved by the general contractor or subcontractor, the date of approval and initialed by the person approving the submittal and the name of the company submitting said equipment for approval.
3. Submit bound brochures complete with a table of contents. Loose or stapled together sheets are not acceptable. Any submittals not in brochure form or not as specified shall be returned at the contractor's expense for resubmittal.
4. All descriptive literature shall be submitted in a three (3) hole brochure with a cover identifying the following:
    D.a. Name of the job
    D.b. Location of the job, address, city and state.
    D.c. Name and address of the company submitting the brochures.
    D.d. Date of the submittal.
5. Every effort shall be made, in checking the shop drawings, to detect and correct all errors, omissions and inaccuracies. Failure to do this will not relieve the electrical contractor of the responsibility for the proper and complete installation in accordance with the contract documents.

E. As-built Drawings
1. Submit to the architect one set of reproducible (mylars) electrical drawings showing the as-built conditions.

Sect. 16010 (cont.)

F. Standards and Substitutions
1. Wherever the words "approved by", "approved equal", "as directed" or similar phrases are used in the following specifications, they shall be understood to refer to the owner as the approving agency. The name or make of any equipment or materials named in this specifications (whether or not the words "or approved equal" are used) shall be known as the "standard".
2. These specifications establish quality standard of materials and equipment to be provided. Specific items are identified by manufacturer, trade name or catalog designation. This contractor shall submit his base bid price based upon standard specified equipment described herein and as detailed on drawings and associated contract documents. These specifications are not to be considered proprietary. The contractor may submit information on materials and manufacturers (other than those listed) for review by the architect and engineer no later than ten (10) days before bids are submitted. Manufacturers of products accepted by the architect and engineer will be listed in an addendum to the specifications as an acceptable substitution equipment accepted as detailed below and shall be shown as a separate add or deduct price to be factored into the base bid price by the architect and owner if accepted.
3. Should the contractor propose to furnish materials and equipment other than those specified or approved by addendum, submit a written request for substitutions to the architect at the bid opening. The request shall be an alternate to the original bid; be accompanied with complete descriptive (manufacturer, brand name, catalog number, etc.) and technical data for all items. Failure by this contractor to submit the requisite documentation detailed above shall be understood by the architect and engineer to indicate that substitute equipment will not be presented by the contractor for consideration. Such substitutions will not be considered after the bid opening date and delay of project will not be permitted for further inspection and evaluation after this date.
4. Where such substitutions alter the design or space requirements indicated on the drawings, include all items of cost for the revised design and construction including cost of all allied trades involved.
5. Acceptance or rejection of the proposed substitutions shall be subject to approval of the architect and engineer. If requested, the contractor shall submit (at his cost) inspection samples of both the specified and proposed substitute items.
6. In all cases where substitutions are permitted, the contractor shall bear any extra cost of evaluating the quality of the material and equipment to be provided.

G. Testing and Placing in Service
1. Any material or equipment failing a test shall be repaired or replaced at the contractor's expense.
2. Tests shall include the following:
    G.a. Measure the load on each phase of the main service and each phase of every feeder under full load conditions.
    G.b. Measure the no-load and full-load voltages (phase to phase, phase to neutral and phase to ground for each phase of each service, of each separately derived system, and at each panelboard or transformer).
    G.c. Measure the ground resistance of the main service grounding electrode and the ground resistance of each separately derived system's grounding electrode.
    G.d. Make insulation resistance tests on all dry type transformers and motors.

H. Interferences
1. Before the installation of any item begins, the electrical contractor shall carefully ascertain that it does not interfere with clearances for the erection of finish beams, columns, plasters, walls or other structural or architectural members as shown on the architectural drawings. If any work is installed and the architectural design cannot be followed, this contractor shall, at his own expense, make changes in his work as directed by the architect to permit the completion of the architectural work in accordance with drawings and specifications.
2. It shall be the duty of this contractor to report any interferences between his work and that of any of the other contractors as soon as they are discovered. The architect shall determine which equipment will be relocated, regardless of which was installed first. His decision will be final.

I. Quality Assurance
1. All products shall be new and of the type and quality specified. Where materials, equipment, apparatus or other products are specified by manufacturer, brand name, type of catalog number, such designation shall establish the standards of the desired quality and style. It is the intent of these specifications to establish a standard of quality of materials and equipment installed.

