

HVAC RENOVATION

URBANDALE HIGH SCHOOL
URBANDALE COMMUNITY SCHOOL DISTRICT

7111 AURORA AVE.
URBANDALE, IA 50322

COMBINED CONTRACT

INDEX OF DRAWINGS

MARCH 25, 2019

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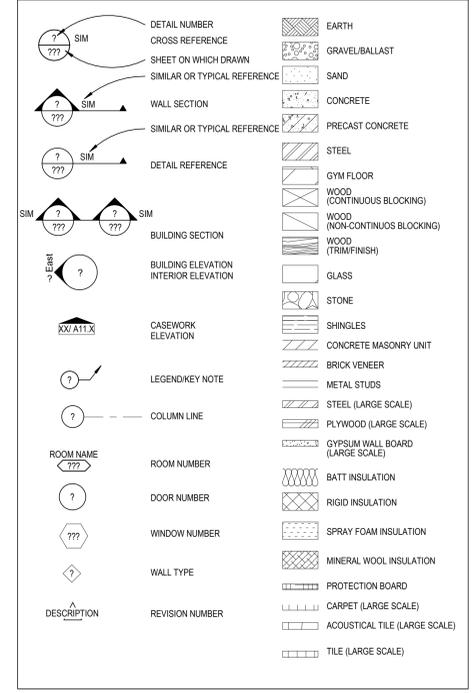
PROJECT CONTACTS

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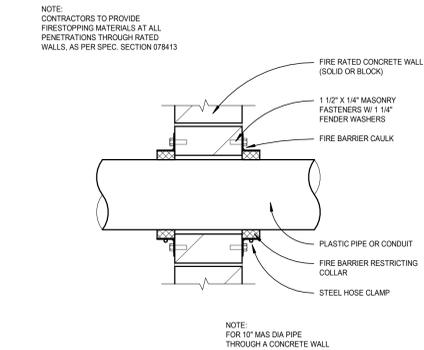
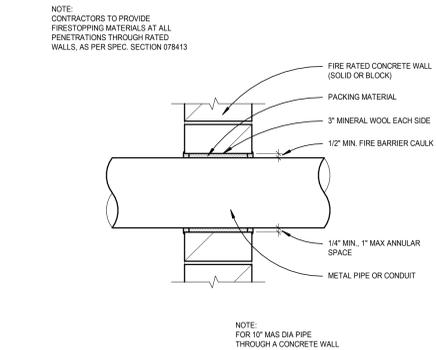
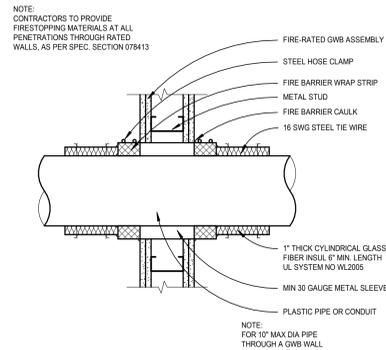
#	NUMBER	D	DEPTH	H	HEIGHT	P	PAINT	T	TREAD
&	AND	D	DEPTH	H	HEIGHT	P	PAINT	T	TREAD
@	AT	DB	DECIBEL	HC	HOLLOW CORE	PAN B	PANIC BOLT	T	TONGUE AND GROOVE
A		DBL	DOUBLE	HD	HAND DRYER	PAR	PARALLEL	T&G	TONGUE AND GROOVE
AB	ANCHOR BOLT	DC	DUST COLLECTOR	HDBD	HARDBOARD	PB	PARTICLE BOARD	T.O.	TOP OF
AB	AIR BARRIER	DEG	DEGREE	HDR	HEADER	PC	PRECAST CONCRETE	TAN	TANGENT
ABS	ASBESTOS	DEMO	DEMOLISH OR DEMOLITION	HDWD	HARDWOOD	PCD	PAPER CUP DISPENSER	TB	TOWEL BAR
ACC	ADA ACCESSIBLE	DEPR	DEPRESS(ION)(ED)	HDWR	HARDWARE	PCT	PORCELAIN CERAMIC TILE	TBD	TACK BOARD
ACR	ACRYLIC	DEPT	DEPARTMENT	HM	HOLLOW METAL	PD	PANIC DEVICE	TCP	TOILET COMPARTMENT PARTITION
AD	ACCESS DOOR	DET	DETENTION	HORIZ	HORIZONTAL	PENT	PENTHOUSE	TEMP	TEMPORARY
ADA	AMERICANS WITH DISABILITY ACT	DF	DRINKING FOUNTAIN	HR	HANDRAIL	PERF	PERFORATED	TEMP	TEMPORARY
ADDN	ADDITION OR ADDITIONAL	DG	DOOR GRILLE	HS	HARDWARE SET	PERP	PERPENDICULAR	TERR	TERRAZZO
ADJ	ADJUSTABLE	DIA	DIAMETER	HSS	HOLLOW STRUCTURAL SHAPE	PG	PATTERN GLASS	TG	TINTED FLOAT GLASS
ADJT	ADJACENT	DIAG	DIAGONAL	HVAC	HEATING VENTILATING AND AIR CONDITIONING	PIC	PORTABLE INSTRUMENT CONNECTION	TH	THRESHOLD
ADMIN	ADMINISTRATION	DIM	DIMENSION	HLVLS	HIGH VOLUME LOW SPEED	PIG	PATTERN INSULATING GLASS	TI	TENANT IMPROVEMENT
AEC	AUTOMATED EXTERNAL DEFIBRILLATORS	DIV	SPECIFICATION DIVISION	I	DOOR	PL	PLATE	TIG	TINTED INSULATING GLASS
AFF	ABOVE FINISHED FLOOR	DN	DOWN	J	DOOR	PL	PROPERTY LINE	TMR	TILT MIRROR UNIT
AFG	ABOVE FINISHED GRADE	DPFG	DAMP PROOFING	I	DOOR	PLM	PLASTIC LAMINATE	TOP	TOP OF PAVING
AHJ	AUTHORITY HAVING JURISDICTION	DR	DOOR	I.e.	THAT IS	PLB	PLUMBING	TRANS	TRANSVERSE
AL	ALUMINUM	DSN	DOWNSPOUT NOZZLE	IAW	IN ACCORDANCE WITH	PLYWD	PLYWOOD	TT	TERRAZZO TILE
ALT	ALTERNATE	DW	DISHWASHER	IBC	INTERNATIONAL BUILDING CODE	PR	PAIR	TTD	TOILET TISSUE DISPENSER
ALUM	ALUMINUM	DWG(S)	DRAWING(S)	ID	INSIDE DIAMETER	PREFAB	PREFABRICATED	TTG	TINTED TEMPERED FLOAT GLASS
ANCH	ANCHOR	DWL(S)	DOWEL(S)	IF	INSIDE FACE	PROJ	PROJECT(OR) (ION)	TW	TACK WALL
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	DWR	DRAWER	IJ	ISOLATION JOINT	PS	PROJECTION SCREEN	TYP	TYPICAL
AP	ACCESS PANEL	E	EAST	IJS	IN JOIST SPACE	PT	POINT	U	UNDERWRITERS LABORATORIES
APC	ACOUSTIC PANEL CEILING	IN	EAST	IN	INCH	PTD	PAPER TOWEL DISPENSER	UL	UNDERWRITERS LABORATORIES
APPROX	APPROXIMATE	EA	EACH	INC	INCLUDE(ING)	PTD/R	COMBINATION TOWEL DISPENSER/RECEPTACLE	UNEX	UNEXCAVATED
ARCH	ARCHITECTURAL	EA	EACH FACE	INSUL	INSULATION	PTN	PARTITION	UNFIN	UNFINISHED
ASPH	ASPHALT	EB	EXPANSION BOLT	INT	INTERIOR	PVC	POLYVINYL CHLORIDE	UNO	UNLESS NOTED OTHERWISE
AUTO	AUTOMATIC	EC	ELECTRICAL CONTRACTOR	J	JANITOR	PWL	SOUND POWER LEVEL	UR	URNAL
AVG	AVERAGE	EE	EACH END	JAN	JANITOR	Q	QUARRY TILE	US	UTILITY SHELF
AWP	ACOUSTIC WALL PANEL	EEW	EMERGENCY EYE WASH	JCT	JUNCTION	QT	QUARTER ROUND	UTIL	UTILITY
B		EEWS	EMERGENCY EYE WASH SHOWER	JFB	JOINT FILLER BOARD	QTR RND	QUARTER ROUND	V	VAPOR BARRIER
B.O.	BOTTOM OF	EFF	EFFICIENCY	JST	JOIST	QTY	QUANTITY	VB	VINYL BASE
BCS	BABY CHANGING STATION	EJ	EXPANSION JOINT	JT	JOINT	R	RADIUS	VCB	VENTED COVE BASE
BD	BOARD	EL	ELEVATION	K	KEYED CONSTRUCTION JOINT	RAF	RESILIENT ATHLETIC FLOORING	VERT	VERTICAL
BLDG	BUILDING	ELAS	ELASTOMERIC	KCJ	KEYED CONSTRUCTION JOINT	RAD	RADIUS	VEST	VESTIBULE
BLK	BLOCK	ELEC	ELECTRICAL	KD	KNOCKDOWN	RAF	RESILIENT ATHLETIC FLOORING	VF	VINYL FLOOR
BLKG	BLOCKING	ELEV	ELEVATOR	KH	KITCHEN HOOD	RB	RUBBER BASE	VIF	VERIFY IN FIELD
BLKHD	BULKHEAD	EMER	EMERGENCY	KIT	KITCHEN	RC	REMOTE CONTROL	VOC	VOLATILE ORGANIC COMPOUND
BM(S)	BEAM(S)	ENCL	ENCLOSURE	L	ANGLE	RCP	REFLECTED CEILING PLAN	VOL	VOLUME
BOT	BOTTOM	ENG	ENGINEER	L	ANGLE	RD	ROOF DRAIN	VP	VENEER PLASTER
BRDG	BRIDGING	ENR	ENTRANCE	L	ANGLE	REF	REFERENCE	VT	VINYL TILE
BRG	BEARING	EQ	EQUAL	L	ANGLE	REFL	REFLECTED	VVC	VINYL WALL COVERING
BRKT	BRACKET	EQUIP	EQUIPMENT	LAB	LABORATORY	REM	REMOVABLE	W	WEST
BSMT	BASEMENT	EQUIV	EQUIVALENT	LAM	LAMINATED	REQ(D)	REQUIRE(D)	W	WEST
BT	BATHTUB	ERF	EPOXY RESIN FLOORING	LAV	LAVATORY	RESIL	RESILIENT	W	WIDE
BTWN	BETWEEN	EUI	ENERGY USE INTENSITY	LB(S)	POUND(S)	REV	REVISION(S)	W/	WITH
C		EW	EACH WAY	LBR	LUMBER	RF	RESILIENT FLOORING	W/O	WITHOUT
C	CHANNEL	EW	EACH WAY	LDG	LOADING	RFM	RECESSED FLOOR MAT	WAF	WOOD ATHLETIC FLOORING
CAB	CABINET	EXIST	EXISTING	LF	LINEAR FOOT	RH	ROBE HOOK	WB	WALL BASE
CANT	CANTILEVER	EXP	EXPANSION	LG	LAMINATED GLASS	RH&C	ROUGH IN AND CONNECT	WC	WATER CLOSET
CAP	CAPACITY	EXP	EXPOSED	LG	LENGTH (LONG)	RM	ROOM	WC	WALL COVERING
CBD	CHALKBOARD	EXT	EXTERIOR	LIN	LINEAR	RND	ROUND	WCL	WATER CLOSET/LAVATORY COMBINATION
CER	CERAMIC	F	FABRIC	LINO	LINOLEUM	S	SINK	WD	WOOD
CF	CUBIC FEET	F.O.	FACE OF	LKR	LOCKER	S	SOUTH	WDF	WOOD FLOORING
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	F.V.	FIELD VERIFY	LOC	LOCATION	S	SELF ADHEARED FLASHING	WDW	WINDOW
CFSF	COLD-FORMED STEEL FRAMING	FAB	FABRICATE(D)	LONG	LONGITUDINAL	SAF	SELF ADHEARED FLASHING	WG	POLISHED WIRE GLASS
CG	CLEAR FLOAT GLASS	FB	FACE BRICK	LSC	LIFE SAFETY CODE	SAT	SPRAYED ACOUSTIC TREATMENT	WI	WROUGHT IRON
CI	CAST IRON	FD	FLOOR DRAIN	LTG	LIGHTING	SAW	SOUND ABSORBING WALL UNITS	WOM	WALK OFF MAT
CIG	CLEAR INSULATING GLASS	FDN	FOUNDATION	LV	LOUVER	SB	SPLASH BLOCK	WR	WASTE RECEPTACLE
CIP	CAST IN PLACE	FE	FIRE EXTINGUISHER	LWC	LIGHT WEIGHT CONCRETE	SC	SOLID CORE	WRB	WEATHER RESISTANT BARRIER
CJ	CONTROL JOINT	FEC	FIRE EXTINGUISHER CABINET	M	THOUSAND	SCD	SEAT COVER DISPENSER	WW	WARM WHITE
CJA	CONTROL JOINT ABOVE	FF	FINISH FLOOR	MAG	MAGNETIC	SCH	SHOWER CURTAIN	WWF	WELDED WIRE FABRIC
CL	CENTER LINE	FH	FIRE HYDRANT	MAINT	MAINTENANCE	SCHED	SCHEDULE	X	
CLG	CEILING	FHC	FIRE HOSE CABINET	MAN	MANUAL	SCR	SHOWER CURTAIN ROD	Y	
CLOS	CLOSET	FIG	FIGURE	MAS	MASONRY	SCT	STRUCTURAL CLAY TILE	YD	YARD
CLR	CLEAR	FIN	FINISHED	MATL	MATERIAL	SD	SOAP DISPENSER	Z	
CMU	CONCRETE MASONRY UNIT	FIX	FIXTURE	MAX	MAXIMUM	SECT	SECTION		
COL	COLUMN	FL	FLOOR	MB	MOP BASIN	SECY	SECRETARY		
COM	COMMON	FLASH	FLASHING	MBD	MARKER BOARD	SG	SPANDRAL GLASS		
COMB	COMBINATION	FLEX	FLEXIBLE	MBH	MOP/BROOM HOLDER	SGL	SINGLE		
COMM	COMMUNICATIONS	FLG	FLOORING	MC	MEDICINE CABINET	SH	SHOWER		
COMPR	COMPRESSIBLE	FLM	FULL LENGTH MIRROR	MECH	MECHANICAL	SHM	SECURITY HOLLOW METAL		
CONC	CONCRETE	FLUOR	FLOUORESCENT	MEMB	MEMBRANE	SHT	SHEET		
CONF	CONFERENCE	FO	FINISH OPENING	MEZZ	MEZZANINE	SIM	SIMILAR		
CONFIG	CONFIGURATION	FOC	FACE OF CONCRETE	MFR	MANUFACTURER	SLNT	SEALANT		
CON(S)	CONNECTION(S)	FOF	FACE OF FINISH	MH	MANHOLE	SM	SHEET METAL		
CONST	CONSTRUCTION	FOM	FACE OF MASONRY	MIN	MINIMUM	SND	SANITARY NAPKIN DISPOSAL		
CONT	CONTINUOUS	FOS	FACE OF STUD	MISC	MISCELLANEOUS	SNV	SANITARY NAPKIN VENDOR		
CONTR	CONTRACT(OR)	FOV	FACE OF WALL	MR/S	MIRROR WITH SHELF	SPEC	SPECIFICATION(S)		
CORR	CORRIDOR	FP	FIREPROOFING	MTD	MOUNTED	SPL	SOUND PRESSURE LEVEL		
CP	COVER PLATE	FR	FIRE RESISTANT	MTG	MOUNTING	SPL	SPECIAL		
CPT	CARPET	FRP	FIBERGLASS REINFORCED PANEL	MTL	METAL	SQ	SQUARE		
CR	CHAIR RAIL	FRT	FIRE RESISTANCE TREATED	MUL	MULLION	SS	STAINLESS STEEL		
CS	COUNTERSINK	FS	FLOOR SINK	N	FEET	SS	SOLID SURFACE		
CSTJ	CONSTRUCTION JOINT	FSS	FOLDING SHOWER SEAT	N	NORTH	SSA	STORM SHELTER AREA		
CSWK	CASEWORK	FT	FEET	NA	NOT APPLICABLE	SSS	STAINLESS STEEL SHELF		
CT	CERAMIC TILE	FTG	FOOTING	NC	NOISE CRITERIA	ST	STAIR		
CTG	CLEAR TEMPERED FLOAT GLASS	FUT	FUTURE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	ST	STONE		
CTIG	CLEAR TEMPERED INSULATING GLASS	FVC	FIRE VALVE CABINET	NIC	NOT IN CONTRACT	STAG'D	STAGGERED		
CTR	CENTER	FWC	FABRIC WALL COVERING	NOM	NOMINAL	STC	SOUND TRANSMISSION CLASS		
CU	COMBINATION UNIT	G	GROUT	NTS	NOT TO SCALE	STD	STANDARD		
CU	CUBIC	GA	GAUGE	NWC	NORMAL WEIGHT CONCRETE	STGR	STRINGER		
CU	COPPER	GAL	GALLON	O	OUT TO OUT	STL	STEEL		
CV	CONDOM VENDOR	GALV	GALVANIZED	O to O	OVERALL	STOR	STORAGE		
CY	CUBIC YARD	GB	GRAB BAR	OA	OVERALL	STRUCT	STRUCTURAL		
CYL	CYLINDER	GC	GENERAL CONTRACTOR	OC	ON CENTER	SUBFL	SUBFLOOR		
		GD	GARBAGE DISPOSAL	OC	ON CENTER	SURF	SURFACE		
		GEN	GENERAL	OC	ON CENTER	SUSP	SUSPENDED		
		GFA	GROSS FLOOR AREA	OCFC	OWNER FURNISHED CONTRACTOR INSTALLED	SV	SHEET VINYL		
		GL	GLUE LAMINATED	OFF	OFFICE	SYM	SYMMETRICAL		
		GL	GLASS	OFF	OFFICE				
		GMP	GUARANTIED MAXIMUM PRICE	OFFO	OWNER FURNISHED OWNER INSTALLED				
		GOVT	GOVERNMENT	OPG(S)	OPENING(S)				
		GR	GUARD RAIL	OPP	OPPOSITE				
		GR	GRADE	OSHA	OPERATIONAL SAFETY AND HEALTH ADMINISTRATION				
		GRS	GALVANIZED RIGID STEEL	OTB	OPEN TO BELOW				
		GWB	GYPSUM WALL BOARD	OVFL	OVERFLOW				
		GYP	GYPSUM	OVHD	OVERHEAD				

GENERAL SYMBOLS



GENERAL NOTES

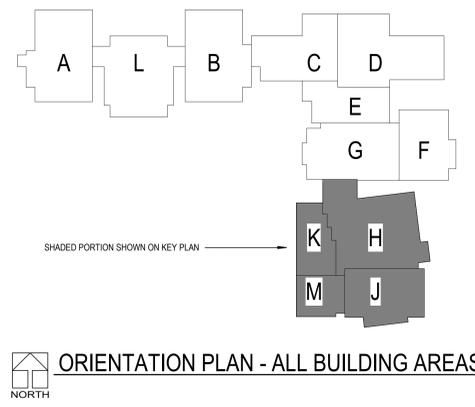
- GENERAL NOTES APPLY TO ALL DRAWINGS.
- ALL DIMENSIONS ARE ACTUAL AND ARE TO FACE OF METAL STUDS, FACE OF MASONRY OR CENTERLINE OF COLUMN, UNLESS NOTED OTHERWISE. DO NOT SCALE DRAWINGS.
- GENERAL CONTRACTOR SHALL FURNISH AND INSTALL 2" X 10" CONTINUOUS WOOD BLOCKING IN STUD PARTITIONS FOR ANCHORAGE OF WALL ATTACHED ITEMS, INCLUDING BUT NOT LIMITED TO, FOLLOWING GRAB BARS, WANTY UNITS, TOILET ACCESSORIES, WALL CABINETS, AND WALL MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS.
- GENERAL CONTRACTOR SHALL COORDINATE ALL MECHANICAL CHASE SIZES WITH MECHANICAL SUBCONTRACTOR.
- WALL OPENINGS FOR FIRE DAMPERS SHALL BE FRAMED PER THE FIRE DAMPER MANUFACTURER'S RECOMMENDATIONS.
- GENERAL CONTRACTOR SHALL COORDINATE SIZES AND LOCATIONS OF 4" HIGH CONCRETE HOUSEKEEPING PADS WITH THE MECHANICAL AND ELECTRICAL EQUIPMENT SUPPLIERS.
- LOCATE CONTROL JOINTS (CJ) AND CONTROL JOINTS ABOVE (CA) WHERE SHOWN ON THE DRAWINGS. SEE DETAILS ON SHEET A10.1 AND STRUCTURAL DRAWINGS. ISOLATE GYPSUM BOARD SURFACES WITH CONTROL JOINTS WHERE:
 - CEILING ABUTS A STRUCTURAL ELEMENT.
 - DISSIMILAR WALL OR PARTITION OR OTHER VERTICAL PENETRATION.
 - CONSTRUCTION CHANGES WITHIN PLANES OF THE CEILING.
 - CEILING RUN EXCEEDS 30 LINEAL FEET.
 - CONTROL JOINTS OCCUR IN STRUCTURAL ELEMENTS OF THE BUILDING.
 - PARTITION OR FURRING RUN EXCEEDING 30 L.F.
- ELECTRICAL PLANS INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF PIPES, CONDUIT, WIRING, EQUIPMENT, SYSTEMS, ETC. INFORMATION SHOWN IS DIAGRAMMATIC IN CHARACTER AND DOES NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING AND EXISTING CONDITION. LOCATION OF THESE ITEMS MAY BE ADJUSTED CONDITIONAL UPON THE SATISFACTORY COMPLIANCE WITH ALL OTHER REQUIREMENTS (SEE NOTES 14 AND 19).
- SEE PLANS FOR FIRE EXTINGUISHER (FE) AND FIRE EXTINGUISHER CABINET (FEC) LOCATIONS. SEE SHEET CP1.2 FOR DETAILS.
- SEE SHEET CP1.1 FOR LOCATIONS OF FIRE RATED WALLS WHERE APPLICABLE.
- ALL PENETRATIONS AT RATED LOCATIONS REQUIRED FOR PIPES, CONDUIT, DUCTING ETC. SHALL BE SEALED TO STOP PASSAGE OF FIRE AND / OR SMOKE WITH FIRE RATING AND APPROVED FIRESTOPPING SEALANT PER DETAILS ON SHEETS CP1.2.
- THE GENERAL CONTRACTOR SHALL COORDINATE CUT-OUTS FOR CASEWORK, MILLWORK, OR OTHER EQUIPMENT AS REQUIRED.
- ALL ASPECTS OF THE WORK AND ITEMS NOT SPECIFICALLY MENTIONED, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED, AND INDICATED IN THE CONTRACTORS BID.
- NO ASBESTOS OR PCB CONTAINING MATERIALS SHALL BE USED ON THIS PROJECT.
- THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS ARE RESPONSIBLE FOR PROPER REMOVAL AND DISPOSAL OF ALL DEBRIS GENERATED BY CONSTRUCTION OF THIS PROJECT. THE REMOVAL AND DISPOSAL OF ALL CONSTRUCTION DEBRIS SHALL BE IN FULL COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS. THE PREMISES SHALL BE KEPT CLEAN AND FREE FROM ALL WASTE MATERIALS.
- GENERAL CONTRACTOR SHALL PROTECT NEW CONSTRUCTION FROM DAMAGE BY ALL TRADES. ALL SUCH DAMAGE CAUSED BY THE CONTRACTOR DURING THE COURSE OF THIS WORK SHALL BE REPAIRED OR REPLACED AT THE CONTRACTORS EXPENSE.
- CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS AND FIELD CONDITIONS PRIOR TO ORDERING OR INSTALLING MATERIALS OR EQUIPMENT.
- ALL PIPING AND CONDUITS SHALL BE CONCEALED WITHIN WALLS, UNDERGROUND, ABOVE CEILINGS OR IN AREAS APPROVED BY THE ARCHITECT. EXPOSED ITEMS SHALL BE INSTALLED AND FINISHED TO PROVIDE MINIMAL VISUAL IMPACT. ALL EXPOSED ITEMS ARE TO BE PAINTED TO MATCH THE ADJACENT SURFACES UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
- FLOOR SPOT ELEVATIONS ARE SHOWN THUS: 0'-0"
- ARCHITECTURAL FINISH FLOOR ELEVATIONS 100'-0" EQUALS ACTUAL SITE REFERENCE OF FINISH FLOOR: 85.83
- SCRIBE GYPSUM BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF STRUCTURE AND ROOF DECK ABOVE.
- PROVISIONS SHALL BE MADE AT FULL HEIGHT NON-BEARING WALLS FOR 2" INCH VERTICAL MOVEMENT OF THE BUILDING STRUCTURE WITHOUT TRANSFER OF COMPRESSIVE LOADS TO WALL. FILL IRREGULARITIES BETWEEN TOP OF WALL AND DECK ABOVE WITH FIRE RATING INSULATION OR FIRE STOPPING MATERIALS AS REQUIRED TO MEET FIRE RATING OF RESPECTIVE WALLS. FILL AT SMOKE PARTITIONS WITH MATERIALS CAPABLE OF RESISTING THE PASSAGE OF SMOKE; SEE DETAILS ON CODE RATING DETAIL SHEETS.
- SEE SECTION 012300 "ALTERNATES" FOR ALTERNATE BID ITEMS.



