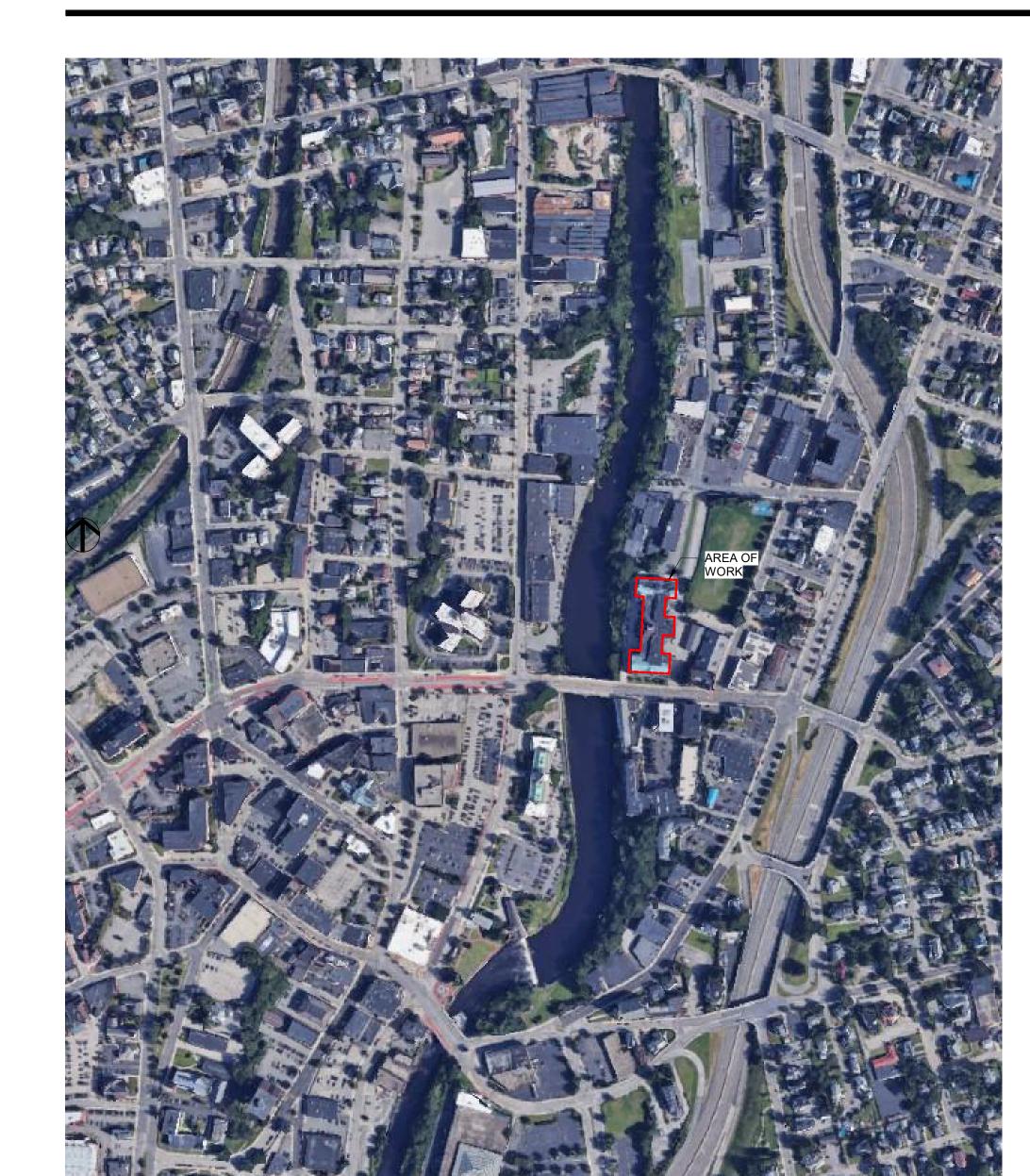
# FIRECODE UPDATES TO THE

# WILLIAM E. TOLMAN HIGH SCHOOL

150 EXCHANGE ST, PAWTUCKET, RI 02860







LOCUS MAP

# ARCHITECT BREWSTER THORNTON GROUP ARCHITECTS LLP

317 IRON HORSE WAY SUITE 202 PROVIDENCE, RI 02908 401 . 861 . 1600 BREWSTERTHORNTON.COM

# CLIENT PAWTUCKET SCHOOL DEPARTMENT

286 MAIN STREET PAWTUCKET, RI 02860 401 . 729 . 6300

# MEP/FP/FA WOZNY/BARBAR & ASSOCIATES, INC.

161 EXCHANGE STREET PAWTUCKET, RI 02860 781 . 826 . 4144

PROJECT NAME

# WILLIAM E. TOLMAN HIGH SCHOOL

PROJECT ISSUE
BID SET
11/25/24

PROJECT NUMBER **BTGA # 2144** 

	N ABBREVIATIONS				(USE OF PUNCTUATION IS OP
ABV	ABOVE	F.A.	FIRE ALARM	O.C.	ON CENTER
A/C	AIR CONDITION	F.A.R.	FLOOR AREA RATIO	O.H.	OPPOSITE HAND
ACC.	ACCESS(IBLE)	F.D.	FLOOR DRAIN	OPNG	OPENING
ACT	ACOUSTICAL CEILING TILE	FEC	FIRE EXTINGUISHER CABINET	OPP	OPPOSITE
ADA	AMERICANS WITH DISABILITY ACT	FF&E	FURNITURE, FIXTURE, AND	ORIG.	ORIGINAL
ADDL	ADDITIONAL		EQUIPMENT	OHD	OVERHEAD
ADJ.	ADJUSTABLE (OR) ADJACENT	FGL	FIBERGLASS	OND	O V E I (I I E I I E
A/E	ARCHITECT/ENGINEER	FIN.	FINISH	PERP	PERPENDICULAR
A.S.F	ABOVE SUBFLOOR	FIN.CLG	FINISH CEILING	PL	PLATE
A.F.	ABOVE FLOOR	FIN.FLR	FINISH FLOOR	PNL	PANEL
A.F.F.	ABOVE FINISH FLOOR	FIN.SCH	FINISH SCHEDULE	PNT	PAINT
AHJ	AUTHORITY HAVING JURISDICTION	FIXT.	FIXTURE	PPL	PEOPLE
AL./ALUM.	ALUMINUM	FLR.	FLOOR	PTD	PAINTED
ALT.	ALTERNATE	FLUOR.	FLUORESCENT	PR	PAIR
ANOD.	ANODIZED	FND.	FOUNDATION	PREP	PREPARATION
ARCH.	ARCHITECT(URAL)	F.O.	FACE OF	P.T.	PRESSURE TREATED
A.P.	ACCESS PANEL	F.P.	FIRE PROTECTION	PTN	PARTITION
APP.	APPROXIMATE	F.RATING	FIRE RATING	PWD	PLYWOOD
APPROX.	APPROXIMATE	F.RATING FR	FIRE RETARDANT	P.V.	PLUMBING VENT
ASI	ARCHITECT'S SUPPLEMENTAL	FT	FEET	P.V.	PLUMBING VENT
ASI				D#	DADILIC
	INSTRUCTION	FTG	FOOTING	R#	RADIUS
AUTO.	AUTOMATIC	C 4	CACE/CALLOE	R	RISER
AUX.	AUXILIARY	GA	GAGE/GAUGE	R.B.	RESILENT BASE
D.4.0	DI III DINIG	GALV	GALVANIZED	RCP	REFLECTED CEILING PLAN
BAS	BUILDING AUTOMATION SYSTEM	GL	GLASS	R&D	REMOVE & DISPOSE
BD	BOARD	GLZ	GLAZING	R.D.	ROOF DRAIN
BLDG	BUILDING	GWB	GYPSUM BOARD	RE:	REFER TO
BLW	BELOW			REF.	REFER
BSMT	BASEMENT	HC	HANDICAP	REQ.	REQUIRE(D)
BOTT.	BOTTOM	HDF	HIGH DENSITY FIBERBOARD	RES.	RESILIENT
B.O.F	BOTTOM OF FOOTING	НМ	HOLLOW METAL	REV.	REVISION
B.O.	BLOW OFF VENT	HDW	HARDWARE	R.H.	RIGHT HAND
BLKG	BLOCKING	HRW	HARDWARE	RM	ROOM
BRK	BRICK	HOR.	HORIZONTAL	R.O.	ROUGH OPENING
BRZ	BRONZE	HR	HOUR		
BTWN	BETWEEN	HT	HEIGHT	SCHED.	SCHEDULE
				SD	SIDE
CAB.	CABINET	IN.	INCHES	SECT.	SECTION
C.F.M.F.	COLD-FORMED METAL FRAMING	INCL.	INCLUDE(D),(ING)	SF	SQUARE FEET
CG	COLUMN GRID	INFO.	INCHES INCLUDE(D),(ING) INFORMATION INSULATION INTERIOR	SF	SUB FLOOR
C.L.	CENTER LINE	INSUL.	INSULATION	S.GASKET	SMOKE GASKET
CLL	CONTRACT LIMIT LINE	INT.			SAFETY GLASS
CLO	CLOSET			SHT	SHEET
CLG	CEILING	J.C.	JANITOR'S CLOSET JUNCTON BOX JOINT	SHTH	SHEATHING
CLR	CLEAR(ANCE)	J-BOX	JUNCTON BOX	SIM.	SIMILAR
C.J.	CONTROL JOINT	JT	JOINT	SPEC.	SPEC (-IFIED) (-IFICATION)
CMU	CONCRETE MASONRY UNIT			SRL	SUBMITTAL RÉVIEW LETTER
CO	CASED OPENING	K.B.	KNOX BOX	SQ.	SQUARE
COL.	COLUMN			S.S.	STAINLESS STEEL
COMP.	COMPRESS(ED), (ION). (IBLE)	LAB.	LABORATORY	S.S.M.	SOLID SURFACE MATERIAL
CONC.	CONCRETE	LB	POUND(S)	STC	SOUND TRANSMISSION COEFFICI
CONST.	CONSTRUCTION	LCC	SEE Z.C.C.	STD	STANDARD
CONT.	CONTINU(E), (OUS)	L.E.D.	LIGHT EMITTING DIODE		STORAGE
COORD.	COORDINATE	LF	LIGHT FIXTURE	STL.	STEEL
JJJIND.	JOONDIW (IL	L.H.	LEFT HAND		STRUCTURAL
DBL	DOUBLE	LIR	LIBRARY	SUSP.	SUSPEND(ED)
DEMO	DEMO(LISH) (LITION)	LID. LIN	LINOLEUM	SYS.	SYSTEM
DEG	DEMO(LISH), (LITION) DEGREES	LKR	LOCKER	010.	O I O I LIVI
DEG DET.	DETAIL	LVL	LAMINATED VENEER LUMBER	Т	TREAD
DET. DH	DOUBLE HUNG	LVL LOC.	LOCATION	TEMP	TEMPORARY
DH DIA.	DIAMETER	LUC.	LOCATION	TGL	TEMPORARY TEMPERED GLASS
		MACH	MACHINE		
DIAG.	DIAGONAL	MACH.	MACONDY	THK	THICK(NESS)
DIM.	DIMENSION	MAS.	MASUNKY	THRESH	
DISP.	DISPOSE	MAT.	MATERIAL	T.O.	TOP OF
DN	DOWN	MAX.	MAXIMUM	T.O.W.	TOP OF WALL
DR	DOOR	MECH.	MACHINE MASONRY MATERIAL MAXIMUM MECHANICAL	TS	TUBE STEEL
DTL	DETAIL	MED.	MEDIUM	TSTAT	THERMOSTAT
DWG	DRAWING	MEMB	MEMBRANE	TYP.	TYPICAL
DWGS	DRAWINGS	MDF	MEDIUM DENSITY FIBERBOARD	TZ	TERRAZZO
		MIL	MILLIMETER		
EA.	EACH	MIN.	MINIMUM	U.H.	UNIT HEATER
EL.	ELEVATION	MISC.	MISCELLANEOUS	U.N.O.	UNLESS NOTED OTHERWISE
ELEC.	ELECTRIC(AL)	M.O.	MASONRY OPENING	- ··· <del>-</del> ·	
ELEV.	ELEVATOR	M.R.	MOISTURE RESISTANT	VCT	VINYL COMPOSITION TILE
EMER.	EMERGENCY	MTL	METAL	VERT.	VERTICAL VERTICAL
EWEN. EQ	EQUAL	1V1 1 L	WIE 17 VE	V.I.F.	VERTICAL VERIFY IN FIELD
EQUIP	EQUIPMENT	N.A.	NOT APPLICABLE	v.i.r. V.R.	VAPOR RETARDER
	EXISTING TO REMAIN	N.A. N.C.	NOISE CRITERIA	v.r\.	VAFOR NETARDER
ETR				14//	\\/\TL
EV	EXHAUST VENT	N.I.C.	NOT IN CONTRACT	W/	WITH
EX.	EXISTING	NOM.	NOMINAL	WD	WOOD
	EXISTING	NO	NUMBER	WDW	WINDOW
EXIST.	EVICTING				
EXIST. EXG EXT.	EXISTING EXTERIOR	NR N.R.C.	NOT RATED NOISE REDUCTION COEFFICIENT	@	AT

AL)	DRAWING LIST			
	SHEET	SHEET NAME		
	GENERAL			
	G0.0	COVER SHEET		
	G0.1	COMMON ABBREVIATIONS AND DRAWING LIST		
	G0.2	CODE SUMMARY, EGRESS & FIRE PLANS 1 & 2		
	G0.3	CODE SUMMARY, EGRESS & FIRE PLANS FLOORS 3 & 4		
	DEMOLITION	·		
	D1.0	DEMOLITION BASEMENT FLOOR PLAN		
	D1.1	DEMOLITION FIRST FLOOR PLAN		
	D1.2	DEMOLITION SECOND FLOOR PLAN		
	D1.3	DEMOLITION THIRD FLOOR PLAN		
	D1.4	DEMOLITION FOURTH FLOOR PLAN		
	ARCHITECTURAL			
	A0.1	GENERAL NOTES, LEGENDS AND WALL TYPES		
	A1.1A	BASEMENT & LEVEL 1 FLOOR PLAN		
	A1.1B	LEVEL 2 FLOOR PLAN		
	A1.1C	LEVEL 3 & 4 FLOOR PLAN		
	A5.0	FIRE CURTAIN DETAILS		
	A5.1	DETAILS, DOOR TYPES, FRAMES, & SCHEDULE		
	ELECTRICAL	, ,		
	E0.0	ELECTRICAL SYMBOL LEGEND AND NOTES		
	E1.0	ELECTRICAL BASEMENT PLANS		
	E1.1	ELECTRICAL 1ST FLOOR PLANS		
	E1.2	ELECTRICAL 2ND FLOOR PLANS		
	E1.3	ELECTRICAL 3RD FLOOR PLANS		
	E1.4	ELECTRICAL 4TH FLOOR PLANS		
	E2.0	ELECTRICAL SPECIFICATIONS SHEET		
	E2.1	ELECTRICAL SPECIFICATIONS SHEET		
	E2.2	ELECTRICAL SPECIFICATIONS SHEET		
	FIRE PROTECTION			
	FP0.0	FIRE PROTECTION LEGEND AND GENERAL NOTES		
	FP1.1	FIRE PROTECTION BASEMENT FLOOR PARTIAL PLANS		
	FP1.2	FIRE PROTECTION FIRST FLOOR PARTIAL PLANS		
	FP1.3	FIRE PROTECTION SECOND FLOOR PARTIAL PLANS		
	FP1.4	FIRE PROTECTION SECOND FLOOR HALLWAY PLANS		
	FP1.5	FIRE PROTECTION THIRD FLOOR PARTIAL PLANS		
	FP1.6	FIRE PROTECTION THIRD FLOOR HALLWAY PLANS		
	FP1.7	FIRE PROTECTION FOURTH FLOOR PARTIAL PLANS		



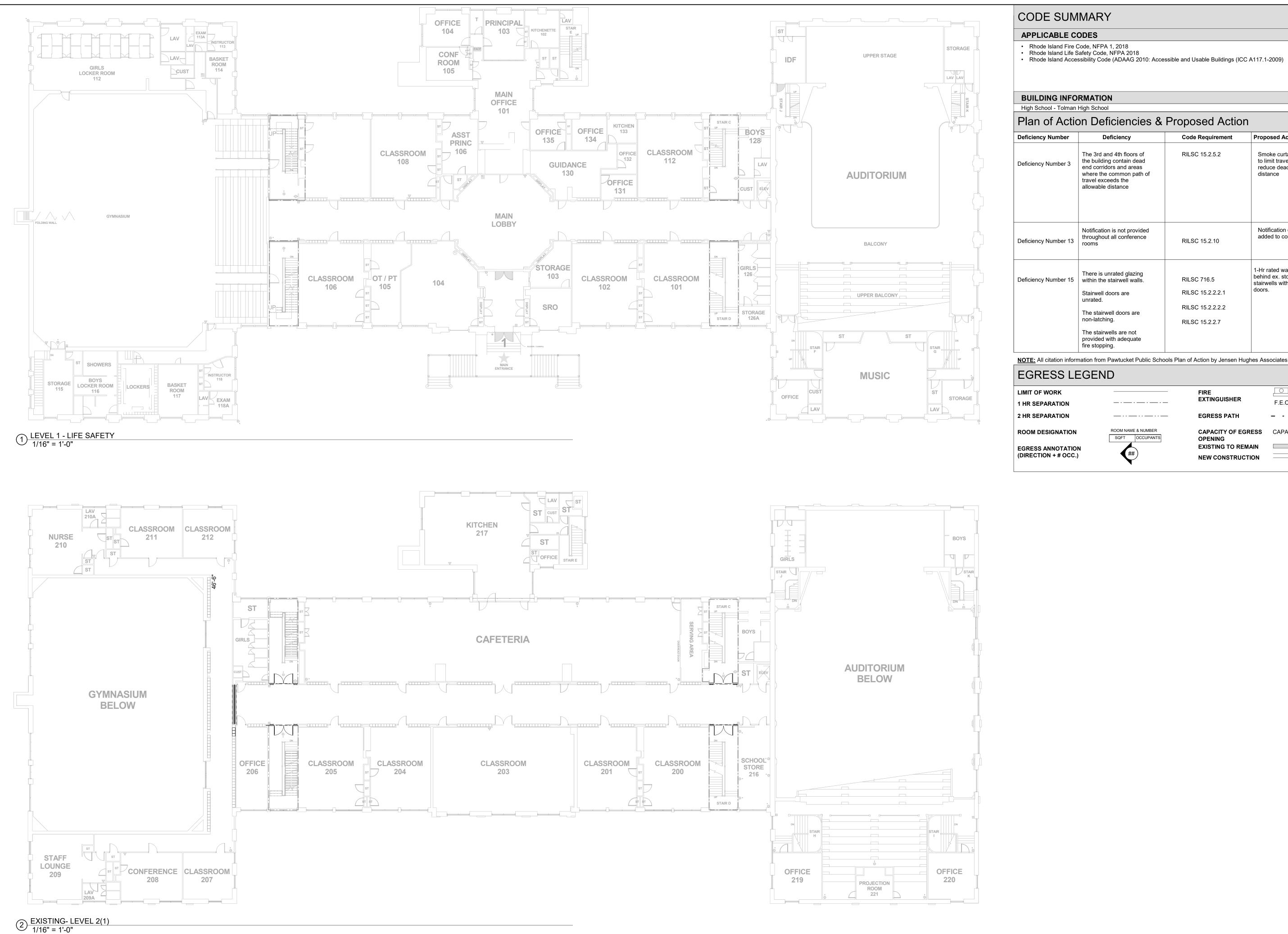
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ЈОВ N <b>214</b>		DATE 11/25/24					
ISSU	ISSUE : PROJECT STATUS						
NO.	REVISION	DESCRIPTION	DATE				

COMMON
ABBREVIATIONS
AND DRAWING
LIST

G0.1



<b>Deficiency Number</b>	Deficiency	Code Requirement	Proposed Action
Deficiency Number 3	The 3rd and 4th floors of the building contain dead end corridors and areas where the common path of travel exceeds the allowable distance	RILSC 15.2.5.2	Smoke curtains being install to limit travel distance and reduce dead end corridor distance
Deficiency Number 13	Notification is not provided throughout all conference rooms	RILSC 15.2.10	Notification devices being added to conference rooms
Deficiency Number 15	There is unrated glazing within the stairwell walls.  Stairwell doors are	RILSC 716.5 RILSC 15.2.2.2.1	1-Hr rated wall provided behind ex. storefront at stairwells with 1-hr rated doors.
	unrated.  The stairwell doors are	RILSC 15.2.2.2.2	
	non-latching.  The stairwells are not provided with adequate	RILSC 15.2.2.7	

NOTE: All citation information from Pawtucket Public Schools Plan of Action by Jensen Hughes Associates.

**EXTINGUISHER** F.E.C. F.E. **EGRESS PATH** - - - -CAPACITY OF EGRESS CAPACITY = ##
OPENING

BREWSTER **THORNTON** GROUP ARCHITECTS

WORK

OF

SCOPE

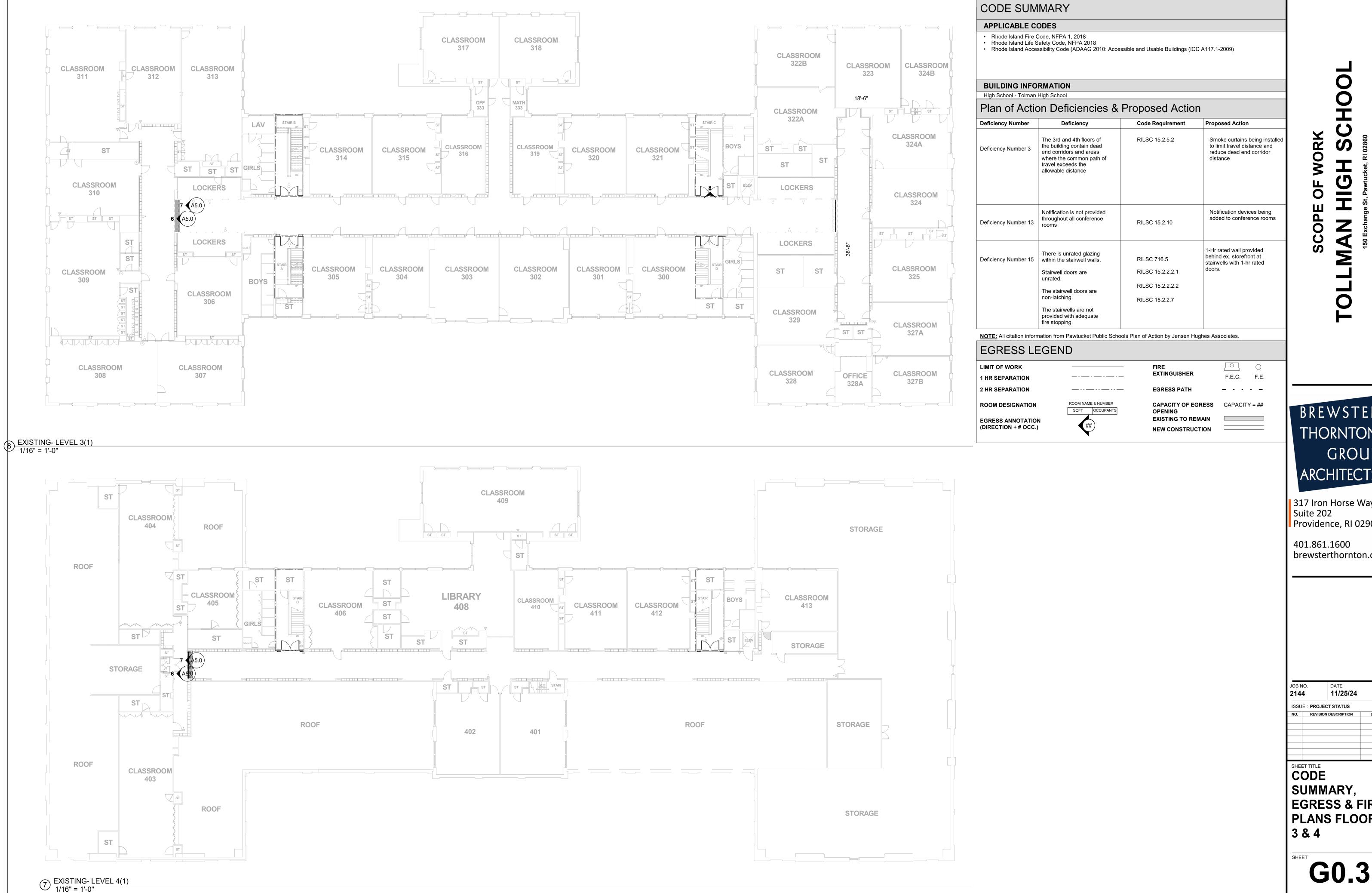
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JOB NO. **2144** 11/25/24 ISSUE : PROJECT STATUS

CODE SUMMARY, EGRESS & FIRE PLANS 1 & 2

G0.2



**THORNTON** GROUP **ARCHITECTS** 

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EGRESS & FIRE PLANS FLOORS



<sup>D1.0</sup> ✓ Scale: 1/16" = 1'-0"



PHOTO 2 - STAIR B DOOR 000-B

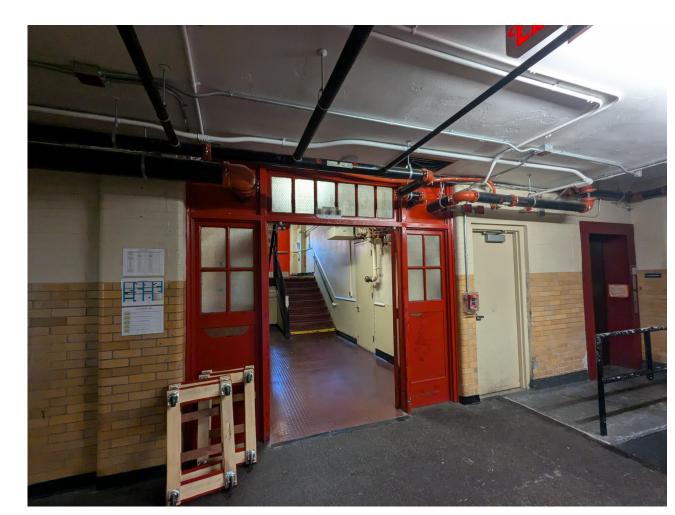


PHOTO 3 - STAIR C DOOR 000-C

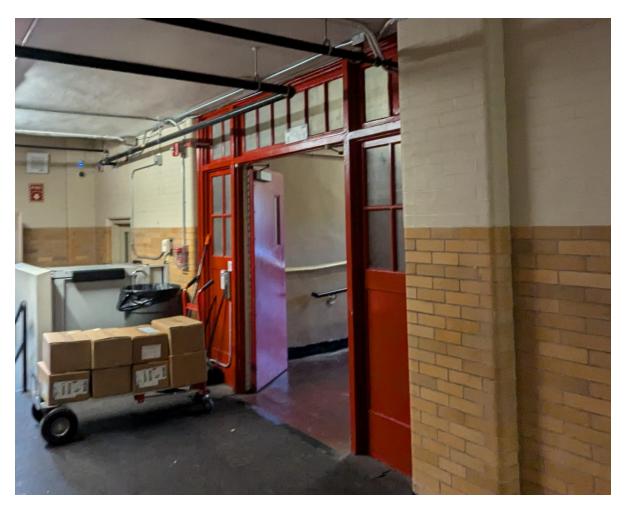
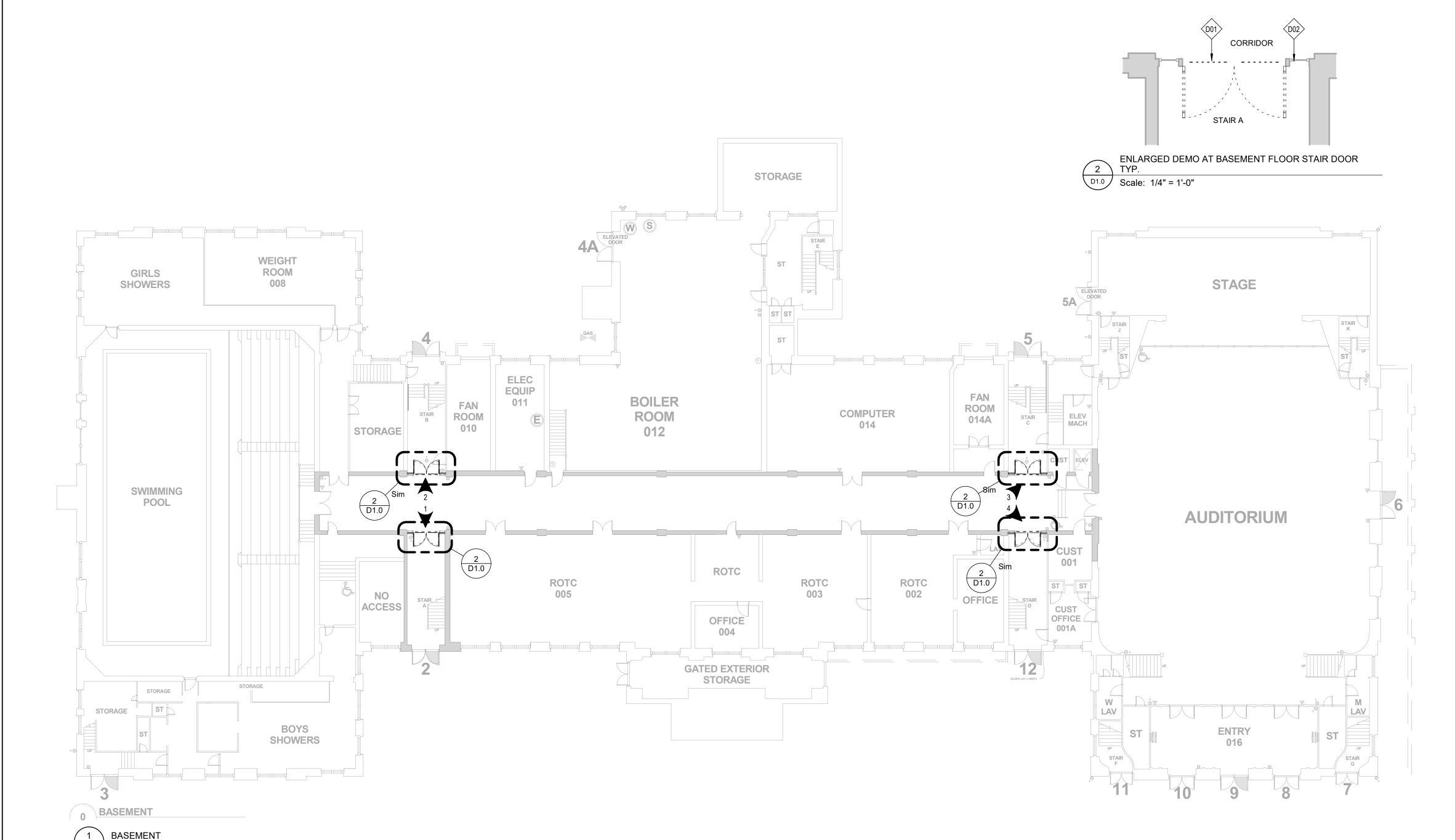


PHOTO 4 - STAIR D DOOR 000-D



#### DEMOLITION NOTES

- 1. ---- INDICATES ITEM OR AREA TO BE REMOVED.
- 3. PROTECT ALL AREAS ADJACENT TO OR AFFECTED BY WORK DURING CONSTRUCTION.
- 4. CLEAN WORK AREA AND AREAS AFFECTED BY CUTTING AND PATCHING OPERATIONS.

- 7. CAP ALL ABANDONED PLUMBING LINES AND ELECTRICAL OUTLETS.
- 9. PRECAUTIONS AND TEMPORARY SHORING SHALL BE PLACED TO MAINTAIN THE INTEGRITY OF THE EXISTING STRUCTURE THROUGHOUT DEMOLITION AND MASONRY
- 10. CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE AND ANY OTHER AUTHORITIES HAVING JURISDICTION PRIOR TO THE START OF DEMOLITION. COMPLY WITH GOVERNING CODES AND REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR
- 11. PROVIDE WEATHER TIGHT TEMPORARY PROTECTION FOR ALL OPENINGS IN EXTERIOR
- 12. SHOULD SUSPECTED HAZARDOUS MATERIALS BE ENCOUNTERED, CONTRACTOR
- MECHANICAL WORK; c.) VISUAL REQUIREMENTS, INCLUDING DÉTAILING AND
- 14. DO NOT CUT AND PATCH IN A MANNER THAT WOULD RESULT IN A FAILURE OF THE WORK TO PERFORM AS INTENDED, DECREASE ENERGY PERFORMANCE, INCREASE
- MATERIALS CONFORMING TO PROJECT REQUIREMENTS.
- 16. INSPECT CONDITIONS PRIOR TO WORK TO IDENTIFY SCOPE AND TYPE OF WORK REQUIRED. NOTIFY OWNER OF WORK REQUIRING INTERRUPTION TO BUILDING
- 18. PATCHING: MAKE PATCHES, SEAMS, AND JOINTS DURABLE AND INCONSPICUOUS.
- 20. REVIEW UNIQUE EXISTING CONDITIONS FOUND IN THE FIELD DURING DEMOLITION
- 21. CONTRACTOR TO ARRANGE FOR DISCONNECT AND CAPPING OF UTILITIES AS REQUIRED. PROTECT UTILITIES TO REMAIN. VERIFY LOCATION AND STATUS OF UTILITIES BEFORE BEGINNING DEMOLITION WORK.
- 23. PROTECT ADJACENT AREAS AND STRUCTURES TO REMAIN. CONTRACTOR IS RESPONSIBLE FOR RESTORING ANY AREAS OR SURFACES WHICH ARE DAMAGED BY THE CONTRACTOR OR ANY OF HIS SUBCONTRACTORS DURING DEMOLITION.

# **DEMOLITION LEGEND**

INDICATES ITEM OR AREA TO BE REMOVED WALL STRUCTURE TO REMAIN, WALL \_\_\_\_\_ WALL TO BE REMOVED IN ITS ENTIRETY \_\_\_\_\_ EXISTING DOOR & FRAME TO BE REMOVED 

KEYNOTE NUMBER	KEYNOTE	
D01	CAREFULLY REMOVE DOOR AND COORDINATE WITH OWNER FOR SALVAGE- REFER TO ALL DRAWINGS FOR DESIGN INTENT OF RESULTING OPENING AND DISPOSITION OFADJACENT CONSTRUCTION. LEAVE EXISTING HEAD AND JAMBS IN CLEAN, SQUARE AND TRUE CONDITION TO RECEIVE CONSTRUCTION AS	
D02	CAREFULLY REMOVE AV/ IT AND FIRE PROTECTION EQUIPMENT FROM	T
D02	CAREFULLY REMOVE AV/ IT AND FIRE PROTECTION EQUIPMENT FROM WALL AT STAIR SIDE AND REFER TO ENGINEERING DRAWINGS FOR PROPOSED RELOCATION	

- 2. PROVIDE TEMPORARY SUPPORT DURING REMOVAL OF ANY AND ALL STRUCTURAL
- PROVIDE DUST CONTAINMENT FOR ALL WORK AREAS.
- 5. PATCH WALLS & CEILING AT DEMO'D AREAS TO MATCH EXISTING ADJACENT SURFACES.
- 6. SEE DEMOLITION PLANS FOR SPECIFIC NOTES.
- 8. ALL PORTIONS OF THE BUILDING TO BE REMOVED SHALL BE LEGALLY DISPOSED OF OFF-SITE UNLESS DIRECTED OTHERWISE.
- OBTAINING ALL NECESSARY PERMITS REQUIRED TO COMPLETE THE WORK.
- WALLS, ROOF, AND AT WINDOW AND DOOR HEADS.
- SHALL NOTIFY ARCHITECT AND OWNER IMMEDIATELY.
- 13. PROVIDE CUTTING AND PATCHING WORK TO PROPERLY COMPLETE THE WORK OF THE PROJECT, COMPLYING WITH PROJECT REQUIREMENTS FOR: a.) STRUCTURAL WORK; b.) TOLERANCES.
- MAINTENANCE, DECREASE OPERATION LIFE, OR DECREASE SAFETY PERFORMANCE.
- 15. MATCH EXISTING MATERIALS FOR CUTTING AND PATCHING WORK WITH NEW
- SERVICES OR OWNER'S OPERATIONS.
- 17. CUTTING: USE CUTTING TOOLS, NOT CHOPPING TOOLS. MAKE NEAT HOLE. MINIMIZE DAMAGE TO ADJACENT WORK. INSPECT FOR CONCEALED UTILITIES AND STRUCTURE BEFORE CUTTING.
- 19. REFER TO A1 SHEETS FOR RELEVANT DIMENSIONS AND ADDITIONAL NOTES WHERE APPLICABLE.
- WITH ARCHITECT.
- 22. VERIFY WITH OWNER BEFORE STARTING WORK WHICH ITEMS ARE TO BE SALVAGED FOR THEIR USE. CAREFULLY REMOVE AND STORE SUCH ITEMS AS DIRECTED BY

Providence, RI 02908

EXISTING WINDOW AND FRAME TO BE REMOVED

# DEMOLITION KEYNOTES

KEYNOTE	JOB N	O.	DATE
	2144	1	11/25/24
CAREFULLY REMOVE DOOR AND COORDINATE WITH OWNER FOR SALVAGE- REFER TO ALL DRAWINGS FOR DESIGN INTENT OF RESULTING OPENING AND DISPOSITION OFADJACENT CONSTRUCTION. LEAVE EXISTING HEAD AND JAMBS IN CLEAN, SQUARE AND TRUE CONDITION TO RECEIVE CONSTRUCTION AS	ISSUE : PROJEC		T STATUS DESCRIPTION
CAREFULLY REMOVE AV/ IT AND FIRE PROTECTION EQUIPMENT FROM WALL AT STAIR SIDE AND REFER TO ENGINEERING DRAWINGS FOR PROPOSED RELOCATION			

DEMOLITION KEY NOTE, SEE KEY NOTE SCHEDULE

SHEET TITLE DEMOLITION BASEMENT FLOOR PLAN

WORK

SC

**ARCHITECTS** 

317 Iron Horse Way,

brewsterthornton.com

Suite 202

401.861.1600

**D1.0** 

3. PROTECT ALL AREAS ADJACENT TO OR AFFECTED BY WORK DURING CONSTRUCTION. PROVIDE DUST CONTAINMENT FOR ALL WORK AREAS.

4. CLEAN WORK AREA AND AREAS AFFECTED BY CUTTING AND PATCHING OPERATIONS.

5. PATCH WALLS & CEILING AT DEMO'D AREAS TO MATCH EXISTING ADJACENT SURFACES.

6. SEE DEMOLITION PLANS FOR SPECIFIC NOTES.

7. CAP ALL ABANDONED PLUMBING LINES AND ELECTRICAL OUTLETS.

8. ALL PORTIONS OF THE BUILDING TO BE REMOVED SHALL BE LEGALLY DISPOSED OF OFF-SITE UNLESS DIRECTED OTHERWISE.

9. PRECAUTIONS AND TEMPORARY SHORING SHALL BE PLACED TO MAINTAIN THE INTEGRITY OF THE EXISTING STRUCTURE THROUGHOUT DEMOLITION AND MASONRY

10. CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE AND ANY OTHER AUTHORITIES HAVING JURISDICTION PRIOR TO THE START OF DEMOLITION. COMPLY WITH GOVERNING CODES AND REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS REQUIRED TO COMPLETE THE WORK.

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15. MATCH EXISTING MATERIALS FOR CUTTING AND PATCHING WORK WITH NEW MATERIALS CONFORMING TO PROJECT REQUIREMENTS.

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INDICATES ITEM OR AREA TO BE REMOVED

WALL STRUCTURE TO REMAIN, WALL

WALL TO BE REMOVED IN ITS ENTIRETY

EXISTING DOOR & FRAME TO BE REMOVED

EXISTING WINDOW AND FRAME TO BE REMOVED



WORK

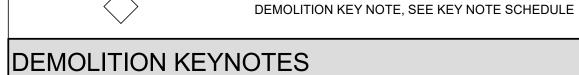
OF

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SC

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**DEMOLITION LEGEND** 

\_\_\_\_\_

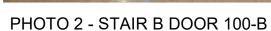
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KEYNOTE NUMBER	KEYNOTE				
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D02	RECEIVE CONSTRUCTION AS  CAREFULLY REMOVE AV/ IT AND FIRE PROTECTION EQUIPMENT FROM WALL AT STAIR SIDE AND REFER TO ENGINEERING DRAWINGS FOR PROPOSED RELOCATION				

2144 11/25/24 ISSUE: PROJECT STATUS NO. REVISION DESCRIPTION

SHEET TITLE DEMOLITION FIRST FLOOR PLAN





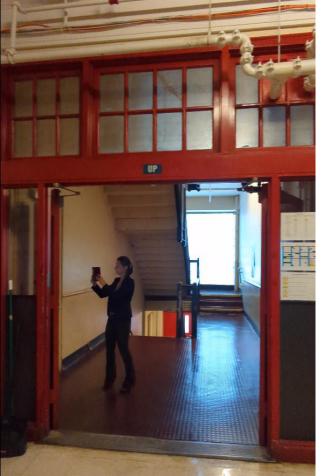


PHOTO 3 - STAIR C DOOR 100-C

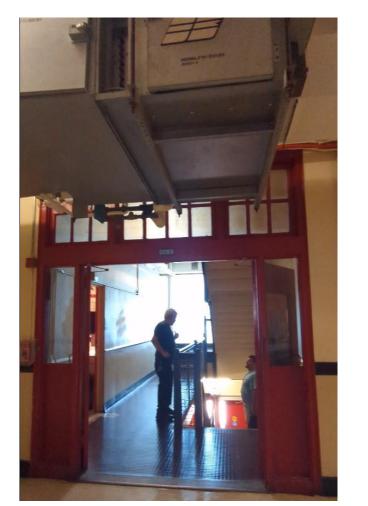
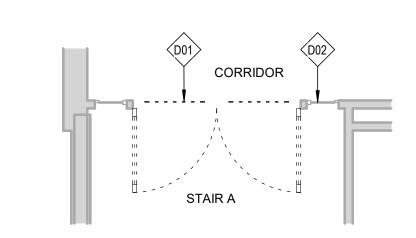
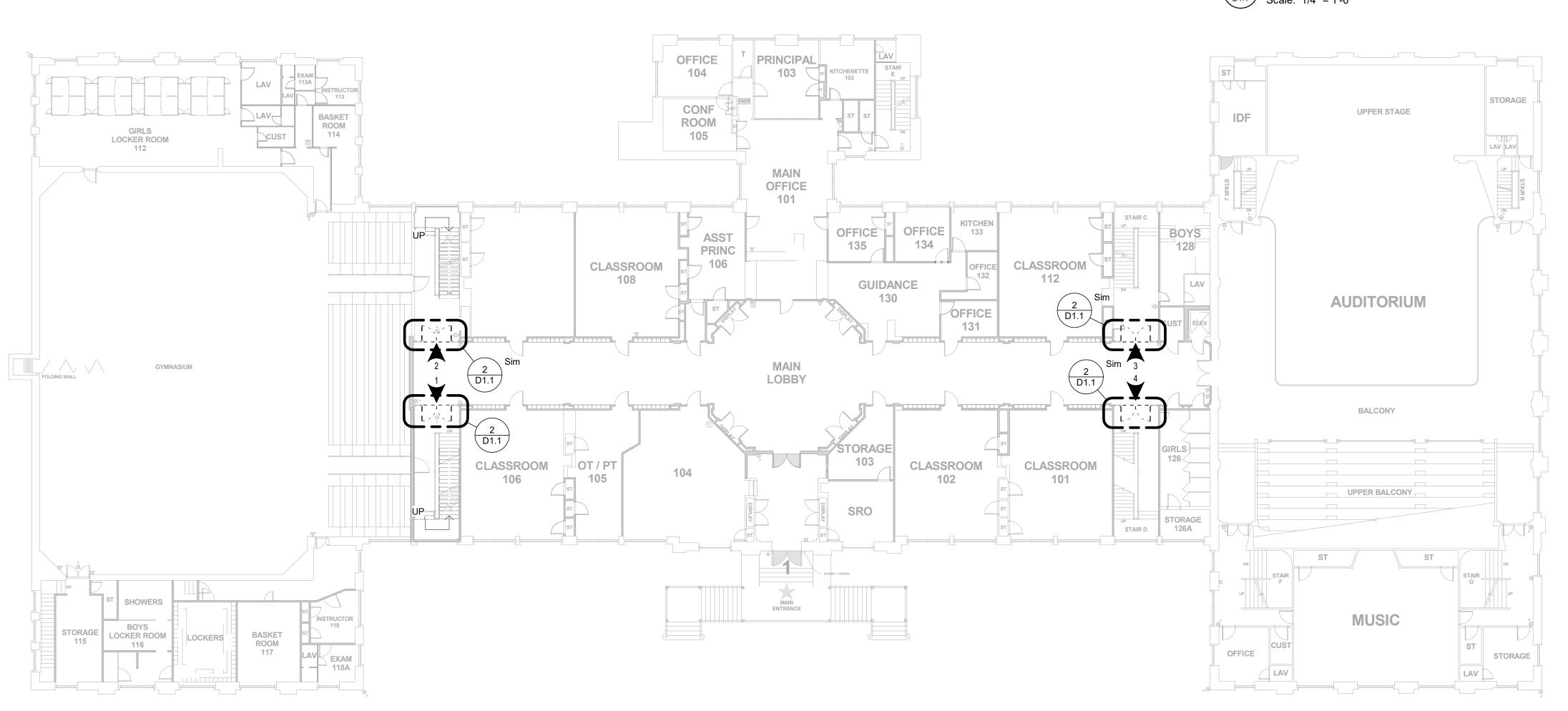


PHOTO 4 - STAIR D DOOR 100-D





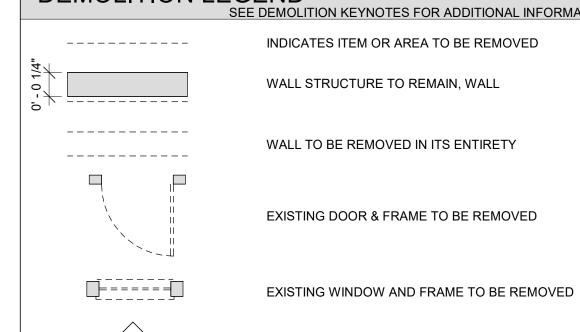


DEMO - LEVEL 1

D1.1 Scale: 1/16" = 1'-0"

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- 8. ALL PORTIONS OF THE BUILDING TO BE REMOVED SHALL BE LEGALLY DISPOSED OF OFF-SITE UNLESS DIRECTED OTHERWISE.
- 9. PRECAUTIONS AND TEMPORARY SHORING SHALL BE PLACED TO MAINTAIN THE INTEGRITY OF THE EXISTING STRUCTURE THROUGHOUT DEMOLITION AND MASONRY WORK
- 10. CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE AND ANY OTHER AUTHORITIES HAVING JURISDICTION PRIOR TO THE START OF DEMOLITION. COMPLY WITH GOVERNING CODES AND REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS REQUIRED TO COMPLETE THE WORK.
- 11. PROVIDE WEATHER TIGHT TEMPORARY PROTECTION FOR ALL OPENINGS IN EXTERIOR WALLS, ROOF, AND AT WINDOW AND DOOR HEADS.
- 12. SHOULD SUSPECTED HAZARDOUS MATERIALS BE ENCOUNTERED, CONTRACTOR SHALL NOTIFY ARCHITECT AND OWNER IMMEDIATELY.
- 13. PROVIDE CUTTING AND PATCHING WORK TO PROPERLY COMPLETE THE WORK OF THE PROJECT, COMPLYING WITH PROJECT REQUIREMENTS FOR: a.) STRUCTURAL WORK; b.) MECHANICAL WORK; c.) VISUAL REQUIREMENTS, INCLUDING DETAILING AND TOLERANCES.
- 14. DO NOT CUT AND PATCH IN A MANNER THAT WOULD RESULT IN A FAILURE OF THE WORK TO PERFORM AS INTENDED, DECREASE ENERGY PERFORMANCE, INCREASE MAINTENANCE, DECREASE OPERATION LIFE, OR DECREASE SAFETY PERFORMANCE.
- 15. MATCH EXISTING MATERIALS FOR CUTTING AND PATCHING WORK WITH NEW MATERIALS CONFORMING TO PROJECT REQUIREMENTS.
- 16. INSPECT CONDITIONS PRIOR TO WORK TO IDENTIFY SCOPE AND TYPE OF WORK REQUIRED. NOTIFY OWNER OF WORK REQUIRING INTERRUPTION TO BUILDING SERVICES OR OWNER'S OPERATIONS.
- 17. CUTTING: USE CUTTING TOOLS, NOT CHOPPING TOOLS. MAKE NEAT HOLE. MINIMIZE DAMAGE TO ADJACENT WORK. INSPECT FOR CONCEALED UTILITIES AND STRUCTURE BEFORE CUTTING.
- 18. PATCHING: MAKE PATCHES, SEAMS, AND JOINTS DURABLE AND INCONSPICUOUS.
- 19. REFER TO A1 SHEETS FOR RELEVANT DIMENSIONS AND ADDITIONAL NOTES WHERE APPLICABLE.
- 20. REVIEW UNIQUE EXISTING CONDITIONS FOUND IN THE FIELD DURING DEMOLITION WITH ARCHITECT.
- 21. CONTRACTOR TO ARRANGE FOR DISCONNECT AND CAPPING OF UTILITIES AS REQUIRED. PROTECT UTILITIES TO REMAIN. VERIFY LOCATION AND STATUS OF UTILITIES BEFORE BEGINNING DEMOLITION WORK.
- 22. VERIFY WITH OWNER BEFORE STARTING WORK WHICH ITEMS ARE TO BE SALVAGED FOR THEIR USE. CAREFULLY REMOVE AND STORE SUCH ITEMS AS DIRECTED BY OWNER.
- 23. PROTECT ADJACENT AREAS AND STRUCTURES TO REMAIN. CONTRACTOR IS RESPONSIBLE FOR RESTORING ANY AREAS OR SURFACES WHICH ARE DAMAGED BY THE CONTRACTOR OR ANY OF HIS SUBCONTRACTORS DURING DEMOLITION.