Section 16050 - Basic Electrical Materials and Methods

A. Nameplates
1. General: furnish and mount on each panelboard, switchboard (including branch switches), large junction box, safety switch, starter, remote control, push button station, and all similar controls, a nameplate descriptive of the equipment or equipment controlled.
2. Provide black and white nameplates constructed from laminated phenolic with a white center core. Letters shall be engraved in the phenolic to form white letters 3/8" high. Fasten the nameplates with an adhesive type fastener.

B. Mounting Accessories
1. This contractor shall furnish and install all angle iron, channel iron, rods, supports, hangers, concrete or plywood required to install, mount and support any electrical equipment or device called for on the plans.
2. Supporting material shall be complete with hangers, connectors, bolts, clamps and necessary accessories to make a complete installation. Supporting material shall be galvanized, painted or otherwise suitably finished. Products by Binkley, Steel City, or Raco will be acceptable.
3. All surface-mounted equipment on block walls shall be mounted on 3/4" plywood backboard. All floor-mounted equipment shall be installed on a 4" high concrete housekeeping pad.

C. Execution
1. The electrical work for construction proposed shall conform to all federal (OSHA), state, all specific safety requirements and the requirements of the current edition of the NEC.
2. Check the HVAC and plumbing specifications for electrical requirements and include the same in the contract cost.
3. Equipment connections, starters, disconnect switches, control transformers and pushbutton stations for the equipment furnished by the owner or under a separate contract shall be installed and connected under this division, as indicated on the contract drawings.
4. All cutting, patching, excavating, backfilling and concrete work related to this contract will be the responsibility of the electrical contractor. This contractor shall assume the responsibility of providing the sleeves, chases and openings necessary for the electrical installation and for their repair in an acceptable manner, as determined by the architect. All holes shall be core-drilled. Provide fire stop in all openings created through fire-rated walls, floors or ceilings. Contractor shall field verify slab on grade floor construction type prior to cutting. Under no circumstances shall the contractor cut a structural floor slab thicker than four (4") inches without prior written approval from Engineer of Record. Notify Engineer of Record of any slab thickness greater than four (4") inches prior to proceeding with any saw cutting.
5. This contractor shall be responsible for providing all required access panels necessary for his work, coordinate with architect prior to installation.

D. Materials and Workmanship
1. All work shall be installed in a practical and workmanlike manner, by mechanics skilled in the several trades necessary.
2. All materials shall be new and free from defects and shall be the best of their several kinds unless specified or indicated on the drawings to the contrary.
3. During each phase and at the completion of the construction, this contractor shall remove all debris and excess materials caused by his work. He shall leave the area of operation broom clean.
4. All electrical equipment shall bear the underwriters laboratories label or ETL label.
5. This contractor shall guarantee his workmanship and material (lamps excepted) for a period of one year from the date of building opening and leave his work in perfect order at the completion. Should defects develop within the guarantee period, the contractor shall, upon notice of the same, remedy the defects and have all damages to other work or furnishings caused by the repairs corrected at his expense to the condition before such damage.

E. Scope of Work
1. The electrical contractor shall provide all labor, material, storage, unpacking and placement; to include but not be limited to, the following items:
    E.a. Emergency lighting and power.
    E.b. Complete power and lighting distribution system including all panels, transformers and feeders.
    E.c. Complete branch circuit wiring system.
    E.d. Complete power wiring for all air conditioning equipment, plumbing system, heating equipment, ventilating and exhaust equipment.
    E.e. Complete lighting fixture installation, including all incandescent, fluorescent and HID lamps.
    E.f. Complete telephone and communication conduit and wiring system including boxes, plates, jacks, etc., as specified, shown on the drawings and required by the local telephone company and/or owner.
    E.g. Temporary electrical power and lighting as required for construction.
    E.h. Testing of all cables and circuit wiring after installation.
    E.i. Exit light system.
    E.j. Wiring devices and floor boxes.
    E.k. Lighting controls.
    E.l. Grounding of the electrical system.
    E.m. Fire alarm system.
    E.n. Telephone and electric services.