11 FIRESTOP PENETRATION
SCALE: 1/2" = 1'-0"

12 FIRESTOP PENETRATION
SCALE: 1/2" = 1'-0"

13 FIRESTOP PENETRATION
SCALE: 1/2" = 1'-0"



ORIENTATION PLAN - ALL BUILDING AREAS

SYMBOL LEGEND
■ - OCCUPANCY LOAD

WALL SEPARATION LEGEND

WALL HOURLY RATING	WALL FIRE RATING TYPE
0 = 0 HOUR	C = CORRIDOR
1/2 = 1/2 HOUR	EW = EXTERIOR WALL
1 = 1 HOUR	FB = FIRE BARRIER
2 = 2 HOUR	FP = FIRE PARTITION
3 = 3 HOUR	F3B = FIRE-SMOKE BARRIER
SP = SMOKE PARTITION	FW = FIRE WALL
SW = SMOKE WALL	HX = HORIZONTAL EXIT
	SB = SMOKE BARRIER
	VS = VERTICAL SHAFT
	VX = VERTICAL EXIT
	XP = EXIT PASSAGEWAY

SEPARATION LEGEND

1.0 1-HOUR FIRE BARRIER (1-FB) (-1-FB-1-FB-)

A. 1-HOUR FIRE-RESISTIVE VERTICAL (FLOOR TO FLOOR OR ROOF DECK) AND/OR HORIZONTAL (FLOOR) CONSTRUCTION WITH 34-HOUR RATED DOORS. AUTOMATIC-CLOSING DOORS SHALL HAVE SMOKE-DETECTOR-ACTIVATED (S-D-A) MAGNETIC HOLD-OPEN DEVICES OR HEAT-ACTUATING (H-A) HOLD-OPEN DEVICES PER IBC 715.4.8. ALL S-D-A AUTOMATIC-CLOSING DOORS AND SMOKE DAMPERS SHALL BE ACTIVATED BY ACTUATION OF ANY FIRE ALARM DEVICE OR SPRINKLER SYSTEM, WHEN REQUIRED, AND POWER FAILURE. AGGREGATE WIDTH OF ALL OPENINGS SHALL NOT EXCEED 25% OF THE LENGTH OF THE WALL.

B. 34-HOUR DOORS MAY HAVE UP TO 1,296 SQUARE-INCH LABELED 1/4-INCH FIRE-RATED GLASS PANELS WITH A MAXIMUM SIDE DIMENSION OF 54 INCHES.

C. SEAL AROUND ALL DUCTS WITHOUT FIRE AND/OR SMOKE DAMPERS, PIPES AND CONDUIT PENETRATIONS WITH UL CLASSIFIED FIRE STOP SYSTEM (SAFING INSULATION AND SEALANT). FIRE AND/OR SMOKE DAMPERS AT DUCT PENETRATIONS SHALL BE MOUNTED AND SEALED IN WALL WITH FACTORY FABRICATED SLEEVES AND PERIMETER MOUNTING ANGLES. SEAL TOP OF WALL TO FLOOR OR ROOF DECK WITH UL CLASSIFIED FIRESTOP SYSTEM (SAFING INSULATION WITH CONTINUOUS SEALANT AT JOINTS AS DETAILED AND AS SPECIFIED IN SECTION 078413 PENETRATION FIRESTOPPING).

APPLICABLE CODES

THE BUILDING SYSTEMS WILL BE DESIGNED IN ACCORDANCE WITH THE CURRENT APPLICABLE CODES AS FOLLOWS:

- INTERNATIONAL BUILDING CODE - 2012 (IBC)
- INTERNATIONAL EXISTING BUILDING CODE - 2012 (IEBC)
- INTERNATIONAL FIRE CODE - 2012 (IFC)
- INTERNATIONAL MECHANICAL CODE - 2015 (IMC)
- NATIONAL ELECTRICAL CODE - 2014 (NEC)
- INTERNATIONAL PLUMBING CODE - 2012 (IPC) WITH IOWA PROVISIONS FOR 2012 UPC
- IOWA ADMINISTRATIVE CODE 641-25
- INTERNATIONAL ENERGY CONSERVATION CODE - 2012

STATE CODES

- IOWA STATE BUILDING CODE, IAC 661-CHAPTER 301 (2006) (APPLICABLE ONLY FOR STATE OWNED CONSTRUCTION, PROJECTS FUNDED WITH STATE FUNDS AND WHERE LOCAL JURISDICTIONS HAVE FORMALLY ADOPTED)
- STATE OF IOWA ACCESSIBILITY RULES AND REGULATIONS, IAC IAC-CHAPTER 302 (2006)
- STATE OF IOWA FIRE SAFETY RULES, IAC 661-CHAPTER 200
- STATE OF IOWA BUILDING CODE THERMAL AND LIGHTING EFFICIENCY STANDARDS - IAC 661 CHAPTER 303
- STATE OF IOWA MINIMUM TOILET FACILITY STANDARD, IAC 641-CHAPTER 25
- ENFORCED BY THE OFFICE OF STATE FIRE MARSHAL AND DEPARTMENT OF PUBLIC HEALTH.
- AMERICANS WITH DISABILITIES ACT (ADA)
- ADA IS APPLICABLE TO THIS BUILDING UNDER TITLE II AS A PUBLIC ENTITY. TITLE II OF THE ADA SPECIFICALLY REFERS TO ANY STATE OR LOCAL GOVERNMENT SERVICES. THEREFORE, A SCHOOL IS CONSIDERED A "PUBLIC ENTITY".
- AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES - 2010 (ADA) (THESE REGULATIONS ARE ENFORCED BY THE U.S. JUSTICE DEPARTMENT)

OCCUPANT LOAD FACTORS:

OFFICES	100 SF PER OCCUPANT (GROSS)
STORAGE/MECHANICAL	300 SF PER OCCUPANT (GROSS)
EXERCISE ROOMS	50 SF PER OCCUPANT (GROSS)
LOCKER ROOMS	50 SF PER OCCUPANT (GROSS)

BUILDING DATA: NO CHANGE TO BUILDING DATA IN THIS PROJECT
NO CHANGE TO OCCUPANCY USE, CONSTRUCTION, FIRE PROTECTION OR EXITS

NAME OF PROJECT: URBANDALE HIGH SCHOOL - HVAC RENOVATION
ADDRESS: 7111 AURORA AVE., URBANDALE, IOWA 50322
PROPOSED USE: HIGH SCHOOL
CODE ENFORCEMENT JURISDICTION: CITY OF URBANDALE

OCCUPANCY GROUP: EDUCATIONAL E
MIXED USE: UNSEPARATED
AUTOMATIC SUPPRESSION: SPRINKLED THROUGHOUT
CONSTRUCTION TYPE: UNPROTECTED, NON-COMBUSTIBLE, TYPE 2B

FIRE RESISTANCE RATINGS FOR BUILDING ELEMENTS

BUILDING ELEMENTS	HOURS
STRUCTURAL FRAME	0
BEARING WALLS - EXTERIOR	0
BEARING WALLS - INTERIOR	0
NON-BEARING WALLS - EXTERIOR	0
NON-BEARING - INTERIOR	0
FLOOR CONSTRUCTION	0
ROOF CONSTRUCTION	0

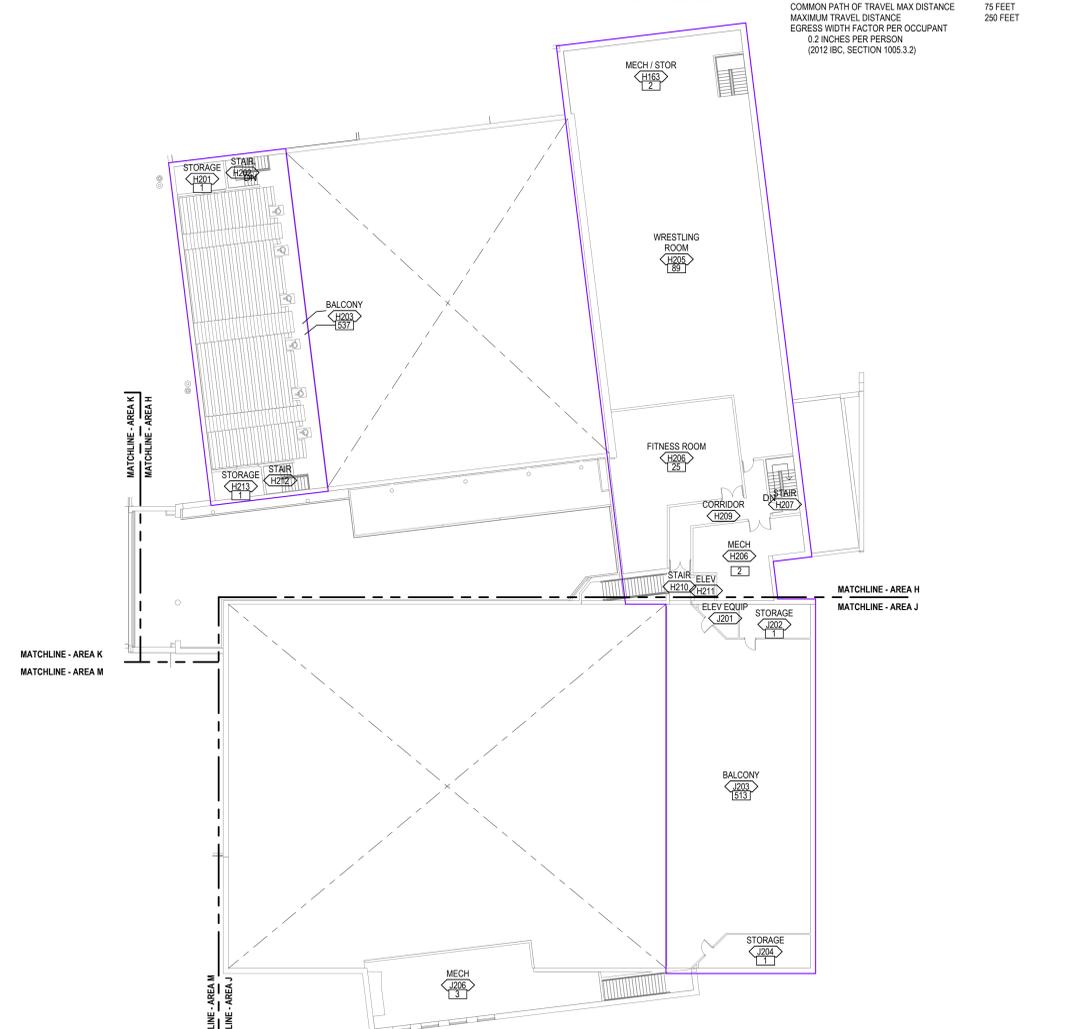
BUILDING HEIGHT / STORIES: 23'-0", 1 STORY

LIFE SAFETY SYSTEMS: EMERGENCY LIGHTING AND EXIT SIGNAGE, FIRE ALARM SYSTEM, NFPA 72, FIRE EXTINGUISHERS, NFPA 10, AUTOMATIC SPRINKLER SYSTEM, NFPA 13

EXITING REQUIREMENTS: DEAD END CORRIDOR MAXIMUM CONDITION COMMON PATH OF TRAVEL MAX DISTANCE 50 FEET, MAXIMUM TRAVEL DISTANCE 75 FEET, EGRESS WIDTH FACTOR PER OCCUPANT 0.2 INCHES PER PERSON (2012 IBC, SECTION 1006.3.2)



CODE PLAN, LEVEL 1
SCALE: 1" = 20'-0"



CODE PLAN, LEVEL 2
SCALE: 1" = 20'-0"

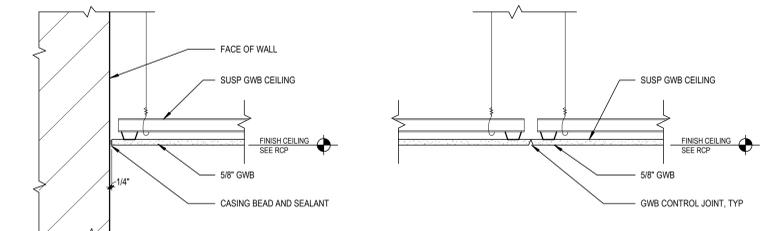
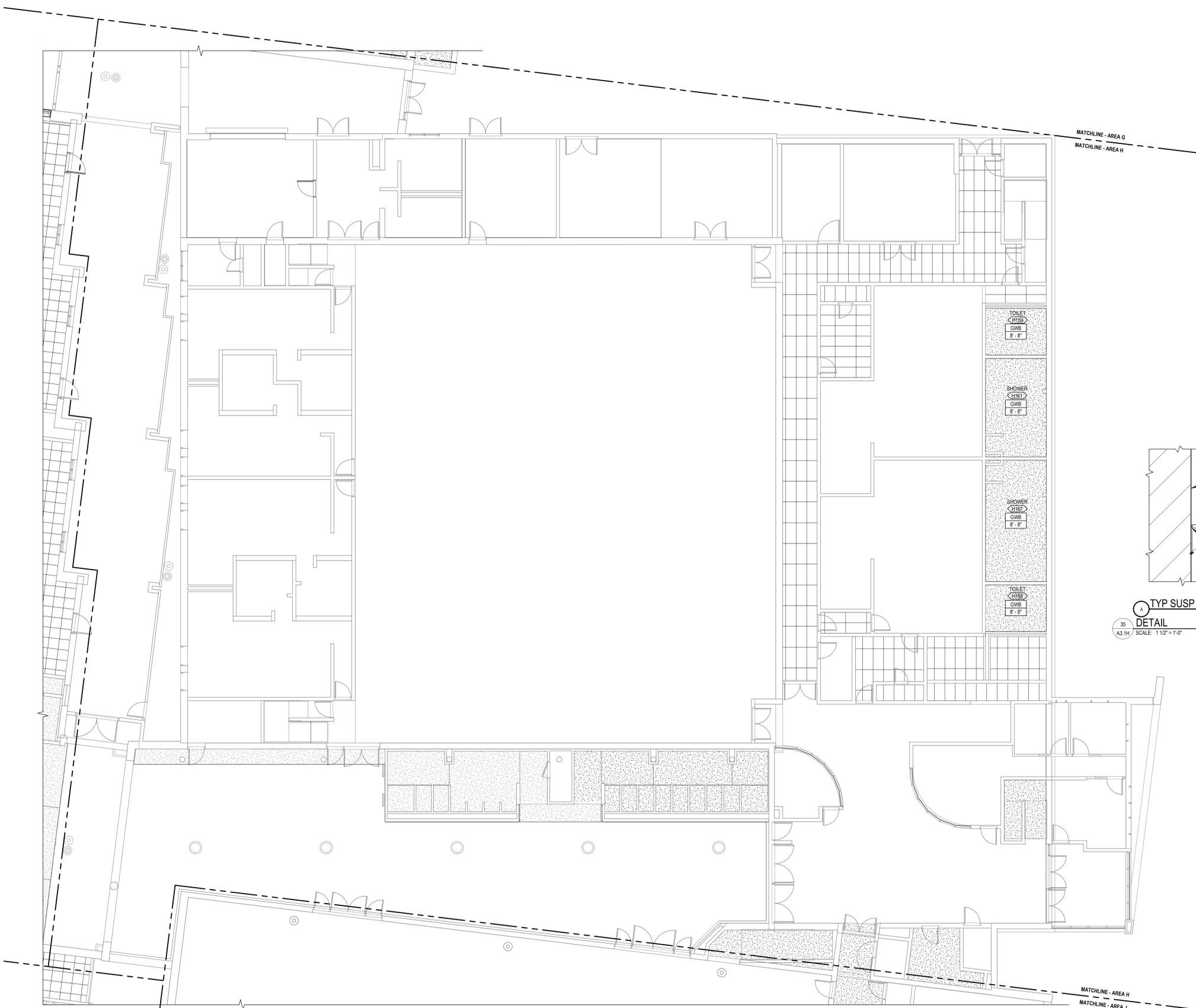
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**REFLECTED CEILING PLAN
GENERAL NOTES**

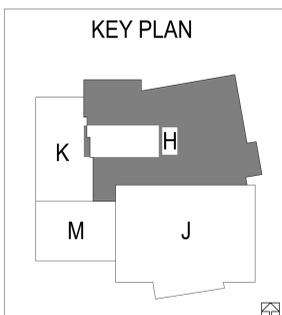
- A. REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
- B. ALL CEILING GRID SPANELS SHALL BE CENTERED IN EACH ROOM UNLESS NOTED OTHERWISE.
- C. CEILING HEIGHTS ARE AS NOTED ON THE REFLECTED CEILING PLAN UNLESS NOTED OTHERWISE.
- D. ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS, ETC. SHALL BE CENTERED BETWEEN CEILING GRIDS UNLESS NOTED OTHERWISE. SPRINKLER HEADS SHALL BE WITHIN A 3" RADIUS CENTERED BETWEEN CEILING GRIDS.
- E. IN ACOUSTICAL CEILING PANELS WITH SCORE IN THE CENTER, CENTER DEVICES REFERENCED IN NOTE D IN ONE HALF OF THE TILE. DO NOT LOCATE ON THE SCORE. FOR APC WITH MULTIPLE SCORED PATTERNS, COORDINATE LOCATION WITH ARCHITECT. PROVIDE SUSPENSION SYSTEM AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, ETC. AT ACOUSTICAL PANEL CEILING.
- F. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
 1. FACE OF FINISHED WALL
 2. FACE OF FINISHED BULKHEADS
 3. CENTERLINE OF COLUMNS
 4. CENTERLINE OF TEES
- G. IN AREAS WITH EXPOSED STRUCTURE CEILINGS, COORDINATE EXACT LOCATIONS OF MECHANICAL GRILLES, DIFFUSERS, DUCTWORK AND ELECTRICAL FIXTURES WITH EACH RESPECTIVE SUBCONTRACTOR.
- H. ALL WALLS EXTEND TO UNDERSIDE OF DECK EXCEPT THOSE SHOWN SHADED IN WHICH GYPSUM BOARD OR MASONRY EXTENDS MIN 1" ABOVE FINISHED CEILING. ALL METAL STUDS EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK.

**DEMOLITION
GENERAL NOTES**

- A. DEMOLITION GENERAL NOTES APPLY TO ALL DEMOLITION SHEETS.
- B. COORDINATE DISRUPTION OF UTILITY SERVICES WITH OWNER AND AS SPECIFIED.
- C. CONSTRUCT TEMPORARY CONSTRUCTION PARTITIONS WITHIN EXISTING BUILDING WHICH OFFER A ONE-HOUR ENCLOSURE TO ISOLATE DEMOLITION AND CONSTRUCTION WORK FROM GENERAL PUBLIC AND AS DEEMED NECESSARY BY OWNER AND CODE OFFICIAL HAVING JURISDICTION. COORDINATE LOCATIONS WITH OWNER AND MAINTAIN MEANS OF EGRESS THROUGHOUT THE WORK.
- D. MAINTAIN A SECURE AND WEATHER-TIGHT ENCLOSURE.
- E. VERIFY EXISTING CONDITIONS, DIMENSIONS, AND ELEVATIONS AND NOTIFY ARCHITECT OF DISCREPANCIES.
- F. THE OWNER SHALL RESERVE THE RIGHT TO SALVAGE ANY MATERIALS.
- G. PROVIDE PROTECTION FOR EXISTING BUILDING MATERIALS AND EQUIPMENT FROM DAMAGE DUE TO DEMOLITION OR CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER THIS CONTRACT.
- H. REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINISH AND/OR CONDITION.
- I. EXISTING MATERIALS SHALL NOT BE REUSED UNLESS NOTED OTHERWISE OR AS AUTHORIZED BY ARCHITECT.
- J. VERIFY AND MAINTAIN LOCATION OF EXISTING POWER, COMMUNICATION AND DATA CABLES TO PREVENT INTERRUPTION OF SERVICE.
- K. PATCH FLOOR, WALL AND CEILING PENETRATIONS RESULTING FROM REMOVAL OR REROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, ETC. AS REQUIRED TO MAINTAIN FIRE SEPARATIONS. MATCH FINISH OF NEW OR EXISTING ADJACENT SURFACES.
- L. CAP DISCONNECTED MECHANICAL PIPING LINES WITH WALL OR FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
- M. SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FOR FURTHER SEQUENCING AND SCOPE OF WORK.
- N. AVOID DISTURBING OF SOILS WITHIN ZONE OF INFLUENCE AROUND EXISTING FOOTINGS AND FLOOR SLABS AS DIRECTED BY GEOTECHNICAL ENGINEER.
- O. WHERE CMU WALLS ARE INDICATED TO BE REMOVED, PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY REMOVING CMU IN TOOTH-IN PATTERN BOTH SIDES OF DEMOLITION FOR CONTRACTOR TO TOOTH IN NEW CMU PATCHES.
- P. PATCH AND REPAIR ROOF AT ALL NEW PENETRATIONS THROUGH EXISTING ROOF. MAINTAIN EXISTING WARRANTIES. COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS.
- Q. COORDINATE ALL DEMOLITION AND PHASING EFFORTS WITH ARCHITECT AND OWNER'S REPRESENTATIVE. EVERY EFFORT SHALL BE MADE TO MINIMIZE DISRUPTION OF OWNER'S OPERATIONS AND TO PROVIDE BUILDING USERS SAFETY. EXCESSIVE NOISE OR VIBRATION SHALL BE PRE-APPROVED AND COORDINATED WITH OWNER'S REPRESENTATIVE.
- R. COORDINATE WITH THE OWNER ANY PRE-APPROVED DISRUPTION AND VERIFICATION OF SERVICE WITHIN THE EXISTING BUILDING SO AS TO MINIMIZE THE DISRUPTION OF SERVICE.
- S. REMOVE ALL DEMOLITION MATERIALS FROM THE SITE UNLESS NOTED OTHERWISE.

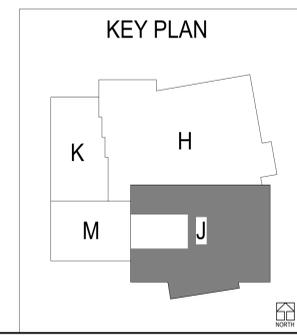
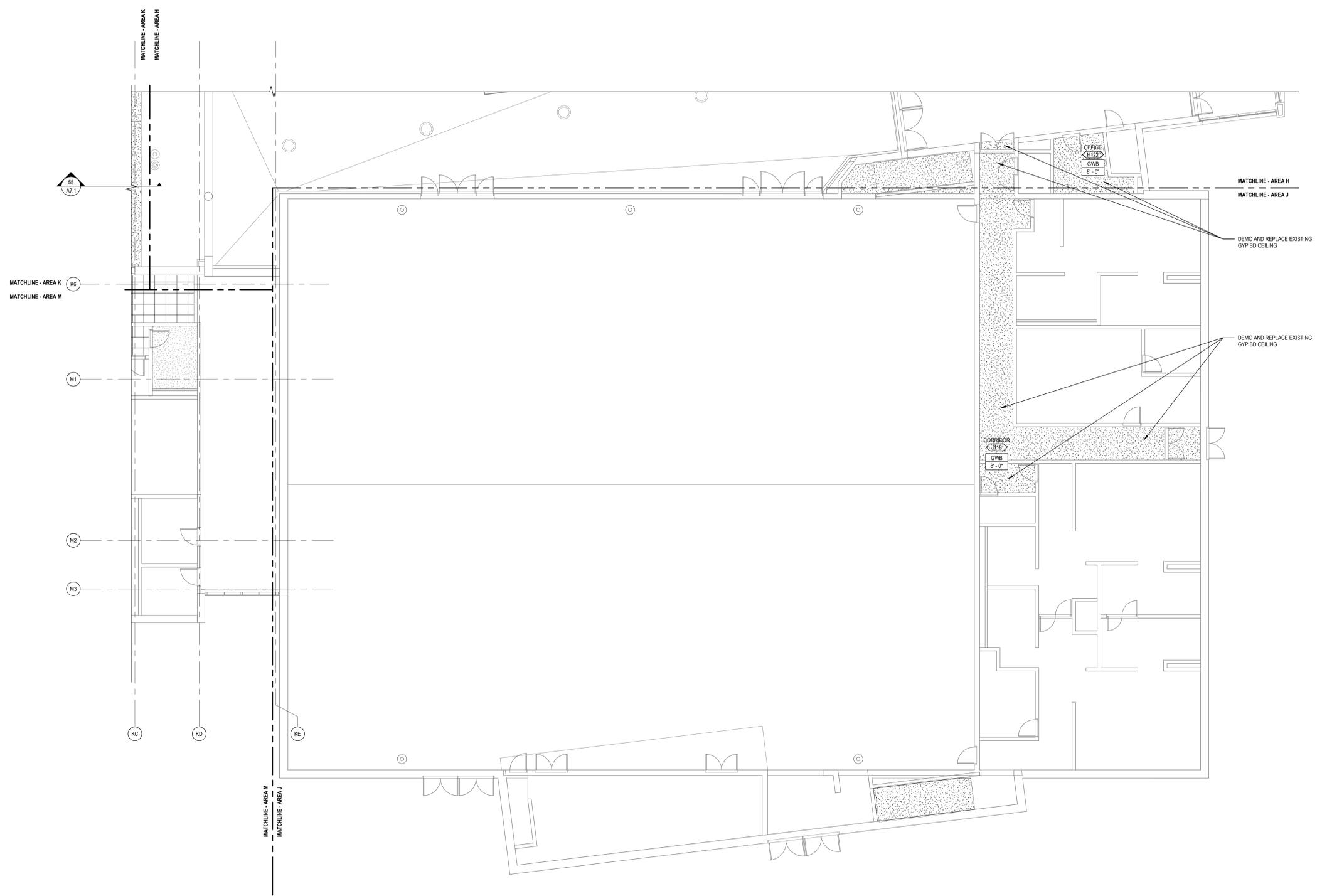


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A3.1H SCALE: 1 1/2" = 1'-0"