# DEMOLITION LEGEND



# DEMOLITION KEYNOTES

KEYNOTE NUMBER	KEYNOTE				
D01	CAREFULLY REMOVE DOOR AND COORDINATE WITH OWNER FOR SALVAGE- REFER TO ALL DRAWINGS FOR DESIGN INTENT OF RESULTING OPENING AND DISPOSITION OFADJACENT CONSTRUCTION. LEAVE EXISTING HEAD AND JAMBS IN CLEAN, SQUARE AND TRUE CONDITION TO RECEIVE CONSTRUCTION AS				
D02	CAREFULLY REMOVE AV/ IT AND FIRE PROTECTION EQUIPMENT FROM WALL AT STAIR SIDE AND REFER TO ENGINEERING DRAWINGS FOR PROPOSED RELOCATION				

DEMOLITION KEY NOTE, SEE KEY NOTE SCHEDULE

GROUP
ARCHITECTS

ARCHITECTS

317 Iron Horse Way,
Suite 202
Providence, RI 02908

401.861.1600 brewsterthornton.com

JOB NO. DATE
2144 11/25/24

ISSUE : PROJECT STATUS

NO. REVISION DESCRIPTION DATE

DEMOLITION
SECOND FLOOR
PLAN

D1.2

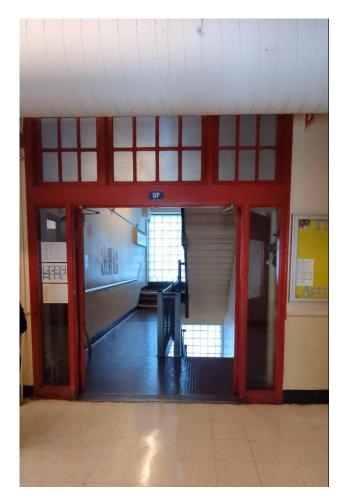
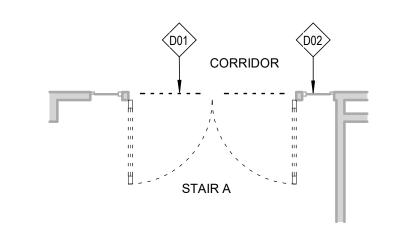




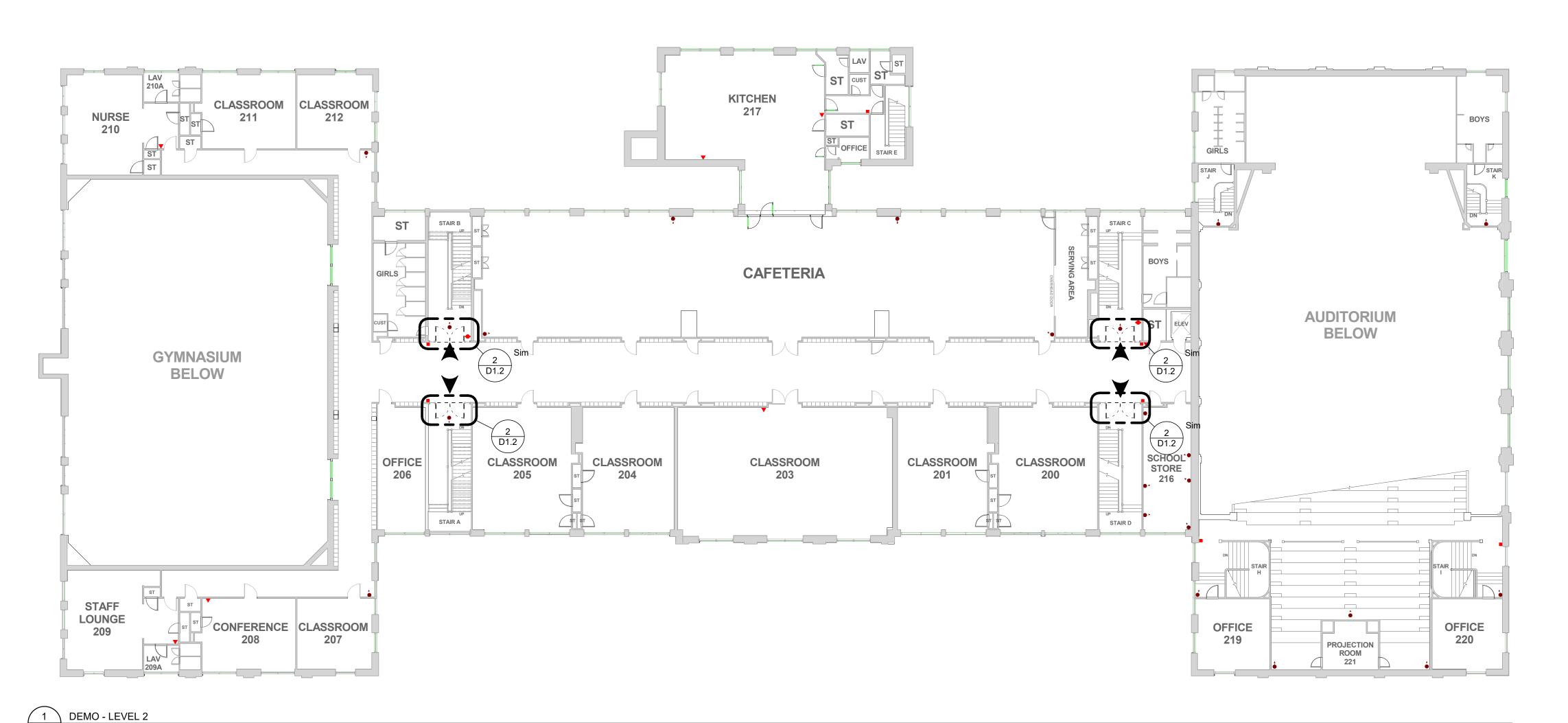
PHOTO 2 - STAIR B DOOR 200-B

PHOTO 3 - STAIR C DOOR 200-C



2 ENLARGED DEMO AT SECOND FLOOR STAIR DOOR TYP.

D1.2 Scale: 1/4" = 1'-0"



D1.2 Scale: 1/16" = 1'-0"



1 DEMO - LEVEL 3
D1.3 Scale: 1/16" = 1'-0"

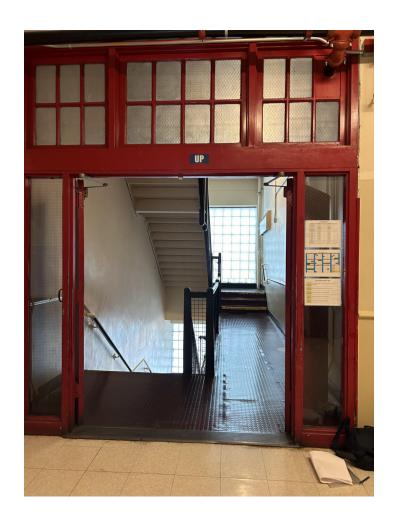
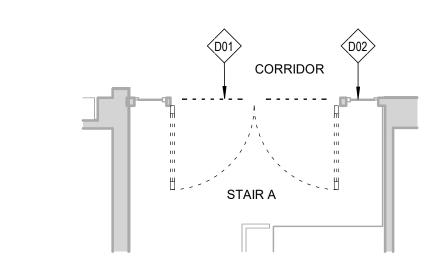
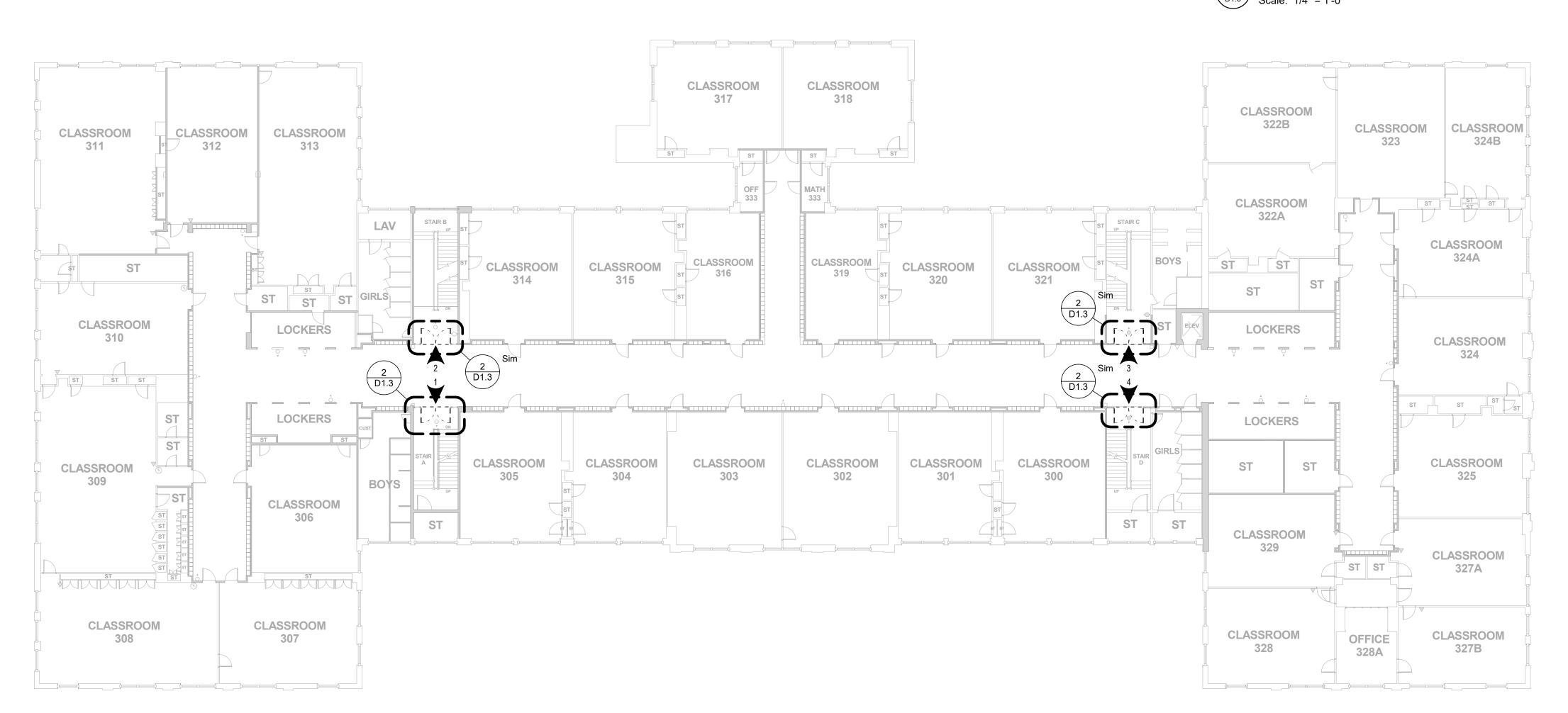


PHOTO 3 - STAIR C DOOR 300-C



2 ENLARGED DEMO AT THIRD FLOOR STAIR DOOR TYP.

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



#### **DEMOLITION NOTES**

- 1. ---- INDICATES ITEM OR AREA TO BE REMOVED.
- 2. PROVIDE TEMPORARY SUPPORT DURING REMOVAL OF ANY AND ALL STRUCTURAL ELEMENTS.
- 3. PROTECT ALL AREAS ADJACENT TO OR AFFECTED BY WORK DURING CONSTRUCTION. PROVIDE DUST CONTAINMENT FOR ALL WORK AREAS.
- 4. CLEAN WORK AREA AND AREAS AFFECTED BY CUTTING AND PATCHING OPERATIONS.
- 5. PATCH WALLS & CEILING AT DEMO'D AREAS TO MATCH EXISTING ADJACENT SURFACES.
- 6. SEE DEMOLITION PLANS FOR SPECIFIC NOTES.
- 7. CAP ALL ABANDONED PLUMBING LINES AND ELECTRICAL OUTLETS.
- 8. ALL PORTIONS OF THE BUILDING TO BE REMOVED SHALL BE LEGALLY DISPOSED OF OFF-SITE UNLESS DIRECTED OTHERWISE.
- 9. PRECAUTIONS AND TEMPORARY SHORING SHALL BE PLACED TO MAINTAIN THE INTEGRITY OF THE EXISTING STRUCTURE THROUGHOUT DEMOLITION AND MASONRY
- 10. CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE AND ANY OTHER AUTHORITIES HAVING JURISDICTION PRIOR TO THE START OF DEMOLITION. COMPLY WITH GOVERNING CODES AND REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS REQUIRED TO COMPLETE THE WORK.
- 11. PROVIDE WEATHER TIGHT TEMPORARY PROTECTION FOR ALL OPENINGS IN EXTERIOR WALLS, ROOF, AND AT WINDOW AND DOOR HEADS.
- 12. SHOULD SUSPECTED HAZARDOUS MATERIALS BE ENCOUNTERED, CONTRACTOR SHALL NOTIFY ARCHITECT AND OWNER IMMEDIATELY.
- 13. PROVIDE CUTTING AND PATCHING WORK TO PROPERLY COMPLETE THE WORK OF THE PROJECT, COMPLYING WITH PROJECT REQUIREMENTS FOR: a.) STRUCTURAL WORK; b.) MECHANICAL WORK; c.) VISUAL REQUIREMENTS, INCLUDING DETAILING AND TOLERANCES.
- 14. DO NOT CUT AND PATCH IN A MANNER THAT WOULD RESULT IN A FAILURE OF THE WORK TO PERFORM AS INTENDED, DECREASE ENERGY PERFORMANCE, INCREASE MAINTENANCE, DECREASE OPERATION LIFE, OR DECREASE SAFETY PERFORMANCE.
- 15. MATCH EXISTING MATERIALS FOR CUTTING AND PATCHING WORK WITH NEW MATERIALS CONFORMING TO PROJECT REQUIREMENTS.
- 16. INSPECT CONDITIONS PRIOR TO WORK TO IDENTIFY SCOPE AND TYPE OF WORK REQUIRED. NOTIFY OWNER OF WORK REQUIRING INTERRUPTION TO BUILDING SERVICES OR OWNER'S OPERATIONS.
- 17. CUTTING: USE CUTTING TOOLS, NOT CHOPPING TOOLS. MAKE NEAT HOLE. MINIMIZE DAMAGE TO ADJACENT WORK. INSPECT FOR CONCEALED UTILITIES AND STRUCTURE BEFORE CUTTING.
- 18. PATCHING: MAKE PATCHES, SEAMS, AND JOINTS DURABLE AND INCONSPICUOUS.
- 19. REFER TO A1 SHEETS FOR RELEVANT DIMENSIONS AND ADDITIONAL NOTES WHERE APPLICABLE.
- 20. REVIEW UNIQUE EXISTING CONDITIONS FOUND IN THE FIELD DURING DEMOLITION WITH ARCHITECT.
- 21. CONTRACTOR TO ARRANGE FOR DISCONNECT AND CAPPING OF UTILITIES AS REQUIRED. PROTECT UTILITIES TO REMAIN. VERIFY LOCATION AND STATUS OF UTILITIES BEFORE BEGINNING DEMOLITION WORK.
- 22. VERIFY WITH OWNER BEFORE STARTING WORK WHICH ITEMS ARE TO BE SALVAGED FOR THEIR USE. CAREFULLY REMOVE AND STORE SUCH ITEMS AS DIRECTED BY OWNER.
- 23. PROTECT ADJACENT AREAS AND STRUCTURES TO REMAIN. CONTRACTOR IS RESPONSIBLE FOR RESTORING ANY AREAS OR SURFACES WHICH ARE DAMAGED BY THE CONTRACTOR OR ANY OF HIS SUBCONTRACTORS DURING DEMOLITION.

# DEMOLITION LEGEND

SEE DEMOLITION KEYNOTES FOR ADDITIONAL INFORMATION
INDICATES ITEM OR AREA TO BE REMOVED

WALL STRUCTURE TO REMAIN, WALL

WALL TO BE REMOVED IN ITS ENTIRETY

EXISTING DOOR & FRAME TO BE REMOVED

EXISTING WINDOW AND FRAME TO BE REMOVED

# DEMOLITION KEYNOTES

KEYNOTE NUMBER	KEYNOTE
D01	CAREFULLY REMOVE DOOR AND COORDINATE WITH OWNER FOR SALVAGE- REFER TO ALL DRAWINGS FOR DESIGN INTENT OF RESULTING OPENING AND DISPOSITION OFADJACENT CONSTRUCTION. LEAVE EXISTING HEAD AND JAMBS IN CLEAN, SQUARE AND TRUE CONDITION TO RECEIVE CONSTRUCTION AS
D02	CAREFULLY REMOVE AV/ IT AND FIRE PROTECTION EQUIPMENT FROM WALL AT STAIR SIDE AND REFER TO ENGINEERING DRAWINGS FOR PROPOSED RELOCATION

DEMOLITION KEY NOTE, SEE KEY NOTE SCHEDULE

# \_

SCOPE OF WORK
LLMAN HIGH SCHO



317 Iron Horse Way, Suite 202 Providence, RI 02908

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JOB NO. DATE
2144 11/25/24

ISSUE : PROJECT STATUS

NO. REVISION DESCRIPTION DATE

DEMOLITION
THIRD FLOOR
PLAN

SHEET 1

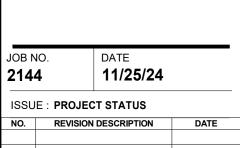


OP SC

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Providence, RI 02908



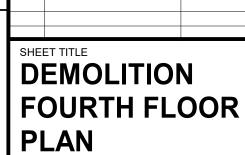
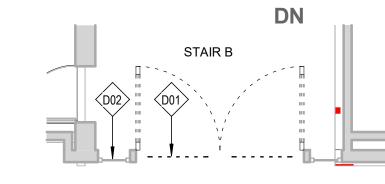




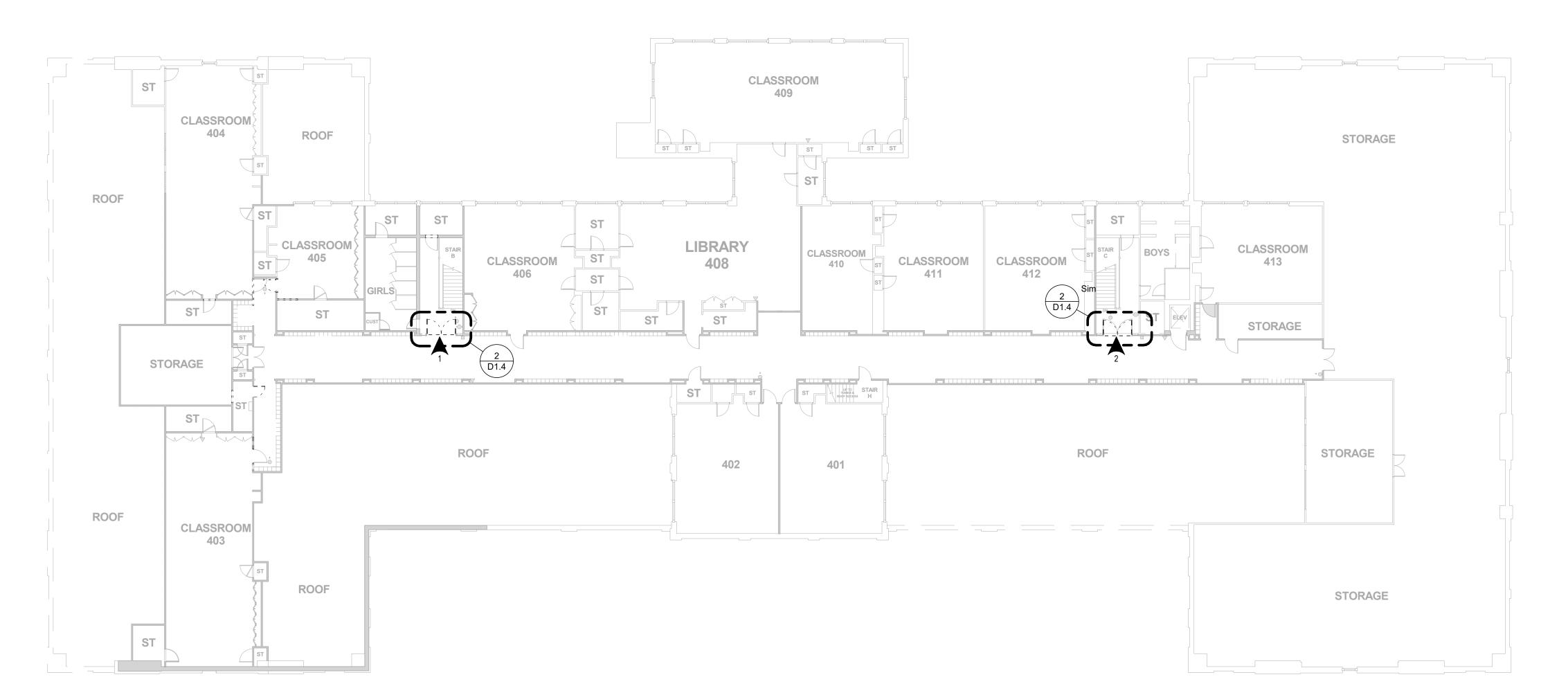




PHOTO 2 - STAIR C DOOR 400-C

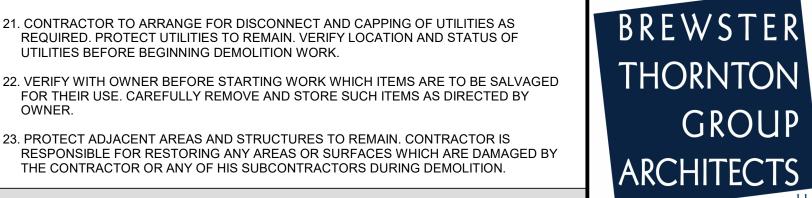


2 \ ENLARGED DEMO AT FOURTH FLOOR STAIR DOOR TYP. D1.4 Scale: 1/4" = 1'-0"





CORRIDOR



Suite 202

**DEMOLITION LEGEND** 

INDICATES ITEM OR AREA TO BE REMOVED WALL STRUCTURE TO REMAIN, WALL

WALL TO BE REMOVED IN ITS ENTIRETY

EXISTING DOOR & FRAME TO BE REMOVED

EXISTING WINDOW AND FRAME TO BE REMOVED

DEMOLITION KEY NOTE, SEE KEY NOTE SCHEDULE

DEMOLITION KEYNOTES

KEYNOTE NUMBER	KEYNOTE
D01	CAREFULLY REMOVE DOOR AND COORDINATE WITH OWNER FOR SALVAGE- REFER TO ALL DRAWINGS FOR DESIGN INTENT OF RESULTING OPENING AND DISPOSITION OFADJACENT CONSTRUCTION. LEAVE EXISTING HEAD AND JAMBS IN CLEAN, SQUARE AND TRUE CONDITION TO RECEIVE CONSTRUCTION AS
D02	CAREFULLY REMOVE AV/ IT AND FIRE PROTECTION EQUIPMENT FROM WALL AT STAIR SIDE AND REFER TO ENGINEERING DRAWINGS FOR PROPOSED RELOCATION

DEMOLITION NOTES

1. ---- INDICATES ITEM OR AREA TO BE REMOVED.

6. SEE DEMOLITION PLANS FOR SPECIFIC NOTES.

OFF-SITE UNLESS DIRECTED OTHERWISE.

WALLS, ROOF, AND AT WINDOW AND DOOR HEADS.

SHALL NOTIFY ARCHITECT AND OWNER IMMEDIATELY.

MATERIALS CONFORMING TO PROJECT REQUIREMENTS.

UTILITIES BEFORE BEGINNING DEMOLITION WORK.

SERVICES OR OWNER'S OPERATIONS.

TOLERANCES.

BEFORE CUTTING.

WITH ARCHITECT.

-----

\_\_\_\_\_

APPLICABLE.

PROVIDE DUST CONTAINMENT FOR ALL WORK AREAS.

7. CAP ALL ABANDONED PLUMBING LINES AND ELECTRICAL OUTLETS.

9. PRECAUTIONS AND TEMPORARY SHORING SHALL BE PLACED TO MAINTAIN THE

10. CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE AND ANY OTHER

OBTAINING ALL NECESSARY PERMITS REQUIRED TO COMPLETE THE WORK.

12. SHOULD SUSPECTED HAZARDOUS MATERIALS BE ENCOUNTERED, CONTRACTOR

MECHANICAL WORK; c.) VISUAL REQUIREMENTS, INCLUDING DÉTAILING AND

15. MATCH EXISTING MATERIALS FOR CUTTING AND PATCHING WORK WITH NEW

16. INSPECT CONDITIONS PRIOR TO WORK TO IDENTIFY SCOPE AND TYPE OF WORK REQUIRED. NOTIFY OWNER OF WORK REQUIRING INTERRUPTION TO BUILDING

17. CUTTING: USE CUTTING TOOLS, NOT CHOPPING TOOLS. MAKE NEAT HOLE. MINIMIZE DAMAGE TO ADJACENT WORK. INSPECT FOR CONCEALED UTILITIES AND STRUCTURE

18. PATCHING: MAKE PATCHES, SEAMS, AND JOINTS DURABLE AND INCONSPICUOUS.

19. REFER TO A1 SHEETS FOR RELEVANT DIMENSIONS AND ADDITIONAL NOTES WHERE

20. REVIEW UNIQUE EXISTING CONDITIONS FOUND IN THE FIELD DURING DEMOLITION

21. CONTRACTOR TO ARRANGE FOR DISCONNECT AND CAPPING OF UTILITIES AS REQUIRED. PROTECT UTILITIES TO REMAIN. VERIFY LOCATION AND STATUS OF

23. PROTECT ADJACENT AREAS AND STRUCTURES TO REMAIN. CONTRACTOR IS

THE CONTRACTOR OR ANY OF HIS SUBCONTRACTORS DURING DEMOLITION.

14. DO NOT CUT AND PATCH IN A MANNER THAT WOULD RESULT IN A FAILURE OF THE WORK TO PERFORM AS INTENDED, DECREASE ENERGY PERFORMANCE, INCREASE MAINTENANCE, DECREASE OPERATION LIFE, OR DECREASE SAFETY PERFORMANCE.

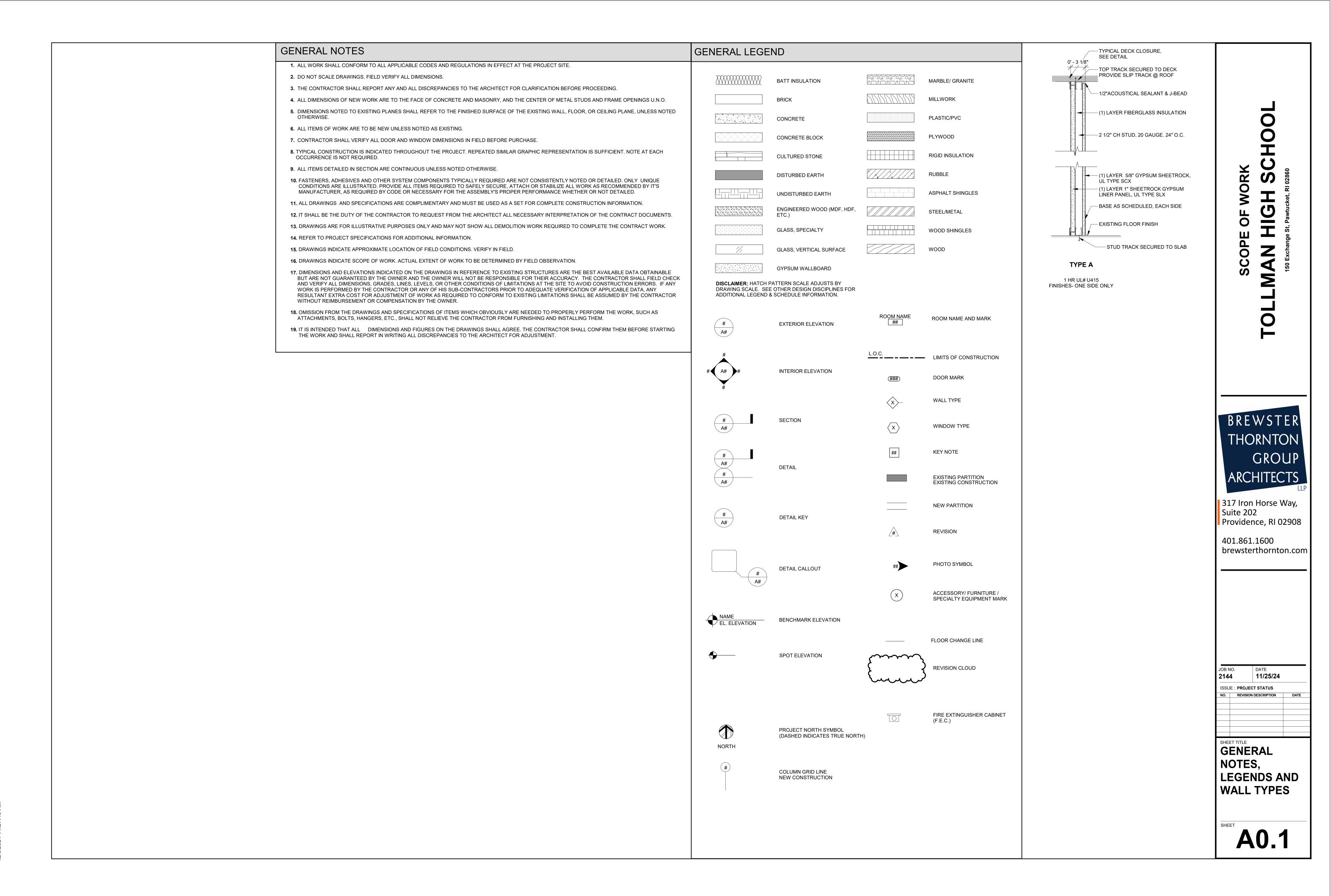
13. PROVIDE CUTTING AND PATCHING WORK TO PROPERLY COMPLETE THE WORK OF THE

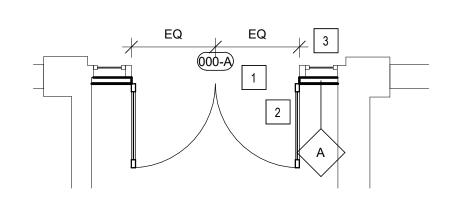
PROJECT, COMPLYING WITH PROJECT REQUIREMENTS FOR: a.) STRUCTURAL WORK; b.)

WITH GOVERNING CODES AND REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR

2. PROVIDE TEMPORARY SUPPORT DURING REMOVAL OF ANY AND ALL STRUCTURAL

KEYNOTE NUMBER	KEYNOTE
D01	CAREFULLY REMOVE DOOR AND COORDINATE WITH OWNER FOR SALVAGE- REFER TO ALL DRAWINGS FOR DESIGN INTENT OF RESULTING OPENING AND DISPOSITION OFADJACENT CONSTRUCTION. LEAVE EXISTING HEAD AND JAMBS IN CLEAN, SQUARE AND TRUE CONDITION TO RECEIVE CONSTRUCTION AS
D02	CAREFULLY REMOVE AV/ IT AND FIRE PROTECTION EQUIPMENT FROM WALL AT STAIR SIDE AND REFER TO ENGINEERING DRAWINGS FOR PROPOSED RELOCATION



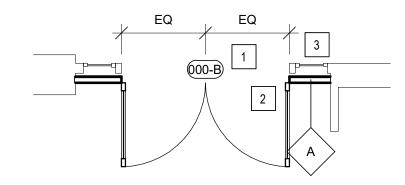


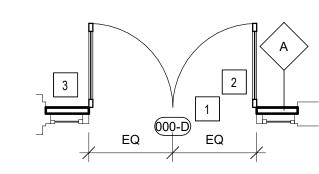
000-C 2 3 1 1 EQ EQ

1 LEVEL 0- NEW EGRESS DOOR CONSTRUCTION- 000-A

A1.1A Scale: 1/4" = 1'-0"

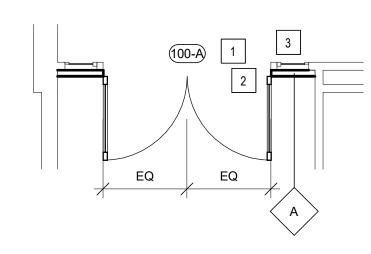
2 LEVEL 0- NEW EGRESS DOOR CONSTRUCTION- 000-B
Scale: 1/4" = 1'-0"

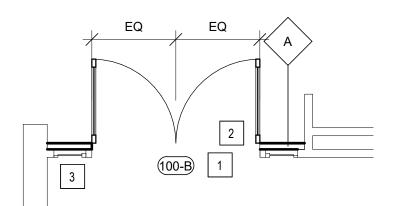




3 LEVEL 0- NEW EGRESS DOOR CONSTRUCTION- 000-C
A1.1A Scale: 1/4" = 1'-0"

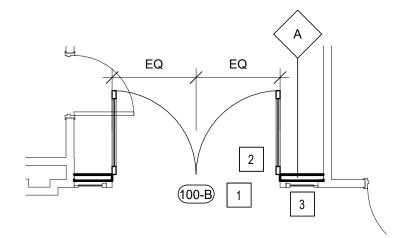
LEVEL 0- NEW EGRESS DOOR CONSTRUCTION- 000-D
Scale: 1/4" = 1'-0"

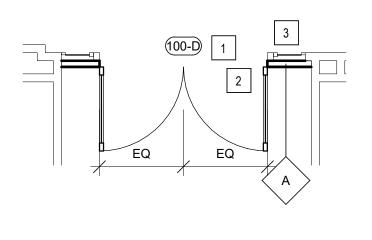




5 LEVEL 1- NEW EGRESS DOOR CONSTRUCTION- 100-A
A1.1A Scale: 1/4" = 1'-0"

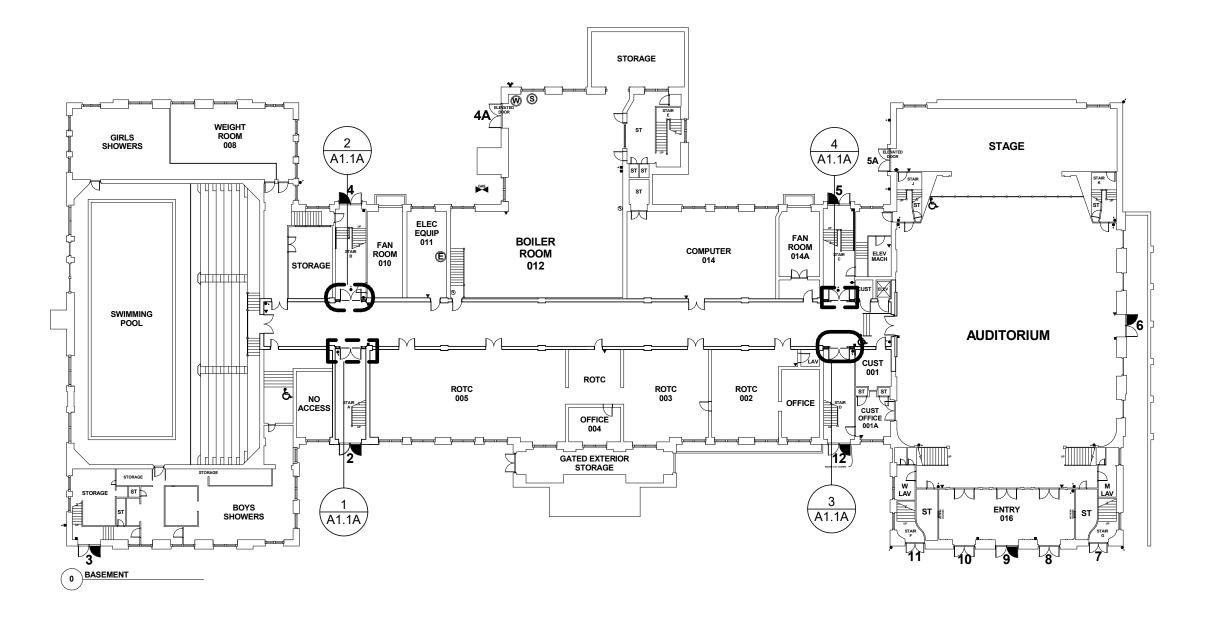
6 LEVEL 1- NEW EGRESS DOOR CONSTRUCTION- 100-B
A1.1A Scale: 1/4" = 1'-0"



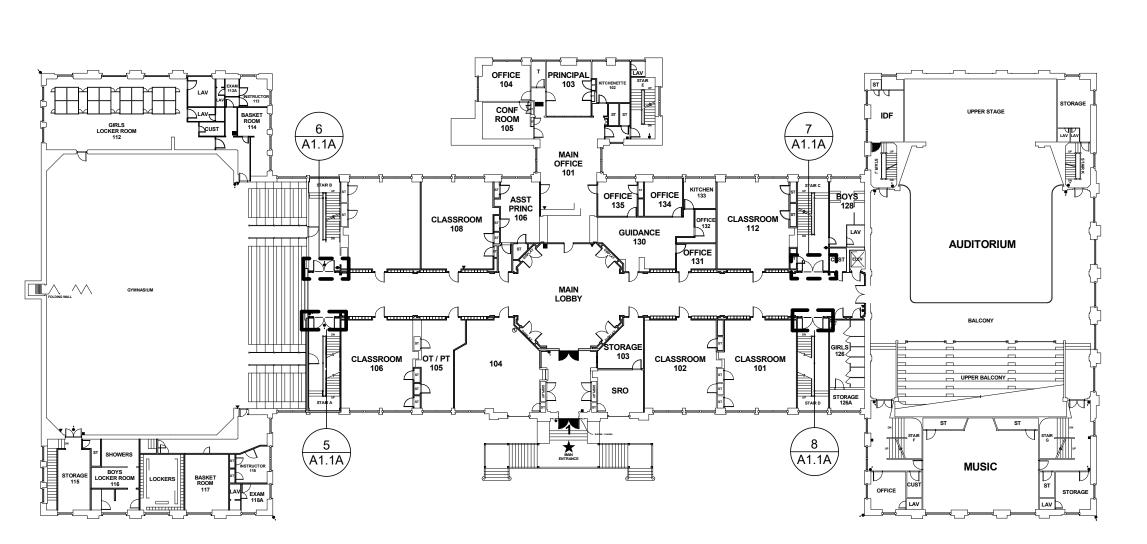


T LEVEL 1- NEW EGRESS DOOR CONSTRUCTION- 100-C
A1.1A Scale: 1/4" = 1'-0"

8 LEVEL 1- NEW EGRESS DOOR CONSTRUCTION- 100-D
Scale: 1/4" = 1'-0"



9 LEVEL 0 - KEY PLAN
A1.1A Scale: 1/32" = 1'-0"



10 LEVEL 1 KEY PLAN
A1.1A Scale: 1/32" = 1'-0"

	CONSTRUCTION NOTES				
EYNOTE UMBER	DESCRIPTION	JOB N <b>214</b>	-	DATE 11/25/24	
		 ISSU	E : PROJEC	T STATUS	
	INSTALL DOUBLE DOORS WITH DOOR HARDWARE IN FIRE RATED W PER DOOR SCHEDULE. CAREFULLY ALIGN THE DOORS TO MATCH E OPENING IN EX. STOREFRONT WALL	ALL NO. X.	REVISION	DATE	
	REINSTALL EXISTING AV/IT, FIRE ALARM EQUIPMEN. REFER TO MER DWGS FOR LOCATION.				
	APPLY FILM ON GLASS PANELS OF EX. STOREFRONT ON THE CORF SIDE. INSTALL 1-HR RATED WALL AS SHOWN.	IDOR			

BASEMENT &
LEVEL 1 FLOOR
PLAN

WORK

OF

SCOPE

BREWSTER

THORNTON

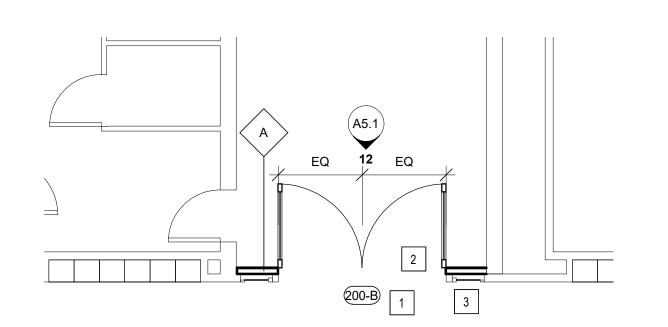
**ARCHITECTS** 

317 Iron Horse Way, Suite 202 Providence, RI 02908

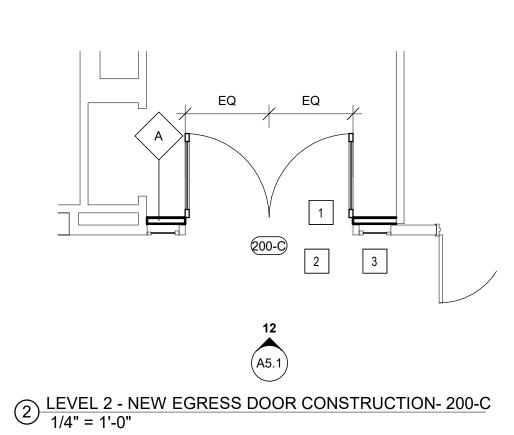
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GROUP

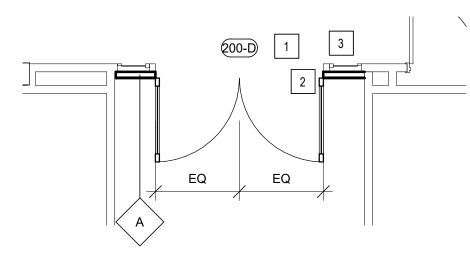
A1.1A



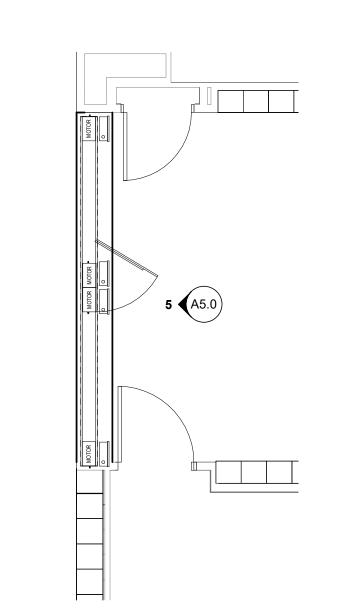
1 LEVEL 2 - NEW EGRESS DOOR CONSTRUCTION- 200-B



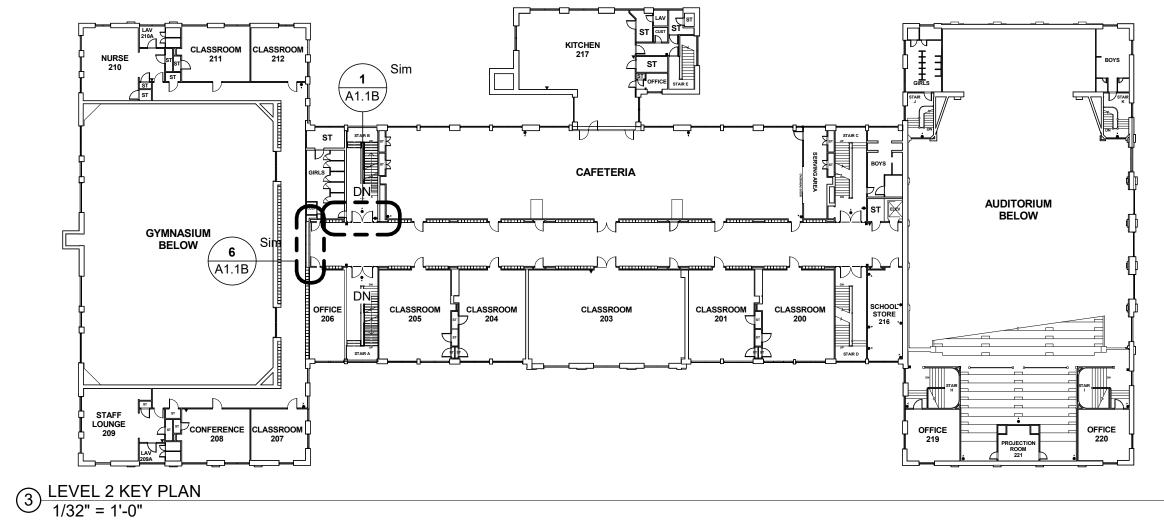
4 LEVEL 2 - NEW EGRESS DOOR CONSTRUCTION- 200-A
1/4" = 1'-0"



5 LEVEL 2 - NEW EGRESS DOOR CONSTRUCTION- 200-D 1/4" = 1'-0"



6 LEVEL 2 @ FIRETECH CURTAIN SOFFIT 1/4" = 1'-0"



CONSTRUCTION NOTES		
KEYNOTE NUMBER	DESCRIPTION	
1	INSTALL DOUBLE DOORS WITH DOOR HARDWARE IN FIRE RATED W PER DOOR SCHEDULE. CAREFULLY ALIGN THE DOORS TO MATCH E OPENING IN EX. STOREFRONT WALL	
2	REINSTALL EXISTING AV/IT, FIRE ALARM EQUIPMEN. REFER TO MER DWGS FOR LOCATION.	
3	APPLY FILM ON GLASS PANELS OF EX. STOREFRONT ON THE CORF SIDE. INSTALL 1-HR RATED WALL AS SHOWN.	IDOF

BREWSTER
THORNTON
GROUP
ARCHITECTS
LLP
317 Iron Horse Way,

**OF WORK** 

SCOPE

317 Iron Horse Way, Suite 202 Providence, RI 02908

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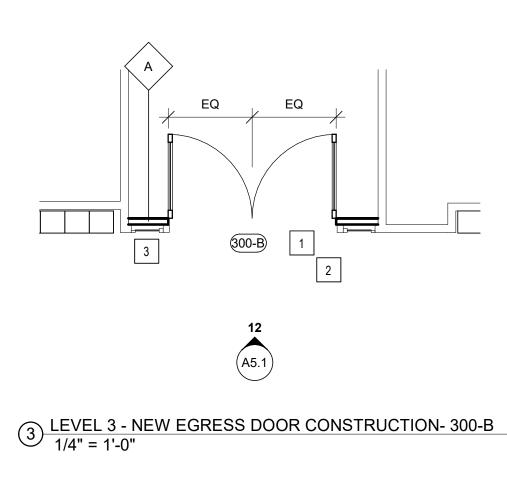
JOB NO. DATE
2144 11/25/24

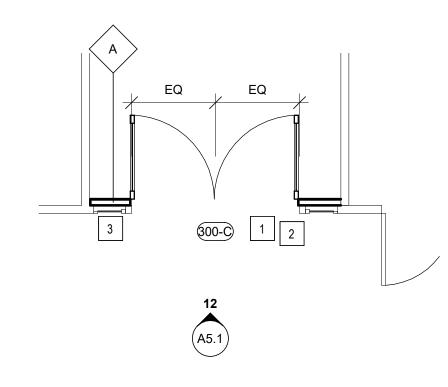
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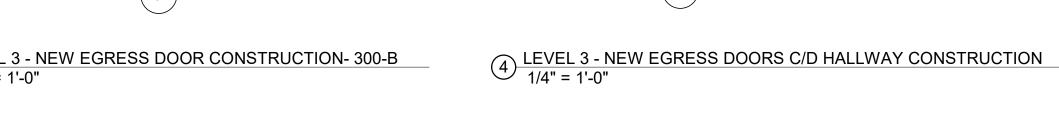
NO. REVISION DESCRIPTION DATE

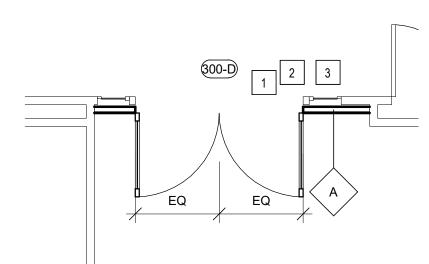
LEVEL 2 FLOOR PLAN

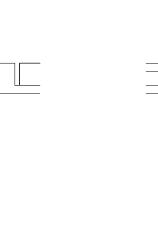
**A1.1B** 



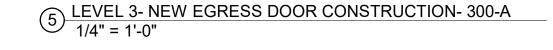


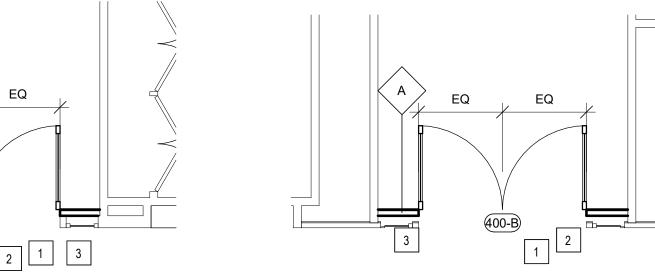


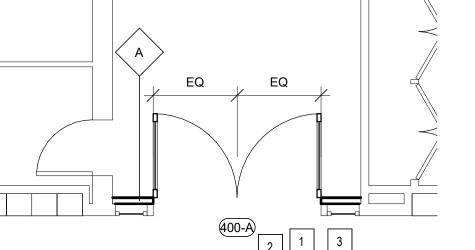




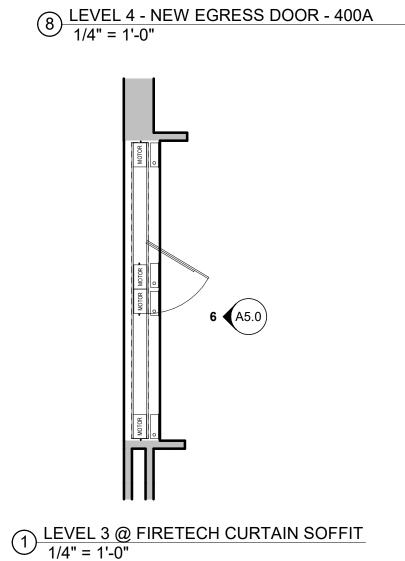
6 LEVEL 3 - NEW EGRESS DOOR CONSTRUCTION-300-D
1/4" = 1'-0"

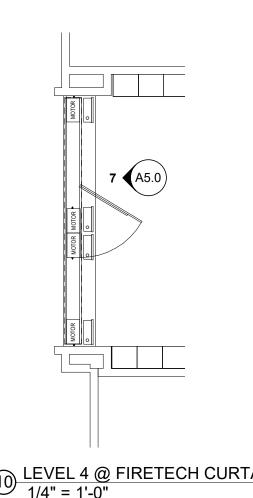




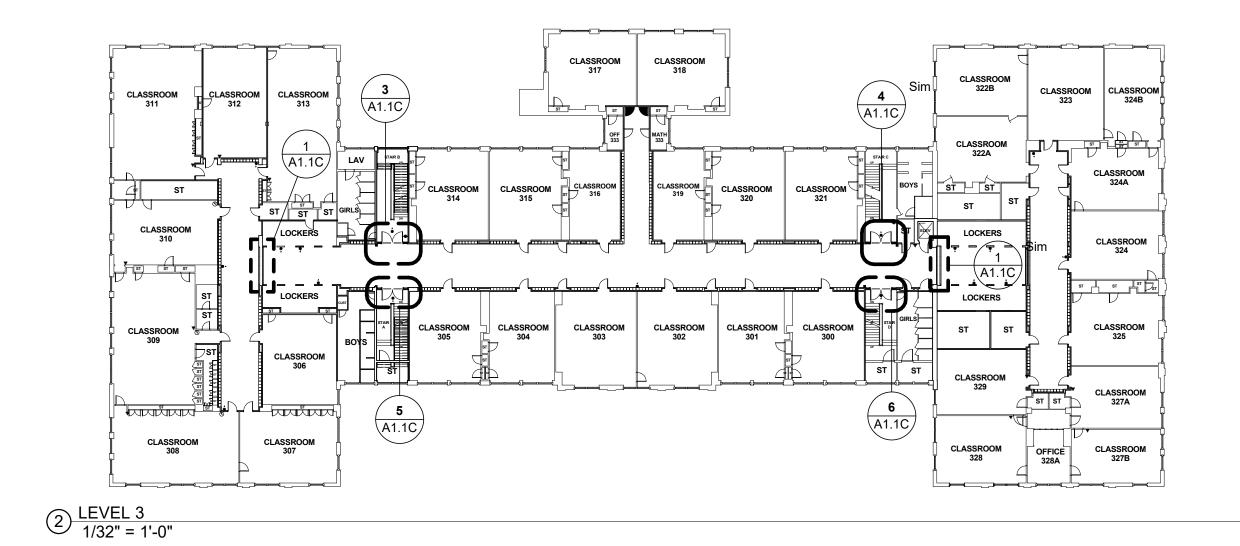


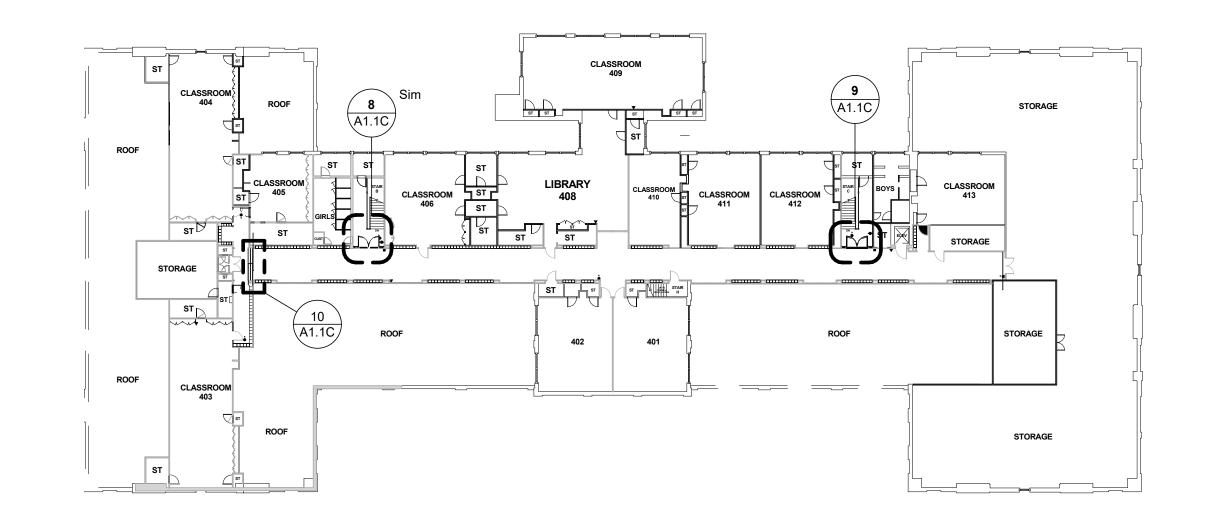
9 LEVEL 4 - NEW EGRESS DOOR - 400B 1/4" = 1'-0"





10 LEVEL 4 @ FIRETECH CURTAIN SOFFIT 1/4" = 1'-0"





7 LEVEL 4. 1/32" = 1'-0"

CONSTRUCTION NOTES		
KEYNOTE NUMBER	DESCRIPTION	
1	INSTALL DOUBLE DOORS WITH DOOR HARDWARE IN FIRE RATED WALL PER DOOR SCHEDULE. CAREFULLY ALIGN THE DOORS TO MATCH EX. OPENING IN EX. STOREFRONT WALL	
2	REINSTALL EXISTING AV/IT, FIRE ALARM EQUIPMEN. REFER TO MEP DWGS FOR LOCATION.	
3	APPLY FILM ON GLASS PANELS OF EX. STOREFRONT ON THE CORRIDOR SIDE. INSTALL 1-HR RATED WALL AS SHOWN.	

