### **GENERAL PLAN NOTES:**

- THESE DRAWINGS ARE INTENDED TO OUTLINE THE GENERAL SCOPE OF THE WORK. CONTRACTORS SHALL ALSO BE RESPONSIBLE FOR ADHERING TO ALL APPLICABLE CODES & GENERALLY ACCEPTED TRADE PRACTICES.
- ALL DIMENSIONS ARE FROM FACE OF STUD TO FACE OF STUD, MASONRY UNLESS NOTED OTHERWISE.
- PROVIDE NECESSARY BLOCKING/ANCHORING, AS REQUIRED FOR ANY & ALL ITEMS THAT MUST BE SECURED TO THE WALL, INCLUDING WALL MOUNTED CABINETS & EQUIPMENT, AUDIO/VISUAL, & SECURITY COMPONENTS. VERIFY LOCATIONS WITH OWNER.
- PROVIDE BLOCKING AT ALL WOOD BASE, CABINETS & SHELF BRACKETS & WALL MOUNTED RESTROOM EQUIPMENT.
- ALL DOORS TO BE LOCATED 6" FROM THE ADJACENT PERPENDICULAR STUD WALL FRAMING. PROVIDE 12" CLEAR ON PUSH SIDE OF DOOR (IF BOTH LATCH & CLOSER) & 18" CLEAR ON PULL SIDE OF ALL DOORS PER
- REFER TO DOOR SCHEDULE FOR SIZE, TYPE & FINISH OF ALL NEW DOORS
- ALL WALLS THAT TERMINATE AT 6" ABOVE CEILINGS SHALL BE BRACED TO THE STRUCTURE ABOVE WITH 25 GA. 3 5/8" METAL STUD BRACES AT 48" O.C. MAXIMUM.
- PROVIDE CONTROL JOINTS ON CONTINUOUS GYPSUM BOARD SURFACES IN EXCESS OF 20'-0" AT A MAXIMUM INCREMENT OF 20'-0" ON CENTER,

- REFER TO PLUMBING PLANS FOR ALL SPECIFICATIONS & FIXTURE QUANTITIES. THE ARCHITECTURAL FLOOR PLAN SHOWS ONLY DESIGN INTENT.
- PLUMBING FIXTURES TO BE PROVIDED & INSTALLED BY G.C., UNLESS INDICATED OTHERWISE. COORDINATE ELECTRICAL & PLUMBING CONNECTIONS WITH OWNER/TENANT.
- REFER TO THE FINISH PLAN & SCHEDULE SHEETS FOR ALL INTERIOR FLOOR & WALL FINISHES, COLORS & MATERIALS. COORDINATE WITH THE SPECIFICATIONS & ARCHITECTURAL FLOOR PLANS AS REQUIRED.
- 12. PROVIDE SIGNAGE AS REQUIRED BY CODE. REFER TO SPECIFICATIONS SECTION 10 1400-SIGNAGE.
- 13. ALL FURNITURE & EQUIPMENT BY OTHERS, U.N.O. G.C. TO COORDINATE ALL BUILT-INS WITH OWNER PRIOR TO CONSTRUCTION.
- VERIFY ELECTRICAL OUTLET & DATA BOX LOCATIONS W/ OWNER AFTER ELECTRICAL BOX INSTALLATION & PRIOR TO CONDUIT INSTALLATION. COORDINATE WITH MILLWORK, FURNITURE & EQUIPMENT LOCATIONS. RUN EXPOSED CONDUIT IN CLEAN & ORDERLY MANNER.
- 15. COORDINATE THE LOCATION & INSTALLATION OF ALL MECHANICAL & ELECTRICAL DEVICES, REGISTERS, FIXTURES,



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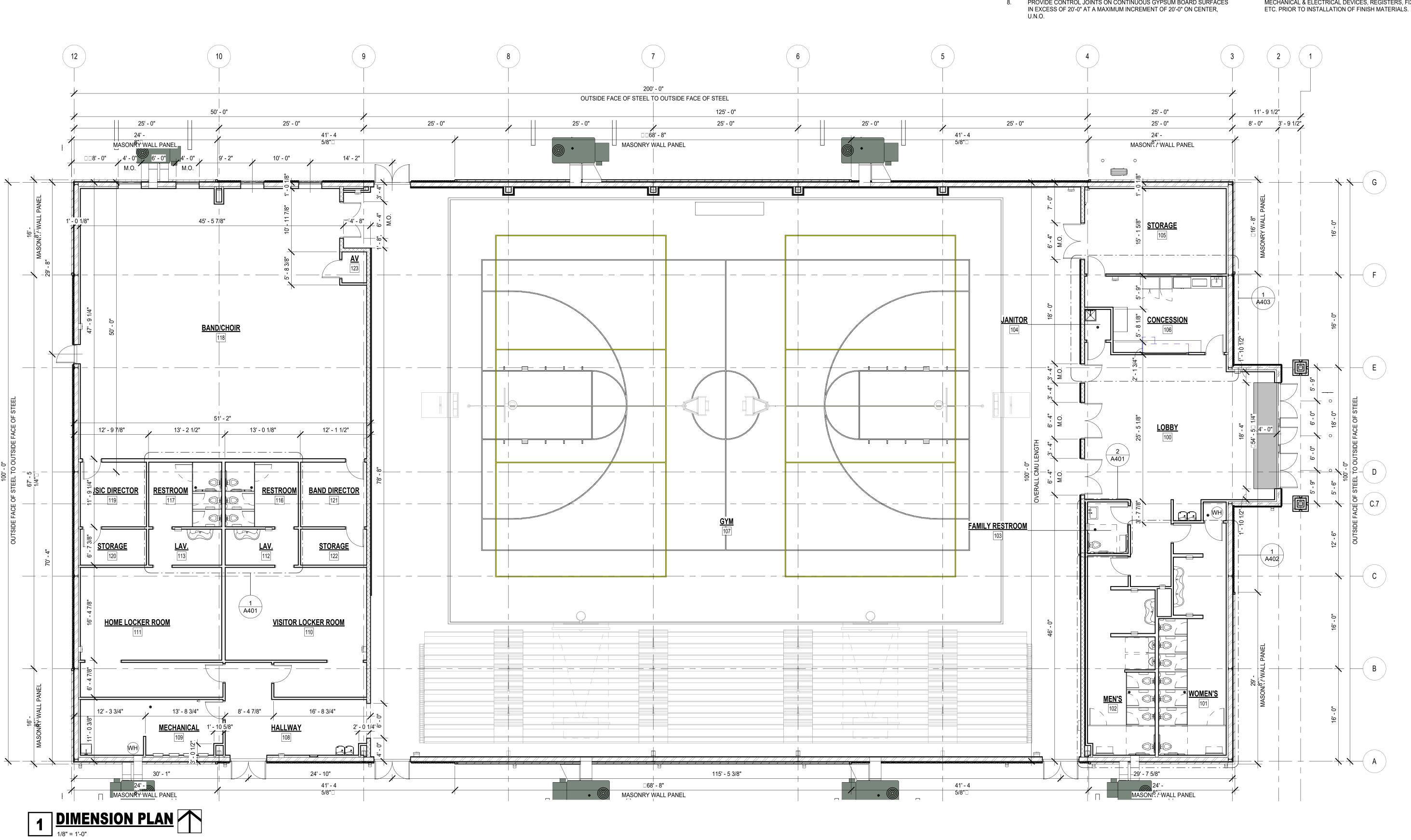
**DIMENSION PLAN** 

MANAGER DRAWN BY KG REVISIONS

PROJECT NUMBER

SHEET NUMBER

A101



# REFLECTED CEILING LEGEND

2X2 CEILING TILE GYPSUM BOARD SOFFIT 2X2 LIGHT TROFFER <u>RE: MEP DWG'S</u> RECESSED CAN LIGHT RE: MEP DWG'S HHIGH BAY LIGHT <u>RE: MEP DWG'S</u> WALL MOUNT STRIP LIGHT <u>RE: MEP DWG'S</u> MECHANICAL RETURN AIR DIFFUSER RE: MEP DWG'S

MECHANICAL SUPPLY AIR DIFFUSER

MECHANICAL EXHAUST FAN

<u>RE: MEP DWG'S</u>

EXIT DEVICE **REF: MEP DWG'S** 

**EMERGENCY LIGHT RE: MEP DWG'S** 

SMOKE DETECTOR <u>re: mep dwg's</u>

FIRE ALARM STROBE

FIRE ALARM HORN/STROBE

WALL MOUNTED CAMERA

WIRLESS INTERNET TRANSMITTER

CLG ELEVATION HEIGHT INDICATOR

<u>RE: MEP DWG'S</u>

RE: MEP DWG'S

RE: MEP DWG'S

HORN SYSTEM

<u>re: mep dwg's</u>

<u>RE: MEP DWG'S</u>

<u>RE: MEP DWG'S</u>

SPEAKER SYSTEM

### **GENERAL CEILING NOTES:**

- THESE DRAW INGS ARE INTENDED TOOUTLINE THE GENERAL SCOPE OF THEWORK CONTRACTORSHALL ALSO BERESPONSIBLE FORADHERING TAOLAPPLICABLECODES& GENERALLY
- THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE REFLECTED CEILING PLANS & THE ELECTRICAL DRAWINGS.
- 3. REFER TO MECHANICAL & ELECTRICAL DRAWINGS FOR FIRE ALARM & EMERGENCY LIGHTING
- 4. COORDINATÆLLMECHANICASYSTEM BULKHEADSIZES WITIMECHANICADRAWINGS PRIORTO INSTALLATION OF SPRINKLER SYSTEM.
- THEREFLECTED CEILINGGANSINDICATEONLYARCHTECTURALFEATURES(FINISHESELEVATIONS ETC)OF THE CEILING DESIGN REFER TO ELECTRICA& HVACPLANSFORFIXTUREQUANTITIES, MANUFACTURERS& MODELNUMBERS& EQUIPMENSPECIFICATIONS. NOTIFYTHEARCHITECTIF THE REFLECTEDEILIND LANS DIFFERS ROMTHEHVAC& I OR ELECTRICAL PLANS.
- SPRINKLER HEADS & RECESSEDCANLIGHTS ARETO BE LOCATED IN THECENTEROF THE AFFECTED CEILING PANELWHERETHECEILING PANEHASA CENTER REVEALTHESPRINKLER HEAD ORLIGHT FIXTURESHALIBE LOCATED IN THE CENTEROF THE 2' x 2' PORTION OF THAT CEILING PANEL.
- 7. PROVIDE ACCESS PANELS(FIRE-RATED IN RATED ASSEMBLIES) FOR ACCESS OF ALL SERVICEABLE MEP EQUIPMENT ABOVE HARD LID CEILINGS (COORDINATE SIZE & TYPE WITH MEP DRAWINGS & EQUIPMENT REQUIREMENTS).
- NEATLY FINISH ALL GYP. BRO. WALL TO DISSIMILAR MATERIAL TRANSITIONS WHERE TO REMAIN EXPOSED TO VIEW. USE TEAR-AWAY TYPE BEAD TRIM & SEALANT AS REQUIRED.
- 9. PAINT STRUCTURAL ELEMENTS AT CEILING. REFERENCE FINISH PLAN.



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**REFLECTED CEILING PLAN** 

DRAWN BY
KG
REVISIONS

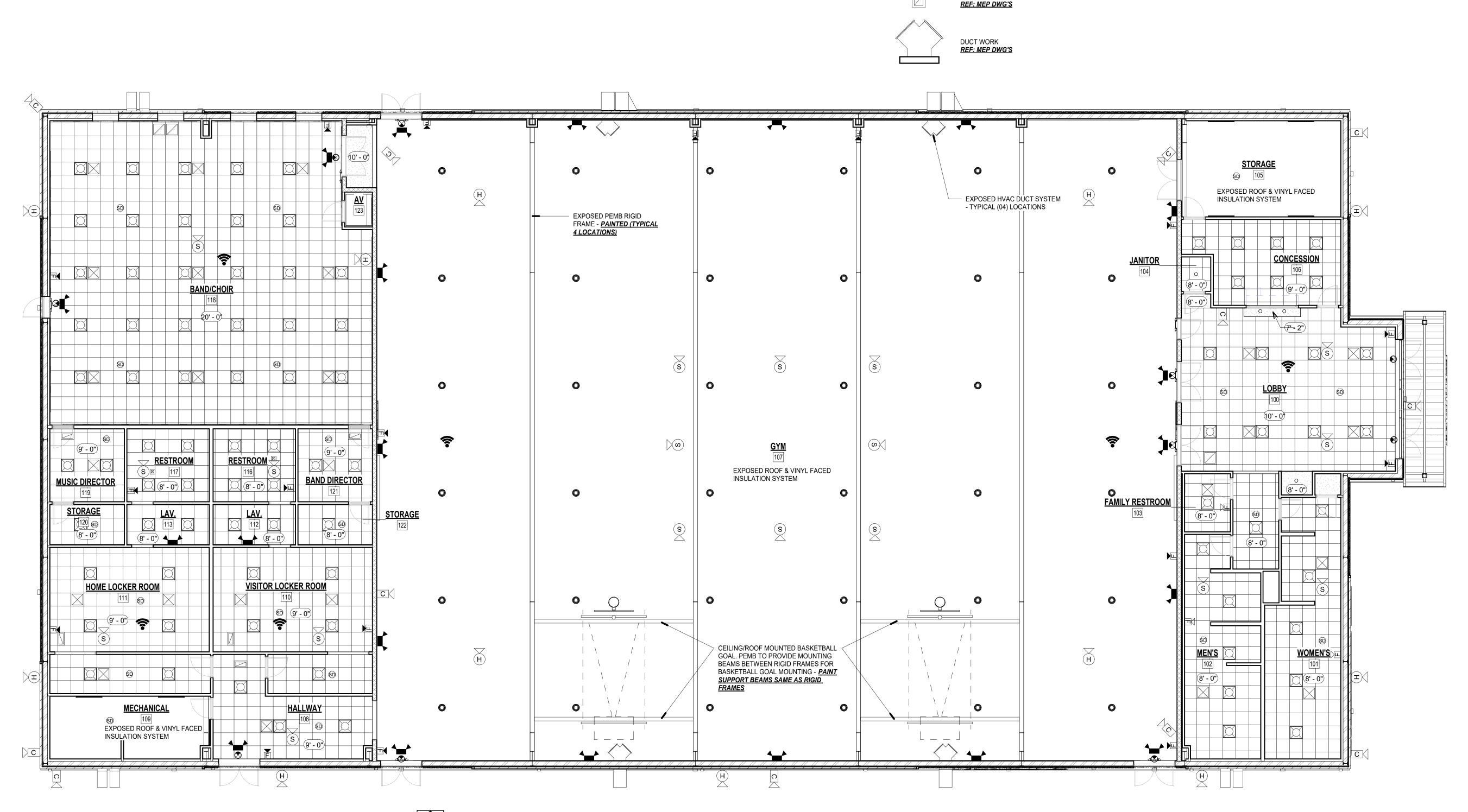
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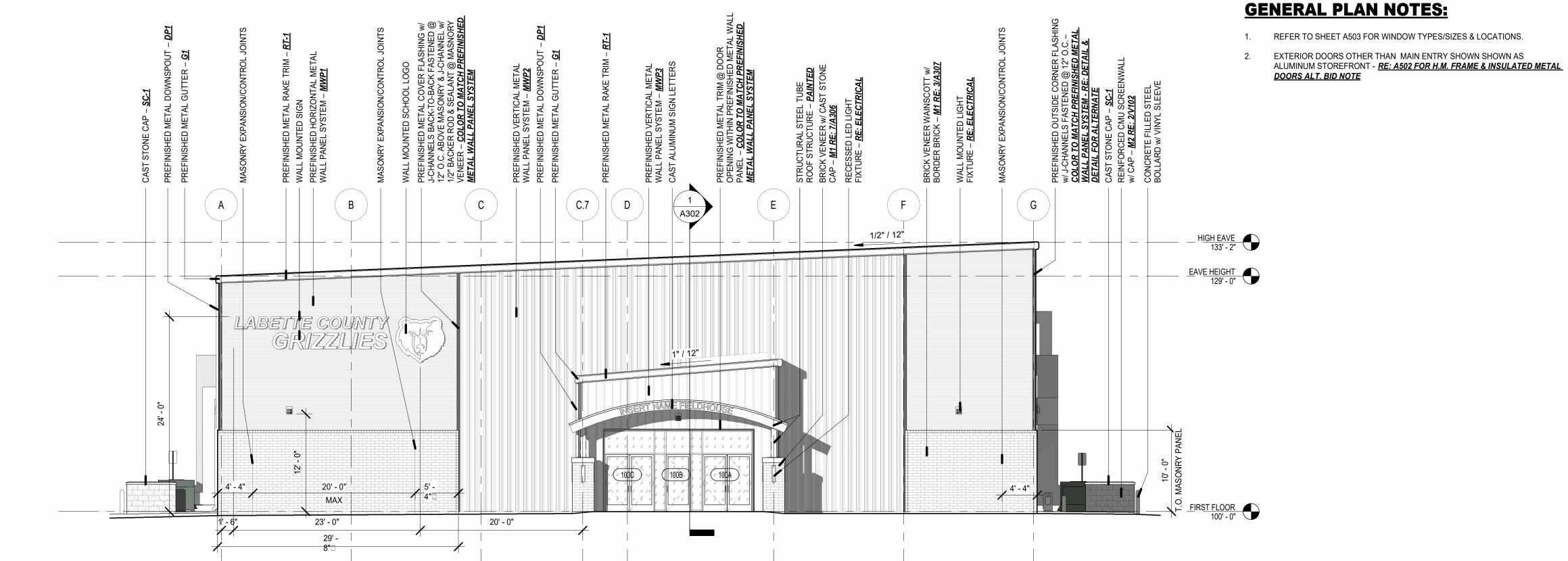
SHEET NUMBER