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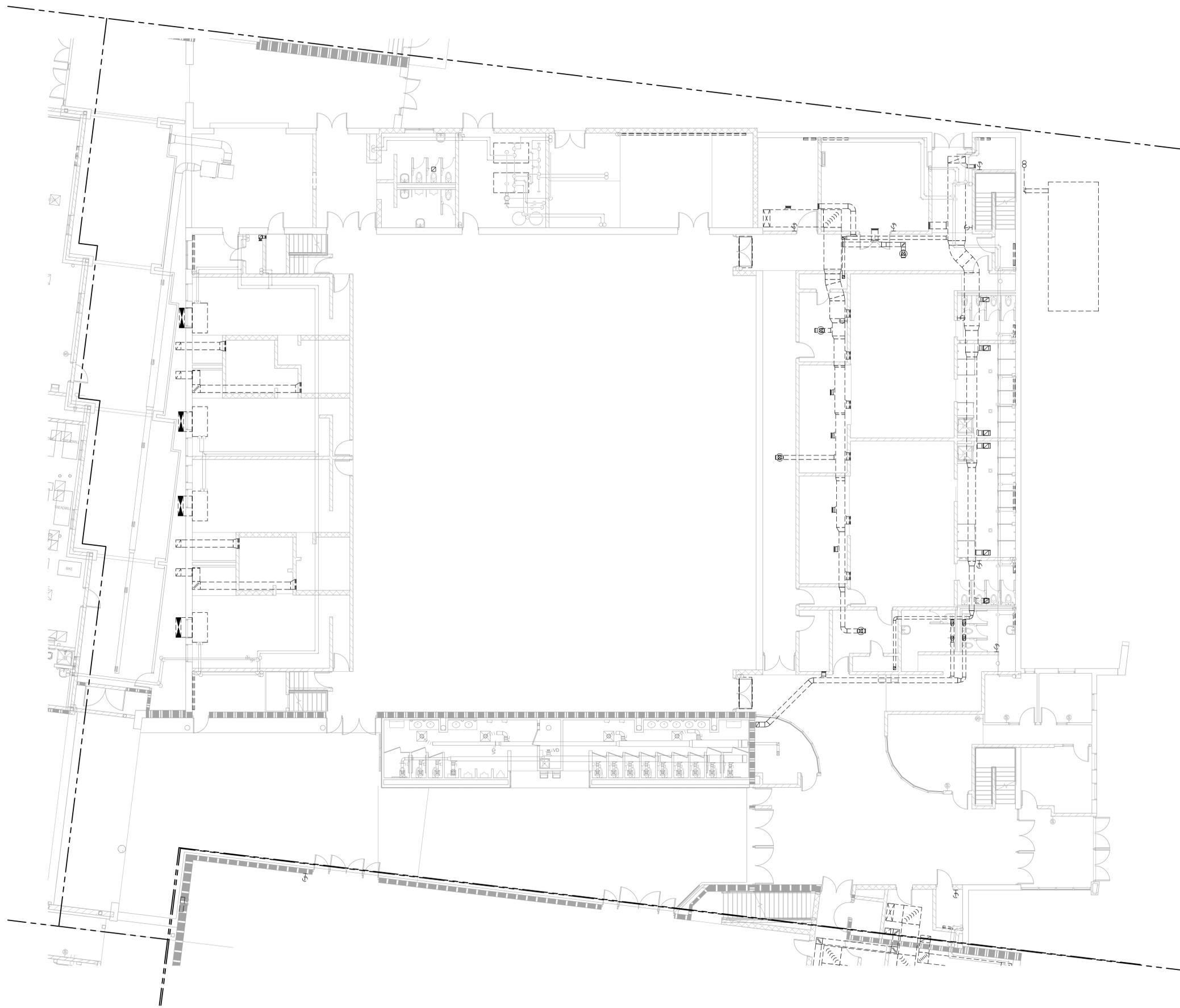
DEMO AND REFLECTED CEILING PLAN, LEVEL 1 - AREA J - NO WORK, FOR REFERENCE ONLY
SCALE: 1/8" = 1'-0"

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MECHANICAL (HVAC, PLUMBING AND FIRE PROTECTION) ABBREVIATIONS

#	NUMBER	DW	DISHWASHER	M	THOUSAND	TD	TRANSFER DUCT
A	AND	AT	MIXED AIR	MA	MIXED AIR	TEMP	TEMPERATURE
@	DEGREES CELSIUS	E	EAST	MAINT	MAINTENANCE	THK	THICKNESS
°	DEGREES FAHRENHEIT	EA	EACH	MAN	MANUAL	TMV	THERMOSTATIC MIXING VALVE
A	COMPRESSED AIR	EA	EXHAUST AIR	MATL	MATERIAL	TOL	TOLERANCE
A AMP	AMPERE	EA	ENTERING AIR TEMPERATURE	MAJ	MAKEUP AIR UNIT	TRV	TRAP PRIMER
A/C	AIR CONDITIONING(ER)	EC	ELECTRICAL CONTRACTOR	MANV	MANUAL AIR VENT	TS	TEMPERATURE SENSOR
AABC	ASSOCIATED AIR BALANCE COUNCIL	EDH	ELECTRIC DUCT HEATER	MAX	MAXIMUM	TSP	TOTAL STATIC PRESSURE
AAV	AUTOMATIC AIR VENT	EER	ENERGY EFFICIENCY RATIO	MBH	THOUSAND BTU PER HOUR	TT	TEMPERATURE TRANSMITTER
ACC	ACCESSORY	EEW	EMERGENCY EYE WASH	MC	MECHANICAL CONTRACTOR	TYP	TYPICAL
ACCU	AIR COOLED CONDENSING UNIT	EEX	EMERGENCY EYE WASH SHOWER	MCH	MECHANICAL	UC	UNIT COOLER
AD	AREA DRAIN	EFF	EFFICIENCY	MEZ	MEZZANINE	UG	UNDERGROUND
AD	ACCESS DOOR	EH	ELECTRICAL HEATER	MFR	MANUFACTURER	UH	UNIT HEATER
ADA	AMERICANS WITH DISABILITY ACT	EL	ELEVATION	MFG	MANUFACTURING	UL	UNDERWRITERS LABORATORIES
ADN	ADDITION OR ADDITIONAL	ELC	ELECTRICAL	MH	MANHOLE	UN	UNGRAVATED
ADJ	ADJUSTABLE	ELEV	ELEVATOR	MIN	MINOR	UNFN	UNFINISHED
AF	AIR FILTER	EMER	EMERGENCY	MISC	MISCELLANEOUS	UNO	UNLESS NOTED OTHERWISE
AF	ABOVE FINISHED FLOOR	ENCL	ENCLOSURE	ML	MOTORIZED LOUVER	UR	URINAL
AF	ABOVE FINISHED GRADE	ENGR	ENGINEER	MG	MEDIUM PRESSURE GAS	UTL	UTILITY
AGF	AIR GAP FITTING	EQ	EQUAL	MTG	MOUNTING	UV	UNIT VENTILATOR
AHJ	AUTHORITY HAVING JURISDICTION	EQUIP	EQUIPMENT	MTWR	MEDIUM TEMP HOT WATER RETURN	V	VOLT
AHRI	AIR CONDITIONING HEATING AND REFRIGERATION INSTITUTE	EQUIV	EQUIVALENT	MTWS	MEDIUM TEMP HOT WATER SUPPLY	V	VENT
AHU	AIR HANDLING UNIT	ESP	EXTERNAL STATIC PRESSURE	MV	MEDICAL VACUUM	V	VACUUM
AI	AREA INLET	EST	ESTIMATE	N	NITROGEN	VA	VOLT-AMPERE
ALT	ALTERNATE	ET	EXPANSION TANK	N	NORTH	VA	VALVE
AMB	AMBIENT	EWC	ELECTRIC WATER COOLER	N	NITROGEN	VAC	VACUUM
AMBA	AMERICAN BOILER MANUFACTURERS ASSOCIATION	EWT	ENTERING WATER TEMPERATURE	N2O	NITROUS OXIDE	VAV	VARIABLE AIR VOLUME
ANCH	ANCHOR	EXH	EXHAUST	N.C.	NORMALLY CLOSED	VBF	VENT BELOW FLOOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	EXST	EXPOSED	N.O.	NORMALLY OPEN	VCP	VITRIFIED CLAY PIPE
AP	ACCESS PANEL	EXP	EXTERIOR	NA	NOT APPLICABLE	VD	VOLUME DAMPER
APPROX	APPROXIMATE	EXT	EXTERIOR	NEC	NATIONAL ELECTRIC CODE	VEL	VELOCITY
AR	ACID RESISTING	F	FAHRENHEIT	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSN.	VENT	VENTILATOR(TION)
ARCH	ARCHITECTURAL	F	FIRE ALARM	NIC	NOT IN CONTRACT	VERT	VERTICAL
AS	AIR SEPARATOR	F	FURNACE	NO	NO	VEST	VESTIBULE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	F.V.	FIELD VERIFY	NO2	NITROGEN DIOXIDE	VFD	VARIABLE FREQUENCY DRIVE
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS	FA	FIRE ALARM	NOM	NOMINAL	VOL	VOLUME
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	FA	FACE	NTS	NOT TO SCALE	VP	VACUUM PUMP
AUTO	AUTOMATIC	FA	FRESH AIR	OSM	OPERATION AND MAINTENANCE	VSMSP	VARIABLE SPEED MOTOR CONTROLLER
AV	AUDIO-VISUAL	FAA	FIRE ALARM ANNUNCIATOR	OA	OUTSIDE AIR	VTR	VENT THROUGH ROOF
AV	AIR VENT	FAB	FABRICATE(D)	OC	ON CENTER	W	WIRE
AW	ACID WASTE	FACP	FIRE ALARM CONTROL PANEL	OD	OUTSIDE DIAMETER	W	WEST
AWG	AMERICAN WIRE GAUGE	FAD	FLOOR CLEAN OUT	ORD	OVERFLOW ROOF DRAIN	W	WATER SERVICE
B	BOLTER	FAN	FAN COOL UNIT	OSKY	OUTSIDE SCREW AND YOKE	W	WIDE
BAS	BUILDING AUTOMATION SYSTEM	FD	FLOOR DRAIN	OVFL	OVERFLOW	W	WASTE (PLUG)
BAT	BATTERY	FDC	FIRE DEPARTMENT CONNECTION	OVHD	OVERHEAD	W	WATT
BBO	BOLTER BLOW OFF	FDNDR	FOUNDATION DRAIN	OX	OXYGEN	W	WITH
BC	BALANCING COCK	FE	FIRE EXTINGUISHER	P	PUMP	W/O	WITHOUT
BC	BARE COPPER	FEC	FIRE EXTINGUISHER CABINET	PIT	PRESSURE/TEMPERATURE TEST PORT	WB	WET BULB
BDD	BACK DRAFT DAMPER	FE	FINISH FLOOR	PAR	PARALLEL	WC	WATER COLUMN
BF	BOLTER FEED	FH	FIRE HYDRANT	PAR	PARALLEL	WC	WATER CLOSET
BFF	BELOW FINISH FLOOR	FHC	FIRE HOSE CABINET	PB	PUSH BUTTON	WCL	WATER CLOSET/LAVATORY COMBINATION
BFF	BACKFLOW PREVENTER	FIN	FINISHED	PC	PUMPED CONDENSATE	WCO	WALL CLEAN OUT
BFV	BUTTERFLY VALVE	FL	FLOOR	PCF	POUNDS PER CUBIC FOOT	WF	WASH FOUNTAIN
BHP	BREAK HORSEPOWER	FLEX	FLEXIBLE	PD	PRESSURE DROP	WFM	WATER FLOW MEASURING DEVICE
BLDG	BUILDING	FMD	FIRE MARCH	PDI	PUMP DISCHARGE	WG	WIRE GUARD
BLKG	BLOCKING	FM	FORCE MAIN	POI	POINT OF INTERSECTION	WH	WALL HYDRANT
BLKHD	BLOCKHEAD	FME	FLOW MEASURING EQUIPMENT	PENT	PENTHOUSE	WH	WATER HEATER
BMS	BUILDING MANAGEMENT SYSTEM	FOF	FUEL OIL FILL	PERF	PERFORATED	WHA	WATER HAMMER ARRESTOR
BOD	BOTTOM OF DUCT	FOR	FUEL OIL RETURN	PERP	PERPENDICULAR	WLR	WATER LOOP RETURN
BOT	BOTTOM	FOS	FUEL OIL SUPPLY	PI	POINT OF INTERSECTION	WLS	WATER LOOP SUPPLY
BRP	BOLTER PLANT INSTRUMENTATION PANEL	FOV	FUEL OIL VENT	PI	POINT OF INTERSECTION	WP	WEATHER-PROOF (NEMA 3R)
BSMT	BASEMENT	FPD	FIRE PUMP DISCHARGE	PIV	POST INDICATOR VALVE	WRP	WATER RESISTANT PAPER
BTU	BRITISH THERMAL UNIT	FS	FLOOR SWITCH	PL	PLATE	WT	WEIGHT
BTUH	BRITISH THERMAL UNIT PER HOUR	FSD	FIRE SMOKE DAMPER	PLBG	PLUMBING	YH	YARD HYDRANT
BV	BALL VALVE	FT	FIN TUBE	PLYWD	PLYWOOD	YH	YARD HYDRANT
C	CONDUIT	FUT	FUTURE	PNEU	PNEUMATIC	ZB	ZONE CONTROL BOX
C	CONDENSER WATER	FVC	FIRE VALVE CABINET	PNL	PANEL	ZCV	ZONE CONTROL VALVE
CA	COMBUSTION AIR	G	GRILLE	POC	POINT OF CONNECTION	ZOV	ZONE OUTLET VALVE
CAP	CAPACITY	GA	GALLON	PR	PAIR		
CD	CONDENSATE DRAIN	GALV	GALVANIZED	PSI	POUNDS PER SQUARE INCH		
CD	CONSTRUCTION DOCUMENTS	GALV	GALVANIZED	PT	PLASTER TRAP		
CENT	CENTRIFUGAL	GALV	GALVANIZED	PVC	POLYVINYL CHLORIDE		
CFH	CUBIC FEET	QTY	QUANTITY	PWR	POWER		
CFH	CUBIC FEET PER HOUR	R	RISER				
CFM	CUBIC FEET PER MINUTE	RA	RETURN AIR				
CH	CHILLER	RAD	RADIUS				
CI	CAST IRON	RAD	RADIATOR				
CI	CURB INLET	RCP	REFLECTED CEILING PLAN				
CIP	CAST IRON PIPE	RCD	REFLECTED CEILING PLAN				
CRK	CIRCUITING	RCU	RECYCLOCATING CHILLER UNIT				
CKT	CIRCUIT	RD	ROOF DRAIN				
CL	CENTER LINE	RD	ROOF DRAIN				
CLG	CEILING	REF	REFERENCE				
CLR	CLEAR	REFR	REFRIGERANT				
CO	CLEAN OUT	REG	REGISTER				
CO	CARBON MONOXIDE	REM	REMOVABLE				
CO2	CARBON DIOXIDE	REQ(D)	REQUIRED				
COMB	COMBINATION	REV	REVISION(S)				
COMM	COMMUNICATIONS	RGR	RETURN AIR				
COMP	COMPRESSOR UNIT	RH	RELATIVE HUMIDITY				
CONC	CONCRETE	RH	RELIEF HOOD				
CONN(S)	CONNECTION(S)	RHC	REHEAT COIL				
CONST	CONSTRUCTION	RHG	REFRIGERANT HOT GAS				
CONT	CONTINUOUS	RL	REFRIGERANT LIQUID				
CONTR	CONTRACTOR	RPM	REVOLUTIONS PER MINUTE				
CONV	CONVECTOR	RS	REFRIGERANT SUCTION				
CP	CONDENSATE PUMP	RTU	ROOF TOP UNIT				
CPS	CYCLES PER SECOND	S	SMOKE DAMPER				
CR	CONDENSER WATER RETURN	S	SOUTH				
CR	CORROSION RESISTANT	SA	SANITARY SEWER				
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT	SA	SANITARY WASTE				
CS	COUNTERSINK	SC	SECURITY				
CS	COMBINATION SEWER	SCHED	SCHEDULE				
CS	CONDENSER WATER SUPPLY	SCW	SOFT COLD WATER				
CSP	COMBINATION STANDPIPE	SD	SMOKE DAMPER				
CT	COOLING TOWER	SD	STORM DRAIN				
CTR	CENTER	SD	SMOKE DETECTOR				
CU	CONDENSING UNIT	SE	SEMI RIGID INSULATION				
CUH	CABINET UNIT HEATER	SE	SEMI RIGID INSULATION				
CW	COLD WATER	SECT	SECTION				
CWR	CHILLED WATER RETURN	SGL	SINGLE				
CWS	CHILLED WATER SUPPLY	SH	SHOWER				
CYL	CYLINDER	SH	SHOWER				
D	DRAIN	SHT	SHEET				
D	DIFFUSER	SHW	SHOWER				
D	DEPTH	SHW	SHOWER				
DB	DECEASED	SHW	SHOWER				
DB	DRY BULB	SHW	SHOWER				
DBL	DOUBLE	SHW	SHOWER				
DC	DIRECT CURRENT	SHW	SHOWER				
DC	DUST COLLECTOR	SHW	SHOWER				
DE	DECONDENSED WATER	SHW	SHOWER				
DEG	DEGREE	SHW	SHOWER				
DEMO	DEMOLISH OR DEMOLITION	SHW	SHOWER				
DEPT	DEPARTMENT	SHW	SHOWER				
DET	DETAIL	SHW	SHOWER				
DF	DRINKING FOUNTAIN	SHW	SHOWER				
DFR	DIESEL FUEL RETURN	SHW	SHOWER				
DFS	DIESEL FUEL SUPPLY	SHW	SHOWER				
DFV	DIESEL FUEL VENT	SHW	SHOWER				
DH	DUCT HEATER	SHW	SHOWER				
DI	DISTILLED WATER	SHW	SHOWER				
DIA	DIAMETER	SHW	SHOWER				
DIAG	DIAGONAL	SHW	SHOWER				
DIAM	DIMENSION	SHW	SHOWER				
DISCH	DISCHARGE	SHW	SHOWER				
DISTR	DISTRIBUTION	SHW	SHOWER				
DIV	SPECIFICATION DIVISION	SHW	SHOWER				
DN	DOWN	SHW	SHOWER				
DSN	DOWNSPOUT NOZZLE	SHW	SHOWER				
DSP	DRY STANDPIPE	SHW	SHOWER				
DW	DRAWING(S)	SHW	SHOWER				
E	EAST	SHW	SHOWER				
EA	EACH	SHW	SHOWER				
EA	EXHAUST AIR	SHW	SHOWER				
EA	ENTERING AIR TEMPERATURE	SHW	SHOWER				
EC	ELECTRICAL CONTRACTOR	SHW	SHOWER				
EDH	ELECTRIC DUCT HEATER	SHW	SHOWER				
EER	ENERGY EFFICIENCY RATIO	SHW	SHOWER				
EEW	EMERGENCY EYE WASH	SHW	SHOWER				
EEX	EMERGENCY EYE WASH SHOWER	SHW	SHOWER				
EF	EFFICIENCY	SHW	SHOWER				
EFF	ELECTRICAL HEATER	SHW	SHOWER				
EL	ELEVATION	SHW	SHOWER				
ELC	ELECTRICAL	SHW	SHOWER				
ELEV	ELEVATOR	SHW	SHOWER				
EMER	EMERGENCY	SHW	SHOWER				
ENCL	ENCLOSURE	SHW	SHOWER				
ENGR	ENGINEER	SHW	SHOWER				
EQ	EQUAL	SHW	SHOWER				
EQUIP	EQUIPMENT	SHW	SHOWER				
EQUIV	EQUIVALENT	SHW	SHOWER				
ESP	EXTERNAL STATIC PRESSURE	SHW	SHOWER				
EST	ESTIMATE	SHW	SHOWER				
ET	EXPANSION TANK	SHW	SHOWER				
EWC	ELECTRIC WATER COOLER	SHW	SHOWER				
EWT	ENTERING WATER TEMPERATURE	SHW	SHOWER				
EXH	EXHAUST	SHW	SHOWER				
EXST	EXPOSED	SHW	SHOWER				
EXP	EXTERIOR	SHW	SHOWER				
EXT	EXTERIOR	SHW	SHOWER				
F	FAHRENHEIT	SHW	SHOWER				
F	FIRE ALARM	SHW	SHOWER				
F	FRESH AIR	SHW	SHOWER				
FA	FACE	SHW	SHOWER				
FA	FIRE ALARM ANNUNCIATOR	SHW	SHOWER				
FAA	FIRE ALARM ANNUNCIATOR	SHW	SHOWER				
FAB	FABRICATE(D)	SHW	SHOWER				
FACP	FIRE ALARM CONTROL PANEL	SHW	SHOWER				
FAD	FLOOR CLEAN OUT	SHW	SHOWER				
FAN	FAN COOL UNIT	SHW	SHOWER				
FAN	FAN COOL UNIT	SHW	SHOWER				
FD	FLOOR DRAIN	SHW	SHOWER				
FD	FLOOR DRAIN	SHW	SHOWER				
FD	FLOOR DRAIN	SHW	SHOWER				
FD	FLOOR DRAIN	SHW	SHOWER</				



MECHANICAL DEMOLITION, FIRST FLOOR - AREA H
 SCALE: 1/8" = 1'-0"



LEGEND NOTES

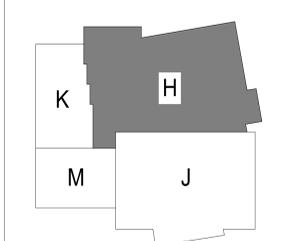
DEMOLITION GENERAL NOTES

- A. CONTRACTORS SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK. DEVIATION FROM DRAWING SHOULD BE DIRECTED TO THE ARCHITECT/ENGINEER FOR RESOLUTION.
- B. DEVICES, EQUIPMENT, MATERIAL, ETC SHOWN FULL TONE SHALL BE REMOVED, INCLUDING SUPPORTS, ACCESSORIES, AND ALL OTHER RELATED ITEMS. DUCT AND PIPING SHOWN TO BE REMOVED SHALL BE REMOVED BACK TO CONNECTION TO MAIN AND CAPPED. CONTRACTOR SHALL PATCH OR CAP ANY UNUSED DUCT OPENINGS. CONTRACTOR SHALL PATCH, REPAIR AND PAINT EXISTING CONSTRUCTION AND REPAIR ANY OPENINGS LEFT IN EXISTING CONSTRUCTION TO MATCH EXISTING CONDITIONS AFTER COMPLETION OF DEMOLITION WORK.
- C. DRAWINGS ARE INTENDED TO INDICATE THE GENERAL SCOPE OF DEMOLITION REQUIRED AND DOES NOT INDICATE EVERY ITEM THAT MUST BE REMOVED. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID AND VERIFY THE EXISTING CONDITIONS.
- D. SEE ARCHITECTURAL DRAWING AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE REMOVAL OF ALL EQUIPMENT AND UTILITIES WITH OWNER AND GENERAL CONTRACTOR PRIOR TO PERFORMING SHUT DOWN. IN ALL CASES, CONTRACTOR IS TO COORDINATE SHUTDOWN OF ANY EXISTING UTILITIES WITH OWNER A MINIMUM OF 7 DAYS PRIOR TO SHUTDOWN. AT CONTRACTOR'S DISCRETION, CONTRACTOR MAY PHASE SHUTDOWNS OF SYSTEMS IN FASHION TO PREVENT FUTURE SHUTDOWNS IF ACCEPTABLE WITH OWNER'S SCHEDULE. IT IS CONTRACTOR'S RESPONSIBILITY TO COORDINATE THESE WITH EXISTING CONDITIONS, OWNER, AND ALL ASSOCIATED TRADES.
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- F. FURNISH TEMPORARY CONNECTION NECESSARY TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION.
- G. DISCONNECT AND REMOVE DEVICES AND EQUIPMENT SERVING EQUIPMENT THAT HAS BEEN REMOVED.
- H. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK. MATCH ORIGINAL CONSTRUCTION AND FINISH. VERIFY ALTERNATIVE OR SPECIAL REPAIR METHODS WITH ARCHITECT/ENGINEER BEFORE PROCEEDING WITH DEMOLITION.
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MECH DEMOLITION KEYNOTES

MECH DEMOLITION KEYNOTES

KEY PLAN



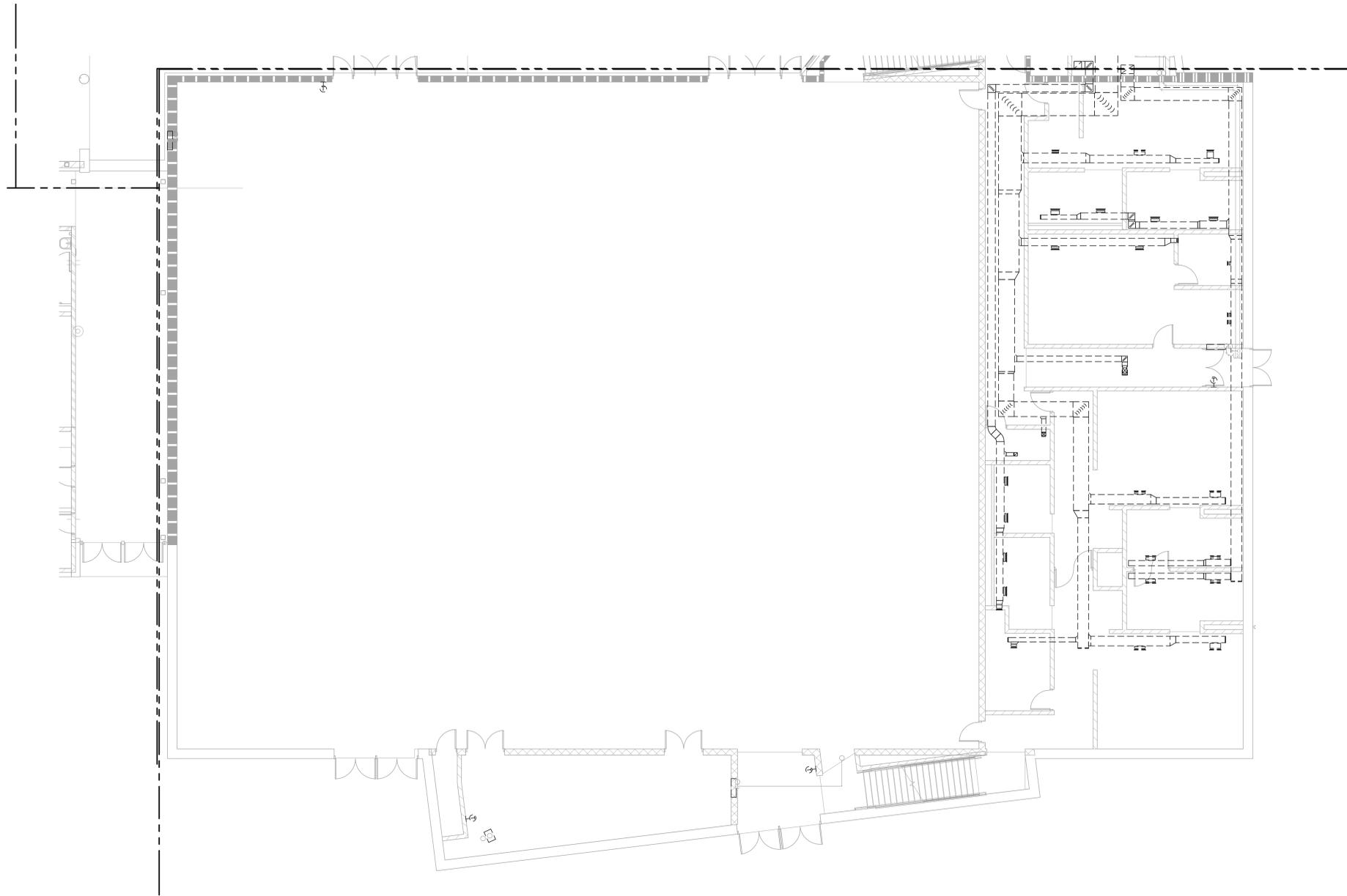
URBANDALE HS - HVAC RENOVATION
 7111 Aurora Ave.
 Urbandale, IA 50322