# WORK OF SCOPE

BREWSTER **THORNTON ARCHITECTS** 

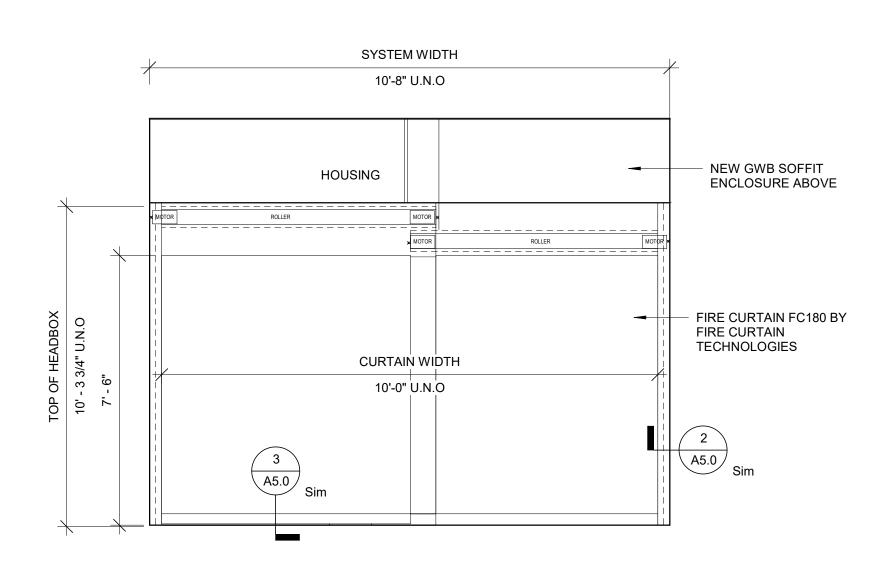
317 Iron Horse Way, Suite 202 Providence, RI 02908

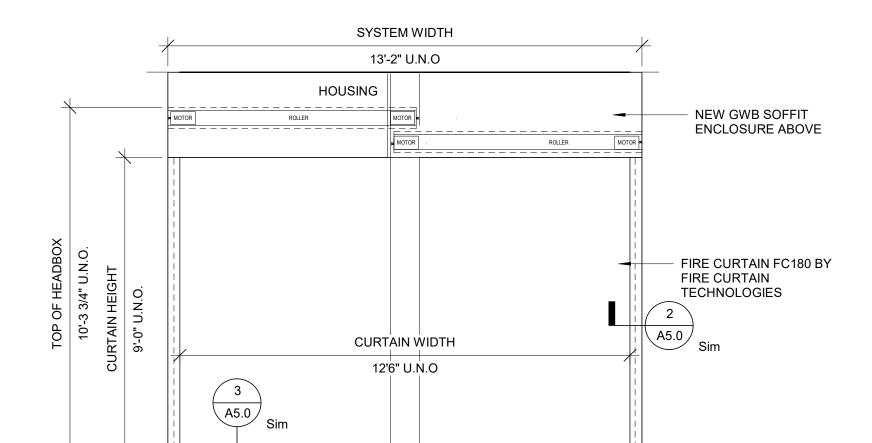
401.861.1600 brewsterthornton.com

OB NO. 2144		DATE 11/25/24		
SSUE : PROJECT STATUS				
NO.	REVISION DESCRIPTION DATE		DATE	

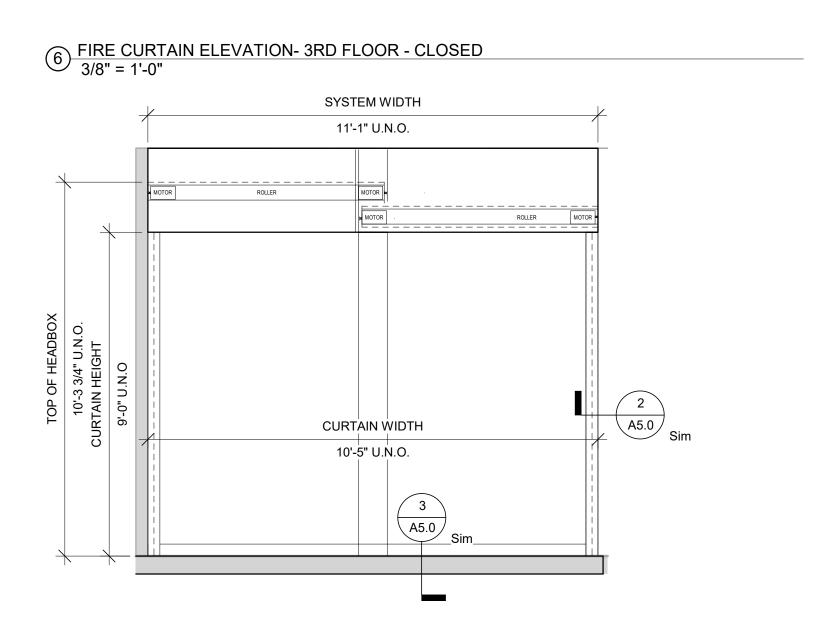
LEVEL 3 & 4
FLOOR PLAN

A1.1C

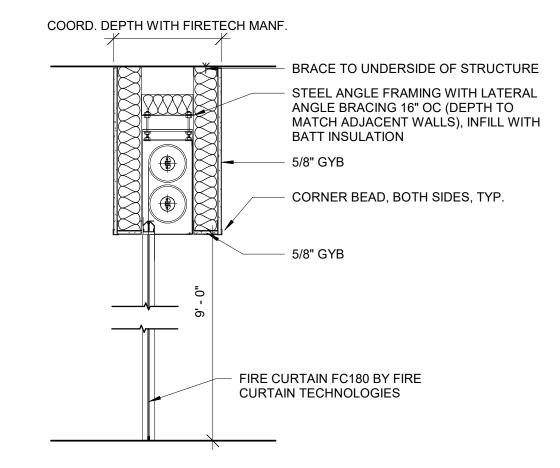




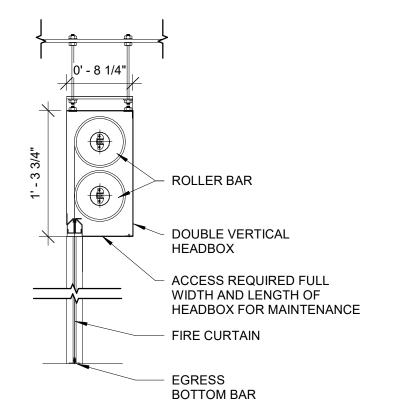
5 FIRE CURTAIN ELEVATION- 2ND FLOOR - CLOSED 3/8" = 1'-0"



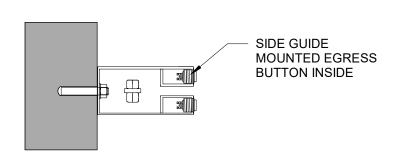
7 FIRE CURTAIN ELEVATION- 4TH FLOOR - CLOSED 3/8" = 1'-0"



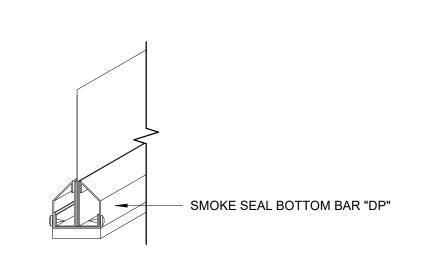




8 FIRE CURTAIN HEAD HOUSING 1" = 1'-0"



2 -FIRE CURTAIN-JAMB SEAL DETAIL 3" = 1'-0"



3 -FIRE CURTAIN-BOTTOM SEAL DETAIL
3" = 1'-0"



WORK

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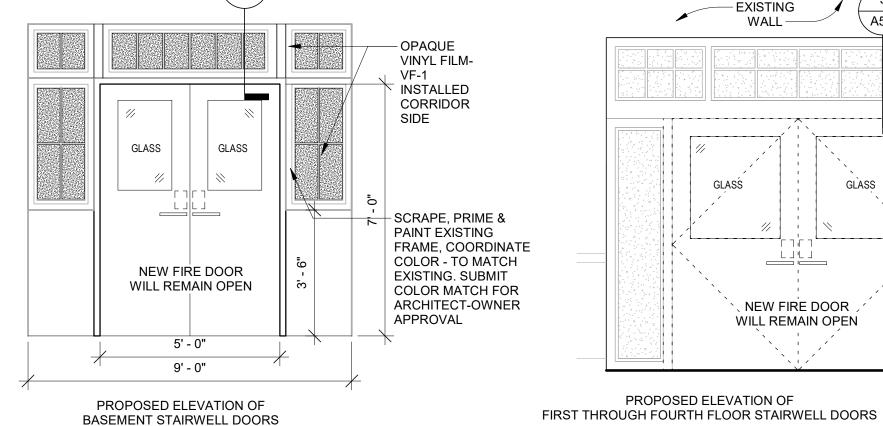
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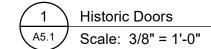
FIRE CURTAIN
DETAILS

**A5.0** 



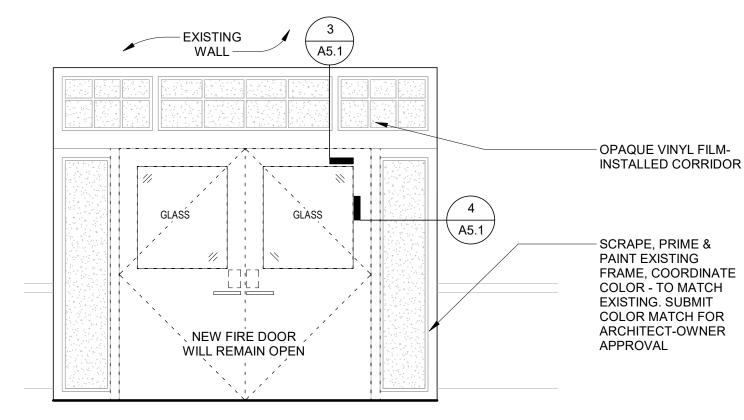


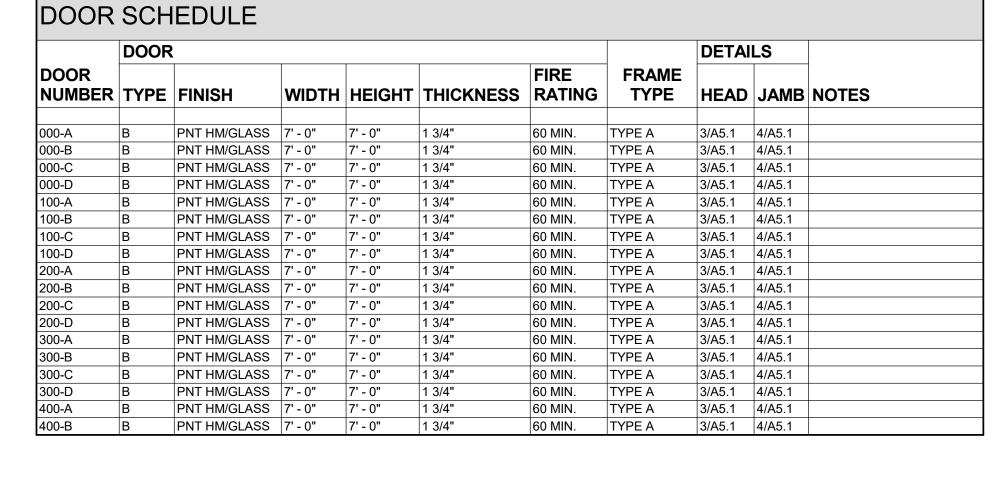


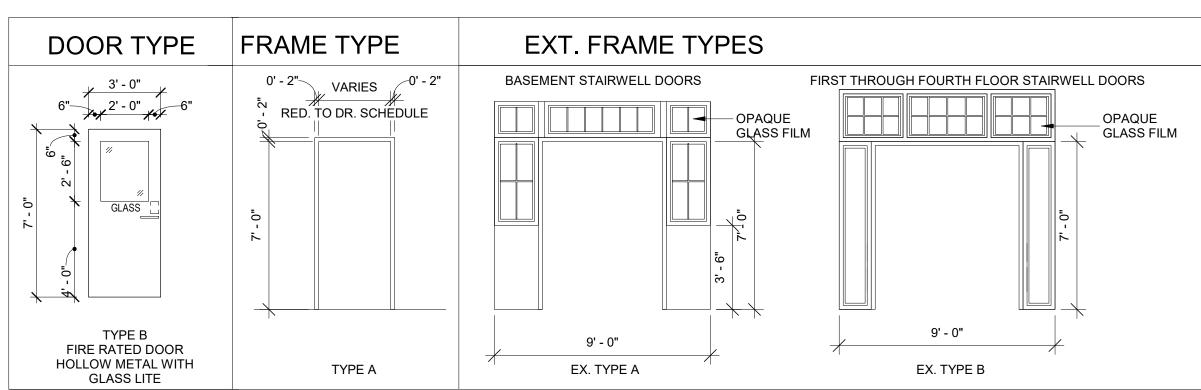




FIRST THROUGH FOURTH FLOOR STAIRWELL DOORS







OPAQUE GLASS FILM @ FRONTSIDE 1-HR RATED WALL ASSEMBLY (UL

FIRE RATED EGRESS STAIR DOOR ELEVATION

PROPOSED ELEVATION OF

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

HEAD DETAIL @ TOLLMAN EXISTING STOREFRONT

EXISTING SOFFIT ABOVE

STEEL TRACK - MECHANICALLY

EXISTING NON-RATED HOLLOW

METAL/GLASS ASSEMBLY

CAP EXISTING FRAME

60- MIN GLAZED DOOR AND

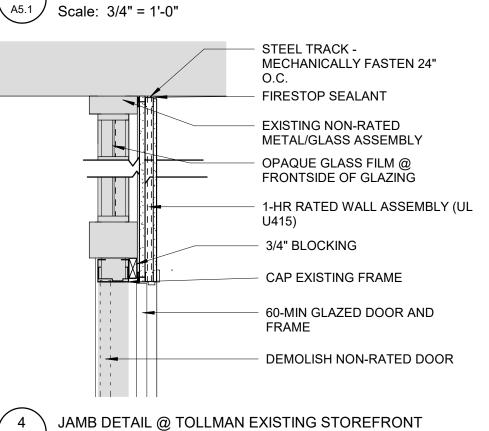
DEMOLISH NON-RATED DOOR

FIRESTOP SEALANT

FASTEN 24" O.C.

OF GLAZING

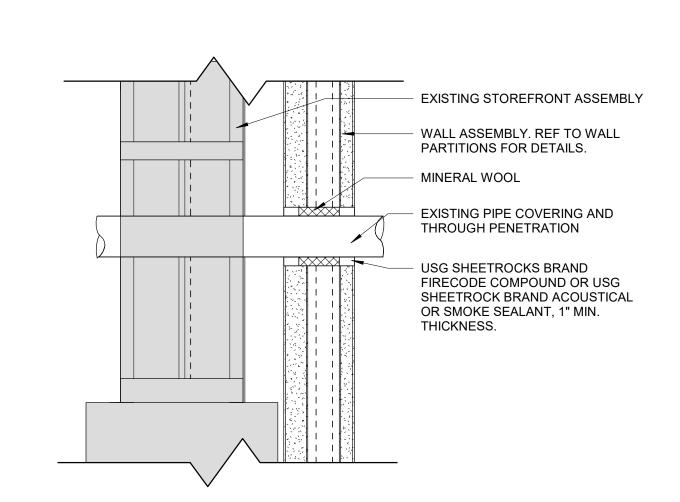
U415)



COORDINATE WITH EXISTING HVAC AND WHERE REQUIRED CUT TO ACCOMIDATE EXISTING PIPING/ DUCTWORK. - 60 MIN. FIRE DOOR BY MANUFACTURER 12 ELEVATION OF NEW SHAFT WALL TYPICAL 3/8" = 1'-0"

WALL ASSEMBLY. REF TO WALL PARTITIONS FOR DETAILS. MINERAL WOOL - EXISTING PIPE COVERING AND THROUGH PENETRATION USG SHEETROCKS BRAND FIRECODE COMPOUND OR USG SHEETROCK BRAND ACOUSTICAL OR SMOKE SEALANT, 1" MIN. THICKNESS. **EXISTING WALL ASSEMBLY** 

TYP. FIRE RATED PARTITION THROUGH NEW SHAFT WALL
3" = 1'-0"

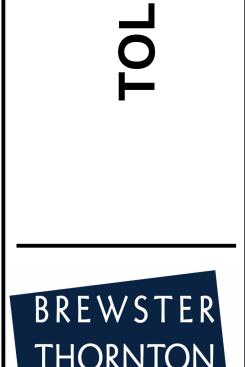


LOCKSET- ALLEGION - SCHLANGE L SERIES - CLASSROOM FUNCTION PANIC HARDWARE- ALLEGION - VON DURPIN 99 SERIES RIM EXIT DEVICE

HINGES- ALLEGION - SCHLANGE- HEAVY DUTY HINGES

DOOR CLOSER- ALLEGION - LCN- 4041

TYP. RATED PIPE PENETRATION THROUGH EXT. STOREFRONT 3" = 1'-0"



WORK

OF

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SC

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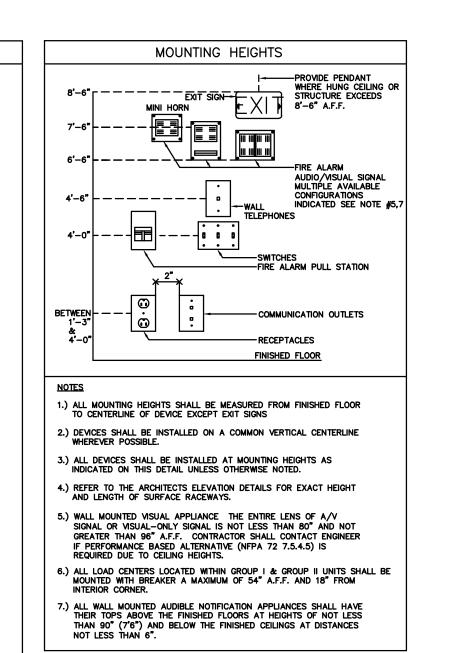
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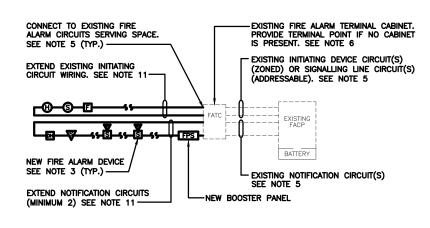
DETAILS, DOOR TYPES, FRAMES, & SCHEDULE

A5.1

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

SYMBOL	DESCRIPTION LIGHTIN	NOTES NG FIXTURES	SYMBOL DESCRIPTION NOTES  WIRING DEVICES — RECEPTACLES		GENERAL NOTES
FP	WALL OR CEILING IN MOUNTED LIGHTING	UPPER CASE LETTERS INDICATE FIXTURE TYPE REFER TO FIXTURE SCHEDULE FOR MANUFACT SUBSCRIPT LOWER CASE LETTERS	The state of the s	2P, 3W, GNDG., NEMA 5-20R SYMBOL THUS:  LIGHTING AND APPLIANCE BRANCH CIRCUITTY TO 20A-19 CUITE MEANING CINCUITTY TO 20A-19 CHILDREN CONCEALED CINCUIT BREAKER  F  MANUAL FIRE ALARM PULL STATION	ALL CONDUITS AND EQUIPMENT SHALL BE INSTALLED AND GROUND IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE APPLICABLE LOCAL AND NATIONAL CODES.
FP		INDICATE SWITCH CONTROL ASSOCIATIONS  FR _ FP	CEILING MOUNTED SWITCH CONTROL ASSOCIATIONS  CEILING MOUNTED SHADING OF SYMBOL THUS:	ABOVE NUMBER OF ARROW HEADS INDICATE NUMBER OF BRANCH POLES REQUIRED IN PANEL  VISUAL ONLY FIRE ALARM DEVICE  VISUAL ONLY FIRE ALARM DEVICE	2. CONDUIT RUNS ARE SHOWN DIAGRAMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARRALEL TO BEAMS AND WALLS, EMPTY CONDUITS SHALL HAVE NYLON PULL LINE.
	!	SHADING OF FIXTURES THUS:	OUTLET  IG ISOLATED GROUND INDICATES RECEPTACLE MTD 6" ABOVE COUNTER TO CENTER LINE OR 48" AFF MOLIEST NOTED OTHERWISE CONSIDER DEVICE TO CENTER LINE OR 48" AFF MOLIEST NOTED OTHERWISE CONSIDER DEVICE TO CENTER LINE OR 48" AFF MOLIEST NOTED OTHERWISE CONSIDER DEVICE TO CENTER LINE OR 48" AFF MOLIEST NOTED OTHERWISE CONSIDER DEVICE TO CENTER LINE OR 48" AFF MOLIEST NOTED OTHER LINE OF AFF MOLIEST NOTED OTHER LIN	LINE OR 48" AFF UNLESS NOTED   2#12, 1#12 GROUND   ALARM DEVICE	CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.  4. NO CONDUIT SMALLER THAN 3/4", NOR WIRE SIZE SMALLER THAN ≱12 A.W.G.
		INDICATES FIXTURE ON NIGHT/EMERGENCY CIRC	UTITH ARCHITECTURAL ELEVATION PLANS AND/OR CMR 521 9.5.6 AND 39.3.1	ECTURAL ELEVATION PLANS AND/OR	FOR POWER SHALL BE USED UNLESS OTHERWISE NOTED.  5. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF THE WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD
FP ————————————————————————————————————	(	OR EMERGENCY BATTERY BACK UP BALLAST WH APPLICABLE, CONTRACTOR SHALL CONFIRM LOC. OF REMOTE EMERGENCY BALLAST WITH ARCHITE PRIOR TO PURCHASE AND INSTALLATION.	'WP' — INDICATES WEATHER PROOF  'GFI' DENOTES SELF REGULATING GROUND FAULT INTERRUPTING TYPE RECEPTACLE	S SELF REGULATING GROUND FAULT TURNING UP "1,3,5" DENOTES CIRCUIT NO'S 1,3,5  TURNING UP "1,3,5" DENOTES CIRCUIT NO'S 1,3,5  CONTAINING 20A. 1P. CB'S IN PANELBOARD	COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE CONSTRUCTION MANAGER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
FP 1a	[	EMERGENCY BALLAST SHALL BE SIMILAR TO BO B30ST OR B30 WITH INTEGRAL INDICATOR LIGH' SWITCH. PROVIDE 2 LAMP APPLICATION WHERE APPLICABLE.	E CONVENIENCE OUTLET  ALL POWER OUTLET FACEPLATES SHALL BE LABELED WITH CIRCUIT NUMBER AND PANEL DESIGNATION FEEDING OUTLET	WITH CIRCUIT NUMBER AND SHATION FEEDING OUTLET  TURNING DOWN  CONDUIT RUNS REQUIRING CIRCUIT  BREAKER GREATER THAN 20A-1P WIRE  STROBE	SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS     OTHERWISE NOTED. RECEPTACLES SHALL BE MOUNTED 18" AFF.
•-0	EXTERIOR POLE	CONTRACTOR SHALL FURNISH AND INSTALL EMERGENCY TRANSFER RELAY ON ALL SWITHCEI EMERGENCY FIXTURES	HOSPITAL GRADE DUPLEX CONVENIENCE OUTLET  HOSPITAL GRADE PASS & SEYMOUR 2095—HGTR OR EQUAL OUTLET	YMOUR 2095—HGTR OR EQUAL INDIVIDUAL RUN TURNING UP&DOWN SIZE GREATER THAN 3/4" ARE NOTED INDIVIDUAL RUN NOTED THUS:	7. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INSIDE OF EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED AS DAMP, SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4° AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
		CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE APPLICABLE TO CEILING, WALL, AND TYPE INTO WHICH FIXTURE IS INSTALLED	USB DUPLEX RECEPTACLE HUBBELL: USB20X2 OR EQUAL CONFIRM DEVICE AND FACEPLATE COLOR WITH ARCHITECT	EVICE AND FACEPLATE COLOR  4 #4, 1 #8 GROUND  TECT  1 1/4" CONDUIT	8. ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE TOP CIRCUIT BREAKER OPERATING HANDLE TO THE FLOOR SHALL NOT EXCEED 6"-6".
	\	CONTRACTOR SHALL COORDINATE MOUNTING HE WITH ARCHITECTURAL INTERIOR/EXTERIOR ELEVA CONTRACTOR SHALL COORDINATE AND CONFIRM	PLUG LOAD (WIRELESS) LEGRAND: RF26352CDW OR EQUAL CONTROLLABLE RF CONFIRM DEVICE AND FACEPLATE COLOR	GENERAL CIRCUITRY  FIRE AND FACEPLATE COLOR  FIRE ALARM	9. LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS, WITH THE DISTANCE BEING MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.  10. FOR LIGHTING FIXED FLOOR.
		K rating of lamps to achive color as desired per architect and owner/tenant contractor shall furnish and supply any	DUPLEX RECEPTACLE WITH ARCHITECT  PLUG LOAD (WIRELESS)  PLUG LOAD (WIRELESS)  CONTROLLABLE RF  CONFIRM DEVICE AND FACEPLATE COLOR	EF26352CHW OR EQUAL KNOX BOX	10. FOR LOCATION OF HYAC, PLUMBING, FIRE PROTECTION, AND MISCELLANEOUS EQUIPMENT SEE RESPECTIVE TRADE DRAWINGS.  11. ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS AS REQUIRED. FOR EXACT
		STEP DOWN TRANSFORMERS FOR ANY LOW VOLTAGE LIGHTING CONTRACTOR SHALL FURNISH AND INSTALL 0-1 DIMMING BALLAST FOR LED FIXTURES	DUPLEX RECEPTACLE WITH ARCHITECT	TECT  ID INSTALL PLUG LOAD  CIRCUIT BREAKER BUS  ID INSTALL PLUG LOAD  ROTATING FIRE ALARM BEACON LIGHT	LOCATIONS OF EXPANSION JOINTS SEE STRUCTURAL DRAWINGS.  12. ALL MOTOR STARTER CONTROL TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOILT—AMPERE CAPACITY FOR OPERATING ALL ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR, IN ADDITION TO THE STARTER
	EXIT/EM	ERGENCY LIGHTING	CONTROL TRANSMITTERS	RANSMITTERS  ELECTRIC BELL PROVIDE (1) DEDICATED	COIL. IT SHALL INCLUDE RELAYS, TIMERS, MOTOR HEATERS, INDICATING LIGHTS, ETC.  13. CONDUIT AND WIRE (NOT SHOWN) FOR FIXTURES, SWITCHES AND/OR
<b>€B</b>	WITH BATTERY UNIT	ALL EMERGENCY BATTERY PACKS SHALL HAVE REMOTE HEAD CAPABILITY UNLESS NOTED OTHERWISE	SPECIAL PURPOSE SCHEDULE OF NON-STANDARD RECEPTACLES CONFIRM NEMA PLUG CONFIGURATION	TYPE AS LISTED IN  FOR NON-STANDARD RECEPTACLES  MA PLUG CONFIGURATION  TYPE AS LISTED IN  FIRE FIGHTER  FIRE EMERG PHONE	RECEPTACLES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND SHALL BE:  G. 3/4" (MIN.) CONDUIT RUN  1. EXPOSED IN UNFINISHED AREAS.  2. CONCEALED ABOVE HUNG CEILINGS AND IN WALLS IN FINISHED AREAS.
\$	DUAL REMOTE EMERGENCY LIGHTING HEAD		FIRE RATED FURNITURE FEED POKE THRIUGH DEVICE FOR POWER CONNECTIONS TO ELECTRIFIED FURNITURE	THRIUGH DEVICE  THRIUGH DEVICE	b. No.12 (MIN.) Cu wire (MIN.) TYPE "THWN/THNN" # OF WIRES AS REQUIRED.  14. FOR EQUIPMENT PAD CONSTRUCTION DETAILS SEE STRUCTURAL DRAWINGS.
⊗	EXIT SIGN	ALL EXIT SIGNS SHALL BE FURNISHED WITH INTERNAL, 90 MINUTE BATTERY UNLESS NOTE OTHERWISE	4" SQUARE OUTLET BOX TO OUTLETS LOCATED IN FURNITURE PARTITIONS (SEE FLOOR PLANS)	OOR PLANS)	15. ALL 120V BRANCH CIRCUITS GREATER THAN 100 LINEAR FEET SHALL BE #10AWG MIN.  16. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LAYOUTS FOR ALL ELECTRICAL ROOMS BASED ON ACTUAL EQUIPMENT OF MANUFACTURER SELECTED, SUBMIT
⊦⊗		APPLICATION OF SHADED QUADRANTS AND ARROWS THUS:	WIRING DEVICES - MISCELLANEOUS	SECONDARY FEEDERS  SCELLANEOUS  SECONDARY FEEDERS  © CEILING MOUNTED CARBON MONOXIDE DETECTOR  CARBON MONOXIDE DETECTOR	FOR REVIEW PRIOR TO INSTALLATION.  17. PROVIDE ELECTRICAL OUTLET PLATE GASKET SEALS AT RECEPTACLES, SWITCHES AND OTHER ELECTRICAL BOXES ON EXTERIOR WALLS AND ON INTERIOR WALLS BETWEEN CONDITIONED AND NON—CONDITIONED SPACES.
		INDICATE LETTERED FACE AND DIRECTIONAL CHEVERONS AS REQUIRED	2 CHANNEL PWR/DATA POWER POLE WITH ELEC DEVICES AND PLATES  LEGRAND TELE—POWER SERIES OR EQUAL	FEEDER RUN FEEDER SIZING SHOWN ON POWER FACE CONTROL PANEL COMBINATION SMOKE DE CARBON MONOXIDE VISI	18. THE ELECTRICAL CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL SHOWING CTOR/ 18. ALL ELECTRICAL TELEPHONE, SECURITY, FIRE ALARM, COMMUNICATION ALARM AND OTHER SYSTEMS CONDUITS IN SLAB AND ABOVE CEILING ETC
S <sub>WP</sub>	SINGLE POLE SWITCH	CHTING/DEVICE CONTROL  20A 120–277V AC SUBSCRIPT LOWER CAS LETTERS INDICATE	2 PIECE SURFACE MTD RACEWAY WITH 20A DUPLEX RECEPTACLES CONFIRM SPACING SHALL BE METAL WITH ABOUNTEET SHALL BE METAL	DITED OTHERWISE, ALL RACEWAY METAL  FEEDER RUN AS PER  FIRE ALARM ANNUNCIATOR PANEL  FREEDER RUN AS PER	19. ALL TERMINATION LUGS SHALL BE SIZED ACCORDINGLY TO ACCOMMODATE
SP		"WP" - INDICATES WEATHER PROOF  WEATHER PROOF  SWITCH CONTROL ASSOCIATIONS  SUBSCRIPT UPPER CAS	2 PIECE MULTI-CHANNEL LEGRAND OR EQUAL UNLESS NOTED OTHERWISE, ALL RACEWAY DUPLEX_RECEPTACLES SHALL BE METAL	R EQUAL TAG SYMBOLS  TAG SYMBOLS  REMOTE TEST STATION  TAG SYMBOLS	CIOR/
S2	DOUBLE POLE SWITCH	LETTERS DENOTE SWITCH TYPE AS LISTED IN NON- STANDARD SWITCHES	AND DATA OUTLETS CONFIRM SPACING WITH ARCHITECT	INDEX SYMBOL  HEXAGONAL SYMBOLS CONTAINING TWO UPPER CASE LETTERS INDICATE REFERENCE TO A SCHEDULE OF SPECIAL EQUIPMENT  HRI  REMOTE INDICATOR ALARM DEVICE  H  COMBINATION HEAT DETI VISUAL ALARM FOR HEA IMPAIRED.	OR/ IG  21. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL LIGHT FIXTURES.
S3	THREE-WAY SWITCH	UNLESS NOTED OTHERWISE SWITCHES SHALL BE MOUNTED	FLUSH FLOOR MOUNTED POWER/DATA CONVIENCE RECEPTACLES  FLUSH FLOOR MOUNTED POKE THRU APPLICATION:  2 HOUR RATED. LEGRAND RC SERIES OR EQUAL. COORDINATE FINAL POWER	HEXAGONAL SYMBOLS CONTAINING UPPER CASE LETTERS AND NUMERICALS INDICATE L. COORDINATE FINAL POWER  HEXAGONAL SYMBOLS CONTAINING UPPER CASE LETTERS AND NUMERICALS INDICATE L. COORDINATE FINAL POWER  HEXAGONAL SYMBOLS CONTAINING UPPER CASE LETTERS AND NUMERICALS INDICATE L. COORDINATE FINAL POWER  HEXAGONAL SYMBOLS CONTAINING UPPER CASE LETTERS AND NUMERICALS INDICATE L. COORDINATE FINAL POWER  HEXAGONAL SYMBOLS CONTAINING UPPER CASE LETTERS AND NUMERICALS INDICATE L. COORDINATE FINAL POWER  HEXAGONAL SYMBOLS CONTAINING UPPER CASE LETTERS AND NUMERICALS INDICATE L. COORDINATE FINAL POWER	22. COORDINATE LOCATIONS OF ALL LIGHT FIXTURES IN MECHANICAL AND ELECTRICAL ROOMS WITH LAYOUT OF EQUIPMENT, PIPING AND DUCTWORK.  23. ALL EXIT SIGNS SHALL BE UNSWITCHED.
S4	FOUR-WAY SWITCH	48" TO CENTER LINE A	AND TEL/DATA TERMAINTIONS WITH TENANT    FLOOR TRENCH APPLICATION:   DEEP RECTANGULAR CAST IRON BOX	EQUIPMENT  INCH APPLICATION:  CTANGULAR CAST IRON BOX  HEXAGONAL SYMBOLS CONTAINING NUMERICALS ONLY INDICATE REFERENCE  HEAT DETECTOR  R RECEIVER UNIT T TRANSMITTER UNIT D IN DUCT DETECTOR	24. ALL SWITCHED LIGHT FIXTURES CIRCUITED TO A NORMAL/EMERGENCY CIRCUIT ARE TO BE WIRED WITH AN EMERGENCY BY—PASS RELAY.  25. ALL 20 AMPERE, SINGLE POLE CIRCUITS SHALL BE PROVIDED WITH A SEPARATE FULL SIZE NEUTRAL CONDUCTOR.
ST	SPRING WOUND INTERVAL TIME SWITCH WITHOUT HOLD	TORK OR EQUAL 30 MIN MAX	LEGRAND EVOLUTION SERIES OR EQUAL  PROVIDE 1"C FROM TEL/DATA TO 6" ABOVE ACCESSIBLE CEILING. CONTRACTOR SHALL SUPPLY ALL COVERS AND PLATES TO	I'C FROM TEL/DATA TO 6" ABOVE E CEILING, CONTRACTOR SHALL  WORK REQUIREMENT  WORK REQUIREMENT  WORK REQUIREMENT  WORK REQUIREMENT  WORK REQUIREMENT  HEAT DETECTOR  SAM OKE DETECTOR  SA SUPPLY AIR DUCT DETECTOR  SA SUPPLY AIR DUCT DETECTOR	26. CONFIRM EXACT POWER REQUIREMENTS AND CONNECTION LOCATIONS FOR ALL EQUIPMENT WITH THE PLUMBING, FIRE PROTECTION, HVAC AND GENERAL
KS	KEY SWITCH LINE VOLTAGE	LEVITON OR EQUAL PROVIDE 0-10V DIMMEI WHERE REQUIRED FOR LED LIGHTING FIXTURES	JUNCTION BOXES	INSTALLATION  REFERENCE  DEVICE DENOTES THAT THE DEVICE IS TO BE GANGED IN A BOX WITH ANOTHER DEVICE SIMILARLY NOTED AT THE SAME  DEVICE SIMILARLY NOTED AT THE SAME  CO COMBINATION SMOKE/CA MONOXIDE DETECTOR  CO COMBINATION SMOKE/CA  MONOXIDE	
D		LEVITON ILLUMATECH #IP710-LF	(J) CEILING MOUNTED JUNCTION BOX	( ) SPECIAL MOUNTING DIMENSION NOTED IN PARENTHESIS ADJACENT TO ANY ITEM OF THE DRAWINGS TS WATER FLOW MM MONITORING MODULE	DRAWINGS. SUCH SYMBOLS ARE INCLUDED TO PERMIT INTERPRETATIONS TO BE MADE IN THE EVENT OF DESIGN CHANGES.  29. ELECTRICAL CONTRACTOR SHALL MAINTAIN RATING OF ANY CEILING, WALL.
		WATT STOPPER: CONTRACTOR SHALL	HO WALL MOUNTED JUNCTION BOX	EXISTING ELECTRICAL EQUIPMENT    CENTERLINE ABOVE FINISHED FLOOR   PS   PS   DRY ALARM PRESSURE SWITCH   CM CONTROL MODULE   PS   PS   DRY ALARM PRESSURE SWITCH   CM CONTROL MODULE   PS   PS   DRY ALARM PRESSURE SWITCH   CM CONTROL MODULE   PS   PS   DRY ALARM PRESSURE SWITCH   CM CONTROL MODULE   PS   PS   DRY ALARM PRESSURE SWITCH   CM CONTROL MODULE   PS   PS   DRY ALARM PRESSURE SWITCH   CM CONTROL MODULE   PS   PS   DRY ALARM PRESSURE SWITCH   CM CONTROL MODULE   PS   PS   DRY ALARM PRESSURE SWITCH   CM CONTROL MODULE   PS   PS   DRY ALARM PRESSURE SWITCH   CM CONTROL MODULE   PS   PS   DRY ALARM PRESSURE SWITCH   CM CONTROL MODULE   PS   DRY ALARM PRESSURE SWITCH   PS   DRY ALARM PRESSURE	FLOOR OR ANY BUILDING STRUCTURE THAT ANY ELECTRICAL SYSTEM PENETRATES. SEE ARCHITECTURAL PLAN FOR RATINGS.  30. ELECTRICAL CONTRACTOR SHALL CONFIRM THAT ALL SUBMITTED LED DRIVERS ARE FCC COMPLIANT AND THAT ALL SUBMITTED LIGHTING FIXTURES ARE UL
81	SENSOR (80' oc)	W-2000H  FURNISH AND INSTALL ALL APPROPRIATE POWE PACKS, RELAYS, CABLE: CONTROL MODULES, AN CONTROL MODULES, AN CONTROL OF COMPO	J SURFACE MOUNTED JUNCTION BOX	ETR EXISTING TO REMAIN ALL EXISTING TO REMAIN LIGHTING SHALL BE CLEANED AND RELAMPED SHOKE EXHAUST.	LISTED.
(SS 2	DUAL TECHNOLOGY SENSOR (1,600 sf)	DT-300 SYSTEM INSTALLATION  SUBSCRIPT LOWER CAS	FLUSH FLOOR MOUNTED JUNCTION BOX	EXISTING EQUIPMENT X TO BE REMOVED  EXISTING TO REMAIN ELECTRICAL DEVICES ARE OPERATIONAL & FUNCTIONAL, IF ETR DEVICES ARE NOT OPERATIONAL, IF SHALL BE DEPLACED OF WITH A NEW DEVICE OF	ABBREVIATIONS  ABBR ABBREVIATIONS L LENGTH
(8)	OCCUPANCY SENSOR	WATT STOPPER: HB300 HB-L2W CONTRACTOR SHALL COORDINATE AND	JUNCTION BOX WITH FLEXIBLE CONNECTION TO EQUIPMENT  JUNCTION BOX WITH C — DENOTES POWER FEED C — DENOTES COMMUNICATIONS FEED	TES POWER FEED TO BE REMOVED AND RELOCATED  TO BE REMOVED CONTRACTOR SHALL EXTEND AND CONTRACTOR SHALL EXTEND AND AND AND AND AND AND AND AND AND A	A/AMP AMPERE LA LIGHTNING ARRESTOR AC ALTERNATING CURRENT LP LIGHTING PANEL A/C AIR CONDITIONING LTG LIGHTING
H(S)		WATT STOPPER: CONFIRM ALL SENSOR SETTING AND TIME DELAYS WITH OWNER O TENANTS REPRESENTATI	MOTORS AND CONTROLS	WIDING BACK TO SOURCE IF NECESSARY	AFF ABOVE FINISHED FLOOR LV LOW VOLTAGE  AFG ABOVE FINISHED GRADE  ARCH ARCHITECTURAL M METER  UAL ATC AUTOMATIC TEMPERATURE MM MILLIMETER  CONTROL MCB MAIN CIRCUIT BREAKER
(%)		WATT STOPPER: DSW-302	MOTOR COMPLETE INFO. FOR MOTOR IS INDICATED BY APPLICATION OF INDEXING SYMBOLS REFERENCE TO SCHEDULE OF MECHANICAL EQUIPMENT	TION OF INDEXING SYMBOLS TO SCHEDULE OF MECHANICAL TO SCHEDULE OF MECH	ATS AUTOMATIC TRANSFER SWITCH MEC MASS ELECTRIC COMPANY AUTO AUTOMATIC MECH MECHANICAL MFR MANUFACTURER MI O MAIN LUG ONLY
(RF)	CEILING MOUNTED WIRELESS RECEPTACLE TRANSMITTER	WATT STOPPER: WRC-TX SERIES	MAGNETIC MOTOR STARTER COMPLETE W/ THERMAL OVERLOAD PROTECTION  MAGNETIC MOTOR SUBSCRIPT INDICATES NEMA SIZE  COMPLETE INFORMATION FOR CONTROL ITEMS IS INDICATED BY THE APPLICATION OF	FOR CONTROL ITEMS IS NOTICED BY THE HEARING IMPAIRED WHEELOCK PS11AWPW OR EQUAL	BAT BATTERY BIS BYPASS ISOLATOR SWITCH MISC MISCELLANEOUS C CONDUIT CATV CABLE TELEVISION N NEUTRAL
(8)	WALL MOUNTED DIMMABLE	WATT STOPPER: (0-10V) PW-311 BALLAST COMPATIBLE	APPLICATION OF INDEXING SYMBOL STARTER (THERMAL OVERLOAD SWITCH)  APPLICATION OF INDEXING SYMBOL REFERENCE APPLIED TO ASSOCIATED EQUIP.	INDEXING SYMBOL REFERENCE APPLIED TO ASSOCIATED EQUIP.  NURSE / EMERGENCY CALL SYSTEMS  HEARING IMPAIRED WHEELOCK RSSG24110NW OR EX	CAB CABINET N/C NORMALLY CLOSED CB CIRCUIT BREAKER NEC NATIONAL ELECTRIC CCT/ CLOSED CIRCUIT TELEVISION
) (8-)	CEILING MOUNTED	(120/277) PW-100D WITH DIMMABLE SENSOF WATT STOPPER: LS-102	VARIABLE FREQUECY REFER TO HVAC SCHEDULE FOR MOTOR LOAD	FOR LANG IMPAIRED WHEELOCK RSSG24110NW OR EX	CL CENTERLINE MANUFACTURERS CM CENTIMETER ASSOCIATION CLC CENTIMETER ASSOCIATION
	HAŔVEST SENSOR SELF POWERED	ILC TR SERIES CONTRACTOR SHALL FU OR FOUAL AND INSTALL ALL RELAY	😅   (	AND INSTALLED BY OTHERS. HE ELECTRICAL CONTRACTOR  NORSE CALL PATIENT DOME LIGHT  PATIENT DOME LIGHT  PROXIMITY CARD READER UNLESS NOTED OTHERWISE, CON	COL COLUMN N/O NORMALLY OPEN C/T CURRENT TRANSFORMER NO NUMBER CW COOL WHITE  OC ON CENTER
TR	7 DAY ASTRONOMICAL	AND MODULES TO COM SYSTEM INSTALLATION  TORK OR FOLIAL CONTRACTOR SHALL	DISTRIBUTION EQUIPMENT	UIPMENT    NC   DUTY STAFF STATION   AT DEVICE LOCATION AND 1" CO ABOVE NEAREST ACCESSIBLE CEI	BOX DET DETAIL O/C OVERCURRENT UIT DIA DIAMETER OL OVERLOAD IG DISC DISCONNECT DN DOWN PB PULL BOX
тс	PROGRAMMABLE TIME CLOCK	COORDINATE AND CONF PROGRAMMING SCHEDUI WITH OWNER	PANEL	NURSE CALL ANNUNCIATOR PANEL  DC DOOR CONTACT	DP DISTRIBUTION PANEL PH PHASE DPDT DOUBLE POLE DOUBLE PNL PANEL THROW PP PUMP DPST DOUBLE POLE SINGLE PRI PRIMARY
LV	1, 3, AND 4 WAY MOMENTARY SWITCH	DCC2 SERIES OR EQUAL PACKS, RELAYS, CABLE: CONTROL MODULES. WI	FLUSH MOUNTED PANEL	EMERGENCY CALL PULL CORD ES ELECTRIC DOOR STRIKE	THROW P/T POTENTIAL TRANSFORMER DT DUST TIGHT DWG DRAWING PVC POLYVINYL CHLORIDE PWR POWER
LCRP	RELAY PANEL	WATT STOPPER: LP8 SERIES OR EQUAL AND CONTACTORS TO COMPLETE SYSTEM INSTALLATION	SURGE SUPPRESSION PROVIDE PER SPECIFICATIONS	DOME LIGHT	EC ELECTRICAL CONTRACTOR RECEPT RECEPTACLE EL ELEVATION REC RECESSED ELEC ELECTRIC BDA DELAY DAME
MS	CARD KEY SWITCH	WATT STOPPER: HS SERIES OR EQUAL	T TRANSFORMER SEE ELECTRICAL PLANS FOR KVA RATING	EC REMOTE STATION CEILING MOUNTED	ELLEV ELEVATOR ES ENERGY SAVING EX EXISTING SEC SECONDARY  FDR FFFDER SP SPARE
	MODULAR HOME NETWORK	MUNICATION SYSTEMS  MODULAR HOME NETWORKING CENTER SHALL BE		CKET PROVIDED BY CONTRACTOR EMERGENCY CALL (MD) MOTION DETECTOR	FLR FLOOR SPECIS SPECIFICATIONS FLUO FLUORESCENT SPKIR SPRINKLER SKW SWITCH GEN GENERATOR
MHNC	CENTER PROVIDE (1) DEDICATED 120V CIRCUIT AND DUPLEX RECEPTACLE	47606-AHT, 476TL-T12, 476TM-EX5, 47690-46 47605-4CS IN 49605-30W ENCLOSURE OR EQU 120V CIRCUIT.	WITH CHECK METER E-MON/D-MON CLASS 2000 OR EQUAL.  MATCH BUILDING STANDARD	MON CLASS 2000 OR EQUAL. AUTOMATIC EXTERNAL PROVIDE DEDICATED 120V POWER CONNECTION.	GFI GROUND FAULT INTERRUPTER TB TERMINAL BOARD TEL TELEPHONE TV TELEVISION GND GROUND TVSS TRANSIENT VOLTAGE
$\nabla$	WALL MOUNTED DATA OUTLET	4"x4" SQUARE OUTLET BOX WITH 1"C, PULL ST AND PROTECTIVE BUSHING TO ABOVE ACCESSIB CEILING	OVERCURRENT AND/OR COMPLETE INFORMATION FOR DEVICES IS INDICATED BY APPLICATION OF TAG	INFORMATION FOR DEVICES IS BY APPLICATION OF TAG  AREA OF RESCUE/REFUGE SYSTEM  HANDICAP ACCESS  PUSH BUTTON	HC HUNG CEILING TYP TYPICAL HGT HEIGHT U.N.O. UNLESS NOTED OTHERWISE HID HIGH INTENSITY DISCHARGE V VOLTS
4	WALL MOUNTED COMBINATION TEL/DATA OUTLET	P — DENOTES PUBLIC PAY PHONE W — DENOTES POWER FEED	"WP" - INDICATES  WEATHER PROOF  SYMBOLS  SYMBOLS  SYMBOLS  SYMBOLS  SYMBOLS  SYMBOLS  SYMBOLS  SYMBOLS  SYMBOLS	INDICATES UNFUSED SWITCH 30 - FRAME SIZE  ARCU AREA OF RESCUE MAIN CONTROL PANEL A-4204 SERIES OR EQUAL ALL NECESSARY POWER PACKS AND EXPANSION PACKS AND EXPANSION FACE PA	HO HIGH OUTPUT VAC VACUUM HP HORSE POWER VENT VENTILATING
▼	WALL MOUNTED TEL OUTLET	F — DENOTES MODULAR FURNITURE BE (2)VOICE,(2)DATA OUTLETS BY OTH		I INDICATES FUSED SWITCH 30 — FRAME SIZE 15 — FUSE SIZE 15 — FUSE SIZE 17 — FUSE SIZE 18 — FUSE SIZE 18 — FUSE SIZE 19 — FUSE SIZE 19 — FUSE SIZE 10 — FUSE SIZE 10 — FUSE SIZE 11 — FUSE SIZE 11 — FUSE SIZE 12 — FUSE SIZE 13 — FUSE SIZE 14 — FUSE SIZE 15 — FUSE SIZE	TIONS HPS HIGH PRESSURE SODIUM VPD VARIABLE PREGUENCY HVAC HEATING, VENTILATION AND DRIVE AIR CONDITIONING VT VAPOR TIGHT HZ HERTZ HV HIGH VOLTAGE W WATT ON WIRE
		   FEED POKE THROUGH DEVICE  TIONS TO ELECTRIFIED FURNITURE	INDICATES ENCLOSED CIRCUIT BREAKER	INDICATES ENCLOSED CIRCUIT BREAKER  VANDAL RESISTANT AREA OF RESCUE CALL STATION  OR EQUAL  CORNELL: 4201B/V SERIES OR EQUAL  CONFIRM ARCU ZONE QUANTITY WITH RB  MAIN VIDEO INTERCOM REFER TO SPECIFICATIONS	IN INCHES W/ WITH INCAND INCANDESCENT WP WEATHERPROOF  JB JUNCTION BOX
—— 	HOLE COVERPLATE FOR	X WITH 1 1/2" GROMMETTED TEL/DATA CONNECTION TO	_	ON FLOOR PLANS  POWER PACK:  US VIDEO INTERCOM STATION TALK / ACCESS	KV KILOVOLT KVA KILOVOLT-AMPERES KW KILOWATT
<u>-</u> 뗒		PARTITIONS, MOUNTED 8" AFF  4"x4" SQUARE OUTLET BOX WITH 1" CC STUBBED 6" ABOVE ACCESSIBLE CEILING	I I ∟ LA I EMERGENCY POWER I OR EQUAL	HNOLOGY INTERNATIONAL  B-5248A WITH BATTERY OR P-512243A WITH LIFE SAFETY CIRCUIT  INTERCOM SPEAKER VOLUME CONTROL	
ユ	J.JEE IT OUILE!	SEE ARCH PLAN FOR MOUNTING HEIGHT	OFF BUTTON WITH SHIELD	OR EQUAL VOLUME CONTROL	





- ALL WIRING SHALL BE IN ACCORDANCE WITH INSTALLED SYSTEM MANUFACTURER'S REQUIREMENTS AND SHALL BE IN EMT CONDUIT UNLESS USE OF MC CABLE IS APPROVED BY THE BUILDING OWNER'S REPRESENTATIVE. JUNCTION BOXES AND CONDUIT COUPLINGS SHALL BE PAINTED RED. MC CABLE ARMOR, IF ALLOWED SHALL BE RED.
- RISER DIAGRAM IS DIAGRAMMATIC, REFER TO FLOOR PLANS FOR EXACT QUANTITIES AND LOCATIONS OF EQUIPMENT.
   FIRE ALARM DEVICES SHALL MATCH EXISTING TYPE, MANUFACTURER AND STYLE AND BE LISTED FOR USE WITH THE EXISTING SYSTEM. NEW DEVICES WITH STROBES SHALL MEET ADA AND NFPA
- REQUIREMENTS.

  4. TEST SYSTEM PER NFPA 72 AND LOCAL AUTHORITIES REQUIREMENTS. OWNER'S FIRE ALARM SERVICE CONTRACTOR SHALL PERFORM ALL REQUIRED TESTING. THE COST FOR THIS WORK SHALL BE INCORPORATED INTO ELECTRICAL CONTRACTOR'S BID.
- 5. COORDINATE EXISTING SYSTEM WIRING CLASS AND STYLE WITH OWNER'S REPRESENTATIVE AND FIRE ALARM SERVICE CONTRACTOR. MATCH EXISTING WIRING STANDARDS UNLESS OTHERWISE DIRECTED.
- ALARM SERVICE CONTRACTOR. MATCH EXISTING WIRING STANDARDS UNLESS OTHERWISE DIRECTED.

  6. ALL WIRING CONNECTIONS SHALL BE MADE ON TERMINAL BLOCKS. NO SPLICING IS ALLOWED.
- 7. COORDINATE RESIZING AND REPLACEMENT OF ANY END-OF-LINE RESISITORS (IF APPLICABLE) WITH OWNER'S FIRE ALARM SERVICE CONTRACTOR.
- 8. ALL NECESSARY PROGRAMMING SHALL BE PERFORMED BY OWNER'S FIRE ALARM SERVICE CONTRACTOR, THE COST FOR THIS WORK SHALL BE INCORPORATED INTO ELECTRICAL CONTRACTOR'S BID.
- 9. FURNISH ALL REQUIRED COMPONENTS, CARDS, MODULES, RELAYS, CONTACTS AND WIRING IN MAIN FACP OR SUB-PANEL SERVING THE AREA OF WORK TO ACCOMODATE RENOVATION WORK. ALL WORK IN THESE PANELS SHALL BE PERFORMED BY OWNER'S FIRE ALARM SERVICE CONTRACTOR. THE COST FOR THIS WORK SHALL BE INCORPORATED INTO ELECTRICAL CONTRACTOR'S BID.
- 10. PROVIDE ADDITIONAL NAC EXTENSION PANELS AND/OR POWER SUPPLIES IF EXISTING SYSTEM BATTERY CAPACITY IS INSUFFICIENT FOR ADDED LOADS.
  11. PROVIDE DUAL NOTIFICATION CIRCUITS WHERE REQUIRED BY CODE OR LOCAL AUTHORITY HAVING JURISDICTION.
- JURISDICTION.

  12. NOTIFICATION CIRCUITS SHALL BE SYNCHRONIZED.
- 13. PER NFPA 72 SECTION 5.7.1.11 SMOKE DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER THE CONSTRUCTION CLEAN UP OR ALL TRADES IS COMPLETE AND FINAL.
- COMBINATION SMOKE/CO DETECTORS SHALL EMPLOY BOTH SIMULATED VOICE AND TONE ALARM FEATURES WHICH CLEARLY DISTINGUISHES BETWEEN CARBON MONOXIDE AND SMOKE NOTIFICATION, IN ACCORDANCE WITH NFPA 720.5.3.4 AND 527 CMR 31.00.
   CONTRACTOR SHALL TEST AND CONFIRM THAT EXISTING FIRE ALARM SYSTEM HAS CAPACITY TO ACCOMMODATE NEW BUILDING 4 FIRE JARM DEVICES. IF NECESSARY, CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY POWER BOOSTER PANELS, NODE PANELS, AND OR TRANSPONDER PANELS TO ACCOMMODATE NEW DEVICES TO INTERFACE WITH EXISTING FIRE ALARM SYSTEM

Scale: None

Fire Alarm Riser Diagram

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FIRE

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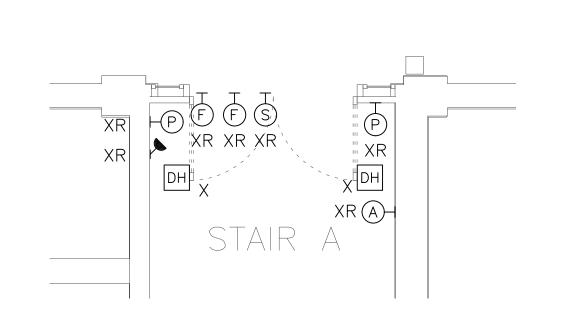
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О.	REVISION	DESCRIPTION	DATE

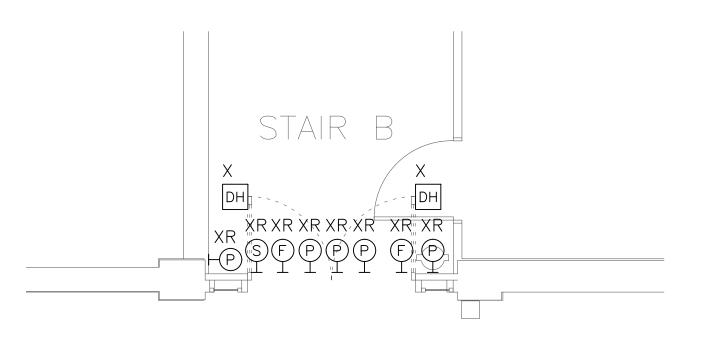
ELECTRICAL
SYMBOL
LEGEND AND
NOTES

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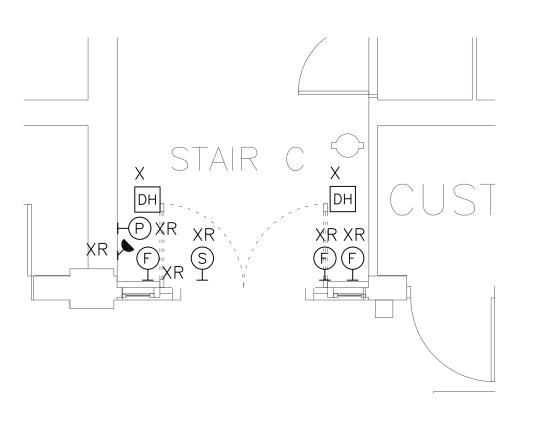
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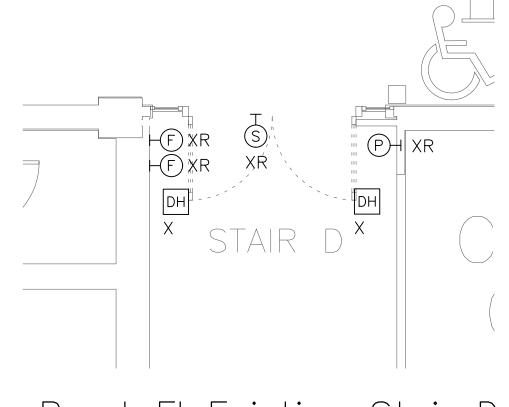
Bsmt Fl Existing Stair A



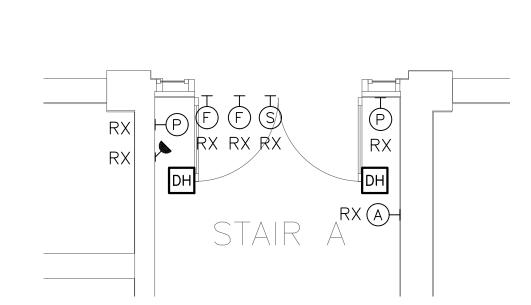
FI Existing Stair B



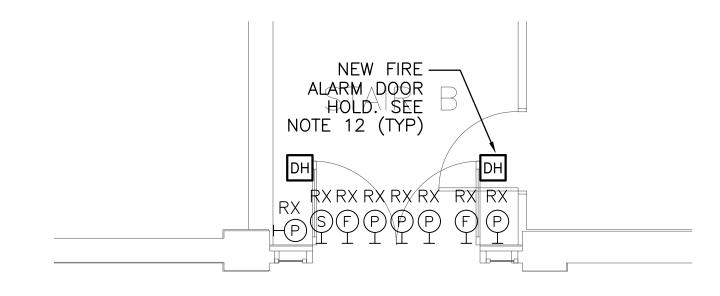
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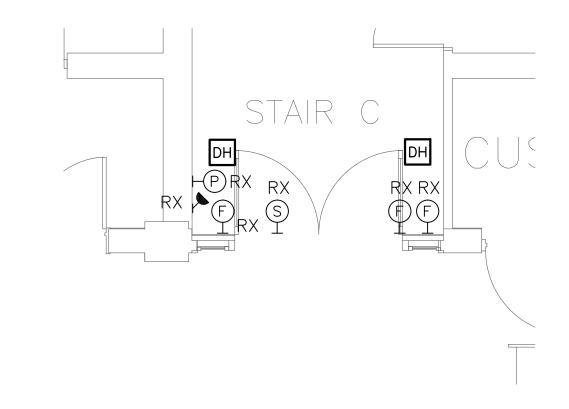
FI Existing Stair D Scale: 1/4"=1'-0"



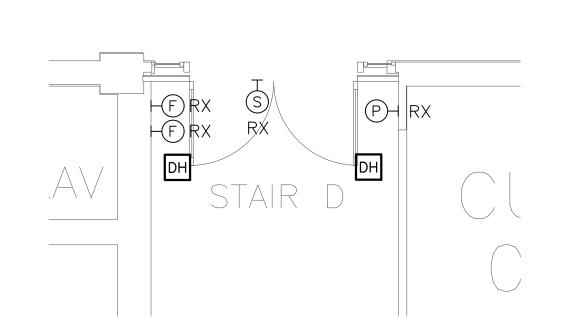
Bsmt Fl Proposed Stair Scale: 1/4"=1'-0"



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



Bsmt Fl Proposed Scale: 1/4"=1'-0'



Bsmt Fl Proposed Stair Scale: 1/4"=1'-0"

# ELECTRICAL DEVICE KEY:

- A AUDIO LOW VOLTAGE DEVICE, JUNCTION BOX RACEWAY. SEE KEY NOTE 1
- F FIRE ALARM JUNCTION BOX, LB, RACEWAY
- 120V POWER JUNCTION BOX, LB, RACEWAY
- SECURITY LOW VOLTAGE DEVICE, JUNCTION BOX RACEWAY. SEE KEY NOTE 1
- DH FIRE ALARM DOOR HOLD DEVICE
- FAPS FIRE ALARM POWER SUPPLY
- BUILDING SYSTEM CONTROL PANEL, JUNCTION BOX, RACEWAY. SEE KEY NOTE 1
- FCGCP NEW FIRE ALARM CURTAIN GROUP PANEL. SEE ELECTRICAL NOTE 18 NEW FIRE ALARM CURTAIN GROUP CONTROL

#### ▶ **♦** SURFACE MOUNTED EMERGENCY FIXTURE

#### KEY NOTES:

1. CONTRACTOR SHALL CONFIRM AND COORDINATE FINAL LOCATION OF ALL RELOCATED BUILDING SYSTEM, LOW VOLTAGE DEVICES AND RACEWAY WITH ARCHITECT. CONFIRM ROUTING OF EXTENDED RACEWAY WITH ARCHITECT. LOW VOLTAGE SHOWN ON ELECTRICAL PLANS FOR REFERNCE ONLY.