8/14/2023

A103

23-09





### **EXTERIOR ELEVATIONS FINISH SCHEDULE:**

### PREFINISHED METAL WALL PANELS

**MWP1** - PAC-CLAD PRECISION SERIES BOX RIB BOX RIB 1, COLOR SANDSTONE MWP2 - PAC-CLAD PRECISION SERIES BOX RIB BOX RIB 4, COLOR SANDSTONE MWP3 - PAC-CLAD REVEAL WALL PANELS, COLOR GRAPHITE

**G1** - GUTTERS PAC-CLAD CARDINAL RED

**DP1** - DOWNSPOUT, PAC-CLAD CARDINAL RED

RT-1 - RAKE TRIM, PAC-CLAD CARDINAL RED

### <u>MASONRY</u>

M1 - BRICK MASONRY: KANSAS BRICK & TILE, UTILITY BRICK, #530 DARK BURGANDY M2 – CMU; CAPITOL CONCRETE, GROUND FACED CMU SHADOW

**SF-1** - ALUMINUM STOREFRONT, EQUAL TO KAWNEER, CHAMPAGNE OR PLATINUM ICE

**SC-1** - CAST STONE CAP - COLOR, LIMESTONE

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STRUCTION NEW CON

**EXTERIOR ELEVATIONS** 

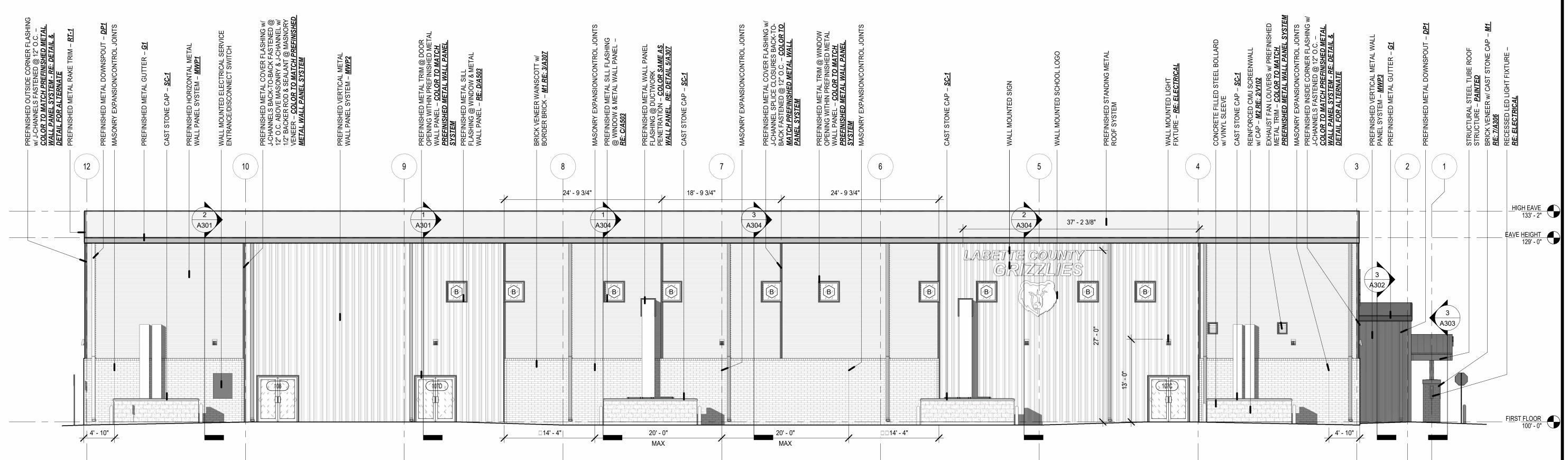
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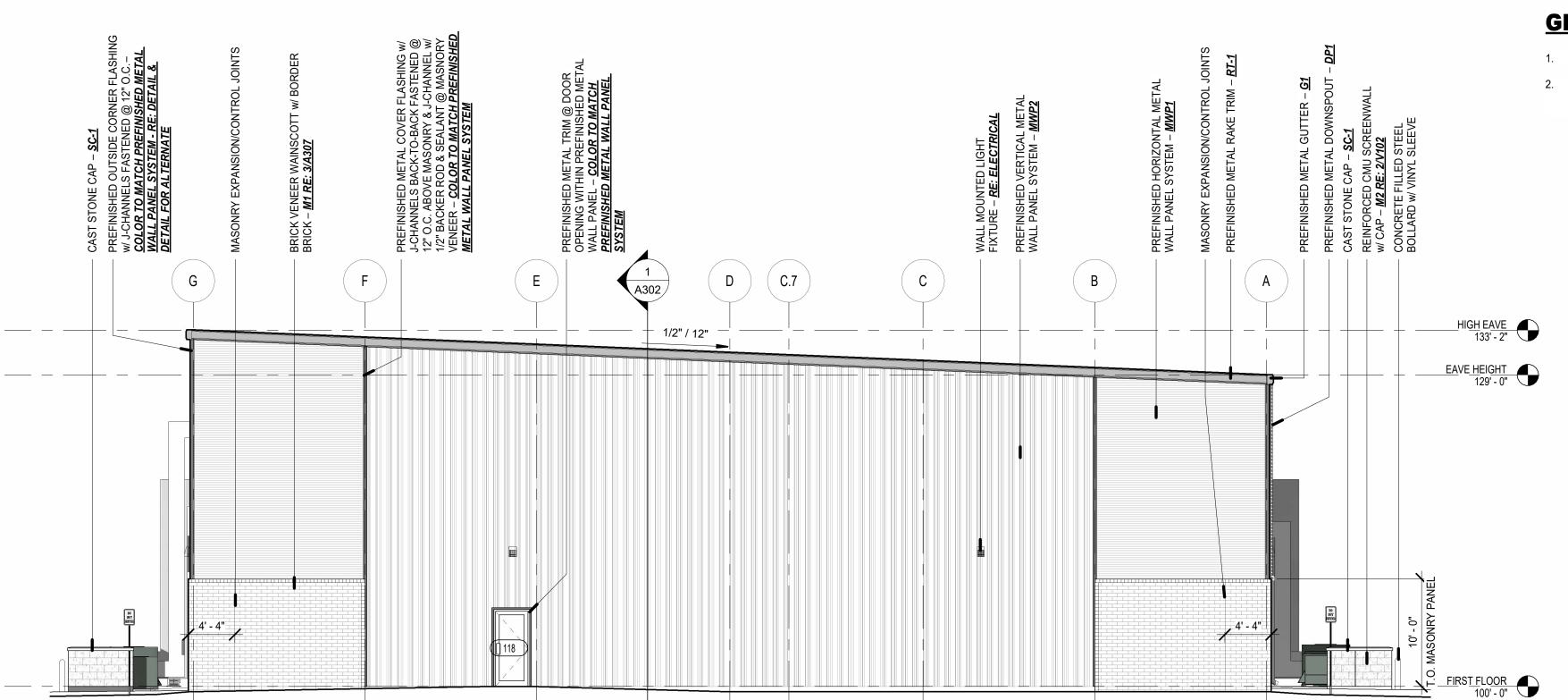
**A201** 

1 EAST EXTERIOR ELEVATION

1/8" = 1'-0"



**SOUTH EXTERIOR ELEVATION**1/8" = 1'-0"



# **GENERAL PLAN NOTES:**

- REFER TO SHEET A503 FOR WINDOW TYPES/SIZES & LOCATIONS.
- EXTERIOR DOORS OTHER THAN MAIN ENTRY SHOWN SHOWN AS ALUMINUM STOREFRONT <u>RE: A502 FOR H.M. FRAME & INSULATED METAL DOORS ALT. BID NOTE</u>

### **EXTERIOR ELEVATIONS FINISH SCHEDULE:**

### PREFINISHED METAL WALL PANELS

**MWP1** - PAC-CLAD PRECISION SERIES BOX RIB BOX RIB 1, COLOR SANDSTONE MWP2 - PAC-CLAD PRECISION SERIES BOX RIB BOX RIB 4, COLOR SANDSTONE MWP3 - PAC-CLAD REVEAL WALL PANELS, COLOR GRAPHITE

**G1** - GUTTERS PAC-CLAD CARDINAL RED

**DP1** - DOWNSPOUT, PAC-CLAD CARDINAL RED

RT-1 - RAKE TRIM, PAC-CLAD CARDINAL RED

### <u>MASONRY</u>

M1 - BRICK MASONRY: KANSAS BRICK & TILE, UTILITY BRICK, #530 DARK BURGANDY M2 – CMU; CAPITOL CONCRETE, GROUND FACED CMU SHADOW

**SF-1** - ALUMINUM STOREFRONT, EQUAL TO KAWNEER, CHAMPAGNE OR PLATINUM ICE

**SC-1** - CAST STONE CAP - COLOR, LIMESTONE



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STRUCTION

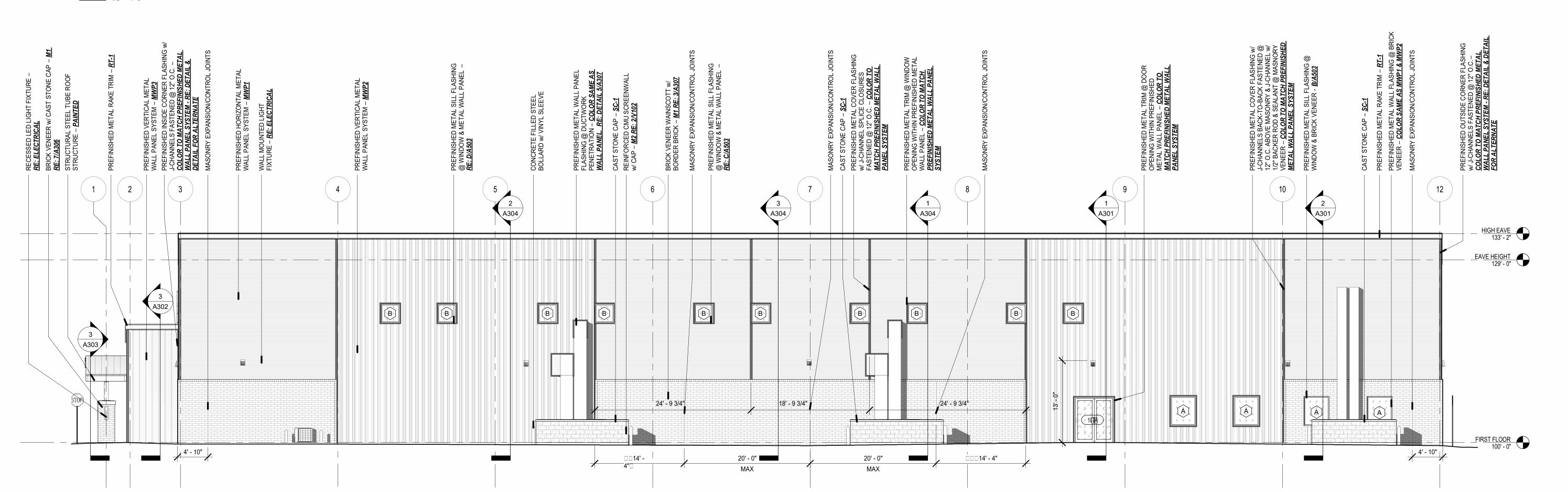
**EXTERIOR ELEVATIONS** 

REVISIONS

**A202** 

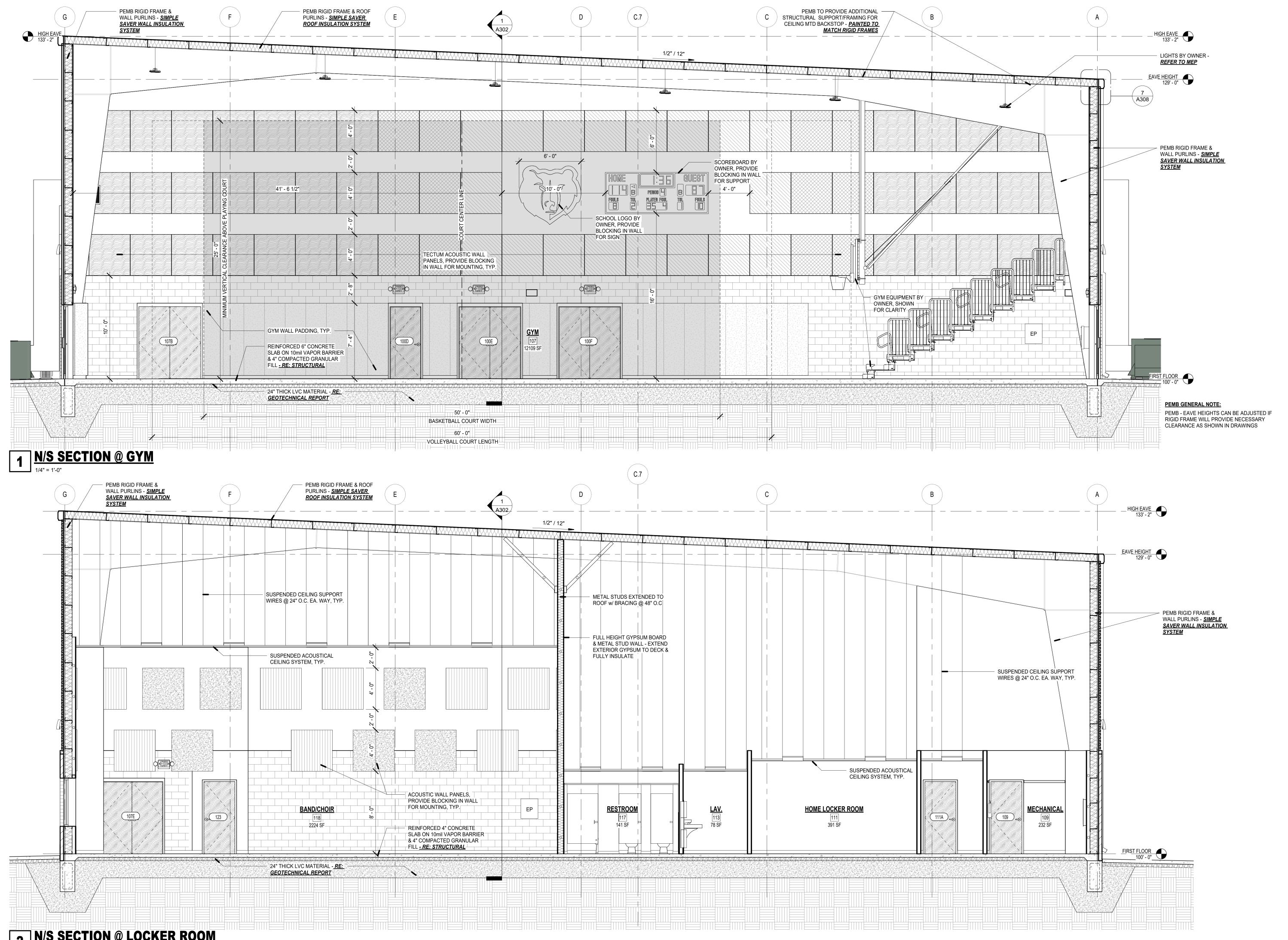
1 WEST EXTERIOR ELEVATION

1/8" = 1'-0"



2 NORTH EXTERIOR ELEVATION

1/8" = 1'-0"





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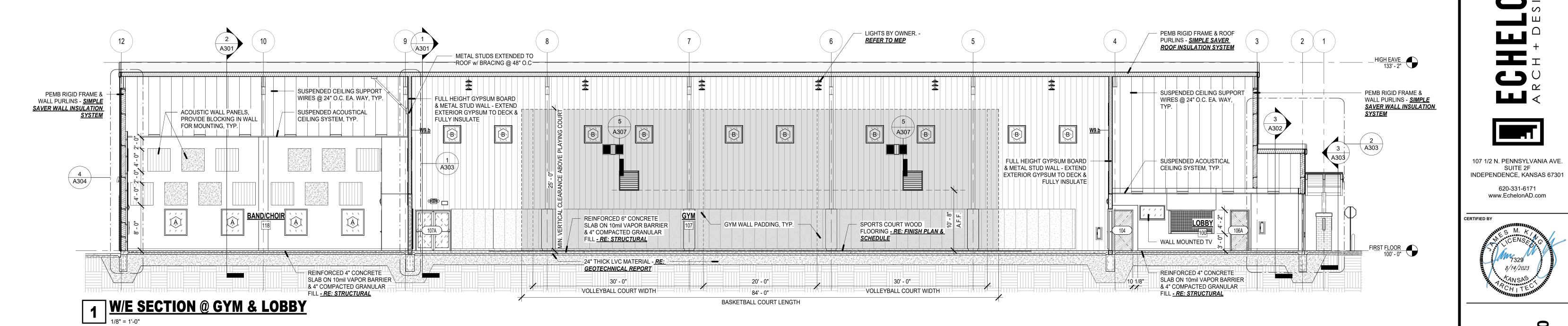