DESIGN DEVELOPMENT
 03-20-2019
 Revisions

11-18101-20
MECHANICAL DEMOLITION, FIRST FLOOR - AREA H

MD1.1H

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MECHANICAL DEMOLITION, FIRST FLOOR - AREA J
 NORTH SCALE: 1/8" = 1'-0"

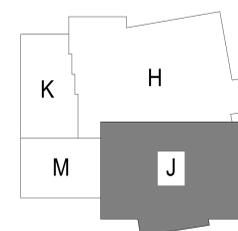
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DLR Group
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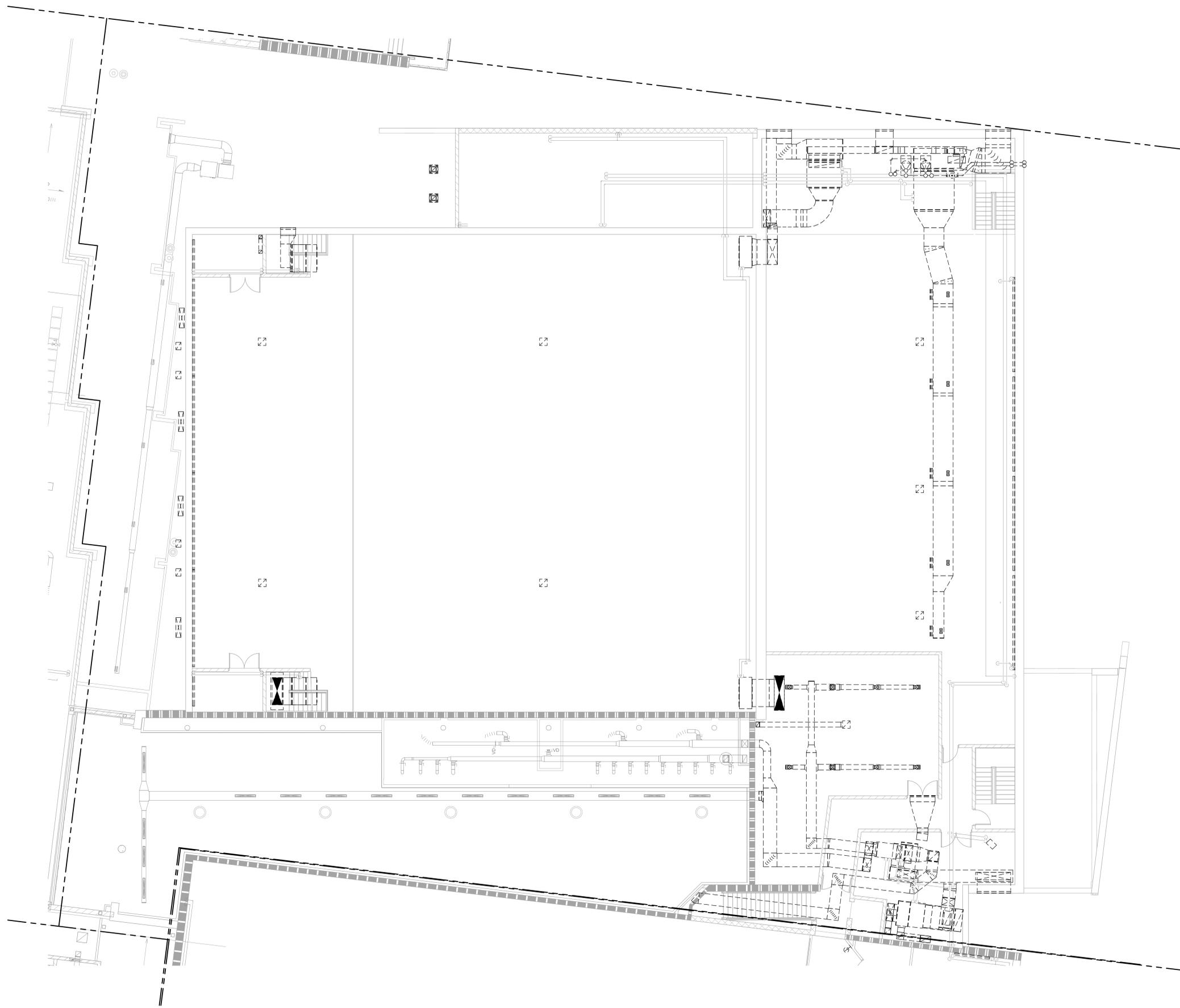
7111 Aurora Ave.
Urbandale, IA 50322

DESIGN DEVELOPMENT
03-20-2019
Revisions

11-18101-20
MECHANICAL DEMOLITION, FIRST FLOOR - AREA J

MD1.1J

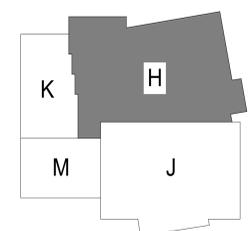
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MECHANICAL DEMOLITION, SECOND FLOOR - AREA H
SCALE: 1/8" = 1'-0"



KEY PLAN



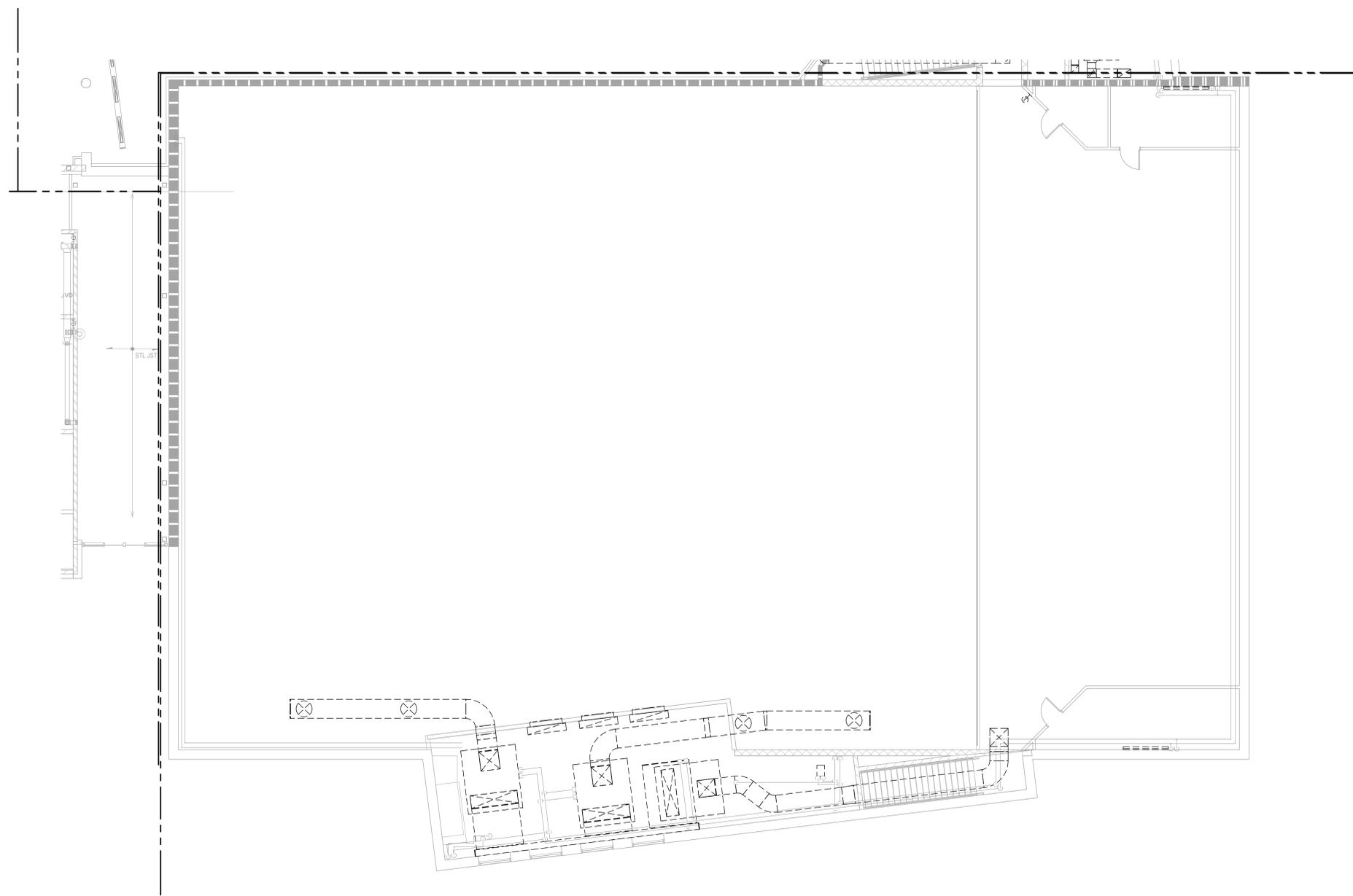
URBANDALE HS - HVAC RENOVATION

7111 Aurora Ave.
Urbandale, IA 50322

DESIGN
DEVELOPMENT
03-20-2019
Revisions

11-18101-20
MECHANICAL
DEMOLITION,
SECOND FLOOR -
AREA H

MD1.2H



MECHANICAL DEMOLITION, SECOND FLOOR - AREA J
 SCALE: 1/8" = 1'-0"
 NORTH

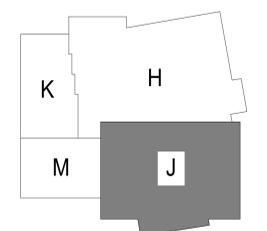
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KEY PLAN



URBANDALE HS - HVAC RENOVATION

7111 Aurora Ave.
 Urbana, IL 61802

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 Revisions

11-18101-20
MECHANICAL DEMOLITION, SECOND FLOOR - AREA J

MD1.2J



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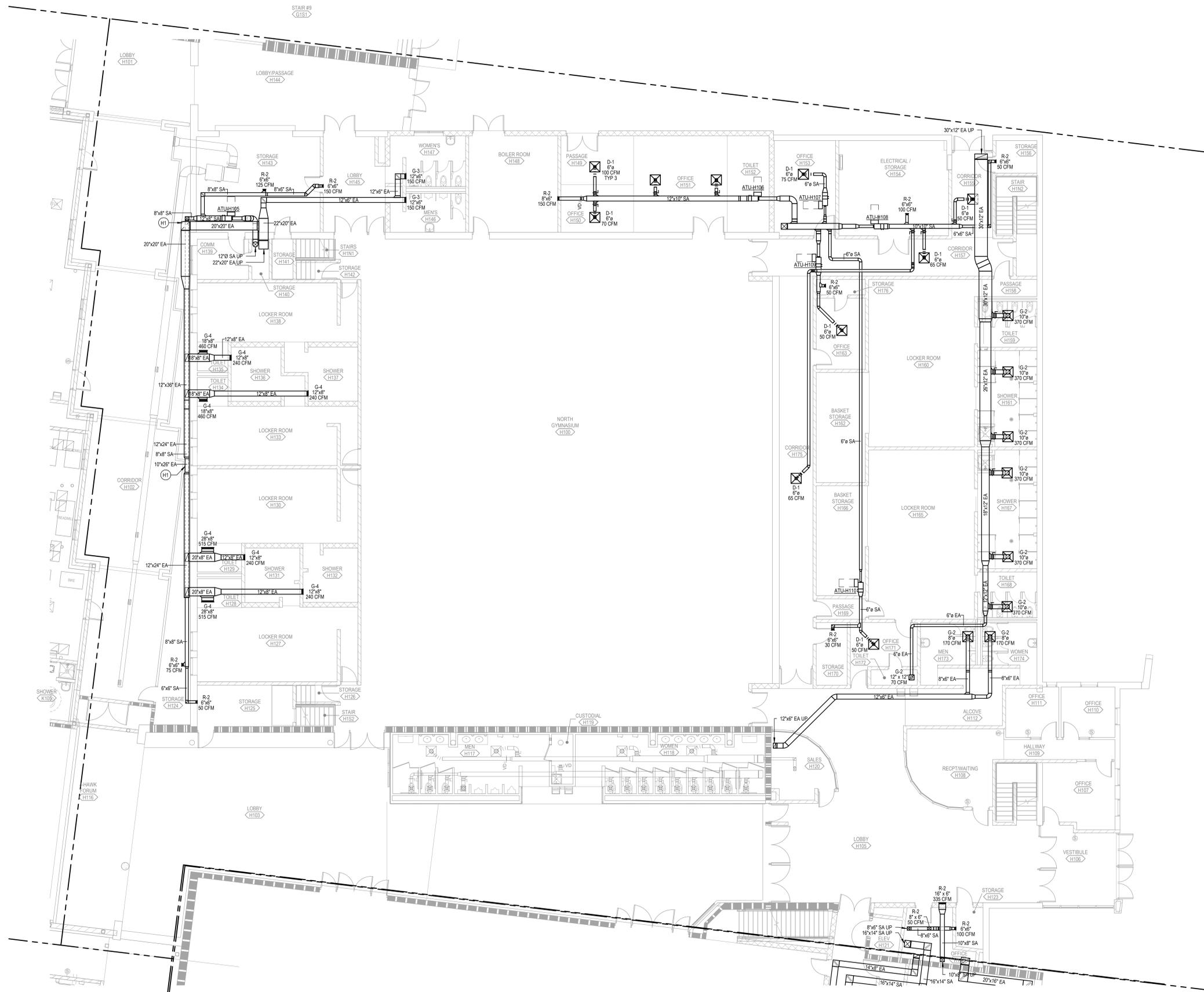
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- R. NO 1/2" PIPING BRANCHES ALLOWED WHERE EQUIPMENT HAS SMALLER THAN 3/4" CONNECTIONS. PROVIDE REDUCER AT UNIT REFERENCE SCHEDULE FOR BRANCH SIZES.
- S. PAINT INSIDE OF FLENUM BOXES CONNECTING TO LOUVERS COLOR (BLACK) UNLESS OTHERWISE NOTED.
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- W. ALL DETAILS FOR ITEMS SHOWN ON THIS SHEET ARE REFERRED TO AS FOLLOWS:

HVAC/PIPING KEYNOTES

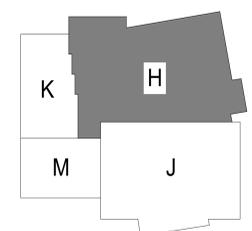
H1	MODIFY DUCTWORK AS REQUIRED FOR EXISTING CONDITIONS
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HVAC PLAN, FIRST LEVEL - AREA H
SCALE: 1/8" = 1'-0"



KEY PLAN



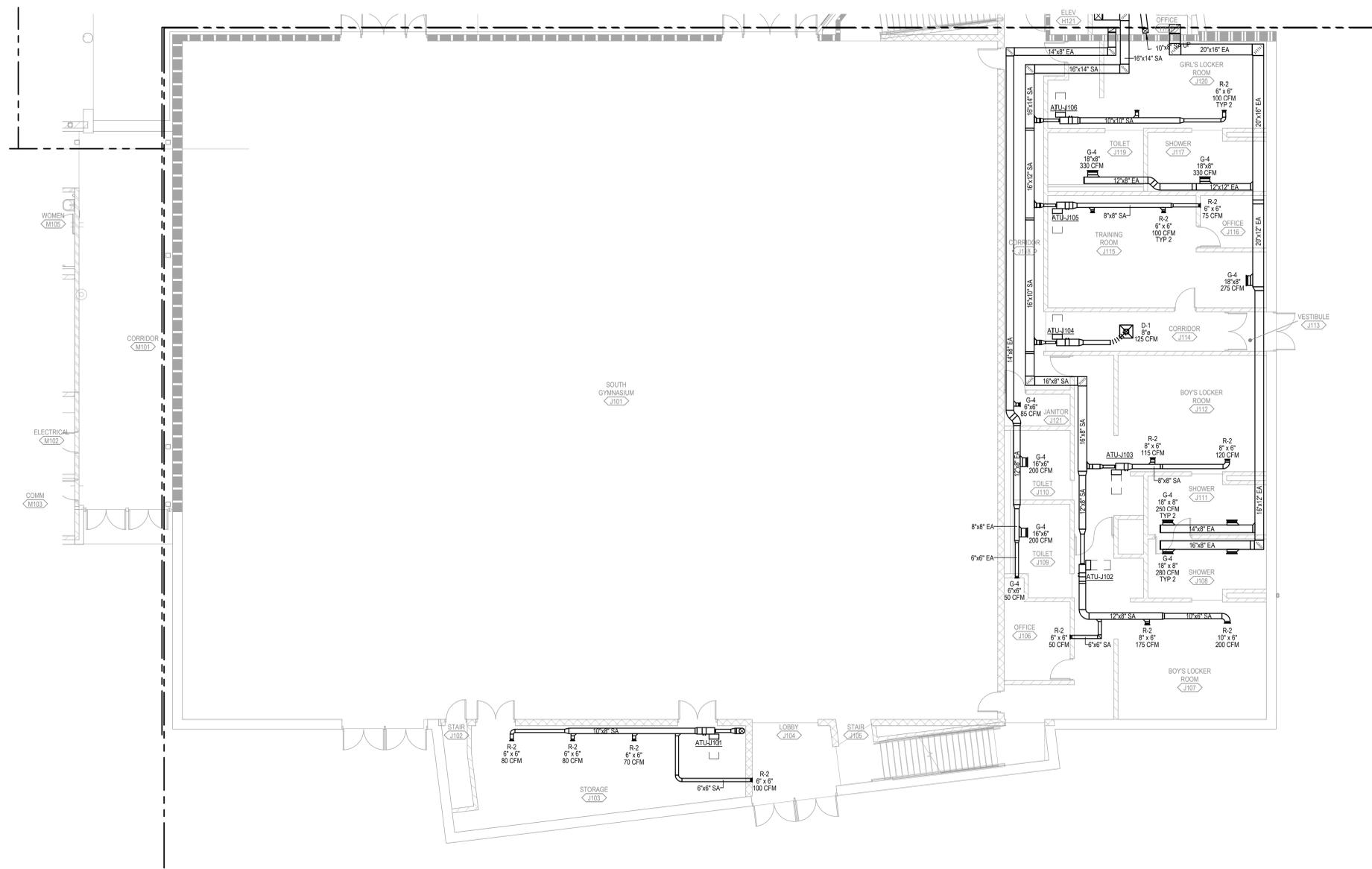
URBANDALE HS - HVAC RENOVATION

7111 Aurora Ave.
Urbandale, IA 50322

DESIGN DEVELOPMENT
03-20-2019
Revisions

11-18101-20
HVAC PLAN, FIRST LEVEL - AREA H

M1.1H



HVAC PLAN, FIRST LEVEL - AREA J
 SCALE: 1/8" = 1'-0"
 NORTH

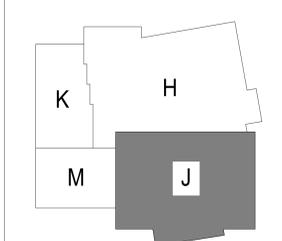
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URBANDALE HS - HVAC RENOVATION

7111 Aurora Ave.
 Urbandale, IA 50322

DESIGN DEVELOPMENT
 03-20-2019
 Revisions

11-18101-20
 HVAC PLAN, FIRST LEVEL - AREA J

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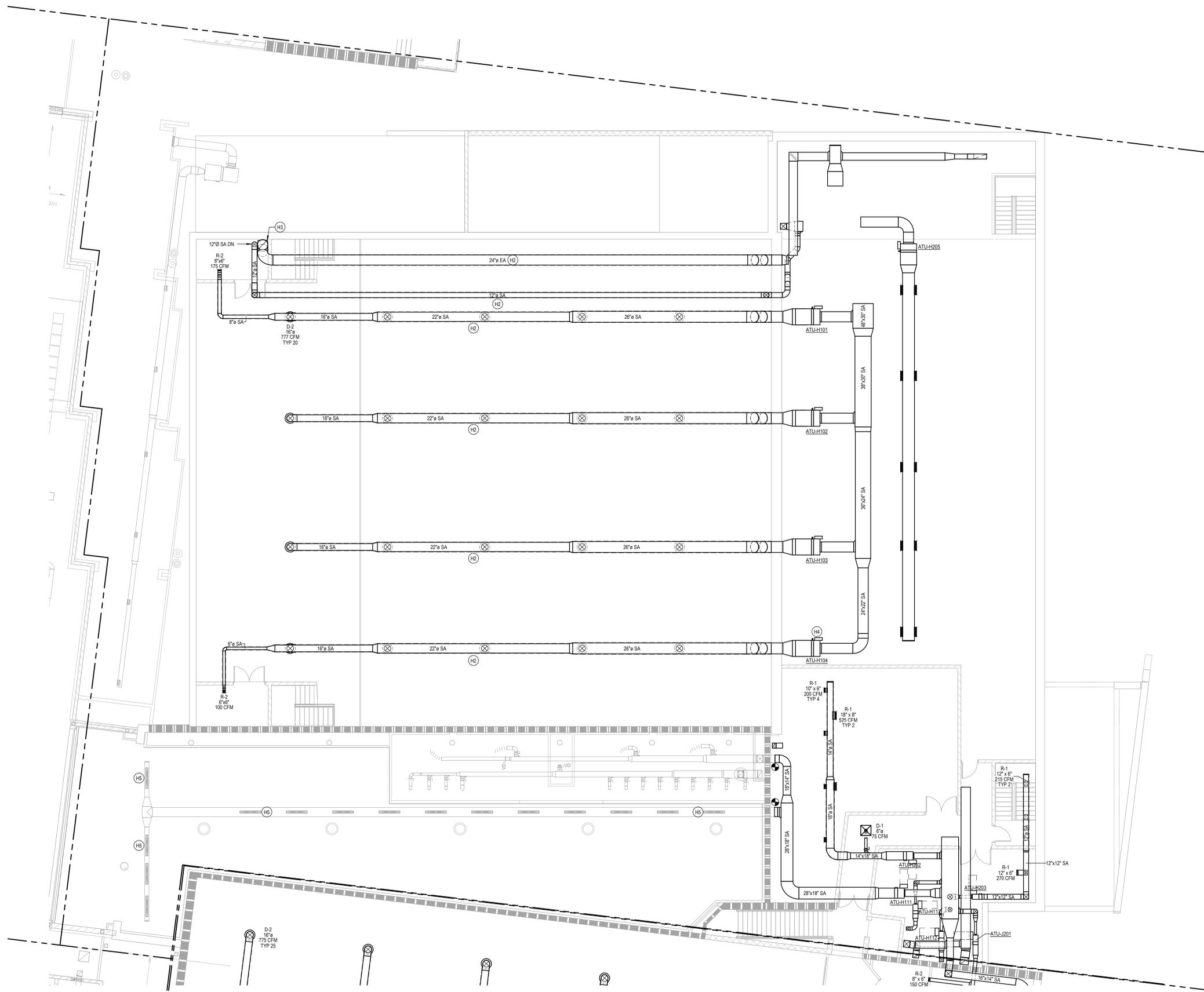
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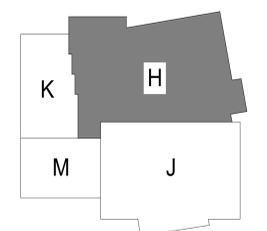
H3	TRANSITION FROM 22"x20" EA TO 24"Ø EA IN VERTICAL.
H4	COORDINATE AIR TERMINAL UNIT MOUNTING WITH EXISTING WRESTLING MAT LIFTING SYSTEM. ADJUST DUCTWORK, PIPING AND EQUIPMENT AS REQUIRED TO MAINTAIN EXISTING LIFT AND MECHANISMS.
H5	REBALANCE ALL EXISTING LINEAR SLOT DIFFUSERS TO 200 CFM.