Section 16060 - Grounding and Bonding

A. Ground all equipment per N.E.C.

B. All conduits shall contain a code-sized ground wire size per N.E.C. in addition to the conductors shown on the plans. Where circuit conductors are increased in size for any reason (i.e. voltage drop, derating, etc.), the ground wire size shall be increased proportionately (according to circular mil area).

C. Where an isolated, insulated ground is required a separate isolated green ground shall be run from the panel isolated ground bus to the isolated ground connection of the device served. In no case shall the system ground (green wire and associated outlet boxes, conduit and building steel) be allowed to contact the isolate ground (green wire with white stripe).

Section 16120 - Wiring and Cable

A. Color code conductors (except control and instrumentation conductors) as follows:

	208/120 System	480/277 System
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow
Neutral	White	Grey
Ground	Green	Green

1. #12 and #10 conductors shall have continuous insulation color, as listed above.
2. Color code conductors larger than above, which do not have continuous insulation color by application of at least two laps of colored tape on each conductor at all points of access including junction boxes. Color tape shall be the equal of 3M products Scotch #35.
3. Conductors shall be soft annealed copper insulated for 600 volts unless specifically indicated otherwise. Aluminum conductors are not allowed on this project.

B. Insulation type shall be type THWN for wire sizes #8 AWG and larger and THHN or THWN for #10 AWG and smaller. THHN shall not be used in wet or damp locations.

C. Flexible cord shall be heavy duty type so with an equipment ground conductor in addition to the current carrying conductors.

D. Provide #12 conductors, unless otherwise indicated.
1. Control conductors shall be #14 minimum for NEC class I and #16 for NEC class II.

E. Conductors #8 AWG and larger shall be stranded.

F. Conductors #10 AWG and smaller shall be solid.

G. Install wiring in conduit.

H. Connect #10 and smaller wires with constant pressure expandable spring type connectors, "Scotchlok" by 3M or B-Cap by Buchanan.

I. Connect #8 and larger wires with compression connectors or splices as manufactured by Burndy or T&B.

J. Insulate splicing connectors to at least 200% of the wire insulation. Use pre-stretched tubing connector insulators, 3M PST for #2 and larger conductors.

K. Pull conductors using recognized methods and equipment leaving at least 6" wire at all junction boxes for connections.
1. Clean out each conduit system before pulling wire.

L. Form and tie all wiring in panelboards.

M. There shall be no wirenut joints or splices made inside switchboards/panelboards.

N. Branch circuit wire sizes (and conduits) shall be increased from those indicated on the plans to prevent excessive voltage drop. Branch circuits shall be installed with wires of sufficient size so that voltage drop between the panel and the loads does not exceed limit of 3%.

O. Regardless of the temperature rating of the conductor insulation, all conductor ampacity rating for this project shall be determined from the 75°C conductor temperature ratings indicated in the NEC tables. Where equipment or devices are provided with terminals/lugs rated for 60°C, the ampacity rating of the 75°C conductor shall be limited to its associated 60°C rating as indicated in the NEC tables. The electrical contractor shall be responsible to increase the conductors and conduit size as required.

P. Circuits may be multi-plexed in conduit provided wire is properly derated and conduit sized per code. Under no circumstances shall more than six (6) current carrying conductors be run in a single conduit.