# **ELECTRICAL NOTES:**

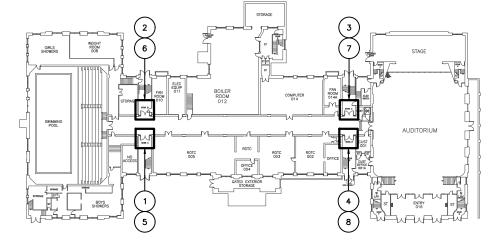
NEW DOOR HOLD TO THIS CIRCUIT.

- 1. LIMIT OF SCOPE LINE INDICATES THE APPROXIMATE AREA OF RENOVATION THAT ELECTRICAL SYSTEMS MAY BE RELOCATED OR REMOVED. SCOPE OF DEMOLITION SHOWN ON PLANS ARE PARTIAL ONLY FOR THE CONTRACTORS CONVENIENCE AND NOT INTENDED TO SHOW ALL EXISTING CONDITIONS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS TO INCLUDE ALL NECESSARY WORK TO MODIFY AND EXTEND EXISTING SYSTEMS, WIRING, ETC. AS REQUIRED TO ACCOMMODATE THE NEW ARCHITECTURAL FLOOR PLAN.
- 2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY NECESSARY RE-FEEDING OF EQUIPMENT OR DEVICES TO MAINTAIN CIRCUIT CONTINUITY OF EXISTING EQUIPMENT REMAINING.
- 3. ELECTRICAL CONTRACTOR SHALL MAINTAIN INTEGRITY OF FIRE ALARM WIRING SO NOTIFICATION DEVICES OUTSIDE SCOPE OF WORK REMAIN ACTIVE DURING RENOVATION.
- 4. ALL EXISTING DEVICES AND EQUIPMENT TO BE REMOVED DISCONNECT, REMOVE, AND DISPOSE ALL RACEWAY AND WIRING BACK TO ASSOCIATED PANEL.
- 5. COORDINATE SHUT DOWN OF BASE BUILDING ELECTRICAL AND FIRE ALARM SYSTEMS WITH SCHOOL FACILITIES.
- 6. DISCONNECT, MAKE SAFE, AND REMOVE ALL TEMPORARY AND ABANDONED WIRE WITHIN THE LIMIT OF WORK. 7. ELECTRICAL CONTRACTOR SHALL RELOCATE ANY AND ALL EXISTING ELECTRICAL DEVICES AND RACEWAY WITHIN AREA OF RENOVATION. CONFIRM AND COORDINATE RENOVATION SCOPE WITH ARCHITECT. EXTEND AND CONNECT

EXISTING WIRING AND RACEWAY TO NEW LOCATION OF RELOCATED EQUIPMENT. CONTRACTOR SHALL EVALUATE

- CONDITION OF EXISTING WIRING AND RACEWAY AND REPLACE BACK TO SOURCE IF NECESSARY. CONTRACTOR SHALL REPLACE EXISTING WIRING, BACK TO SOURCE, IF EXISTING EXTENDED WIRING DOES NOT REACH LOCATION OF RELOCATED EQUIPMENT.
- 8. ELECTRICAL CONTRACTOR SHALL CONFIRM AND COORDINATE FINAL LOCATION OF ALL LOW VOLTAGE DEVICES AND ROUTING OF LOW VOLTAGE RACEWAY WITH ARCHITECT.
- 9. ALL NEW EQUIPMENT SHALL MATCH BASE BUILDING STANDARDS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE. ALL NEW EQUIPMENT SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM.
- 10. ALL POWER DEVICE FACEPLATES, COVERS, AND DISCONNECTS SHALL BE LABELED WITH CIRCUIT NUMBER AND PANEL DESIGNATION. 11. ALL SURFACE MOUNTED INTERIOR CONDUIT SHALL BE EMT (ELECTRIC METAL TUBING) CONFIRM ROUTING
- OF ALL SURFACE MOUNTED RACEWAY WITH ARCHITECT. 12. CONTRACTOR SHALL PROVIDE 120V POWER TO NEW DOOR HOLDS FROM NEAREST AVAILABLE 120V CIRCUIT WITH AVAILABLE CAPACITY. IF CIRCUIT DOES NOT EXIST, CONTRACTOR SHALL FURNISH AND INSTALL (1) NEW 20A/1P BREAKER IN NEAREST EXISTING PANEL WITH SPARE CAPACITY AND WIRE
- 13. ALL NEW EQUIPMENT SHALL MATCH BASE BUILDING STANDARDS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE. ALL NEW EQUIPMENT SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM.

- 14. FIRE ALARM DEVICES AND COMPONENTS SHALL BE NEW AND WIRED BACK TO THE EXISTING FIRE ALARM CONTROL PANEL. CONTRACTOR TO PROVIDE ALL REQUIRED DEVICES AND EQUIPMENT NECESSARY TO EXPAND EXISTING SYSTEM. CONTRACTOR TO ENSURE ALL NEW DEVICES AND RELATED EQUIPMENT ARE COMPATIBLE WITH THE EXISTING SYSTEM. CONTRACTOR TO MATCH EXISTING DEVICE MOUNTING HEIGHTS WITHIN ADA REQUIREMENTS. WHERE EXISTING HEIGHTS DO NOT MEET CURRENT ADA REQUIREMENTS MOUNT NEW, RELOCATED AND REINSTALLED DEVICES AT HEIGHTS LISTED IN MTG HEIGHT DETAIL ON DRAWING EO. ALL FIRE ALARM STROBES TO BE SYNCHRONIZED WITH EXISTING BLDG STROBES. CONTRACTOR SHALL REPLACE ALL EXISTING FIRE ALARM DEVICES IF THEY ARE NOT SYNCHRONIZABLE. PROVIDE A COMPLETE TEST OF THE ENTIRE FIRE ALARM SYSTEM UPON COMPLETION OF THE INSTALLATION THE SYSTEM SHALL MEET ALL REQUIREMENTS OF THE NFPA AND LOCAL CODES. COORDINATE EXACT REQUIREMENTS WITH LOCAL FIRE DEPARTMENT PRIOR TO WORK BEING PERFORMED.
- 15. CONTRACTOR SHALL PROVIDE AN NFPA 241 IMPAIRMENT PLAN TO THE AHJ & OWNER FOR REVIEW AND APPROVAL BEFORE COMMENCEMENT OF WORK.
- 16. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ANY AND ALL NEW FIRE ALARM MODULES, RELAYS AND ASSOCIATED EQUIPMENT TO ADD NEW FIRE ALARM DEVICES TO THE EXISTING SYSTEM.
- 17. CONTRACTOR SHALL FURNISH AND INSTALL FIRE RATED SEALANT FOR ALL CONDUITS PENETRATING NEW FIRE RATED STAIRWELLS.
- 18. ELECTRICAL CONTRACTOR SHALL WIRE NEW FIRE CURTAIN GROUP CONTROL PANEL TO NEAREST AVAILABLE 120/208V PANEL WITH SPARE CAPACITY AND SPACE. CONTRACTOR SHALL FURNISH AND INSTALL (1) NEW 20A/1P BREAKER WITHIN PANEL TO POWER NEW CONTROL PANEL. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY CONTROL MODULES, RELAYS, INITIATING DEVICES, AND SMOKE DETECTORS FOR NEW FIRE CURTAIN TO INTEGRATE WITH EXISTING TOLMAN SCHOOL FIRE ALARM SYSTEM.





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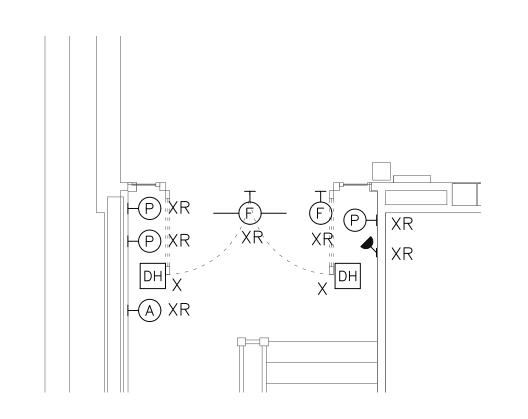
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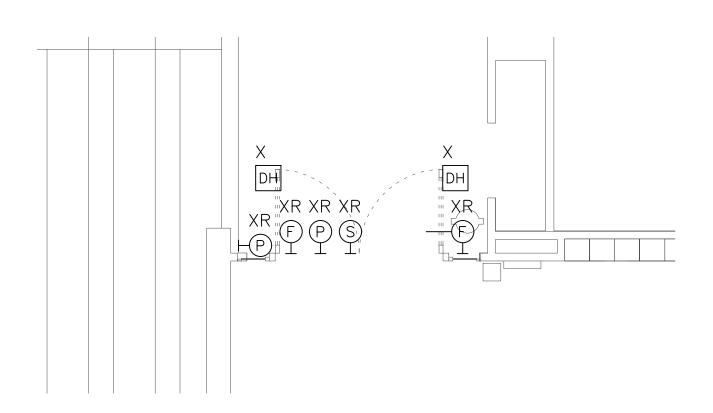
SHEET TITLE **ELECTRICAL BASEMENT PLANS** 

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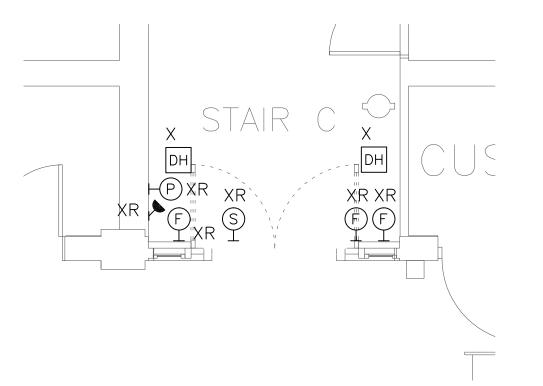


1 1st FI Existing Stair A

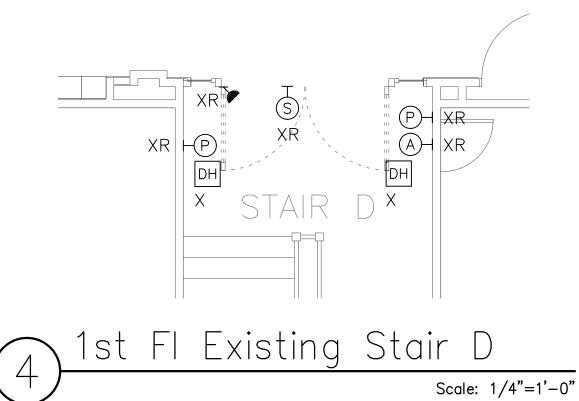
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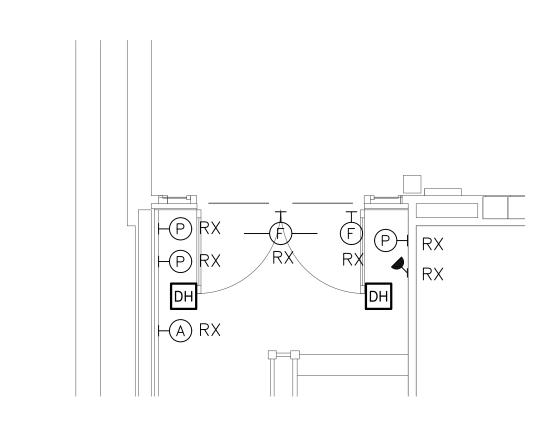


2 1st FI Existing Stair B
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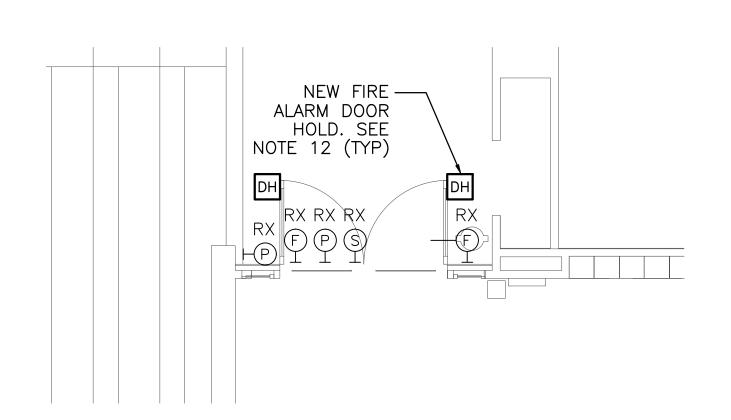


3 1st Fl Existing Stair C
Scale: 1/4"=1'-



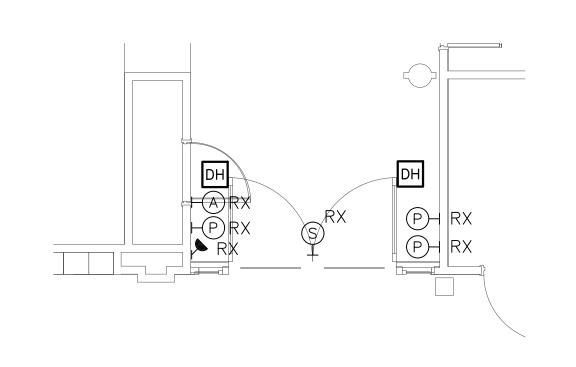


5 1st FI Proposed Stair A
Scale: 1/4"=1'-0"



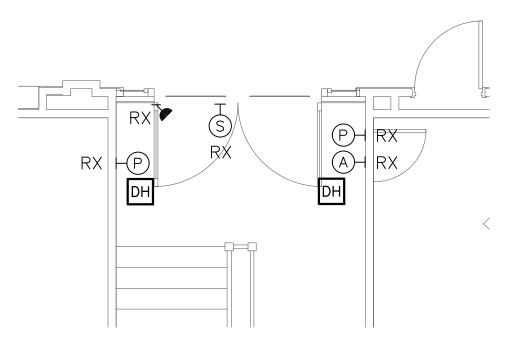
6 1st FI Proposed Stair B

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



1st FI Proposed Stair C

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



1st FI Proposed Stair D

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

# ELECTRICAL DEVICE KEY:

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- P 120V POWER JUNCTION BOX, LB, RACEWAY
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- DH FIRE ALARM DOOR HOLD DEVICE
- FAPS FIRE ALARM POWER SUPPLY
- CTRL BUILDING SYSTEM CONTROL PANEL, JUNCTION BOX, RACEWAY. SEE KEY NOTE 1
- FCGCP NEW FIRE ALARM CURTAIN GROUP CONTROL PANEL. SEE ELECTRICAL NOTE 18

#### ▶ ♣ SURFACE MOUNTED EMERGENCY FIXTURE

#### KEY NOTES:

 CONTRACTOR SHALL CONFIRM AND COORDINATE FINAL LOCATION OF ALL RELOCATED BUILDING SYSTEM, LOW VOLTAGE DEVICES AND RACEWAY WITH ARCHITECT. CONFIRM ROUTING OF EXTENDED RACEWAY WITH ARCHITECT. LOW VOLTAGE SHOWN ON ELECTRICAL PLANS FOR REFERNCE ONLY.

# ELECTRICAL NOTES:

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- 5. COORDINATE SHUT DOWN OF BASE BUILDING ELECTRICAL AND FIRE ALARM SYSTEMS WITH SCHOOL FACILITIES.
- DISCONNECT, MAKE SAFE, AND REMOVE ALL TEMPORARY AND ABANDONED WIRE WITHIN THE LIMIT OF WORK.
   ELECTRICAL CONTRACTOR SHALL RELOCATE ANY AND ALL EXISTING ELECTRICAL DEVICES AND RACEWAY WITHIN AREA OF RENOVATION. CONFIRM AND COORDINATE RENOVATION SCOPE WITH ARCHITECT. EXTEND AND CONNECT

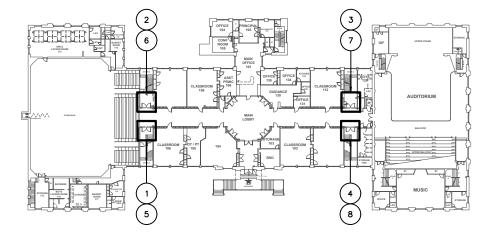
EXISTING WIRING AND RACEWAY TO NEW LOCATION OF RELOCATED EQUIPMENT. CONTRACTOR SHALL EVALUATE

CONDITION OF EXISTING WIRING AND RACEWAY AND REPLACE BACK TO SOURCE IF NECESSARY. CONTRACTOR

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- 11. ALL SURFACE MOUNTED INTERIOR CONDUIT SHALL BE EMT (ELECTRIC METAL TUBING) CONFIRM ROUTING OF ALL SURFACE MOUNTED RACEWAY WITH ARCHITECT.
- 12. CONTRACTOR SHALL PROVIDE 120V POWER TO NEW DOOR HOLDS FROM NEAREST AVAILABLE 120V CIRCUIT WITH AVAILABLE CAPACITY. IF CIRCUIT DOES NOT EXIST, CONTRACTOR SHALL FURNISH AND INSTALL (1) NEW 20A/1P BREAKER IN NEAREST EXISTING PANEL WITH SPARE CAPACITY AND WIRE NEW DOOR HOLD TO THIS CIRCUIT.
- 13. ALL NEW EQUIPMENT SHALL MATCH BASE BUILDING STANDARDS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE. ALL NEW EQUIPMENT SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM.

- 14. FIRE ALARM DEVICES AND COMPONENTS SHALL BE NEW AND WIRED BACK TO THE EXISTING FIRE ALARM CONTROL PANEL. CONTRACTOR TO PROVIDE ALL REQUIRED DEVICES AND EQUIPMENT NECESSARY TO EXPAND EXISTING SYSTEM. CONTRACTOR TO ENSURE ALL NEW DEVICES AND RELATED EQUIPMENT ARE COMPATIBLE WITH THE EXISTING SYSTEM. CONTRACTOR TO MATCH EXISTING DEVICE MOUNTING HEIGHTS WITHIN ADA REQUIREMENTS. WHERE EXISTING HEIGHTS DO NOT MEET CURRENT ADA REQUIREMENTS MOUNT NEW, RELOCATED AND REINSTALLED DEVICES AT HEIGHTS LISTED IN MTG HEIGHT DETAIL ON DRAWING EO. ALL FIRE ALARM STROBES TO BE SYNCHRONIZED WITH EXISTING BLDG STROBES. CONTRACTOR SHALL REPLACE ALL EXISTING FIRE ALARM DEVICES IF THEY ARE NOT SYNCHRONIZABLE. PROVIDE A COMPLETE TEST OF THE ENTIRE FIRE ALARM SYSTEM UPON COMPLETION OF THE INSTALLATION THE SYSTEM SHALL MEET ALL REQUIREMENTS OF THE NFPA AND LOCAL CODES. COORDINATE EXACT REQUIREMENTS WITH LOCAL FIRE DEPARTMENT PRIOR TO WORK BEING PERFORMED.
- 15. CONTRACTOR SHALL PROVIDE AN NFPA 241 IMPAIRMENT PLAN TO THE AHJ & OWNER FOR REVIEW AND APPROVAL BEFORE COMMENCEMENT OF WORK.
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- 17. CONTRACTOR SHALL FURNISH AND INSTALL FIRE RATED SEALANT FOR ALL CONDUITS PENETRATING NEW FIRE RATED STAIRWELLS.
- 18. ELECTRICAL CONTRACTOR SHALL WIRE NEW FIRE CURTAIN GROUP CONTROL PANEL TO NEAREST AVAILABLE 120/208V PANEL WITH SPARE CAPACITY AND SPACE. CONTRACTOR SHALL FURNISH AND INSTALL (1) NEW 20A/1P BREAKER WITHIN PANEL TO POWER NEW CONTROL PANEL. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY CONTROL MODULES, RELAYS, INITIATING DEVICES, AND SMOKE DETECTORS FOR NEW FIRE CURTAIN TO INTEGRATE WITH EXISTING TOLMAN SCHOOL FIRE ALARM SYSTEM.







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24115 11.25.24

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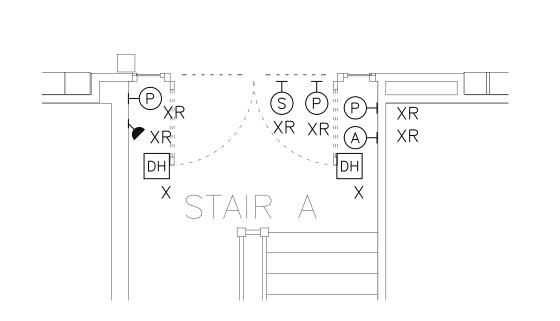
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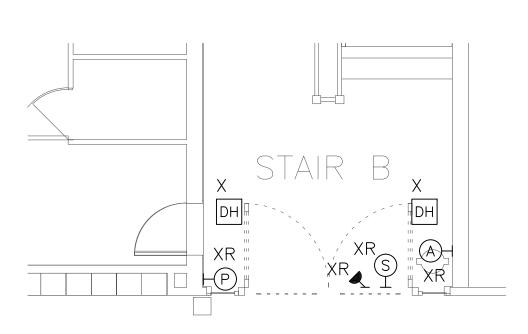
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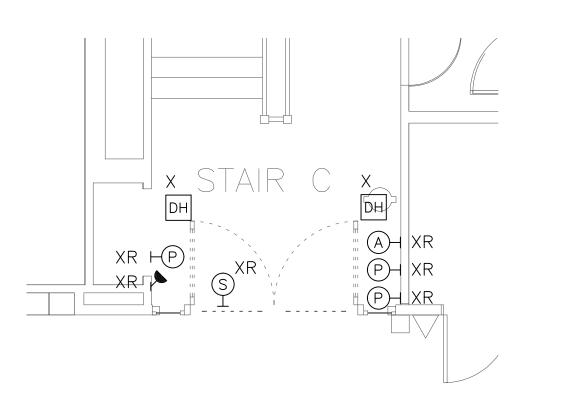
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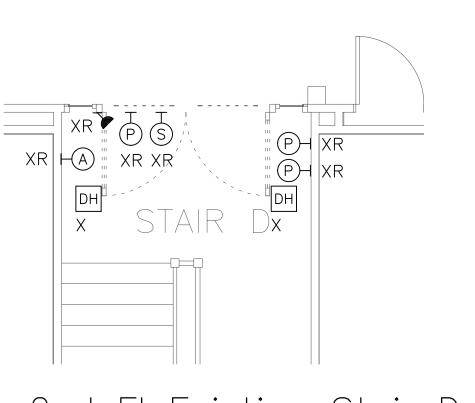




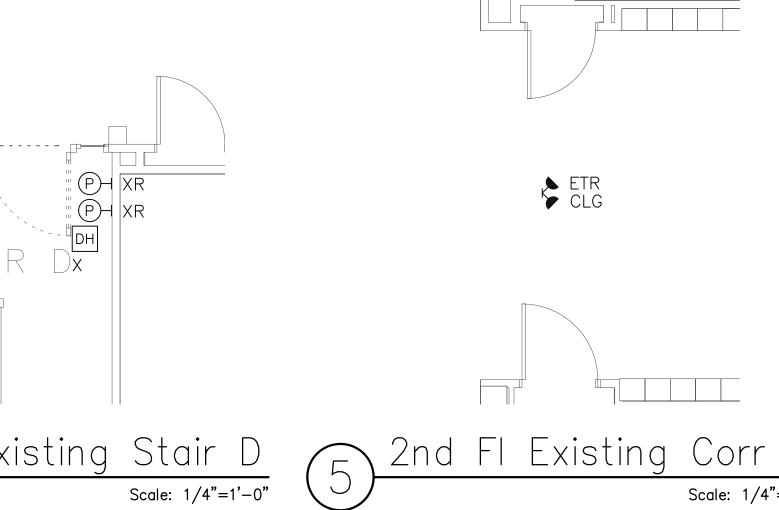
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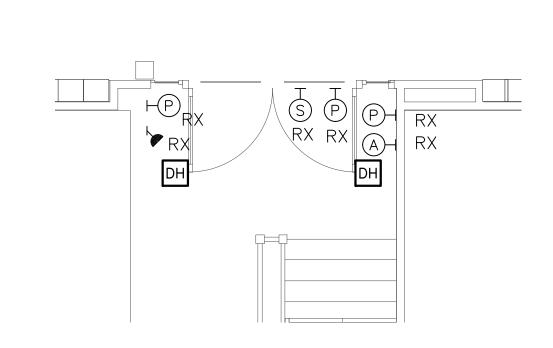


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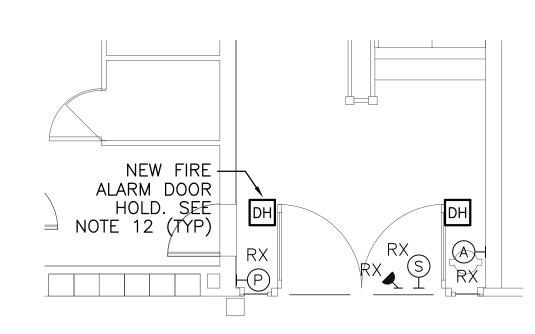


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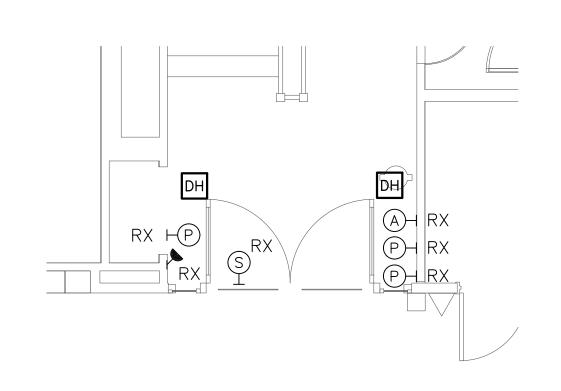




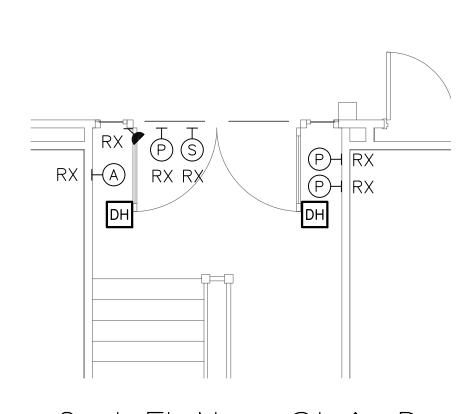




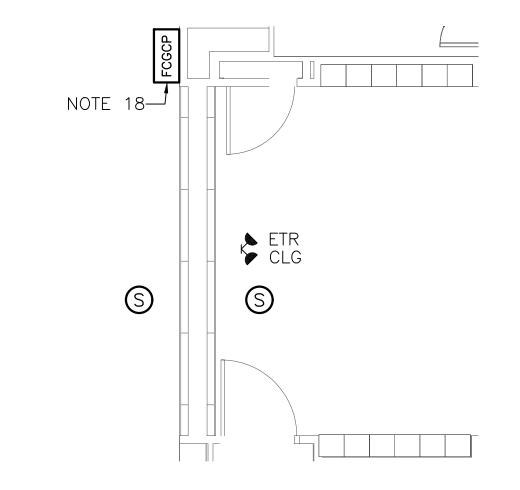












2nd Fl New Corr Scale: 1/4"=1'-0"

# ELECTRICAL DEVICE KEY:

- A AUDIO LOW VOLTAGE DEVICE, JUNCTION BOX RACEWAY. SEE KEY NOTE 1
- (F) FIRE ALARM JUNCTION BOX, LB, RACEWAY
- 120V POWER JUNCTION BOX, LB, RACEWAY
- SECURITY LOW VOLTAGE DEVICE, JUNCTION BOX RACEWAY. SEE KEY NOTE 1
- DH FIRE ALARM DOOR HOLD DEVICE
- FAPS FIRE ALARM POWER SUPPLY
- BUILDING SYSTEM CONTROL PANEL, JUNCTION BOX, RACEWAY. SEE KEY NOTE 1
- FCGCP PANEL. SEE ELECTRICAL NOTE 18 NEW FIRE ALARM CURTAIN GROUP CONTROL

#### ▶ **♣** SURFACE MOUNTED EMERGENCY FIXTURE

#### **KEY NOTES:**

1. CONTRACTOR SHALL CONFIRM AND COORDINATE FINAL LOCATION OF ALL RELOCATED BUILDING SYSTEM, LOW VOLTAGE DEVICES AND RACEWAY WITH ARCHITECT. CONFIRM ROUTING OF EXTENDED RACEWAY WITH ARCHITECT. LOW VOLTAGE SHOWN ON ELECTRICAL PLANS FOR REFERNCE ONLY.

# **ELECTRICAL NOTES:**

- 1. LIMIT OF SCOPE LINE INDICATES THE APPROXIMATE AREA OF RENOVATION THAT ELECTRICAL SYSTEMS MAY BE RELOCATED OR REMOVED. SCOPE OF DEMOLITION SHOWN ON PLANS ARE PARTIAL ONLY FOR THE CONTRACTORS CONVENIENCE AND NOT INTENDED TO SHOW ALL EXISTING CONDITIONS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS TO INCLUDE ALL NECESSARY WORK TO MODIFY AND EXTEND EXISTING SYSTEMS, WIRING, ETC. AS REQUIRED TO ACCOMMODATE THE NEW ARCHITECTURAL FLOOR PLAN.
- 2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY NECESSARY RE-FEEDING OF EQUIPMENT OR DEVICES TO MAINTAIN CIRCUIT CONTINUITY OF EXISTING EQUIPMENT REMAINING.
- 3. ELECTRICAL CONTRACTOR SHALL MAINTAIN INTEGRITY OF FIRE ALARM WIRING SO NOTIFICATION DEVICES OUTSIDE SCOPE OF WORK REMAIN ACTIVE DURING RENOVATION.
- 4. ALL EXISTING DEVICES AND EQUIPMENT TO BE REMOVED DISCONNECT, REMOVE, AND DISPOSE ALL RACEWAY AND WIRING BACK TO ASSOCIATED PANEL.
- 5. COORDINATE SHUT DOWN OF BASE BUILDING ELECTRICAL AND FIRE ALARM SYSTEMS WITH SCHOOL FACILITIES.
- 6. DISCONNECT, MAKE SAFE, AND REMOVE ALL TEMPORARY AND ABANDONED WIRE WITHIN THE LIMIT OF WORK. 7. ELECTRICAL CONTRACTOR SHALL RELOCATE ANY AND ALL EXISTING ELECTRICAL DEVICES AND RACEWAY WITHIN AREA OF RENOVATION. CONFIRM AND COORDINATE RENOVATION SCOPE WITH ARCHITECT. EXTEND AND CONNECT EXISTING WIRING AND RACEWAY TO NEW LOCATION OF RELOCATED EQUIPMENT. CONTRACTOR SHALL EVALUATE

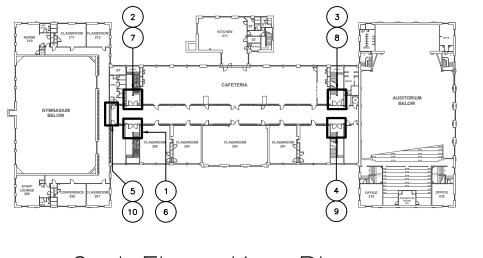
CONDITION OF EXISTING WIRING AND RACEWAY AND REPLACE BACK TO SOURCE IF NECESSARY. CONTRACTOR

LOCATION OF RELOCATED EQUIPMENT. 8. ELECTRICAL CONTRACTOR SHALL CONFIRM AND COORDINATE FINAL LOCATION OF ALL LOW VOLTAGE DEVICES AND ROUTING OF LOW VOLTAGE RACEWAY WITH ARCHITECT.

SHALL REPLACE EXISTING WIRING, BACK TO SOURCE, IF EXISTING EXTENDED WIRING DOES NOT REACH

- 9. ALL NEW EQUIPMENT SHALL MATCH BASE BUILDING STANDARDS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE. ALL NEW EQUIPMENT SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM.
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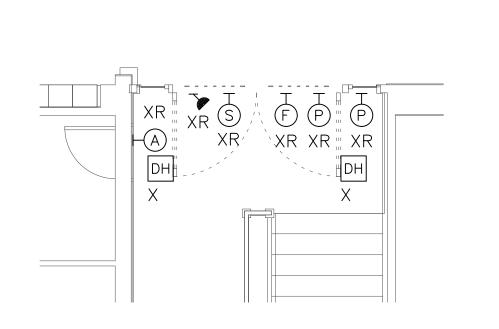
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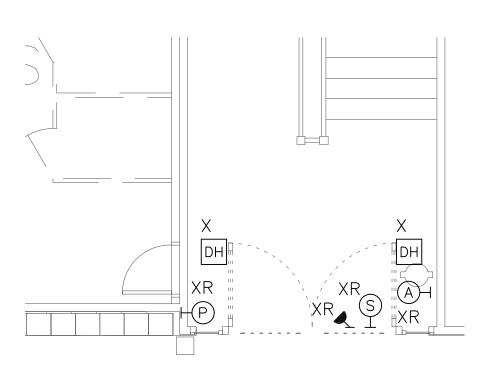
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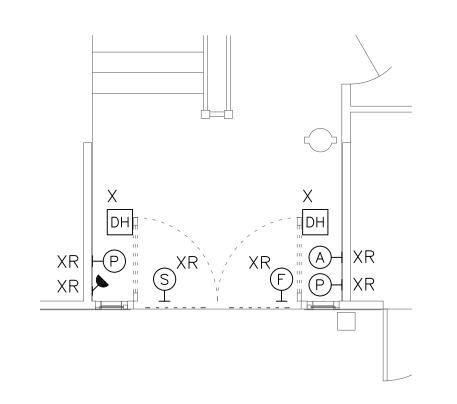
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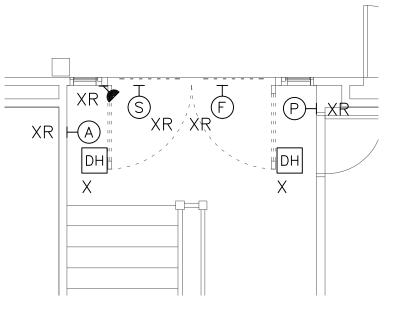




2) 3rd FI Exist Stair E



3 3rd Fl Exist Stair C
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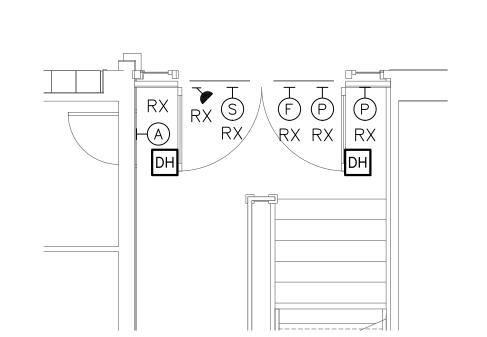
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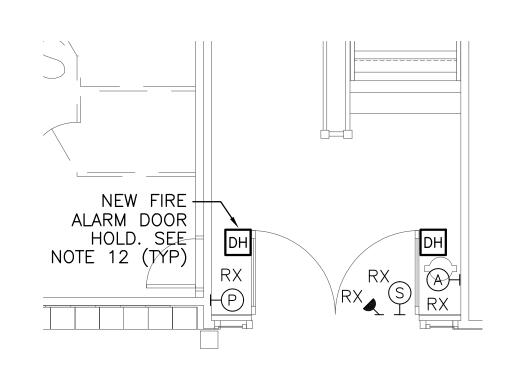
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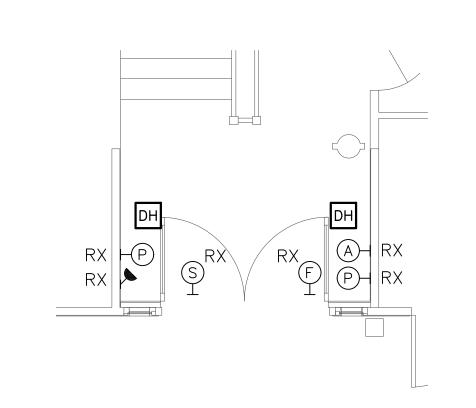


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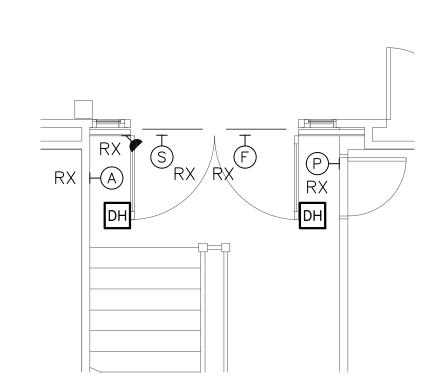
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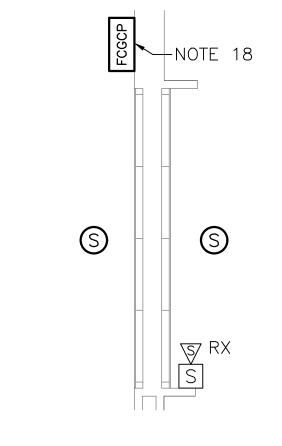


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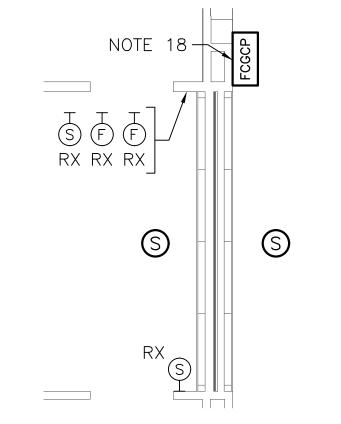
3rd FI New Stair D

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



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

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# ELECTRICAL DEVICE KEY:

- A AUDIO LOW VOLTAGE DEVICE, JUNCTION BOX RACEWAY. SEE KEY NOTE 1
- F FIRE ALARM JUNCTION BOX, LB, RACEWAY
- P 120V POWER JUNCTION BOX, LB, RACEWAY
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- DH FIRE ALARM DOOR HOLD DEVICE
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- CTRL BUILDING SYSTEM CONTROL PANEL, JUNCTION BOX, RACEWAY. SEE KEY NOTE 1
- FCGCP NEW FIRE ALARM CURTAIN GROUP CONTROL PANEL. SEE ELECTRICAL NOTE 18

#### ▶ ♣ SURFACE MOUNTED EMERGENCY FIXTURE

#### KEY NOTES:

 CONTRACTOR SHALL CONFIRM AND COORDINATE FINAL LOCATION OF ALL RELOCATED BUILDING SYSTEM, LOW VOLTAGE DEVICES AND RACEWAY WITH ARCHITECT. CONFIRM ROUTING OF EXTENDED RACEWAY WITH ARCHITECT. LOW VOLTAGE SHOWN ON ELECTRICAL PLANS FOR REFERNCE ONLY.

# ELECTRICAL NOTES:

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CONDITION OF EXISTING WIRING AND RACEWAY AND REPLACE BACK TO SOURCE IF NECESSARY. CONTRACTOR

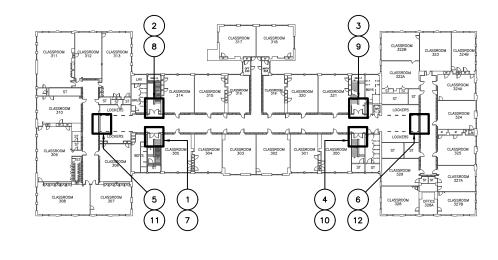
LOCATION OF RELOCATED EQUIPMENT.

8. ELECTRICAL CONTRACTOR SHALL CONFIRM AND COORDINATE FINAL LOCATION OF ALL LOW VOLTAGE DEVICES AND ROUTING OF LOW VOLTAGE RACEWAY WITH ARCHITECT.

SHALL REPLACE EXISTING WIRING, BACK TO SOURCE, IF EXISTING EXTENDED WIRING DOES NOT REACH

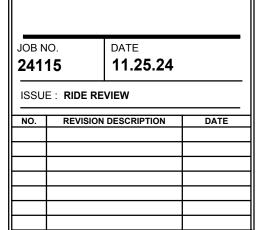
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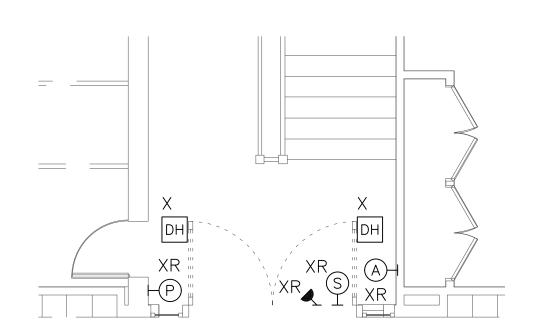
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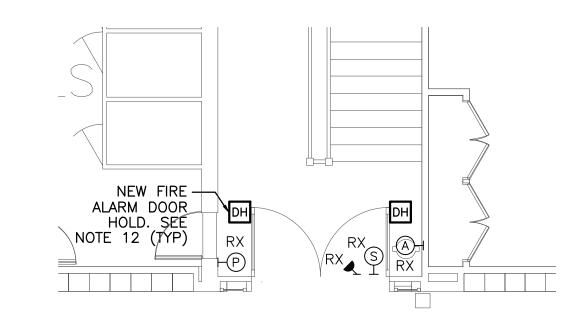
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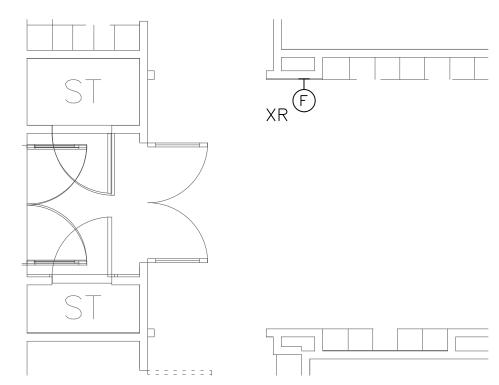
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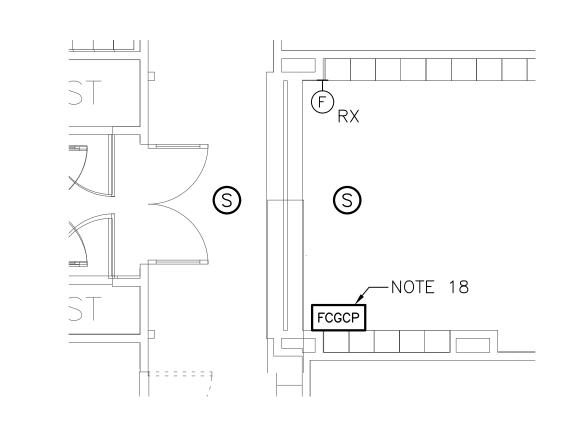














# ELECTRICAL DEVICE KEY:

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#### ▶ ♣ SURFACE MOUNTED EMERGENCY FIXTURE

#### KEY NOTES:

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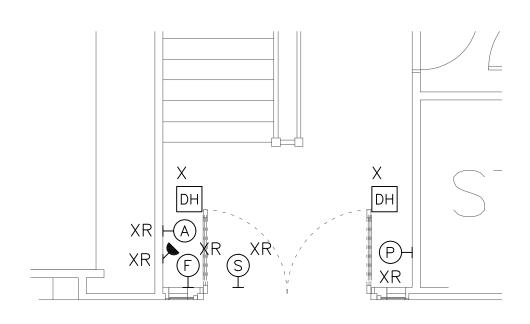
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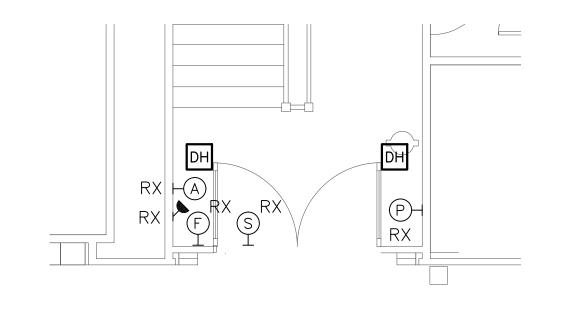
8. ELECTRICAL CONTRACTOR SHALL CONFIRM AND COORDINATE FINAL LOCATION OF ALL LOW VOLTAGE DEVICES AND ROUTING OF LOW VOLTAGE RACEWAY WITH ARCHITECT.

SHALL REPLACE EXISTING WIRING, BACK TO SOURCE, IF EXISTING EXTENDED WIRING DOES NOT REACH

- 9. ALL NEW EQUIPMENT SHALL MATCH BASE BUILDING STANDARDS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE. ALL NEW EQUIPMENT SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM.
- 10. ALL POWER DEVICE FACEPLATES, COVERS, AND DISCONNECTS SHALL BE LABELED WITH CIRCUIT NUMBER AND PANEL DESIGNATION.
- 11. ALL SURFACE MOUNTED INTERIOR CONDUIT SHALL BE EMT (ELECTRIC METAL TUBING) CONFIRM ROUTING OF ALL SURFACE MOUNTED RACEWAY WITH ARCHITECT.
- 12. CONTRACTOR SHALL PROVIDE 120V POWER TO NEW DOOR HOLDS FROM NEAREST AVAILABLE 120V CIRCUIT WITH AVAILABLE CAPACITY. IF CIRCUIT DOES NOT EXIST, CONTRACTOR SHALL FURNISH AND INSTALL (1) NEW 20A/1P BREAKER IN NEAREST EXISTING PANEL WITH SPARE CAPACITY AND WIRE NEW DOOR HOLD TO THIS CIRCUIT.
- 13. ALL NEW EQUIPMENT SHALL MATCH BASE BUILDING STANDARDS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE. ALL NEW EQUIPMENT SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM.

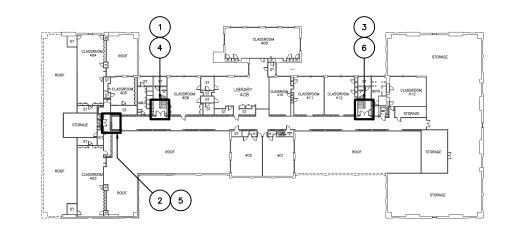


3 4th FI Existing Stair C
Scale: 1/4"=1'-0"





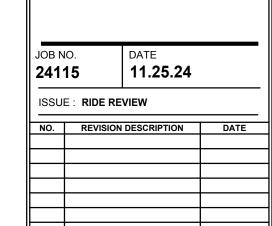
- 14. FIRE ALARM DEVICES AND COMPONENTS SHALL BE NEW AND WIRED BACK TO THE EXISTING FIRE ALARM CONTROL PANEL. CONTRACTOR TO PROVIDE ALL REQUIRED DEVICES AND EQUIPMENT NECESSARY TO EXPAND EXISTING SYSTEM. CONTRACTOR TO ENSURE ALL NEW DEVICES AND RELATED EQUIPMENT ARE COMPATIBLE WITH THE EXISTING SYSTEM. CONTRACTOR TO MATCH EXISTING DEVICE MOUNTING HEIGHTS WITHIN ADA REQUIREMENTS. WHERE EXISTING HEIGHTS DO NOT MEET CURRENT ADA REQUIREMENTS MOUNT NEW, RELOCATED AND REINSTALLED DEVICES AT HEIGHTS LISTED IN MTG HEIGHT DETAIL ON DRAWING EO. ALL FIRE ALARM STROBES TO BE SYNCHRONIZED WITH EXISTING BLDG STROBES. CONTRACTOR SHALL REPLACE ALL EXISTING FIRE ALARM DEVICES IF THEY ARE NOT SYNCHRONIZABLE. PROVIDE A COMPLETE TEST OF THE ENTIRE FIRE ALARM SYSTEM UPON COMPLETION OF THE INSTALLATION THE SYSTEM SHALL MEET ALL REQUIREMENTS OF THE NFPA AND LOCAL CODES. COORDINATE EXACT REQUIREMENTS WITH LOCAL FIRE DEPARTMENT PRIOR TO WORK BEING PERFORMED.
- 15. CONTRACTOR SHALL PROVIDE AN NFPA 241 IMPAIRMENT PLAN TO THE AHJ & OWNER FOR REVIEW AND APPROVAL BEFORE COMMENCEMENT OF WORK.
- 16. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ANY AND ALL NEW FIRE ALARM MODULES, RELAYS AND ASSOCIATED EQUIPMENT TO ADD NEW FIRE ALARM DEVICES TO THE EXISTING SYSTEM.
- 17. CONTRACTOR SHALL FURNISH AND INSTALL FIRE RATED SEALANT FOR ALL CONDUITS PENETRATING NEW FIRE RATED STAIRWELLS.
- 18. ELECTRICAL CONTRACTOR SHALL WIRE NEW FIRE CURTAIN GROUP CONTROL PANEL TO NEAREST AVAILABLE 120/208V PANEL WITH SPARE CAPACITY AND SPACE. CONTRACTOR SHALL FURNISH AND INSTALL (1) NEW 20A/1P BREAKER WITHIN PANEL TO POWER NEW CONTROL PANEL. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY CONTROL MODULES, RELAYS, INITIATING DEVICES, AND SMOKE DETECTORS FOR NEW FIRE CURTAIN TO INTEGRATE WITH EXISTING TOLMAN SCHOOL FIRE ALARM SYSTEM.







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B. EXAMINE ALL DRAWINGS AND ALL OTHER SECTIONS OF THE SPECIFICATIONS FOR REQUIREMENTS AFFECTING THE WORK OF THIS SECTION.

A. PROVIDE ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT FOR THE INSTALLATION OF THE COMPLETE AND FULLY OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS

B. THE WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

 PRIMARY SERVICE INCLUDING CONDUIT RISER, RACEWAYS, RIGID STEEL SWEEPS, AND CONCRETE PAD PER LOCAL POWER COMPANY REQUIREMENTS. PRIMARY AND SECONDARY DUCT BANK INCLUDING CONDUIT SPACERS, CONCRETE, STEEL REINFORCING AS REQUIRED AND MARKER TAPE 6" BELOW GRADE.

3. CONCRETE PAD, GROUNDING, REINFORCING, FOR LOCAL POWER COMPANY FURNISHED PAD MOUNTED TRANSFORMER. 4. TRENCHING, BACKFILLING, SOD OR HYDRO SEEDING. (COORDINATE WITH GENERAL

5. SECONDARY ELECTRIC SERVICE INCLUDING SECONDARY SERVICE ENTRANCE RACEWAYS, CABLES, CONDUIT BUSHINGS AND GROUNDING.

6. FREE STANDING SWITCHBOARD INCLUDING VERTICAL PULL SECTION, MAIN CIRCUIT BREAKER, CURRENT TRANSFORMER COMPARTMENT WITH UTILITY METE AMMETER, AMMETER SWITCH, VOLTMETER, VOLTMETER SWITCH, P/T'S AND

C/T'S FFFDER CUBICLE WITH FFFDER BREAKERS. FEEDERS, BRANCH CIRCUIT WIRING AND RACEWAYS. 8. CONDUIT, WIRE, BOXES, FITTINGS, HANGERS AND SUPPORTS 9. SWITCHES, RECEPTACLES, SPECIAL PURPOSE OUTLETS AND WALL PLATES.

10. SAFETY DISCONNECTS SWITCHES, NON-FUSED AND FUSED WITH FUSES. 11. LIGHTING SYSTEM INCLUDING LAMPS, LENSES, BALLASTS, DEVICES, CONTROLS AND 12. MOTOR CONNECTIONS AND CONTROLS.

13. SURGE PROTECTIVE DEVICES SHALL BE PROVIDED PER NEC 700.8 TO ENSURE RELIABILITY OF CRITICAL EMERGENCY SYSTEMS SUCH AS EMERGENCY LIGHTING PANELS, EMERGENCY COMMUNICATION SYSTEMS, FIRE CONTROL SYSTEMS, ELEVATORS USED FOR EVACUATIONS

14. SYSTEM GROUNDING. 15. POWER CONNECTIONS TO ALL PLUMBING, MECHANICAL, AND ALL OTHER EQUIPMENT 16. NAMEPLATES ON ALL MAJOR ELECTRICAL EQUIPMENT AND COMPONENTS. 17. UNDERGROUND FIRE ALARM SERVICE WITH IMSA FIRE ALARM CABLE PER LOCAL

FIRE ALARM CRITERIA. 18. ADDRESSABLE FIRE ALARM SYSTEM, ANALOG SMOKE AND HEAT DEVICES MONITORING MODULES, WIRE, RACEWAY, 24V D.C. STROBES, CONTROL PANEL WITH BUILT-IN AND REMOTE KDU DISPLAY(S)

COORDINATION, SUPERVISION ON, AND FINAL CONNECTION BY FIRE ALARM TESTING AGENCY OF RECORD.

21. TEMPORARY LIGHT, POWER AND PANEL FOR USE DURING CONSTRUCTION. 22. DATA, COMPUTER AND TELEPHONE DUPLEX BOXES WITH PULL STRING TO

23. SEAL PENETRATIONS BETWEEN FOUNDATION FLOORS AND WALLS WITH FIRE RETARDANT MATERIAL.

24. SEAL ALL CABLES AND CONDUITS FOR WATER/MOISTURE PENETRATION USING OZ GEDNEY PRODUCTS. REFER TO RACEWAYS SECTION FOR DETAIL. 26. INTERIOR SECONDARY DISTRIBUTION SYSTEMS INCLUDING MAIN SWITCHBOARD, CURRENT LIMITER CABINET, DRY TYPE INDOOR TRANSFORMERS, ALL DISTRIBUTION PANELBOARDS, MOTOR CONTROLS, MAGNETIC STARTERS, OVERCURRENT AND

SWITCHING DEVICES, PANELBOARDS, RACEWAYS, CABLES, WIRING, JUNCTION AND PULL BOXES, WIREWAYS, AND ALL OTHER COMPONENTS REQUIRED FOR COMPLETE ELECTRICAL DISTRIBUTION SYSTEM 27. AN ADDRESSABLE FIRE ALARM SYSTEM COMPLETE WITH ALL DEVICES AND WIRING INCLUDING MUNICIPAL CONNECTIONS 28. TESTING OF ALL ELECTRICAL SYSTEMS

29. ACCESS PANELS (FURNISH ONLY) 30. COORDINATION BETWEEN ELECTRICAL AND OTHER TRADES.

31. POWER WIRING FOR ELEVATORS AND ASSOCIATED EQUIPMENT 32. LIGHTING CONTROL AND DIMMING SYSTEM. 33. INTERCOM SYSTEM COMPLETE WITH WIRING COMPONENTS AND PROGRAMMING

DRAWINGS, COMPLETE, LEAVING READY AN ELECTRICAL SYSTEM IN PERFECT OPERATING CONDITION.