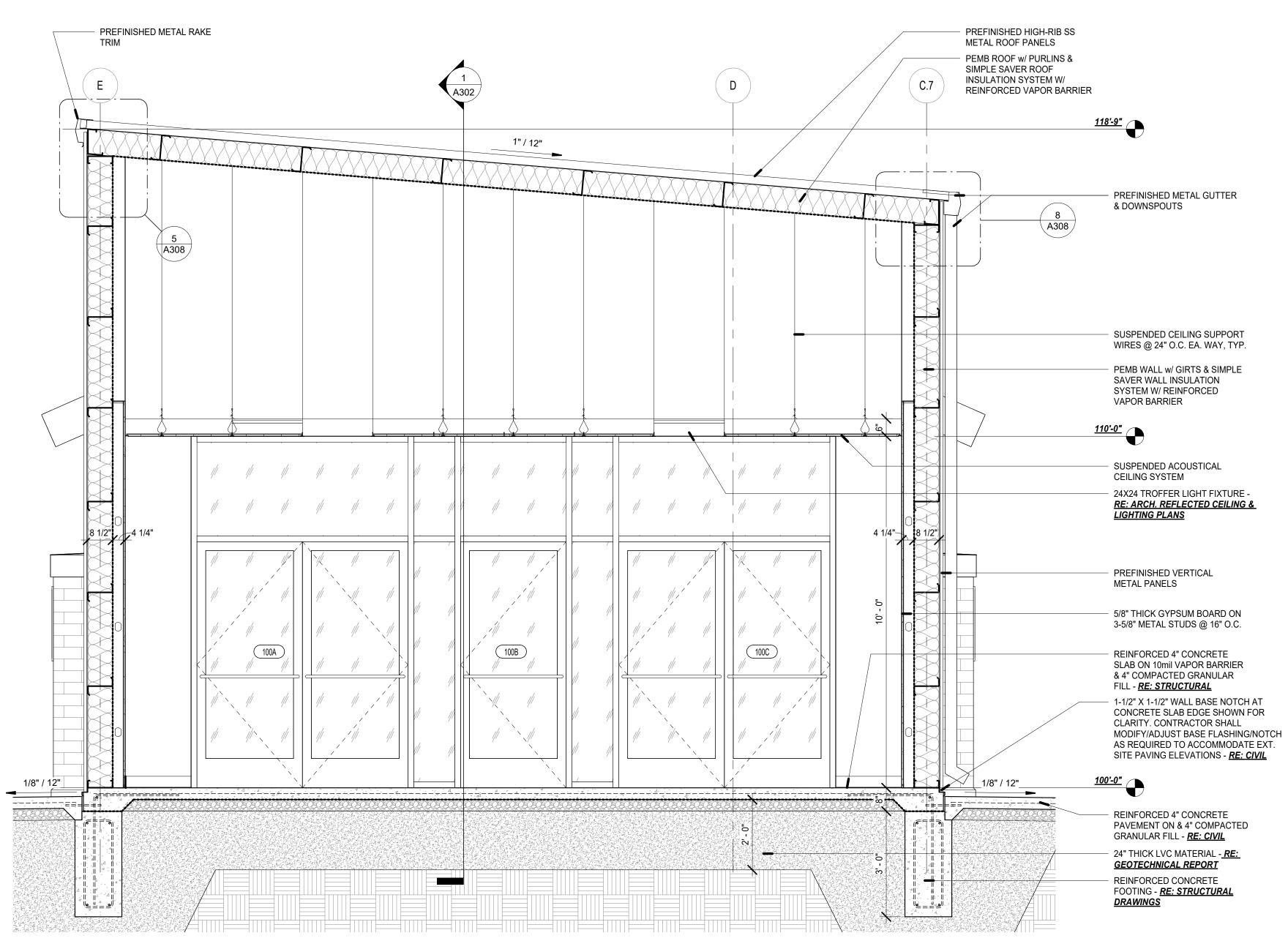
STRUCTION CON NEW

DRAWING **BUILDING SECTIONS** 

DRAWN BY MANAGER KG REVISIONS PROJECT NUMBER 23-09 8/14/2023 SHEET NUMBER

A301



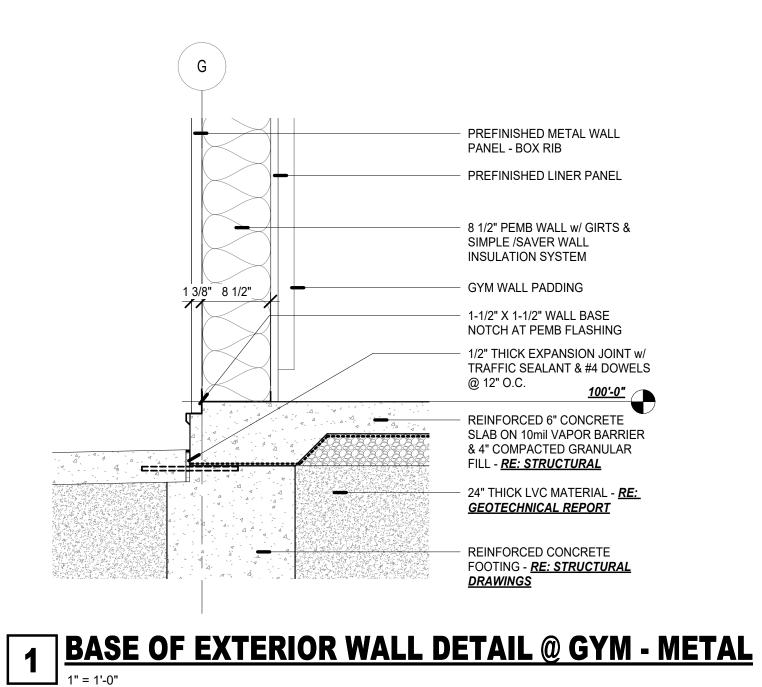


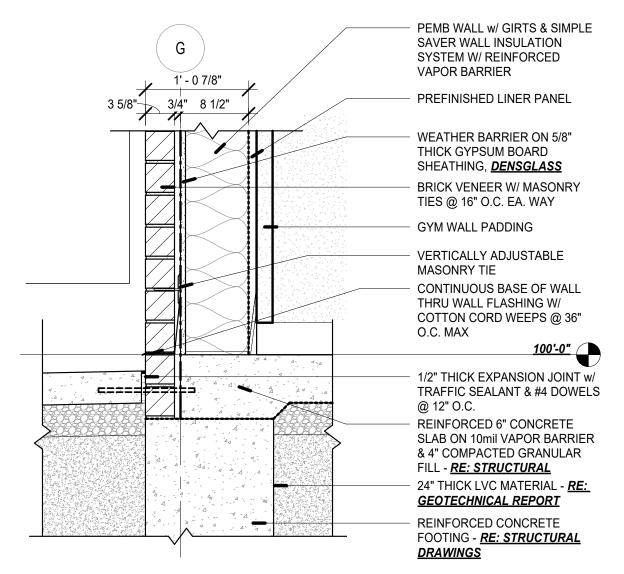


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DRAWING					
BUILDING SECTIONS					
MANAGER	DRAWN BY				
SAC	KG				
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PROJECT NUMBER					
23-	09				
DATE					
8/14/2023					
SHEET NUMBER	02				
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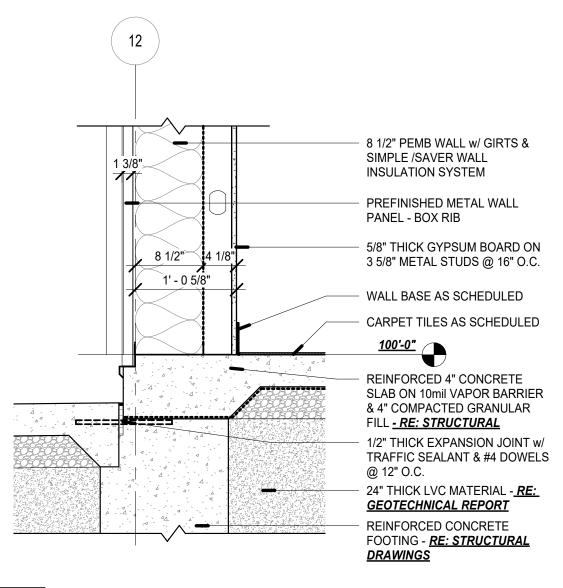




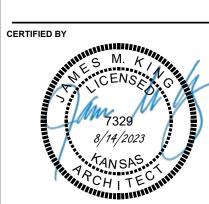
- 8 1/2" MTL. BLD'G. FRAMING PREFIN. MTL. FLASHING W/ DRIP EDGE 8 1/2" MTL. BLD'G. ZEE GIRT FRAMING PREFIN. MTL. LINER PANEL VERTICALLY ADJUSTABLE MASONRY TIE 1/2" THICK GYPSUM BOARD SHEATHING, <u>DENSGLASS</u> WEATHER BARRIER SYSTEM SIMPLE SAVER WALL INSULATION W/ SUPER WHITE REINFORCED VAPOR BARRIER 4 5/8" 8 1/2" 1' - 1 1/8"

- 3 5/8" METAL STUDS INFILL @ 24" O.C.

3 BRICK/METAL DETAIL @ GYM







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STRUCTION

CON

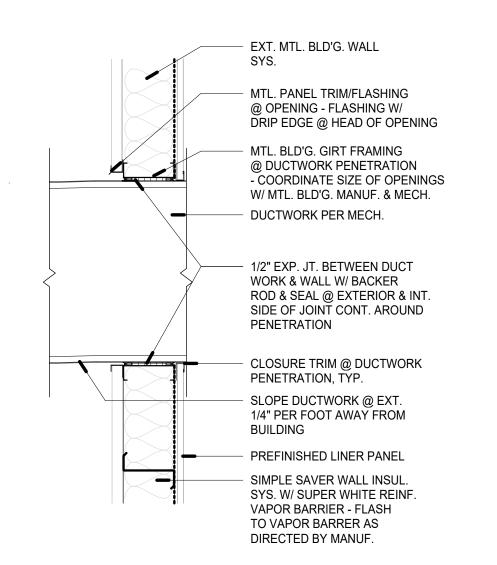
**WALL DETAILS** 

DRAWN BY REVISIONS

PROJECT NUMBER 23-09

8/14/2023

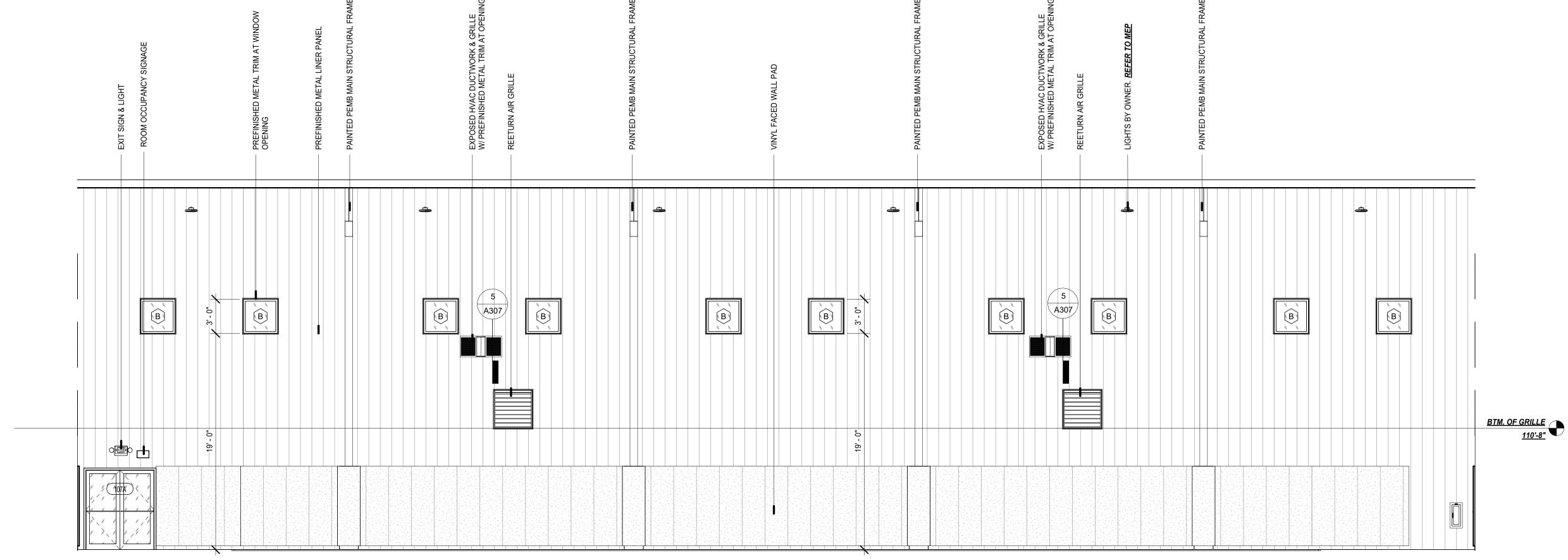
**A307** 



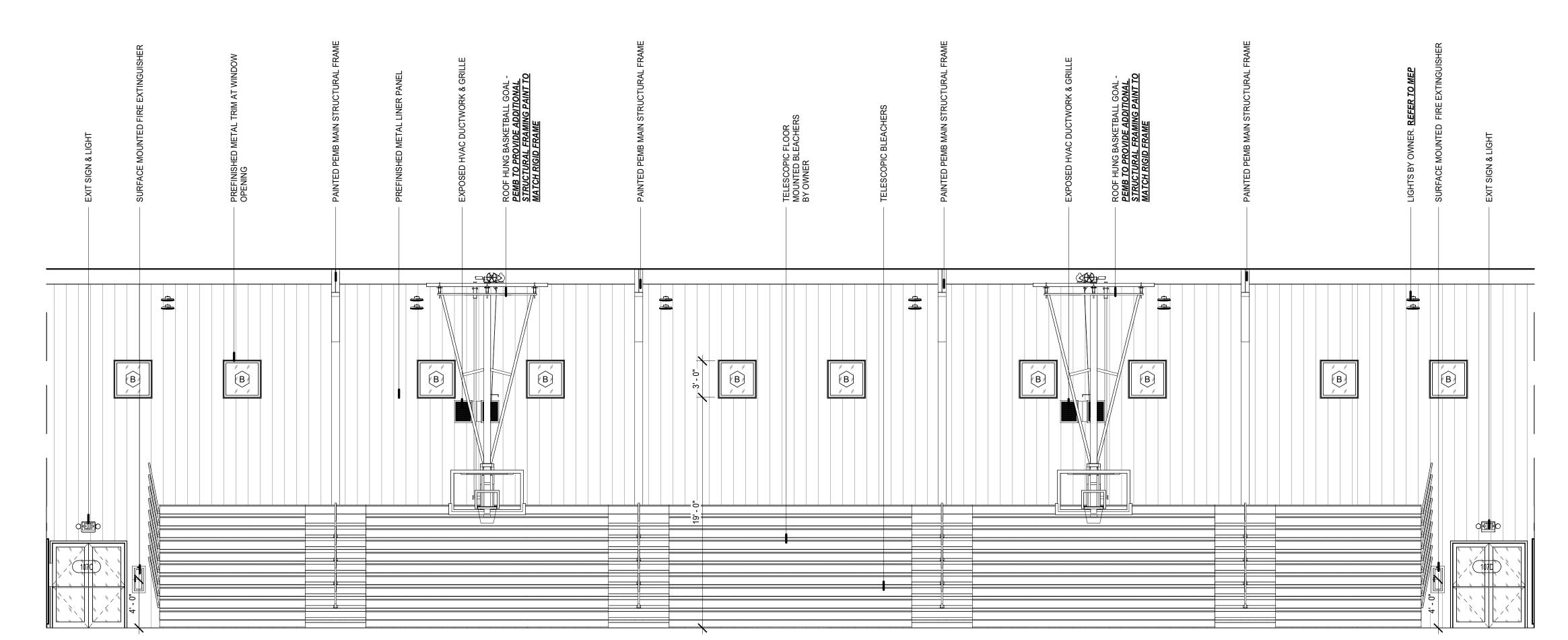
**5 DUCTWORK FLASHING DETAIL**3/4" = 1'-0"