Section 16130 - Raceways and Boxes

A. Raceways
1. All wire shall be run in accordance with code in corrosion resistant, rigid, threaded, metal conduit or electrical metallic tubing (E.M.T.) unless otherwise specifically stated herein.
    A.a. Conduit in exterior walls, below floor slab, or underground shall be rigid, threaded, galvanized, heavy wall type.
    A.b. Carlon PVC type 40 heavy wall conduit with ground wire may be used below floor slab or underground in lieu of rigid, threaded, galvanized conduit. PVC 40 conduit shall not be run in or above floor slab. PVC conduit shall terminate below floor slab with rigid, threaded metal conduit adapter. Conduit above slab shall be metal.
    A.c. Conduit run exposed to the weather shall be heavy wall, metal threaded type.
2. Conduit size shall be 3/4" minimum.
3. Conduit shall be securely fastened in place.
4. All conduit shall be concealed in walls, floors and ceilings wherever possible. Exposed conduit in finished areas will not be permitted. Exposed conduit will be permitted in the unfinished areas with the specific approval of the architect.
5. Use flexible conduit for the connection to recessed or semi-recessed lighting fixtures (6' length maximum). Use liquid tight metal conduit for all connections to motors and other equipment subject to vibration and in areas subject to moisture.
6. Use watertight joints with buried and concrete encased conduit. All buried conduits outside of buildings shall have a minimum of 24" of cover. Metal conduits buried in earth shall be painted (two coats) with heavy asphaltum paint.
7. Support runs of conduit as detailed in the appropriate table of the national electrical code (NEC).
8. Installed exposed runs of conduit and conduit above lay-in ceilings parallel or perpendicular to the walls, structural members of intersections of vertical planes and ceilings. Provide right angle turns using fittings or symmetrical bends. Support conduits within 1" of all changes in direction.
9. If a conduit is suspended, it shall be supported on trapeze hangers which use "all-thread" rods from the structural steel. The use of ceiling support wire or similar material will not be accepted.
10. Install empty conduit for future use as indicated on the drawings. Conduit shall be complete with jetline or pull rope, junction/outlet boxes, tie rings and appropriate cover plates.
11. Provide pitch pockets where conduits penetrate the roof.
12. Thread lubrication/sealant is required on outdoor and underground threaded metal joints.
13. Install fire seal fittings where conduits penetrate concrete floor slabs or masonry walls required to be fire rated.
14. Horizontal portion of conduit exposed on the roof and feeding equipment shall not be more than 5'-0" unless the written approval from architect or engineer is obtained.

B. Pull and Junction Boxes
1. Install pull and junction boxes where shown on the drawings, and where required for changes in direction, at junction points, and to facilitate wire pulling. Furnish box sizes in accordance with NEC unless larger boxes are indicated.
2. Provide steel boxes and removable covers of code gauge, hot rolled sheet steel, hot dipped galvanized inside and outside, for above ground work. Furnish weatherproof boxes when installed above ground outside.
3. Provide cast iron boxes, hot dipped galvanized inside and outside where shown on the drawings. Furnish removable covers with gaskets and stainless steel, brass or bronze screws.
4. Provide concrete boxes for underground work unless otherwise indicated on the drawings. Furnish steel frames and covers with the cover attached to the frame with hexagon head, brass or bronze cap screws, 3/8" in diameter. Provide a rubber gasket for sealing between the cover and the frame. Paint the cover with two coats of heavy asphaltum.

C. Outlet Boxes
1. Use sheet steel boxes, zinc coated or cadmium plated, for concealed interior work.
2. Use cast boxes, zinc-cadmium finish malleable iron, for exposed interior work, and for exposed or concealed work in wet, damp or exterior locations. Cast boxes shall be series FD by Crouse Hinds or Appleton.
3. Wall box sizes (minimum) shall be 4" square X 2-1/2" deep where wall construction permits. Where wall construction dictates, the depth may be reduced to 2-1/8" or 1-1/2" under special conditions.
4. Fixture outlets in ceilings (minimum) shall be 4" octagonal X 1-1/2" deep (4-11/16" octagonal X 2-1/2" deep where required to accommodate larger conduit or larger number of wires).
5. Ganged boxes shall be one piece (minimum), 2-1/8" deep.
6. Provide cast iron, concrete-tile floor boxes with adjustable covers set flush and level with the finished floor, with outlets as indicated on the drawings. Provide Hubbell #B-2400, 4200, or 4300 series boxes with leveling screws. Flush type covers and openings to serve outlets used. Furnish flush caps for closing off box when not in use.
7. Flush mount boxes in all finished walls, install the plaster rings in drywalled plastered walls and raised covers as required in walls with other finishes so that the cover plates fit tightly against boxes or rings, 3/16" maximum gaps are allowed for noncombustible walls.
8. Adjust location of outlets in masonry or tile construction to occur in the nearest joint to the height specified. Heights shall meet A.D.A. requirements.
9. Support all boxes to maintain proper alignment and rigidity.
10. Clean boxes of all foreign matter prior to the installation or wiring of devices.
11. Mounting heights on the drawings are to the centerline of the box unless otherwise noted.