A. AS USED IN THIS SECTION, PROVIDE MEANS FURNISH AND INSTALL AND POS MEANS PROVIDED UNDER OTHER SECTIONS.

B. AS USED IN THE DRAWINGS AND SPECIFICATIONS FOR ELECTRICAL WORK, CERTAIN NON\_TECHNICAL WORDS SHALL BE UNDERSTOOD TO HAVE SPECIFIC MEANINGS AS FOLLOWS REGARDLESS OF INDICATIONS TO THE CONTRARY IN THE GENERAL CONDITIONS OR

FURNISH PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY PURCHASING SHALL INCLUDE PAYMENT OF ALL SALES TAXES AND OTHER SURCHARGES AS MAY BE REQUIRED TO ASSURE THAT PURCHASED ITEMS

INSTALL UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT, ALL AS PART OF THIS WORK

UNDERSTOOD THAT THE INDICATION AND/OR DESCRIPTION OF ANY ELECTRICAL ITEM IN THE DRAWINGS OR SPECIFICATIONS FOR ELECTRICAL WORK CARRIES WITH IT THE INSTRUCTION TO FURNISH, INSTALL AND CONNECT THE ITEM AS PART OF THE ELECTRICAL

NEW MANUFACTURED WITHIN THE PAST TWO YEARS AND NEVER BEFORE USED. C. EXCEPT WHERE MODIFIED BY A SPECIFIC NOTATION TO THE CONTRARY, IT SHALL BE

WORK, REGARDLESS OF WHETHER OR NOT THIS INSTRUCTION IS EXPLICITLY STATED. D. IT SHALL BE UNDERSTOOD THAT THE SPECIFICATIONS AND DRAWINGS FOR ELECTRICAL WORK ARE COMPLIMENTARY AND ARE TO BE TAKEN TOGETHER FOR A COMPLETE INTERPRETATION OF THE FLECTRICAL WORK EXCEPT THAT INDICATIONS ON THE DRAWINGS

SPECIFICATIONS WHERE THEY CONFLICT WITH SAME. 1.4 WORK BY OTHERS

A. THE FOLLOWING IS RELATED WORK SPECIFIED ELSEWHERE:

1. HVAC EQUIPMENT INCLUDING PROVIDING INDIVIDUAL MOTOR STARTERS, ADJUSTABLE FREQUENCY DRIVES, CONTROL WIRING, VARIABLE SPEED SWITCHES

2. TELEPHONE/COMPUTER/DATA ALONG WITH WIRING, DEVICES AND FINAL TERMINATIONS BY OWNERS' COMMUNICATIONS VENDOR

3. TEMPERATURE CONTROL WIRING BY HVAC CONTRACTOR.

4. CHARGES FOR POWER CONSUMED BY THE TEMPORARY LIGHT AND POWER SYSTEM FOR CONSTRUCTION WILL BE PAID BY THE GENERAL CONTRACTOR.

5. ACCESS PANELS, WHERE REQUIRED, ARE FURNISHED BY THE GENERAL CONTRACTOR AND COORDINATED WITH THIS SECTION.

6. ALL DUCT SMOKE DETECTORS SHALL BE SUPPLIED BY THE ELECTRICAL CONTRACTOR AND INSTALLED BY THE MECHANICAL CONTRACTOR, WIRED TO THE FIRE ALARM SYSTEM BY THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL INCLUDE REMOTE TEST PANELS.

1.5 CODES, PERMITS & STANDARDS A. PROVIDE ALL PERMITS AND LICENSES. OBTAIN AND PAY ALL CERTIFICATES OF INSPECTION

AS REQUIRED BY REGULATORY AGENCIES AND SUBMIT FOR APPROVAL. B. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND DESIGNED, CONSTRUCTED, INSTALLED

AND TESTED IN ACCORDANCE WITH THE SPECIFICATION AND THE FOLLOWING STANDARDS 1. MASSACHUSETTS ELECTRICAL CODE (MEC). 2. NATIONAL ELECTRICAL CODE (NEC) 3. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

4. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) UNDERWRITERS LABORATORY (UL) 6. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) 7. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA

8. AMERICANS WITH DISABILITIES ACT (ADA) 9. NATIONAL ELECTRIC SAFETY CODE (NESC) 10. NEC ARTICLE 110 - FLASH PROTECTION 11. MASSACHUSETTS BUILDING CODE

#### 12. INTERNATIONAL BUILDING CODE (IBC) 1.6 PROTECTION AND CLEANING

A. ALL ELECTRICAL EQUIPMENT AND DEVICES IN THE EXISTING BUILDING IN WHICH THE ELECTRICAL WORK IS TO BE DONE UNDER CONTRACT, SHALL BE PROTECTED FROM SCRATCHES, PAINT, CEMENT, ETC. UNTIL THE WORK IS COMPLETED.

B. WHERE ELECTRICAL EQUIPMENT AND/OR DEVICES ARE INDICATED TO BE ABANDONED DELIVERED TO STORAGE ON SITE AT A LOCATION DESIGNATED BY THE OWNER.

C. EXPOSED SURFACES OF ELECTRICAL EQUIPMENT & LIGHTING FIXTURES SHALL BE CLEANED

D. ALL DEBRIS AND MATERIAL RESULTING FROM ELECTRICAL WORK SHALL BE REMOVED FROM WORKSPACE SHALL BE LEFT CLEAN AS ELECTRICAL WORK IS COMPLETED.

E. DAMAGES TO COVERS AND TRIMS OF ELECTRICAL EQUIPMENT SHALL BE REPAIRED AND PAINTED WITH TOUCH-UP PAINT SUPPLIED BY THE EQUIPMENT MANUFACTURER TO THE SATISFACTION OF THE OWNER'S DESIGNATED REPRESENTATIVE OR THE ARCHITECT OR THE EQUIPMENT SHALL BE REPLACED WITH NEW.

#### 1.7 INTERPRETATION OF PLANS

A. ALL WORK SHOWN ON THE PLANS IS INTENDED TO BE APPROXIMATELY CORRECT TO SCALE BUT FIGURED DIMENSIONS AND DETAILED DRAWINGS ARE TO BE FOLLOWED IN EVERY CASE. THE DRAWINGS SHALL BE TAKEN AS DIAGRAMMATIC. RACEWAYS, WIRING AND GENERAL METHODS OF ROUTING ARE SHOWN BUT IS NOT INTENDED TO SHOW EVERY OFFSET AND FITTING NOR EVERY STRUCTURAL DIFFICULTY THAT MAY BE ENCOUNTERED. TO CARRY OUT THE TRUE INTENT AND PURPOSES OF THE PLANS, SUPPLY AND INSTALL AL DMPONENTS NECESSARY TO PROVIDE COMPLETE WORKING SYSTEMS, READY FOR USE WITH NO ADDITIONAL COST TO THE OWNER.

#### 1.8 SHOP DRAWINGS

1. SHOP DRAWINGS ARE INFORMATION PREPARED BY THE CONTRACTOR T ILLUSTRATE PORTIONS OF THE WORK IN MORE DETAIL THAN SHOWN IN THE

2. COORDINATION DRAWINGS ARE DETAILED, LARGE-SCALE LAYOUT SHOP DRAWINGS SHOWING HVAC, ELECTRICAL, PLUMBING AND FIRE PROTECTION WORK SUPERIMPOSED IN ORDER TO IDENTIFY CONFLICTS AND ENSURE INTER-COORDINATION OF MECHANICAL, ELECTRICAL, ARCHITECTURAL, STRUCTURAL AND OTHER WORK

1. SHOP DRAWINGS SHALL BE SUBMITTED ACCORDING TO SPECIFICATION SECTION ONE COVER SHEET FOR MULTIPLE PRODUCTS, WHETHER OR NOT SUPPLIED BY ONE MANUFACTURER OR VENDOR.

1. REVIEW SUBMITTAL PACKAGES FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND THEN SUBMIT TO ARCHITECT FOR REVIEW.

C. SUBMITTAL PROCEDURES AND FORMAT

2. PROVIDE ADDITIONAL COPIES OF REVIEWED SHOP DRAWINGS AS REQUIRED FOR

3. SHOP DRAWINGS SHOWING LAYOUTS OF SYSTEMS SHALL CONTAIN SUFFICIENT PLANS, ELEVATIONS, SECTIONS, DETAILS AND SCHEMATICS TO DESCRIBE WORK CLEARLY. THEY SHALL BE 1/4? = 1/1 -0? SCALE UNLESS SPECIFIED OTHERWISE. SHEET METAL SHOP DRAWINGS SHALL BE 3/8? = 1' -0 AND SHALL INDICATE WORK OF OTHER SECTIONS WHERE INTERFERENCES ARE POSSIBLE. PROVIDE LARGER SCALE DETAILS AS NECESSARY. SHEET METAL DRAWINGS SHALL SHOW ELEMENTS OF ARCHITECTS REFLECTED CEILING PLAN, EXPOSED DUCTWORK, WALLS AND PARTITIONS, DIFFUSERS, REGISTERS, GRILLES, FIRE DAMPERS, SLEEVES AND OTHER ASPECTS OF CONSTRUCTION AS NECESSARY FOR COORDINATION.

ALL FIREWALLS AND SMOKE PARTIONS MUST BE HIGHLIGHTED ON THE SHEET METAL DRAWINGS FOR APPROPRIATE COORDINATION.

5. SHOP DRAWINGS SHOWING MANUFACTURER'S PRODUCT DATA SHALL CONTAIN DETAILED DIMENSIONAL DRAWINGS, ACCURATE AND COMPLETE DESCRIPTION OF CONSTRUCTION MATERIALS. MANUFACTURER'S PUBLISHED PERFORMANCE CHARACTERISTICS AND CAPACITY RATINGS (PERFORMANCE DATA, ALONE, IS NOT ACCEPTABLE), ELECTRICAL REQUIREMENTS AND WIRING DIAGRAMS. DRAWINGS SHALL CLEARLY INDICATE LOCATION (TERMINAL BLOCK OR WIRE NUMBER), VOLTAGE AND FUNCTION FOR ALL FIELD TERMINATIONS, AND OTHER INFORMATION NECESSARY TO DEMONSTRATE COMPLIANCE WITH ALL REQUIREMENTS OF CONTRACT DOCUMENTS.

#### D. ACCEPTABLE MANUFACTURERS

1. ALTERNATE MANUFACTURERS ARE ACCEPTABLE ONLY IF, AS A MINIMUM, THEY: A. MEET ALL PERFORMANCE CRITERIA LISTED IN THE SCHEDULES AND OUTLINED IN THE SPECIFICATION.

B. HAVE IDENTICAL OPERATING CHARACTERISTICS TO THOSE CALLED FOR IN

C. FIT WITHIN THE AVAILABLE SPACE IT WAS DESIGNED FOR, INCLUDING SPACE FOR MAINTENANCE AND COMPONENT REMOVAL, WITH NO MODIFICATION TO EITHER SPACE OR THE PRODUCT. CLEARANCES TO WALLS, EILINGS AND OTHER EQUIPMENT SHALL BE AT LEAST EQUAL TO THOSE D. FOR ROOFTOP MOUNTED EQUIPMENT AND FOR EQUIPMENT MOUNTED IN AREAS WHERE STRUCTURAL MATTERS ARE A CONSIDERATION, THE PRODUCTS

MUST HAVE A WEIGHT NO GREATER THAN THE PRODUCT LISTED IN THE E. PRODUCTS MUST ADHERE TO ALL ARCHITECTURAL CONSIDERATION INCLUDING, BUT NOT LIMITED TO: BEING OF THE SAME COLOR AS THE PRODUCT SCHEDULED OR SPECIFIED, FITTING WITHIN ARCHITECTURAL ENCLOSURES AND DETAILS, AND FOR DIFFUSERS, LIGHTING AND PLUMBING FIXTURES—BEING THE SAME SIZE AND OF THE SAME PHYSICAL APPEARANCE AS SCHEDULE OR SPECIFIED PRODUCTS.

FROM CONTRACT DOCUMENTS SHALL BE REQUESTED INDIVIDUALLY IN WRITING WHETHER DEVIATIONS RESULT FROM FIELD CONDITIONS, STANDARD SHOP PRACTICE, OR OTHER CAUSE. SUBMIT LETTER WITH TRANSMITTAL OF SHOP DRAWINGS, WHICH FLAGS THE DEVIATION TO THE ATTENTION OF THE ARCHITECT.

2. WITHOUT LETTERS FLAGGING THE DEVIATION TO THE ARCHITECT, IT IS POSSIBLE THAT THE ARCHITECT MAY NOT NOTICE SUCH DEVIATION OR MAY NOT REALIZE ITS RAMIFICATIONS. THEREFORE, IF SUCH LETTERS ARE NOT SUBMITTED TO THE HARMLESS FOR ANY AND ALL ADVERSE CONSEQUENCES RESULTING FROM THE DEVIATIONS BEING IMPLEMENTED. THIS SHALL APPLY REGARDLESS OF WHETHER THE ARCHITECT HAS REVIEWED OR APPROVED SHOP DRAWINGS CONTAINING THE DEVIATION, AND WILL BE STRICTLY ENFORCED.

#### 3. APPROVAL OF PROPOSED DEVIATIONS, IF ANY, WILL BE MADE AT THE DISCRETION OF THE ARCHITECT. F. RESPONSIBILITY

1. INTENT OF SUBMITTAL REVIEW IS TO CHECK FOR CAPACITY, RATING, AND CERTAIN CONSTRUCTION FEATURES. CONTRACTOR SHALL ENSURE THAT WORK MEETS REQUIREMENTS OF CONTRACT DOCUMENTS REGARDING INFORMATION THAT PERTAINS TO FABRICATION PROCESSES OR MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION: AND FOR COORDINATION O WORK OF THIS AND OTHER SECTIONS. WORK SHALL COMPLY WITH SUBMITTALS
MARKED ?REVIEWED? TO EXTENT THAT THEY AGREE WITH CONTRACT DOCUMENTS. SUBMITTAL REVIEW SHALL NOT DIMINISH RESPONSIBILITY UNDER THIS CONTRACT FOR DIMENSIONAL COORDINATION, QUANTITIES, INSTALLATION, WIRING, SUPPORTS AND ACCESS FOR SERVICE, NOR SHOP DRAWING ERRORS OR DEVIATIONS FROM REQUIREMENTS OF CONTRACT DOCUMENTS. THE ARCHITECT'S NOTING OF SOME ERRORS WHILE OVERLOOKING OTHERS WILL NOT EXCUSE THE CONTRACTOR FROM PROCEEDING IN ERROR, CONTRACT DOCUMENTS REQUIREMENTS ARE NOT LIMITED, WAIVED NOR SUPERSEDED IN ANY WAY BY REVIEW.

INFORM SUBCONTRACTORS, MANUFACURERS, SUPPLIERS, ETC. OF SCOPE AND LIMITED NATURE OF REVIEW PROCESS AND ENFORCE COMPLIANCE WITH CONTRACT DOCUMENTS.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS THOROUGHLY DURING BID PROCESS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER/ARCHITECT VIA RFI (REQUEST FOR INFORMATION) IF ANY PROCESS SHALL DISQUALIFY THE CONTRACTOR FOR CLAIMING ANY ADDITIONAL

SHOP DRAWINGS FOR ENTIRE DISTRIBUTION SYSTEM WILL NOT BE SUBMITTED UNTIL AFTER THE COMPLETION OF THE SHORT CIRCUIT STUDY. EQUIPMENT AIC RATING SHALL MATCH WITH THE

RESULTS OF THE STUDY. SERIES RATING OF DEVICES WILL NOT BE ACCEPTED. G. SCHEDULE: INCORPORATE SHOP DRAWING REVIEW PERIOD INTO CONSTRUCTION SCHEDULE SO THAT WORK IS NOT DELAYED. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR DELAYS CAUSED BY NOT INCORPORATING THE FOLLOWING SHOP DRAWING REVIEW TIME REQUIREMENTS INTO HIS PROJECT SCHEDULE. WORKING DAYS LISTED REFERENCE THE TIME IN THE ENGINEER'S OFFICE, IT DOES NOT INCLUDE TRANSMITTAL TIME FOR REVIEW EACH TIME SHOP DRAWING IS SUBMITTED OR

H. LIST OF PROPOSED EQUIPMENT AND MATERIALS

 WITHIN FOUR WEEKS AFTER AWARD OF CONTRACT AND BEFORE ORDERING MATERIALS OR EQUIPMENT, SUBMIT COMPLETE LIST OF PROPOSED MATERIALS AND EQUIPMENT AND INDICATE MANUFACTURER'S NAMES AND ADDRESSES. NO CONSIDERATION WILL BE GIVEN TO PARTIAL LISTS SUBMITTED OUT OF SEQUENCE.

I. SUBMIT SHOP DRAWINGS IN PDF FORMAT AND ELECTRONICALLY FOR THE FOLLOWING: 1. PANELBOARDS

2. LOAD CENTERS 3. CIRCUIT BREAKERS AND ENCLOSURES

4. SWITCHBOARD 5. DISCONNECT SWITCHES

6. CONDUIT, WIRE, FEEDERS, CABLES AND BRANCH CIRCUIT WIRING 7. MANUAL MOTOR STARTERS

8. WIRE WAYS, OUTLET BOXES, COVERS 9. SWITCHES, RECEPTACLES, SPECIAL PURPOSE DEVICES AND PLATES

10. LIGHTING FIXTURES AND LAMPS

11. FIRE ALARM SYSTEM (ADDRESSABLE) 12. APARTMENT ENTRY SYSTEM

PROVISIONS OF THE CONTRACT DOCUMENTS.

13. SHORT-CIRCUIT ANALYSIS 14. PROTECTIVE DEVICE TIME CURRENT COORDINATION ANALYSIS 15. ARC FLASH HAZARD ANALYSIS.

1.9 SUBMITTAL DOCUMENTATION REQUIREMENTS

1. SUBMIT SIX (6) HARD COPIES OF DOCUMENTATION FOR REVIEW.

A. FURNISH DOCUMENTATION ASSOCIATED WITH THIS BID PROPOSAL AND CONTRACT INCLUDING SUBMITTALS, SHOP DRAWINGS, O&M MANUALS, AND TEST REPORTS AS FOLLOWS. THESE REQUIREMENTS ARE IN ADDITION TO SUBMITTAL REQUIREMENTS STATED ELSEWHERE AND SHALL NOT DEPRIVE THE OWNER OF RIGHTS UNDER OTHER

2. SUBMIT DOCUMENTS IN PORTABLE DOCUMENT FORMAT (PDF). SUBMIT DOCUMENTS IN AUTOCAD – LATEST VERSION FOR DRAWINGS AND MICROSOFT WORD (LATEST VERSION) FOR TEXT FORMAT WHEN REQUESTED B. PROVIDE A COMPLIANCE REVIEW OF EACH SECTION OF THE SPECIFICATIONS, DRAWINGS AND ADDENDA. THE COMPLIANCE REVIEW SHALL BE A PARAGRAPH—BY—PARAGRAPH REVIEW OF THE SPECIFICATIONS WITH THE FOLLOWING INFORMATION; ?C?, ?D? OR ?E? MARKED IN THE MARGIN OF THE ORIGINAL SPECIFICATIONS AND ANY SUBSEQUENT

1. ?C?: COMPLY WITH NO EXCEPTIONS. ?D?: COMPLY WITH DEVIATIONS. FOR EACH AND EVERY DEVIATION, PROVIDE A NUMBERED FOOTNOTE WITH REASONS FOR THE PROPOSED DEVIATION AND HOW THE INTENT OF THE SPECIFICATION CAN BE SATISFIED.

3. ?E?: EXCEPTION, DO NOT COMPLY. FOR EACH AND EVERY EXCEPTION, PROVIDE A NUMBERED FOOTNOTE WITH REASONS AND POSSIBLE ALTERNATIVES. C. UNLESS A DEVIATION OR EXCEPTION IS SPECIFICALLY NOTED IN THE COMPLIANCE REVIEW. IT IS ASSUMED THAT THE BIDDER IS IN COMPLETE COMPLIANCE WITH THE PLANS AND SPECIFICATIONS. DEVIATIONS OR EXCEPTIONS TAKEN IN COVER LETTERS, SUBSIDIARY DOCUMENTS, BY OMISSION OR BY CONTRADICTION DO NOT RELEASE THE BIDDER FROM BEING IN COMPLETE COMPLIANCE, UNLESS THE EXCEPTION OR DEVIATION HAS BEEN SPECIFICALLY NOTED IN THE COMPLIANCE REVIEW. BIDDERS MAY SUBMIT THE LATEST STATE—OF—THE—ART COMPONENTS AND THEIR STANDARD CONTROL COMPONENTS IN LIEU OF THE SPECIFIED ITEMS. THE A/E AND OWNER WILL

A. WORK UNDER THIS SECTION INCLUDES NEW WORK AND WORK ON EXISTING SYSTEMS WITHIN EXISTING BUILDING. PERFORM SUCH WORK SO AS NOT TO INTERFERE WITH THE OWNERS OPERATION. WHERE WORK NECESSITATES INTERRUPTION OF SERVICE(S), SCHEDULE OUTAGES WITH THE OWNER AND ENGINEER AND PERFORM THE WORK AT

A. FOR THE DURATION OF THE CONTRACT THE ELECTRICAL CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF CONTRACT DRAWINGS. ALL COMPLETED WORK AND ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE RECORDED CLEARLY AND ACCURATELY. RECORD DRAWINGS SHALL BE TURNED OVER TO THE OWNER UPON COMPLETION OF THE

B. ELECTRONIC FILES ARE AVAILABLE TO FACILITATE THE PREPARATION OF RECORD DRAWIN THESE FILES ARE SOLELY FOR USE OF THE ELECTRICAL CONTRACTOR AND MAY NOT BE A FULL REPRESENTATION OF THE SCOPE OF WORK, THESE FILES ARE AVAILABLE FROM WOZNY/BARBAR & ASSOCIATES, INC. AT A COST OF \$50.00 PER DRAWING FILE.

#### 1.12 COORDINATION

A. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE WITH ALL OTHER TRADES AND PARTIES TO AVOID CONFLICTS. NO ADDITIONAL CHARGES WILL BE APPROVED DUE TO LACK OF COORDINATION OR FIELD VERIFICATION OF THE

#### 1.13 TEMPORARY FACILITIES

A. THE ELECTRICAL CONTRACTOR SHALL PROVIDE, AT HIS OWN EXPENSE, HIS OWN FIELD OFFICE. FURNISH ALL TOOLS, EQUIPMENT, SCAFFOLDING AND TEMPORARY CONSTRUCTION

B. ALL SCAFFOLDING AND OTHER TEMPORARY CONSTRUCTION SHALL BE RIGIDLY BUILT IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS, AND SHALL BE REMOVED FROM THE PREMISES UPON COMPLETION OF THE WORK.

C. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL TRANSFORMERS, PLYWOOD, PANEL BOARDS, WIRING AND OTHER ELECTRICAL EQUIPMENT TO SUPPORT THE NEEDS OF TEMPORARY LIGHT AND POWER. UTILIZE NEW SERVICE ENTRANCE CONDUITS FOR TEMPORARY POWER REQUIREMENTS WHERE PRACTICAL.

D. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR, THE UTILITY COMPANY AND INCLUDE ALL COSTS ASSOCIATED WITH THE INSTALLATION OF TELEPHONES FOR THE CONSTRUCTION PERIOD. INCLUDE TELEPHONE SERVICE FOR ALL

#### 1.14 COORDINATION DRAWINGS

SHALL PREPARE COORDINATION DRAWINGS SHOWING THE SIZE AND LOCATION OF ELECTRICAL EQUIPMENT AND CONDUIT RUNS AND OTHER EQUIPMENT RELATED TO THE ELECTRICAL WORK.

B. COORDINATION DRAWINGS ARE FOR THE GENERAL CONTRACTOR'S AND THE ENGINEER'S USE DURING CONSTRUCTION AND SHALL NOT BE CONSTRUED AS REPLACING ANY SHOP, AS BUILT OR RECORD DRAWINGS REQUIRED ELSEWHERE IN THIS CONTRACT DOCUMENT.

#### 1.15 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS

A. INSTRUCT TO THE OWNER'S SATISFACTION SUCH PERSONS AS THE OWNER DESIGNATES IN THE PROPER OPERATION AND MAINTENANCE OF THE SYSTEMS AND THEIR PARTS. B. FURNISH OPERATING AND MAINTENANCE MANUALS AND FORWARD SAME TO THE

C. OPERATING INSTRUCTIONS SHALL BE SPECIFIC FOR EACH SYSTEM AND SHALL INCLUDE

D. FOR MAINTENANCE PURPOSES, PROVIDE SHOP DRAWINGS, PARTS LISTS, SPECIFICATIONS AND MANUFACTURER'S MAINTENANCE BULLETINS FOR EACH PIECE OF EQUIPMENT.

#### E. PROVIDE NAME, ADDRESS AND TELEPHONE NUMBER OF THE MANUFACTURER'S REPRESENTATIVE AND SERVICE COMPANY FOR EACH PIECE OF EQUIPMENT SO THAT SERVICE OR SPARE PARTS CAN BE READILY OBTAINED.

A. THE ENTIRE WORK INSTALLED IN THIS SPECIFICATION AND AS SHOWN ON THE DRAWINGS SHALL BE CONSTRUCTED AND FINISHED IN EVERY RESPECT IN A WORKMANLIKE AND COMPLETE MANNER. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO INSTALL COMPLETE SYSTEMS. ALL SUCH PARTS AS REQUIRED COMPLETING THE SYSTEMS IN ACCORDANCE WITH THE BEST TRADE PRACTICE AND THE SATISFACTION OF THE

B. OBTAIN DETAILED INFORMATION FROM THE MANUFACTURERS OF APPARATUS AS TO THE PROPER METHOD OF INSTALLING AND CONNECTING EQUIPMENT. OBTAIN ALL INFORMATION FROM THE GENERAL CONTRACTOR AND OTHER SUBCONTRACTORS, WHICH MAY BE NECESSARY TO FACILITATE WORK AND THE COMPLETION OF THE WHOLE

C. REMOVE DAILY, ALL RUBBISH AND DEBRIS AND ALL REFUSE FROM WORKMEN'S LUNCHES AND AT COMPLETION REMOVE ALL HIS SURPLUS MATERIALS, AND LEAVE IN CLEAN CONDITION ACCEPTABLE TO THE OWNER'S ENGINEER.

1.17 PROTECTION A. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK AND EQUIPMENT UNTIL FINALLY INSPECTED, TESTED AND ACCEPTED. CAREFULLY STORE MATERIALS AND EQUIPMENT, WHICH ARE NOT IMMEDIATELY INSTALLED AFTER DELIVERY TO SITE.

1.18 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

A. BEFORE SUBMITTING PRICES OR BEGINNING WORK, THOROUGHLY MAKE AN EXAMINATION OF THE SITE.

B. NO CLAIM FOR EXTRA COMPENSATION WILL BE RECOGNIZED IF DIFFICULTIES ARE ENCOUNTERED WHICH AN EXAMINATION OF SITE CONDITIONS PRIOR TO EXECUTING CONTRACT WOULD HAVE REVEALED. C. THESE SPECIFICATIONS ALONG WITH CONTRACT DOCUMENTS DESCRIBE THE ELECTRICAL SYSTEMS. THE ELECTRICAL CONTRACTOR IS REQUIRED TO PROVIDE COMPLETE AND OPERATING SYSTEMS FOR ALL EQUIPMENT MENTIONED.

D. ELECTRICAL EQUIPMENT REQUIRED FOR THE SUCCESSFUL OPERATION OF ANY OF THE PARTICULAR TYPES OF OWNER'S EQUIPMENT MENTIONED SHALL BE FURNISHED AND

E. BE RESPONSIBLE FOR ALL MATERIALS DELIVERED TO THE SITE IN CONNECTION WITH THE WORK AND PAY ALL CHARGES FOR CARTAGE, SCAFFOLDS, PLANKING, RIGGING AND ERECTING. TAKE EVERY PRECAUTION NECESSARY TO PROTECT EQUIPMENT AND INSTALLATION IN ADDITION TO PLUGGING AND PROTECTING OPEN ENDS OF ALL PIPES, OUTLET BOXES, PANEL BOXES, AND JUNCTION BOXES. ALL EQUIPMENT SHALL BE STORED IN A CLEAN DRY PLACE TO PRESERVE THE QUALITY OF MATERIAL BEING USED EQUIPMENT AND/OR MATERIALS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER. ANY SCAFFOLDING OVER 8'-0" IN HEIGHT WILL BE SUPPLIED BY THE GENERAL CONTRACTOR

F. ALL MATERIALS AND EQUIPMENT REQUIRED BY THIS SPECIFICATION SHALL BE NEW, CLEAN AND FREE FROM DEFECTS AT THE TIME OF INSTALLATION. THE MANUFACTURER AND UNDERWRITER'S LABEL SHALL APPEAR ON ALL MATERIAL AND EQUIPMENT UNLESS

#### 1.19 SUBSTITUTION OF MATERIALS OR EQUIPMENT

A. IF THE ELECTRICAL CONTRACTOR WISHES TO USE MATERIALS OR EQUIPMENT OTHER THAN THOSE SPECIFICALLY DESIGNATED HEREIN, AS BEING EQUAL TO THOSE SO SPECIFICALLY DESIGNATED: BEFORE PURCHASING AND/OR FABRICATION, HE SHALL SUBMIT THE PROPOSED SUBSTITUTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE . CONDITIONS, AND THE DECISION OF WHETHER OR NOT IT IS EQUAL TO THAT SPECIFIED SHALL BE DETERMINED BY THE OWNER.

B. UNLESS REQUESTS FOR SUBSTITUTION ARE MADE IN ACCORDANCE WITH THE ABOVE INSTRUCTIONS AND THE INSTRUCTIONS OF THE GENERAL CONDITIONS, SUPPORTED BY SUFFICIENT PROOF OF EQUALITY, THE SUCCESSFUL CONTRACTOR WILL BE REQUIRED TO FURNISH SPECIFICALLY NAMED ITEMS DESIGNATED UNDER THE BASE BID

SHALL BE PROVIDED AND THE ELECTRICAL CONTRACTOR SHALL ASSUME THE COST AND THE ENTIRE RESPONSIBILITY THERETO.

C. IF THE APPARATUS OR MATERIALS SUBSTITUTED FOR THOSE SPECIFIED NECESSITATE CHANGES OR ADDITIONAL CONNECTIONS, PIPING SUPPORTS OR CONSTRUCTION: SAME

A. THE ARRANGEMENT OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS IS DIAGRAMMATIC ONLY AND INDICATES THE MINIMUM REQUIREMENTS OF THE WORK. CONDITIONS AT THE BUILDING INCLUDING ACTUAL MEASUREMENTS SHALL DETERMINE THE DETAILS OF THE INSTALLATION. ALL WORK SHALL BE LAID OUT AND INSTALLED SO AS TO REQUIRE THE LEAST AMOUNT OF CUTTING AND PATCHING. B. CHECK THE ARCHITECTURAL PLANS AND SPECIFICATIONS BEFORE ORDERING ANY MATERIAL AND EQUIPMENT. ANY DISCREPANCIES SHALL BE BROUGHT TO THE
ATTENTION OF THE ARCHITECT FOR HIS DETERMINATION PRIOR TO PROCEEDING WITH THE

1.27 TYPICAL DETAILS A. TYPICAL DETAILS WHERE SHOWN ON THE DRAWINGS SHALL APPLY TO EACH AND EVERY ITEM OF THE PROJECT WHERE SUCH ITEMS ARE APPLICABLE. THEY ARE NOT REPEATED

IN FULL ON THE DRAWINGS, WHICH IN MANY CASES ARE DIAGRAMMATIC ONLY, BUT WITH THE INTENTION THAT SUCH DETAILS SHALL BE INCORPORATED IN FULL. ANY ALTERNATE

D. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE HVAC, PLUMBING AND FIRE PROTECTION CONTRACTORS WITH REGARD TO FEEDER, RACEWAY, AND CIRCUIT BREAKER AND DISCONNECT SWITCH SIZES. IF A SUBSTITUTION OF HVAC, PLUMBING AND FIRE

PROTECTION FOUIPMENT IS PROPOSED BY A SUBCONTRACTOR, IT SHALL BECOME THE

WHAT CHANGES ARE REQUIRED AND ANY ADDITIONAL COSTS ASSOCIATED WITH THIS CHANGE. IF COORDINATION DOES NOT OCCUR, THE SUBCONTRACTOR PROPOSING THE

E. WHENEVER THE CONTRACTOR SECURES APPROVAL FOR CHANGING ANY ITEMS AND SUCH CHANGE INVOLVES A CORRESPONDING CHANGE OR ADJUSTMENT IN ANY ADJACENT OR RELATED ITEM, THE RESPONSIBILITY FOR MAKING THE REQUIRED CHANGE, OR SEEING

IN WRITING, AT THE TIME THE CHANGE IS APPROVED, THE ACCEPTANCE OF AN

A. THE ELECTRICAL CONTRACTOR (EC) SHALL VERIFY, IN THE FIELD, ALL MEASUREMENTS, SITE CONDITIONS NECESSARY FOR HIS WORK AND SHALL ASSUME RESPONSIBILITY FOR THEIR

ACCURACY. NO ADDITIONAL COMPENSATION WILL BE ALLOWED AFTER THE BIDS HAVE BEEN ACCEPTED.

A. THE ELECTRICAL CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL TAXES, FEES AND OTHER COSTS IN CONNECTION WITH HIS WORK; FILE ALL NECESSARY PLANS, PREPARE ALL NECESSARY DOCUMENTS AND OBTAIN ALL NECESSARY

B. THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE

A. THIS CONTRACTOR SHALL VISIT THE PREMISES BEFORE SUBMITTING HIS PROPOSAL AND

A. THE ELECTRICAL CONTRACTOR SHALL, AT THE COMPLETION OF THE WORK, CLEAN, POLISH

B. ALL PAINTED METAL SURFACES WHICH HAVE BEEN SCRATCHED, DENTED OR MARRED SHALL BE REPAINTED BY THE ELECTRICAL CONTRACTOR.

B. REPAIRING OF SUCH DAMAGE SHALL BE DONE BY THE GENERAL CONTRACTOR OF

A. ATTENTION IS DIRECTED TO PROVISIONS OF THE GENERAL CONDITIONS AND SPECIAL

B. ELECTRICAL CONTRACTOR'S GUARANTEES SHALL BE THE SAME AS THE GENERAL

CONDITIONS REGARDING GUARANTEES AND WARRANTIES FOR WORK UNDER THIS

C. ALL MATERIAL, ITEMS OF EQUIPMENT AND WORKMANSHIP FURNISHED UNDER THIS SECTION SHALL CARRY FOR THIS STANDARD WARRANTY AGAINST ALL DEFECTS IN MATERIAL AND WORKMANSHIP. ANY FAULT DUE TO DEFECTIVE OR IMPROPER MATERIAL,

EQUIPMENT, WORKMANSHIP OR DESIGN WHICH MAY DEVELOP SHALL BE MADE GOOD, FORTHWITH, BY AND AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR, INCLUDING ALL

OTHER DAMAGE DONE TO AREAS, MATERIALS AND OTHER SYSTEMS RESULTING FROM

D. ELECTRICAL CONTRACTOR SHALL GUARANTEE THAT ALL ELEMENTS OF THE SYSTEMS ARE OF SUFFICIENT CAPACITY TO MEET THE SPECIFIED PERFORMANCE REQUIREMENTS AS SET

E. UPON RECEIPT OF NOTICE FROM THE OWNER OF FAILURE OF ANY PART OF THE SYSTEM

F. FURNISH, BEFORE THE FINAL PAYMENT IS MADE, A WRITTEN GUARANTEE COVERING THE ABOVE REQUIREMENTS.

OR EQUIPMENT DURING THE GUARANTEE PERIOD, THE AFFECTED PART OR PARTS SHALI

BE REPLACED BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

AND/OR WASH ALL EXPOSED ITEMS OF MATERIAL, EQUIPMENT AND FIXTURES IN HIS CONTRACT SO AS TO LEAVE SUCH ITEMS BRIGHT AND CLEAN. SPECIAL ATTENTION BEING GIVEN TO INTERIORS AND EXTERIORS OF ALL PANELS, ELECTRICAL EQUIPMENT, AND

A. EACH CONTRACTOR SHALL BE HELD RESPONSIBLE FOR AND SHALL PAY FOR ALL DAMAGE TO

CONTRACTORS WHO INSTALLED THE WORK AND SO DIRECTED BY THE OWNER'S ENGINEER

OR NOT SHOWN ON THE DRAWINGS AND/OR SPECIFIED.

OTHER WORK CAUSED BY HIS WORK OR WORKMEN.

OWNER, ANY LABOR, MATERIALS, SERVICES, APPARATUS, DRAWINGS IN ADDITION TO THE DRAWINGS PREPARED BY THE PROJECT ENGINEER AND DOCUMENTS, IN ORDER TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS WHETHER

MAKE HIS OWN APPRAISAL OF THE DIFFICULTIES AND CONDITIONS THAT WILL BE ENCOUNTERED DURING THE WORK. NO ADDITIONAL CHARGES WILL BE ALLOWED FOR WORK REQUIRED DUE TO EXISTING CONDITIONS TO MAKE THE INSTALLATION CONFORM TO

APPROVALS OF STATE AUTHORITIES, ALL LOCAL, TOWN, CITY OR COUNTY DEPARTMENTS

1.20 FIELD MEASUREMENTS

1.22 VISIT TO PREMISES

1.23 CLEANING UP

1.24 DAMAGE TO OTHER WORK

1.21 PERMITS, LAWS, ORDINANCES & CODES

RESPONSIBILITY OF THAT SUBCONTRACTOR TO COORDINATE WITH THE ELECTRICAL CONTRACTOR ANY AND ALL CHANGES WITH REGARD TO FEEDER, RACEWAY, AND CIRCUIT

Breaker and disconnect switch sizes. The Shop drawings shall clearly indicate

CHANGE SHALL BE RESPONSIBLE FOR ALL COSTS THAT OCCUR DUE TO THE SUBSTITUTION.

ADJUSTMENTS SHALL BE PAID FOR BY THE CONTRACTOR UNLESS IT IS OTHERWISE AGREED,

CHANGE WILL NOT, IN ANY WAY, RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

#### METHOD PROPOSED FOR USE BY THE CONTRACTOR SHALL HAVE THE PRIOR APPROVAL OF THE ARCHITECT

1.28 SLEEVES, INSERTS

1.26 INSTALLATION REQUIREMENTS

A. FURNISH AND INSTALL ALL SLEEVES, INSERTS, ANCHOR BOLTS AND SIMILAR ITEMS TO BE SET INTO MASONRY OR CONCRETE, AS REQUIRED FOR MECHANICAL AND ELECTRICAL WORK, INTERNAL DIAMETER OF SLEEVE SHALL BE 2" LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE OR INSULATION COVERED LINE PASSING THROUGH IT.

#### 1.29 CORING, DRILLING

A. CORE, CUT AND/OR DRILL ALL SMALL HOLES 4.5" DIAMETER OR LESS IN WALLS AND FLOORS REQUIRED FOR THE INSTALLATION OF SLEEVES AND SUPPORTS FOR THE ELECTRICAL WORK.

A. INSTALL ALL WORK SUCH THAT PARTS REQUIRING PERIODIC INSPECTION, OPERATION,

B. FURNISH ALL ACCESS PANELS APPROPRIATE TO PARTICULAR CONDITIONS, TO BE INSTALLED BY TRADES HAVING RESPONSIBILITY FOR THE CONSTRUCTION OF ACTUAL WALLS, FLOORS OR

#### 1.31 TOOLS AND EQUIPMENT

A. PROVIDE ALL TOOLS AND EQUIPMENT REQUIRED FOR THE FABRICATION AND INSTALLATION OF THE MECHANICAL AND ELECTRICAL EQUIPMENT AT THE SITE. 1.32 PORTABLE AND DETACHABLE PARTS

A. CONTRACTORS SHALL RETAIN IN THEIR POSSESSION ALL PORTABLE AND/OR DETACHABLI

PARTS AND PORTIONS OF MATERIALS, DEVICES, EQUIPMENT ETC. NECESSARY FOR THE PROPER OPERATION AND MAINTENANCE OF THE MECHANICAL AND ELECTRICAL SYSTEMS UNTIL FINAL COMPLETION OF THE WORK, AT WHICH TIME THEY SHALL BE HANDED OVER TO THE OWNERS

1.33 RECORD DRAWINGS, PROJECT CLOSEOUT

A. AS WORK PROGRESSES AND FOR THE DURATION OF CONTRACT, MAINTAIN A COMPLETE AND SEPARATE SET OF PRINTS OF CONTRACT DRAWINGS AT JOB SITE AT ALL TIMES. RECORD WORK COMPLETED AND ALL CHANGES FROM ORIGINAL CONTRACT DRAWINGS CLEARLY AND ACCURATELY INCLUDING WORK INSTALLED AS A MODIFICATION OR ADDITION TO THE ORIGINAL DESIGN. WORK SHALL BE UPDATED ON A WEEKLY BASIS AND SHALL BE MADE AVAILABLE FOR REVIEW BY ARCHITECT. FAILURE TO PERFORM THIS WORK SHALL BE REASON FOR WITHHOLDING REQUISITION PAYMENTS. IN ADDITION, TAKE PHOTOGRAPH OF ALL CONCEALED EQUIPMENT IN GYPSUM BOARD CEILINGS, SHAFTS, AND OTHER CONCEALED, INACCESSIBLE WORK. AT COMPLETION OF WORK, MAKE COPIES OF PHOTOGRAPHS WITH WRITTEN EXPLANATION ON BACK. THESE SHALL BECOME PART OF

B. AT COMPLETION OF WORK PREPARE A COMPLETE SET OF RECORD DRAWINGS ON DISKETTE IN AUTOCAD? RELEASE 12 OR HIGHER FORMAT SHOWING ALL SYSTEMS AS ACTUALLY INSTALLED, INCLUDING ALL FIRE ALARM AND ELECTRICAL CIRCUITRY. THE DESIGN TRACINGS WILL BE MADE AVAILABLE FOR THE ELECTRICAL CONTRACTOR'S COPYING, AT HIS EXPENSE, INTO MYLAR REPRODUCIBLES TO SERVE AS BACKGROUNDS FOR THE DRAWINGS. THE QUANTITY OF DESIGN TRACINGS WHICH ARE MADE AVAILABLE SHALL IN NO WAY BE INTERPRETED AS SETTING A LIMIT TO THE NUMBER OF DRAWINGS NECESSARY TO SHOW THE REQUIRED INFORMATION. THE ELECTRICAL CONTRACTOR'S PROFESSIONAL DRAFTSPERSON SHALL TRANSFER CHANGES TO MYLARS; SUBMIT MYLARS AND THREE SETS OF PRINTS TO ARCHITECT FOR COMMENTS AS TO COMPLIANCE WITH THIS SECTION.

C. THE ARCHITECT WILL NOT CERTIFY THE ACCURACY OF THE RECORD DRAWINGS. THIS IS SOLE

SOLE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR

D. THIS TRADE SHALL SUBMIT THE RECORD SET FOR APPROVAL BY THE FIRE AND BUILDING DEPARTMENTS IN A FORM ACCEPTABLE TO THE DEPARTMENTS, WHEN REQUIRED BY

E. DRAWINGS SHALL SHOW RECORD CONDITION OF DETAILS, SECTIONS, RISER DIAGRAMS, CONTROL CHANGES AND CORRECTIONS TO SCHEDULES. SCHEDULES SHALL SHOW ACTUAL MANUFACTURER AND MAKE AND MODEL NUMBERS OF FINAL EQUIPMENT INSTALLATION.

F. REFER TO SECTION 01770 - CLOSEOUT PROCEDURES AND 01782 - RECORD DOCUMENTS AND OWNER TRAINING.

1.34 OPERATING, INSTRUCTIONS AND MAINTENANCE MANUALS

A. REFER TO SECTION 01770  $\_$  CONTRACT CLOSEOUT FOR SUBMITTAL PROCEDURES PERTAINING TO OPERATING AND MAINTENANCE MANUALS.

B. EACH COPY OF THE APPROVED OPERATING AND MAINTENANCE MANUAL SHALL CONTAIN COPIES OF APPROVED SHOP DRAWINGS, EQUIPMENT LITERATURE, CUTS, BULLETINS, DETAILS, EQUIPMENT AND ENGINEERING DATA SHEETS AND TYPEWRITTEN INSTRUCTIONS RELATIVE TO THE CARE AND MAINTENANCE FOR THE OPERATION OF THE EQUIPMEN PROPERLY INDEXED. EACH MANUAL SHALL HAVE THE FOLLOWING MINIMUM CONTENTS:

#### 1. TABLE OF CONTENTS

2. INTRODUCTION A. EXPLANATION OF MANUAL AND ITS PURPOSE AND USE. B. DESCRIPTION OF THE ELECTRICAL SYSTEMS. C. SAFETY PRECAUTIONS NECESSARY FOR EQUIPMENT D. ILLUSTRATIONS, SCHEMATICS AND DIAGRAMS.

E. INSTALLATION DRAWING.

A. MAINTENANCE AND LUBRICATING INSTRUCTIONS. B. REPLACEMENT CHARTS.

C. TROUBLE SHOOTING CHARTS FOR EQUIPMENT COMPONENTS D. TESTING INSTRUCTIONS FOR EACH TYPICAL COMPONENT. E. TWO TYPED SETS OF INSTRUCTIONS FOR ORDERING SPARE PARTS. EACH SET SHALL INCLUDE NAME, PRICE, TELEPHONE NUMBER AND ADDRESS OF

#### 4. MANUFACTURER'S LITERATURE

WHERE THEY MAY BE OBTAINED.

A. THE EQUIPMENT FOR WHICH SHOP DRAWINGS HAVE BEEN SUBMITTED

#### 1.35 SERVICE CHARACTERISTICS

A. SECONDARY BUILDING VOLTAGE - LOW LEVEL: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HZ

B. ALL EQUIPMENT AND WIRING SHALL BE SUITABLE FOR THE APPLIED VOLTAGE.

THE MINIMUM ACCEPTABLE QUALITY OF WORKMANSHIP AND MATERIALS, AND ALL WORK SHALL CONFORM THERETO UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED OR SPECIFIED HEREIN.

B. ALL WORK SHALL COMPLY WITH THE LATEST EDITIONS OF THE CODES AS REFERENCED

A. THE REQUIREMENTS OF THE STATE BUILDING CODE AND LOCAL REGULATIONS ESTABLISH

C. FOLLOW MANUFACTURER'S DIRECTIONS FOR ARTICLES FURNISHED, IN ADDITION TO DIRECTIONS SHOWN ON DRAWINGS OR SPECIFIED HEREIN.

D. PROTECT ALL WORK, MATERIALS, AND EQUIPMENT FROM DAMAGE DURING PROCESS OF WORK. REPLACE ALL DAMAGED OR DEFECTIVE WORK, MATERIALS AND EQUIPMENT WITHOUT ADDITIONAL COST TO OWNER.

E. ALL EQUIPMENT AND MATERIALS FOR PERMANENT INSTALLATION SHALL BE THE PRODUCTS OF RECOGNIZED MANUFACTURERS AND SHALL BE NEW.

3. NOT BE USED FOR TEMPORARY LIGHT AND POWER PURPOSES.

4. BE IN ACCORDANCE WITH THE LATEST APPLICABLE NEMA STANDARDS.

F. EQUIPMENT AND MATERIALS SHALL 1. WHERE NORMALLY SUBJECT TO UNDERWRITERS LABORATORY INC. LISTING OR LABELING SERVICES, BE SO LISTED OR LABELED.

CONTINGENT UPON HAVING THE PRODUCTS EXAMINED, TESTED AND CERTIFIED BY UNDERWRITERS OR OTHER RECOGNIZED TESTING LABORATORY, THE PRODUCT SHALL BE SO EXAMINED, TESTED AND CERTIFIED.

HAVING JURISDICTION OVER THE WORK. WHERE SUCH ACCEPTANCE IS

G. EXCEPT FOR CONDUIT, CONDUIT FITTINGS, OUTLET BOXES, WIRE AND CABLE, ALL ITEMS OF EQUIPMENT OR MATERIAL OF ONE GENERIC TYPE SHALL BE THE PRODUCT OF ONE

H. FOR ITEMS WHICH ARE TO BE INSTALLED BUT NOT PURCHASED AS PART OF THE ELECTRICAL WORK, THE ELECTRICAL WORK SHALL INCLUDE:

PLACEMENT IN THE PROJECT.

2. BE WITHOUT BLEMISH OR DEFECT.

1. THE COORDINATION OF THEIR DELIVERY.

PROPERTY LINE AT GRADE LEVEL. 3. THEIR SAFE HANDLING AND FIELD STORAGE UP TO THE TIME OF PERMANENT

2. THEIR UNLOADING FROM DELIVERY TRUCKS DRIVEN INTO ANY POINT ON THE

4. THE CORRECTION OF ANY DAMAGE, DEFACEMENT OR CORROSION TO WHICH THEY MAY HAVE BEEN SUBJECTED. REPLACEMENT IF NECESSARY SHALL BE

COORDINATED WITH CONTRACTOR WHO ORIGINALLY PURCHASED THE ITEM. 5. THEIR FIELD MAKE\_UP AND INTERNAL WIRING AS MAY BE NECESSARY FOR THEIR PROPER OPERATION.

DUNNAGE, SUPPORTING MEMBERS, AND FASTENINGS NECESSARY TO ADAPT THEM TO ARCHITECTURAL AND STRUCTURAL CONDITIONS. 7. THEIR CONNECTION TO BUILDING WIRING INCLUDING THE PURCHASE AND INSTALLATION OF ALL TERMINATION JUNCTION BOXES NECESSARY TO ADAPT AND CONNECT THEM TO THIS WIRING. INCLUDED ALSO SHALL BE THE PURCHASE AND

INSTALLATION OF ANY SUBSTITUTE LUGS OR OTHER WIRING TERMINATIONS AS MA

6. THEIR MOUNTING IN PLACE INCLUDING THE PURCHASE AND INSTALLATION OF ALL

BE NECESSARY TO ADAPT THEIR TERMINALS TO THE BUILDING WIRING AS CALLED FOR AND TO THE CONNECTION METHODS SET FORTH IN THESE SPECIFICATIONS. . ITEMS WHICH ARE TO BE INSTALLED BUT NOT PURCHASED AS PART OF THE ELECTRIC WORK SHALL BE CAREFULLY EXAMINED UPON DELIVERY TO THE PROJECT. CLAIMS THAT ANY OF THESE ITEMS HAVE BEEN RECEIVED IN SUCH CONDITION THAT THEIR INSTALLATION WILL REQUIRE PROCEDURES BEYOND THE REASONABLE SCOPE OF THE ELECTRIC WORK WILL BE CONSIDERED ONLY IF PRESENTED IN WRITING WITHIN ONE WEEK OF THE DATE OF DELIVERY TO THE PROJECT OF THE ITEMS IN QUESTION. THE ELECTRIC

WORK INCLUDES ALL PROCEDURES, REGARDLESS OF HOW EXTENSIVE, NECESSARY TO PUT

A. ALL MATERIALS FOR THE WORK OF THIS SECTION SHALL BE DELIVERED, STORED AND HANDLED SO AS TO PRECLUDE DAMAGE OF ANY NATURE. MANUFACTURED MATERIALS
SHALL BE DELIVERED AND STORED IN THEIR ORIGINAL CONTAINERS, PLAINLY MARKED WITH THE PRODUCTS' AND MANUFACTURER'S NAME. MATERIALS IN BROKEN CONTAINERS OR IN PACKAGES SHOWING WATERMARKS OR OTHER EVIDENCE OF DAMAGE, SHALL NOT BE

INTO SATISFACTORY OPERATION, ALL ITEMS FOR WHICH NO CLAIMS HAVE BEEN SUBMITTED AS OUTLINED ABOVE.

#### USED AND SHALL BE REMOVED FROM THE SITE. 1.38 TEMPORARY POWER AND LIGHTING

1.37 DELIVERY, STORAGE AND HANDLING

A. THE ELECTRICAL SUBCONTRACTOR SHALL FURNISH AND INSTALL FEEDERS OF SUFFICIENT SIZE FROM THE UTILITY COMPANY'S POWER LINES FOR THE ELECTRIC LIGHT AND POWER REQUIREMENTS FOR THE BUILDING WHILE UNDER CONSTRUCTION AND UNTIL THE PERMANENT FEEDERS AND RELATED EQUIPMENT HAVE BEEN INSTALLED AND ARE IN OPERATION. TEMPORARY LIGHTING SHALL BE BASED ON A MINIMUM OF PROVIDING AT LEAST ONE 100 WATT INCANDESCENT LAMP FOR EACH 1,000 SQUARE FEET OF FLOOR AREA. SUFFICIENT WIRING, LAMPS, AND OUTLETS SHALL BE INSTALLED TO INSURE PROPER LIGHTING IN ALL ROOMS, SPACE, STAIRWELLS, AND CORRIDORS. MINIMUM SIZED LAMP USED SHALL BE 100 WATT. WHERE HIGHER LIGHTING INTENSITIES ARE REQUIRED BY FEDERAL OR STATE STANDARDS OF LAWS OR OTHERWISE SPECIFIED, THE ABOVE SPECIFIED WATTAGE SHALL BE INCREASED TO PROVIDE THESE INCREASED INTENSITIES.

B. ALL NECESSARY TRANSFORMERS, METERS, CABLES, PANELBOARDS, SWITCHES, TEMPORARY LAMP REPLACEMENTS AND ACCESSORIES REQUIRED FOR THE TEMPORARY IGHT AND POWER INSTALLATION SHALL BE PROVIDED BY THE ELECTRICAL

C. THE ELECTRICAL SUBCONTRACTOR SHALL PROVIDE AND MAINTAIN ON EACH FLOOR OF THE

BUILDING, A FEEDER OR FEEDERS OF SUFFICIENT CAPACITY FOR THE REQUIREMENTS OF THE ENTIRE FLOOR AND HE SHALL PROVIDE A SUFFICIENT NUMBER OF OUTLETS, LOCATED

ELECTRICAL CODE ARTICLE 305 TEMPORARY WIRING, THE LOCAL UTILITY COMPANY, AND

AT CONVENIENT POINTS, SO THAT EXTENSION CORDS OF NOT OVER 50 FT. IN LENGTH WILL

D. THE ELECTRICAL SUBCONTRACTOR SHALL INSTALL AND MAINTAIN THE WIRING AND ACCESSORIES FOR THE OFFICES OF THE GENERAL CONTRACTOR AND THE CLERK OF THE WORKS AS SPECIFIED IN THE CONTRACT FORM. E. ALL TEMPORARY ELECTRICAL WORK SHALL MEET THE REQUIREMENTS OF THE NATIONAL

REACH ALL WORK REQUIRING TEMPORARY LIGHT OR POWER.

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H. ALL LAMPS INSTALLED IN PERMANENT LIGHTING FIXTURES AND USED FOR LIGHTING DURING CONSTRUCTION SHALL BE REPLACED BY THE ELECTRICAL SUBCONTRACTOR JUST PRIOR TO

I. PROVIDE ALL TEMPORARY LIGHTING AND POWER REQUIRED ABOVE DURING THE NORMAL WORKING HOURS OF THE PROJECT OR A TOTAL OF TEN (10) HOURS PER NORMAL WORKING DAY; SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS ARE EXCLUDED. THE TEN HOURS PER DAY SHALL INCLUDE MANNING THE TEMPORARY POWER AND LIGHTING 2 HOUR BEFORE AND 2 HOUR AFTER A NORMAL EIGHT (B) HOUR WORKING DAY. IN ADDITION TO THE ABOVE, PROVIDE AND MAINTAIN, TO THE SATISFACTION OF THE LOCAL AUTHORITIES HAVING JURISDICTION. ALL TEMPORARY LIGHTING AND POWER THAT MAY BE REQUIRED FOR SAFETY PURPOSES. THE ELECTRICAL SUBCONTRACTOR WILL BE COMPENSATED BY THE GENERAL CONTRACTOR FOR ANY ADDITIONAL STANDBY TIME, MATERIALS OR EQUIPMENT REQUIRED BY THE GENERAL CONTRACTOR OR OTHER SUBCONTRACTORS

1.39 STAGING AND SCAFFOLDING

A. PROVIDE STAGING AND SCAFFOLDING FOR ALL THE WORK OF THIS SECTION COMPLYING

A. FURNISH EXTRA MATERIALS DESCRIBED IN FOLLOWING PRODUCT SPECIFICATION SECTIONS THAT MATCH PRODUCTS INSTALLED, ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE, AND ARE IDENTIFIED WITH LABELS CLEARLY DESCRIBING CONTENTS. PART 2 - PRODUCTS

A. ALL MATERIALS AND EQUIPMENT NECESSARY TO MAKE THE INSTALLATION COMPLETE IN EVERY DETAIL SHALL BE FURNISHED AND INSTALLED UNDER THIS CONTRACT WHETHER OR NOT SPECIFICALLY SPECIFIED HEREIN. ALL MATERIALS AND EQUIPMENT SHALL BE NEW. HE ELECTRICAL CONTRACTOR SHALL INCLUDE ALL WIRING FOR MECHANICAL, PLUM AND FIRE PROTECTION SYSTEMS, WIRING PROTECTION SYSTEMS AND WIRING FOR ALL EQUIPMENT SPECIFIED.