1. REFER TO SHEET A503 FOR WINDOW TYPE, SIZE, AND LOCATION



1 GYM NORTH ELEVATION
3/16" = 1'-0"



2 GYM SOUTH ELEVATION
3/16" = 1'-0"

# A NEW GYM FOR USD506

GYM ELEVATIONS

REVISIONS

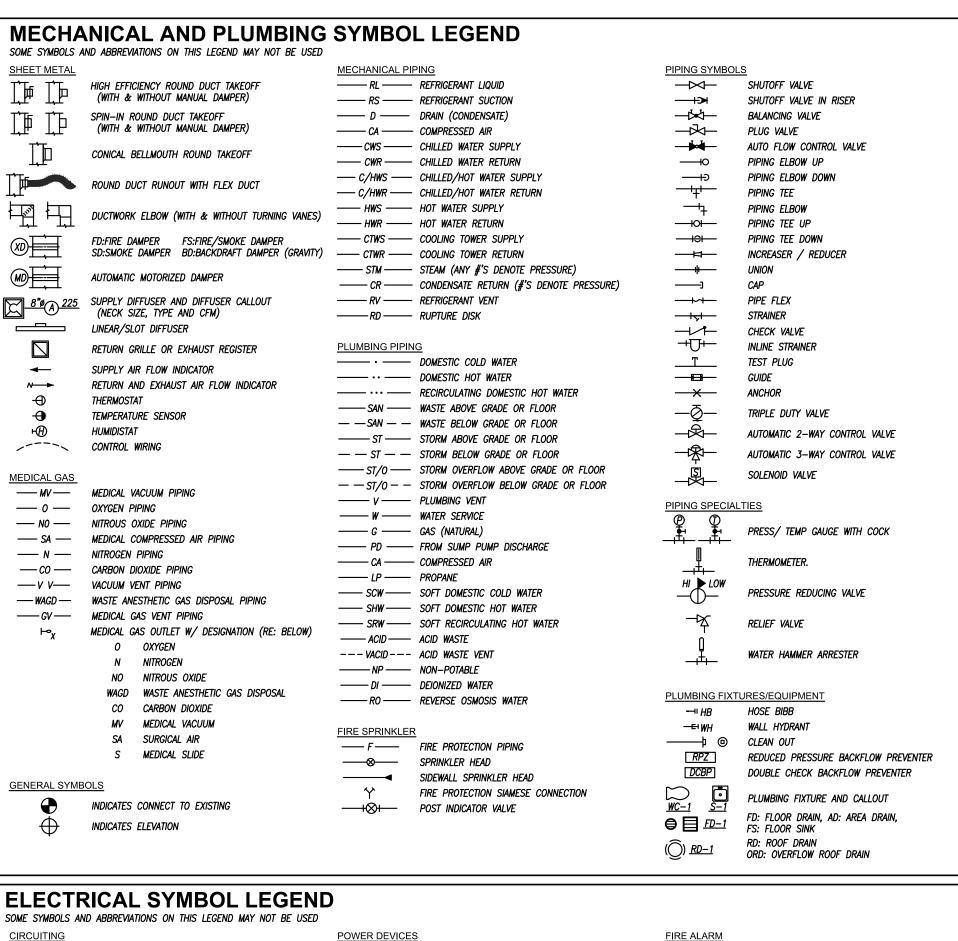
8/14/2023

**A405** 

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Ψ 				( <u>)</u> <u>RD-1</u>	RD: ROOF DRAIN ORD: OVERFLOW ROOF DRAIN
ELECTF	RICAL SYMBOL LEGEND	)			
	ID ABBREVIATIONS ON THIS LEGEND MAY NOT BE USED				
CIRCUITING		POWER DEVICE	_	FIRE ALARM	
	HOME RUN (2#12 1#12G UNO)	<del>+</del>	DUPLEX RECEPTACLE.	F	MANUAL PULL STATION
	INDICATES 2 PHASE, 1 N, & 1 GRD CONDUCTOR	<del></del>	LINE THRU DEVICE INDICATES ABOVE COUNTER	(D)	CEILING SMOKE DETECTOR
	HOME RUN: INDICATES SHARED CIRCUIT	<del>G</del> GFI	SPECIAL DUPLEX RECEPTACLE (GFCI, ISOLATED GROUND, ETC.)	(D)	DUCT SMOKE DETECTOR
/ - 🔪	HOME RUN: INDICATES #10 CONDUCTORS ENTIRELY	=	QUADPLEX RECEPTACLE	<u>(н)</u>	HEAT DETECTOR
TILITIES		$\Theta_{5-50R}$	SIMPLEX RECEPTACLE W/NEMA CONFIG AS NOTED	■ WF	WATERFLOW SWITCH
	UNDERGROUND ELECTRICAL	<b>⊕</b> 5–50R	MULTI-POLE RECEPTACLE W/NEMA CONFIG AS NOTED	■ TS	TAMPER SWITCH
	OVERHEAD ELECTRICAL TELECOMMUNICATIONS CONDUIT	5-30K	CEILING MOUNTED RECEPTACLE	<b>X</b> 75	VISIBLE NOTIFICATION DEVICE WITH CANDELA RATING. 75cd RATING UNLESS OTHERWISE NOTED ON PLANS.
	UNDERGROUND TELECOMMUNICATIONS CONDUIT		RECEPTACLE/DEVICE MOUNTED IN "TOMBSTONE"	⊠< 30	AUDIBLE/VISIBLE NOTIFICATION DEVICE WITH CANDELA RATING. 75cd UNLESS OTHERWISE NOTED ON PLAN
		•	POKE-THRU WITH POWER	_ :	HORN
SHTING			POKE-THRU WITH TELECOMMUNICATIONS		CEILING—MOUNTED STROBE LIGHT WITH CANDELA
	FLUORESCENT LIGHT FIXTURE	•	POKE-THRU W/POWER AND TELECOM	75	RATING. MINIMUM OF 75cd RATING.
	FLUORESCENT STRIP FIXTURE	1G	SINGLE GANG FLOOR BOX (2, 3, 4 GANG SIMILAR)	30	CEILING-MOUNTED COMBINATION HORN/STROBE WITH CANDELA RATING. MIN. OF 75cd RATING.
<b>⊙</b>	SURFACE/RECESSED LIGHT FIXTURE		DIVIDED POWER POLE		CEILING-MOUNTED HORN
НЮ	WALL-MOUNTED LIGHT FIXTURE	<b>©</b>	CLOCK RECEPTACLE		SPEAKER
ਜ਼ ਦ⊖	POLE-MOUNTED LIGHT FIXTURE		PLUG MOLD / WIRE MOLD AS SPECIFIED		COMBINATION SPEAKER/STROBE
H⊗ ⊗	EXIT LIGHT	$\odot$	JUNCTION BOX		CEILING-MOUNTED SPEAKER
₩	BATTERY-OPERATED EMERGENCY LIGHT (WALL MTD)	ŀ <sub>E</sub> Û	THERMOSTAT – ELECTRIC	R	RELAY
<b>№</b>	BATTERY-OPERATED EMERGENCY LIGHT (CEILING MTD) WALL-MOUNTED COMBINATION EXIT LIGHT/	□H Z	PUSH BUTTON	FACP	FIRE ALARM CONTROL PANEL
<b>⇔</b>	BATTERY-OPERATED EMERGENCY LIGHT	<b>∕</b> ⊙∕	MOTOR	FAAP	FIRE ALARM ANNUNCIATOR PANEL
\$	LIGHT SWITCH — SINGLE POLE			FARA	REMOTE ANNUNCIATOR PANEL
\$ <sub>3</sub>	LIGHT SWITCH — 3—WAY	TELEPHONE/DA	<u>TA</u> TELEPHONE OUTLET (SINGLE-GANG BOX WITH (1)	FAEC	FIRE ALARM EXTENDER CABINET
\$ <sub>4</sub>	LIGHT SWITCH - 4-WAY	◁	3/4" CONDUIT TO ABOVE ACCESSIBLE CEILING)	DH)	DOOR HOLDER
\$ <sub>K</sub>	LIGHT SWITCH – KEY	4	LINE THRU DEVICE INDICATES ABOVE COUNTER	_	
\$ <sub>D</sub>	LIGHT SWITCH – DIMMER	<b>◄</b>	DATA OUTLET (DOUBLE-GANG BOX WITH (2) 3/4"	<b>D</b> 120V	SINGLE / MULTI-STATION 120V SMOKE ALARM
\$ <sub>PL</sub>	LIGHT SWITCH — PILOT LIGHT		CONDUITS TO ABOVE ACCESSIBLE CEILING) TELEPHONE/DATA OUTLET (DOUBLE-GANG BOX WITH	ZAM	ZONE ADDRESSABLE MODULE
\$ <sub>2P</sub>	LIGHT SWITCH – 2 POLE	4	(2) 3/4" CONDUITS TO ABOVE ACCESSIBLE CLG.)	IAM	INDIVIDUAL ADDRESSABLE MODULE
\$ <sup>D</sup> <sub>3</sub>	LIGHT SWITCH — 3—WAY DIMMER	< 1V	PHONE OUTLET WITH NUMBER OF PHONE JACKS AS INDICATED — SEE DETAILS FOR ADD'L INFO.	HFSS	KITCHEN HOOD FIRE SUPPRESSION SYSTEM PANEL
<b>\$</b> ™	WALL-MOUNTED MOTION SWITCH	<b>◀</b> 1D	DATA OUTLET WITH NUMBER OF PHONE JACKS AS	H	KITCHEN HOOD REMOTE PULL STATION
<u>w</u>	CEILING-MOUNTED MOTION SWITCH		INDICATED — SEE DETAILS FOR ADD'L INFO.	ARA	AREA OF RESCUE ASSISTANCE STATION
SB	SWITCHBANK - REFER TO DETAILS	<b>◀</b> 1D/1V	PHONE/DATA OUTLET WITH NUMBER OF PHONE/DATA JACKS AS INDICATED — SEE DETAILS FOR ADD'L INFO.	ARAM	AREA OF RESCUE ASSISTANCE MASTER STATION
FD1	DIMMER BOARD	⊢ŵ	WALL-MOUNTED WIRELESS INTERNET TRANSMITTER	SECHIDITY	
RCS-1	REMOTE CONTROL SWITCH AS SCHEDULED	(W)	CEILING-MOUNTED WIRELESS INTERNET TRANSMITTER	SECURITY	OMEDI
TC	TIMECLOCK – REFER TO PLANS / DETAILS	_			CAMERA
JIPMENT		AUDIO/VISUAL	TELEVISION OUTLET (SINGLE GANG BOX WITH (1)	PZ	PAN/TILT/ZOOM CAMERA
	DISCONNECT SWITCH. RE: PLANS FOR INFORMATION.	<b>(!</b> )	3/4" CONDUIT TO ABOVE ACCESSIBLE CEILING)	PROX	PROXIMITY TYPE CARD READER
_ ⊠	MAGNETIC MOTOR STARTER	R	REVERSE TELEVISION OUTLET — CABLE TO HEAD END	CARD	SWIPE CARD READER
_ ⊠'	COMBINATION DISCONNECT SWITCH / MOTOR STARTER	TDC	TEACHER'S DESK CONNECTIONS - RE: DETAILS	BG	BREAK GLASS DETECTOR
_	TOGGLE-TYPE DISCONNECT. FURNISH WITH THERMAL	⊢©	WALL SPEAKER	ES	ELECTRIC STRIKE
\$	MOTOR PROTECTION WHERE SERVING FANS/PUMPS.	<u>(S)</u>	CEILING SPEAKER	MD	SECURITY MOTION DETECTOR
	SURFACE PANELBOARD	<u>−</u> \$d	WALL SPEAKER - HORN TYPE	KP	KEYPAD / MAG LOCK
	RECESSED PANELBOARD	<u>(s</u> √	CEILING SPEAKER — HORN TYPE	В	BUTTON / MAG LOCK
	DISTRIBUTION PANELBOARD	S <sub>SUB</sub>	CEILING SPEAKER — SUBWOOFER	_	
	SWITCHBOARD. FEEDER/MAIN CIRCUIT BREAKER SECTION AND DISTRIBUTION SECTION.	© <sub>ss</sub>	CEILING SPEAKER — SOUND SYSTEM		
	SECTION AND DISTRIBUTION SECTION.	<b>⊢</b> (ŷ)	VOLUME CONTROL		
NERAL SYMB	<u>OLS</u>	Ĭ	INTERCOM CALL STATION		
		_			

SOUND SYSTEM AUDIO JACK

INTERCOM MASTER STATION

REMOTE MICROPHONE CONTROL

PUBLIC ADDRESS SYSTEM AMPLIFIER

INTERCOM HANDSET

PAS

INDICATES CONNECT TO EXISTING

INDICATES ELEVATION

### 15000 - MECHANICAL SPECIFICATIONS

### <u>SECTION 15000 - MECHANICAL REQUIREMENTS</u>

- A. ALL WORK SHALL BE IN ACCORDANCE W/ LATEST EDITION OF INTERNATIONAL BUILDING. MECHANICAL & PLUMBING CODES, CODES AS ADOPTED BY CITY, COUNTY, STATE & ALL
- OTHER APPLICABLE CODES. FURNISH & INSTALL ALL LABOR & MATERIALS REQUIRED FOR COMPLETE, FUNCTIONING, MECHANICAL & PLUMBING SYSTEMS W/ ALL ASSOCIATED EQUIPMENT & APPARATUS AS SHOWN ON PLANS. "PROVIDE" MEANS TO FURNISH & INSTALL. OBTAIN & PAY FOR ALL PERMITS REQUIRED FOR EXECUTION OF THIS WORK & SHALL
- MAKE ARRANGEMENTS FOR MODIFICATIONS TO WATER, GAS & SEWER CONNECTIONS TO VISIT SITE & OBSERVE CONDITIONS UNDER WHICH WORK WILL BE DONE. ANY DISCREPANCIES SHALL BE CALLED TO ARCHITECT'S ATTENTION. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN CONTRACT FOR ANY ERROR OR NEGLIGENCE ON
- CONTRACTOR'S PART. FINAL ACCEPTANCE OF WORK SHALL BE SUBJECT TO CONDITION THAT ALL SYSTEMS. FOUIPMENT APPARATUS & APPLIANCES OPERATE SATISFACTORILY AS DESIGNED & INTENDED. WORK SHALL INCLUDE REQUIRED ADJUSTMENT OF SYSTEMS & CONTROL EQUIPMENT INSTALLED UNDER THESE SPECIFICATIONS
- WARRANT TO OWNER QUALITY OF MATERIAL, EQUIPMENT, WORKMANSHIP & OPERATION OF FOLIPMENT PROVIDED LINDER THESE SPECIFICATIONS FOR ONE YEAR FROM & AFTER COMPLETION OF BUILDING & ACCEPTANCE OF MECHANICAL SYSTEMS BY OWNER. ALL MATERIALS INSTALLED IN PLENUMS SHALL BE NONCOMBUSTIBLE OR HAVE FLAME/SMOKE INDEX OF NO MORE THAN 25/50 IN ACCORDANCE W/ ASTM E 84. ROOF PENETRATIONS — MADE BY AUTHORIZED ROOFING CONTRACTOR WHEN REQUIRED.
- <u> SECTION 15100 PLUMBING</u>

BALL & INSULATED HANDLE.