Section 16140 - Wiring Devices

A. Wiring device color shall be selected by architect, unless otherwise indicated.

B. Provide totally enclosed, 20 ampere, 120/277 volt, quiet A/C general use snap switches.

C. Switches shall be specification grade as manufactured by Hubbell, P&S, or Leviton.

D. Provide NEMA configuration 5-20R Duplex 125 volt grounding type receptacles rated for 20 amperes unless otherwise indicated on the drawings.

E. Receptacles shall be specification grade as manufactured by Hubbell, P&S or Leviton.

F. Receptacles requiring amperages, voltages or configurations different from the duplex convenience receptacles above shall be as indicated on the drawings.

G. Provide other receptacles of a quality, material and workmanship equal to that specified for duplex convenience receptacles.

H. Provide cover or device plates for outlet boxes as follows unless otherwise noted:
1. Finished areas: thermoplastic - color to match device.
2. Unfinished areas: zinc coated sheet metal, aluminum, or cast metal as appropriate for the type of box.
3. Exterior areas: copper free aluminum with gray, powder epoxy finish, gasket, weatherproof, Crouse-Hinds "WLRD" for duplex receptacles and WLRS for single receptacles or equal.
4. Telephone, communication, and signal outlet plates, shall match those used for receptacles and switches. All outlet and/or junction boxes shall be complete with a cover plate by this contractor.
5. Where devices are ganged, they shall be installed under a common cover plate.

I. Locate the switches approximately 4'-0" above the finished floor elevation or nearest block course (within A.D.A. requirements), unless otherwise indicated. The long dimension of the switches shall be vertical.

J. Locate receptacles approximately 1'-6" above the finished floor elevation or nearest block course (within A.D.A. requirements), unless noted otherwise. The long dimension of receptacles shall be vertical.

Section 16410 - Safety Switches

A. Safety switches shall be the enclosed heavy-duty type (type HD) with quick-make, quick-break mechanism and external pad lockable operating handle.

B. Safety switches shall be rated for 240 or 600 volts as applicable. They shall be horsepower rated when used in motor circuits.

C. Safety switches shall be fusible or non-fusible 2, 3, or 4 pole as indicated on the drawings.

D. Safety switches shall be single throw unless otherwise indicated on the drawings.

E. Enclosures shall be NEMA 1 indoors and NEMA 3R outdoors unless otherwise indicated on the drawings.

F. Manufacturer shall be Square D, Siemens, G.E., or Cutler-Hammer. All safety switches shall be by one manufacturer.

G. Mount the safety switches securely between 3' X 6' levels above the floor unless otherwise indicated on the drawings.

H. Switches on block walls shall be mounted on a 3/4" plywood backboard, where located indoors.

Section 16420 - Motor Starters

A. Provide motor starters (magnetic or fused combination) and control equipment where shown. Starters shall be provided with 120 volt coils, 3 overloads, control transformer with fused 120 volt secondary control circuit, (2) N.O. and (2) N.C. auxiliary contacts, hand-off-auto selector switch and running pilot light, unless otherwise noted. Wire thru control devices furnished by other trades. Since motor driven equipment is furnished by other trades, the control indicated on the drawings shall be considered as for bidding purposes only. Wire to conform to the actual equipment supplied and installed by the other trades. All fuses shall be dual element type. Provide "blownfuse" indicator lamps in cover.

B. Starters shall be Square D, G.E., Cutler-Hammer, or Siemens.

C. The exact number of normally open and normally close auxiliary contacts in each starter shall be determined by the temperature control contractor.

D. Coordinate all equipment indicated on the electrical drawings with mechanical equipment schedules and specifications and provide motor starters for all equipment indicated as being interlocked or started from a remote location.

E. Starters supplied as an integral part of equipment shall be furnished under the division providing the equipment. Wiring and disconnect shall be by this contractor. All other starters and auxiliary control equipment shall be supplied and wired by this contractor unless otherwise noted.

Section 16491 - Fuses

A. The contractor shall furnish a complete set of fuses for all switches, plus fusible equipment furnished by other trades. Unless indicated otherwise on plans, the fuses shall be of the following types:
1. Fuses 601 to 6000 amps shall be UL class. Trade type shall be KRP-C as manufactured by Bussmann Company.
2. Fuses 1/10 to 600 amps shall be UL class RK1. Trade type shall be low peak LPS-RK (600V) and LPN-RK (250V) as manufactured by Bussmann Company.
3. All other fuses shall be dual-element current-limiting type with 200,000 amperes symmetrical interrupting capacity.