B. IT IS THE INTENT OF THE SPECIFICATIONS THAT ONE MANUFACTURER BE SELECTED, NOT A COMBINATION, FOR ANY PARTICULAR SYSTEM. FOR EXAMPLE, ALL WIRE OF ONE MANUFACTURER, ALL SWITCHES OF ONE MANUFACTURER, ETC., EXCEPT SPECIFIC MATERIAL CLASSIFICATIONS IN WHICH DELIVERY TIME BECOMES A PROBLEM TH OWNER'S ENGINEER MAY; GIVE SPECIFIC EXEMPTION FROM THE REQUIREMENTS C. WHERE MATERIALS, EQUIPMENT, APPARATUS OR OTHER PRODUCTS ARE SPECIFIED BY MANUFACTURER, BRAND NAME, TYPE OR CATALOG NUMBER, SUCH DESIGNATION IS TO

2.6 PULL BOXES, WIREWAYS, AND CHANNELS

A. PULL BOXES SHALL BE CODE GAUGE GALVANIZED STEEL WITH SCREW COVERS TO MATCH PULL BOXES AND WIRE WAYS SHALL BE AS REQUIRED BY NEC AND/OR JOB CONDITIONS WITH STEEL BARRIERS SEPARATING SYSTEMS.

B. WIRE WAYS SHALL BE GALVANIZED STEEL, MANUFACTURED STANDARD SECTIONS AND FITTINGS, WITH COMBINATION HINGED AND SCREW COVERS. C. STEEL CHANNEL SUPPORTS SHALL BE MINIMUM 1-5/8 INCH MOLD STRIP WITH MIN

A. ELECTRIC METALLIC TUBING (EMT) SHALL BE ELECTRO GALVANIZED OR SHERADIZED STEEL. TUBING SHALL BE AS MANUFACTURED BY PYLE NATIONAL, ALLIED TUBE AND CONDUIT

CORP., WHEATLAND TUBE COMPANY OR EQUAL. B. FLEXIBLE METAL CONDUIT SHALL BE GALVANIZED STEEL WITH SEPARATE COPPE GROUNDING CONDUCTOR. LIQUID—TIGHT FLEXIBLE METAL CONDUIT SHALL BE SIMILAR, BUT WITH EXTRUDED MOISTURE AND OIL PROOF OUTER JACKET OF POLYVINYL CHLORIDE PLASTIC. FLEXIBLE METAL CONDUIT LESS THAN 6-FEET LONG MAY BE USED TO CONNEC ALL LIGHTING FIXTURES. MOTORS AND OTHER EQUIPMENT MAY BE CONNECTED IN LENGTH; NOT EXCEEDING 18 INCHES. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL BE USED FOR ALL MECHANICAL EQUIPMENT OR OTHER ROTATING EQUIPMENT SUBJECTED TO

C. PVC SCHEDULE 40 CONDUIT SHALL BE USED FOR ALL UNDERGROUND WIRING. USE GALVANIZED STEEL SWEEPS AND STUB-UPS. D. COUPLINGS AND CONNECTORS FOR ELECTRICAL METALLIC TUBING SHALL BE GALVANIZED

E. STEEL SUPPORT RODS OR SUPPORT BOLTS FOR CONDUITS SHALL BE 1/8" DIAMETER FOR EACH INCH OR FRACTION THEREOF OF DIAMETER OF CONDUIT SIZE, BUT NO ROD OR BOLT F. CONDUIT ENDS SHALL BE CUT SQUARE AND REAMED TO REMOVE BURRS AND SHARP

EDGES. OFFSETS AND BENDS FOR CHANGES IN ELEVATION OF EXPOSED CONDUIT RUNS SHALL BE MADE AT WALLS OR BEAMS AND NOT IN OPEN SPACES BETWEEN WALLS OR BEAMS. CONDUITS SHALL BE ROUTED SO AS NOT TO INTERFERE WITH THE OPERATION OR MAINTENANCE OF ANY EQUIPMENT. THE ENTIRE JOB SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER, AS APPROVED BY THE ENGINEER. STEEL SUPPORTS OR RACKS SHALL BE GALVANIZED STEEL CHANNEL AND FITTINGS, UNISTRUT, KINDORF, HUSKY PRODUCTS COMPANY, OR EQUAL

G. CONDUITS SHALL BE ROUTED IN THE FIELD SO AS TO BE COORDINATED WITH THE BUILDING STRUCTURE. EXPOSED CONDUIT SHALL BE RUN IN STRAIGHT LINES PARALLEL TO WALLS, BEAMS AND COLUMNS AND WITH RIGHT ANGLE BENDS AND THREADED CONDUIT H. CONDUITS PENETRATING THE BUILDING SHALL BE SEALED WITH SEALING BUSHINGS AND SHALL BE PROVIDED WITH PRESSURE DISCS, LOCKING COLLAR, SEALING RING ETC. SIMILAR TO OZ GEDNEY TYPE CSRE CSRI CSRG ETC. SEALING DESIGN SHALL BE SEGMENTAL OZ-GEDNEY CRC. FR. HRK. HRE. HPE. KR. GRK. GRE. GPE (WHICHEVER IS

APPROPRIATE). THE SEALING COMPOUND SHALL BE DOZSEAL SEALING INSULATING COMPOUND AS MANUFACTURED BY OZ-GEDNEY. CONDUITS AND CABLES SHALL BE

SEALED COMPLETELY TO PREVENT WATER, MOISTURE PENETRATION.

2.9 WIRE AND CABLE

A. ALUMINUM 1. WIRE AND CABLE LARGER THAN #6 AWG, UTILIZED AS FEEDERS SHALL BE PROVIDE SINGLE CONDUCTOR WIRE AND CABLE WITH 600V INSULATION. WIRE SIZE #4 AWG AND LARGER SHALL BE STRANDED. CONDUCTORS SHALL BE ALUMAFLEX ALUMINUM ALLOY COMPACT STRANDED, INSULATED WITH HEAT AND

IOISTURE RESISTANT PVC, JACKETED WITH ABRASION, MOISTURE, GASOLINE AND OIL RESISTANT NYLON. 3. WIRE AND CABLE SHALL BE TYPE THHN-THWN-2 BUILDING WIRE. 600V

ATED FOR 75 DEGREES C. IN WET LOCATIONS AND 90 DEGREES C. IN DRY 4. FLEXIBLE METAL CLAD CABLE TYPE MC WITH GREEN EQUIPMENT GROUND SHALL BE USED FOR APARTMENT FEEDERS WHERE INDICATED. MC CABLE SHALL BE MANUFACTURED BY SOUTHWIRE AFC OR EQUAL.

5. TYPE SE CABLE, STYLE R, SHALL BE USED FOR APARTMENT FEEDERS WHERE INDICATED. INSTALLATION SHALL COMPLY WITH THE MASSACHUSETTS ELECTRICAL CODE ARTICLE 338 AND 334

6. WIRE AND CABLE SHALL BE MANUFACTURED BY SOUTHWIRE, GENERAL CABLE 7. SERVICE ENTRANCE CABLE - TYPE SER A. SUMMARY

1) THIS SPECIFICATION DESCRIBES SERVICE ENTRANCE CABLE, TYPE SER EMPLOYING THREE INDIVIDUAL TYPE THIN/THWN-2 CIRCUIT CONDUCTORS AND A STRANDED UNINSULATED GROUNDING CONDUCTOR SUITABLE FOR OPERATING AT A MAXIMUM CONDUCTOR TEMPERATURE OF 75°C AND AT A POTENTIAL OF 600 VOLTS. TYPE SER CABLE SHALL BE LISTED AND MARKED FOR USE IN CABLE TRAY AND COMPLY WITH UL 854, 1685 AND 1581 VERTICAL TRAY FLAME TESTS FOR USE AS AN INTERIOR EXPOSED FEEDER CABLE FOR DWELLING UNIT LOAD CENTERS. INSTALLATION SHALL ALSO COMPLY WITH THE MASSACHUSETTS ELECTRIC CODE ARTICLES 338 AND 334.

2) DESIGN IS BASED ON ESSEX TO ESTABLISH STANDARDS OF QUALITY FOR MATERIALS AND PERFORMANCE. ACCEPTABLE ALTERNATE MANUFACTURERS ARE SOUTHWIRE AND GENERAL CABLE. 3) APPLICABLE SPECIFICATIONS

A) THE FOLLOWING SPECIFICATIONS FROM A PART OF THIS SPECIFICATION TO THE EXTENT SPECIFIED HERE IN: UNDERWRITERS LABORATORIES STANDARD 44 FOR RUBBER—INSULATED WIRES AND CABLES.

2) MASSACHUSETTS ELECTRICAL CODE ARTICLE 338. 4) CONDUCTORS A) THE INSULATED AND UNINSULATED CONDUCTORS SHALL BE

STRANDED UNCOATED COPPER PER UL STANDARD 83. 5) SEPARATOR

A) A SUITABLE SEPARATOR OVER THE CONDUCTOR MAY BE USED AT THE OPTION OF THE MANUFACTURER 6) INSULATION

A) EACH INSULATED CIRCUIT CONDUCTOR SHALL BE A TYPE THHN/THWN-2 CONDUCTOR COMPLYING WITH THE REQUIREMENTS OF UL STANDARD 44 FOR PHYSICAL AND ELECTRICAL PROPERTIES AND INSULATION THICKNESSES 7) ASSEMBLY A) THREE TYPE THHN/THWN,

CROSSLINKED-POLYETHYLENE-INSULATED COLOR CODED ONDUCTORS SHALL BE TWISTED WITH A SUITABLE LAY, FILLERS AS REQUIRED, AND A STRANDED UNINSULATED COPPER GROUNDING CONDUCTOR IN ONE INTERSTICE. THE ASSEMBLED CONDUCTORS SHALL BE BOUND WITH A GLASS REINFORCED TAPE COVERING AS REQUIRED BY UL STANDARD 854 8) SHEATH

 A) THE ASSEMBLED CONDUCTORS SHALL BE COMPLETELY ENCLOSED IN A PVC PROTECTIVE SHEATH COMPLYING WITH THE PHYSICAL REQUIREMENTS OF UL.

10) TESTS

9) IDENTIFICATION A) THE CABLE SHALL BE IDENTIFIED BY SURFACE MARKING INDICATING MANUFACTURER'S IDENTIFICATION, NUMBER AND SIZE OF INSULATED AND UNINSULATED CONDUCTORS, TYPE OF INDIVIDUAL CONDUCTORS, VOLTAGE RATING, UL SYMBOL, FLAME TEST/TRAY USE AND CABLE TYPE.

A) THE COMPLETED CABLE SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF UL STANDARD 854 FOR TYPE E

A) THE CABLE SHALL BEAR UNDERWRITERS LABORATORIES TYPE SE LABEL

A) THE CABLE SHALL BE RUN HORIZONTALLY ON A FLOOR ONLY AND NOT PASS THROUGH A RATED FLOOR ASSEMBLY.

 PROVIDE SINGLE CONDUCTOR WIRE AND CABLE WITH 600V INSULATION. WIRE SIZE #8 AWG AND LARGER SHALL BE STRANDED. WIRE OF SIZE SMALLER THAN #8 AWG SHALL BE SOLID. CONDUCTORS SHALL BE SOFT DRAWN COPPER WITH CONDUCTIVITY OF NOT LESS THAN 98% OF ANSI STANDARD FOR ANNEALED

3. WIRE AND CABLE SHALL BE TYPE THWN-THHN BUILDING WIRE, 600V, RATED FOR 75 DEGREES C. IN WET LOCATIONS AND 90 DEGREES C. IN DRY LOCATIONS. 4. FLEXIBLE METAL CLAD CABLE TYPE MC WITH GREEN EQUIPMENT GROUND MAY BE USED IN AREAS ABOVE HUNG CEILINGS AND IN WALL PARTITIONS WHER ALLOWED BY CODE. MC CABLE SHALL BE MANUFACTURED BY AFC OR EQUAL.

A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED IN THE WORK INCLUDED, BUT NOT LIMITED, TO THE FOLLOWING:

1. WIRING DEVICES: A. PASS AND SEYMOUR/LEGRAND B. BRYANT ELECTRIC C. COOPER INDUSTRIES

E. LEVITON

2.11 WIRING DEVICES

B. DUPLEX RECEPTACLES SHALL BE COMMERCIAL GRADE RATED FOR 125 VOLTS, 15 OR 20 AMPERES WHERE LOCATED TOTALLY WITHIN AN APARTMENT, CONDOMINIUM OR TOWNHOUSE AND APPROVED BY ARCHITECT/ENGINEER/OWNER. RECEPTACLES SHALL HAVE WIRE BUNDLING CLAMPS ON ALL TERMINALS INCLUDING GROUND; TERMINAL SCREWS SHALL BE #10. A FULL WRAP-AROUND STEEL BRIDGE STRAP SHALL BE PROVIDED WITH LOCKING FINGER TABS TO SECURE THE FACE. 1. PASS & SEYMOUR

C. DUPLEX RECEPTACLES WITH GROUND FAULT CIRCUIT INTERRUPTER CHARACTERISTICS SHALL BE RATED FOR 125 VOLTS, 20 AMPERES WITH 20 AMPERE FEED THROUGH AMPERES UNLESS OTHERWISE INDICATED ON CONTRACT DRAWINGS, AND SHALL CONFORM TO THE REVISED 2003 UL 943 STANDARD. ALL RECEPTACLES SHALL HAVE ?SAFELOCK? PROTECTION THAT WILL DISCONNECT POWER TO THE RECEPTACLE IF CRITICAL COMPONENTS ARE DAMAGED AND GROUND FAULT PROTECTION IS LOST. ALL RECEPTACLES SHALL HAVE ?TRIP INDICATOR? LIGHT TO IDENTIFY A TRIPPED CONDITION OUTLETS, UTILITY VAULT, IN WET AREAS, ETC. SHALL BE GROUND FAULT TYPE WHETHEI NDICATED ON THE DRAWINGS OR NOT. PROVIDE WEATHERPROOF WHILE-IN-USE COVERS

1. PASS & SEYMOUR: 2094 2. COOPER: XGF20 3. LEVITON: 8898

D. TOGGLE SWITCHES SHALL BE FULL SIZED, HEAVY DUTY AC TYPE RATED FOR 120/277 VOLTS, 20 AMPERES AND COMPLY WITH DECORA STYLE BY LEVITON. MOUNTING STRAP SHALL BE ONE—PIECE NICKEL PLATED STEEL WITH INTEGRAL GROUND. TERM SHALL EXTERNAL SCREW-PRESSURE PLATE BACK AND SIDE WIRED TO ACCEPT # 14 - #10 AWG WIRE. CONTACTS SHALL BE SILVER ALLOY.

E. DIMMERS SWITCHES: MODULAR FULL WAVE SOLID-STATE UNITS WITH INTEGRAL, QUIET  $\ensuremath{\mathsf{ON/OFF}}$  SWITCHES WITH AUDIBLE AND ELECTROMAGNETIC NOISE FILTERS. 1. WATTAGE RATING EXCEEDS CONNECTED LOAD BY 30% MINIMUM EXCEPT AS OTHERWISE INDICATED.

2. CONTROL: CONTINUOUSLY ADJUSTABLE SLIDE, TOGGLE OR ROTARY KNOB. SINGLE POLE OR 3-WAY SWITCH TO SUIT CONNECTIONS. 3. INCANDESCENT LAMP DIMMERS: MODULAR DIMMER SWITCHES FOR INCANDESCENT FIXTURES; SWITCH POLES AND WATTAGE AS OTHERWISE INDICATED, 120 VOLT, 60 HERTZ, WITH CONTINUOUSLY ADJUSTABLE ROTARY KNOB EQUIPPED WITH ELECTROMAGNETIC FILTER TO ELIMINATE NOISE, RF AND TV

4. FLUORESCENT LAMP DIMMERS: MODULAR DIMMER SWITCHES COMPATIBLE WITH DIMMER BALLASTS. TRIM POTENTIOMETER ADJUSTS LOW END DIMMINO DIMMER BALLAST COMBINATION IS CAPABLE OF CONSISTENT DIMMING TO A MAXIMUM OF 10 % OF FULL BRIGHTNESS. F. ALL WIRING DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH NEC ARTICLE 210.

2.12 WIRING DEVICE PLATES A. ALL NORMAL POWER WIRING DEVICE PLATES SHALL BE HIGH IMPACT STAINLESS STEEL: 1. PASS & SEYMOUR: TP SERIES (3/16 ? WIDER/LONGER THAN STANDARD SIZE; CAPTIVE SCREWS FOR SINGLE GANG

B. DEVICE PLATE SCREWS SHALL BE OF THE SAME COLOR FINISH AS THE DEVICE PLATE. 2.13 OUTLET BOXES AND ACCESSORIES A. PROVIDE GALVANIZED SHEET STEEL OUTLET BOXES FOR ALL OUTLETS UNLESS OTHERWISE NOTED

B. FIXTURE OUTLET BOXES SHALL HAVE 3/8" SOLID MALE FIXTURE STUDS AND AUXILIARY FIXTURE STEMS SHALL BE SUPPORTED FROM 3/8" MALE FIXTURE STUDS. C. ALL OUTLET BOXES FOR CONCEALED WORK SHALL BE GALVANIZED, STAMPED STEEL; THOSE

FOR FIXTURES, FURNISHED WITH A FIXTURE STUD. D. OUTLET BOXES SHALL BE OF SIZE AND TYPE TO ACCOMMODATE (1) STRUCTURA CONDITIONS; (2) SIZE AND NUMBER OF RACEWAYS, CONDUCTORS OR CABLES ENTERING AND (3) DEVICES OR FIXTURES FOR WHICH REQUIRED.

E. INSTALL BLANK PLATES ON ALL OUTLET BOXES, IN WHICH NO APPARATUS IS INSTALLED, WHICH DO NOT INTEGRALLY PROVIDE A COVER FOR THE BOX. SERIES RATING OF DEVICES WILL NOT BE ACCEPTED. F. SPECIAL CARE SHALL BE TAKEN TO SET ALL BOXES CORRECTLY SQUARE AND TRUE WITH

G. ELECTRICAL NON-METALLIC TUBING (ENT), FITTINGS, BOXES AND SUPPORT HARDWARE CAN BE USED WHEN ALLOWED BY CODE AND APPROVED BY OWNER. H. BOXES

1. BOXES USED WITHED ENT SHALL BE LISTED AND/OR CERTIFIED. 2. NON-METALLIC MUD BOXES SHALL BE AVAILABLE A. MUD BOXES WITH TWO 1?, FOUR 1/2? AND SIX PORTS SHALL BE AVAILABLE B. MUD BOXES WITH QUICK CONNECT PORTS SHALL BE MOLDED OUT OF POLYCARBONATE C. MUD BOXES WITH REMOVABLE BACK SHALL BE AVAILABLE

1) CEILING BOX LISTED FOR FIXTURE SUPPORT UP TO 50 LBS. AND CEILING FAN SUPPORT UP TO 35 LBS. 2) ONE GANG

3) TWO GANG 4) 4 SQUARE

D. MUD BOX TYPES SHALL INCLUDE:

2.16 NAMEPLATES A. NAMEPLATES CONSISTING OF BLACK PLASTIC WITH WHITE CENTER. LETTERING TO RF 1/4" SCREWS SHALL BE PROVIDED FOR THE FOLLOWING EQUIPMENT: 1. ALL PANEL BOARDS AND DISTRIBUTION EQUIPMENT

TERMINAL CABINETS. 3. JUNCTION BOXES LARGER THAN 4-11/16".

2.17 DISCONNECT SWITCHES A. ALL SAFETY SWITCHES SHALL BE NEMA TYPE HD AND UNDERWRITERS' LABORATORIES LISTED B. ALL SWITCHES SHALL HAVE SWITCH BLADES WHICH ARE FULLY VISIBLE IN OF OFF POSITION

WITH THE DOOR OPEN. ALL CURRENT CARRYING PARTS SHALL BE PLATED THROUGH ELECTROLYTIC PROCESSED TO RESIST CORROSION AND PROMOTE COOL OPERATION. C. SWITCHES SHALL BE QUICK-MAKE AND QUICK-BREAK SUCH THAT, DURING NORMAL OPERATION OF THE SWITCH. THE OPERATION OF THE CONTACTS SHALL BE NOT CAPABLE OF BEING RESTRAINED BY THE OPERATING HANDLE AFTER THE CLOSING OR OPENING ACTION OF THE CONTACTS HAS STARTED. THE HANDLE AND MECHANISM SHALL BE AN INTEGRAL PART OF THE BOX, NOT THE COVER, WITH POSITIVE PADLOCKING PROVISIONS IN

D. SWITCHES SHALL BE FURNISHED IN NEMA 1 GENERAL PURPOSE ENCLOSURES UNLESS NEMA 3R (RAINTIGHT) OR NEMA 4 AS REQUIRED BY ENVIRONMENT. ENCLOSURES SHALL BE OF CODE GAUGE (UL 98) SHEET STEEL (NEMA 1) OR CODE GAUGE E. SWITCHES SHALL BE HORSEPOWER RATED FOR 600 VOLTS AC AND ALL SWITCHES SHALL

BE FUSED TYPE WITH DUAL ELEMENT FUSES. F. SAFETY SWITCHES SHALL BE SQUARE D CLASS 3130 OR APPROVED EQUAL AS MANUFACTURED BY GENERAL ELECTRIC OR CUTLER HAMMER. 2.18 FUSES

A. FUSES SHALL BE NON-RENEWABLE TYPE, UL CLASS J UP TO 600 AMP, AND CLASS L OVER 600 AMP. FUSES SHALL BE CURRENT LIMITING TYPE WITH A MINIMUM INTERRUPTING RATING OF 200,000 RMS AMP. B. FUSES SHALL NOT BE USED IN ANY SWITCHBOARDS OR PANEL BOARDS UNLESS ADEQUATE

A.C. RATED CIRCUIT BREAKERS ARE NOT AVAILABLE. C. FUSES SHALL BE MANUFACTURED BY BUSSMAN, GOULD SHAWMUT, LITTLE FUSE OR EQUAL 2.19 SWITCHBOARD A. MANUFACTURERS

1. SQUARE D COMPANY 2. GENERAL ELECTRIC 3. SIEMENS

4. CUTLER HAMMER

B. SHOP DRAWINGS: FOR EACH SWITCHBOARD, PANELBOARD AND RELATED EQUIPMENT. 1. DIMENSIONED PLANS, ELEVATIONS, SECTIONS, AND DETAILS, INCLUDING REQUIRED CLEARANCES AND SERVICE SPACE AROUND EQUIPMENT, INCLUDE LECTRIC ROOM LAYOUT THAT INDICATE ALL CODE REQUIRED WORKING LEARANCES. SHOW TABULATIONS OF INSTALLED DEVICES, EQUIPMENT

FEATURES, AND RATINGS. INCLUDE THE FOLLOWING: A. ENCLOSURE TYPES AND DETAILS FOR TYPES OTHER THAN NEMA 250, TYPE 1 B. BUS CONFIGURATION, CURRENT, AND VOLTAGE RATINGS. C. SHORT-CIRCUIT CURRENT RATING OF SWITCHBOARDS AND OVERCURRENT PROTECTIVE DEVICES.

D. DESCRIPTIVE DOCUMENTATION OF OPTIONAL BARRIERS SPECIFIED FOR ELECTRICAL INSULATION AND ISOLATION.

E. UTILITY COMPANY'S METERING PROVISIONS WITH INDICATION OF APPROVAL BY UTILITY COMPANY.

F. UL LISTING FOR SERIES RATING OF INSTALLED DEVICES. G. FEATURES, CHARACTERISTICS, RATINGS, AND FACTORY SETTINGS OF INDIVIDUAL OVERCURRENT PROTECTIVE DEVICES AND AUXILIARY COMPONENTS

2.21 GROUNDING REQUIREMENTS

A. GROUND ALL SYSTEMS AND EQUIPMENT IN ACCORDANCE WITH BEST INDUSTRY PRACTICE, THE REQUIREMENTS OF NFPA 70. B. THE GROUND BUS OF THE MAIN SWITCHBOARD SHALL BE CONNECTED TO THE MAIN

GROUNDING ELECTRODE SPECIFIED BELOW BY MEANS OF INSULATED CONDUCTORS RUN C. THE MAIN GROUNDING ELECTRODE SHALL BE AN ACCESSIBLE POINT ON THE NEARES METALLIC MAIN WATER SERVICE PIPE. CONNECTION SHALL BE MADE ON THE STREET SIDE OF THE MAIN VALVE UTILIZING A GROUND CLAMP OF A TYPE SPECIFICALLY MANUFACTURED FOR THE PURPOSE. BONDING JUMPERS SHALL BE PROVIDED AROUND

THE WATER METERS AND AROUND INSULATING JOINTS AND/OR SECTIONS. D. ESTABLISH A GROUND BONDING CONNECTION FROM THE EFFECTIVELY GROUNDED STRUCTURAL BUILDING STEEL TO EACH COLD WATER MAINS ENTERING THE BUILDING EACH BONDING CONNECTION SHALL CONSIST OF INSULATED CONDUCTORS RUN IN CONDUIT

E. THE WATER PIPE GROUND SHALL BE SUPPLEMENTED BY AN ADDITIONAL ELECTRODE CONSISTING OF (3) BURIED 3/4" DIAMETER BY 10'\_0" LONG COPPERWELD GROUND RODS SPACED 10'\_0" APART, AND PROVIDED IN SUFFICIENT QUANTITY SO AS TO HAVE MEASURED RESISTANCE TO GROUND OF NOT MORE THAN 10 OHMS. PROVIDE INDEPENDENT CERTIFICATION CONFIRMING THIS. ESTABLISH A BONDING CONNECTION FROM THE ELECTRODE CONSISTING OF GREEN INSULATED CONDUCTORS RUN IN CONDUCT BONDING JUMPERS.

F. PROVIDE GROUNDING BONDS BETWEEN ALL METALLIC CONDUITS OF THE LIGHT AND POWER SYSTEM WHICH ENTER AND LEAVE CABLE CHAMBERS OR OTHER NON\_METALLIC CABLE PULLING AND SPLICING BOXES. ACCOMPLISH THIS BY EQUIPPING THE CONDUITS WITH BUSHINGS OF THE GROUNDING TYPE INDIVIDUALLY CROSS CONNECTED. G. BOND METALLIC CONDUITS CONTAINING GROUNDING ELECTRODE CONDUCTORS AND MAIN BONDING CONDUCTORS TO THE GROUND BUS SERVICE ENCLOSURE AND/OR GROUNDIN ELECTRODE AT BOTH ENDS OF EACH RUN UTILIZING GROUNDING BUSHINGS AND JUMPERS H. ALL QUALIFY CONCRETE-ENCASED GROUNDING ELECTRODES SHALL BE CONNECTED TO THI

GROUNDING SYSTEM OF THE BUILDING IN ACCORDANCE WITH THE REQUIREMENTS OF NEC I. PROVIDE GROUNDING BONDS FOR ALL METALLIC CONDUITS OF THE LIGHT AND POWER SYSTEM WHICH TERMINATE IN PITS BELOW EQUIPMENT FOR WHICH A GROUND BUS IS SPECIFIED. ACCOMPLISH THIS BY EQUIPPING THE CONDUITS WITH BUSHINGS OF THE GROUNDING TYPE CONNECTED INDIVIDUALLY TO THE GROUND BUS. J. PROVIDE SUPPLEMENTARY GROUND BONDING WHERE METALLIC CONDUITS TERMINATE AT METAL CLAD EQUIPMENT (OR AT THE METAL PULL BOX OF EQUIPMENT) FOR WHICH A

BUSHINGS OF THE GROUNDING TYPE CONNECTED INDIVIDUALLY BY MEANS OF JUMPERS TO THE GROUND BUS. EXCLUDE THE JUMPERS WHERE DIRECTED. THIS EXCLUSION WILL BE REQUIRED WHERE AN ISOLATED GROUND FOR ELECTRONIC EQUIPMENT IS TO BE MAINTAINED K. EACH GROUNDING TYPE BUSHING SHALL HAVE THE MAXIMUM GROUND WIRE ACCOMMODATION AVAILABLE IN STANDARD MANUFACTURE FOR THE PARTICULAR CONDUIT SIZE. CONNECTION TO BUSHING SHALL BE WITH WIRE OF THIS MAXIMUM SIZE.

GROUND BUS IS SPECIFIED. ACCOMPLISH THIS BY EQUIPPING THE CONDUITS WITH

GROUNDING CONDUCTORS SHALL BE SIZED IN RELATION TO THE FUSES OR TRIP SIZE OF THE M. THE CENTRAL EQUIPMENT FOR THE FIRE PROTECTIVE ALARM SYSTEM AND TELEPHONE SYSTEM SHALL HAVE ITS GROUNDING TERMINAL CONNECTED TO THE GROUNDING ELECTRODE BY MEANS OF A NO. 6 GREEN CODED INSULATED CONDUCTOR, RUN IN 3/4" CONDUIT. UTILIZE A GROUND CLAMP OF A TYPE SPECIFICALLY MANUFACTURED FOR THE PURPOSE

N. PROVIDE GROUNDING BONDS FOR ALL METAL PARTS, INCLUDING ALL METAL PARTS OF THE ELECTRICAL EQUIPMENT ASSOCIATED WITH THE WATER-CIRCULATING SYSTEM OF THE POOL, ALL METAL PARTS OF THE POOL STRUCTURE, AND ALL FIXED METAL PARTS, WHICH INCLUDE CONDUIT AND PIPING, METAL DOOR FRAMES, AND METAL WINDOW FRAMES WITHIN 5 FEET OF THE INSIDE WALLS OF THE POOL AND NOT SEPARATED BY A PERMANENT BARRIER. ALL POOL GROUNDING SHALL BE IN ACCORDANCE WITH ARTICLE 680 OF THE NEC, STATE CODE OR LOCAL CODE, WHICHEVER IS THE MORE STRINGENT

A. THE INSULATION OR COVERING OF EACH WIRE OR CABLE SHALL BE COLOR CODED SO AS TO PROVIDE FOR CIRCUIT IDENTIFICATION AS SPECIFIED BELOW:

120/208 V CIRCUITS PHASE CIRCUITS BLACK A

BLUE C

WHITE NEUTRAL GREEN EQUIPMENT GROUND

DIFFERENT EQUIPMENT, SHALL BE IDENTIFIED.

B. COLOR CODING SHALL BE ACHIEVED BY ONE OF THE FOLLOWING METHODS:

1. THE INSULATION OR COVERING SHALL BE CODED DURING MANUFACTURE BY USE OF ONE OF THE FOLLOWING METHODS: A. COLORED COMPOUNDS.

IN SIZES AND INSULATION TYPES WHERE FACTORY APPLIED COLORS ARE NOT AVAILABLE, WIRES AND CABLES SHALL BE COLOR CODED BY THE APPLICATION COLORED PLASTIC TAPES IN OVERLAPPING TURNS AT ALL TERMINAL POINTS, AND IN LL BOXES IN WHICH SPLICES ARE MADE. C. THE SAME COLORED CABLE SHALL BE CONNECTED TO THE SAME PHASE THROUGHOUT D. IN GENERAL, BUILDING LOAD CENTERS AND PANELBOARDS SHALL BE PHASED "A". "B". LEFT TO RIGHT. THE NEUTRAL, ALTHOUGH IT MAY BE IN DIFFERENT LOCATIONS FOR

2.23 MOLDED CASE CIRCUIT BREAKERS A. MOLDED CASE TYPE CIRCUIT BREAKERS SHALL CONSIST OF MANUALLY OPERATED QUICK\_MAKE QUICK\_BREAK MECHANICALLY TRIP FREE OPERATING MECHANISMS FOR SIMULTANEOUS OPERATION OF ALL POLES, WITH CONTACTS, ARC INTERRUPTERS AND TRIP ELEMENTS FOR EACH POLE. ALL ENCLOSED IN MOLDED PHENOLIC PLASTIC CASES. 1. THEIR TRIPPING UNITS SHALL BE OF THE "THERMAL MAGNETIC" TYPE HAVING

ELEMENTS FOR SHORT CIRCUIT PROTECTION. 2. THEY SHALL BE MANUALLY OPERABLE BY MEANS OF TOGGLE TYPE OPERATING ES HAVING "TRIPPED" POSITION MIDWAY BETWEEN THE "ON\_OFF" 3. THEY SHALL EACH BE CONTAINED IN AN INDIVIDUAL CASE ENCLOSING ONLY THE

NUMBER OF POLES REQUIRED FOR THE PARTICULAR BREAKER. 4 ALL PANELS AND INDIVIDUALLY MOUNTED CIRCUIT RREAKERS SHALL HAVE SHORT CIRCUIT RATINGS EXCEEDING THE AVAILABLE SHORT CIRCUIT OR THE VALUES INDICATED IN THE POWER SYSTEM STUDIES IN THIS SECTION BY A FACTOR OF 1.2

A. 240V CLASS PANELS/BREAKERS 1) 10 KAIC WHERE SHOWN FED BY A 150 KVA OR LESS TRANSFORMER 2) 22 KAIC WHERE SHOWN FED BY A 300 KVA OR LESS TRANSFORMER 5. THEY SHALL BE OF THE "BOLTED\_IN" TYPE.

6. WHERE NECESSARY, TO ACCOMMODATE OTHER REQUIREMENTS, THEIR FRAME SIZES SHALL BE INCREASED TO CONFORM TO SUCH REQUIREMENTS, FRAME SIZES BEING INDICATED ONLY AS A REFERENCE TO THE MINIMUM ACCEPTABLE INTERRUPTING RATINGS NOTED ABOVE. 7. WHERE SINGLE POLE IN TRIP SIZES 20 AMPS OR LESS, THEY SHALL BE RATED FOR

8. THEY SHALL BE EQUIPPED WITH 5 MILLIAMP SENSITIVITY GROUND FAULT INTERRUPTING FEATURES WHERE SO INDICATED. B. THEY SHALL BE MANUFACTURED BY SQUARE D, CUTLER HAMMER, OR GENERAL ELECTRIC

2.25 CARTRIDGE FUSES A. CARTRIDGE FUSES SHALL BE AS FOLLOWS:

BE PUSH-TO-TEST TYPE.

1. PROVIDE A COMPLETE SET OF FUSES FOR EACH ITEM OF FUSIBLE TYPE QUIPMENT. FUSIBLE EQUIPMENT FURNISHED BY OTHER CONTRACTORS WILL BE COMPLETE WITH FUSES. 2. SECONDARY SYSTEM FUSES, RATED AT 600 VOLTS OR LESS, SHALL BE UL LISTED AND CONSTRUCTED IN CONFORMANCE WITH THE APPLICABLE STANDARDS SET FORTH BY NEMA AND ANSI. ALL FUSES OF A PARTICULAR CLASS SHALL BE OF

SAME MANUFACTURER. 3. REGARDLESS OF ACTUAL FAULT CURRENT, THEY SHALL, AT FULL RECOVERY VOLTAGE, BE CAPABLE OF SAFELY INTERRUPTING FAULT CURRENTS OF 200,000 AMPERES RMS SYMMETRICAL OR 340,000 AMPERES RMS ASYMMETRICAL, DELIVERABLE

AT THE LINE SIDE OF THE FUSE. 4. CIRCUITS 0-600 AMPERES SHALL BE PROTECTED BY THE EQUAL OF BUSSMAN LOW PEAK" CURRENT LIMITING FUSES, LPN-RK (250 VOLTS), LPS-RK (600 5. FUSES SHALL BE SUITABLE FOR APPLICATION TO FUSE GAPS WHICH REJECT OTHER

TYPES OF FUSING. 6. SUPPLY 10 PER CENT SPARE FUSES OF EACH SIZE AND TYPE 60 AMPS AND LESS. SUPPLY THREE SPARE FUSES FOR EACH SIZE AND TYPE OVER 60 AMPS. B. CARTRIDGE FUSES SHALL BE MANUFACTURED BY BUSSMAN, GOULD, OR EFCO. 2.26 MOTOR CONTROLS

A. MOTOR CONTROLS - MANUAL AND MAGNETIC 1. INDIVIDUALLY MOUNTED MAGNETIC STARTERS SHALL BE ACROSS—THE—LINE TYPE WITH THERMAL OVERLOAD ON EACH PHASE, SINGLE SPEED, TWO SPEED, OR REDUCED VOLTAGE START AS INDICATED. CHECK EXACT TYPE OF TWO SPEED OR PART WINDING MOTORS TO BE FURNISHED BY OTHER CONTRACTORS, AND PROVIDE

2. STARTERS SHALL BE OF THE REPLACEABLE CONTACT DOUBLE BREAK TYPE, OF SIZE AND TYPE REQUIRED FOR PARTICULAR MOTOR HORSEPOWER AND VOLTAGE. A. STARTERS SHALL HAVE OL RESET BUTTON, GREEN PILOT LIGHT TO INDICATE ON", AND "HAND-OFF-AUTO" SWITCH IN COVER. PILOT LIGHTS SHALL

B. PROVIDE PROPER RATING OF THERMAL OVERLOADS. REPLACE ANY OVERLOADS FOUND TO BE OF AN INCORRECT RATING. PROVIDE A SPARE SET OF THREE THERMAL OVERLOADS FOR EACH STARTER. C. PROVIDE FOUR (4) SETS OF AUXILIARY CONTACTS OF CONVERTIBLE TYPE N.O. TO N.C. FOR EACH STARTER. D. MOTOR STARTERS INSTALLED IN DRY LOCATIONS SHALL HAVE NEMA I

ENCLOSURES. THOSE IN WET LOCATIONS SHALL HAVE NEMA IV ENCLOSURES

3. MANUAL MOTOR STARTERS SHALL HAVE PILOT LIGHTS AND SHALL BE FURNISHED WITH THERMAL OVERLOADS ON EACH PHASE. B. MOTORS: EACH MOTOR SHALL HAVE DISCONNECT SWITCH AND STARTER PROVIDED UNDER THIS SECTION. STARTERS WHICH ARE A PART OF "FACTORY ASSEMBLED" CONTROL PANEL WILL BE PROVIDED UNDER SECTION SUPPLYING EQUIPMENT TO BE CONTROLLED

BUT CONNECTED UNDER THIS SECTION. 1. PROVIDE MOTOR TERMINAL BOXES FOR EACH MOTOR NOT FURNISHED WITH SAME

C. DISCONNECT SWITCHES 1. DISCONNECT (SAFETY) SWITCHES SHALL CONFORM TO INDUSTRIAL STANDARDS OF NEMA, BE UL LISTED AND SHALL BE HEAVY DUTY TYPE, QUICK—MAKE, QUICK—BREAK TYPE WITH INTERLOCKING COVER MECHANISM AND PROVISIONS FOR PADLOCKING SWITCH HANDLE IN "OFF" POSITION. THREE POLE TOGGLE SWITCHES ARE NOT ACCEPTABLE AS SUBSTITUTE FOR DISCONNECT SWITCHES. 2. DISCONNECT SWITCHES SHALL BE OF FUSED OR UNFUSED TYPE AS INDICATED WITH NUMBER OF DISCONNECTING POLES INDICATED. THE GROUNDED CONDUCTOR SHALL NOT BE SWITCHED. SWITCHES SHALL BE FOR USE WITH CURRENT LIMITING FUSES WITH REJECTION TYPE FUSE CLIPS AND THOSE SHALL BE

3. ENCLOSURES SHALL BE OF PROPER NEMA TYPE FOR THE INTENDED LOCATION AND SHALL BE PHOSPHATE COATED OR EQUIVALENT CODE GAUGE GALVANIZED SHEET STEEL WITH GRAY BAKED ENAMEL FINISH. 4. ACCEPTABLE MANUFACTURERS:

A. GENERAL ELECTRIC B. CUTLER HAMMER C. SQUARE D

D. COMBINATION STARTER 1. PROVIDE COMBINATION STARTERS WHERE INDICATED ON THE PLANS.

E. MOTOR CONTROL CIRCUITRY

1. EXCEPT AS NOTED BELOW, SELECT MATERIALS EXACTLY AS SPECIFIED FOR FEEDERS. UTILIZE NO. 12 AWG THWN CONDUCTORS THROUGHOUT MINIMUM. 2. MOTOR CONTROL CIRCUIT WIRES MAY BE RUN IN THE SAME CONDUIT AS THE WIRES OF MOTOR POWER CIRCUITS; HOWEVER, EXCLUDE MOTOR CONTROL WIRES FROM ENCLOSURES (OTHER THAN MOTOR STARTER ENCLOSURES) WHICH CONTAIN POWER CIRCUIT OVERCURRENT PROTECTION AND SWITCHING DEVICES; ALSO FROM PULL BOXES AND JUNCTION BOXES CONTAINING THE WIRES OF MAIN AND SUBMAIN FEFDERS LITHLIZE ALIXILIARY PULL BOXES TO SEPARATE MOTOR CONTROL ENTER THE ITEMS FROM WHICH MOTOR CONTROL WIRES ARE EXCLUDED.

3. PRIOR TO INSTALLING ANY MOTOR CONTROL CIRCUITRY FOR A PARTICULAR MOTOR.

NOTIFY THE ARCHITECT OF ANY DEVIATIONS BETWEEN THE CONTROL CIRCUITRY
REQUIREMENTS OF THE TRADE SUPPLYING THE MOTOR AND THE INDICATED ELECTRICAL 2.27 LIGHTING FIXTURES

A. FURNISH ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR A COMPLETE INSTALLATION OF LIGHTING EQUIPMENT SPECIFIED. B. THIS CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR THE SAFE HANDLING OF ALL LIGHTING FIXTURES, WHICH ARE FURNISHED UNDER THIS SECTION AND OTHER

ACCESSORIES AND LAMPS, UNTIL THE FINAL INSPECTION HAS BEEN MADE BY THE C. SPECIAL FITTINGS AND MATERIALS THAT MAY BE REQUIRED TO SUPPORT FIXTURES SHALL BE SUPPLIED AS WELL AS SUPPORTS OR GROUNDS REQUIRED SECURING SURFACE OR PENDANT MOUNTED FIXTURES ON SUSPENDED CEILINGS UNLESS OTHERWISE NOTED. WHERE DUCTWORK, PIPES, TYPE OF BUILDING CONSTRUCTION MATERIALS AND STRUCTURAL FRAMING MEMBERS PROVIDE OBSTRUCTIONS OR DIFFICULT SUPPORT MEANS. HANGER RODS SHALL BE USED IN ASSOCIATION WITH HORIZONTAL SECTIONS OF STEEL SUPPORT CHANNELS IN A MANNER APPROVED BY THE OWNER'S ENGINEER. STEEL SUPPORT CHANNELS SHALL BE UNISTRUT, KINDORF, HUSKY PRODUCTS CO., OR EQUAL DETERMINED ON THE JOB, BY THE OWNER'S ENGINEER.

D. BALLASTS FOR FLUORESCENT FIXTURES SHALL BE HIGH POWER FACTOR ENERGY SAVINGS. ELECTRONIC TYPE. MULTIPLE LAMP BALLASTS SHALL BE USED WHENEVER POSSIBLE.
BALLASTS SHALL BE OF HIGH POWER FACTOR TYPE. THE PROPER BALLAST SHALL BE FURNISHED AND INSTALLED FOR ALL LIGHTING FIXTURES NORMALLY DESIGNED FOR DPERATION WITH BALLASTS, WHETHER OR NOT SUCH BALLASTS ARE SPECIFICALLY ITEMIZED ON THE FIXTURE SCHEDULE.

E. FURNISH AND INSTALL A COMPLETE SET OF NEW LAMPS FOR ALL FIXTURES. LAMPS USED DURING THE CONSTRUCTION PERIOD SHALL BE REMOVED AND REPLACED WITH NEW LAMPS. ALL FLUORESCENT LAMPS TO BE WARM WHITE OR APPROVED EQUAL. LAMPS SHALL BE OSRAM / SYLVANIA.

F. FIXTURES, PART OR PARTS THEREOF (INCLUDING LAMPS) DETERMINED TO BE DEFECTIVE UPON COMPLETION OF THE ELECTRICAL INSTALLATION SHALL BE REPLACED BY THE ELECTRICAL CONTRACTOR FREE OF CHARGE. G. IN ADDITION TO FIXTURE SUPPORTS, SURFACE MOUNTED LIGHTING FIXTURES SHALL BE SECURED TO THE SURFACE TO WHICH THEY MOUNT AT A MINIMUM TO TWO POINTS ON EACH 4 FOOT LENGTH OF FIXTURE HOUSING, AS APPROVED, TO PREVENT ROTATION OR MOVEMENT OF THE FIXTURE OUT OF ITS SQUARE AND LEVEL POSITION OF ALIGNMENT. H. THIS CONTRACTOR SHALL INCLUDE ALL FIXTURES, WIRING, HANGING, UNCRATING,

CONNECTING UP AND MAKING READY FOR OPERATION. THIS CONTRACTOR SHALL INCLUDE THE COST OF FURNISHING AND INSTALLING ALL LAMPS FOR ALL FIXTURES UNDER THIS CONTRACT. ALL T-8 TUBES FOR INSTANT-START FIXTURES SHALL BE GENERAL ELECTRIC, PHILLIPS, OSRAM / SYLVANIA OR EQUAL. ALL LAMPS SHALL BE U.L. APPROVED. I. ALL FLUORESCENT FIXTURES INSTALLED IN SUSPENDED CEILINGS SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE BY CHAINS AT EITHER END OF FIXTURE.

J. ALL FIXTURES INSTALLED IN INSULATED CEILINGS SHALL BE IC RATED. COORDINATE WITH K. ALL FIXTURES INSTALLED IN RATED CEILINGS SHALL BE ONE OR TWO HOUR RATED. COORDINATE WITH THE ARCHITECTS REFLECTED CEILING PLANS FOR CEILING RATING. L. ALL LIGHTING FIXTURES SHALL BE INDIVIDUALLY SUPPORTED FROM THE STRUCTURAL SLAB OR STRUCTURAL BUILDING MEMBER. FIXTURES WILL NOT BE PERMITTED TO BE

IN ACCORDANCE WITH SEISMIC REQUIREMENTS OUTLINED IN MASSACHUSETTS STATE

M. HEARING IMPAIRED DOOR LIGHT 1. UNIT DOOR LIGHTS: AUDIBLE/VISUAL SIGNALING DEVICE WITH HORN/STROBE ALL PUSH BUTTON STATION, AND TRANSFORMER, MINIMUM 85DB TONE AT 10 FEET AND A HIGH INTENSITY 11.7 CANDELA VISUAL SIGNAL. PUSH BUTTON ILLUMINATED A. ROOM ANNUNCIATOR MANUFACTURER/MODEL - EDWARDS 7005-G5.

N. HEARING IMPAIRED PHONE LIGHT 1. UNIT PHONE LIGHTS: AUDIBLE/VISUAL SIGNALING DEVICE WITH HORN/STROBE. FEET AND A HIGH INTENSITY 11.7 CANDELA VISUAL SIGNAL. PUSH BUTTON -A. ROOM ANNUNCIATOR MANUFACTURER/MODEL - EDWARDS

2.28 OCCUPANCY SENSORS A. WORK INCLUDED

B-KHD-1000-PF

BUILDING CODE SIXTH EDITION

1. CONTRACTOR'S WORK TO INCLUDE ALL LABOR, MATERIALS, TOOLS, APPLIANCES, CONTROL HARDWARE, SENSOR, WIRE, JUNCTION BOXES AND EQUIPMENT NECESSARY FOR AND INCIDENTAL TO THE DELIVERY, INSTALLATION AND FURNISHING OF A COMPLETELY OPERATIONAL OCCUPANCY SENSOR LIGHTING CONTROL SYSTEM. 2. CONTRACTOR/SUPPLIER SHALL EXAMINE ALL GENERAL SPECIFICATION PROVISIONS AND DRAWINGS FOR RELATED ELECTRICAL WORK REQUIRED AS WORK UNDER

WIRING, CONDUIT, FIXTURES, HVAC SYSTEMS AND BUILDING MANAGEMENT B. EQUIPMENT QUALIFICATION 1. PRODUCTS SUPPLIED SHALL BE FROM A SINGLE MANUFACTURER THAT HAS BEEN CONTINUOUSLY INVOLVED IN THE MANUFACTURING OF OCCUPANCY SENSORS FOR A MINIMUM OF FIVE (5) YEARS. MIXING OF MANUFACTURERS SHALL NOT BE ALLOWED 2. ALL COMPONENTS SHALL BE U.L. LISTED. OFFER A FIVE (5) YEAR WARRANTY AND MEET ALL STATE AND LOCAL APPLICABLE CODE REQUIREMENTS.

MANUFACTURING FACILITY AND SHALL HAVE A DEFECT RATE OF LESS THAN 1/3 OF 1%

3. CONTRACTOR SHALL COORDINATE ALL WORK DESCRIBED IN THIS SECTION WITH ALL

OTHER APPLICABLE PLANS AND SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO

4. WALL SWITCH PRODUCTS MUST BE CAPABLE OF WITHSTANDING THE EFFECTS OF C. SYSTEM DESCRIPTION

3. PRODUCTS SHALL BE MANUFACTURED BY AN ISO 9002 CERTIFIED

1. THE OBJECTIVE OF THIS SECTION IS TO ENSURE THE PROPER INSTALLATION OF THE OCCUPANCY SENSOR BASED LIGHTING CONTROL SYSTEM SO THAT LIGHTING IS TURNED OFF AUTOMATICALLY AFTER REASONABLE TIME DELAY WHEN A ROOM OR AREA IS VACATED BY THE LAST PERSON TO OCCUPY SAID ROOM OR AREA. 2. THE OCCUPANCY SENSOR BASED LIGHTING CONTROL SHALL ACCOMMODATE ALL

CONDITIONS OF SPACE UTILIZATION AND ALL IRREGULAR WORK HOURS AND HABITS. 3. CONTRACTOR SHALL WARRANT ALL EQUIPMENT FURNISHED IN ACCORDANCE TO THIS SPECIFICATION TO BE UNDAMAGED, FREE OF DEFECTS IN MATERIALS AND WORKMANSHIP, AND IN CONFORMANCE WITH THE SPECIFICATIONS, THE UPPLIER'S OBLIGATION SHALL INCLUDE REPAIR OR REPLACEMENT, AND TESTING WITHOUT CHARGE TO THE OWNER, ALL OR ANY PARTS OF EQUIPMENT WHICH AR FOUND TO BE DAMAGED, DEFECTIVE OR NON-CONFORMING AND RETURNED TO THE SUPPLIER. THE WARRANTY SHALL COMMENCE UPON THE OWNER'S ACCEPTANCE OF THE PROJECT. WARRANTY ON LABOR SHALL BE FOR A MINIMUM

1. MANUFACTURER SHALL SUBSTANTIATE CONFORMANCE TO THIS SPECIFICATION BY SUPPLYING THE NECESSARY DOCUMENTS, PERFORMANCE DATA AND WIRING IAGRAMS. ANY DEVIATIONS TO THIS SPECIFICATION MUST BE CLEARLY STATED BY LETTER AND SUBMITTED. 2. SUBMIT A LIGHTING PLAN CLEARLY MARKED BY MANUFACTURER SHOWING PROPER PRODUCT, LOCATION AND ORIENTATION OF EACH SENSOR

3. SUBMIT ANY INTERCONNECTION DIAGRAMS PER MAJOR SUBSYSTEM SHOWING 4. SUBMIT STANDARD CATALOG LITERATURE, WHICH INCLUDES PERFORMANCE SPECIFICATIONS INDICATING COMPLIANCE TO THE SPECIFICATION 5. CATALOG SHEETS MUST CLEARLY STATE ANY LOAD RESTRICTIONS WHEN USED WITH ELECTRONIC BALLASTS. E. SYSTEM OPERATION

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL PROPER

DELAYS TO NO LESS THAN 15 (FIFTEEN) MINUTES. OR; A. FACTORY COMMISSIONING 1) IT SHALL BE THE MANUFACTURER'S RESPONSIBILITY TO VERIFY ALL PROPER ADJUSTMENTS AND TRAIN OWNER'S PERSONNEL TO ENSURE OWNER'S SATISFACTION WITH THE OCCUPANCY SYSTEM. THIS SERVICE IS PROVIDED AT AN ADDITIONAL COST

ADJUSTMENTS TO ASSURE OWNER'S SATISFACTION WITH THE OCCUPANCY SYSTEM. UNLESS SPECIFIED OTHERWISE, THE CONTRACTOR SHALL SET ALL TIME

F. ACCEPTABLE MANUFACTURERS

B. WALL SENSORS:

1. THE WATT STOPPER OR PRE-APPROVED EQUAL: FOR PRE-APPROVAL, PRO ALL THE INFORMATION LISTED UNDER SECTION 1.04A AND 1.04D A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO INITIAL BID DATE. 2. THE LISTING OF ANY MANUFACTURER AS "ACCEPTABLE" DOES NOT IMPLY AUTOMATIC APPROVAL. IT IS THE SOLE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO ENSURE THAT ANY PRICE QUOTATIONS RECEIVED AND UBMITTALS MADE ARE FOR SENSORS, WHICH MEET OR EXCEED THE

G. PRODUCTS 1. ALL PRODUCTS SHALL BE WATT STOPPER PRODUCT NUMBERS:

SPECIFICATIONS INCLUDED HEREIN.

A. CEILING SENSORS: W-500A, W-1000A, W-2000A, W-2000H, WPIR, DT-200, DT-205, DT-300, DT-305, DT-355, CX-100, CX-105, CI-200, CI-205, WT600, WT-05, WT1100, WT-1105, WT2200, WT-2205, WT-2250, HB-100, HB-150

WI-200, WI-300, WS-200, WA-200, WA-300, WD-170, WD-180, WD-270, WD-280, WN-100 C. POWER AND SLAVE PACKS:

B120E-P, B277E-P, A120E-P, A277E-P, A120C-P, A277C-P, C120E-P, C277E-P, S120/277-P, AT-120, AT-277, BZ-100 D. LOW TEMPERATURE: CB-100 OUTDOOR SENSORS: EW, EN SERIES E. INTELISWITCH: TS-400, TS-400-24, AS-100, AS-110

F. DAYLIGHTING CONTROLS: LCO, LCD, LCE, LS-100, LS-301.

2. WALL SWITCH SENSORS SHALL UTILIZE PASSIVE INFRARED SENSING TECHNOLOGY ONLY TO DETECT MOTION. 3. WALL SWITCH SENSORS SHALL BE CAPABLE OF DETECTION OF OCCUPANCY AT DESKTOP LEVEL UP TO 300 SQUARE FEET, AND GROSS MOTION UP TO 1000

4. WALL SWITCH SENSORS SHALL ACCOMMODATE LOADS FROM 0 TO 800 WATTS AT 120 VOLTS; 0 TO 1200 WATTS AT 277 VOLTS AND SHALL HAVE 180? COVERAGE WALL SWITCH PRODUCTS SHALL UTILIZE ZERO CROSSING CIRCUITRY, WHICH INCREASES RELAY LIFE, PROTECTS FROM THE EFFECTS OF INRUSH CURRENT, AND INCREASES SENSOR'S LONGEVITY.