- N. WATER PIPING ALL WATER PIPING SHALL BE 95-5 TIN-ANTIMONY JOINED TYPE L COPPER. INSULATE W/ FIBERGLASS W/ ASJ & PVC COVERS. THINCKNESS IN ACCORDANCE W/ ASHRAE 90.1. WASTE & VENT PIPING - CI BELL & SPIGOT OR HUBLESS CI W/ NEOPRENE GASKET FITTINGS W/ STAINLESS STEEL BANDS. SCHED 40 PVC W/ SOLVENT WELDS MAY BE USED WHERE ALLOWED BY LOCAL CODE. PVC NOT ALLOWED IN PLENUMS. GAS PIPING - PROVIDE SCHED 40 CONT. WELD CARBON STEEL W/ CORRESPONDING FITTINGS. PROVIDE THREADED FITTINGS. PROVIDE IRON BODY—BRASS PLUG GAS STOPS. PAINT ALL EXPOSED GAS PIPING ON THE EXTERIOR OF THE BUILDING INCLUDING ON
- . EQUIVALENT VALVES LISTED ON CURRENT COMPARISON CHARTS OF SPECIFIED VALVE MANUFACTURERS BY MILWAUKEE, STOCKHAM, POWELL, RED-WHITE, CRANE, APPOLO, MUELLER, MUESSCO, WATTS, HAYS, ROCKWELL-NORDSTROM. BALL VALVES - 2" & UNDER - BRONZE FULL PORT W/ TEFLOW SEATS, BRONZE
- BALANCING VALVES ARMSTRONG MODEL CBV I OR CBV II, 125 PSI-WP AT 250 DEGREES F., METER CONNECTIONS W/ BUILT-IN CHECK VALVES SCREWED OR FLANGED ENDS. PROVIDE POLYURETHANE INSULATION COVER. CHECK VALVES - 2" 7 SMALLER SCREWED OR SOLDER BRONZE CHECK VALVE, 200 PSI-WOG/125 PSI-WSP, TEFLON OR BRONZE DISC & SEAT RING. 2-1/2" & LARGER FLANGED. ASTM 126 IRON BODY. BRONZE TRIMMED. 200 PSI-WOG/125 PSI-WSP. BUTTERFLY VALVES — 3" & LARGER LEVER ASTM A126 CL DRILLED & TAPPED FULL LUG BODY, 200 PSI-WOG, EXTENDED NECK, BRONZE DISC, STAINLESS STEEL STEM,
- FIELD-REPLACEABLE EPDM SLEEVE & STEM SEALS. FIXTURES: AMERICAN STANDARD, KOHLER, CRANE, ZURN, TOTO STAINLESS STEEL FIXTURES: FLKAY, JUST, MOEN COMMERCIAL FITTINGS & SUPPORTS: JOSAM, SMITH, WADE, ZURN, OR JONESPEC.
- SEATS: CHURCH, OLSONITE, BEMIS OR BENEKE. TRIM BY DELTA, ELJER, KOHLER, AMERICAN STANDARD, CRANE, SLOAN. FLUSHVALVES: SLOAN, ZURN, TOTO
- DRAINS BY WADE, ZURN, WOODFORD, SMITH, JOSAM, ROOF DRAINS - CAST IRON ROOF DRAIN W/ FLANGE, CI MUSHROOM DOME. 2" DAM FOR OVERFLOW DRAINS WALL HYDRANTS JOSAM SERIES 71000 W/ CONNECTIONS FOR 3/4" PIPE & HOSE. NON-FREEZING W/ KEY, VACUUM BREAKER, LOCKING COVER, EQUIVALENT BY J.R.
- SMITH. WADE. WOODFORD OR ZURN. N. WATER HEATER — STATE, RHEEM, NATIONAL, A.O. SMITH. PORCELAINIZED GLASSLINED TANK. COLD WATER INLET DROP TUBE. MAGNESIUM ANODE RODS. U.L. SEAL, 160 PSI,
- FACTORY TEMPERATURE & PRESSURE RELIEF VALVE. N.S.F. CONSTRUCTION. 3 YR RECIRCULATION PUMPS - HORIZONTAL, OIL-LUBRICATED, ALL BRONZE. NON-OVERLOADING MOTOR.
- A. PROVIDE UNIONS OR FLANGED JOINTS IN EACH PIPE LINE PRECEDING CONNECTIONS TO EQUIPMENT TO ALLOW REMOVAL FOR REPAIR OR REPLACEMENT. PROVIDE ALL SCREWED & CONTROL VALVES W/ UNIONS ADJACENT TO EACH CONNECTION. PROVIDE SCREWED END VALVES W/ UNION ADJACENT TO VALVE UNLESS VALVE CAN BE OTHERWISE EASILY REMOVED FROM LINE.
- AFTER PIPING IS IN PLACE TEST LINES TO ENSURE NO LEAKS. ALL PIPING & EQUIPMENT SHALL BE SUPPORTED PROPERLY FROM STRUCTURE. ESCUTCHEONS - PROVIDE NICKEL-BRASS OR CHROME PLATED ON ALL EXPOSED PIPES WHEN PASSING THRU WALL OR CEILING OF FINISHED ROOMS.
- VERIFY FLOOR MATERIALS USED FROM ARCHITECTURAL PLANS & PROVIDE PROPER CLEANOUT TOPS, WHERE THEY OCCUR IN CARPET, QUARRY TILE, VINYL TILE OR PROVIDE WATER HAMMER ARRESTORS FOR ALL PLUMBING BANKS W/ FIXTURES UTILIZING FLUSH VALVES IN ANY CAPACITY. LOCATE ARRESTER BETWEEN LAST TWO

# <u>SECTION 15300 - HVAC</u> GENERAL

FIXTURES SERVED ON BRANCH LINE.

**ABBREVIATIONS** 

AUTHORITY HAVING JURISDICTION

A/E ARCHITECT / ENGINEER

AFF ABOVE FINISHED FLOOR

AFG ABOVE FINISHED GRADE

AG ABOVE GRADE

ARCH ARCHITECT

BLDG BUILDING

CD COLD DECK

CLG COOLING

DIA DIAMETER

DOWN

EA EXHAUST AIR

BG BELOW GRADE

CONDUIT

CANDELA

CLEAN OUT

CTE CONNECT TO EXISTING

DCW DOMESTIC COLD WATER

DF DRINKING FOUNTAIN

DHW DOMESTIC HOT WATER

DDC DIRECT DIGITAL CONTROLS

E/C ELECTRICAL CONTRACTOR

DHWR DOMESTIC HOT WATER RETURN

EDF ELECTRIC DRINKING FOUNTAIN

AHU AIR HANDLING UNIT

BFP BACKFLOW PREVENTER

BMS BUILDING MANAGEMENT SYSTEM

CM COORDINATE MOUNTING HEIGHT

DCVA DOUBLE CHECK VALVE ASSEMBLY

- PROVIDE COMPLETE HVAC SYSTEM AS SHOWN ON DRAWINGS INCLUDING NECESSARY EQUIPMENT, DUCTWORK, DIFFUSERS, GRILLES, & FILTERS. PROVIDE OPERATING & MAINTENANCE INSTRUCTIONS ON ALL FOUIPMENT ALL HVAC WORK SHALL BE DONE IN STRICT ACCORDANCE W/ ALL REQUIREMENTS OF
- LOCAL BUILDING CODE. ASHRAE. NEC. NFPA. & ALL OTHER APPLICABLE CODES HAVING HVAC DUCTWORK SHALL BE GALV SHEET METAL OF GAUGES & JOINT TYPES SPECIFIED

IN SMACNA MANUAL. PROVIDE TURNING VANES IN ELBOWS.

VOLUME DAMPERS SHALL BE MANUAL LOCKING BLADE TYPE ALL DUCTWORK MUST BE SUPPORTED PROPERLY FROM STRUCTURE. WRAP ALL SUPPLY & OUTSIDE AIR HVAC DUCTWORK W/ CERTAINTEED 1-1/2" THICK INSULATION W/ VAPOR BARRIER IN CONCEALED LOCATIONS. ALSO LINE FIRST 10' OF SUPPLY DUCTWORK FOR SOUND ATTENUATION ( IN ADDITION TO WRAP) LINE ALL RETURN AIR DUCTS & TRANSFER BOOTS W/ 1/2" LINER. DO NO WRAP EXPOSED SPIRAL

ELEV ELEVATION

EM EMERGENCY FIXTURE/DEVICE

FFCO FINISHED FLOOR CLEAN OUT

FGCO FLUSH GRADE CLEAN OUT

FWCO FLUSH WALL CLEAN OUT

GROUND / GANG

G/C GENERAL CONTRACTOR

GPM GALLONS PER MINUTE

ISOLATED GROUND

LWT LEAVING WATER TEMPERATURE

JUNCTION BOX

LED LIGHT EMITTING DIODE

M/C MECHANICAL CONTRACTOR

MCB MAIN CIRCUIT BREAKER

MAU MAKE UP AIR UNIT

HOT DECK

HTG HEATING

MA MIXED AIR

MECH MECHANICAL

MH MANHOLE

FXISTING ITEM

FFB FROM FLOOR BELO

FFA FROM FLOOR ABOVE

FLOW LINE

FLOOR

FP FIRE PROTECTION

FPM FEET PER MINUTE

ENTERING WATER TEMPERATURE

### A. FLEXIBLE DUCTS — THERMAFLEX OR EQUAL SOUND RATED TYPE G—KM INSULATED. (DUCT W/O PUBLISHED ACOUSTICAL ATTENUATION RATINGS NOT ACCEPTABLE) TAKE OFF FITTING SHALL BE HI-EFF STYLE W/ LOCKING DAMPER. MAXIMUM LENGTH OF FLEXIBLE DUCTWORK SHALL BE 7'-0". DIFFUSERS & GRILLES - SEE SCHEDULE, EQUIVALENT BY PRICE, TUTTLE & BAILEY.

TITUS, MATEL-AIRE, KREUGER, NAILOR. COORDINATE COLOR, MOUNTING W/ DUCT, CEILINGS. ARCHITECT.

REFRIGERANT PIPING - COPPER TUBE TYPE ACR, HARD TEMPER NITROGENIZED REFRIGERANT TUBE, ASTM B-88. TYPE L OR K. BRAZED JOINTS. INSULATE W/ ARMAFLEX IN THICKNESS PER ASHRAE 90.1. PROVIDE EXTERIOR RATED OR COATED ARMAFLEX OUTDOORS.

- A. ROOFTOP UNITS AS SCHEDULED. EQUIVALENTS BY TRANE, CARRIER, YORK, LENNOX, AAON, DAIKIN, MUST BE APPROVED BY OWNER. MIN 14" ROOF CURB. PROVIDE SLOPED CURB AS REQUIRED FOR LEVEL UNIT INSTALLATION. ECONOMIZER W/ BAROMETRIC RELIEF. FIXED DRY BULB CONTROL. 2" MERV 7 FILTERS. LOUVERED HAIL GUARDS. 30 DEG LOW AMBIENT SPLIT SYSTEM AHUS, EVAPORATORS, & CONDENSING UNITS AS SCHEDULED. FACTORY ASSEMBLED INCLUDING COIL, CONDENSATE PAN, FAN MOTOR(S), FILTERS & CONTROLS IN INSULATED CASING W/ TXV. ARI RATED. UL LISTED & LABELED FOR INDOOR BLOWER COIL UNITS. HEAVY GAUGE, GALV STEEL. FILTERS & CONTROLS IN INSULATED CASING W/ TXV. ARI RATED. UI LISTED & LABELED FOR INDOOR BLOWER COIL UNITS. HEAVY GAUGE. GALV STEEL. FILTERS & CONTROLS IN INSULATED CASING W/ TXV. AR RATED. UL LISTED & LABELED FOR INDOOR BLOWER COIL UNITS. HEAVY GAUGE. GALV STEEL. INSULATED W/ FIBERGLASS. UL & CSA ELECTRIC HEAT MODULES. HEATERS AS SCHEDULED SINGLE—POINT CONNECTION & TERMINAL STRIP CONNECTIONS. I NI-CHROM ELEMENTS. INTEGRAL DISC SWITCH & INTERNAL FUSING. 2" MERV FILTERS. MOUNT FILTER IN SLIDE RACK W/ HINGED DOOR & LATCH IN R/A DUCTWORK, CONDENSING UNIT — HEAVY GAUGE BASE, SCROLL COMPRESSOR(S). RATED SEER NOT LESS THAN 10.3. (1) YR PARTS & LABOR SYSTEM WARRANTY & ADDITIONAL 4 YR COMPRESSOR ONLY WARRANTY. ANTI-SHORT CYCLE PREVENTION Controls. Louvered coil hail guards. 30 deg low ambient. Equivalent by RANE. LENNOX. YORK. CARRIER. AAON. DAIKIN.
- EXHAUST FANS EQUIVALENT BY COOK, PENN, ACME, GREENHECK, JENNAIRE, TWIN CITY. PROVIDE W/ SPEED CONTROLS FOR ALL FANS LESS THAN 1/3HP TO BE FURNISHED TO E/C FOR MOUNTING AT FAN. PROVIDE W/ 14" MIN. CURB. PROVIDE GREASE TRIM & VENTILATED CURB EXTENSIONS FOR GREASE FANS PROVIDE PROGRAMMABLE THERMOSTATS W/ STAGES OF HEATING AND COOLING A REQUIRED BY STAGES OF HEATING AND COOLING ON SPECIFIED EQUIPMENT. SEVEN (7) DAY PROGRAMMING CAPABILITY W/ 2 OCC/UNOCC PERIODS/DAY. AUTO HEAT/COOL CHANGE OVER LOCKING SETPOINTS TO PREVENT TAMPERING PROVIDE W/ ALL INTERFACES TO OTHER EQUIPMENT AS REQUIRED. THERMOSTATS BY HONEYWELL, JOHNSON CONTROLS, WHITE-ROGERS, TRANE, CARRIER, AAON, LENNOX, DAIKIN, OR
- . COORDINATE W/ E/C TO PROVIDE ALL WIRING BETWEEN EQUIPMENT. DAMPERS. THERMOSTATS & ALL OTHER REQUIRED CONTROLS & DEVICES. PROVIDE ANY REQUIRED INTERFACES TO FIRE ALARM OR SIMILAR SYSTEMS. PROVIDE GROUND-MOUNTED UNITS ON 4", REINFORCED CONCRETE BASE, 4" LARGER THAN UNIT ON EACH SIDE ROOF-MOUNTED UNITS ON EQUIPMENT SUPPORTS OR CURBS. ANCHOR UNITS TO PROVIDE FACTORY-AUTHORIZED SERVICE START UP ON EQUIPMENT. TRAIN OWNER'S MAINTENANCE PERSONNEL ON STARTUP, SHUTDOWN, TROUBLESHOOTING, SERVICING,
- <u>SECTION 15900 SYSTEM TESTING & BALANCING</u>
  A. CONTRACTOR SHALL PROCURE SERVICES OF INDEPENDENT TAB CONTRACTOR WHICH SPECIALIZES IN TAB OF HVAC SYSTEMS, TO BALANCE, ADJUST, & TEST AIR MOVING EQUIPMENT & DISTRIBUTION & EXHAUST SYSTEMS & ALL WATER FLOW CIRCUITS. WORK SHALL BE DONE UNDER ENGINEER EMPLOYED TAB. ALL INSTRUMENTS USED SHALL BE ACCURATELY CALIBRATED & MAINTAINED IN GOOD WORKING ORDER. IF REQUESTED TESTS SHALL BE CONDUCTED IN PRESENCE OF A/F RESPONSIBLE FOR PROJECT &/OR REPRESENTATIVE. TAB CONTRACTOR SHALL BE CERTIFIED BY NEBB OR AABC & ALL WORK SHALL BE PERFORMED IN ACCORDANCE W/ ORGANIZATIONS PUBLISHED PROCEDURE MANUALS. TESTING & BALANCING (TAB) OF BUILDING HVAC SYSTEMS WILL BE COMPLETED NEAR
- END OF CONSTRUCTION. M/C HAS RESPONSIBILITY TO COOPERATE W/, MAKE ADJUSTMENTS FOR & PROVIDE EQUIPMENT NECESSARY FOR TAB CONTRACTOR TO PRIOR TO REQUESTING TAB CONTRACTOR TO PERFORM WORK, INSTALLING CONTRACTOR SHALL MAKE ALL NECESSARY INSPECTIONS & ADJUSTMENTS TO ENSURE THAT SYSTEMS ARE COMPLETELY INSTALLED & OPERATING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS & CONTRACT DOCUMENTS.
- CHECKS SHALL BE PERFORMED ON EACH SYSTEM INSTALLED UNDER THIS CONTRACT. REPORT SHEET SHALL BE PREPARED FOR EACH SYSTEM INDICATING CHECKS MADE, CORRECTIVE ACTION TAKEN WHERE REQUIRED. DATE & NAME OF INSPECTOR. SUBMIT 1) COPY TO TAB CONTRACTOR & (1) INDICATING CHECKS MADE CORRECTIVE ACTION TAKEN WHERE REQUIRED, DATE & NAME OF INSPECTOR. SUBMIT (1) COPY TO TAB CONTRACTOR & (1) TO A/E. TAB CONTRACTOR WILL NOT BEGIN UNTIL CHECKLIST HAS BEEN RECEIVED & REVIEWED. TAB CONTRACTOR SHALL AT MINIMUM: VERIFY & INSPECT THAT SYSTEMS ARE CLEAN. FAN ROTATION. BEARINGS. CLEARANCES. ALIGNMENT, VIBRATION ISOLATORS. FILTERS. DAMPER OPERATION & POSITION. EQUIPMENT IS INSTALLED. TRANSFER OPENINGS IN
- WALLS, AIR LEAKS, COIL FINS/DAMAGE. BALANCING CONTRACTOR SHALL PREPARE CERTIFIED REPORT OF ALL TESTS PERFORMED REPORT SHALL BE WRITTEN ON STANDARD FORMS PREPARED BY NEBB OR AABC OR FACSIMILES THEREOF. BALANCING CONTRACTOR SHALL SUBMIT 3 COPIES OF THIS REPORT TO M/C WHO SHALL SUBMIT THEM TO A/E FOR REVIEW & DISTRIBUTION.
- CONNECTIONS COIL & DAMPERS ARRANGEMENTS PSYCHOMETRIC CHART ON FACH AHLI W/ COOLING COIL SHOWING OUTDOOR RETURN MIXED AIR TEMPS AT MINIMUM OUTDOOR AIR CONDITION. COIL LEAVING AIR CONDITION AT FULL COOLING COIL FLOW. tab report shall include all nebb or AABC forms completed as required b' TAB CONTRACTOR SHALL CYCLE EACH AHU THROUGH CONTROL SEQUENCE OF PERATION TO VERIFY PROPER OPERATION. ANY INCONSISTENCY W/ CONTRACT
- DOCUMENTS SHALL BE REPORTED TO A/E & TEMP CONTROL CONTRACTOR. TEMP CONTROL CONTRACTOR SHALL TAKE ACTION TO CORRECT ANY CONTROL INCONSISTENCY DURING INSTALLATION OF HVAC SYSTEMS TAB CONTRACTOR SHALL PERIODIC INSPECTION VISITS TO PROJECT SITE. PROPER PLACEMENT & INSTALLATION OF CONTROL & BALANCING DEVICES SHALL BE VERIFIED BY THESE INSPECTIONS. M/C SHALL MAKE ALL CORRECTIONS IN CONTROL & BALANCING DEVICE LOCATIONS AS REQUESTED BY TAB CONTRACTOR. FOLLOWING EACH VISIT TAB CONTRACTOR SHALL REPORT TO A/E ALL ITEMS NOTED. ACTION TAKEN & PROGRESS OF INSTALLATION.