HVAC PLAN, SECOND LEVEL - AREA H
SCALE: 1/8" = 1'-0"



KEY PLAN



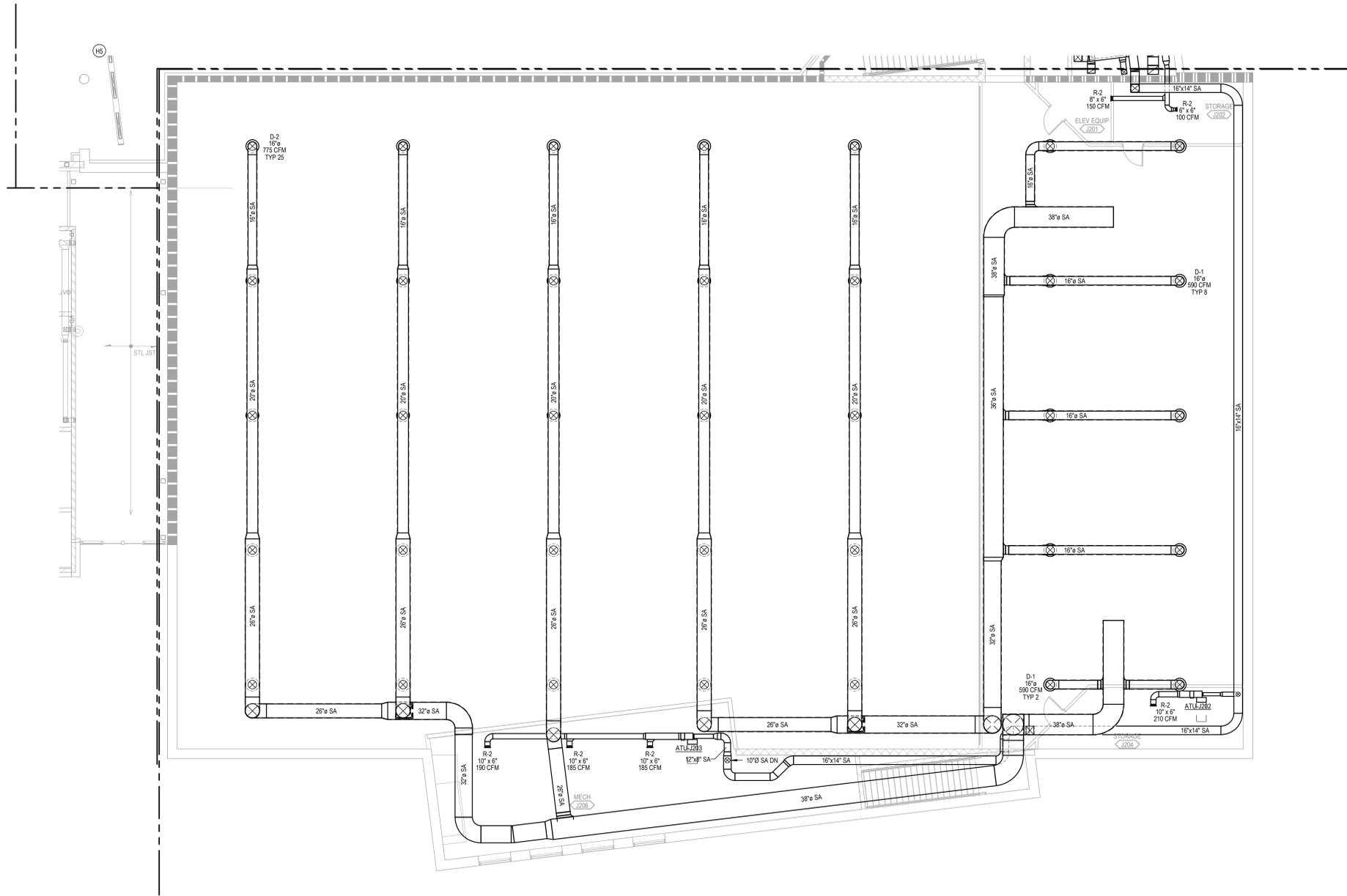
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HVAC PLAN, SECOND LEVEL - AREA H

M1.2H



HVAC PLAN, SECOND LEVEL - AREA J
SCALE: 1/8" = 1'-0"

LEGEND NOTES

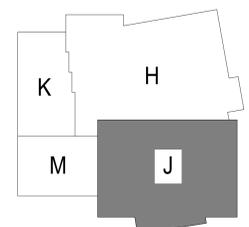
HVAC/PIPING GENERAL NOTES

- A. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR ANY COSTS ASSOCIATED WITH CHANGES NEEDED AS A RESULT OF USING EQUIPMENT DIFFERENT THAN THE BASIS OF DESIGN.
- B. COORDINATE PIPING DUCT PENETRATIONS THRU WALLS, ROOFS, OR CEILING WITH GENERAL CONTRACTOR.
- C. INSTALL EXPANSION COMPENSATORS, GUIDES, AND ANCHORS PER MANUFACTURER'S RECOMMENDATIONS.
- D. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING METHODS OF BRINGING IN NEW MECHANICAL EQUIPMENT THROUGH BUILDING INTO MECHANICAL ROOMS. COORDINATE WITH CONSTRUCTION SCHEDULE.
- E. INSULATE REHEAT COILS AND COIL TUBE BENDS WITH INSULATION TO PREVENT CONDENSATION.
- F. THE SUPPLY RUNOUT TO A DIFFUSER IS NOTED BY THE NECK SIZE GIVEN ON PLAN UNLESS OTHERWISE NOTED.
- G. COORDINATE PIPE ROUTING TO AVOID RUNNING PIPING ABOVE ELECTRICAL WIRING AND EQUIPMENT.
- H. PLANS DO NOT INCLUDE ALL OFFSETS FOR COORDINATION WITH DUCT, PIPING, LIGHTING AND STRUCTURAL SYSTEMS. PROVIDE ALLOWANCES FOR REQUIRED OFFSETS.
- I. VARIABLE FREQUENCY DRIVES (VFD'S) TO BE FURNISHED BY DIVISION 23. TURN OVER FIELD MOUNTED VFD'S TO DIVISION 28 FOR MOUNTING, INSTALLATION AND POWER CONNECTION.
- J. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL REMOVING, CUTTING, REINSTALLING, PATCHING AND REPLACEMENT OF ALL EXISTING BUILDING STRUCTURE, SURFACES AND FINISHES (THAT ARE TO REMAIN) REQUIRED TO COMPLETE WORK STATED IN THE CONTRACT DOCUMENTS.
- K. SEE FIRE PROTECTION DRAWINGS FOR ROUTING, MECHANICAL AND FIRE PROTECTION TO COORDINATE ROUTING OF NEW SPRINKLER MAINS WITH MECHANICAL/PIPING WORK.
- L. WHEN MOUNTING OR LOCATING EQUIPMENT COORDINATE WITH ALL DISCIPLINES TO ALLOW REQUIRED SPACE NEED FOR COIL PULL, FILTER FULL EQUIPMENT REMOVAL WITHOUT PIPE MAIN REMOVAL, ETC. TO FACILITATE REMOVAL OF THIS EQUIPMENT IN FUTURE.
- M. PIPING SHALL NOT BE SUPPORTED FROM OTHER PIPING, CONDUIT OR DUCTWORK.
- N. PROVIDE WIRE GUARD OVER ALL THERMOSTATS, SENSORS, AND HUNDISTATS LOCATED IN PUBLIC SPACES OTHER THAN INDIVIDUAL CLASSROOMS AND OFFICES. (IE. HALLWAYS, RESTROOMS, SHOP ROOMS).
- O. CHILLED WATER AND HOT WATER PIPING 4" AND LARGER SHALL HAVE THERMAL HANGER SHIELDS INSTALLED AT HANGER LOCATIONS.
- P. ALL BRANCHES FROM MAINS ARE TO HAVE 45° ENTRY FITTINGS (NO 90° SPIN-INS OR CONICAL TAPS). PROVIDE LATERALS, RADIUS FITTINGS AS SHOWN.
- Q. GLYCOL WILL BE PRESENT IN HEATING/COOLING (HWS/HWR/CWS/CWR). REFERENCE SCHEDULES AND SPECIFICATIONS FOR GLYCOL PERCENTAGES.
- R. NO 1/2" PIPING BRANCHES ALLOWED WHERE EQUIPMENT HAS SMALLER THAN 3/4" CONNECTIONS. PROVIDE REDUCER AT UNIT. REFERENCE SCHEDULE FOR BRANCH SIZES.
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- T. ROUTE ALL DUCTS IN EXPOSED AREAS AS HIGH AS POSSIBLE. DUCTS IN EXPOSED FINISHED AREAS ARE TO BE CONSTRUCTED OF DOUBLE-WALLED SPIRAL DUCT, UNLESS OTHERWISE NOTED.
- U. PIPES ARE SHOWN SPREAD OUT FOR CLARIFICATION. INSTALL PIPES TIGHT TOGETHER IN THE FIELD.
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- W. ALL DETAILS FOR ITEMS SHOWN ON THIS SHEET ARE REFERRED TO AS FOLLOWS:

HVAC/PIPING KEYNOTES

- H5 REBALANCE ALL EXISTING LINEAR SLOT DIFFUSERS TO 200 CFM.

KEY PLAN



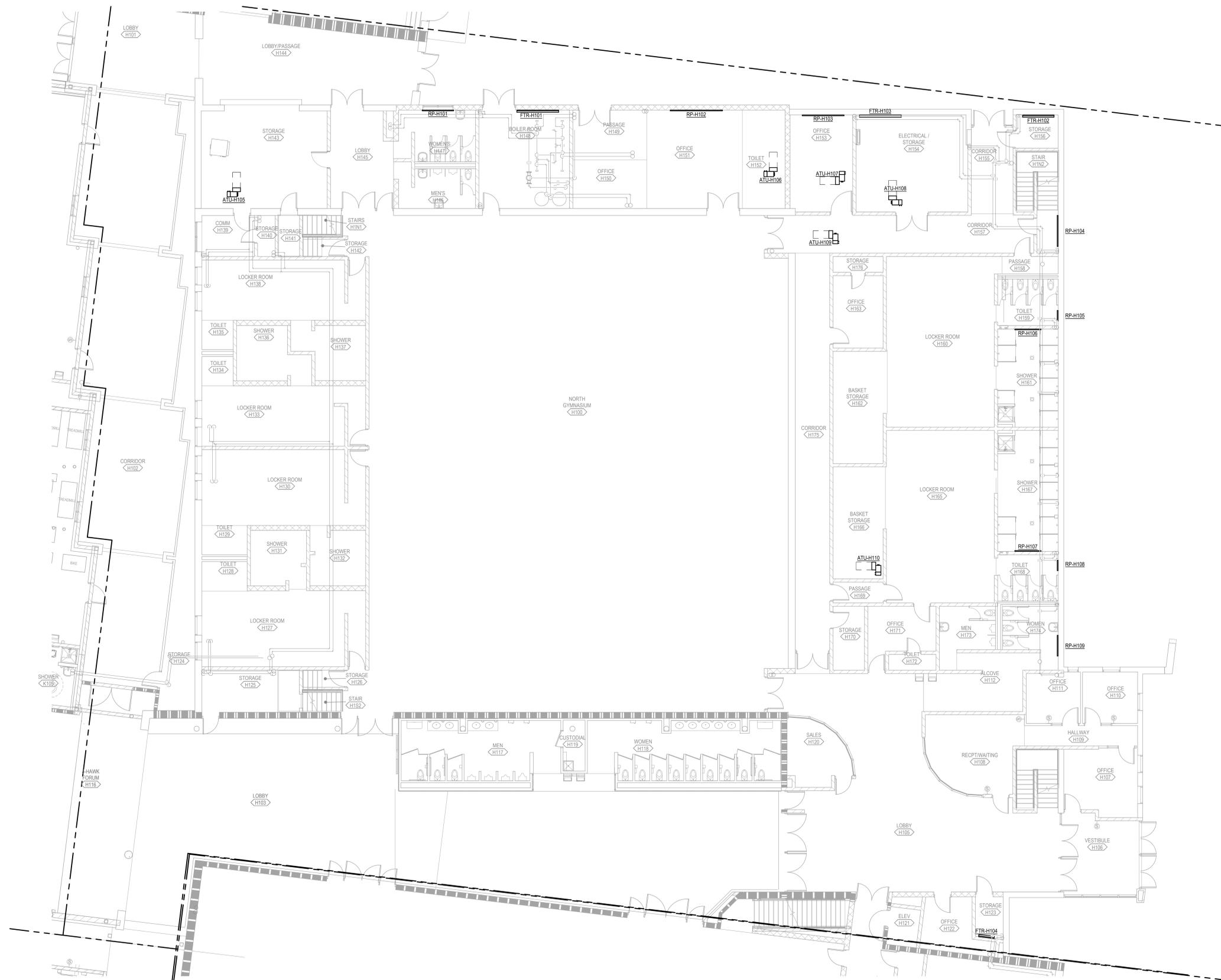
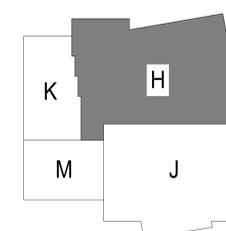
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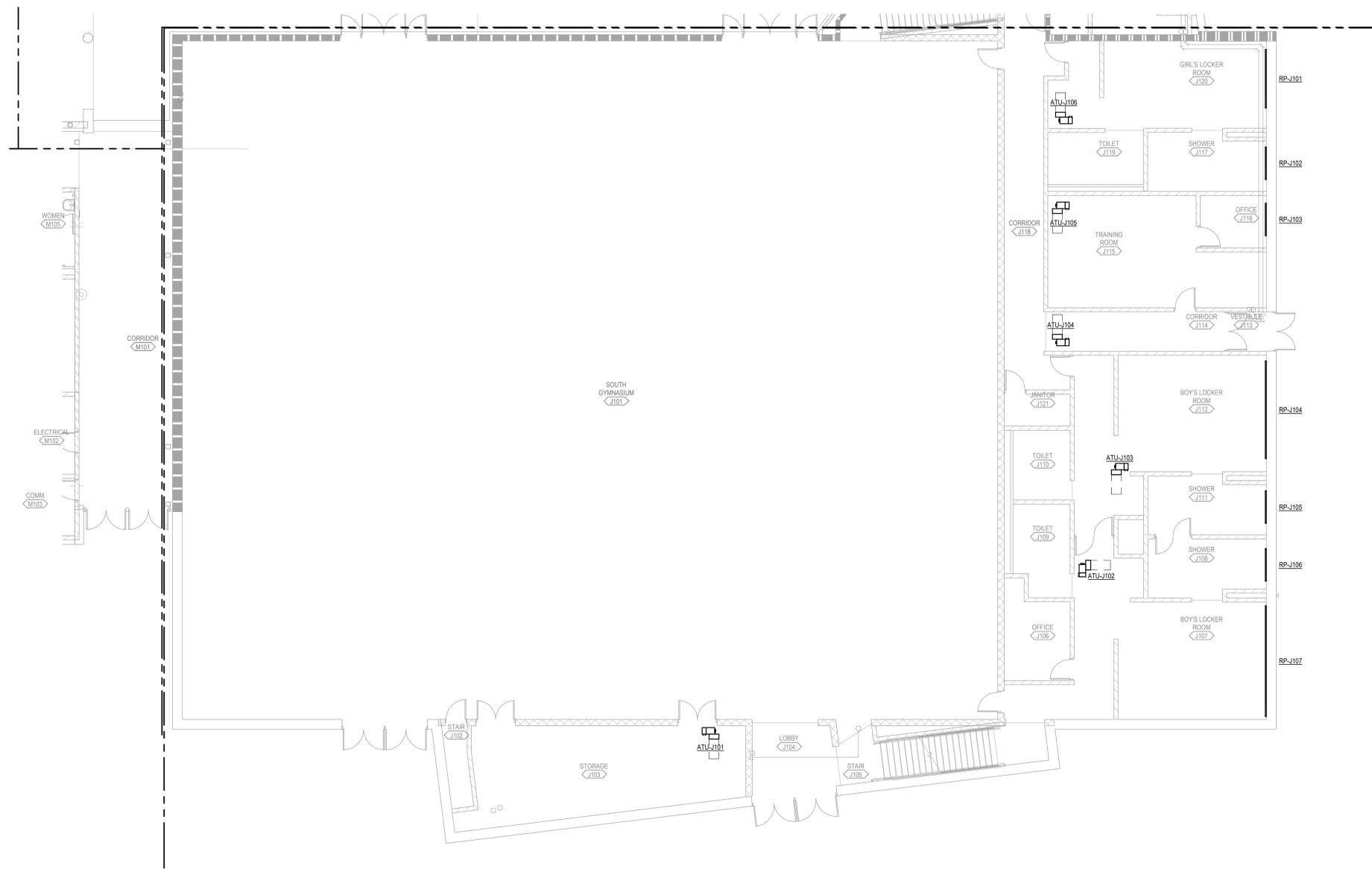
KEY PLAN



HVAC PIPING PLAN, FIRST LEVEL - AREA H
SCALE: 1/8" = 1'-0"



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HVAC PIPING PLAN, FIRST LEVEL - AREA J
 SCALE: 1/8" = 1'-0"
 NORTH

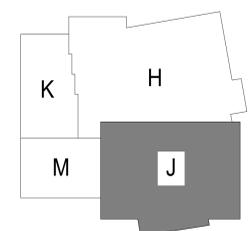
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HVAC/PIPING KEYNOTES

KEY PLAN



URBANDALE HS - HVAC RENOVATION

7111 Aurora Ave.
 Urbandale, IA 50322

DESIGN DEVELOPMENT
 03-20-2019
 Revisions

11-18101-20
 HVAC PIPING PLAN, FIRST LEVEL - AREA J

M2.1J

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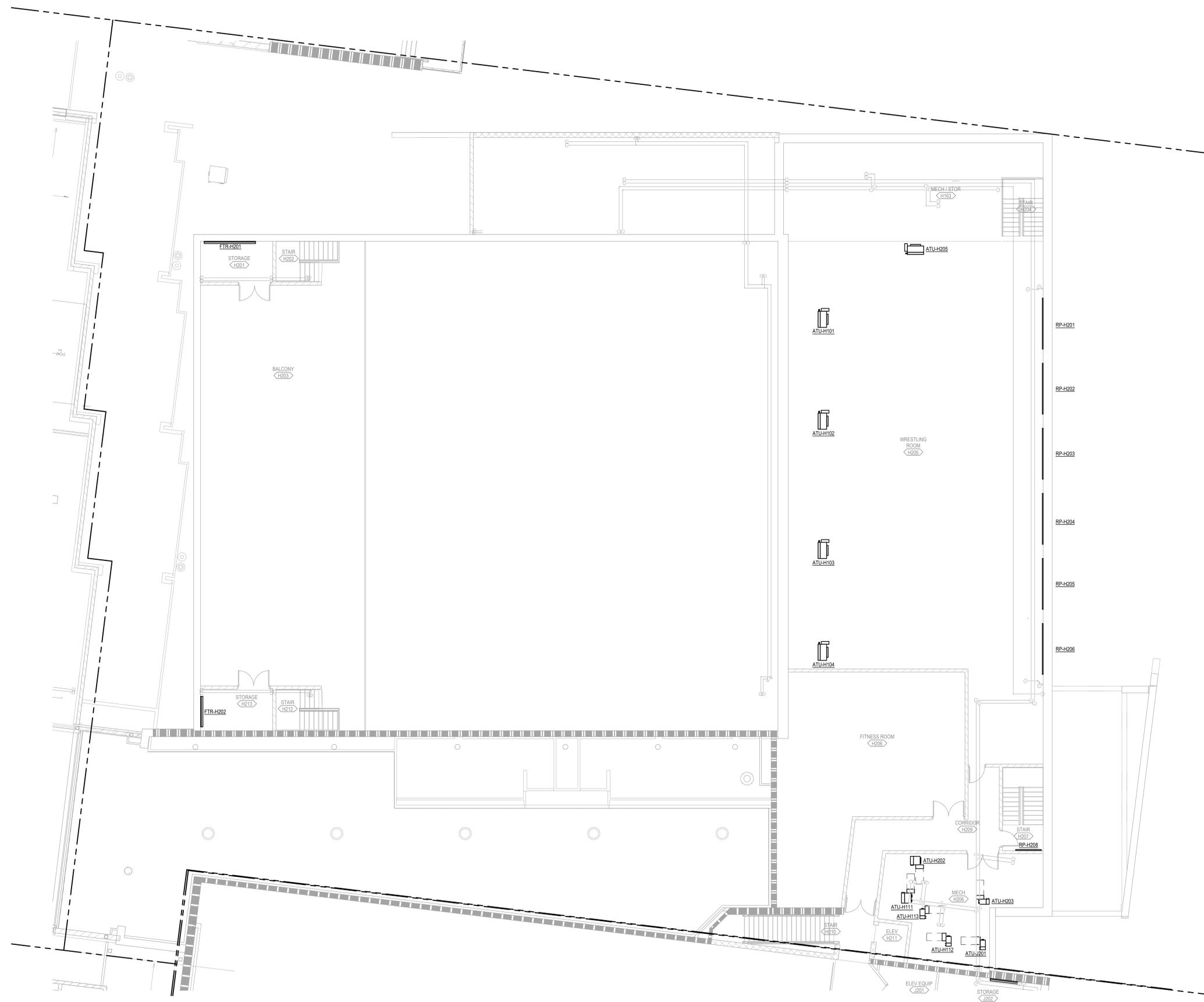
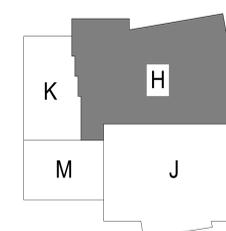
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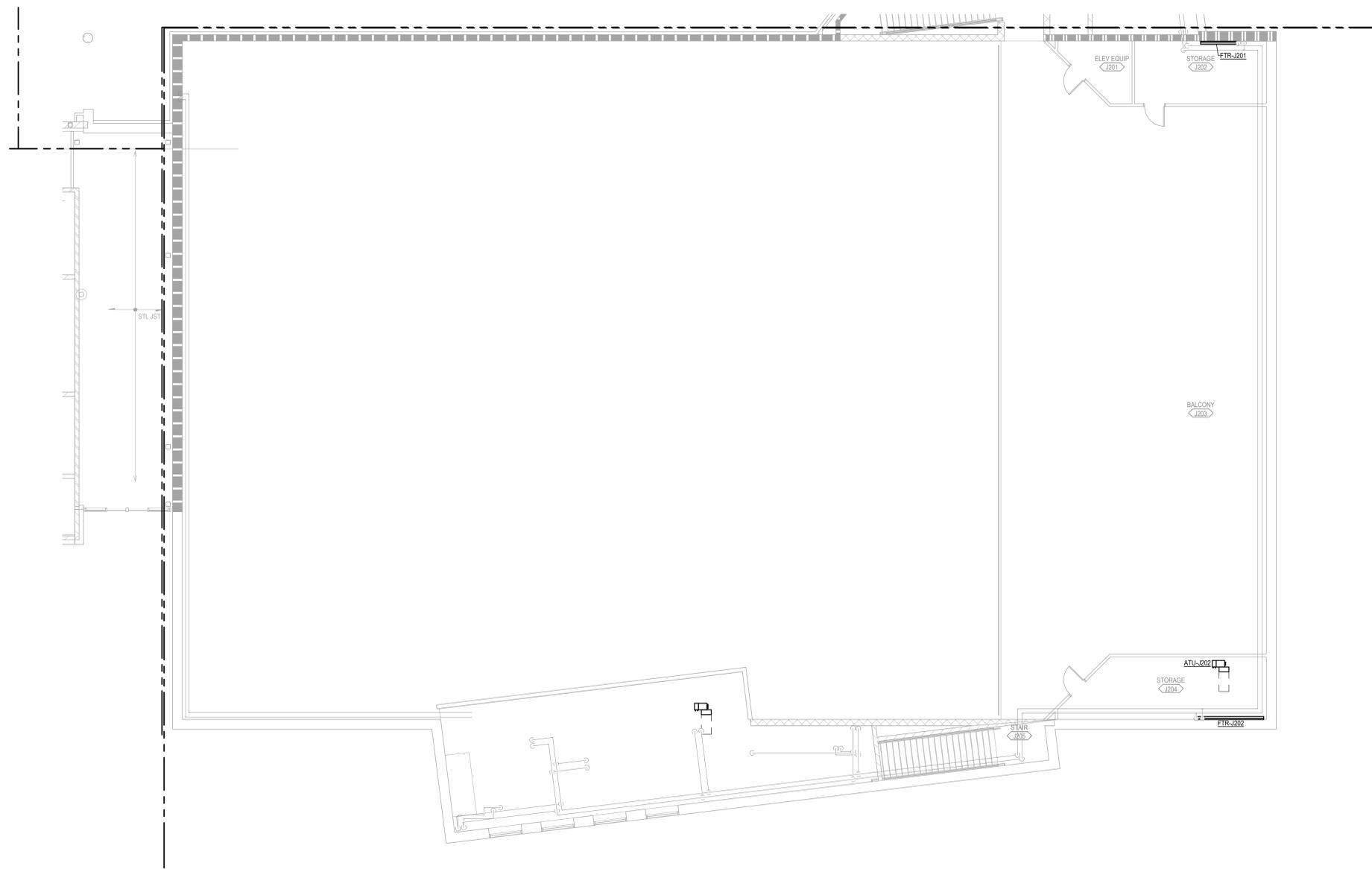
HVAC/PIPING KEYNOTES

KEY PLAN



HVAC PIPING PLAN, SECOND LEVEL - AREA H
SCALE: 1/8" = 1'-0"

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HVAC PIPING PLAN, SECOND LEVEL - AREA J
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 NORTH

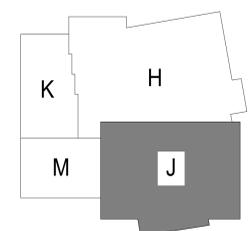
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 Urbandale, IA 50322

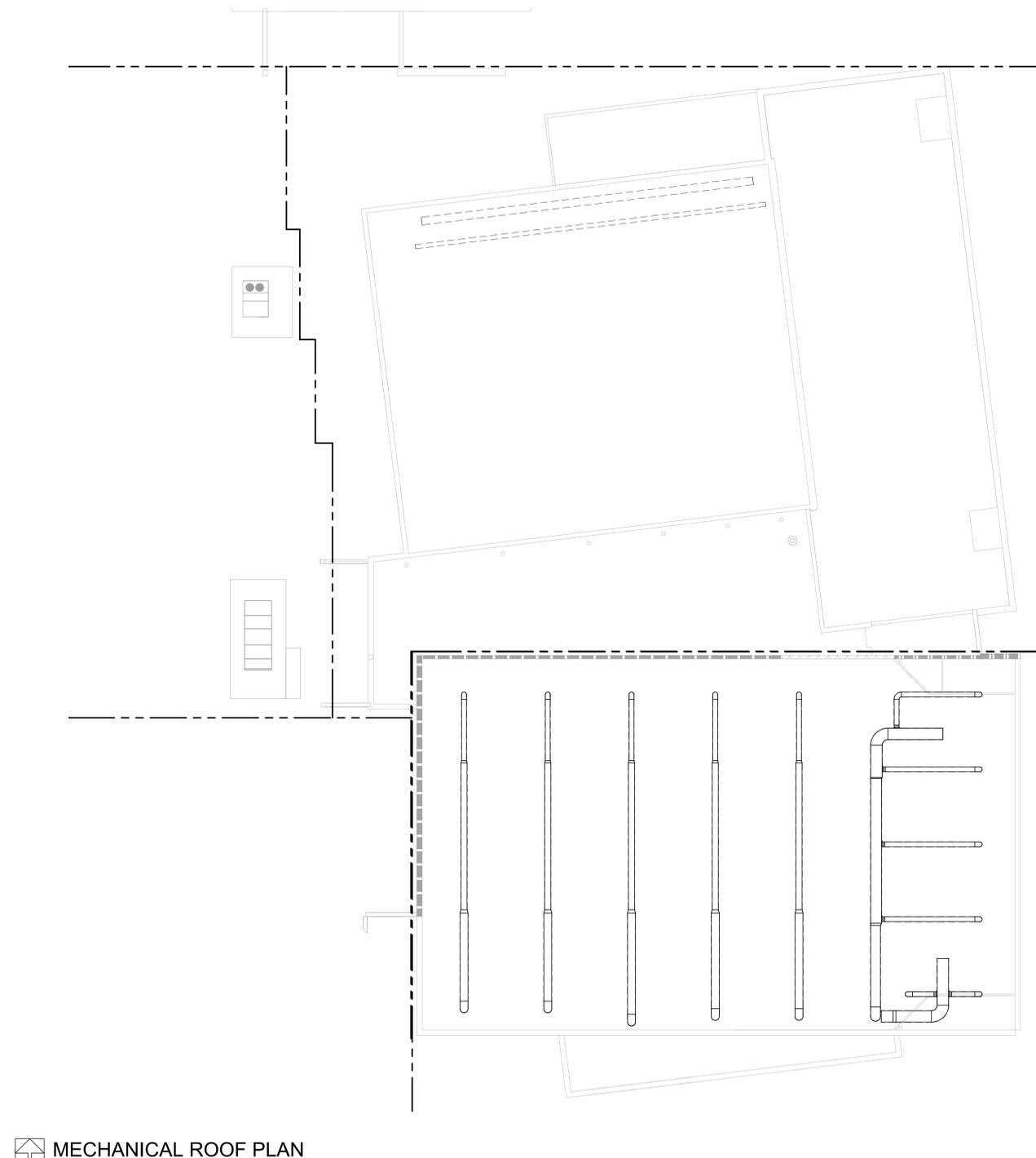
DESIGN DEVELOPMENT
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11-18101-20
 HVAC PIPING PLAN, SECOND LEVEL - AREA J