B. Fuses shall be manufactured by Bussman, Gould-Shawmutt, or Reliance.

C. Spare fuses amounting to a duplicate set of each size installed shall be turned over to the owner upon completion of the project. Provide and place in a spare fuse cabinet similar to Bussman # SFC.

D. This contractor shall replace all fuses blown during construction.

Section 16511 - Lighting Fixtures

A. LED light fixtures:
1. Recessed Fixtures: Comply with NEMA LE 4.
2. Bulb shape complying with ANSI C79.1.
3. Lamp base complying with ANSI C81.61.
4. CRI of minimum 80. CCT as indicated on the fixture schedule.
5. Rated lamp life of 50,000 hours, minimum at 70 percent lumen maintenance.
6. Lamps dimmable from 100 percent to 10 percent of maximum light output.
7. Integral driver. Driver power for factor be 40 percent of greater. Harmonic distortion shall be less than 10 percent THD. Drivers shall be equipped with automatic thermal protection and 20 KA surge protection with end of life LED indicator.
8. Nominal Operating Voltage: as indicated on plans and schedules. Efficiency minimum of 80 lumens per watt.

B. Linear fluorescent lamps for new light fixtures shall be T8, 3500K of the following manufacturers:
1. General Electric "Starcoat" SP35 Series
2. Osram/Sylvania "Octron" 735 Series
3. Phillips TL735 Series

B. Compact fluorescent lamps for new light fixtures shall be 3500K of the following manufacturers:
1. General Electric "Biax" SPX35 Series (4 pin base)
2. Osram/Sylvania "Dulux" 835 Series (4 pin base)
3. Phillips "PL" or "PL-T" 3500K Series (4 pin base)

C. All lighting fixtures shall be furnished and installed by electrical contractor as indicated on the lighting fixture schedule, including lamps. Lamps shall be of the same manufacturer for all types.

D. All fixtures shall bear the underwriter's laboratories label and shall be installed according to manufacturer's instructions.

E. Ballasts for linear fluorescent lamps shall be electronic, parallel, instant-start, normal output type, less than 10% THD, CBM and ETL certified, as manufactured by Magnetek, Motorola or Advance.

F. Ballasts for "T5" compact fluorescent lamps shall be electronic, parallel, instant-start, normal output type, less than 10% THD, CBM and ETL certified, as manufactured by Magnetek, Motorola or Advance.

G. Ballasts for "T4" compact fluorescent lamps shall be electronic, parallel, rapid-start, normal output type, less than 10% THD, CBM and ETL certified, as manufactured by Magnetek, Advance, Energy Savings, Inc. or Robertson.

H. Existing fluorescent fixtures noted to be reused shall be cleaned and relamped as indicated on the fixture schedule.

I. High intensity discharge ballasts shall be constant wattage type.

J. This contractor shall provide and install all necessary support media for all lighting fixtures including structural steel, angle, rods, etc. in general, fluorescent and high intensity discharge fixtures shall be supported in a manner acceptable to the local inspection authorities. All fixtures shall be firmly supported from beams or joists.
1. Provide all necessary backing, blocking and supports for wall mounted fixtures.
2. Fixtures shall not be supported from roof deck.

K. All fixtures shall be UL listed and approved for the purpose intended.

L. If required by code, light fixtures shall be Chicago Plenum rated.

M. Recessed fixtures in fire rated ceiling or supply air plenums shall be approved for the fire rating of the ceiling. Provide air-tight gaskets to seal around openings.

N. All adjustable fixtures shall be aimed and adjusted during evening hours to the satisfaction of the architect.

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Professional certification. I hereby certify that these documents were prepared or approved by me, and I am duly licensed professional engineer under the laws of the State of Maryland, License No. 22837, Expiration Date: 09-17-2020

NO.	DATE	DESCRIPTION

DATE:	06/13/19
DRAWN BY:	TBA
PROJECT NO.:	19139

ELECTRICAL SPECIFICATIONS

E-4.0