MLO MAIN LUGS ONLY

OUTSIDE AIR

PVC POLYVINYLCHLORIDE

RE/REF REFER / REFERENCE

RELOCATED ITEM

RPZ REDUCED PRESSURE ZONE

RA RETURN AIR

RR RESTROOM

SA SUPPLY AIR

GFCI GROUND FAULT CIRCUIT INTERUPTER SPD SURGE PROTECTIVE DEVICE

RFLIFF FAN

SHUNT TRIP

TFA TO FLOOR ABOVE

TFB TO FLOOR BELOW

TP TAMPERPROOF

TYP TYPICAL

TRANSFER AIR

UNO UNLESS NOTED OTHERWISE

VTR VENT THROUGH ROOF

WCO WALL CLEANOUT

WG WIRE GUARD

WP WEATHERPROOF

ARCHITECTURAL CASEWORK AND ELEVATIONS

ALL DEVICES NOT INDICATED OTHERWISE.

FROM VIEW WHERE REASONABLY POSSIBLE.

VRF VARIABLE REFRIGERANT FLOW

**GENERAL ELECTRICAL NOTES** 

LATEST ADOPTED VERSION OF THE NATIONAL ELECTRICAL CODE,

1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE

2. COORDINATE LOCATIONS OF RECEPTACLES, SWITCHES, ETC. WITH

3. REFER TO MOUNTING HEIGHTS DETAIL FOR MOUNTING HEIGHTS OF

4. PROVIDE ALL EMPTY CONDUITS WITH PULL STRINGS AND BUSHED

5. CONTRACTOR SHALL CONCEAL ALL CONDUIT, FITTINGS, AND DEVICES

LOCAL AND STATE CODES. AND REQUIREMENTS OF THE AHJ.

ORD OVERELOW ROOF DRAIN

P/C PLUMBING CONTRACTOR

PSI POUNDS PER SQUARE INCH

NFA NET FREE AREA

NL NIGHT LIGHT

**GEN. MECHANICAL NOTES** 

PROVIDED BY THE M/C CONTRACTOR OR SUBS.

AND FASTENED FROM STRUCTURE.

INSTALL FD.

1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE

CODE. LOCAL AND STATE CODES. AND REQUIREMENTS OF THE AHJ.

2. ANY POWER FOR CONTROL SYSTEMS TO BE PROVIDED BY E/C IS

LATEST ADOPTED VERISION OF THE INTERNATIONAL MECHANICAL

INDICATED ON ELECTRICAL PLANS. ANY ADDITIONAL LINE VOLTAGE

OR LOW VOLTAGE POWER REQUIRED BY THE M/C OF

3. ALL EQUIPMENT SHALL BE ADEQUATELY AND PROPERLY SUPPORTED

4. ALL EQUIPMENT AND ACCESSORIES INSTALLED IN CONCEALED SPACES

REQUIRING ACCESS SHALL BE PROVIDED WITH ACCESS DOORS

MEETING ANY FIRE REQUIREMENTS OF THE WALL/CEILING THEY ARE

A SMOKE DETECTOR TO SHUT DOWN THE UNIT PER IMC 606 AS

SYSTEMS IN OPERATE IN ACCORDANCE WITH THEIR INTENDED

PURPOSES. SUBMIT BALANCE AND START UP REPORTS TO THE A/E.

5. EACH AIR HANDLING UNIT OVER 2000CFM SHALL BE PROVIDED WITH

6. START UP AND ADJUST ALL EQUIPMENT AND VERIFY ALL MECHANICA

REFER TO SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS.

**GENERAL PLUMBING NOTES** 

1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE

2. NO PIPING SHALL BE INSTALLED WHERE IT WILL SUBJECT TO

FREEZING TEMPERATURES. PIPING IN EXTERIOR WALLS SHALL BE

INDOOR AMBIENT CONDITIONS TO CIRCULATE THROUGH THE CHASE.

3.1. IN ALL HORIZONTAL DRAINS (WITHIN THE BUILDING) NOT MORE

3.2. IN BUILDING SEWERS LOCATED NO MORE THAN 100 FEET APART

3.3. EACH CHANGE OF DIRECTION OF THE BUILDING DRAIN OR

MEASURED FROM THE UPSTREAM ENTRANCE OF THE CLEANOUT.

HORIZONTAL WASTE OR SOIL LINES GREATER THAN 45

DEGREES.WHERE MORE THAN ONE CHANGE OF DIRECTION OCCURS

FOR EACH 40 FEET OF DEVELOPED LENGTH OF THE DRAINAGE

3.5. NEAR THE JUNCTION OF THE BUILDING DRAIN AND BUILDING

IN A RUN OF PIPING, ONLY ONE CLEANOUT SHALL BE REQUIRED

INSTALLED ON THE WARM SIDE OF BUILDING INSULATION, INSULATED

AND THE CHASE SHALL BE VENTILATED WITH GRILLE'S ALLOWING

LOCAL AND STATE CODES, AND REQUIREMENTS OF THE AHJ.

3. PROVIDE CLEANOUTS IN THE FOLLOWING LOCATIONS:

3.4. AT THE BASE OF EACH WASTE OR SOIL STACK.

THAN 100 FEET APART.

LATEST ADOPTED VERISION OF THE INTERNATIONAL PLUMBING CODE

REQUIRED BY AHJ. COORDINATE WITH OTHER TRADES.

SUBCONTRACTORS TO HAVE A FULLY FUNCTIONING SYSTEM SHALL BE

### 16000 - ELECTRICAL SPECIFICATIONS

### SECTION 16000 - ELECTRICAL REQUIREMENTS

GENERAL REQUIREMENTS A. ALL WORK SHALL BE IN ACCORDANCE W/ LATEST EDITION OF INTERNATIONAL BUILDING CODE, NATIONAL ELECTRICAL CODE, NFPA, CODES AS ADOPTED BY CITY, COUNTY,

STATE & ALL OTHER APPLICABLE CODES. B. ALL MATERIALS & EQUIPMENT SHALL BE NEW & SHALL BEAR U.L. LABEL WHERE APPLICABLE, PROVIDE WATERPROOF FOUIPMENT FNCLOSURES WHERE REQUIRED. C. OBTAIN & PAY FOR ALL PERMITS REQUIRED FOR EXECUTION OF THIS WORK & SHALL MAKE ARRANGEMENTS FOR MODIFICATIONS TO ELECTRICAL CONNECTIONS TO BUILDING

- D. CONTRACTOR SHALL PROVIDE ALL LABOR & MATERIALS REQUIRED TO HAVE COMPLETE FUNCTIONING ELECTRICAL LIGHTING & POWER SYSTEMS TOGETHER W/ ALL ASSOCIATED EQUIPMENT & APPARATUS AS SHOWN ON PLANS. E. WHERE AN ELECTRICAL DEVICE IS REQUIRED BY CODE BUT NOT SHOWN, IT SHALL BE PROVIDED AS THOUGH FULLY SHOWN & SPECIFIED. F. CONTRACTOR SHALL VISIT SITE & OBSERVE CONDITIONS UNDER WHICH WORK WILL BE DONE. ANY DISCREPANCIES SHALL BE CALLED TO ARCHITECT'S ATTENTION. NO
- SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION FOR ANY ERROR OR NEGLIGENCE ON CONTRACTOR'S PART. G. FINAL ACCEPTANCE OF WORK SHALL BE SUBJECT TO CONDITION THAT ALL SYSTEMS. EQUIPMENT, APPARATUS & APPLIANCES OPERATE SATISFACTORILY AS DESIGNED & INTENDED. WORK SHALL INCLUDE REQUIRED ADJUSTMENT OF SYSTEMS & CONTROL
- FOUIPMENT INSTALLED UNDER THESE SPECIFICATIONS. H WARRANT TO OWNER CLIALITY OF MATERIALS FOLLIPMENT WORKMANSHIP & OPERATION OF EQUIPMENT PROVIDED UNDER THESE SPECIFICATIONS FOR ONE YEAR FROM & AFTER COMPLETION OF BUILDING & ACCEPTANCE OF MECHANICAL SYSTEMS BY OWNER. I. ALL MATERIALS INSTALLED IN PLENUMS SHALL BE NONCOMBUSTIBLE OR HAVE FLAME/SMOKE INDEX OF NO MORE THAN 25/50 IN ACCORDANCE W/ ASTM E 84.

### SECTION 16100 - CONDUIT & CONDUCTORS A. FOLLOW CIRCUITING SHOWN ON PLANS. USE NO CONDUIT SMALLER THAN 1/2" & NO

- CONDUCTORS SMALLER THAN #12 GA. UNLESS NOTED OTHERWISE. B. WIRE SHALL BE IN NON-FLEXIBLE METALLIC CONDUIT (EMT, IMC OR RMC) FOR ALL CIRCUITS AND FEEDERS GREATER THAN 30A, LIGHT SWITCH RISERS, KITCHEN CIRCUITS C. MC CABLE ACCEPTABLE FOR BRANCH CONVENIENCE CIRCUITS AND LIGHTING CIRCUITS.
- DO NOT DAISY CHAIN LIGHT FIXTURES. PROVIDE MC LUMINARY CABLE WITH BUILT-IN TWISTED JACKETED PAIR FOR LIGHTING CIRCUITS FOR LIGHTING CONTROLS. D. CONDUIT INSTALLED BELOW GRADE SHALL BE SCHEDULE 80 PVC HEAVY WALL PLASTIC CONDUIT MEETING NEMA STANDARDS & ULLISTED FOR UNDERGROUND & EXPOSED USE. PROVIDE GRS RADIUS BENDS & RISERS AS CONDUITS RISE ABOVE GRADE OR ABOVE FLOOR SLAB.
- E. PROVIDE INTERLOCKING SPACERS FOR MULT RUNS OF UG CONDUITS IN SAME TRENCH. F. LIGHTING & RECEPTACLE CIRCUIT CONDUCTORS SHALL BE COPPER THWN/THHN 600 VOLT, 75 DEG C, COLOR CODED AS DESCRIBED UNDER APPLICABLE CODES. NO ROMEX. PLASTIC FLEX TUBING ETC PERMITTED. LIGHT FIXTURE WIRE INSULATION SHALL HAVE TEMP RATING NOT LESS THAN INDIVIDUAL FIXTURE MANUF RECOMMENDED
- G. CIRCUITS W/ NO. 8 OR LARGER CONDUCTORS. MOTOR CIRCUITS. POWER & FEEDER CIRCUITS & BUILDING SERVICE FEEDERS SHALL BE COPPER THWN/THHN 600 VOLT. H. ALL CONDUIT, JUNCTION BOXES. ETC. ABOVE CEILINGS SHALL BE SUPPORTED FROM
- STRUCTURE. PIPE SLEEVES, HANGERS & SUPPORTS SHALL BE FURNISHED & SET & CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER & PERMANENT LOCATIONS. SECTION 16200 — GROUNDING A. SUPPLEMENT GROUNDED NEUTRAL OF SECONDARY DISTRIBUTION SYSTEM W/ EQUIPMENT GROUNDING SYSTEM, INSTALLED SO THAT METALLIC STRUCTURES, FNCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, CABINETS, MACHINE
- FRAMES. PORTABLE EQUIPMENT & OTHER CONDUCTIVE ITEMS OPERATE CONTINUOUSLY AT GROUND POTENTIAL & PROVIDE LOW IMPEDANCE PATH FOR GROUND FAULT D. SYSTEM SHALL COMPLY W/ NATIONAL ELECTRICAL CODE. DRAWINGS & AS SPECIFIED . PROVIDE EQUIPMENT GROUND BUS IN BASE OF LOW VOLTAGE, SWITCHGEAR BRAZED
- OR OTHERWISE ADEQUATELY CONNECTED BY AN APPROVED METHOD TO GROUND RODS. D. PROVIDE IN CONDUIT GREEN INSULATED COPPER GROUND CONDUCTOR TO MAIN METALLIC WATER SERVICE ENTRANCE & CONNECT BY MEANS OF ADEQUATE GROUND
- E. EQUIPMENT GROUNDING CONDUCTORS FOR BRANCH CIRCUIT HOME RUNS SHOWN ON DRAWINGS SHALL INDICATE AN INDIVIDUAL & SEPARATE GROUND CONDUCTOR FOR THAT BRANCH CIRCUIT WHICH SHALL BE TERMINATED AT BRANCH CIRCUIT PANELBOARD, SWITCHBOARD. OR OTHER DISTRIBUTION EQUIPMENT. F. PROVIDE LOW VOLTAGE DISTRIBUTION SYSTEM W/ SEPARATE GREEN INSULATED. EQUIPMENT GROUNDING CONDUCTOR FOR EACH SINGLE OR THREE—PHASE FEEDER. SINGLE PHASE 120 VOLT BRANCH CIRCUITS FOR LIGHTING & POWER SHALL CONSIST
- OF PHASE & NEUTRAL CONDUCTORS & GREEN GROUND CONDUCTOR INSTALLED IN COMMON CONDUIT WHICH SHALL SERVE AS GROUNDING CONDUCTOR. G. GROUNDING CONDUCTORS SHALL BE AS SHOWN ON PLANS OR IF NOT SPECIFICALLY SHOWN SHALL BE NO SMALLER THAN THAT REQUIRED BY NEC. <u>SECTION 16300 — ELECTRICAL EQUIPMENT</u>
  A. JUNCTION BOXES & OUTLET BOXES SHALL BE GALVANIZED KNOCKOUT TYPE.

### LIGHTING FIXTURE BOXES IN CEILINGS SHALL NOT BE LESS THAN 4" OCTAGONAL KNOCKOUT TYPE. OUTLETS SHALL BE INSTALLED IN LOCATIONS SHOWN ON DRAWINGS EXCEPT OUTLETS MAY BE MOVED 4 FEET IN EITHER DIRECTION IF SO DIRECTED. WITHOUT ADDITIONAL COST. BOXES SHALL BE FLUSH MOUNTED ON WALLS FOR CONCEALED WORK. GANGABLE BOXES SHALL BE USED IN ALL GYPBOARD SURFACES.

A. BRANCH CIRCUIT 208/240V PANELS SHALL BE CAPACITY SHOWN W/ TIN PLATED COPPER BUSSING & BRACED FOR MINIMUM OF 22,000A AIC OR AS OTHERWISE NOTED OR REQUIRED (SERIES RATED ACCEPTABLE). BOLT ON CIRCUIT BREAKERS. 480V PANELS SAME EXCEPT 25,000A AIC MIN. MINIMUM 20" WIDE W/ GALV STEEL ENCLOSURE W/ HINGED DOOR & KEYED LOCK. COORD TRIM WITH MOUNTING LOCATION. PANELS TO BE RECESSED WHENEVER POSSIBLE B. DISTRIBUTION PANELS SHALL BE CAPACITY SHOWN & SHALL BE SQUARE D I-LINE W/ TIN PLASTED COPPER BUSSING. 65KAIC MIN OR AS OTHERWISE NOTED/REQ'D. BOLL ON CIRCUIT BREAKERS (SERIES RATED ACCEPTABLE), GALV STEEL ENCLOSURE.

### <u>SECTION 16350 — ELECTRICAL IDENTIFICATION</u> A. MANUFACTURED LABELS FOR EACH PANELBOARD & TRANSFORMER. TYPEWRITTEN PANEL SCHEDULES MOUNTED IN PANELS

C. FQUIVALENT BY SQUARE D. SIEMENS, CUTLER HAMMER, OR GE.

### R PRINTEN TAPE STYLE LAREL FOR FACH RECEPTACLE INDICATING PANEL & CIRCUIT # C. MANUFACTURED LABELS FOR ALL DISCONNECT SWITCHES INDICATING EQUIPMENT

### D. BRANCH CIRCUITS — IDENTIFY FACH CIRCUIT W/ WIRE MARKERS WHEN FNCLOSURE LABEL AND WIRE COLORS DO NOT PROVIDE ENOUGH INFORMATION TO IDENTIFY EACH

CIRCUIT WITHOUT TRACING. FEEDERS & BRANCH CIRCUIT HOME RUNS W/ WIRE MARKER W/ PANEL & CKT #. BOX COVERS ABOVE LAY-IN CEILINGS NEATLY MARKED W/ INDELIBLE MARKER. E. FÍRE ALARM — NAMEPLATE ON EACH FIRE ALARM TERMINAL CABINET. LABEL ALL

# SECTION 16400 - WIRING DEVICES

- A. CONVENIENCE OUTLETS SPEC GRADE 20 AMP DUPLEX W/ GROUND & SS WALL PLATES. OTHER OUTLETS SHALL BE VERIFIED W/ EQUIPMENT SUPPLIERS FOR PROPER NEMA CONFIGURATIONS. PROVIDE GFIC RATED DEVICES WHERE INDICATED
- AND AS REO'D PER CODE B. PROVIDE GFIC RATED DEVICES WHERE INDICATED AND ANYWHERE REQUIRED PER THE C. PROVIDE AFCI PROTECTION ON ALL CIRCUITS REQUIRED PER THE NEC.