M2.2J

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 **MECHANICAL ROOF PLAN**
SCALE: 1/16" = 1'-0"

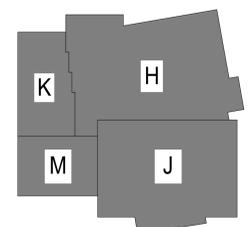
LEGEND NOTES

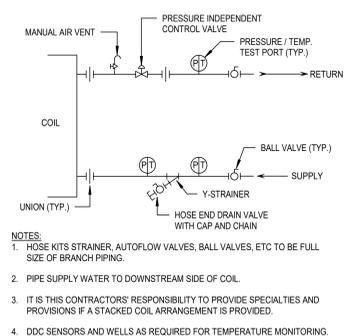
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- H. PLANS DO NOT INCLUDE ALL OFFSETS FOR COORDINATION WITH DUCT, PIPING, LIGHTING AND STRUCTURAL SYSTEMS. PROVIDE ALLOWANCES FOR REQUIRED OFFSETS.
- I. VARIABLE FREQUENCY DRIVES (VFD'S) TO BE FURNISHED BY DIVISION 23. TURN OVER FIELD MOUNTED VFD'S TO DIVISION 28 FOR MOUNTING, INSTALLATION AND POWER CONNECTION.
- J. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL REMOVING, CUTTING, REINSTALLING, PATCHING AND REPLACEMENT OF ALL EXISTING BUILDING STRUCTURE, SURFACES AND FINISHES (THAT ARE TO REMAIN) REQUIRED TO COMPLETE WORK STATED IN THE CONTRACT DOCUMENTS.
- K. SEE FIRE PROTECTION DRAWINGS FOR ROUTING, MECHANICAL AND FIRE PROTECTION TO COORDINATE ROUTING OF NEW SPRINKLER MAINS WITH MECHANICAL/PLUMBING WORK.
- L. WHEN MOUNTING OR LOCATING EQUIPMENT COORDINATE WITH ALL DISCIPLINES TO ALLOW REQUIRED SPACE NEED FOR COIL, FULL, FILTER FULL, EQUIPMENT REMOVAL, WITHOUT PIPE MAIN REMOVAL, ETC. TO FACILITATE REMOVAL OF THIS EQUIPMENT IN FUTURE.
- M. PIPING SHALL NOT BE SUPPORTED FROM OTHER PIPING, CONDUIT OR DUCTWORK.
- N. PROVIDE WIRE GUARD OVER ALL THERMOSTATS, SENSORS, AND HUMIDISTATS LOCATED IN PUBLIC SPACES OTHER THAN INDIVIDUAL CLASSROOMS AND OFFICES. (IE. HALLWAYS, RESTROOMS, SHOP ROOMS.)
- O. CHILLED WATER AND HOT WATER PIPING 4" AND LARGER SHALL HAVE THERMAL HANGER SHIELDS INSTALLED AT HANGER LOCATIONS.
- P. ALL BRANCHES FROM MAINS ARE TO HAVE 45° ENTRY FITTINGS (NO 90° SPIN-INS OR CONICAL TAPS). PROVIDE LATERALS, RADIUS FITTINGS AS SHOWN.
- Q. GLYCOL WILL BE PRESENT IN HEATING/COOLING SPECIFICATIONS FOR GLYCOL PERCENTAGES.
- R. NO 1/2" PIPING BRANCHES ALLOWED WHERE EQUIPMENT HAS SMALLER THAN 3/4" CONNECTIONS. PROVIDE REDUCER AT UNIT. REFERENCE SCHEDULE FOR BRANCH SIZES.
- S. PAINT INSIDE OF FLEXUM BOXES CONNECTING TO LOUVERS COLOR (BLACK) UNLESS OTHERWISE NOTED.
- T. ROUTE ALL DUCTS IN EXPOSED AREAS AS HIGH AS POSSIBLE. DUCTS IN EXPOSED FINISHED AREAS ARE TO BE CONSTRUCTED OF DOUBLE-WALLED SPIRAL DUCT, UNLESS OTHERWISE NOTED.
- U. PIPES ARE SHOWN SPREAD OUT FOR CLARIFICATION. INSTALL PIPES TIGHT TOGETHER IN THE FIELD.
- V. PROVIDE ALLOWANCES FOR BOTH DUCTWORK OFFSETS AND ADDITIONAL ELBOWS. THIS IS DUE TO MANY BUILDING ANGLES.
- W. ALL DETAILS FOR ITEMS SHOWN ON THIS SHEET ARE REFERRED TO AS FOLLOWS:

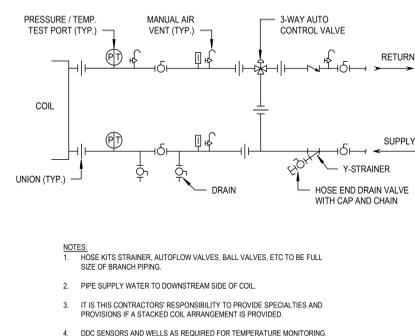
HVAC/PIPING KEYNOTES

KEY PLAN

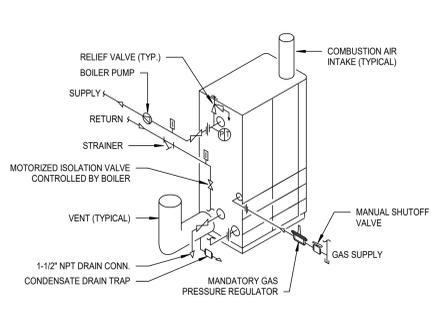




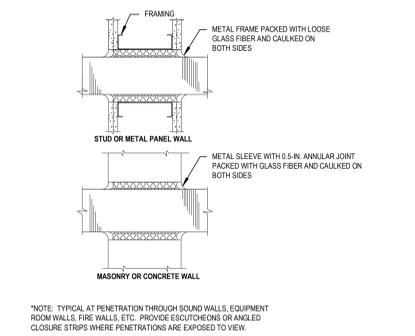
1 2 WAY COIL CONNECTION DETAIL
M4.1 NO SCALE



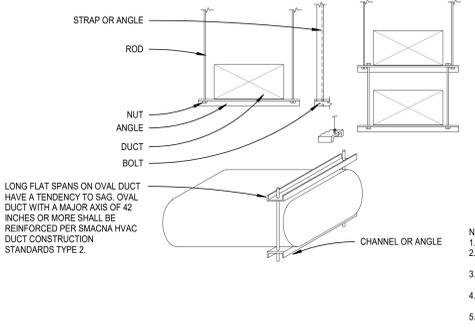
2 3 WAY COIL CONNECTION DETAIL
M4.1 NO SCALE



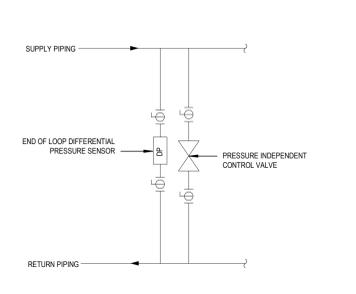
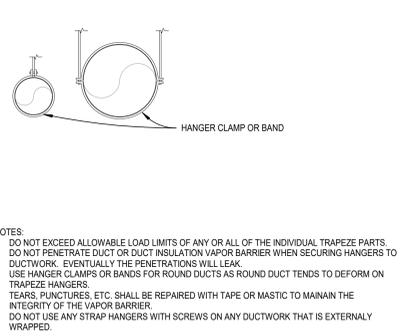
3 BOILER PIPING DETAIL
M4.1 NO SCALE



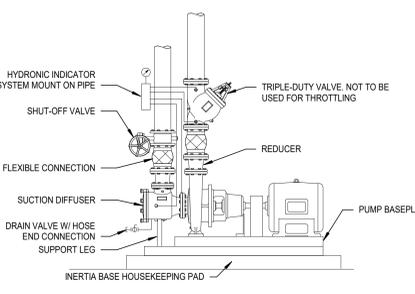
4 DUCT PENETRATION THROUGH WALL
M4.1 NO SCALE



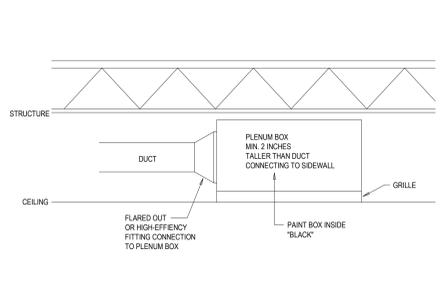
5 DUCTWORK HANGERS
M4.1 NO SCALE



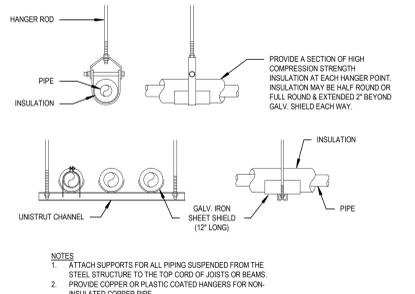
6 END OF LOOP BYPASS
M4.1 NO SCALE



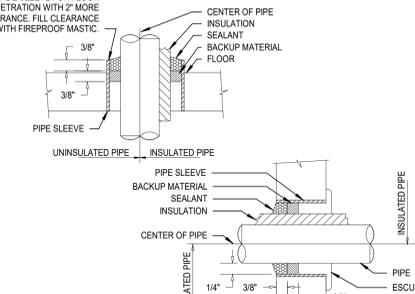
7 END SUCTION PUMP
M4.1 NO SCALE



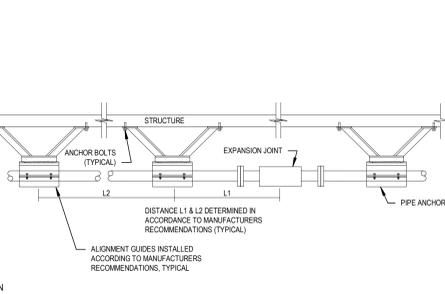
8 EXHAUST GRILLE
M4.1 NO SCALE



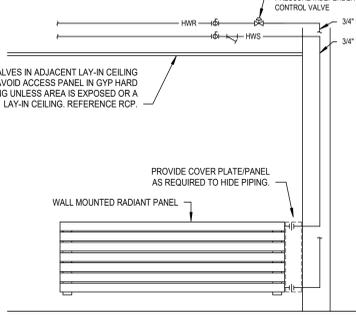
9 PIPE INSULATION
M4.1 NO SCALE



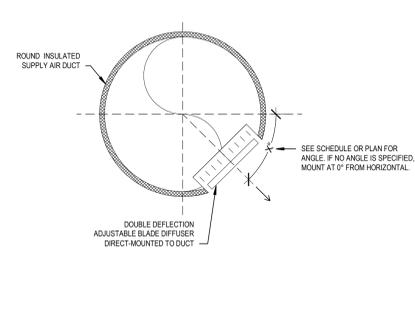
10 PIPE PENETRATIONS
M4.1 NO SCALE



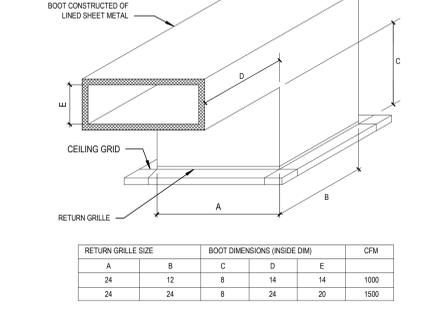
11 PIPING EXPANSION JOINT
M4.1 NO SCALE



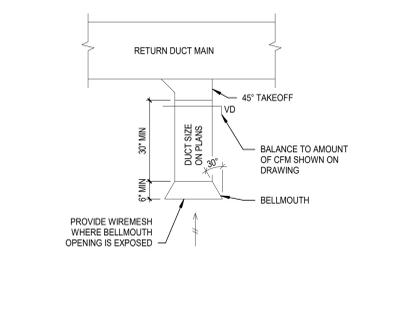
12 RADIANT PANEL PIPING DETAIL
M4.1 NO SCALE



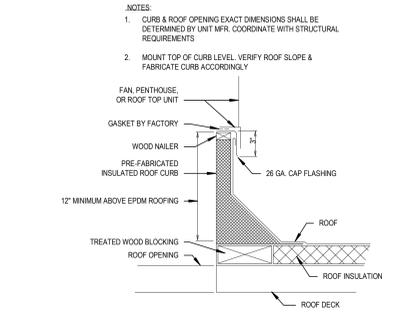
13 REGISTER MOUNTING TO ROUND DUCT
M4.1 NO SCALE



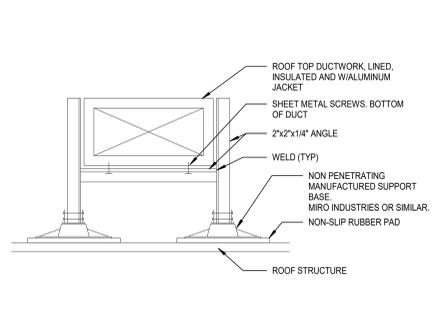
14 RETURN AIR GRILLE SOUND BOOT
M4.1 NO SCALE



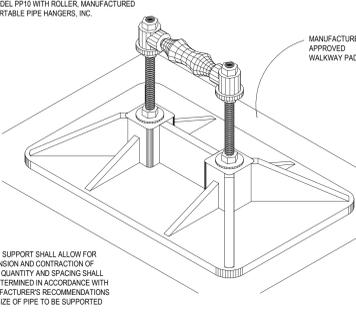
15 RETURN BOOT TAKEOFF
M4.1 NO SCALE



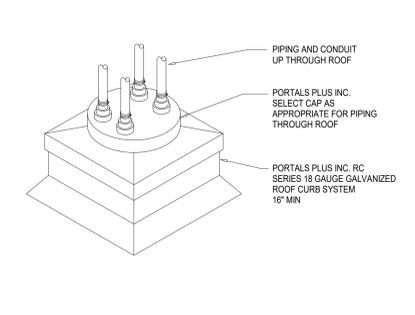
16 ROOF CURB DETAIL (TYP.)
M4.1 NO SCALE



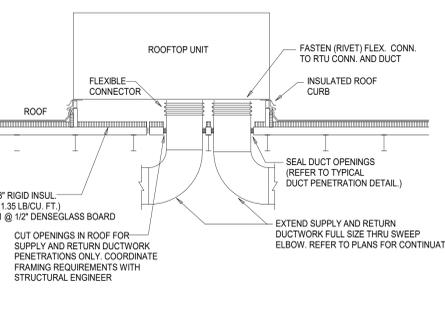
17 ROOF DUCT SUPPORT - NO CURB
M4.1 NO SCALE



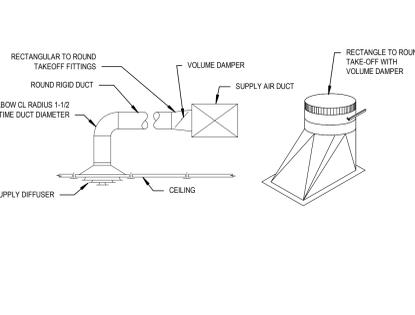
18 ROOF HYDRONIC PIPING SUPPORT
M4.1 NO SCALE



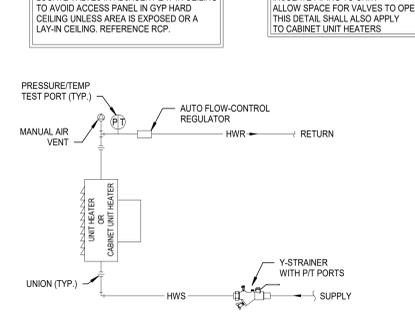
19 ROOF PIPE PORTAL DETAIL
M4.1 NO SCALE



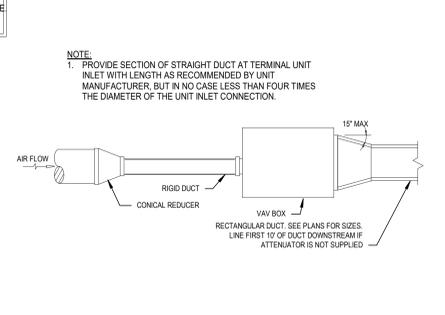
20 ROOFTOP UNIT - INSULATED ROOF CURB
M4.1 NO SCALE



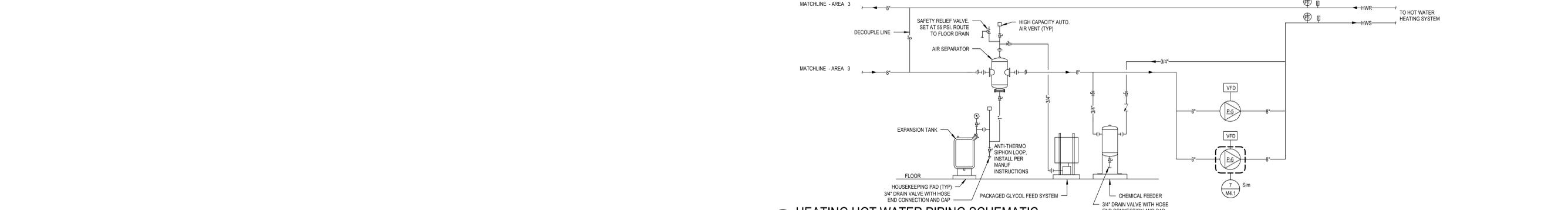
21 TYPICAL DIFFUSER CONNECTIONS
M4.1 NO SCALE



22 UNIT HEATER
M4.1 NO SCALE



23 VAV BOX DETAIL
M4.1 NO SCALE



24 HEATING HOT WATER PIPING SCHEMATIC
M4.1 NO SCALE

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AIR TERMINAL UNIT SCHEDULE

MARK	SYSTEM	SIZE	CFM		ARI NOISE RATING		HOT WATER REHEAT COIL DATA																BASIS OF DESIGN	MECH NOTES
			MAX	MIN	RADIATED NC (OCTAVE BAND)	DISCHARGE NC (OCTAVE BAND)	DISCHARGE ATTENUATOR	CFM	MIN CAPACITY (MMH)	EAT (°F)	LAT (°F)	APD (IN WG)	GPM	EWI (°F)	LWT (°F)	WPD (FT WG)	ROWS							
ATU-H101	RTU-H1	24x16	3955	1455	23 (3)	--	--	3955	128.1	55	84.9	0.51	5.64	160	113.6	3.65	2	PRICE - SDVS	1-3					
ATU-H102	RTU-H1	24x16	3955	1455	23 (3)	--	--	3955	128.1	55	84.9	0.51	5.64	160	113.6	3.65	2	PRICE - SDVS	1-3					
ATU-H103	RTU-H1	24x16	3955	1455	23 (3)	--	--	3955	127.7	55	84.8	0.51	5.6	160	113.4	3.6	2	PRICE - SDVS	1-3					
ATU-H104	RTU-H1	24x16	3955	1455	23 (3)	--	--	3955	127.7	55	84.8	0.51	5.6	160	113.4	3.6	2	PRICE - SDVS	1-3					
ATU-H105	RTU-H1	8	400	360	--	--	--	400	13.1	55	85	0.17	0.5	160	107.3	0.05	2	PRICE - SDVS	1-3					
ATU-H106	RTU-H1	8	520	185	--	21 (2)	--	520	17	55	85.1	0.27	0.74	160	113.3	0.11	2	PRICE - SDVS	1-3					
ATU-H107	RTU-H1	4	75	45	--	--	--	75	2.6	55	85.2	0.01	0.07	160	113.5	0	2	PRICE - SDVS	1-3					
ATU-H108	RTU-H1	8	330	200	--	--	--	330	10.8	55	84.8	0.12	0.39	160	103.6	0.03	2	PRICE - SDVS	1-3					
ATU-H109	RTU-H1	4	100	45	--	20 (2)	--	100	3.4	55	85.6	0.02	0.1	160	104.1	0	2	PRICE - SDVS	1-3					
ATU-H110	RTU-H1	4	80	45	--	--	--	80	2.6	55	84.8	0.02	0.07	160	103.5	0	2	PRICE - SDVS	1-3					
ATU-H201	RTU-H1	24x16	6710	1830	27 (2)	20 (3)	--	5710	185.4	55	85	1.43	5.82	160	96	1.94	3	PRICE - SDVS	1-3					
ATU-H111	RTU-J2	24x16	4080	1225	23 (3)	--	--	4080	132.6	55	85	0.54	5.88	160	114.7	4.05	2	PRICE - SDVS	1-3					
ATU-H112	RTU-J2	8	335	168	--	--	--	335	10.9	55	84.9	0.13	0.4	160	104	0.04	2	PRICE - SDVS	1-3					
ATU-H113	RTU-J2	4	150	45	--	25 (2)	--	150	5	55	85.1	0.07	0.12	160	107.5	0.01	3	PRICE - SDVS	1-4					
ATU-H202	RTU-J2	14	1925	925	--	--	--	1925	59.6	55	85	0.63	2.95	160	116.7	0.86	2	PRICE - SDVS	1-3					
ATU-H203	RTU-J2	8	700	225	--	22 (2)	--	700	22.8	55	85	0.44	1.21	160	121.5	0.25	2	PRICE - SDVS	1-3					
ATU-J101	RTU-J2	8	330	135	--	--	--	330	10.7	55	84.7	0.16	0.35	160	107.6	0.05	2	PRICE - SDVS	1-3					
ATU-J102	RTU-J2	8	425	150	--	--	--	425	13.9	55	85	0.25	0.48	160	107.2	0.05	2	PRICE - SDVS	1-3					
ATU-J103	RTU-J2	6	235	70	--	23 (2)	3-FOOT	235	7.8	55	85	0.09	0.28	160	103.8	0.02	2	PRICE - SDVS	1-3					
ATU-J104	RTU-J2	6	125	75	--	--	--	125	4.2	55	85	0.03	0.13	160	106.2	0	2	PRICE - SDVS	1-3					
ATU-J105	RTU-J2	6	275	110	--	24 (2)	5-FOOT	275	9	55	85	0.12	0.34	160	106.1	0.02	2	PRICE - SDVS	1-3					
ATU-J106	RTU-J2	6	200	85	--	24 (2)	3-FOOT	200	6.6	55	85	0.07	0.23	160	102.2	0.01	2	PRICE - SDVS	1-3					
ATU-J201	RTU-J2	8	250	75	--	24 (2)	--	250	8.2	55	85	0.1	0.3	160	104.8	0.02	2	PRICE - SDVS	1-3					
ATU-J202	RTU-J2	6	210	85	--	24 (2)	--	210	7	55	85.3	0.08	0.25	160	103.5	0.01	2	PRICE - SDVS	1-3					
ATU-J203	RTU-J2	8	560	170	--	22 (2)	--	560	18.3	55	85	0.3	0.82	160	115	0.13	2	PRICE - SDVS	1-3					

- MECHANICAL NOTES:
 1. HOT WATER COILS HAVE A MINIMUM OF 2 ROWS WITH A MAXIMUM WATER PRESSURE DROP OF 1 FOOT. (UNLESS APPROVED BY THE ENGINEER OR NOTED OTHERWISE)
 2. FACTORY MOUNT TEMPERATURE CONTROLS. COORDINATE WITH TEMPERATURE CONTROLS CONTRACTOR.
 3. PROVIDE WITH 2-WAY COIL CONNECTION.
 4. PROVIDE WITH 3-WAY COIL CONNECTION.

DIFFUSER, REGISTER & GRILLE SCHEDULE

MARK	DESCRIPTION	MOUNTING OR FRAME TYPE	MAX STATIC PD (IN WG)	MAX NC (DECIBELS)	MATERIAL	FINISH	BASIS OF DESIGN	MECH NOTES
D-1	SQUARE PLAQUE DIFFUSER	LAY-IN	0.1	25	STEEL	WHITE	PRICE - SPD	1
D-2	ADJUSTABLE CEILING TWIST DIFFUSER	SUSPENDED	0.1	25	STEEL	WHITE	EFFECTIVE HVAC - AXI-ACTIF	1,2,7
R-1	SPIRAL DUCT GRILLE	DUCT	0.1	25	ALUMINUM	WHITE	PRICE - SDGE	1,3,4
R-2	DOUBLE DEFLECTION LOUVERED GRILLE	SURFACE	0.1	25	STEEL	WHITE	PRICE - S20	1,3
G-1	EGG CRATE GRILLE	LAY-IN	0.1	25	ALUMINUM	WHITE	PRICE - 80	1
G-2	EGG CRATE GRILLE	SURFACE	0.1	25	ALUMINUM	WHITE	PRICE - 80	1,5,6
G-3	LOUVERED RETURN GRILLE	SURFACE / DUCT	0.1	25	STEEL	WHITE	PRICE - 530	1,9
G-4	LOUVERED RETURN GRILLE	SURFACE / DUCT	0.1	25	ALUMINUM	WHITE	PRICE - 630	1,8,9

- MECHANICAL NOTES:
 1. CONTRACTOR SHALL COORDINATE MOUNTING AND SURFACE CONSTRUCTION PRIOR TO FURNISHING MATERIAL.
 2. SEE PLANS FOR LOCATION, NECK SIZE AND CFM.
 3. PROVIDE AUTO CHANGE-OVER (SELF-ACTING THERMAL EXPANSION ACTUATOR).
 4. CONFIGURATION TO BE DOUBLE DEFLECTION. FRONT BLADES PARALLEL TO SHORT DIMENSION.
 5. PROVIDE WITH AIR SCOOP.
 6. FURNISH WITH REMOTE CONTROL VOLUME DAMPER CONTROLLED VIA CABLE.
 7. PROVIDE WITH INTEGRATED PLENUM. PLENUM TO BE PREPARED BLACK WITH TOP INLET FOR DUCT CONNECTION.
 8. PROVIDE WITH SECURITY GRILLE FOR SPORTS FACILITIES.
 9. PROVIDE WITH INTEGRAL OPPOSED BLADE DAMPER.
 10. FRONT BLADES PARALLEL TO LONG DIMENSION.