6. WALL SWITCH SENSORS SHALL HAVE NO LEAKAGE CURRENT TO LOAD, IN MANUAL OR IN AUTO/OFF MODE FOR SAFETY PURPOSES AND SHALL HAVE VOLTAGE DROP PROTECTION. 7. WHERE SPECIFIED, WALL SWITCH SENSORS SHALL PROVIDE A FIELD SELECTABLE

OPTION TO CONVERT SENSOR OPERATION FROM AUTOMATIC-ON TO MANUAL-ON 8. WHERE SPECIFIED, VANDAL RESISTANT WALL SWITCH SENSORS SHALL UTILIZE A HARD LENS WITH A MINIMUM 1.0MM THICKNESS. PRODUCTS UTILIZING A SOFT LENS WILL NOT BE CONSIDERED. 9. PASSIVE INFRARED SENSORS SHALL UTILIZE PULSE COUNT PROCESSING AND DIGITAL SIGNATURE ANALYSIS TO RESPOND ONLY TO THOSE SIGNALS CAUSED BY HUMAN MOTION

10. PASSIVE INFRARED SENSORS SHALL UTILIZE MIXED SIGNAL ASIC WHICH PROVIDES (ELECTRICAL NOISE ON THE LINE), SUPERIOR PERFORMANCE, AND GREATER RELIABILIT 11. PASSIVE INFRARED SENSORS SHALL HAVE A MULTIPLE SEGMENTED LODIF FRESNEL LENS, IN A MULTIPLE—TIER CONFIGURATION, WITH GROOVES—IN TO ELIMINATE DUST

AND RESIDUE BUILD-UP. 12. WHERE SPECIFIED. PASSIVE INFRARED AND DUAL TECHNOLOGY SENSORS SHAL OFFER DAYLIGHTING FOOT-CANDLE ADJUSTMENT CONTROL AND BE ABLE TO ACCOMMODATE DUAL LEVEL LIGHTING.

13. DUAL TECHNOLOGY SENSORS SHALL BE CORNER OR RECESSED MOUNTED TO AVOID DETECTION OUTSIDE THE CONTROLLED AREA WHEN DOORS ARE LEFT OPEN. SENSORS SHALL HAVE ?AUTO ON? OR ?MANUAL ON? FEATURE. 14. DUAL TECHNOLOGY SENSORS SHALL CONSIST OF PASSIVE INFRARED AND ULTRASONIO TECHNOLOGIES FOR OCCUPANCY DETECTION. PRODUCTS THAT REACT TO NOISE OR AMBIENT SOUND SHALL NOT BE CONSIDERED.

15. ULTRASONIC SENSORS SHALL UTILIZE ADVANCED SIGNAL PROCESSING TO ADJUST

THE DETECTION THRESHOLD DYNAMICALLY TO COMPENSATE FOR CONSTANTLY CHANGING LEVELS OF ACTIVITY AND AIRFLOW THROUGHOUT CONTROLLED SPACE. 16. ULTRASONIC OPERATING FREQUENCY SHALL BE CRYSTAL CONTROLLED TO WITHIN PLUS OR MINUS 0.005% TOLERANCE TO ASSURE RELIABLE PERFORMANCE AND ELIMINATE SENSOR CROSS-TALK. SENSORS USING MULTIPLE FREQUENCIES ARE 17. ALL SENSORS SHALL BE CAPABLE OF OPERATING NORMALLY WITH ELECTRONIC BALLASTS, PL LAMP SYSTEMS AND RATED MOTOR LOADS.

18. COVERAGE OF SENSORS SHALL REMAIN CONSTANT AFTER SENSITIVITY CONTROL HABEEN SET. NO AUTOMATIC REDUCTION SHALL OCCUR IN COVERAGE DUE TO THE CYCLING OF AIR CONDITIONER OR HEATING FANS. 19. ALL SENSORS SHALL HAVE READILY ACCESSIBLE, USER ADJUSTABLE SETTINGS FOR TIME DELAY AND SENSITIVITY. SETTINGS SHALL BE LOCATED ON THE SENSOR (NOT THE CONTROL UNIT) AND SHALL BE RECESSED TO LIMIT TAMPERING.

20. IN THE EVENT OF FAILURE, A BYPASS MANUAL OVERRIDE SHALL BE PROVIDED ON

EACH SENSOR. WHEN BYPASS IS UTILIZED, LIGHTING SHALL REMAIN ON CONSTANTLY OR CONTROL SHALL DIVERT TO A WALL SWITCH UNTIL SENSOR IS REPLACED. THIS CONTROL SHALL BE RECESSED TO PREVENT TAMPERING 21. ALL SENSORS SHALL PROVIDE AN LED AS A VISUAL MEANS OF INDICATION AT A TIMES TO VERIFY THAT MOTION IS BEING DETECTED DURING BOTH TESTING AND NORMAL OPERATION.

22. WHERE SPECIFIED, SENSOR SHALL HAVE AN INTERNAL ADDITIONAL ISOLATED RELAY WITH NORMALLY OPEN, NORMALLY CLOSED AND COMMON OUTPUTS FOR USE WITH HVAC CONTROL, DATA LOGGING AND OTHER CONTROL OPTIONS. SENSOR JTILIZING SEPARATE COMPONENTS OR SPECIALLY MODIFIED UNITS TO ACHIEVE

23. ALL SENSORS SHALL HAVE UL RATED, 94V-0 PLASTIC ENCLOSURES H. CIRCUIT CONTROL HARDWARE - CU 1. CONTROL UNITS - FOR EASE OF MOUNTING, INSTALLATION AND FUTURE SERVICE. CONTROL UNIT(S) SHALL BE ABLE TO EXTERNALLY MOUNT THROUGH A 1/2" KNOCK-OUT ON A STANDARD ELECTRICAL ENCLOSURE AND BE AN INTEGRATED, SELF-CONTAINED UNIT CONSISTING INTERNALLY OF AN ISOLATED LOAD SWITCHING CONTROL RELAY AND A TRANSFORMER TO PROVIDE LOW-VOLTAGE POWER. CONTROL

UNIT SHALL PROVIDE POWER TO A MINIMUM OF TWO (2) SENSORS. 2. RELAY CONTACTS SHALL HAVE RATINGS OF: A. 13A - 120 VAC TUNGSTEN

RELAYS SHALL BE #14 AWG.

THIS FUNCTION ARE NOT ACCEPTABLE.

B. 20A - 120 VAC BALLAST C. 20A – 277 VAC BALLAST 3. CONTROL WIRING BETWEEN SENSORS AND CONTROLS UNITS SHALL BE CLASS II, 18-24 AWG, STRANDED U.L. CLASSIFIED, PVC INSULATED OR TEFLON JACKETED CABLE SUITABLE FOR USE IN PLENUMS, WHERE APPLICABLE. 4. MINIMUM ACCEPTABLE WIRE GAUGE FROM THE CIRCUIT CONTROL HARDWARE

I. INSTALLATION 1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND AIM SENSORY IN THE CORRECT LOCATION REQUIRED FOR COMPLETE AND PROPER VOLUMETRIC COVERAGE WITHIN THE RANGE OF COVERAGE(S) OF CONTROLLED AREAS PER THE MANUFACTURER'S RECOMMENDATIONS. ROOMS SHALL HAVE NINETY (90) TO ONE HUNDRED (100) PERCENT COVERAGE TO COMPLETELY COVER THE CONTROLLED AREA TO ACCOMMODATE ALL OCCUPANCY HABITS OF SINGLE OR MULTIPLE OCCUPANTS AT ANY LOCATION WITHIN THE ROOM(S). THE LOCATIONS AND QUANTITIES OF SENSORS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE ONLY THE ROOMS, WHICH ARE TO BE PROVIDED WITH SENSORS.
THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS IF REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE ROOM. POWER/SWITCH PACKS MAY OR MAY NOT BE INDICATED ON THE DRAWINGS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE AND INSTALL ALL POWER/SWITCH PACKS REQUIRED TO MAKE THE SYSTEM FULLY OPERATIONAL. LOCATIONS OF POWER/SWITCH PACKS MAY BE DETERMINED IN THE FIELD BY THE CONTRACTOR UNLESS SPECIFIED OTHERWISE, BUT MUST BE READILY ACCESSIBLE FOR FUTURE SERVICING. USUALLY A MINIMUM OF ONE (1) POWER/SWITCH PACK IS REQUIRED PER CIRCUIT AND/OR AREA OF CONTROL. HOWEVER, IN SOME CASES ADDITIONAL POWER/SWITCH

2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A PRE-INSTALLATION MEETING WITH THE MANUFACTURER'S FACTORY AUTHORIZED REPRESENTATIVE, AT THE OWNER'S FACILITY, TO VERIFY PLACEMENT OF SENSORS AND INSTALLATION 3. PROPER JUDGMENT MUST BE EXERCISED IN EXECUTING THE INSTALLATION SO AS TO ENSURE THE BEST POSSIBLE INSTALLATION IN THE AVAILABLE SPACE AND TO OVERCOME LOCAL DIFFICULTIES DUE TO SPACE LIMITATIONS OR INTERFERENCE O OWNER'S FACILITY, THE TRAINING NECESSARY TO FAMILIARIZE THE OWNER'S

PERSONNEL WITH THE OPERATION, USE, ADJUSTMENT, AND PROBLEM SOLVING DIAGNOSIS OF THE OCCUPANCY SENSING DEVICES AND SYSTEMS. 1. UPON COMPLETION OF THE INSTALLATION, THE SYSTEM SHALL BE COMPLETELY

OF THE WORK

OF POWER/SWITCH PACKS REQUIRED FOR THIS PROJECT.

COMMISSIONED BY THE MANUFACTURER'S FACTORY AUTHORIZED TECHNICIAN WHO WILL VERIFY ALL ADJUSTMENTS AND SENSOR PLACEMENT TO ENSURE A TROUBLE—FREE OCCUPANCY—BASED LIGHTING CONTROL SYSTEM. THIS SERVICE IS PROVIDED AT AN ADDITIONAL COST. 2. THE ELECTRICAL CONTRACTOR SHALL PROVIDE BOTH THE MANUFACTURER AND THE ELECTRICAL ENGINEER WITH 15 WORKING DAYS WRITTEN NOTICE OF THE SCHEDULED COMMISSIONING DATE. UPON COMPLETION OF THE SYSTEM FINE—TUNING THE FACTORY AUTHORIZED TECHNICIAN SHALL PROVIDE THE PROPER TRAINING TO THE OWNER'S PERSONNEL IN THE ADJUSTMENT AND MAINTENANCE OF THE SENSORS. THE CONTRACTOR SHALL PROVIDE ALL LIFTS AND/OR LADDERS AND ONE TECHNICIAN TO ASSIST IN THE COMMISSIONING. PRIOR TO COMMISSIONING,

SUPPLIES/RELAYS ARE INSTALLED AND ALL WIRING PROPERLY TERMINATED 3. THE SYSTEM MUST BE COMPLETELY OPERATIONAL AND ALL TIME DELAYS ADJUSTED PER THE SPECIFICATION 4. THE MANUFACTURER'S FACTORY AUTHORIZED TECHNICIAN SHALL, UPON COMPLETION OF THE COMMISSIONING, PROVIDE A WRITTEN REPORT TO THE ELECTRICAL CONTRACTOR AND THE ELECTRICAL ENGINEER INDICATING COMPLETION

HE CONTRACTOR SHALL VERIFY THAT ALL SENSORS AND ASSOCIATED POWER

5. THIS REPORT SHALL ALSO INDICATE ANY CORRECTIVE ACTIONS REQUIRED ON THE PART OF THE ELECTRICAL CONTRACTOR TO THE SYSTEM. 2.29 ACCESS PANELS A. ACCESS PANELS SHALL BE PROVIDE FOR ALL ELECTRICAL EQUIPMENT WHICH REQUIRES ACCESS BY; MASSACHUSETTS ELECTRIC CODE ABOVE HUNG CEILINGS OR BEHIND WALLS WHICH ARE CONSTRUCTED OF MATERIALS OF THE TYPE WHICH ARE NOT READILY

B. ACCESS PANELS SHALL BE FURNISHED BY THE GENERAL CONTRACTOR AND INSTALLED BY

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SHEET TITLE **ELECTRICAL SPECIFICATIONS** 

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. PROVIDE ALL FIRE ALARM DEVICES AS SHOWN ON CONTRACT DOCUMENTS. THI SYSTEM SHALL INTERFACE TO OTHER BUILDING SYSTEMS TO CONDUCT MONITORING AND CONTROL FUNCTIONS AS DESCRIBED HEREIN. 2. THE SYSTEM SHALL BE REVIEWED AND APPROVED BY THE LOCAL FIRE ALARM DIVISION INCLUDING APPROVAL OF PROGRAMMING. FAILURE TO REVIEW PROGRAMMING WITH THE LOCAL AUTHORITY DOES NOT WARRANT RE-PROGRAMMING AT AN EXTRA COST TO THE OWNER. REVIEW AND

PROGRAMMING SHALL BE PROVIDE UNTIL ACCEPTABLE TO THE LOCAL FIRE

3. OCCUPANT NOTIFICATION SHALL CONSIST OF A CODE 3 TEMPORAL EVACUATION SIGNAL AND VISUAL (STROBE) SIGNALING. 4. EACH INITIATING DEVICE SHALL HAVE FULL ANALOG FEATURES AND CAPABILITIES, WHEREBY INDIVIDUAL SENSORS WILL PROVIDE REAL—TIME ENVIRONMENTAL MONITORING, WITH AUTOMATIC AND MANUAL SENSITIVITY ADJUSTMENT AND ALARM VERIFICATION FEATURES. EACH DEVICE SHALL IDENTIFY ITS EXACT LOCATION TYPE AND CONDITION, AND SHALL OPERATE AS DESCRIBED ELSEWHERE IN THESE

5. WORK IN THIS SECTION AS SHOWN OR SPECIFIED SHALL BE IN ACCORDANCE WITH 6. PROVIDE AUTOMATIC AND MANUAL, CLOSED CIRCUIT, MULTIPLEX FIRE ALARM COMMUNICATIONS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, TO BE WIRED, CONNECTED AND LEFT IN FIRST CLASS OPERATING CONDITION 7. SHOP DRAWINGS, TECHNICAL INSTALLATION SUPPORT, TESTING, AND ADJUSTMENT OF THE SYSTEM SHALL BE DONE UNDER THE DIRECT SUPERVISION OF THE SYSTEM SUPPLIER USING NICET-CERTIFIED (LEVEL 2 MINIMUM) FIELD PERSONNEL ACTORY TRAINED TECHNICIANS SHALL DEMONSTRATE THE SYSTEM TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AND MAKE ALL ADDITIONAL ADJUSTMENTS TO THE SYSTEM OPERATION AS REQUIRED BY THE OWNER'S

8. PROVIDE EQUIPMENT MANUFACTURED BY SIMPLEXGRINNELL OR EQUAL. THIS CONSTITUTES THE QUALITY AND PERFORMANCE CHARACTERISTICS OF THE EQUIPMENT AND SYSTEM TO BE FURNISHED. A. EQUIVALENT PRODUCT MANUFACTURED BY FCI, EST OR NOTIFIER MAY BE

CONSIDERED AN ACCEPTABLE ALTERNATE. B. ANY ALTERNATES. EXCEPTIONS, OR SUBSTITUTIONS TO THE SPECIFIED INT ALTERNALES, EACE-TIONS, OR SUBSTITUTIONS TO THE SPECIFIED EQUIPMENT AND SYSTEM OPERATION SHALL BE DISCLOSED IN WRITING PRIOR TO BID. ANY COST SAVINGS SHALL BE DEMONSTRATED, AND A LINE-BY-LINE DESCRIPTION OF DEVIATION FROM THE PROJECT COMPLY WITH THIS REQUIREMENT SHALL RESULT IN IMMEDIATE PROVAL WITHOUT COMMEN

C. IF THE CONTRACTOR CHOOSES AN ALTERNATE MANUFACTURER, NO MORE THAN TWO (2) EQUIPMENT SUBMITTALS SHALL BE REVIEWED. IF THE EQUIPMENT IS NOT APPROVED UPON REVIEW OF THE SECOND UBMITTAL, THE CONTRACTOR SHALL PROVIDE THE SPECIFIED MANUFACTURER 9. THE SYSTEM DESIGN AND INSTALLATION SHALL CONFORM TO THE FOLLOWING STANDARDS

A. ALL EQUIPMENT SHALL BE UL LISTED FOR ITS INTENDED PURPOSE, INCLUDING UL 864 (UOJZ, UOXX, UUKL AND UOQY), 268, 464 AND 1971 B. NFPA STANDARDS 70, 72, 90A, 92A, AND 101. C. INTERNATIONAL BUILDING CODE - LATEST EDITION D. CURRENT STATE BUILDING CODE AND APPLICABLE FIRE SAFETY REGULATIONS

E. THE AMERICANS WITH DISABILITIES ACT (ADA). F. ALL LEGAL REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION. 10. SUBMIT SIX (6) COMPLETE SETS OF SHOP DRAWING SUBMITTALS TO INCLUDE:

A. COMPLETE POINT TO POINT RISER DIAGRAM SHOWING ALL EQUIPMENT DEVICES SHALL BE SHOWN WITH DEVICE ADDRESS NUMBERS AND ANY OTHER INTENDED FIELD DEVICE SETTINGS, INCLUDING SPEAKER TAP SETTINGS AND CANDELA RATING. B. SCALED DRAWINGS OF EACH SYSTEM PANEL SHOWING INTERNAL MODULE

C. A COMPLETE, ITEMIZED BILL OF MATERIALS WITH QUANTITIES, DESCRIPTIONS AND CROSS-REFERENCE INFORMATION. D. ORIGINAL CATALOG DATA SHEETS FOR ALL ITEMS TO ASSURE COMPLIANCE WITH THESE SPECIFICATIONS. THIS EQUIPMENT SHALL BE SUBJECT TO APPROVAL, AND NO EQUIPMENT SHALL BE ORDERED WITHOUT PRIOR

PLACEMENT, FIELD TERMINATIONS AND SPARE CAPACITY ALLOWANCE

E. FLOOR PLANS SHOWING ALL DEVICES AND EQUIPMENT TO BE INSTALLED. FLOOR PLANS SHALL DEPICT ALL EQUIPMENT AND DEVICES. DEVICES SHALL BE SHOWN WITH CORRESPONDING FIELD SETTINGS THAT SHALL BE MADE AS WELL AS CORRESPONDING CIRCUIT AND DEVICE DESIGNATIONS FIELD SETTINGS SHALL INCLUDE THE DEVICE ADDRESS, CANDELA RATING AND/OR SPEAKER-TAP SETTING AS APPLICABLE, EACH DEVICE SHALL BE SHOWN

CORRESPONDING CIRCUIT IDENTIFIER AND DEVICE NUMBER. F. PROVIDE CALCULATIONS TO SUPPORT THE SIZE OF STANDBY BATTERIES NOTIFICATION CIRCUITS, AMPLIFIERS AND POWER SUPPLIES SUBMITTED SYSTEM CALCULATIONS SHALL BE PRESENTED IN ACCORDANCE WITH NFPA 72 RECOMMENDED PRACTICES AS FOLLOWS:

1) CALCULATIONS SHALL DEMONSTRATE WIRE SIZE AND ESTIMATED

 VISUAL NOTIFICATION CIRCUITS SHALL BE BASED UPON 20VD. STARTING VOLTAGE AND UTILIZE A NOMINAL 18V CURRENT DRAW RATING FOR EACH APPLIANCE

3) VISUAL CIRCUITS SHALL BE DESIGNED FOR A MAXIMUM 4 VOLT DROP 4) SPEAKER CIRCUITS SHALL BE DESIGNED FOR A MAXIMUM 3DBA LOSS G. SUBMITTAL SHALL BE SUBMITTED TO THE LOCAL FIRE INSPECTION AND H. PROVIDE A COPY OF THE ORIGINAL EQUIPMENT MANUFACTURER'S

CONFIRMATION THAT THE EQUIPMENT SUPPLIER WILL PROVIDE ON\_SITE PROJECT MANAGEMENT AND SUPERVISION DURING SYSTEM INSTALLATION, AND PERFORM SYSTEM TESTING AND INSTRUCTION, LEAD SYSTEM DOCUMENTATION OF THEIR QUALIFICATIONS SHALL BE PRESENTED AS REQUESTED J. AN OUTLINE OF THE VENDOR'S ACCEPTANCE AND TEST PROCEDURES,

INCLUDING A COPY OF THE SUPPLIER'S STANDARD COMMISSIONING REPORT CHECKLIST. 11. CONFORM TO ALL UL AND NEPA STANDARDS FOR TESTING AND PROVIDE A RECORD OF COMPLETION OF THE COMPLETED INSTALLATION. THE RECORD OF COMPLETION SHALL BE COMPLETED BY PROPERLY LICENSED, AND

FACTORY-TRAINED REPRESENTATIVES OF A UL APPROVED TESTING COMPANY. 12. PROVIDE COPIES OF OPERATING & MAINTENANCE MANUALS WITH THE REQUEST FOR FINAL INSPECTION. O & M MANUALS SHALL INCLUDE THE FOLLOWING: A. ALL OF THE INFORMATION SUBMITTED IN THE SHOP DRAWINGS. B. AS-BUILT DOCUMENTATION WHICH INCORPORATES ALL MODIFICATIONS TO THE SYSTEM, WHETHER MADE AS A FIELD CHANGE OR BY A CHANGE ORDER C. INCLUDE A COPY OF THE FINAL TEST REPORT, RECORD OF COMPLETION AND TEST/SUPPORT CONTRACTS AS REQUIRED HEREIN.

B. SEQUENCE OF OPERATION 1. THE OPERATION OF A MANUAL STATION OR ACTIVATION OF ANY AUTOMATIC ALARM INITIATING DEVICE (SYSTEM SMOKE, SYSTEM HEAT DETECTOR,

> A. INITIATE THE TRANSMISSION OF THE ALARM TO THE MUNICIPAL FIRE STATION AND APPROVED CENTRAL STATION MUNICIPAL REPORTING SYSTEM AND DIGITAL ALARM COMMUNICATOR/TRANSMITTER (DAC/T) CONNECTION TO AN APPROVED CENTRAL MONITORING STATION.

WATERFLOW) SHALL INITIATE A SYSTEM-WIDE RESPONSE AS FOLLOWS

B. SOUND A CODE 3 TEMPORAL EVACUATION SIGNAL OVER ALL AUDIO CIRCUITS C. FLASH ALL VISUAL SIGNALS THROUGHOUT THE BUILDING. VISUAL NOTIFICATION SHALL BE SYNCHRONOUS IN ACCORDANCE WITH NFPA 72

GUIDELINES AND UL 1971. D. FLASH AN ALARM LED AND SOUND AN AUDIBLE SIGNAL AT THE FACP AND REMOTE ANNUNCIATOR. UPON ACKNOWLEDGMENT, THE ALARM LED SHALL LIGHT STEADILY AND THE AUDIBLE SHALL SILENCE. SUBSEQUENT ALARMS SHALL RELINITIATE THIS SEQUENCE CTION TO THE E. UPON ALARM INITIATION BY AN ELECATOR LOBBY SMOKE DETECTOR OR OTHER DESIGNATED RECALL DEVICE, RECALL ALL ELEVATORS THAT SERVE THE FLOOR OF INITIALIZATION TO THE MAIN EGRESS LEVEL. IF THE ALARM INITIATES ON THE MAIN EGRESS LEVEL, RETURN THE ELEVATOR TO THE ALTERNATE FLOOR AS DIRECTED BY THE LOCAL AUTHORITY HAVING JURISDICTION

F. VISUALLY INDICATE THE ALARM INITIATING DEVICE TYPE AND LOCATION VIA THE LCD DISPLAY LOCATED AT THE FACP AND AT ANY REMOTE SYSTEM

G. AUTOMATICALLY SHUT DOWN AFFECTED SUPPLY AND RETURN FANS. AND CONTROL HVAC EQUIPMENT TO INITIATE SMOKE CONTROL FUNCTIONS AS REQUIRED. MANUAL OVERRIDE CONTROLS AND PROGRAMMABLE RELAY INTERFACE MODULES SHALL SERVE TO INTEGRATE THE FIRE ALARM SYSTEM TO THE BUILDING AUTOMATION SYSTEM. H. OPERATE PRIORITIZED OUTPUTS TO RELEASE ALL MAGNETICALLY HELD SMOKE DOORS AND MAGNETICALLY LOCKED DOORS THROUGHOUT THE BUILDING I. ACTIVATE THE EXTERIOR WEATHERPROOF BEACON.

2. SPRINKLER TAMPER SWITCHES OR OTHER DEVICE PROGRAMMED FOR SUPERVISORY REPORTING SHALL AUTOMATICALLY CAUSE THE FOLLOWING TO OCCUR: A. INITIATE THE TRANSMISSION OF THE EVENT TO THE MUNICIPAL FIRE

STATION OR CENTRAL STATION B. FLASH A SUPERVISORY LED AND SOUND AN AUDIBLE SIGNAL AT THE FACE AND REMOTE ANNUNCIATOR. UPON ACKNOWLEDGMENT, THE LED SHALL LIGHT STEADILY AND THE AUDIBLE SHALL SILENCE, SUBSEQUENT EVENTS SHALL RE\_INITIATE THIS SEQUENCE.

C. VISUALLY INDICATE THE INITIATING DEVICE TYPE AND LOCATION VIA THE LCD DISPLAY LOCATED AT THE FACP AND AT ANY REMOTE SYSTEM ANNUNCIATOR

C. GENERAL REQUIREMENTS I. THE FIRE ALARM SYSTEM SHALL BE DESIGNED AND UL AND FM APPROVED FOR FIRE. AUDIO EVACUATION AND SECURITY APPLICATIONS. THE SYSTEM OPERATIONAL CHARACTERISTICS SHALL BE STORED IN NON\_VOLATILE EEPROM MEMORY, SHALL BE FIELD PROGRAMMABAN ARPROMEMBMEADIS, BASINGAPENICIABLE.

THE SYSTEM SHALL SUPPORT ANALOG SENSING TECHNIQUES TO MONITOR INDIVIDUAL DEVICES WHICH ENABLES THE USER TO SET SENSITIVITY PARAMETERS ALL INPUTS SHALL BE SUBJECT TO MULTI\_LEVEL ALARM VERIFICATION. THE SYSTEM SHALL BE CAPABLE OF REPORTING THE STATUS AND SENSITIVITY OF EACH DEVICE AND VECTORING THIS INFORMATION TO A PRINTER. THE SYSTEM SHALL UTOMATICALLY IDENTIFY ANY DETECTOR WHICH BECOMES DIRTY (MAINTENANCE ALERT), PRIOR TO FALSE ALARMING.

LOSS OF PRIMARY POWER, BATTERIES SHALL SUPPORT [60] HOURS OF FUSUPERVISORY OPERATION FOLLOWED BY [5] MINUTES OF ALARM. 4. THE SYSTEM SHALL BE CAPABLE OF NINE LEVELS OF ALARM PRIORITIZATION, AND ALLOW CONTROL—BY—EVENT SEQUENCES TO INCLUDE IN EXCESS OF 2500 CROSS ZONED, STEPPING, TIME CONTROLLED AND/OR LOGIC STATEMENT INPUTS (BOOLEAN CONTROL EVENTS).

3. THE SYSTEM SHALL BE SUPPORTED BY STANDBY BATTERIES. IN THE EVENT OF A

5. ALL EQUIPMENT SHALL BE NEW AND UNUSED. ALL COMPONENTS AND SYSTEMS SHALL BE DESIGNED FOR UNINTERRUPTED DUTY. ALL EQUIPMENT, MATERIALS AND ACCESSORIES COVERED BY THESE REQUIREMENTS SHALL BE PROVIDED BY A LE MANUFACTURER, OR IF PROVIDED BY DIFFERENT MANUFACTURERS RECOGNIZED AS COMPATIBLE BY BOTH MANUFACTURERS. 6. ALL CONTROL EQUIPMENT MUST HAVE TRANSIENT PROTECTION DEVICES TO COMPLY WITH UL 864 REQUIREMENTS.

A. ISOLATED LOOP CIRCUIT PROTECTOR (ILCP): FURNISH AND INSTALL AN ISOLATED LOOP CIRCUIT PROTECTION DEVICE ON ALL FIRE ALARM CIRCUITS WHICH EXTEND BEYOND THE BUILDING BY EITHER AERIAL, UNDERGROUND OR OTHER METHODS (WALKWAYS, BRIDGES OR OTHER ABOVE GROUND CONNECTORS B. THE ILCP SHALL BE LOCATED AS CLOSE AS PRACTICAL TO THE POINT AT

WHICH THE CIRCUITS LEAVE OR ENTER THE BUILDING. THE GROLINDING ONDUCTOR SHALL BE A NO. 12 AWG WIRE HAVING A MAXIMUM LENGTI OF 28 FEET AND CONNECTED TO A UNIFIED GROUND PER THE NEC . CIRCUITING GUIDELINES. EACH INITIATING DEVICE AND INDICATING CIRCUIT SHAL BE ELECTRONICALLY SUPERVISED AND INDIVIDUALLY ADDRESSABLE. ALL WIRING SHALL BE AS FOLLOWS:

A. INDIVIDUAL ZONE ADDRESSABLE MODULES SHALL BE USED TO MONITOR WATER FLOW, TAMPER, AND STATUS CONDITIONS FROM ANY RELATED SYSTEMS OR CONVENTIONAL DEVICES. B. ZONE ADDRESSABLE CONTROL MODULES OR RELAYS SHALL PROVIDE AUXILIARY CONTROL FUNCTIONS SEPARATE OUTGOING AND RETURN PATI MUST BE INSTALLED IN ACCORDANCE WITH NFPA 72 (2002 ED.) 6.4.2.2.2

C. ADDRESSABLE LOOP WIRING (SIGNALING LINE CIRCUITS) SHALL SUPPORT ALL DEVICES SHOWN AND ALLOW FOR A MINIMUM OF 25% SPARE CAPACITY, AND BE WIRED IN A CLASS A, STYLE 6 FASHION, WITH FAULT ISOLATION AS DESCRIBED ELSEWHERE IN THESE SPECIFICATIONS. D. AS A MINIMUM, POWER SUPPLIES AND NOTIFICATION APPLIANCE CIRCUITS

SHALL OPERATE ALL DEVICES SHOWN PLUS 25% SPARE CAPACITY, AND BE WIRED IN A CLASS A, STYLE Z FASHION.

1. FIRE ALARM NETWORK CONTROL PANEL A. PROVIDE AND INSTALL SIMPLEX 4100U SERIES FIRE ALARM CONTROL SYSTEM. THE SYSTEM SHALL CONSIST OF THE REQUIRED FIRE ALARM CONTROL OR TRANSPONDER PANELS, EACH SIZED TO SUPPORT 500 ANALOG DETECTORS, EXPANDABLE TO 2500. THE SYSTEM SHALL SUPPOR PER-TO-PER NETWORK COMMUNICATIONS CONSISTING OF UP TO 99 NODES. EACH NETWORK PANEL SHALL PROVIDE THE FOLLOWING FUNCTIONS:

1) MONITOR ALL INITIATING DEVICES. REPORT THE EVENT TO THE FIRE LOCATION, CAPTURE ELEVATORS, CONDUCT SMOKE CONTROL SIGNALING AND CONTROL SEQUENCES AS DESCRIBED HEREIN. 2) CONDUCT OFF-SITE OR MUNICIPAL REPORTING AS DESCRIBED HEREIN

3) INITIATING DEVICES SHALL RESPOND WITH THEIR CONDITION CONTROL RELAYS SHALL BE INDIVIDUALLY ADDRESSABLE BY THE SYSTEM TO RESPOND AUTOMATICALLY IN THE EVENT OF AN ALARM OF RELATED SENSORS. MANUAL OVERRIDE OF CONTROL RELAYS SHALI

BE INDIVIDUALLY ADDRESSABLE BY THE OPERATOR. B. CONTROL CONFIGURATION: ALL FIRE ALARM CONTROL PORTIONS OF THE ENCLOSURES. ALL PANEL INITIATING AND CONTROL STATUS INDICATORS SHAI F VISIBLE THROUGH A CLEAR LEXAN WINDOW, ACCESS TO THE CONTROL AUTHORIZED PERSONNEL, EACH PANEL SHALL INCORPORATE AN OPERATOR INTERFACE, CPU, ADDRESSABLE LOOP INTERFACE CARDS, SYSTEM POWE SUPPLIES AND BATTERIES TO PERFORM THE SYSTEM OPERATION AS DESCRIBED HEREIN.

C. PRIMARY OPERATOR CONTROL: THE FACP SHALL PROVIDE AN OPERATOR TO PRESENT ALL SYSTEM ALARM, TROUBLE AND SUPERVISORY CONDITIONS, AND SHALL PROVIDE CONTROL SWITCHES FOR STATUS MESSAGE SCROLLING /ENT ACKNOWLEDGMENT, SYSTEM RESET AND ALARM SILENCE, AS WELL S PROGRAM FUNCTION SWITCHES, 3 PROGRAMMABLE STATUS LEDS AND 5 ADDITIONAL USER-PROGRAMMABLE FUNCTION SWITCHES. THE DISPL SHALL HAVE LEDS TO INDICATE POWER ON, FIRE ALARM, PRIORITY 2 ALARM, SUPERVISORY, TROUBLE AND ALARM SILENCED STATUS.

D. ADDRESSABLE LOOP INTERFACE: PROVIDE AN IDNET ADDRESSABLE LOOP

INTERFACE CARD FOR EACH ADDRESSABLE SIGNALING LINE CIRCUIT. EACH

CARD SHALL SUPPORT FOUR ISOLATED CIRCUIT LOOPS (QUAD ISOLATOR) DIGITAL COMMUNICATIONS WITH UP TO 250 ADDRESSABLE FIELD DETECTORS, AND TOTAL WIRING DISTANCES UP TO 10,000 FT F. AUXII IARY CONTROL / ANNUNCIATION: PROVIDE THE REQUIRED AUXII IARY SWITCH AND LED MODULES FOR DISCREET LED ANNUNCIATION, ZONE DISCONNECT, HVAC OVERRIDE, OR RELATED MONITORING AND CONTROL FUNCTIONS INTEGRAL TO THE PRIMARY FACP, AS A MINIMUM, PROVIDE [64] DISCREET, PROGRAMMABLE AUXILIARY SWITCHES WITH CORRESPONDING STATUS LEDS AND [24] HOA SWITCHES WITH STATUS FDS. FOR AUXILIARY CONTROL FUNCTIONS. THESE ARE INTENDED FOR USE LEDS, FOR AUXILIANT CONTROL FUNCTIONS. THESE ARE INTENDED FOR US BY THE FIRE DEPARTMENT DURING AN EVENT OR BY AUTHORIZED PERSONNEL DURING TESTING PERIODS. KEYPAD ENTERED COMMANDS FOR

THESE FUNCTIONS SHALL NOT BE AN ACCEPTABLE SUBSTITUTE. F. SYSTEM POWER SUPPLIES: INTEGRAL SYSTEM POWER SUPPLIES SHAI PROVIDE 24VDC OPERATING AND EMERGENCY POWER TO EACH SYSTEI PANEL (18 AMPS MINIMUM). IT IS THE DESIGN INTENT THAT ALL SYSTEM POWER SUPPLIES BE DERIVED FROM NETWORK PANELS, AND EACH POWER SUPPLY MODULE SHALL HAVE DEDICATED NAC OUTPUTS AND A CHARGING CIRCUIT THAT WILL SUPPORT UP TO 110AH BATTERIES. FIELD—LOCATED ADDRESSABLE NAC MODULES OR REMOTE AUXILIARY POWER SUPPLIES WILL NOT BE ALLOWED, EXCEPT WHERE SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS. THE FOLLOWING SYSTEM POWER SUPPLY ANALOG VALUES SHALL BE AVAILABLE FOR VIEWING THROUGH THE PRIMARY OPERATOR INTERFACE DISPLAY:

1) BATTERY VOLTAGE 2) BATTERY CHARGER VOLTAGE AND CURRENT DRAW 3) MAIN OUTPUT VOLTAGE AND CURRENT DRAW 4) INDIVIDUAL NAC CURRENT DRAW

G. DIGITAL ALARM COMMUNICATOR/TRANSMITTER (DAC/T): AN INTEGRAL SERIAL DAC/T SHALL BE PROVIDED FOR POINT REPORTING OF SYSTEM EVENTS TO A CENTRAL MONITORING STATION.

2. INTELLIGENT SYSTEM DEVICES: PROVIDE INTELLIGENT ANALOG DEVICES WHERE SHOWN AND REQUIRED. ALL DEVICES SHALL UTILIZE RED LED INDICATOR WHICH WILL FLASH TO DENOTE NORMAL ACTIVE COMMUNICATION AND LIGHT STEADILY TO DENOTE AN ALARM CONDITION. DEVICES SHALL BE INTERCHANGEABLE WITH TWIST\_LOCK BASES, WHICH WILL SUPPORT A REMOTE LED OUTPUT, FAULT ISOLATION CIRCUITRY, AUXILIARY RELAY CONTACT, OR A SOUNDER BASE WITH INTEGRAL PROGRAMMABLE PIEZO HORN. DEVICES SHALL SUPPORT PHYSICAL ADDRESS SETTING INTEGRAL TO THE DEVICE BASE. DEVICES WHICH REQUIRE DEVICE HISTORY DATA WILL NOT BE ALLOWED.

A. MULTI-SENSING SMOKE DETECTOR: PROVIDE MULTI-SENSING ANALOG SMOKE DETECTORS (4098-9754) WHERE SHOWN AND REQUIRED.
MULTI-SENSING DETECTORS SHALL EMPLOY PHOTOELECTRIC AND THERMAL SENSING PRINCIPLES, AND SHALL BE CAPABLE OF BEING PROGRAMMED TO OPERATE IN A DISTINCT FASHION DEPENDING UPON WHETHER THE THERMAL OR PHOTOELECTRIC ELEMENT HAS RESPONDED.

B. PHOTOELECTRIC SMOKE DETECTOR: PROVIDE ANALOG PHOTOELECTRIC SMOKE DETECTORS (MODEL 4098-9714) WHERE SHOWN AND REQUIRED. C. ANALOG HEAT DETECTORS: PROVIDE ANALOG HEAT DETECTORS (MODE) 4098-9733). ANALOG HEAT DETECTORS SHALL BE FIELD SELECTABLE FOR FIXED TEMPERATURE RATING OF 135 OR 155 DEGREES, OR A RATE OF RIS OPERATION OF 15 OR 20 DEGREES/MINUTE OPERATION. HEAT DETECTORS SHALL ALSO BE PROGRAMMABLE FOR LOW TEMPERATURE WARNING. WHERE OTHERWISE REQUIRED, PROVIDE CONVENTIONAL FIXED
TEMPERATURE OR WEATHERPROOF HEAT DETECTORS IN LIEU OF ANALOG HEAT DETECTORS. CONVENTIONAL DEVICES SHALL BE INDIVIDUALLY ADDRESSABLE VIA AN INTELLIGENT ADDRESSABLE MODULE WHICH SHALL BE

D. ANALOG DUCT SMOKE DETECTOR: PROVIDE ANALOG PHOTOELECTRIC DUCT-MOUNTED SMOKE DETECTORS (4098-9756) MOUNTED IN AIR DUCTS WHERE SHOWN AND REQUIRED. EACH DETECTOR SHALL BE SUPPLIED WITH DUCT-MOUNT HOUSING, REMOTE INDICATOR/TEST STATION (4098-9834) AND SAMPLING TUBES SIZED ACCORDING TO DUCT WIDTH. PROVIDE THE REQUIRED PROGRAMMABLE AUXILIARY RELAY OUTPUTS OR ADDRESSABLE RELAY CONTROL MODULES WITH EACH DETECTOR IN ORDER TO ACCOMPLISH THE REQUIRED HVAC CONTROL AND OVERRIDE FUNCTIONS.

INSTALLED IN A HEATED, VENTILATED LOCATION.

E. MANUAL PULL STATIONS: PROVIDE ADDRESSABLE MANUAL STATIONS (4099-9003 SERIES) WHERE SHOWN. THE STATION SHALL BE DOUBLE ACTION TYPE WITH SCREW TERMINALS, TOGGLE SWITCH, AND INTEGRAL ADDRESSABLE ELECTRONICS. THE STATION SHALL BE CONSTRUCTED OF RED LEXAN WITH WHITE RAISED LETTERS AND A KEY RESET SWITCH. THE STATION SHALL BE KEYED ALIKE TO THE FACP. WHERE AMBIENT CONDITIONS PRECLUDE THE USE OF ADDRESSABLE DEVICES, CONVENTIONAL WEATHERPROOF PULL STATIONS SHALL BE USED.
CONVENTIONAL DEVICES SHALL BE INDIVIDUALLY ADDRESSABLE VIA AN INTELLIGENT ADDRESSABLE MODULE WHICH SHALL BE INSTALLED IN AN PPROPRIATELY HEATED, VENTILATED LOCATION.

F. MONITOR MODULE: PROVIDE INDIVIDUAL ADDRESSABLE MODULES FOR SUPERVISED INPUT POINTS (MODEL 4090 SERIES) TO MONITOR RELATED SYSTEMS OR INTEGRATE CONVENTIONAL INITIATING DEVICES ONTO THE IDNET ADDRESSABLE LOOP. G. CONTROL MODULE: PROVIDE RELAY INDIVIDUAL ADDRESSABLE MODULES

(RELAY IAM) TO PROVIDE SUPERVISED OUTPUTS AND CONTROL CONVENTIONAL DEVICES (INDICATING CIRCUITS, AHUS, DOOR HOLDERS, ETC.) VIA THE IDNET ADDRESSABLE LOOP, RIAMS SHALL PROVIDE A SUPERVISED OUTPUT RATED FOR 2 AMPS @ 24VDC OR .5 AMPS A 120VAC, AND CORRESPONDING SUPERVISED CONTACT INPUT POINT

H. ISOLATION MODULES: PROVIDE ZONE ADDRESSABLE ISOLATOR MODULES TO PROTECT SIGNALING LINE CIRCUIT INTEGRITY IN THE EVENT OF A WIRING FAULT, TO ENSURE STYLE 6 WIRING CONVENTIONS. PROVIDE A MINIMUM OF ONE ISOLATION MODULE PER FLOOR OR EVACUATION ZONE, OR ONE PER

RESIDENTIAL UNIT SMOKE DETECTORS: PROVIDE PHOTOELECTRIC SMOKE DETECTORS (4098-9714) IN RESIDENTIAL UNITS WHERE SHOWN AND REQUIRED. DETECTORS SHALL BE LOCATED IN THE CENTER OF EACH ROOM OR OTHERWISE PLACED IN COMPLIANCE WITH NFPA 72 GUIDELINES. EACH DEVICE SHALL UTILIZE A PROGRAMMABLE SOUNDER BASE FOR LOCAL AN GENERAL ALARM EVACUATION. IN THE EVENT OF SMOKE DETECTION, ALL SOUNDER BASES AND VISUAL SIGNALS SERVING THE PARTICULAR LIVING UN ACTIVATE LOCALLY, WITH SUPERVISORY ANNUNCIATION AT THE FACP AND REMOTE ANNUNCIATORS

3. PRIMARY NOTIFICATION APPLIANCES: PROVIDE AUDIBLE AND VISUAL NOTIFICATION APPLIANCES WHERE SHOWN AND REQUIRED. FLUSH-MOUNTED COMBINATION DEVICES SHALL BE PROVIDED WITH SURFACE MOUNT OR STANDALONE VISUAL APPLIANCES WHERE OTHERWISE REQUIRED. THE CONTRACTOR SHALL PROVIDE SURFACE MOUNT BACKBOXES AS NEEDED AND ALTERNATE OUTDOOR—RATED APPLIANCES WHERE AMBIENT CONDITIONS DICTATE. SPECIFIC AUDIBLE AND VISUAL CHARACTERISTICS SHALL BE AS FOLLOWS: A. VISUAL SIGNALS: FURNISH AND INSTALL SYNCHRONIZED XENON STRORES IN FFFECTIVE INTENSITY RATING OF 15 CANDELA IN CORRIDORS AND OTHER

AREAS UP TO 20' X 20', 75 CANDELA IN AREAS UP TO 40' X 40' AND 110 CANDELA IN AREAS UP TO 50' X 50' OR IN SLEEPING AREAS. B. AUDIBLE SIGNALS: PROVIDE AUDIBLE TEMPORAL CODE 3 HORNS WHICH PRODUCE A MINIMUM SOUND OUTPUT OF 75DBA, OR 15DBA ABOVE AMBIENT; WHICHEVER IS GREATER, @ 10 FT. (MINIMUM OPERATING VOLTAGE C. LOW FREQUENCY 520 HZ MINI HORNS WILL BE PROVIDED IN THE BEDROOMS/SLEEPING AREA. 4. SYSTEM ACCESSORIES

A. MUNICIPAL CONNECTION: PROVIDE A LOCAL ENERGY MASTERBOX INSTALLED, TESTED, AND COMMISSIONED FOR MUNICIPAL REPORTING AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION. B. SPRINKLER SYSTEM DEVICES: THE ELECTRICAL CONTRACTOR SHALI COORDINATE THE FOLLOWING TO ENSURE THAT THE REQUIRED INSTALLATION AND WIRING OF ALL WATERFLOW AND TAMPER SWITCHES IS ACCOMPLISHE SPRINKLER SYSTEM. EACH DEVICE SHALL BE MONITORED AS A SEPARATE

1) WATERFLOW SHALL ACTIVATE THE ALARM SEQUENCE. 2) TAMPER SWITCHES SHALL ACTIVATE AN ALARM CONDITION 3) TERMINAL CABINETS: PROVIDE FIRE ALARM TERMINAL CABINETS WHERE NECESSARY, THE CABINETS, WHICH SHALL HAVE A REMOVABLE HINGED COVER WITH KEY LOCK AND RED FINISH ARE INTENDED TO HOUSE ANALOG/ADDRESSABLE MODULES AND FACILITATE FIELD WIRING JUNCTIONS.

C. REMOTE ALARM INDICATORS: PROVIDE REMOTE LED INDICATORS FOR SENSORS LOCATED BEHIND LOCKED DOORS. PROVIDE A PERMANENT LABE ON EACH INDICATOR IDENTIFYING THE DEVICE TYPE AND ACTUAL LOCATION. D. EXTERIOR STROBE: PROVIDE A FLASHING WEATHERPROOF STROBE WITH A MINIMUM 150,000 CANDLEPOWER OUTPUT WHERE SHOWN. THE STROBE SHALL BE PROPERLY INSTALLED ON A WEATHERPROOF BACKBOX E. PROVIDE A REMOTE COMMAND CENTER LCD ANNUNCIATOR (MODEL 4100-1292). EACH LCD ANNUNCIATOR SHALL PROVIDE A 160 CHARACTER LCD DISPLAY WITH MESSAGE SCROLLING BUTTONS SILENCE SYSTEM RESET) AND 4 PROGRAMMABLE CUSTOM CONTROL SWITCHES, AND SHALL SUPPORT CUSTOM MESSAGE ROUTING

ASSIGNMENTS AND BUFFERING. F. REMOTE POWER SUPPLIES: WHERE THE POWER REQUIREMENTS EXCEED THAT WHICH IS SUPPLIED BY THE FACP, PROVIDE DISTRIBUTED 8 OR 9 SUPPLIES SHALL BE SUPERVISED FOR GROUND FAULT, LOSS OF AC POWER AND BATTERY FAIL, AND EACH NOTIFICATION CIRCUIT SERVED SHALL BE INDIVIDUALLY SUPERVISED.

G. INTERNET COMMUNICATIONS CARD: PROVIDE A DEDICATED FIRE PANEL INTERNET INTERFACE (FPII) CARD INTEGRAL TO THE MAIN FACP. THE FPII CARD SHALL BE A SIMPLEXGRINNELL SAFELINC MODULE OR APPROVED EQUAL. THE FPII WILL HAVE A BUILT-IN E-MAIL FEATURE TO GENERATI NOTIFICATION OF ANY OR ALL SYSTEM EVENTS VIA INTERNET EMAIL, PAGER, CELL PHONES OR PERSONAL DIGITAL ASSISTANT (PDA) USING SIMPLE MAIL TRANSFER PROTOCOL (SMTP). THROUGH THE FPII, AUTHORIZED USERS WILL ALSO BE PROVIDED WITH SECURE ACCESS TO SYSTEM STATUS CONDITIONS EVENT HISTORY LOGS AND REPORTS VIA INTERNET EXPLORER VERSION 5.0 OR HIGHER, USING TCP/IP COMMUNICATIONS. H. MOTORIZED FIRE/SMOKE DAMPER CONTROL: PROVIDE 120V

CONNECTION FROM LOCAL 120V PANEL TO MOTORIZED FIRE DAMPER. THE FIRE ALARM SYSTEM SHALL PROVIDE A PROGRAMMABLE CONTROL RELAY OUTPUT TO INITIATE DAMPER CONTROL WITH CORRESPONDING INPUT ADDRESSABLE MODULE FEEDBACK POINT(S) FOR EACH DAMPER. I. DEVICE GUARDS: PROVIDE CLEAR LEXAN (2099 SERIES) COVERS OVER WHICH SHALL SOUND WHEN LIFTED, AND SHALL BE POWERED FROM A DEDICATED 9 VOLT BATTERY.

J. DOOR HOLDERS: PROVIDE 24VDC OR 120VAC MAGNETIC DOOR HOLDERS AS SHOWN AND REQUIRED. 24VDC DOOR HOLDERS SHALL BE POWERED BY SYSTEM POWER, BUT ARE NOT REQUIRED TO OPERATE UNDER STANDB' K. KEY REPOSITORY: PROVIDE AN APPROVED EQUAL KEY REPOSITOR WHERE SHOWN AND IN ACCORDANCE WITH LOCAL REQUIREMENTS

MANUFACTURED BY EMERGENCY ACCESS SYSTEMS 1. INSTALLATION SHALL BE SUPERVISED AND TESTED BY THE SYSTEM SUPPLIER. THE WORK SHALL BE PERFORMED BY SKILLED TECHNICIANS UNDER THE DIRECTION OF

1. ALL WIRING FOR THE SYSTEM SHALL BE IN ACCORDANCE WITH ARTICLES 760, 725, AND 800 OF THE NATIONAL ELECTRICAL CODE AND LOCAL ELECTRICAL CODES. 2. PROVIDE COMPLETE WIRING AND CONDUIT BETWEEN ALL EQUIPMENT, ALL WIRING SPLICES AND TRANSPOSING OR CHANGING OF COLORS SHALL NOT BE

EXPERIENCED ENGINEERS, ALL OF WHOM ARE PROPERLY TRAINED AND QUALIFIED.

3. ALL JUNCTION BOXES SHALL BE PAINTED RED AND LABELED AS 'FIRE ALARM SYSTEM' WITH DECAL OR APPROVED MARKINGS 4. FIRE ALARM CONTROL SYSTEMS AND EQUIPMENT SHALL BE CONNECTED TO SEPARATE DEDICATED BRANCH CIRCUITS, SIZED AS REQUIRED FOR PROPER SERVICE. CIRCUITS SHALL BE LABELED 'FIRE ALARM'.

5. PROVIDE PYROTENAX CIC 2 HOUR-RATED CABLE (OR APPROVED EQUAL) FOR ALL COMMUNICATION CIRCUITS WHICH SERVE MULTIPLE FLOORS OR EVACUATION COMMUNICATION CIRCUITS WHICH SERVE MULTIFLE FLOORS OR EVALUATION ZONES UNTIL THEY ENTER THE AREA SERVED IN ACCORDANCE WITH NFPA 72. THE CABLE SHALL BE INSTALLED IN CONDUIT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, WITH OUTGOING AND RETURN LOOPS PHYSICALLY SEPARATED IN ACCORDANCE WITH APPLICABLE CODE.

1. THE CONTRACTOR SHALL CARRY IN HIS BID A UNIT PRICE TO FURNISH AND INSTALL ADDITIONAL FIRE ALARM APPLIANCES AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION DURING THE FINAL INSPECTORS WALK-THRU. BID SHALL INCLUDE ALL ASSOCIATED WIRING AND PROGRAMMING AS REQUIRED. 2. ANY UNUSED DEVICES SHALL BE TURNED OVER TO THE OWNER OR A CREDIT SHALL

3. PROVIDE THE FOLLOWING QUANTITY AND TYPE AS INDICATED: A. (2) SYSTEM SMOKE DETECTOR (HEADS)

B. (2) LOCAL SMOKE DETECTORS C. (2) SYSTEM HEAT DETECTORS D. (1) DUCT SMOKE DETECTORS E. (1) REMOTE TEST STATIONS

F. (1) REMOTE ALARM INDICATORS G. (6) AUDIO/VISUAL APPLIANCES H. (2) VISUAL APPLIANCES

I. (1) PULL STATIONS J. (2) MONITOR MODULE K. (2) RELAY IAM / CONTROL MODULE

H. FINAL TEST / WARRANTY

1. THE SYSTEM SHALL BE FULLY TESTED BY A UL CERTIFIED TESTING COMPANY, IN ACCORDANCE WITH UL GUIDELINES AND NFPA STANDARDS. 2. A COPY OF THE FINAL TEST REPORT AND RECORD OF COMPLETION SHALL BE SUBMITTED INDICATING PROPER FUNCTIONING OF THE SYSTEM AND CONFORMANCE TO THE SPECIFICATIONS. THE TEST SHALL BE PERFORMED BY UL CERTIFIED AND FACTORY TRAINED QUALIFIED TECHNICIANS. EACH AND EVERY DEVICE SHALL BE TESTED, AND STANDALONE OPERATION OF REMOTE PANELS SHALL BE VERIFIED. FINAL TESTING SHALL BE PERFORMED BY THE SAME

COMPANY THAT SHALL HOLD AND EXECUTE THE TEST AND INSPECTION CONTRACT 3. THE MANUFACTURER SHALL GUARANTEE ALL SYSTEM EQUIPMENT FOR A MINIMUM OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE. 4. THE CONTRACTOR SHALL GUARANTEE ALL RACEWAYS AND WIRING TO BE FREE FROM

INHERENT MECHANICAL OR ELECTRICAL DEFECTS FOR ONE (1) YEAR FROM THI DATE OF FINAL ACCEPTANCE OF THE SYSTEM. . FIRE ALARM SUPPORT CONTRACTS 1. EACH CONTRACTOR SHALL INCLUDE AS PART OF THEIR BASE BID THE COST OF AN ANNUAL TEST AND INSPECTION CONTRACT AS DESCRIBED HEREIN. 2. THE TEST AND INSPECTION CONTRACT SHALL PROVIDE FOR PERIODIC TESTS ACCORDING TO UL. NFPA AND APPLICABLE LOCAL REQUIREMENTS FOR THE DURATION OF THE ORIGINAL MANUFACTURER'S WARRANTY PERIOD. THE CONTRACT SHALL INCLUDE TESTING AND RECALIBRATION OF EACH SYSTEM DETECTOR

FOLLOWING THE FIRST YEAR OF OPERATION AS WELL AS SUBSEQUENT CLEANING AND CALIBRATION TESTING IN ACCORDANCE WITH NFPA 72 REQUIREMENTS 3. UPON EXPIRATION OF THE WARRANTY PERIOD AND INITIAL TEST AND INSPECTION CONTRACT, THE CONTRACT SHALL BE RENEWABLE BY THE BUILDING OWNER. 4. EACH CONTRACTOR SHALL ALSO INCLUDE AS PART OF THE BASE BID THE COST OF A ONE YEAR CENTRAL STATION MONITORING CONTRACT. THE CONTRACT SHALL BE HELD WITH A UL-LISTED AND LOCALLY-APPROVED CENTRAL STATION MONITORING COMPANY, AND SHALL BE RENEWABLE BY THE OWNER UPON ITS EXPIRATION.

1. THE CONTRACTOR SHALL PROVIDE THE SERVICES OF THE MANUFACTURER'S REPRESENTATIVE FOR A PERIOD OF 4 HOURS, DURING NORMAL BUSINESS HOURS, TO INSTRUCT THE OWNER'S DESIGNATED PERSONNEL AND FIRE DEPARTMENT RESPONSE TEAMS ON THE OPERATION OF THE SYSTEM.

PART 3 - EXECUTION 3.1 SPECIAL COORDINATION INSTRUCTIONS

A. COORDINATION WITH THE WORK OF OTHER TRADES IS REFERRED TO WITHIN VARIOUS PARTS OF THIS SECTION OF THE SPECIFICATIONS. THE FOLLOWING SPECIAL INSTRUCTIONS SHALL ALSO BE CAREFULLY NOTED:

1. LOCATIONS AND MOUNTING HEIGHT OF ALL WALL OUTLETS AND LIGHTING FIXTURES SHALL BE AS SPECIFIED ON THE ELECTRICAL AND ARCHITECTURAL DRAWINGS. 2. ALL FEEDER, BRANCH CIRCUIT OR AUXILIARY SYSTEM WIRING PASSING THROUGH PULL BOXES AND/OR BEING MADE UP IN PANEL BOARDS SHALL BE PROPERLY GROUPED, BOUND AND TIED TOGETHER IN A NEAT AND ORDERLY MANNER I KEEPING WITH THE HIGHEST STANDARDS OF THE TRADE, WITH PLASTIC CABLE TIES.