D. PROVIDE TAMPER RESISTANT RECEPTACLES ON ALL RECEPTACLES IN PUBLIC AREAS,

- AREAS ACCESSIBLE TO CHILDREN, AND WHERE OTHERWISE REQUIRED TO BE TAMPER RESISTANT PER THE NEC. . LIGHT SWITCHES - SPEC GRADE 20 AMP TOGGLE SWITCHES W/ SS WALL PLATES. WALL MOTION SWITCHES — SPEC GRADE, PIR, OVERRIDE. G. CEILING MOTION SWITCHES - SPEC GRADE, DUAL TECHNOLOGY, MODEL AS REQ'D BY ROOM CONFIGURATION, ALL NECESSARY POWER PACKS AND RELAYS.
- H. WALL MOTION SWITCHES (BATHROOM) DUAL RELAY, SPEC GRADE, PIR, 2ND RELAY FOR OPERATION OF FYHAUST FAN DELAY COLOR OF DEVICES AS DIRECTED BY ARCHITECT EQUIVALENT DEVICES BY LEVITON, BRYANT, HUBBEL, WATTSTOPPER, LITHONIA, SENSOR
- A. ALL OUTLETS, SHALL BE MOUNTED W/ BOTTOM AT 18" AFF & SWITCHES W/ BOTTOM AT 44" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE ON PLANS. REFER TO ARCH FOR OTHER REQUIRED ELEVATIONS AND CABINETRY COORDINATION.

### <u> SECTION 16500 — LED LUMINAIRES</u>

D. SINGLE ACTION PULL STATIONS.

- A. PROVIDE LIGHTING FIXTURES W/ ALL ACCESSORIES REQ'D FOR HANGING. COORD MOUNTING OF LIGHTING FIXTURES W/ ARCHITECT & G/C. ADDITIONAL FIXTURE SUPPORTS SHALL BE PROVIDED BY E/C. SUPPORTS SHALL COMPLY W/ LATEST EDITION OF NEC. PROVIDE LIGHTING FIXTURE SECURING CLIPS AS REQUIRED CONSULT ARCH PLANS FOR CEILING TYPES & PROVIDE SURFACE & RECESSED LIGHTING FIXTURES W/ APPROPRIATE MOUNTING COMPONENTS & ACCESSORIES.
- 3. REFER TO LIGHTING FIXTURE SCHEDULE PLANS FOR FIXTURE TYPES. EQUIVALENT LUMINAIRES BY CREE, COOPER, HUBBELL, INFINITY, LITHONIA, WILLIAMS, COLUMBIA, EXITRONICS, LITEALARM, EXIDE, MULE, DUALLITE

### <u>SECTION 16600 — FIRE ALARM SYSTEM</u> A. PROVIDE COMPLETE & OPERATIONAL MICROPROCESSOR BASED FIRE ALARM SYSTEM. SYSTEM SHALL MONITOR SPRINKLER SYSTEM TAMPER & FLOW SWITCHES, OPERATE AIR HANDLING UNIT DUCT SMOKE DETECTORS & UNIT SHUTDOWN, CONTROL NOTIFICATION APPLIANCES & PROVIDE THIRD PARTY/CENTRAL STATION MONITORING THROUGH DIGITAL ALARM COMMUNICATOR OR DIALER

B. PROVIDED W/ BATTERY BACKUP FOR 24 HOURS OF OPERATION & 5 MINUTES OF C. SUBMIT SHOP DRAWINGS W/ WIRING DIAGRAMS & BATTERY CALCS FOR APPROVAL TO FIRE MARSHALL AND AHJ

### A. MICROPROCESSOR BASED FIRE ALARM CONTROL PANEL W/ INDICATION & NOTIFICATION CIRCUITS REQUIRED BASED ON DEVICES & DESCRIPTION HEREIN. COMPLETE CONTROL PANEL W/ POWER SUPPLY, BATTERIES, PROCESSOR, DIALER, ETC. IN SINGLE CABINET. MANUFACTURED BY SIEMENS, SIMPLEX, NOTIFIER, OR APPROVED EQUAL.

- . PHOTOELECTRIC DUCT SMOKE DETECTORS W/ SAMPLING TUBE. PROVIDE REMOTE TEST SWITCH & INDICATOR FOR EACH. LOCATION APPROVED BY ARCHITECT. ACTIVATION OF DUCT SMOKE DETECTORS SHALL SHUT DOWN RESPECTIVE AIR HANDLING PHOTOELECTRIC CEILING MOUNTED SMOKE DETECTORS.
- REMOTE ANNUNCIATOR FOR RECESSED MOUNTING. COORDINATE LOCATION WITH FIRE PROVIDE ALL REQUIRED FAN AND OTHER SHUTDOWN RELAYS FOR DOORS, DAMPERS, ETC. COORDINATE W/ OTHER TRADES.
- S. NOTIFICATION APPLIANCES STROBES & COMBINATION HORN/STROBES. 15/75 CANDELA RATING UNLESS OTHERWISE NOTED OR REQUIRED. WEATHERPROOF WHERE FXTERIOR MOUNTED. H. HEAT DETECTORS — RATE OF RISE OR FIXED AS REQUIRED BY APPLICATION.
- . COORDINATE TO PROVIDE POWER & SHUTDOWN OR OPERATION OF FIRE/SMOKE DAMPERS, DOOR HOLD OPENS, POWER TO DOOR LOCKS &ACCESS CONTROL & OTHER I. MODULES FOR MONITORING STATUS OF SPRINKLER SYSTEM TAMPER & FLOW
- A. INSTALLED & TESTED PER NFPA 72 & APPLICABLE SECTIONS OF NFPA 70. PROVIDE COMPLETE FIRE ALARM SYSTEM AS DESCRIBED HEREIN & SHOWN TO BE WIRED, CONNECTED, & IN FIRST CLASS CONDITION. INCLUDE SUFFICIENT CONTROL UNIT(S), ANNUNCIATOR(S), MANUAL STATIONS, AUTOMATIC FIRE DETECTORS, SMOKE DETECTORS, AUDIBLE & VISIBLE NOTIFICATION APPLIANCES, WIRING, TERMINATIONS, ELECTRICAL BOXES, & ALL NECESSARY MATERIAL FOR COMPLETE OPERATING SYSTEM. B. SYSTEM SHALL BE ULLISTED. C. SYSTEM WIRING: WIRE & CABLE SHALL BE LISTED FOR ITS INTENDED USE BY AN
- APPROVAL AGENCY ACCEPTABLE TO AHJ & SHALL BE INSTALLED IN ACCORDANCE W/ APPROPRIATE ARTICLES FROM CURRENT APPROVED EDITION OF NEC. <u>SECTION 16700 — LOW VOLTAGE CABLING</u> ARIE FOR CARIE TELEVISION OUTLETS
- B. PROVIDE ALL NECESSARY CABLING. EQUIPMENT. BOXES. SPLITTERS. CONNECTORS. COVERS, ETC. FOR COMPLETE & OPERATIONAL SYSTEM.

### A. CABLING SHALL BE INSTALLED CONCEALED IN NEW & EXISTING CONSTRUCTION. B. CABLING SHALL BE UL LISTED FOR INTENDED USE & INSTALLED IN ACCORDANCE W/ APPROPRIATE ARTICLES FROM LATEST NEC.

### COORDINATION NOTES

- 1. COORDINATE REQUIREMENTS FOR INSTALLATION OF SYSTEMS AND EQUIPMENT WITH ALL OTHER TRADES.
- 2. THE CONTRACTOR SHALL COORDINATE THE ROUTING AND PATH OF ALL SYSTEMS. CONDUITS. PIPES. DUCTS. FTC WITH THE POSITION AND LAYOUT OF THE STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NECESSARY OFFSETS, TURNS, RISES AND DROPS FOR SYSTEMS AND COMPONENTS AS NEEDED TO INSTALL THE MEI SYSTEMS TO CLEAR STRUCTURE, CEILINGS, ETC AND OTHER SYSTEMS
- IN POTENTIAL CONFLICT WITH ROUTING. COORDINATE WORK WITH OTHER TRADES TO INSTALL SYSTEMS ABOVE CEILING HEIGHTS INDICATED ON ARCHITECTURAL PLANS. . CHECK SPACE REQUIREMENTS WITH OTHER TRADES A STRUCTURE/CONSTRUCTION TO INSURE THAT ALL MATERIALS AND EQUIPMENT CAN BE INSTALLED IN THE SPACE ALLOTTED INCLUDING FINISHED SUSPENDED CEILINGS AND OTHER SPACES. CHASES. ETC

WITHIN THE BUILDING. MAKE MODIFICATIONS THERETO AS REQUIRED

- AND APPROVED. 5. TRANSMIT TO OTHER TRADES ALL INFORMATION REQUIRED FOR WORK TO BE PROVIDED UNDER THEIR RESPECTIVE SECTIONS IN AMPLE TIME FOR INSTALLATION.
- 6. WHEREVER WORK INTERCONNECTS WITH WORK OF OTHER TRADES, COORDINATE WITH THOSE TRADES TO INSURE THAT ALL SUBCONTRACTORS HAVE THE INFORMATION NECESSARY SO THAT THEY MAY PROPERLY INSTALL ALL CONNECTIONS AND EQUIPMENT IDENTIFY ALL ITEMS OF WORK THAT REQUIRE ACCESS SO THAT TH CEILING TRADE WILL KNOW WHERE TO INSTALL ACCESS DOORS AND
- '. COORDINATE, PROJECT AND SCHEDULE WORK WITH OTHER TRADES IN ACCORDANCE WITH THE CONSTRUCTION SEQUENCE. 8. DRAWINGS SHOW THE GENERAL RUNS OF CONDUITS. PIPING AND DUCTWORK AND APPROXIMATE LOCATION OF OUTLETS. AN SIGNIFICANT CHANGES IN LOCATION OF ITEMS NECESSARY IN ORDER TO MEET FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT/FNGINFER AND RECEIVE HIS APPROVAL BEFORE SUCH ALTERATIONS ARE MADE. ALL SUCH MODIFICATIONS SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.
- OF SURFACES, AREAS AND PROPERTY THAT MAY BE DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES. 10. ADJUST LOCATION OF PIPING, DUCTWORK, ETC. TO PREVENT INTERFERENCES, BOTH ANTICIPATED AND ENCOUNTERED. DETERMINE THE EXACT ROUTE AND LOCATION OF EACH ITEM PRIOR FABRICATION. MAKE OFFSETS, TRANSITIONS AND CHANGES DIRECTION IN SYSTEMS AS REQUIRED TO MAINTAIN ADEQUATE

. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION AND REPAIR

- CLEARANCES AND HEADROOM. 11. WHEREVER THE WORK IS OF SUFFICIENT COMPLEXITY. PREPAI ADDITIONAL COORDINATION DRAWINGS AND ORGANIZE ON-SITE MEETINGS WITH ALL RELATED SUBCONTRACOTRS TO COORDINATE 1 WORK BETWEEN TRADES . DRAWINGS SHALL CLEARLY SHOW TH WORK AND ITS RELATION TO THE WORK OF OTHER TRADES. AND BE SUBMITTED FOR REVIEW PRIOR TO COMMENCING SHOP FABRICATION OR ERECTION IN THE FIELD.
- 12. COORDINATE WITH LOCAL UTILITY PROVIDERS FOR THEIR REQUIREMENTS FOR SERVICE CONNECTIONS AND PROVIDE ALL NECESSARY PAYMENTS, MATERIALS, LABOR AND TESTING ACCOMPLISH THE WORK.

### **GENERAL NOTES**

- 1. SOME ROOM NAMES MAY NOT BE SHOWN FOR PURPOSE OF CLARIFYING PLAN. REFER TO ARCHITECTURAL PLANS FOR REFERENCE TO ROOM NAMES NOT SHOWN.
- 2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN AND KEEP AT THE JOB SITE, AN UP TO DATE SET OF "RECORD DRAWINGS" SHOWING ALL CHANGES FROM THE ORIGINAL PLANS THE CONTRACTOR SHALL DELIVER THE "RECORD DRAWINGS" T ENGINEER AT THE CONCLUSION OF THE PROJECT **ELECTRONICALLY** 3. THESE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL
- VERIFY ALL CONDITIONS (NEW AND EXISTING). DIMENSIONS, AND CLEARANCES PRIOR TO THE COMMENCEMENT OF WORK AND SHALL INCLUDE ALL COSTS. EQUIPMENT. MATERIAL ACCESSORIES, ETC. REQUIRED FOR A FULLY COMPLETE, FUNCTIONAL AND CODE COMPLIANT INSTALLATION. 4. FINAL LOCATIONS OF ALL DEVICES, LIGHT FIXTURES, EQUIPMENT ETC SHALL BE INDICATED ON THE ARCHITECTURAL DRAWINGS ALL DIMENSIONAL INFORMATION SHALL BE OBTAINED FROM
- BE OBTAINED FROM MEP DRAWINGS. 5. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, APPROVALS, LICENSES, ETC. AS NEEDED FOR THE COMPLETE COORDINATE WITH THE OWNER FOR ALL FEES AND DATA NEEDED FOR THIS.

ARCHITECTURAL PLANS. NO DIMENSIONAL INFORMATION SHALL

## FIRE SEALING NOTES

- COORDINATE CONSTRUCTION OF OPENINGS AND PENETRATING ITEMS TO ENSURE THAT THROUGH-PENETRATION FIRESTOP SYSTEMS ARE INSTALLED ACCORDING TO SPECIFIED AND APPLICABLE UL
- COORDINATE SIZING OF SLEEVES, OPENINGS, CORE—DRILLED HOLES, OR CUT OPENINGS TO ACCOMMODATE THROUGH-PENETRATION FIRESTOP SYSTEMS. 3. DO NOT COVER UP THROUGH—PENETRATION FIRESTOP SYSTEM
- INSTALLATIONS UNTIL EXAMINED BY NSPECTOR, IF REQUIRED BY AUTHORITIES HAVING JURISDICTION. P. COMPATIBILITY: PROVIDE THROUGH—PENETRATION FIRESTOP SYSTEMS THAT ARE COMPATIBLE WITH ONE ANOTHER: WITH THE SUBSTRATES FORMING OPENINGS: AND WITH THE ITEMS. IF ANY. PENETRATING

THROUGH-PENETRATION FIRESTOP SYSTEMS, UNDER CONDITIONS OF

- SERVICE AND APPLICATION. AS DEMONSTRATED THROUGH-PENETRATION FIRESTOP SYSTEM MANUFACTURER BASED ON TESTING AND FIELD EXPERIENCE. 5 PROVIDE COMPONENTS FOR FACH THROUGH—PENETRATION FIRESTOP SYSTEM THAT ARE NEEDED TO INSTALL FILL MATERIALS. USE ONLY COMPONENTS SPECIFIED BY THROUGH—PENETRATION FIRESTOP
- SYSTEM MANUFACTURER AND APPROVED BY QUALIFIED TESTING AND INSPECTING AGENCY FOR FIRESTOP SYSTEMS INDICATED. PROVIDE SLEEVES THROUGH ALL FIRE\_RATED WALLS AND FILL VOIDS SURROUNDING SLEEVES AND INTERIOR TO SLEEVES AROUND PIPING WITH FIRE STOP PUTTY WITH U.L. LISTED 3 HOUR RATING INSTALLED
- 7. FIRE SEAL ALL PIPING, CONDUIT, CABLE, ETC PENETRATIONS ROUTED THROUGH FIRE RATED WALLS. 8. PROVIDE FIRE RATED ENCLOSURES OR WRAPS ON LIGHT FIXTURES AND OTHER ITEMS PENETRATING FIRE RATED CEILINGS,

FLOOR/CEILING/ CEILING/ROOF ASSEMBLIES TO MAINTAIN UL LISTING

785,273,2447

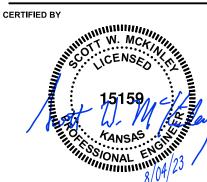
AS PER MANUFACTURERS RECOMMENDATIONS.