RADIANT PANEL SCHEDULE

MARK	UNIT IDENTIFICATION	AREA SERVED	ROOM LOAD REQUIREMENT (BTU/H)	UNIT CAPACITY (BTU/H)	CAPACITY PER FOOT (BTU/FT)	GPM	PRESSURE DROP MAX (FT HD)	EWT (°F)	LWT (°F)	ENTERING AIR DB (°F)	PHYSICAL CHARACTERISTICS				MTG HEIGHT (IN A.F.F.)	FINISH	BASIS OF DESIGN	MECH NOTES	
											LENGTH (FT)	HEIGHT (IN)	DEPTH (IN)	NUMBER OF ROWS					
RP-H101	H146 - RESTROOMS		4,000	4434	739	0.30	1	160	130	70	6	14 3/8"	2"	5	WALL	4	WHITE	RUN-TAL RF-5	-3
RP-H102	H151 - OFFICE		15,500	16280	1628	1.09	1	160	130	70	10	14 3/8"	5"	5	WALL	4	WHITE	RUN-TAL R3F-5	-3
RP-H103	H153 - OFFICE		3,000	3848	481	0.26	1	160	130	70	8	8 5/8"	2"	3	WALL	4	WHITE	RUN-TAL RF-3	-3
RP-H104	H205 - WRESTLING STAIR		5,500	6636	1106	0.44	1	160	130	70	6	8 5/8"	5"	3	WALL	4	WHITE	RUN-TAL R3F-3	-3
RP-H105	H159 - TOILET		4,500	2950	1525	0.18	1	160	130	70	2	23 1/8"	5"	4	WALL	4	WHITE	RUN-TAL R3F-8	-3
RP-H106	H161 - SHOWER		6,500	5530	1106	0.37	1	160	130	70	5	11 1/2"	5"	3	WALL	78	WHITE	RUN-TAL R3F-4	-3
RP-H107	H107 - SHOWER		8,000	5530	1106	0.37	1	160	130	70	5	14 3/4"	5"	3	WALL	78	WHITE	RUN-TAL R3F-5	-3
RP-H108	H168 - TOILET		3,500	2650	1325	0.18	1	160	130	70	2	14 3/4"	5"	4	WALL	4	WHITE	RUN-TAL R3F-5	-3
RP-H109	H173 - RESTROOMS		3,000	2956	739	0.20	1	160	130	70	4	14 3/4"	2"	5	WALL	4	WHITE	RUN-TAL RF-5	-3
RP-H201	H205 - WRESTLING		5,000	5810	581	0.39	1	160	130	70	10	11 1/2"	2"	4	WALL	4	WHITE	RUN-TAL RF-4	-3
RP-H202	H205 - WRESTLING		5,000	5810	581	0.39	1	160	130	70	10	11 1/2"	2"	4	WALL	4	WHITE	RUN-TAL RF-4	-3
RP-H203	H205 - WRESTLING		5,000	5810	581	0.39	1	160	130	70	10	11 1/2"	2"	4	WALL	4	WHITE	RUN-TAL RF-4	-3
RP-H204	H205 - WRESTLING		5,000	5810	581	0.39	1	160	130	70	10	11 1/2"	2"	4	WALL	4	WHITE	RUN-TAL RF-4	-3
RP-H205	H205 - WRESTLING		5,000	5810	581	0.39	1	160	130	70	10	11 1/2"	2"	4	WALL	4	WHITE	RUN-TAL RF-4	-3
RP-H206	H205 - WRESTLING		5,000	5810	581	0.39	1	160	130	70	10	11 1/2"	2"	4	WALL	4	WHITE	RUN-TAL RF-4	-3
RP-H207	H205 - WRESTLING		5,000	5810	581	0.39	1	160	130	70	10	11 1/2"	2"	4	WALL	4	WHITE	RUN-TAL RF-4	-3
RP-H208	H07 - STAIR		4,500	4330	866	0.29	1	160	130	70	5	5 3/4"	5"	2	WALL	4	WHITE	RUN-TAL R3F-2	1-3
RP-J101	J120 - GIRLS LOCKER ROOM		6,000	7734	866	0.52	1	160	130	70	9	5 3/4"	5"	2	WALL	96	WHITE	RUN-TAL R3F-2	1-3
RP-J102	J117 - SHOWER		2,500	2905	581	0.19	1	160	130	70	5	11 1/2"	2"	4	WALL	96	WHITE	RUN-TAL RF-4	1-3
RP-J103	J116 - OFFICE		2,500	2905	581	0.19	1	160	130	70	5	11 1/2"	2"	4	WALL	4	WHITE	RUN-TAL RF-4	1-3
RP-J104	J112 - BOYS LOCKER ROOM		4,500	5595	373	0.37	1	160	130	70	15	5 3/4"	2"	2	WALL	96	WHITE	RUN-TAL RF-2	1-3
RP-J105	J111 - SHOWER		2,000	2405	481	0.16	1	160	130	70	5	8 5/8"	2"	3	WALL	96	WHITE	RUN-TAL RF-2	1-3
RP-J106	J108 - SHOWER		2,000	2405	481	0.16	1	160	130	70	5	8 5/8"	2"	3	WALL	96	WHITE	RUN-TAL RF-3	1-3
RP-J107	J107 - BOYS LOCKER ROOM		16,000	18802	1106	1.25	1	160	130	70	17	8 5/8"	5"	3	WALL	96	WHITE	RUN-TAL R3F-3	1-3

- MECHANICAL NOTES:
 1. FINISH WITH GLOSS POWER COAT FINISH.
 2. FINISH HOT WATER CONVEXOR WITH NECESSARY TRIM AND SUPPORTS FOR CONTINUOUS LOOK.
 3. MANUFACTURER IS TO FIELD MEASURE AND DESIGN CONVEXORS FOR AN AS TIGHT OF FIT IN SPACES AS POSSIBLE.

FINNED TUBE RADIATOR SCHEDULE

MARK	UNIT IDENTIFICATION	AREA SERVED	UNIT CAPACITY (BTU/H)	CAPACITY PER FOOT (BTU/FT)	GPM	EWT (°F)	LWT (°F)	ENTERING AIR DB (°F)	FINNED TUBE DATA				ENCLOSURE DATA			BASIS OF DESIGN	NOTES	
									FINNED LENGTH (FT)	ROWS	FIN SIZE L x H (IN)	FINS PER FOOT	TUBE SIZE (IN)	MTG TYPE	MTG HEIGHT (IN)			FINISH
FTR-H101	H148 - BOILER ROOM		9704	1213	0.65	160	130	70	8	2	4 1/4" X 3 5/8"	50	3/4"	WALL	4	WHITE	STERLING JVB-S20	1-3
FTR-H102	H156 - STORAGE		4746	791	0.32	160	130	70	6	1	4 1/4" X 3 5/8"	50	3/4"	WALL	4	WHITE	STERLING JVB-S14	1-3
FTR-H103	H154 - ELEC		6328	791	0.42	160	130	70	8	1	4 1/4" X 3 5/8"	50	3/4"	WALL	4	WHITE	STERLING JVB-S14	1-3
FTR-H104	H122A - ELEC		2373	791	0.16	160	130	70	3	1	4 1/4" X 3 5/8"	50						

ABBREVIATIONS

#	PHASE
2W	2-WIRE
3W	3-WIRE
4W	4-WIRE
A	AMPERE
AC	ABOVE COUNTER
AIC	AMPERE INTERRUPTING CAPACITY
AF	AMP FRAME (CIRCUIT BREAKER)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AL	ALUMINUM
AWG	AMERICAN WIRE GAUGE
AP	ACCESS POINT FOR WIRELESS NETWORK
AT	ATMP TRIP (CIRCUIT BREAKER / FUSE)
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO-VIDEO
BAC	BUILDING AUTOMATION CONTRACTOR
BAS	BUILDING AUTOMATION SYSTEM
BFF	BELOW FINISHED FLOOR
BJ	BONDING JUMPER
BKR	BREAKER
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CB	CIRCUIT BREAKER
CATV	CABLE TELEVISION
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLS	CEILING
CR	CORD REEL
CSWK	CASEWORK
CU	COPPER
DB	DECIBEL
DC	DIRECT CURRENT
DD	DROP CORD
DDC	DIRECT DIGITAL CONTROLS (BMS)
DISC	DISCONNECT
DIV	SPECIFICATION DIVISION
DP	DISTRIBUTION PANELBOARD
DW	DISHWASHER
EA	EACH
EC	ELECTRICAL CONTRACTOR
ECS	EMERGENCY COMMUNICATIONS SYSTEM
ELEC	ELECTRIC / ELECTRICAL
EMD	ESTIMATED MAXIMUM DEMAND
EP	EXPLORATION PROOF
EQ	EQUAL
EQUIP	EQUIPMENT
ER	EXISTING TO BE RELOCATED (ALSO RRR)
ERMS	ENERGY REDUCTION MAINTENANCE SWITCH
EWC	ELECTRIC WATER COOLER
EXT	EXTERIOR
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FB	FLOOR BOX
FC	FOOT CANDLE
FLA	FULL LOAD AMPS
FLUOR	FLUORESCENT
FS	FLOW SWITCH
FSD	FIRE / SMOKE DAMPER
FT	FEET / FOOT
G	EQUIPMENT GROUNDING CONDUCTOR
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	EQUIPMENT GROUNDING CONDUCTOR
HH	HANDHOLE
HDA	HAND-OFF-AUTO SELECTOR SWITCH
HP	HORSEPOWER
IC	INTERCOM
IG	ISOLATED GROUND
IN	INCH / INCHES
INT	INTERIOR
IT	INFORMATION TECHNOLOGY (TELECOM)
IO	INFORMATION (IT) OUTLET
JB	JUNCTION BOX
KAIC	THOUSAND AMPERE INTERRUPTING CURRENT
KV	KILOVOLT
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LED	LIGHT-EMITTING DIODE
LM	LUMENS
LT	LIGHT
LTG	LIGHTING
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MLO	MAN LESS ONLY
MOC	MAXIMUM OVERCURRENT PROTECTION
MRTS	MOTOR RATED TOGGLE SWITCH
MPS	MOTORIZED (VIDEO) PROJECTION SCREEN
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE OVEN
N	NEUTRAL
NAC	NOTIFICATION APPLIANCE CIRCUIT (FA)
N.C.	NORMALLY CLOSED (WHEN DE-ENERGIZED)
N.O.	NORMALLY OPEN (WHEN DE-ENERGIZED)
NFP	NAC EXTENDER PANEL (FA)
NF	NON-FUSED
NG	NOT IN CONTRACT
NTS	NOT TO SCALE
OFCI	OWNER FURNISHED / CONTRACTOR INSTALLED OVERHEAD
OH	OVERHEAD
P	POLE / POLES
PA	PUBLIC ADDRESS
PB	PULL BOX
PH	PHASE
PIV	POST INDICATOR VALVE
PNL	PANEL
PWR	POWER
RECEP	RECEPTACLE
RRR	REMOVE AND REINSTALL
SCCR	SHORT CIRCUIT CURRENT RATING
SD	SMOKE DAMPER
SEC	SECONDARY
SIM	SIMILAR
SLC	SIGNALING LINE CIRCUIT (FA)
SFD	SURGE PROTECTION DEVICE
SPEC	SPECIFICATIONS
SWBD	SWITCHBOARD
TBB	TELECOM BONDING BACKBONE
TC	TIME CLOCK
TCC	TEMPERATURE CONTROL CONTRACTOR
TGB	TELECOM GROUNDING BUSBAR
TMSB	TELECOM MAIN GROUNDING BUSBAR
TO	TELECOM (IT) OUTLET
TR	TELECOM ROOM / TECH EQUIP ROOM
TS	TAMPER SWITCH
TV	TELEVISION (VIDEO DISPLAY)
TYP	TYPICAL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRICAL
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT-AMPERE
VD	VIDEO DISPLAY (TV)
VFD	VARIABLE FREQUENCY DRIVE
VP	VIDEO PROJECTOR
W	WATTS
WA	(TELECOM) WORK AREA
WAP	WIRELESS (NETWORK) ACCESS POINT
WG	WIREGUARD
WP	WEATHER-PROOF (NEMA 3R)
XFMR	TRANSFORMER

NOTES

GENERAL ELECTRICAL NOTES

(TYPICAL ALL SHEETS)

- SEE SYMBOLS LEGEND THIS SHEET FOR MOUNTING HEIGHTS UNLESS NOTED OTHERWISE ON DRAWINGS. ALL MOUNTING HEIGHTS ARE TO CENTERLINE OF BOXES UNLESS NOTES OTHERWISE.
- PROVIDE BOX EXTENDER FOR FLUSH INSTALLATION OF DEVICES LOCATED IN ARCHITECTURAL CASEWORK THAT IS FLUSH WITH ADJACENT WALL (SUCH AS RECEPTABLES FOR GARBAGE DISPOSERS).
- DEVICES RECESSED IN MILLIONS: BACK BOXES TO BE RECESSED FOR FLUSH INSTALLATION OF DEVICE AND WALLPLATE. EXTEND CONCEALED CONDUIT IN MILLION UP TO WALL ABOVE AND STUB OUT ABOVE ACCESSIBLE CEILING. IN AREAS WITH NO CEILING, EXTEND CONDUIT TOWARDS CABLING SOURCE TO ABOVE NEAREST ACCESSIBLE CEILING.
- ALL PENETRATIONS OF FIRE RATED FLOORS OR WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO UNDERWRITER LABORATORIES LISTINGS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS. SUBMIT SHOP DRAWING DETAILS TO THE ARCHITECT/ENGINEER SHOWING COMPLETE CONFORMANCE. THESE DRAWINGS SHALL BE SPECIFIC FOR EACH PENETRATION WILL ALL VARIABLE DEFINED, AND SHALL BE AVAILABLE AT THE JOB SITE FOR REVIEW BY ENFORCING AUTHORITY INSPECTORS.
- PROVIDE ROUGH-IN WORK TO ACCOMMODATE WALL-MOUNTED TEMPERATURE SENSORS, CO2 SENSORS, CO SENSORS, HUMIDISTATS, THERMOSTATS, AND OTHER WIRED DEVICES SHOWN ON THE MECHANICAL PLANS. REFER TO THE MECHANICAL SYMBOLS LIST TO IDENTIFY THESE ITEMS. INSTALL A DOUBLE-GANG J-BOX WITH A SINGLE-GANG PLASTER RING AT 42" AFF. UNLESS OTHERWISE NOTED ON THE MECHANICAL PLANS, ROUTE 3/4" CONDUIT STUBBED OUT TO ABOVE ACCESSIBLE CEILING WITH A NYLON BUSHING AND A PULL STRING. COORDINATE WITH MC EXACT REQUIREMENTS AND SCOPE OF WORK PRIOR TO SUBMITTING BID.

GENERAL POWER NOTES

(TYPICAL ALL POWER SHEETS)

- ELECTRICAL INSTALLATIONS SHALL NOT HINDER THE REGULAR MAINTENANCE OR REPLACEMENT OF MECHANICAL UNITS. CONTRACTORS SHALL COORDINATE PRIOR TO INSTALLATION. ELECTRICAL EQUIPMENT AND CONDUIT SHALL NOT BE INSTALLED BENEATH SUSPENDED MECHANICAL UNITS.
- PROVIDE DEDICATED 120-VOLT CIRCUITS TO ALL HVAC BAS CONTROL DEVICES AND PANELS. COORDINATE QUANTITY WITH DIVISION 23. UTILIZE NEAREST SPARE 120-VOLT, 201 BREAKER. LABEL TYPED PANEL DIRECTORY ACCORDING TO LOAD BEING SERVED.
- IN ADDITION TO DEVICES SHOWN, SEE SCHEDULE SHEETS FOR CONNECTIONS TO ALL MECHANICAL EQUIPMENT.
- PROVIDE #18AWG CONDUCTORS FOR ALL HAND DRYER CIRCUITS. PROVIDE LOCKOUT DEVICE AT ALL BREAKERS SERVING HAND DRYERS.
- SEE ARCHITECTURAL CASEWORK ELEVATIONS FOR ADDITIONAL INFORMATION REGARDING THE MOUNTING OF WIRING DEVICES LOCATED IN OR NEAR CASEWORK. COORDINATE EXACT LOCATIONS PRIOR TO PERFORMING ROUGH-IN WORK.
- REFER TO THE SCHEDULE SHEETS FOR ELECTRICAL PROVISIONS AND CONNECTIONS ASSOCIATED WITH MECHANICAL EQUIPMENT AND OTHER EQUIPMENT FURNISHED BY OTHER CONTRACTORS. COORDINATE EXACT REQUIREMENTS WITH CONTRACTORS SUPPLYING AND INSTALLATION SUCH EQUIPMENT.
- VERIFY WHETHER NEUTRAL WIRES ARE REQUIRED FOR ACTUAL EQUIPMENT INSTALLED. IF REQUIRED, PROVIDE NEUTRAL WIRE IN THIS CONTRACT.
- THE BRANCH CIRCUIT WIRING RATING SHALL MATCH THE RATING OF THE OVERCURRENT PROTECTION DEVICE, UNLESS SPECIFICALLY INDICATED OTHERWISE, IN ACCORDANCE WITH THE FEEDER AND BRANCH CIRCUIT SCHEDULE.
- COORDINATE ROUGH-IN AND VOLTAGE REQUIREMENTS FOR DOOR HOLD-OPEN DEVICES FURNISHED UNDER DIVISION 28. PROVIDE BOTH POWER, FIRE ALARM CONNECTIONS, AND OTHER PROVISIONS AS REQUIRED FOR OPERATION IN ACCORDANCE WITH THE FIRE ALARM OPERATION MATRIX. CONNECT TO BRANCH CIRCUIT 1 FOR 120V POWER AS INDICATED ON THE PANEL SCHEDULE SERVING THE AREA. SEE DETAILS.

GENERAL SYSTEMS NOTES

DIVISION 28 WORK

(TYPICAL ALL SPECIAL SYSTEMS SHEETS)

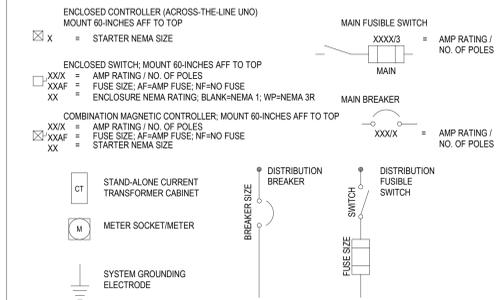
- IN ADDITION TO DEVICES SHOWN, SEE SCHEDULE SHEETS FOR FIRE ALARM SYSTEM DEVICES CONNECTIONS TO MECHANICAL EQUIPMENT.
- PROVIDE FIRE ALARM MONITORING OF ALL FLOW AND TAMPER SWITCHES. CONFIRM QUANTITIES AND LOCATION WITH DIVISION 21.
- UTILIZE SLEEVES AND FIRE RATED SLEEVES AT RATED WALLS PROVIDED UNDER DIVISION 26 FOR INSTALLATION OF ALL LOW VOLTAGE CABLING. FOLLOW INDUSTRY STANDARDS TO MAINTAIN 40% FILL REQUIREMENTS IN ALL SLEEVES (SUPERSEDES NEC - DO NOT FILL SLEEVES TO CAPACITY). PROVIDE ADDITIONAL SLEEVES MEETING DIVISION 26 REQUIREMENTS AS REQUIRED.
- PROVIDE DUCT-TYPE SMOKE DETECTORS FOR AIR-HANDLING EQUIPMENT AS SPECIFIED ON THE MECHANICAL EQUIPMENT ELECTRICAL CONNECTIONS SCHEDULES. DUCT-TYPE SMOKE DETECTORS ARE NOT SHOWN ON THE PLANS. SEE CONNECTIONS SCHEDULES LEGEND FOR REQUIREMENTS, INCLUDING PLACEMENT, DETERMINE QUANTITY AND PLACEMENT OF DETECTORS REQUIRED FOR COVERAGE OF DUCTWORK BASED ON NFPA REQUIREMENTS. PROVIDE MECHANICAL EQUIPMENT FAN SHUTDOWN RELAY AT ALL DUCT DETECTORS. SEE HVAC PLANS FOR EQUIPMENT LOCATIONS. COORDINATE SHUTDOWN CONTROL WITH DIVISION 23.
- FIRE-SMOKE DAMPERS: PROVIDE FIRE ALARM CONNECTION AND 120-VOLT POWER TO EACH FIRE/SMOKE DAMPER SHOWN ON HVAC PLANS. PROVIDE DEDICATED CIRCUIT TO DAMPERS, ROUTED THROUGH NORMALLY OPEN FIRE ALARM RELAY, MOUNTED ON WALL IN NEAREST ELECTRICAL ROOM. COORDINATE WITH DAMPER MANUFACTURER FOR SPECIFIC DAMPER LOAD REQUIREMENTS. RELAY SHALL BE CONTROLLED BY FACP. SUCH THAT, ON GENERAL ALARM DAMPERS ARE DEENERGIZED AND CLOSE. FIRE ALARM CONNECTION TO DAMPER SHALL BE A SUPERVISORY CIRCUIT MONITORING STATUS OF INTEGRAL SMOKE DETECTOR, AND SHALL PROVIDE REMOTE FIRE/SMOKE DAMPER RESET. FACP SHALL INITIATE A SUPERVISORY SIGNAL WHEN INTEGRAL DETECTOR GOES INTO ALARM. FIRE/SMOKE DAMPERS MAY BE GROUPED TOGETHER ON SUPERVISORY CIRCUITS TO SIMPLIFY WIRING. COORDINATE REQUIREMENTS WITH FIRE/SMOKE DAMPER MANUFACTURER. UTILIZE SPARE 201 BREAKERS. LABEL TYPED PANEL DIRECTORY FIRE/SMOKE DAMPERS - (INDICATE AREA SERVED).
- FIRE ALARM CABLING SHALL NOT BE INSTALLED IN A CABLE TRAY WITH OTHER COMMUNICATIONS CABLING. FIRE ALARM CABLING SHALL BE SUPPORTED SEPARATELY AND INDEPENDENTLY USING CABLE HOOKS OR CONDUIT IN ACCORDANCE WITH THE SPECIFICATIONS. UTILIZE J-HOOKS ROUTED ALONG WALL JUST ABOVE OR ALONG THE SIDE OF CABLE TRAY FOR PRIMARY CORRIDOR FIRE ALARM CABLE SLC'S AND NAC'S.

SYMBOLS

POWER

	CIRCUIT HOME RUN		RECEPTABLE, MOUNT 18-INCHES AFF. UNO
	CONDUIT TURNING UP		SIMPLEX RECEPTACLE
	CONDUIT TURNING DOWN		DUPLEX RECEPTACLE
	CONDUIT STUB-UP		DUPLEX RECEPTACLE, GFI TYPE
	CONDUIT SLEEVE, (1) 3/4", UNLESS NOTED OTHERWISE		DUPLEX RECEPTACLE, GFI TYPE, MOUNT ABOVE COUNTER
	CONDUIT SEAL		FOURPLEX RECEPTACLE
	CONDUIT CONCEALED IN CEILING, WALLS, IN FLOOR OR UNDERGROUND, POWER		FOURPLEX RECEPTACLE, GFI TYPE
	CONDUIT CONCEALED IN FLOOR OR UNDERGROUND, OTHER (* = SEE ABBREVIATIONS)		FOURPLEX RECEPTACLE, MOUNT ABOVE COUNTER
	EXPOSED CONDUIT, POWER		FOURPLEX RECEPTACLE, MOUNT ABOVE COUNTER
	EXPOSED CONDUIT, OTHER (* = SEE ABBREVIATIONS)		DUPLEX RECEPTACLE, FLUSH IN CEILING
	TRANSFORMER		DUPLEX RECEPTACLE, HORIZ. MTD. GFI TYPE
	BRANCH CIRCUIT PANELBOARD		DUPLEX RECEPTACLE, HORIZ. MTD. ABOVE COUNTER
	DISTRIBUTION PANELBOARD MOUNT 72-INCHES TO TOP		DUPLEX RECEPTACLE, HORIZ. MTD. GFI TYPE, MOUNT ABOVE COUNTER
	CONTROL PANEL MOUNT 72-INCHES TO TOP		WEATHER RESISTANT GFI DUPLEX RECEPTACLE, MOUNT 18-INCHES AFF WITH A WEATHERPROOF, WEATHERPROOF WHILE IN USE COVER
	EQUIPMENT CABINET, AS NOTED		STD DUPLEX RECEPTACLE TO SERVE ELECTRIC WATER COOLER, MOUNT AT HEIGHT PER EQUIPMENT MANUFACTURER'S INSTALLATION GUIDELINES. CIRCUIT TO GFCI BKR IN PANELBOARD.
	SWITCHBOARD		DUPLEX RECEPTACLE TO SERVE VIDEO DISPLAY. PROVIDE BOXES PER DETAILS ON ES 2. POSITION 66" AFF. UNLESS SPECIFICALLY DENOTED OTHERWISE.
	CURRENT TRANSFORMER ENCLOSURE		RANGE RECEPTACLE, NEMA 14-50R, MOUNT 8-INCHES AFF
	METER		SPECIAL RECEPTACLE, DEEP WELL BOX
	GENERATOR		FLUSH FLOOR OUTLET BOX UNO
	GENERATOR ANNUNCIATOR PANEL		FLUSH FLOOR BOX WITH DUPLEX RECEPTACLE UNO
	AUTOMATIC TRANSFER SWITCH		MULTI-DEVICE FLOOR BOX WITH DUPLEX RECEPTACLE AND TELECOMMUNICATIONS OUTLETS
	SYSTEM GROUND ELECTRODE		USB ONLY RECEPTACLE
	MUSHROOMPUSHBUTTON CONTROL SWITCH		RECEPTACLE WITH USB PORTS
	ELECTRICAL MANHOLE		FLUSH JUNCTION BOX, CEILING MOUNTED
	ELECTRICAL HAND HOLE		CEILING JUNCTION BOX WITH DROP CORD ATTACHED. SEE DETAILS FOR MOUNTING PROVISIONS.
	MANUAL CONTROLLER WITH THERMAL OVERLOAD		JUNCTION BOX ABOVE ACCESSIBLE CEILING W/ FLEX CONNECTION
	MANUAL CONTROLLER W/ THERMAL OVERLOAD		FLUSH JUNCTION BOX, WALL MOUNTED
	CIRCUIT BREAKER ENCLOSURE		SURFACE JUNCTION BOX, WALL MOUNTED
	PULL BOX		SURFACE JUNCTION BOX INSTALL ABOVE ACCESSIBLE CEILING WHERE APPLICABLE
	EQUIPMENT CONNECTION		
	CABLE TRAY, POWER		
	MULTI-OUTLET ASSEMBLIES		
	MOUNT 18-INCHES AFF. UNO WHERE DENOTED 'AC', MOUNT ABOVE COUNTER		