3. ALL DUPLEX CONVENIENCE AND POWER RECEPTACLES SHALL BE MOUNTED VERTICALLY WITH THE GROUNDING POST TO THE BOTTOM AS THE OUTLET IS 4. ALL MISCELLANEOUS HARDWARE AND SUPPORT ACCESSORIES, INCLUDING SUPPORT RODS, HANGERS, NUTS, BOLTS, SCREWS AND OTHER SUCH ITEMS SHALL BE OF A

GALVANIZED OR CADMIUM PLATED FINISH, OR OF OTHER APPROVED RUST-INHIBITING COATINGS. IN HAZARDOUS LOCATIONS NEAR THE OCEAN ALL MARINE AREA HARDWARE SHALL BE PVC COATED STAINLESS STEEL TO PREVEN BOTH SIDES OF EXISTING OR NEW BUILDING EXPANSION JOINTS. 5. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP TO PROVIDE FOR ADEQUATE PROTECTION OF ALL ELECTRICAL EQUIPMENT DURING THE COURSE OF CONSTRUCTION OF THE PROJECT.

6. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL APPROVED DETAILS FOR

ALL INSULATION AT TERMINAL CONNECTION POINTS FOR ALL ELECTRICAL CONDUCTING MATERIALS, SUCH AS TRANSFORMER TERMINALS, TERMINAL STUDS, AND AT ANY OTHER SPECIAL LOCATIONS AS DIRECTED BY THE ENGINEER AND CONFIRMED BY 7. THE ELECTRICAL CONTRACTOR SHALL PROVIDE GFI RATED AND WEATHERPROOF RATED EQUIPMENT IN DAMP OR WET LOCATIONS.

8. COORDINATION WITH LOCAL UTILITY COMPANIES WITH THE LOCAL UTILITY COMPANIES AND THE LOCAL FIRE DEPARTMENT IS REQUIRED. ELECTRICAL CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND FILE ALL REQUIRED APPLICATIONS AND MEET ALL UTILITY COMPANY REQUIREMENTS.

3.2 COOPERATION AND WORK PROGRESS A. THE ELECTRICAL WORK SHALL BE CARRIED ON UNDER THE USUAL CONSTRUCTION CONDITIONS, IN CONJUNCTION WITH ALL OTHER WORK AT THE SITE. THE ELECTRICAL CONTRACTOR SHALL COOPERATE WITH THE ENGINEER AND ALL CONTRACTORS AND QUIPMENT SUPPLIERS WORKING ON THE SITE COORDINATE THE WORK AND PROCEED IN A MANNER SO AS NOT TO DELAY THE PROGRESS OF THE PROJECT. B. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE EXACT MOUNTING ARRANGEMENT AND LOCATION OF EQUIPMENT INDICATED ON THE

PRAWINGS TO ALLOW FOR PROPER SPACE REQUIREMENTS FOR EQUIPMENT ACCESS, OPERATION AND MAINTENANCE. C. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE THE DELIVERY OF ELECTRICAL EQUIPMENT TO THE PROJECT PRIOR TO THE TIME OF INSTALLATION OR EQUIPMENT.

3.3 INSTALLATION OF WIRING & CONDUIT A. IN GENERAL ALL CONDUITS SHALL BE RUN CONCEALED UNLESS OTHERWISE INDICATED TO B. EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO THE WALLS OF THE BUILDING AND ALL BENDS SHALL BE MADE WITH STANDARD CONDUIT ELLS OR CONDUITS BENT TO, NOT LESS THAN, THE SAME RADIUS. HORIZONTAL RUNS OF EXPOSED CONDUITS SHALL BE CLOSE TO CEILING BEAMS, PASSING OVER WATER OR OTHER PIPING WHERE POSSIBLE AND SHALL BE SUPPORTED BY PIPE STRAPS OR BY OTHER APPROVED MEANS NOT MORE THAN 5' APART. INSTALLATION OF EXPOSED CONDUITS IN FINISHED AREAS O THE BUILDING SHALL BE CHECKED WITH THE ENGINEERS FOR LAYOUT BEFORE NSTALLATION TO CONFORM TO THE PATTERN OF THE STRUCTURAL MEMBERS. AND WHEN COMPLETED, IS TO PRESENT THE MOST OBTRUSIVE APPEARANCE POSSIBLE. N

EXPOSED CONDUITS WILL BE PERMITTED ON WALLS OR PARTITIONS IN PUBLIC AREAS. C. IN NO PLACE SHALL A CONDUIT BE RUN WITHIN 3" OF HOT WATER PIPES OR APPLIANCES EXCEPT WHERE CROSSING IS UNAVOIDABLE AND IN THAT CASE, THE CONDUIT SHALL BE KEPT AT LEAST 1" FROM COVERING OR PIPE CROSSED. D. CONDUITS SHALL BE SUPPORTED ON APPROVED GALVANIZED WALL BRACKETS. CEIL TRAPEZE. STRAP HANGERS OR PIPE STRAPS, SECURED BY MEANS OF TOGGLE BOLTS ON HOLLOW MASONRY UNITS OR EXPANSION BOLTS IN CONCRETE OR BRICK.

E. IN GENERAL, NO SPLICES OR JOINTS WILL BE PERMITTED IN EITHER FEEDER OR BRANCHES EXCEPT AT OUTLETS OR ACCESSIBLE JUNCTION BOXES. NO SPLICES SHALL BE MADE IN SECURITY OR FIRE ALARM SYSTEMS. F. ALL SPLICES IN WIRE #8 AWG AND SMALLER SHALL BE STANDARD PIGTAIL, MADE

MECHANICALLY TIGHT AND INSULATED WITH PROPER THICKNESS OF INSULATING TAPE LOCK) OR IDEAL WIRE NUTS SHALL BE USED, SUBJECT TO THE LOCAL WIRE INSPECTOR G. WIRE #6 AND LARGER SHALL BE CONNECTED TO PANELS AND APPARATUS BY MEANS OF APPROVED LUGS OR CONNECTORS. CONNECTORS SHALL BE SOLDER LESS TYPE, SUFFICIENTLY LARGE TO ENCLOSE ALL STRANDS OF THE CONDUCTOR AND SECURELY

H. PROVIDE (3) 1—INCH CONDUITS FROM EACH ELECTRICAL PANEL UP TO THE NEAREST LAY—IN CEILING AREA. 3.4 INSTALLATION OF UNDERGROUND CONDUITS

A. THE SIZE AND NUMBER OF CONDUITS SHALL BE AS INDICATED ON THE DRAWINGS. B. THE ENTIRE LENGTH OF DUCT BANK SHALL BE EXCAVATED AND GRADED BEFORE ANY C. THE DUCT BANK SHALL BE SET ON UNDISTURBED EARTH.

D. THE CONDUIT SHALL BE INSTALLED SO THAT THE TOP IS A MINIMUM OF 36 INCHES BELOW FINISHED GRADE. E. CHANGES IN DIRECTION SHALL BE MADE BY LONG SWEEP BENDS. MINIMUM RADIUS SHALL BE 25 FEET EXCEPT THAT AT THE END OF A RUN WITHIN 10 FEET OF TERMINATION, MANUFACTURED BENDS MAY BE USED HAVING A MINIMUM RADIUS OF 36 INCHES. F. CONDUIT BASE AND INTERMEDIATE SPACERS SHALL BE INSTALLED A MAXIMUM OF 5 FEET ON CENTERS. SPACERS SHALL NOT BE PLACED ONE ABOVE THE OTHER BUT SHALL BE

STAGGERED A MINIMUM OF 6 INCHES. G. ALL CONDUIT JOINTS SHALL BE MADE WATERTIGHT BY MEANS OF A SEALING COMPOUND BEFORE THE COUPLING IS INSTALLED. JOINTS IN CONDUITS SHALL BE STAGGERED.
MINIMUM SPACE BETWEEN JOINTS IN ADJACENT CONDUITS SHALL BE 6 INCHES. H. WHEN THE REQUIRED NUMBERS OF CONDUITS HAVE BEEN INSTALLED, SECURELY TIE THE ASSEMBLY TOGETHER AT DISTANCES NOT EXCEEDING 7 FEET. TIE SHALL CONSIST OF THREE TURNS OF NO. 18 IRON WIRE.

. WHERE CONDUIT IS ENCASED, THE DUCT ENVELOPE SHALL BE OF MONOLITHIC CONSTRUCTION. POURING OF CONCRETE SHALL BE CONTINUOUS THROUGHOUT THE LENGTH OF CONSTRUCTION. THE END OF THE POUR SHALL BE INTERLOCKED OR SLOPED. IF THE INSTALLATION IS HALTED. THE ENDS OF THE CONDUIT SHALL BE PLUGGED 2. CONCRETE SHALL NOT BE POURED UNTIL THE CONDUIT INSTALLATION HAS BEEN

J. AFTER THE INSTALLATION IS COMPLETED, EACH CONDUIT SHALL BE CLEANED AND IDENTIFIED. A STANDARD FLEXIBLE MANDREL AND STIFF BRISTLE BRUSH SHALL BE PULLED THROUGH EACH CONDUIT. THE MANDREL SHALL BE NOT LESS THAN 12" LONG AND THE DIAMETER APPROXIMATELY 1/4" LESS THAN THE CONDUIT. K. INSTALL APPROXIMATELY 12" BELOW THE TOP OF THE TRENCH ABOVE EACH CONDUIT OR DIRECT BURIED CABLE A 6-INCH WIDE PLASTIC WARNING TAPE. TAPE SHALL BE YELLOW
IN COLOR WITH BLACK LETTERS READING ?BURIED ELECTRIC LINES.?

3.5 ELECTRICAL INSTALLATION FOR ELEVATORS A. ELECTRICAL CONTRACTOR SHALL PROVIDE ELEVATORS AND ESCALATORS WITH ELECTRICAL POWER AND AUXILIARY SERVICES GENERALLY AS DESCRIBED AND AS AMENDED BY THE ELEVATOR CONTRACT SHOP DRAWINGS AND SPECIFICATIONS. PRIOR TO INSTALLATION, ELECTRICAL CONTRACTOR SHALL COORDINATE WORK WITH ELEVATOR CONTRACTOR. B. FEEDER BREAKERS FOR ALL ELEVATORS SHALL BE SHUNT TRIP, UNLESS INSTALLED IN MASSACHUSETTS. PROVIDE WIRING AND INTERFACE WITH FIRE ALARM AND SPRINKLER SYSTEM TO SHUNT TRIP ELEVATOR FEEDER BREAKER AS REQUIRED BY CODE. WHERE SHUNT TRIP IS NOT USED, PROVIDE JUNCTION BOX IN ELEVATOR MACHINE ROOM MARKED ?ELEVATOR SHUNT TRIP FOR FUTURE USE? AND DISABLE SHUNT TRIP BREAKER

LOCKING CAPABILITY, TWO NO AUXILIARY CONTACTS AND FUSES SIZED PER ELEVATOR SHOP DRAWINGS. LOCATE ON LATCH SIDE OF ELEVATOR DOOR OR AS DIRECTED BY TH ELEVATOR CONTRACTOR. D. PROVIDE THE FOLLOWING AUXILIARY SERVICES TO THE ELEVATOR PIT. ELEVATOR SHAFT AND ELEVATOR MACHINE ROOM FOR EACH ELEVATOR. LOCATE AND IDENTIFY ALL SERVICES AS DIRECTED BY THE ELEVATOR SHOP DRAWING OR ELEVATOR CONTRACTOR.

C. PROVIDE POWER DISCONNECT FOR EACH ELEVATOR WITH IDENTIFYING NAMEPLATE,

1. CAB LIGHTING: PROVIDE LOCKABLE DISCONNECT AND SINGLE CIRCUIT. 2. CAB TELEPHONE: JUNCTION BOX WITH 1? CONDUIT TO LOCAL TELEPHONE 3. CAB SECURITY: JUNCTION BOX WITH 1? CONDUIT TO LOCAL SECURITY

4. CAB FIRE ALARM: COMPRISING OF JUNCTION BOX WITH WIRING FOR AUDIO/VISUAL ALARM FIREMAN'S PHONE. PROVIDE DEVICES AS REQUIRED. 5. ALL CIRCUITS FOR ELEVATORS SHALL BE CONNECTED TO EMERGENCY SERVICE AND INSTALLED IN MINERAL INSULATED CABLE 2-HOUR FIRE RATED ENCLOSURE, IF EMERGENCY SERVICE IS AVAILABLE.

6. CONTROL AND SIGNAL SYSTEMS: PROVIDE SEPARATE 120/208V, 1-PHASE, 30 AMPERE CIRCUIT TO LOCKABLE DISCONNECT FOR MULTIPLE ELEVATOR BANK 7. PROVIDE FIRE ALARM JUNCTION BOX AND WIRING FOR FIRE ALARM ELEVATOR RECALL AND GENERAL ALARM. ELEVATOR RECALL SHALL BE PROVIDED FROM SMOKE DETECTORS PROVIDED IN ELEVATOR LOBBIES, MACHINE ROOM, AND TOP OF ELEVATOR SHAFT.

8. PROVIDE 20 AMPERE DEDICATED GFI RECEPTACLE WITHIN EACH ELEVATOR 9. ELEVATOR PIT SHALL BE PROVIDED WITH VAPOR-TIGHT LIGHTING FIXTURE WITH POLYCARBONATE LENS SWITCHED FROM ENTRANCE OF ELEVATOR PIT. PROVIDE 20 AMPERE DEDICATED GFI RECEPTACLE IN EACH ELEVATOR PIT. DO NOT WIRE LIGHT FIXTURE ON GFI CIRCUIT. WHERE PROVIDED, CONNECT SUMP PUMP IN ELEVATOR PIT WITH DEDICATED CIRCUIT.

10. INTERCOM SYSTEM: PROVIDE 120V, 20 AMPERE CIRCUIT.

3.6 SPLICES AND TERMINATIONS

A. MAKE SPLICES AND TERMINATIONS EQUIVALENT ELECTRICALLY AND MECHANICALLY TO CONDUCTOR INSULATION B. MAKE SPLICES IN BRANCH CIRCUIT WIRING WITH SOLDER LESS, SCREW-ON CONNECTORS IDEAL, SCOTCHLOCK, T&B OR EQUAL, RATED 600V OF SIZE AND TYPE REQUIRED BY

MANUFACTURER'S RECOMMENDATION, WITH TEMPERATURE RATINGS EQUAL TO THOSE OF CABLE INSULATION. INSULATE SPLICES WITH INTEGRAL COVERS OR WITH PLASTIC RUBBER OR FRICTION TAPE, PERMACAL OR EQUAL TO MAINTAIN INTEGRITY OF CABLE C. MAKE SPLICES AND TERMINATIONS TO CONDUCTORS #8 AND LARGER WITH CORROSION-RESISTANT, HIGH CONDUCTIVITY, PRESSURE INDENT, HEX SCREW OR BOLT CLAMP CONNECTIONS. WITH OR WITHOUT TONGUES. DESIGNATED SPECIFICALLY FOR

INTENDED SERVICE. CONNECTORS FOR CABLES 250 KCMIL AND LARGER SHALL HAVE TWO CLAMPING ELEMENTS OR COMPRESSION INDENTS. TERMINALS FOR BUS CONNECTIONS SHALL HAVE TWO BOLTHOLES. SPLIT BOLT CONNECTORS, BURNDY OR EQUAL SHALL BE ACCEPTABLE FOR ALL SPLICES OF CONDUCTORS #8 AND LARGER. D. MAKE SPLICES AT MOTOR JUNCTION BOXES WITH PRESSURE INDENT CONNECTORS OR SPLIT-BOLT CONNECTORS AS SPECIFIED HEREIN.

E. PROVIDE STANDARD BOLT-ON LUGS WITH ALLEN OF CAP SCREWS TO ATTACH COPPER WIRE AND CABLE TO DISCONNECT SWITCHES AND OTHER ELECTRICAL EQUIPMENT. F. ALL TERMINATIONS SHALL BE PROPERLY TORQUED AS PER MANUFACTURER'S REQUIREMENTS. TOOLS MUST BE CALIBRATED AND BE CERTIFIED

A. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL FITTINGS, CLAMPS, CONDUITS AND WIRE OF PROPER SIZE TO MAKE GROUND CONNECTIONS BETWEEN ALL APPARATU
AND CONDUIT AND THE WATER PIPING AS REQUIRED BY THE LATEST EDITION OF THE MASSACHUSETTS ELECTRICAL CODE. GROUND WIRES SHALL BE RUN IN RIGID CONDUIT OF SIZE REQUIRED BY THE NATIONAL ELECTRICAL CODE. B. THE EQUIPMENT AND MATERIALS REQUIRED UNDER THIS SECTION ARE INCLUDED UNDER

C. GROUND ALL SYSTEMS AND EQUIPMENT IN ACCORDANCE WITH THE BEST INDUSTRY PRACTICE. SIZE ALL CONDUCTORS PER THE LATEST ADDITION OF THE NEC. D. THE GROUND BUS OF THE MAIN DISTRIBUTION SWITCHBOARD AND GENERATOR OUTPUT PANEL BOARD SHALL BE CONNECTED TO THE MAIN GROUNDING ELECTRODE SPECIFIED BELOW BY MEANS OF INSULATED CONDUCTORS RUN IN THREADED STEEL CONDUIT. E. THE MAIN GROUNDING ELECTRODE SHALL BE AN ACCESSIBLE POINT ON THE NEAREST METALLIC MAIN WATER SERVICE PIPE. CONNECTION SHALL BE MADE ON THE STREET SIDE OF THE MAIN VALVE UTILIZING EXOTHERMIC WELDING. BONDING JUMPERS SHALL BE PROVIDED AROUND THE WATER METERS (IF PROVIDED) AND AROUND INSULATING

JOINTS AND/OR SECTIONS. F. THE WATER PIPE GROUND SHALL BE SUPPLEMENTED BY AN ADDITIONAL "MADE" ELECTRODE CONSISTING OF BURIED 1" DIAMETER BY 10'-0" LONG COPPER WELD GROUND RODS SPACE 6'-0" MINIMUM APART, AND PROVIDED IN SUFFICIENT QUANTIT SO AS TO HAVE A MEASURED RESISTANCE TO GROUND OF NOT MORE THAN 25 OHMS. ESTABLISH A BONDING CONNECTION FROM THE "MADE" ELECTRODE CONSISTING OF GREEN INSULATED CONDUCTORS RUN IN THREADED STEEL CONDUIT TO THE COLD WATER

FROM TWO DIFFERENT LOCATIONS TO THE COLD WATER MAINS ENTERING THE BUILDING H. PROVIDE SUPPLEMENTARY GROUND BONDING WHERE METALLIC CONDUITS TERMINATE AT METAL CLAD EQUIPMENT (OR AT THE METAL PULL BOX OF EQUIPMENT) FOR WHICH A GROUND BUS IS SPECIFIED. ACCOMPLISH THIS BY EQUIPPING THE CONDUITS WITH BUSHINGS OF THE GROUNDING TYPE CONNECTED INDIVIDUALLY BY MEANS OF JUMPERS TO THE GROUND BUS. EXCLUDED THE JUMPERS WHERE DIRECTED. THIS EXCLUSION WILL BE REQUIRED WHERE AN ISOLATED GROUND FOR ELECTRONIC EQUIPMENT IS TO BE

. THE CENTRAL EQUIPMENT FOR THE FIRE PROTECTION ALARM SYSTEM SHALL HAVE IT GROUNDING TERMINAL CONNECTED TO THE NEAREST METALLIC COLD WATER MAIN BY MEANS OF A #6 GREEN CODED INSULATED CONDUCTOR, RUN IN 3/4" THREADED METALLIC CONDUIT. UTILIZE A GROUND CLAMP OF A TYPE SPECIFICALLY MANUFACTURED FOR THE PURPOSE. J. FOR EACH FEEDER OR RUN OF LIGHTING AND APPLIANCE BRANCH CIRCUITRY INCLUDE THE INDICATED QUANTITIES OF CONDUCTORS DO NOT INCLUDE THE GROUND WIRES.

K CONDUCTORS UTILIZED FOR GROUNDING AND BONDING SHALL HAVE TYPE OF INSULATION,

COMPARABLE TO THE PHASE CONDUCTORS, COLOR CODED GREEN. 3.8 TEMPERATURE CONTROL WIRING A. THE TEMPERATURE CONTROL SYSTEM SHALL BE INSTALLED BY THE HEATING AND AIR

CONDITIONING CONTRACTOR. B. ALL ELECTRIC WIRING AND WIRING CONNECTIONS REQUIRED FOR THE INSTALLATION OF THE TEMPERATURE CONTROL SYSTEM SHALL BE PROVIDED BY THE TEMPERATURE CONTROL CONTRACTOR. C. ELECTRICAL CONTRACTOR SHALL PROVIDE 120 VOLT CONTROL POWER TO ALL TEMPERATURE 3.9 SLEEVES, INSERTS AND SUPPORTS

A. FURNISH AND INSTALL ALL INSERTS, CONDUIT HANGERS, ANCHORS AND STEEL SUPPORTS NECESSARY FOR THE SUPPORT AND INSTALLATION OF ALL ELECTRICAL EQUIPMENT. B. WHERE OPENINGS ARE REQUIRED IN WALLS AND FLOORS FOR THE PASSING OF RACEWAYS THE ELECTRICAL CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR WITH THE NECESSARY INFORMATION REGARDING DIMENSIONS AND LOCATIONS SO THAT HE MAY INSTALL SUITABLE CONCRETE STOPS TO PROVIDE THESE OPENINGS. SUCH OPENINGS SHALL BE BY THE GENERAL CONTRACTOR IN SUCH A MANNER SO AS TO INTERFERE WITH

THE FIREPROOF INTEGRITY OF THE BUILDING. C. THE ELECTRICAL CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE LOCATION OF THE AND/OR SET IN PLACE BY HIM. IN THE EVENT THAT FAILURE TO DO SO REQUIRED CUTTING AND PATCHING OF FINISHED WORK, SUCH WORK SHALL BE DONE AT THE

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SHEET TITLE **ELECTRICAL SPECIFICATIONS** SHEET

Wozny/Barbar & Associates, Inc. 1076 Washington Street 161 Exchange Stree Hanover, MA 02339 3rd Floor

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SHEET Pawtucket, RI 0286

<u>VALVES &amp; GAUGES</u>				
SYMBOL ABBREVIATION DESCRIPTION				
Ž	FCVA SOV	FLOOR CONTROL VALVE ASSEMBLY SHUT-OFF VALVE W/ TAMPER SWITCH		
<b>₽</b> <b>=</b>	FDV FS	FIRE DEPARTMENT VALVE FLOW SWITCH		

<u>PIPES</u>		
SYMBOL	ABBREVIATION	DESCRIPTION
<del></del>		CONTINUATION MARK
<del></del>		TEE LOOKING DOWN
<del></del> 3		CAP OR END OF PIPE
•		ELBOW UP OR RISER
<b></b>		ELBOW DOWN OR DROP
	DR	SPRINKLER DRAIN
<b></b>	SP	SUPPLY PIPING
	STP	STANDPIPE
<del>''''''''''''''''''''''''''''</del> '.		EXISTING TO BE REMOVED (PIPING)

#### FIRE PROTECTION SPECIFICATION GENERAL

- A. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK IN CONTRACT. THE CONTRACTOR SHALL PROVIDE ALL COMPONENTS AND MATERIALS NECESSARY TO MAKE THE SYSTEM FULLY COMPLETE AND
- B. CHECK CONTRACT DRAWINGS AS WELL AS SHOP DRAWINGS OF ALL SUBCONTRACTORS TO VERIFY AND COORDINATE SPACES IN WHICH WORK OF THIS SECTION WILL BE INSTALLED.

- A. PERFORM WORK AND PROVIDE MATERIAL AND EQUIPMENT AS SHOWN ON DRAWINGS AND AS SPECIFIED IN THIS SECTION OF THE SPECIFICATION
- B. WORK SHALL INCLUDE, BUT NOT BE LIMITED TO:
  - 1. RECONFIGURE THE EXISTING STANDPIPE SYSTEM AS NECESSARY TO ACCOMMODATE THE NEW ARCHITECTURAL WALLS AS INDICATED.
- 2. SUBMIT WORKING PLANS/COORDINATION DRAWINGS IN ACCORDANCE WITH NFPA NO. 14, 2013.
- 3. PERFORM ALL TESTS AND SUBMIT CONTRACTORS MATERIAL AND TEST CERTIFICATES IN ACCORDANCE WITH NFPA 13, 2013.
- 4. PERFORM SHUT-DOWNS WITH A FIRE WATCH AS NECESSARY TO PERFORM WORK AND COORDINATE AN APPROVED IMPAIRMENT PLAN WITH THE AUTHORITY HAVING JURISDICTION.
- 5. FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES.

#### SITE VISIT

- A. BEFORE SUBMITTING BID, VISIT AND CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. INDICATE IN BID ANY AREAS WHERE SPRINKLERS ARE REQUIRED BUT NOT SPECIFIED OR SHOWN IN THE BID DOCUMENTS. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVER.
- 4. CODES, STANDARDS, AUTHORITIES AND PERMITS
  - A. PERFORM WORK REQUIRED BY RULES, REGULATIONS, STANDARDS, CODES, ORDINANCES AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENT, AND OTHER AUTHORITIES WHOM HAVE LEGAL JURISDICTION.
  - B. MATERIALS AND EQUIPMENT SHALL BE MANUFACTURED, INSTALLED AND TESTED AS SPECIFIED:
  - 1. LOCAL AND STATE BUILDING AND FIRE DEPARTMENT CODES.
  - 2. NFPA STANDARDS ADOPTED IN RHODE ISLAND.
  - 3. INSURANCE UNDERWRITER REQUIREMENTS. 4. AUTHORITY HAVING JURISDICTION: CITY OF PAWTUCKET, RI.

#### GUARANTEE

A. GUARANTEE WORK OF THIS SECTION IN WRITING FOR ONE YEAR FOLLOWING THE DATE OF SUBSTANTIAL COMPLETION.

A. PROVIDE PRODUCT DATA PREPARED BY MANUFACTURERS, SUPPLIERS AND VENDORS COMPRISING:

#### 7. PIPE AND FITTINGS

- A. PIPE SHALL MEET APPLICABLE ANSI OR ASTM STANDARDS AND SHALL HAVE MANUFACTURERS NAME AND STANDARD MARKED ON EACH LENGTH. JOINTS SHALL MEET APPLICABLE ANSI OR ASTM STANDARDS. WHERE ANSI OR ASTM STANDARD DOES NOT EXIST, JOINTS AND FITTINGS SHALL BEAR UL LISTING
- B. MATERIALS
  - 1. PIPE MATERIAL: WELDED AND SEAMLESS STEEL PIPE, SCHEDULE 10, ASTM
  - 2. PIPE MATERIAL: MALLEABLE IRON, CLASS 150, ANSI B16.3.
  - 3. JOINT: GROOVED.
- 8. HANGERS, ANCHORS, CLAMPS, AND INSERTS

- NOTIFY OWNER OF LOCATION AND EXTEND OF EXISTING PIPING AND EQUIPMENT THAT INTERFERES WITH NEW CONSTRUCTION. IN COORDINATION WITH AND WITH APPROVAL OF OWNER, RELOCATE PIPING AND EQUIPMENT TO PERMIT NEW WORK TO BE PROVIDED AS REQUIRED BY CONTRACT DOCUMENTS. REMOVE NON-FUNCTIONING AND ABANDONED PIPING AND EQUIPMENT AS DIRECTED BY OWNER. DISPOSE OF OR STORE MATERIALS AS DIRECTED BY
- J. USE OF PREMISES: RESTRICT USE OF PREMISES AS DIRECTED BY BUILDING

#### 10. CONTINUITY OF SERVICES

- A. COORDINATE ALL INTERRUPTIONS WITH BUILDING MANAGER AND/OR OWNER.
- B. NOTIFY THE "AUTHORITY HAVING JURISDICTION" WHEN SHUTDOWNS OF EXISTING SYSTEMS ARE NECESSARY AND COORDINATE AN APPROVED

- A. TEST SPRINKLER SYSTEM AS REQUIRED BY NFPA 13 AND AUTHORITY HAVING
- B. NOTIFY OWNER AND AUTHORITIES HAVING JURISDICTION WHEN TEST ARE TO
- E. IF INSPECTION OR TEST SHOW DEFECTS, SUCH DEFECTIVE WORK OR MATERIAL, SHALL BE REPLACED AND INSPECTION AND TESTS SHALL BE REPEATED UNTIL WORK IS ACCEPTED. REPAIRS TO PIPING SHALL BE MADE WITH NEW MATERIAL

SYMBOL.

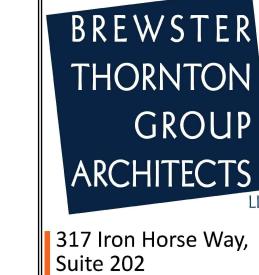
A. HANGERS SHALL MEET NFPA STANDARDS.

#### 9. SPECIAL RESPONSIBILITIES

- MANAGER.

- IMPAIRMENT PLAN.

- JURISDICTION.
- BE MADE.
- C. TEST SPRINKLER SYSTEM PIPING AND MAKE WATERTIGHT BEFORE PAINTING AND BEFORE CONCEALMENT. TESTS SHALL BE WITNESSED BY INSURANCE UNDERWRITER'S REPRESENTATIVE, THE MUNICIPAL INSPECTOR, AND A REPRESENTATIVE OF THE OWNER.
- SPRINKLER SYSTEM SHALL BE TESTED BY HYDROSTATIC TEST AT SYSTEM PRESSURE IN ACCORDANCE WITH NFPA REQUIREMENTS.



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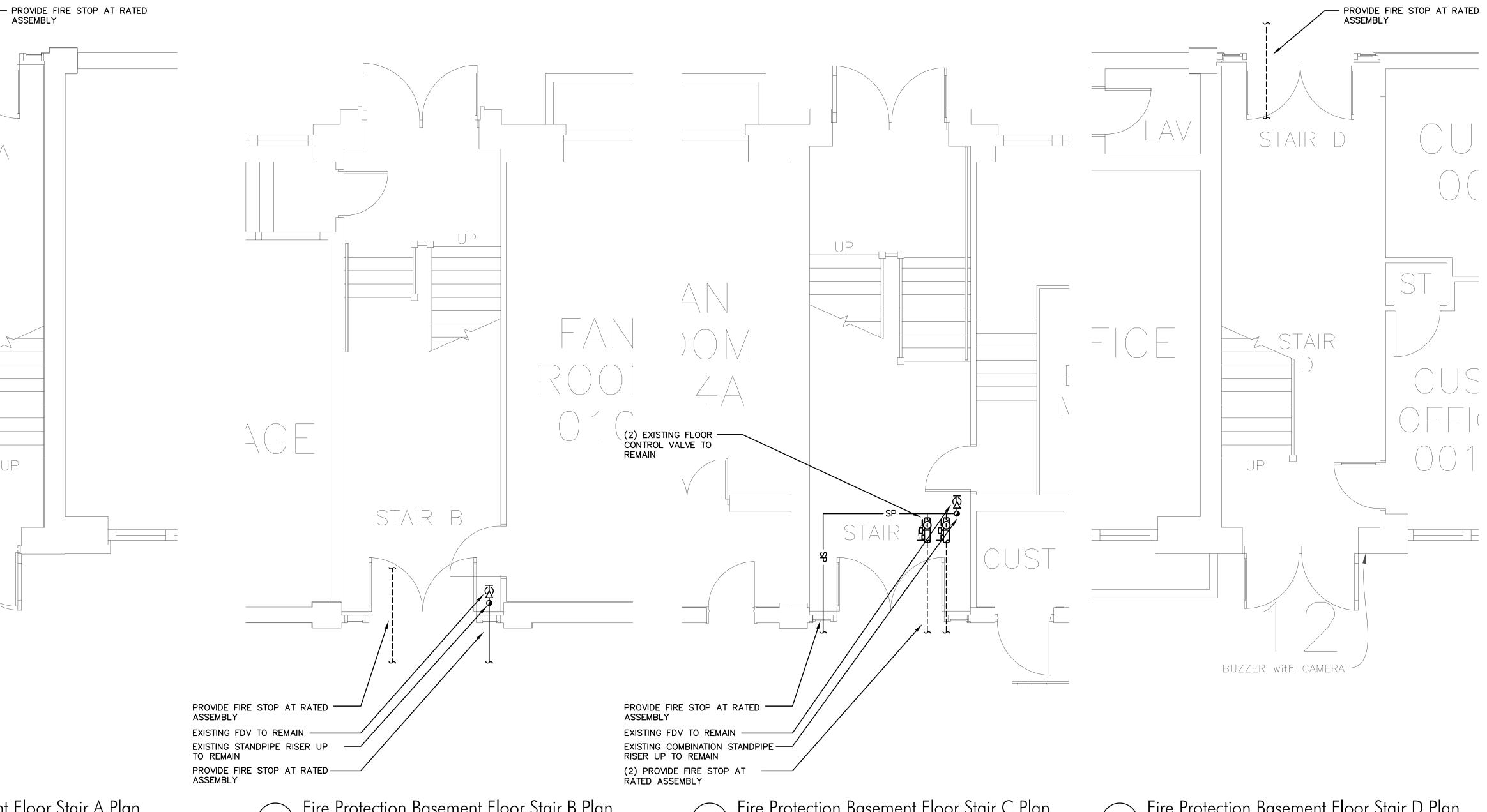
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Fire Protection Basement Floor Stair A Plan Scale: 1/4"=1'-0"

STAIR A

Fire Protection Basement Floor Stair B Plan Scale: 1/4"=1'-0"

Fire Protection Basement Floor Stair C Plan Scale: 1/4"=1'-0"

Fire Protection Basement Floor Stair D Plan Scale: 1/4"=1'-0"

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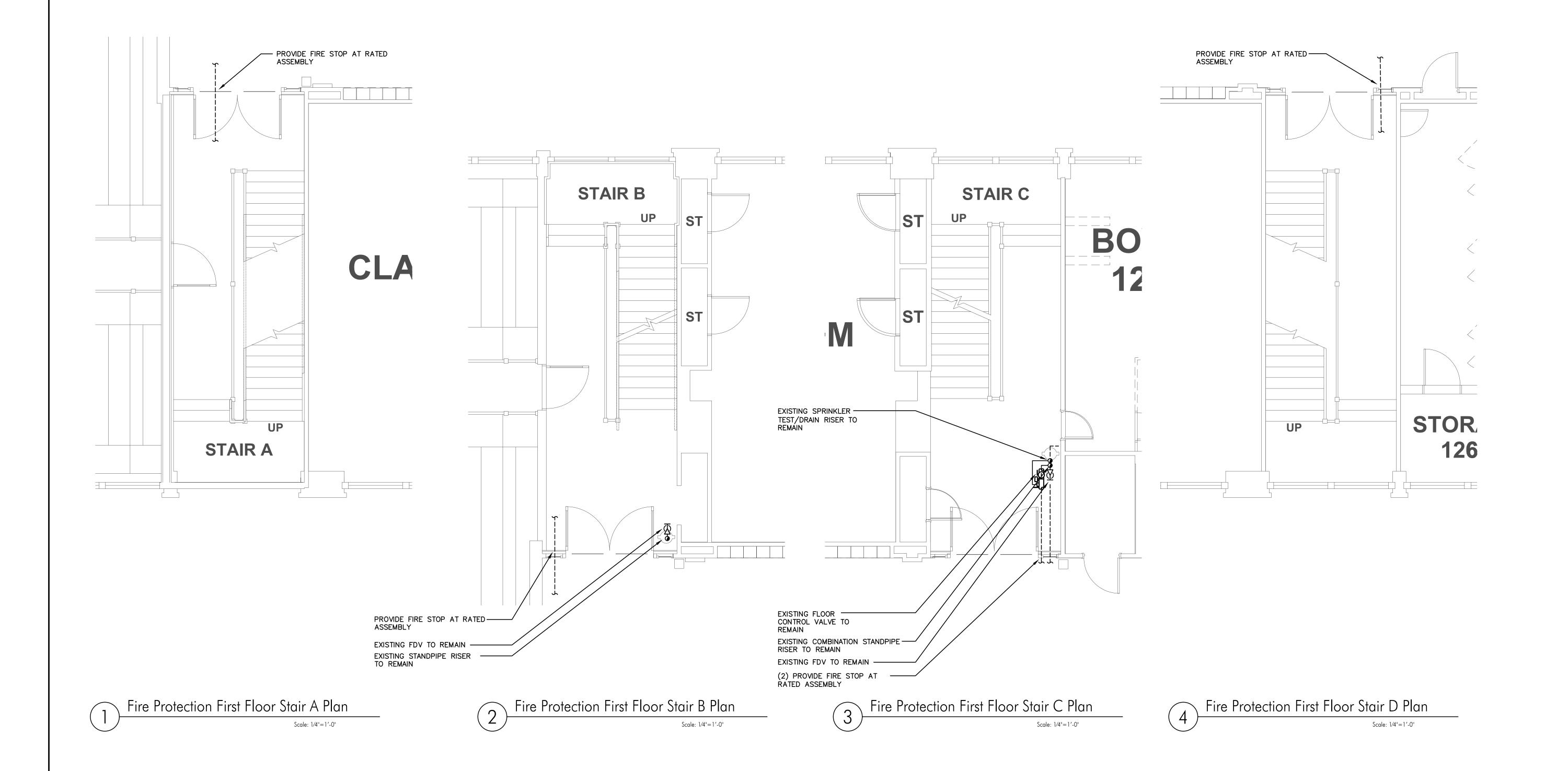
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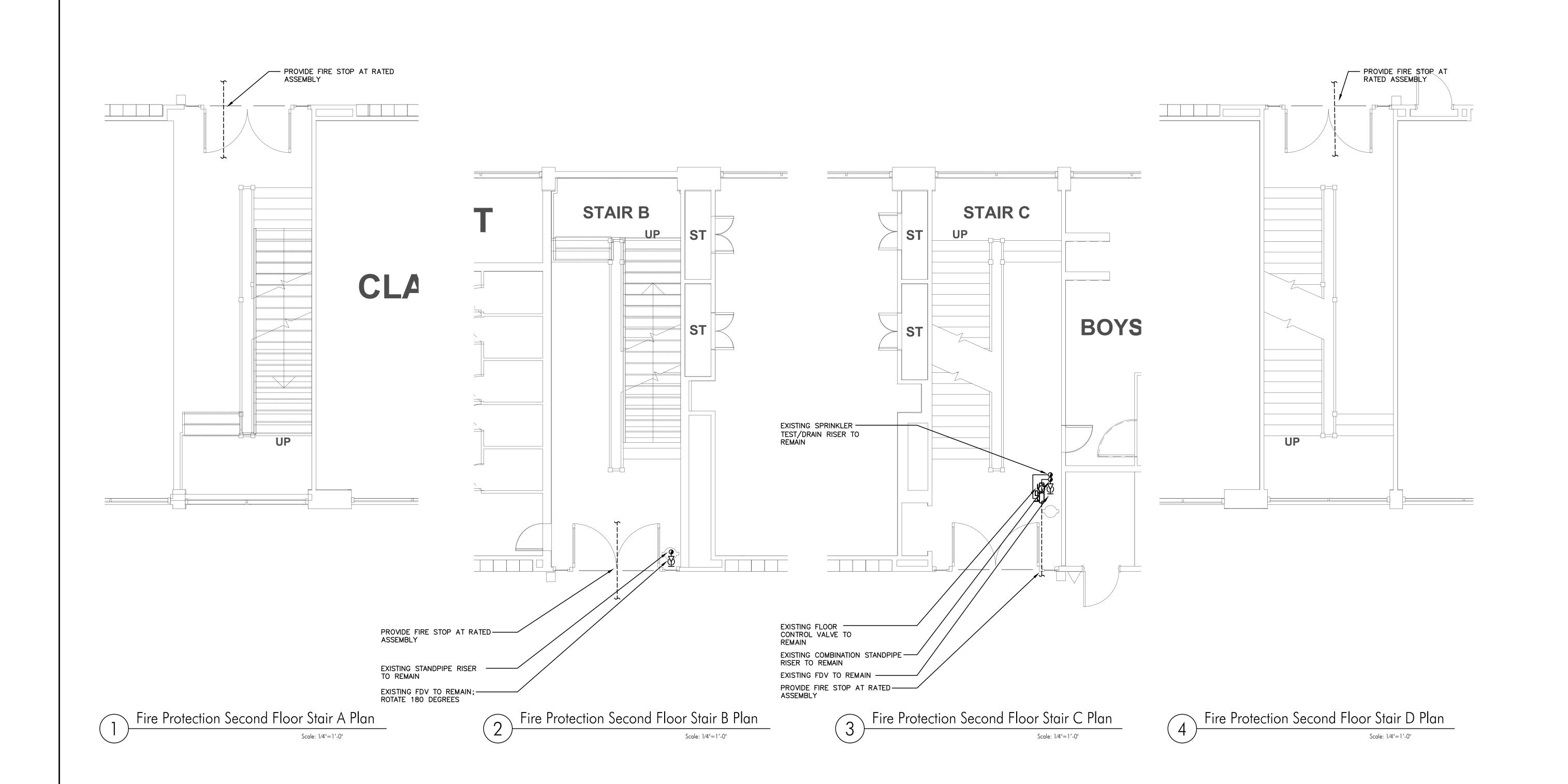
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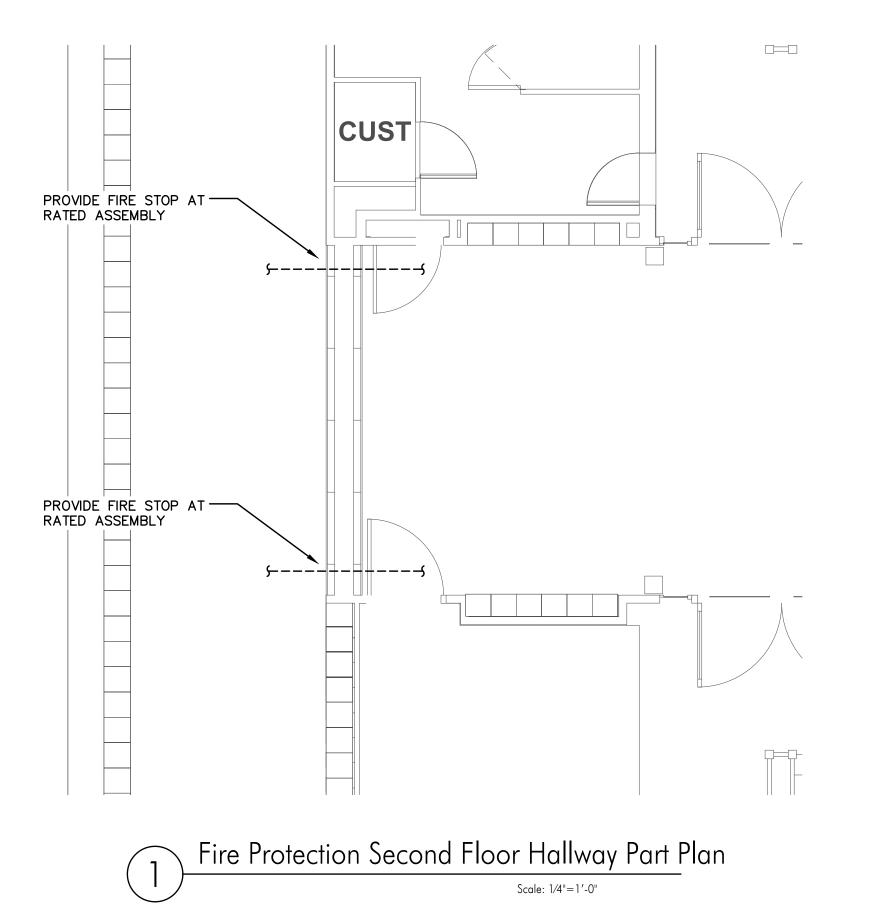
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FIRE
PROTECTION
SECOND FLOOR
HALLWAY

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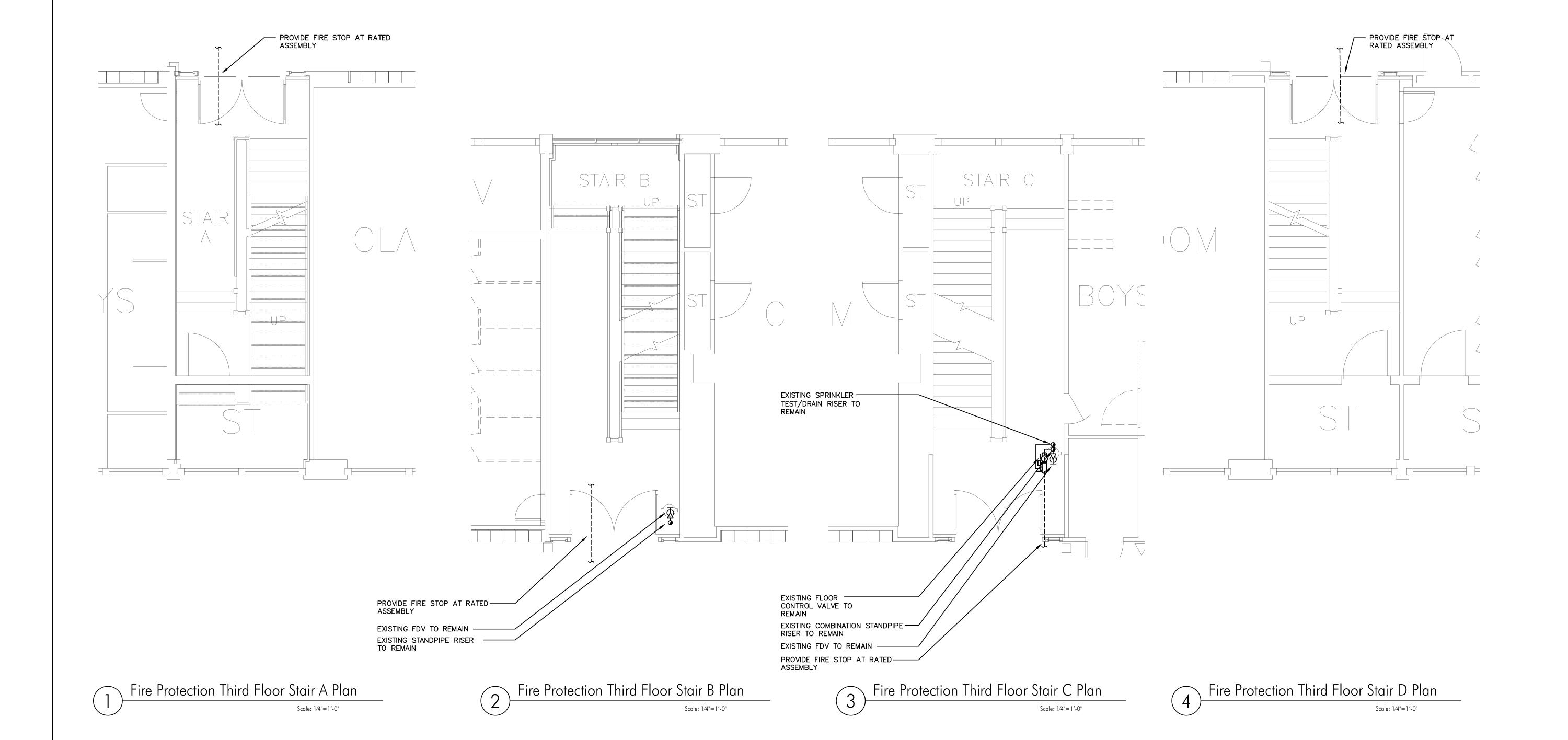
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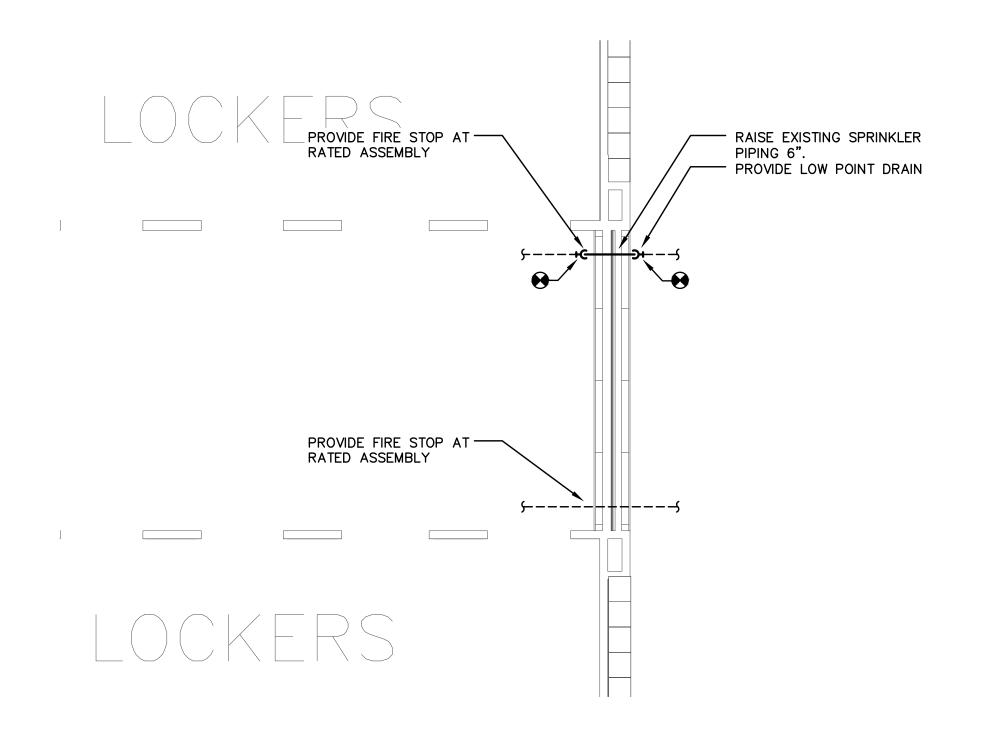
FIRE
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Pawtucket, RI 02860

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Fire Protection Third Floor Hallway Part Plan A



Fire Protection Third Floor Hallway Part Plan B
Scale: 1/4"=1'-0"

MILLIAM E TOLMAN HIGH SCH

BREWSTER
THORNTON
GROUP
ARCHITECTS

317 Iron Horse Way, Suite 202 Providence, RI 02908

401.861.1600 brewsterthornton.com

JOB NO.

24115

ISSUE: RIDE REVIEW

NO. REVISION DESCRIPTION DATE

FIRE
PROTECTION
THIRD FLOOR
HALLWAY
PLANS

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FP1.6

FIRE
PROTECTION
FOURTH FLOOR
PARTIAL PLANS

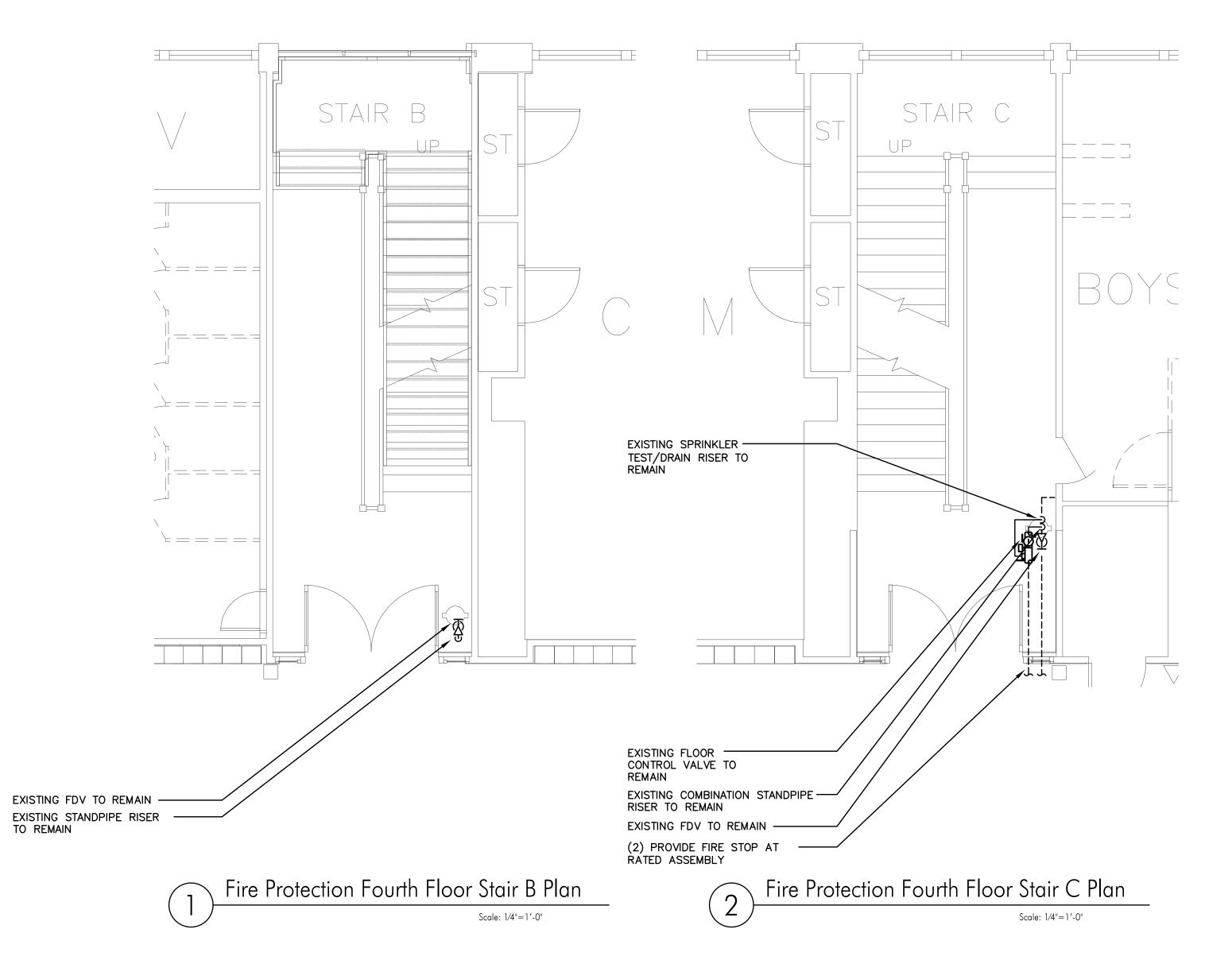
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CONSULTING ENGINEERS

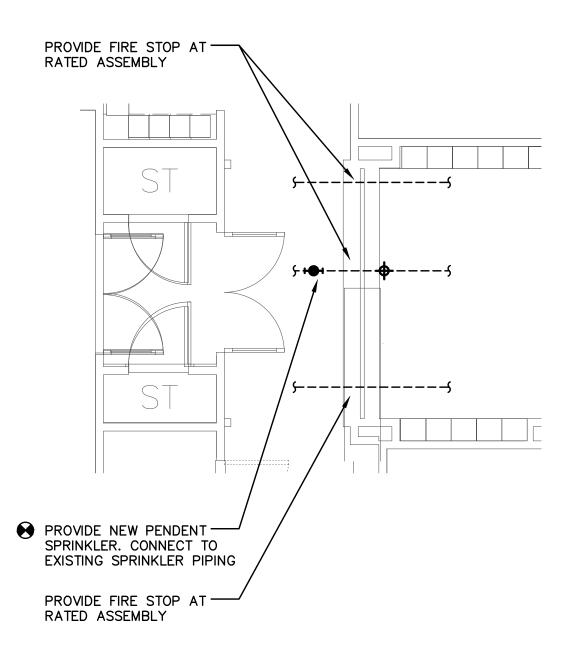
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Fire Protection Fourth Floor Hallway Part Plan