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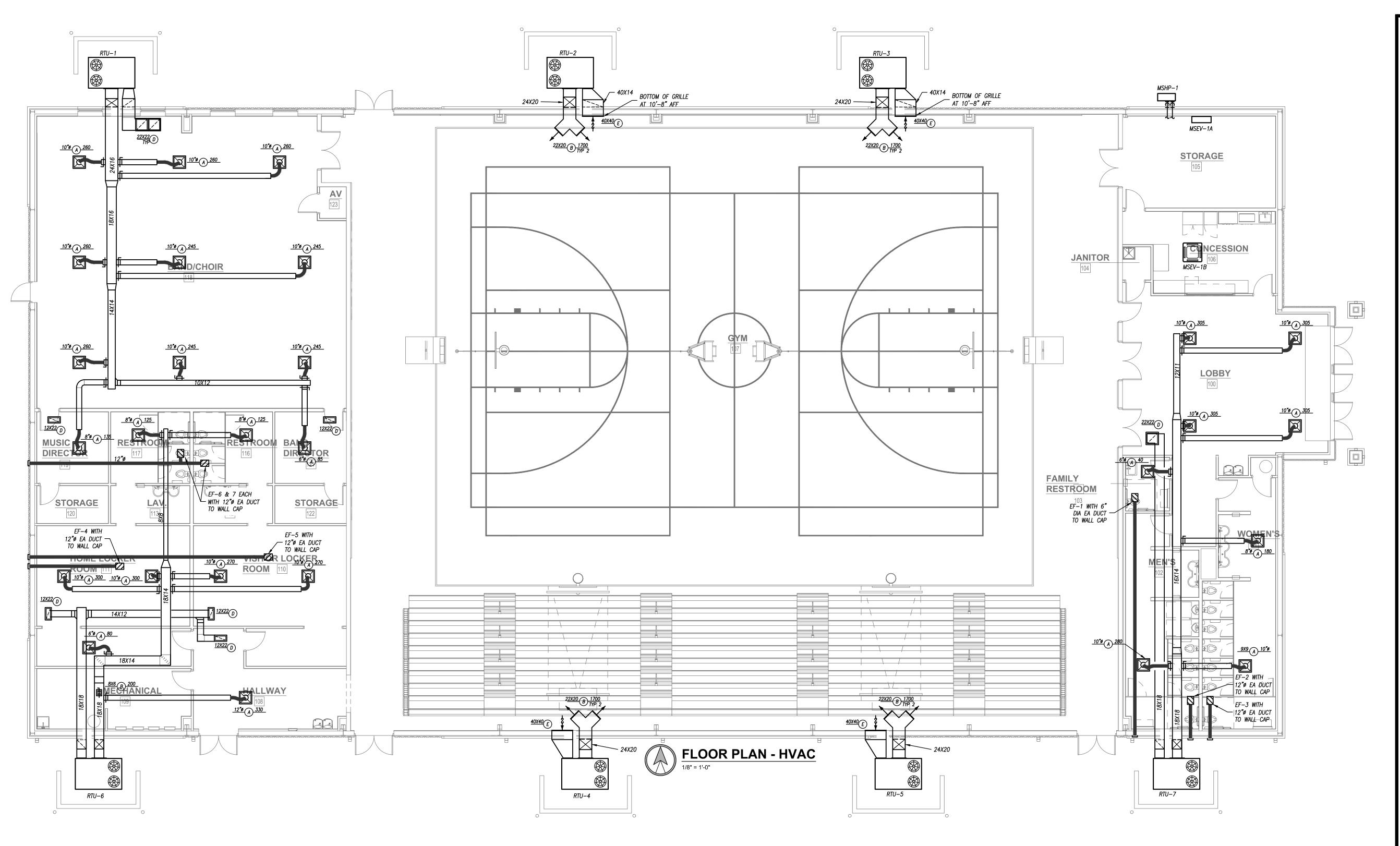
DRAWING

MANAGER DRAWN BY NSG REVISIONS

PROJECT NUMBER

23-09

08/04/2023







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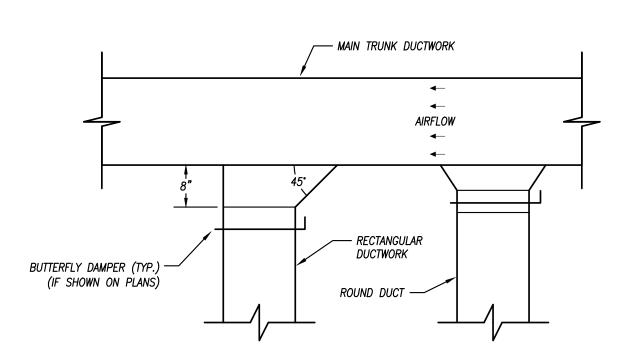
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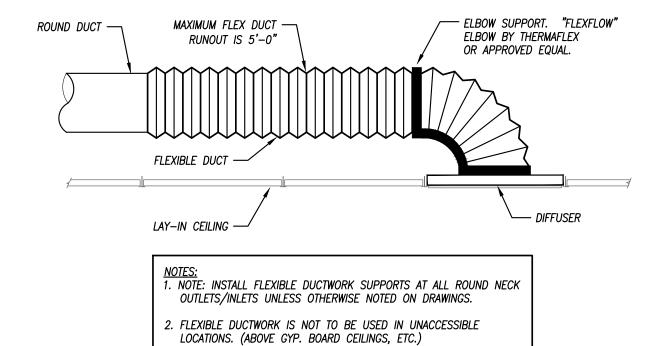
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DRAWING **HVAC PLAN** MANAGER NSG REVISIONS PROJECT NUMBER 23-09 08/04/2023 **M1** 

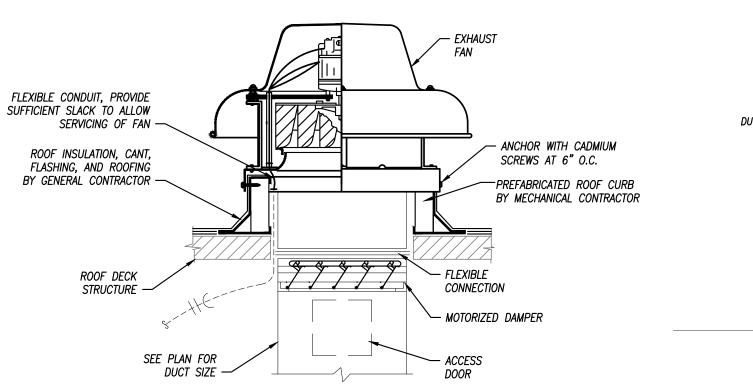


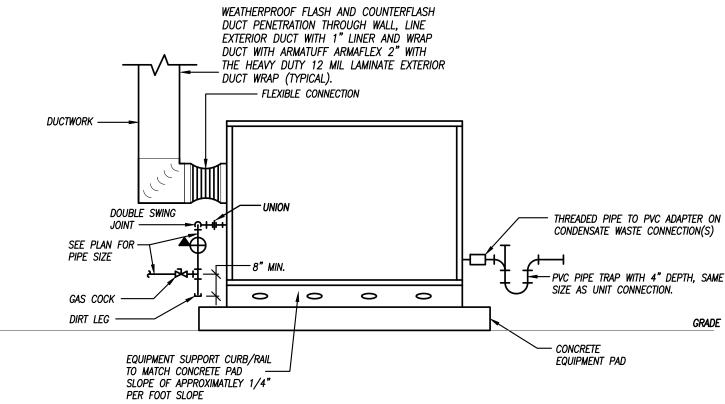


**DUCTWORK TAKEOFF** 

NOT TO SCALE

### FLEXIBLE DUCT CONNECTION TO DIFFUSER NOT TO SCALE





### **EXHAUST FAN DETAIL** NOT TO SCALE

### **GROUND MOUNTED RTU DETAIL** NOT TO SCALE

	Г	DUCT		INSULATION			
PURPOSE	DUTY	LOCATION	STYLE	MATERIAL	APPLICATION	THICKNESS	NOTES
SUPPLY		CONCEALED	RECTANGULAR	FIBERGLASS	LINED	1/2"	
	LOW PRESSURE/VELOCITY	CONCEALED	ROUND	MINERAL FIBER	WRAPPED	1-1/2"	
	LOW PRESSURE/ VELOCITI	EXPOSED	RECTANGULAR	FIBERGLASS	LINED	1/2"	
		EXPOSED	ROUND	FIBERGLASS	LINED	1/2"	
	ALL	UNCONDITIONED ATTICS	ALL	MINERAL FIBER	WRAPPED	1-1/2"	1
	ALL	EXTERIOR	ALL	FLEXIBLE ELASTOMERIC	WRAPPED	2"	
RETURN		CONCEALED	RECTANGULAR	FIBERGLASS	LINED	1/2"	
		CONCEALED	ROUND	MINERAL FIBER	WRAPPED	1-1/2"	-
	LOW PRESSURE/VELOCITY	EXPOSED	RECTANGULAR	FIBERGLASS	LINED	1/2"	
		EXPOSED	ROUND	FIBERGLASS	LINED	1/2"	
		RETURN/TRANSFER BOOTS	RECTANGULAR	FIBERGLASS	LINED	1/2"	
	ALL	UNCONDITIONED ATTICS	ALL	MINERAL FIBER	WRAPPED	1-1/2"	1
	ALL	EXTERIOR	ALL	FLEXIBLE ELASTOMERIC	WRAPPED	2"	
XHAUST		CONCEALED	RECTANGULAR	FIBERGLASS	LINED	1/2"	
	LOW PRESSURE/VELOCITY	CONCEALED	ROUND	FIBERGLASS	LINED	1/2"	2
	LOW FILESSORE/ VELOCITY	EXPOSED	RECTANGULAR	FIBERGLASS	LINED	1/2"	
		EXPOSED	ROUND	FIBERGLASS	LINED	1/2"	2

1. IN ADDITION TO OTHER SCHEDULED INSULATION.

2. PROVIDE LINER ONLY WITHIN 10' OF FAN FOR ACCOUSTICS.

GENERAL REMARKS (APPLICABLE TO ALL TYPES):

- 1) ALL DUCTWORK, INSULATION AND MATERIALS IN PLENUMS MUST MEET ASTM E84 FLAME/SMOKE RATING OF 25/50.
- 2) ALL INSULATION THICKNESSES SHALL MEET ASHRAE 90.1 2010 REQUIREMENTS AT A MINIMUM.
- 3) REFER TO SPECIFICATIONS FOR MORE DETAILED INFORMATION FOR INSULATION PRODUCTS AND SYSTEMS.

### OWNER WILL PURCHASE THIS EQUIPMENT, CONTRACTOR TO RECEIVE AND INSTALL EQUIPMENT

RO	OF TOP U	INIT SCH	IEDUI	LE - THR	REE PHA	SE ELEC	TRIC WIT	H GAS H	IEAT							
PLAN MARK	MANUFACTURER	MODEL NUMBER	SIZE	REFRIGERANT	MINIMUM EFFICIENCY	AIRFLOW	COMPRESSORS	COOLING CAPACITY	CFM	EXTERNAL STATIC	OA CFM	HEATING CAPACITY	ELECTRICAL	WEIGHT	FILTER	NOTES
RTU-1	LUXAIRE	ZJ-090 N12B2B	7.5 TON	R-410A	13 IEER	HORIZONTAL	(2) SCROLLS	88,000 BTUH	2,500	0.7"	300	120 MBH	208 V., 3 PH, 60 AMP	1100 LBS	MERV 13	1,2,3,4
RTU-2	LUXAIRE	ZJ-120 N18B2B	10 TON	R-410A	12.8 IEER	HORIZONTAL	(2) SCROLLS	124,000 BTUH	3,400	0.7"	350	180 MBH	208 V., 3 PH, 60 AMP	1200 LBS	MERV 13	1,2,3,4
RTU-3	LUXAIRE	ZJ-120 N18B2B	10 TON	R-410A	12.8 IEER	HORIZONTAL	(2) SCROLLS	124,000 BTUH	3,400	0.7"	350	180 MBH	208 V., 3 PH, 60 AMP	1200 LBS	MERV 13	1,2,3,4
RTU-4	LUXAIRE	ZJ-120 N18B2B	10 TON	R-410A	12.8 IEER	HORIZONTAL	(2) SCROLLS	124,000 BTUH	3,400	0.7"	350	180 MBH	208 V., 3 PH, 60 AMP	1200 LBS	MERV 13	1,2,3,4
RTU-5	LUXAIRE	ZJ-120 N18B2B	10 TON	R-410A	12.8 IEER	HORIZONTAL	(2) SCROLLS	124,000 BTUH	3,400	0.7"	350	180 MBH	208 V., 3 PH, 60 AMP	1200 LBS	MERV 13	1,2,3,4
RTU-6	LUXAIRE	ZJ-061 N08B2B	5 TON	R-410A	14.5 SEER	HORIZONTAL	(2) SCROLLS	59,000 BTUH	2,000	0.7"	200	80 MBH	208 V., 3 PH, 45 AMP	800 LBS	MERV 13	1,2,3,4
RTU-7	LUXAIRE	ZJ-061 N08B2B	5 TON	R-410A	14.5 SEER	HORIZONTAL	(2) SCROLLS	59,000 BTUH	2,000	0.7"	200	80 MBH	208 V., 3 PH, 45 AMP	800 LBS	MERV 13	1,2,3,4

NOTES LEGEND

1. PROVIDE CONCRETE PAD, DISCONNECT SWITCH, HAIL GUARDS, HOT GAS HUMIDITY CONTROL, AND ECONOMIZER

2. PROVIDE WALL MOUNTED 7-DAY PROGRAMMABLE THERMOSTAT 3. PROVIDE INTERNAL VIBRATION ISOLATION FOR THE RTU FAN AND COMPRESSORS

4. PROVIDE EQUIPMENT SUPPORT CURB/RAIL TO MATCH CONCRETE PAD SLOPE OF APPROXIMATLEY 1/4" PER FOOT SLOPE

### OWNER WILL PURCHASE THIS EQUIPMENT, CONTRACTOR TO RECEIVE AND INSTALL EQUIPMENT

MINI-S	PLIT DU	CTLESS I	HEAT I	PUMP	SCHEE	ULE					
PLAN MARK	MANUFACTURER	MODEL NUMBER	NOMINAL SIZE	COOLING MBH		HEATING MBH ( 5° AMBIENT)	ELECTRICAL	MOCP AMPS	MIN CIRCUIT AMPS	DISCONNECT	NOTES
MSHP-1	MITSUBISHI	NTXMPH20A122B	1.5 TON	19.0	22.0	22.0	208/240V, 1ø	40	29.5	YES	1.2

NOTES LEGEND

1. PROVIDE WITH CONDENSATE PUMP.

2. VERIFY EXACT REFRIGERANT LINE SIZES WITH MANUFACTURER.

### OWNER WILL PURCHASE THIS EQUIPMENT, CONTRACTOR TO RECEIVE AND INSTALL EQUIPMENT

MINI-S	PLIT DU	CTLESS E	VAPO	RATC	R SCH	EDUL	E		
PLAN MARK	MANUFACTURER	MODEL NUMBER	NOMINAL SIZE	MAX CFM CLG/HTG	ENTERING AIR DRY/WET	COOLING MBH	HEATING MBH	ELECTRICAL	NOTES
MSEV-1A	MITSUBISHI	NTXWPH09B112A	0.75 TON	380/430	80/67	9.0	9.6	208/240V, 1ø	1.2
MSEV-1B	MITSUBISHI	NTXCKS09A112A	0.75 TON	230/230	80/67	9.0	11.0	208/240V, 1ø	1.2

### NOTES LEGEND

1. PROVIDE WIRED REMOTE THERMOSTAT, AND CONDENSATE PUMP.

2. VERIFY EXACT REFRIGERANT LINE SIZES WITH MANUFACTURER.

EXH	AUST FAN	SCHEDU	LE								
PLAN MARK	MANUFACTURER	MODEL NUMBER	MOUNTING	SERVICE	CFM	STATIC PRESSURE	ELECTRICAL	DRIVE	DISCONNECT	DAMPER	NOTES
EF-1	GREENHECK	SP-B90	CEILING	EXHAUST	75	1/4"	50 WATTS, 120V, 1 PHASE	DIRECT	YES	BACKDRAFT	1
EF-2	GREENHECK	SP-A510	CEILING	EXHAUST	450	1/4"	224 WATTS, 120V, 1 PHASE	DIRECT	YES	BACKDRAFT	3
EF-3	GREENHECK	SP-A700	CEILING	EXHAUST	525	1/4"	350 WATTS, 120V, 1 PHASE	DIRECT	YES	BACKDRAFT	3
EF-4	GREENHECK	SP-A700	CEILING	EXHAUST	500	1/4"	350 WATTS, 120V, 1 PHASE	DIRECT	YES	BACKDRAFT	3
EF-5	GREENHECK	SP-A700	CEILING	EXHAUST	500	1/4"	350 WATTS, 120V, 1 PHASE	DIRECT	YES	BACKDRAFT	3
EF-6	GREENHECK	SP-A250	CEILING	EXHAUST	225	1/4"	83 WATTS, 120V, 1 PHASE	DIRECT	YES	BACKDRAFT	3
EF-7	GREENHECK	SP-A250	CEILING	EXHAUST	225	1/4"	83 WATTS, 120V, 1 PHASE	DIRECT	YES	BACKDRAFT	4

- 1. PROVIDE WITH WALL DISCHARGE MODEL WC-6 WITH BUILT IN BIRDSCREEN AND BACK DRAFT DAMPER.
- 2. PROVIDE WITH WALL DISCHARGE HOODED WALL CAP MODEL WC-8 WITH BUILT IN BIRDSCREEN AND BACK DRAFT DAMPER.
- 3. PROVIDE WITH WALL DISCHARGE HOODED WALL CAP MODEL WC-18X8 WITH BUILT IN BIRDSCREEN AND BACK DRAFT DAMPER.
- 4. SHARE WALL CAP WITH EF-6

GR	GRILLE, REGISTER & DIFFUSER SCHEDULE							
PLAN MARK	MANUFACTURER	MODEL NUMBER	SERVICE	MOUNT TYPE	VOLUME DAMPER	MATERIAL	MATERIAL COLOR	NOTES
Α	PRICE	SMD-3P	SUPPLY	GRID	NO	STEEL	WHITE	2
В	PRICE	520-D	SUPPLY	FLANGE	YES	STEEL	WHITE	
С	NOT USED							
D	PRICE	535-0	RETURN/EXHAUST	GRID	NO	STEEL	WHITE	1
Ε	TITUS	33RL—HEAVY DUTY	RETURN	FLANGE	NO	STEEL	WHITE	

NOTES LEGEND

- 1. PROVIDE WITHOUT SCREW HOLES WHERE USED IN A GRID CEILING
- 2. PAN TO FIT A 2'X2' GRID.





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CON

DRAWING

**HVAC DETAILS & SCHEDULES** 

MANAGER	DRAWN BY					
SWM	NSG					
REVISIONS						

PROJECT NUMBER 23-09 08/04/2023