ONE-LINE DIAGRAM



SAFETY

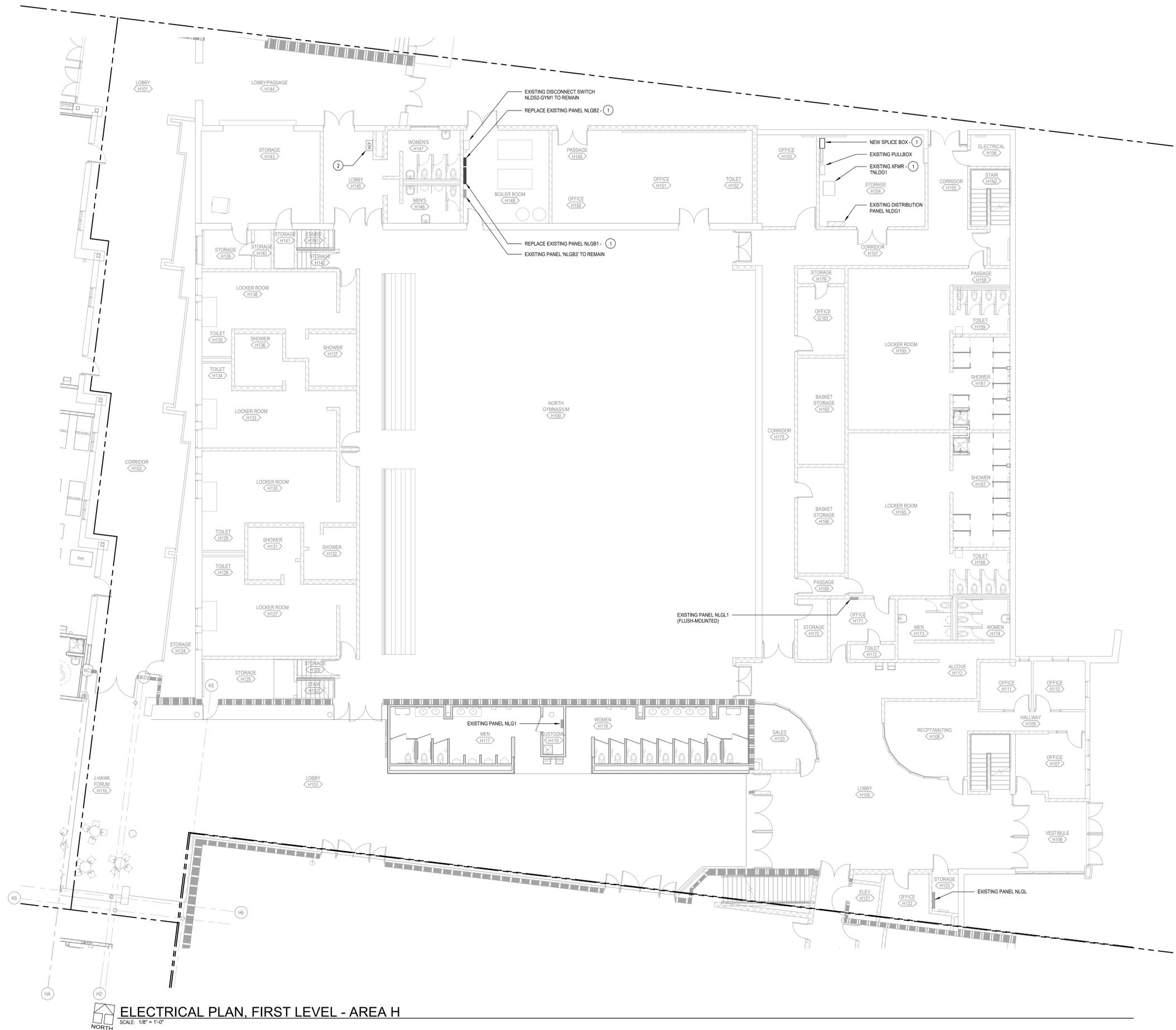
	FIRE ALARM CONTROL PANEL, MOUNT CENTER OF DISPLAY 54-INCHES AFF		FIRE ALARM LOCAL OPERATOR'S CONSOLE MOUNT CENTER OF DISPLAY 54-INCHES AFF
	FIRE ALARM ANNUNCIATOR PANEL MOUNT CENTER OF DISPLAY 54-INCHES AFF		DUAL PATH IP CELLULAR COMMUNICATOR
	FIRE ALARM AV DEVICES: MOUNT 94-INCHES AFF, OR 6-INCHES BELOW CEILING, WHICHEVER IS HIGHER, UNO		MANUAL FIRE ALARM PULL STATION MOUNT 42-INCHES AFF
	FIRE ALARM HORN		SPRINKLER SYSTEMS ELECTRIC BELL ALARM
	FIRE ALARM VISUAL WARNING SIGNAL		FIRE ALARM HORN PULL STATION MOUNT 74-INCHES AFF
	FIRE ALARM BELL WITH VISUAL WARNING SIGNAL		OS&Y VALVE
	FIRE ALARM HORN WITH VISUAL WARNING SIGNAL		WATER FLOW ALARM SWITCH
	MINI FIRE ALARM HORN WITH VISUAL WARNING SIGNAL		TAMPER SWITCH
	FIRE ALARM SPEAKER WITH VISUAL WARNING SIGNAL		FIRE FIGHTERS TELEPHONE
	FIRE ALARM SPEAKER, FLUSH IN CEILING		SMOKE DETECTOR - PHOTOELECTRIC TYPE
	FIRE ALARM SPEAKER WITH VISUAL WARNING SIGNAL, CEILING OR SUSPENDED WHERE NO CEILING EXISTS, PROVIDE SURFACE MOUNT ENCLOSURE WHERE EXPOSED STRUCTURE.		SMOKE DETECTOR - PHOTOELECTRIC TYPE (P = DUCT)
	FIRE ALARM VISUAL WARNING SIGNAL, CEILING		COMBINATION CARBON MONOXIDE AND SMOKE DETECTOR - PHOTOELECTRIC TYPE
			HEAT DETECTOR RATE-OF-RISE AND FIXED TEMPERATURE, 135°F
			HEAT DETECTOR, FIXED TEMPERATURE ONLY, 200°F

LEGEND NOTES

KEYED NOTES

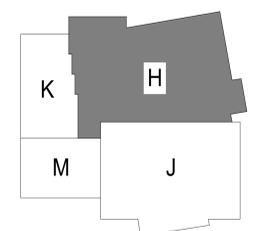
(TYPICAL FOR ALL ELECTRICAL PLANS.)

1. SEE ONE-LINE DIAGRAM FOR NEW WORK ASSOCIATED WITH EXISTING POWER DISTRIBUTION EQUIPMENT.
2. LOCATION OF EXISTING FIRE ALARM NAC EXTERIOR PANEL (NEP). SEE ELECTRICAL OVERALL PLAN FIRST LEVEL ON SHEET E4.1 FOR LOCATION OF MAIN FIRE ALARM CONTROL PANEL.
3. EXTEND EXISTING FIRE ALARM SYSTEM FOR NEW DUCT-TYPE SMOKE DETECTORS AND HVAC UNIT SHUTDOWN FUNCTIONS. SEE ELECTRICAL CONNECTIONS SCHEDULES, SPECIFICATIONS, AND FIRE ALARM OPERATIONS MATRIX.
4. SPAN HORIZONTAL STRUCTURAL BEAM ABOVE AND CONCRETE CURB BELOW WITH CHANNEL SUPPORTS (UNISTRUT) SIZED TO SECURELY MOUNT PANEL.



ELECTRICAL PLAN, FIRST LEVEL - AREA H
SCALE: 1/8" = 1'-0"

KEY PLAN



NOT FOR CONSTRUCTION

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LEGEND NOTES

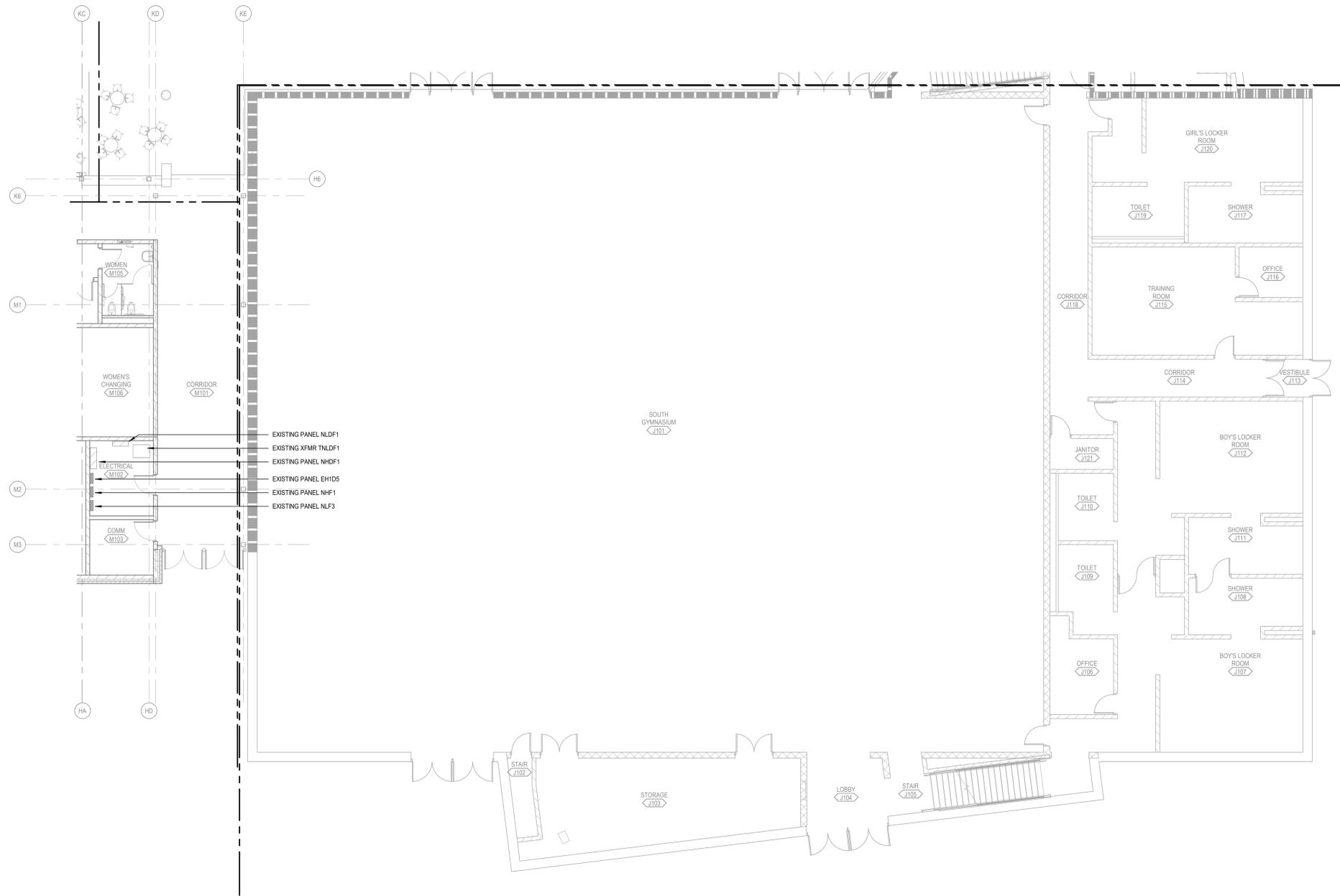
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4. SPAN HORIZONTAL STRUCTURAL BEAM ABOVE AND CONCRETE CURB BELOW WITH CHANNEL SUPPORTS (UNISTRUT) SIZED TO SECURELY MOUNT PANEL.

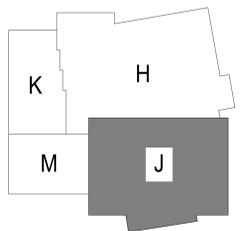


NOT FOR CONSTRUCTION



ELECTRICAL PLAN, FIRST LEVEL - AREA J
 SCALE: 1/8" = 1'-0"

KEY PLAN



URBANDALE HS - HVAC RENOVATION

7111 Aurora Ave.
 Urbandale, IA 50322

DESIGN DEVELOPMENT
 03-20-2019
 Revisions

11-18101-20
 ELECTRICAL PLAN, FIRST LEVEL - AREA J

E1.1J

LEGEND NOTES

KEYED NOTES

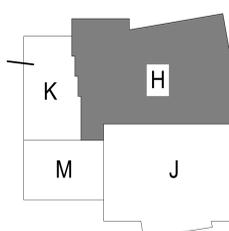
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2. LOCATION OF EXISTING FIRE ALARM NAC EXTERIOR PANEL (NEP). SEE ELECTRICAL OVERALL PLAN, FIRST LEVEL, ON SHEET E4.1 FOR LOCATION OF MAIN FIRE ALARM CONTROL PANEL.
3. EXTEND EXISTING FIRE ALARM SYSTEM FOR NEW DUCT-TYPE SMOKE DETECTORS AND HVAC-UNIT SHUTDOWN FUNCTIONS. SEE ELECTRICAL CONNECTIONS SCHEDULES, SPECIFICATIONS, AND FIRE ALARM OPERATIONS MATRIX.
4. SPAN HORIZONTAL STRUCTURAL BEAM ABOVE AND CONCRETE CURB BELOW WITH CHANNEL SUPPORTS (UNISTRUT) SIZED TO SECURELY MOUNT PANEL.



ELECTRICAL PLAN, SECOND LEVEL - AREA H
 SCALE: 1/8" = 1'-0"
 NORTH

KEY PLAN



NOT FOR CONSTRUCTION

URBANDALE HS - HVAC RENOVATION

7111 Aurora Ave.
 Urbandale, IA 50322

DESIGN DEVELOPMENT
 03-20-2019
 Revisions

11-18101-20
ELECTRICAL PLAN, SECOND LEVEL - AREA H

E1.2H

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LEGEND NOTES

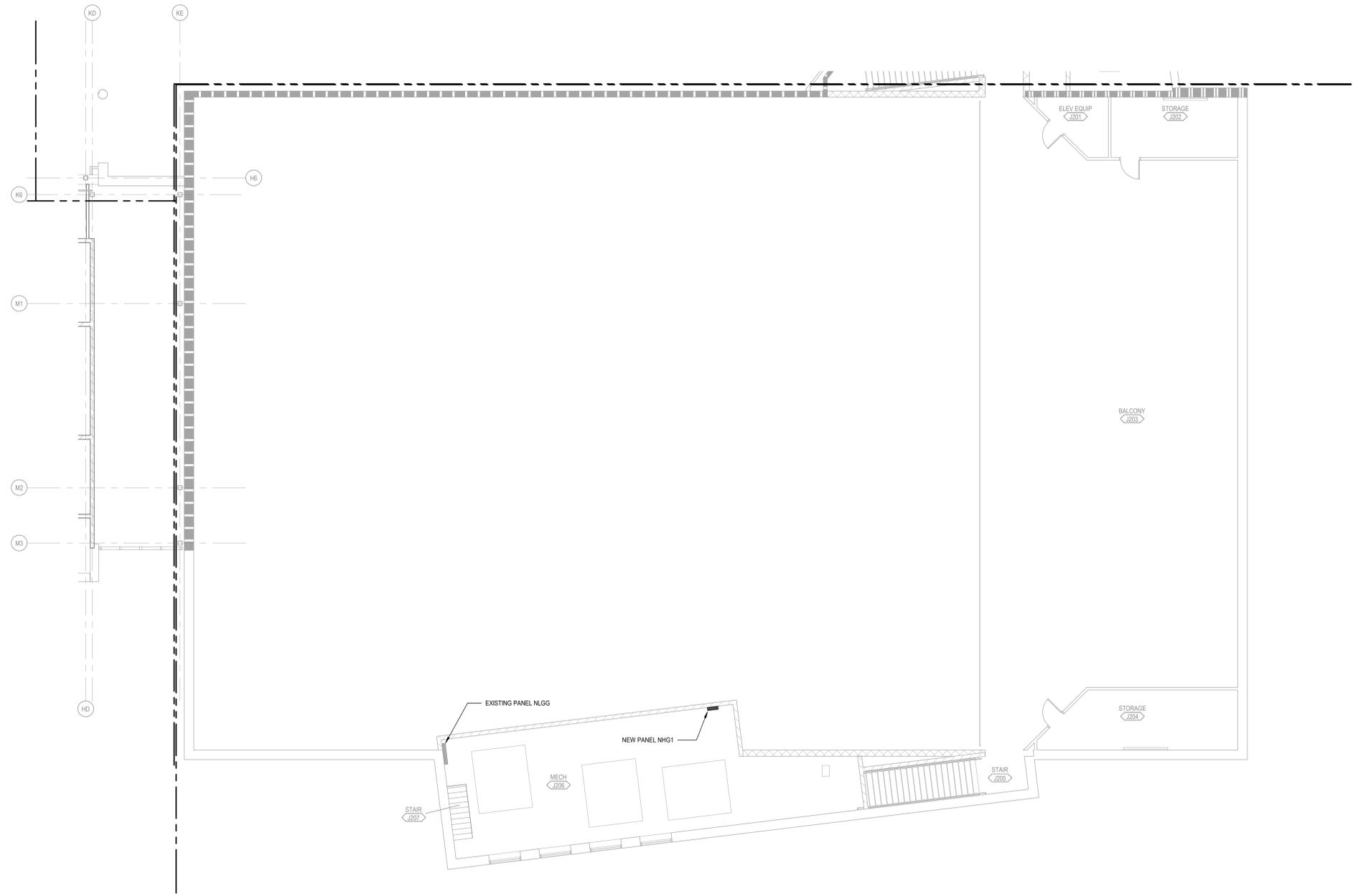
KEYED NOTES

(TYPICAL FOR ALL ELECTRICAL PLANS)

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- 4. SPAN HORIZONTAL STRUCTURAL BEAM ABOVE AND CONCRETE CURB BELOW WITH CHANNEL SUPPORTS (UNISTRUT) SIZED TO SECURELY MOUNT PANEL.

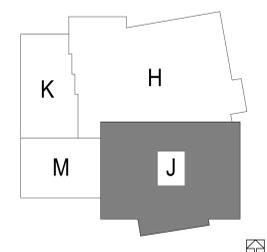


NOT FOR CONSTRUCTION



ELECTRICAL PLAN, SECOND LEVEL - AREA J
SCALE: 1/8" = 1'-0"

KEY PLAN



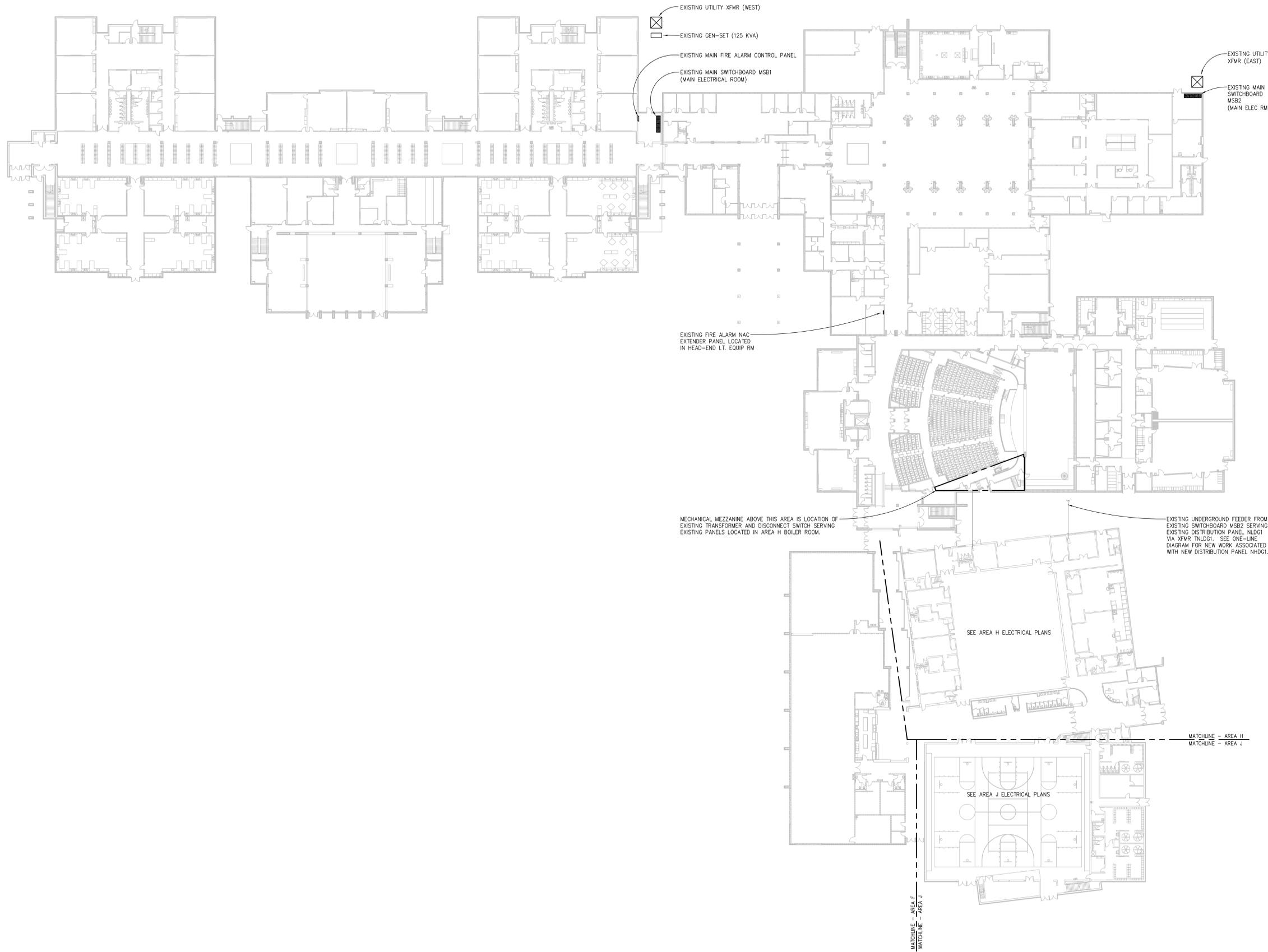
URBANDALE HS - HVAC RENOVATION

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Urbandale, IA 50322

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03-20-2019
Revisions

11-18101-20
ELECTRICAL PLAN, SECOND LEVEL - AREA J

E1.2J



LEGEND NOTES

SPECIAL CONDITIONS NOTES

- (ALL ELECTRICAL PLANS)
- A. PRIOR TO BIDDING, VISIT THE EXISTING FACILITY TO IDENTIFY EXISTING BUILDING FINISHES, CEILINGS, AND ACCESSES, TO DETERMINE LOCATIONS, ROUTINGS, AND DISTANCES, AND TO OBTAIN ALL NECESSARY INFORMATION RELATED TO EXISTING PANELS, EXISTING FIRE ALARM SYSTEM (CONTROL PANELS), DATA NETWORK, AND OTHER EXISTING ELECTRICAL EQUIPMENT AFFECTED UNDER THIS CONTRACT.
 - B. REPAIR OR REPLACE CEILINGS, CEILING TILES, AND CEILING-GRIDS THAT ARE DAMAGED BY THIS CONTRACTOR. PRIOR TO COMMENCING ANY WORK ABOVE CEILINGS, WALK THROUGH THE BUILDING WITH THE OWNER AND/OR ARCHITECT TO IDENTIFY ANY EXISTING DAMAGES.
 - C. A NON-DESTRUCTIVE X-RAY TEST MUST BE PERFORMED PRIOR TO ANY DRILLING, CUTTING, OR CORING INTO OR THROUGH THE FLOOR OR LOAD-BEARING WALLS TO AVOID STRUCTURAL TENDONS, IF APPLICABLE, TO PREVENT STRUCTURAL DEGRADATION OR DAMAGE.
 - D. CUT AND PATCH EXISTING WALLS AND CEILINGS AS REQUIRED FOR ELECTRICAL INSTALLATIONS. COORDINATE SCOPE AND SPECIFICS OF ALL SUCH WORK WITH THE GENERAL CONTRACTOR AND ARCHITECT.
 - E. ANY AND ALL CONDUITS, FITTINGS, AND JUNCTION-BOXES INSTALLED EXPOSED, WHERE PERMITTED, UNDER THIS CONTRACT SHALL BE PAINTED TO MATCH THE SURFACE UPON WHICH IT IS MOUNTED, UNLESS OTHERWISE STATED BY THE OWNER OR ARCHITECT.
 - F. SURFACE RACEWAY IS NOT ALLOWED ON NEW WALLS BELOW THE JOIST SPACE, UNLESS NOTED OTHERWISE. CAST BACK BOXES IN CONCRETE AND ROUTE CONDUIT UP WITHIN WALLS TO ABOVE JOIST SPACE OR DOWN TO BELOW GRADE AS REQUIRED TO PROVIDE A CLEAN, FINISHED APPEARANCE.
 - G. WHEREVER EXPOSED RACEWAY IS SPECIFICALLY PERMITTED PER THE PLANS OR SPECIFICATIONS AND APPROVED BY THE ARCHITECT OR OWNER, PROVIDE SURFACE-METAL RACEWAY AS SPECIFIED, UNLESS INDICATED OTHERWISE.
 - H. MODIFICATIONS TO EXISTING POWER DISTRIBUTION EQUIPMENT: MATCH EXISTING MANUFACTURER, SWITCH TYPE, FUSE TYPE, CIRCUIT BREAKER TYPE, EQUIPMENT RATINGS, INCLUDING SHORT-CIRCUIT CURRENT RATING. FIELD-VERIFY CONFIRM WITH MANUFACTURER PRIOR TO BIDDING TO DETERMINE ALL REQUIREMENTS.
 - I. PROVIDE UPDATED PANEL CIRCUIT DIRECTORIES AFFECTED BY NEW WORK. PROVIDE TYPED DIRECTORY, NOT HANDWRITTEN. OBTAIN ROOM DESIGNATIONS AND NUMBERS DIRECTLY WITH THE OWNER.



NOT FOR CONSTRUCTION

URBANDAEL HS - HVAC RENOVATION

7111 ALBORNAVE
URBANDAEL HS 0322

DESIGN DEVELOPMENT
03-20-2019

11-18101-20
ELECTRICAL OVERALL PLAN,
FIRST LEVEL

E4.1

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11/19/2019 4:44pm

ELECTRICAL OVERALL PLAN, FIRST LEVEL
NORTH SCALE: 1" = 30'-0"

