

PROPOSED NEW BUILDING FOR:
NOOR INTERNATIONAL ACADEMY

4050 COOLIDGE HWY
TROY, MICHIGAN 48098
PERMITS 08.17.2022



OWNER



Hamadeh Educational Services, Inc. For
Star International Academy | Universal Learning Academy |
Universal Academy | Noor International Academy
"Promoting Academic Excellence, Leadership & Cultural Diversity"
P.O. Box 1440 | Dearborn, MI 48121 | (313) 565-0507

CIVIL



CONSULTING
ENGINEERS
CIVIL

PEA GROUP
1849 POND RUN DRIVE
AUBURN HILLS, MICHIGAN 48326
PHONE (248) 689-9090
Email: jbutler@peagroup.com

PROJECT INFORMATION

PROJECT NUMBER: 22010

PROJECT LOCATION: 4050 COOLIDGE HWY
TROY, MICHIGAN 48098

DESIGN FIRM: GAY & ASSOCIATES, INC.
24001 ORCHARD LAKE RD
FARMINGTON, MI 48336
PHONE: (248) 985-9101

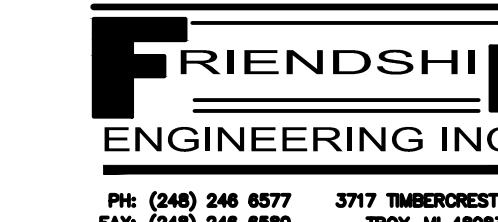
1. THE DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE:
SAMIR M. KARIM, MI LIC. #1301030452.
2. THESE CONSTRUCTION DOCUMENTS WERE PREPARED FOR COMPLIANCE WITH THE MICHIGAN CONSTRUCTION CODES IN EFFECT AT THE TIME OF PERMIT SUBMITTAL. ALL ENGINEERS, CONTRACTORS AND SUPPLIERS INVOLVED WITH THIS PROJECT SHALL COMPLY WITH THE SAME CODES, ISSUED AND APPROVED CODE MODIFICATIONS AND/OR CITY OF TROY / STATE OF MICHIGAN CONSTRUCTION BOARDS OF APPEALS RULINGS AND WHENEVER REQUIRED SHALL PROVIDE SHOP DRAWINGS AND SUBMITTALS CLEARLY DESCRIBING COMPLIANCE TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FOR REVIEW AND APPROVAL.
3. ALL APPLICABLE GOVERNMENTAL AGENCIES, SUCH AS MDOT, COUNTY, UTILITY SERVICES, ETC. SHALL HAVE DRAWINGS SUBMITTED FOR REVIEW FOR ENGINEERING APPROVAL AT THE TIME OF PERMIT SUBMITTAL.

ARCHITECTURAL



ARCHITECTURAL
RESIDENTIAL
COMMERCIAL
INDUSTRIAL

G.A.V. & Associates, Inc.
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PHONE (248) 985-9101



CONSULTING
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FAX (248) 246-6580

MECHANICAL / ELECTRICAL / PLUMBING



CONSULTING
MECHANICAL
ELECTRICAL
PLUMBING
ENERGY

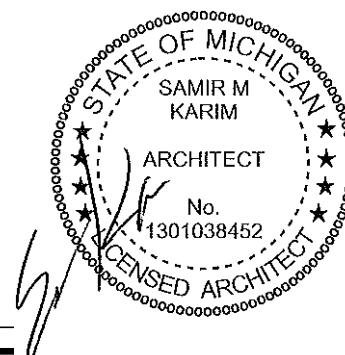
MEP Engineers
380 NORTH MAIN STREET
CLAWSON, MICHIGAN
PHONE (248) 488-9822
FAX (248) 488-9811
EMAIL: mep@mepmi.com
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CONTRACT RELATED DOCUMENTS (BUILDING ONLY):

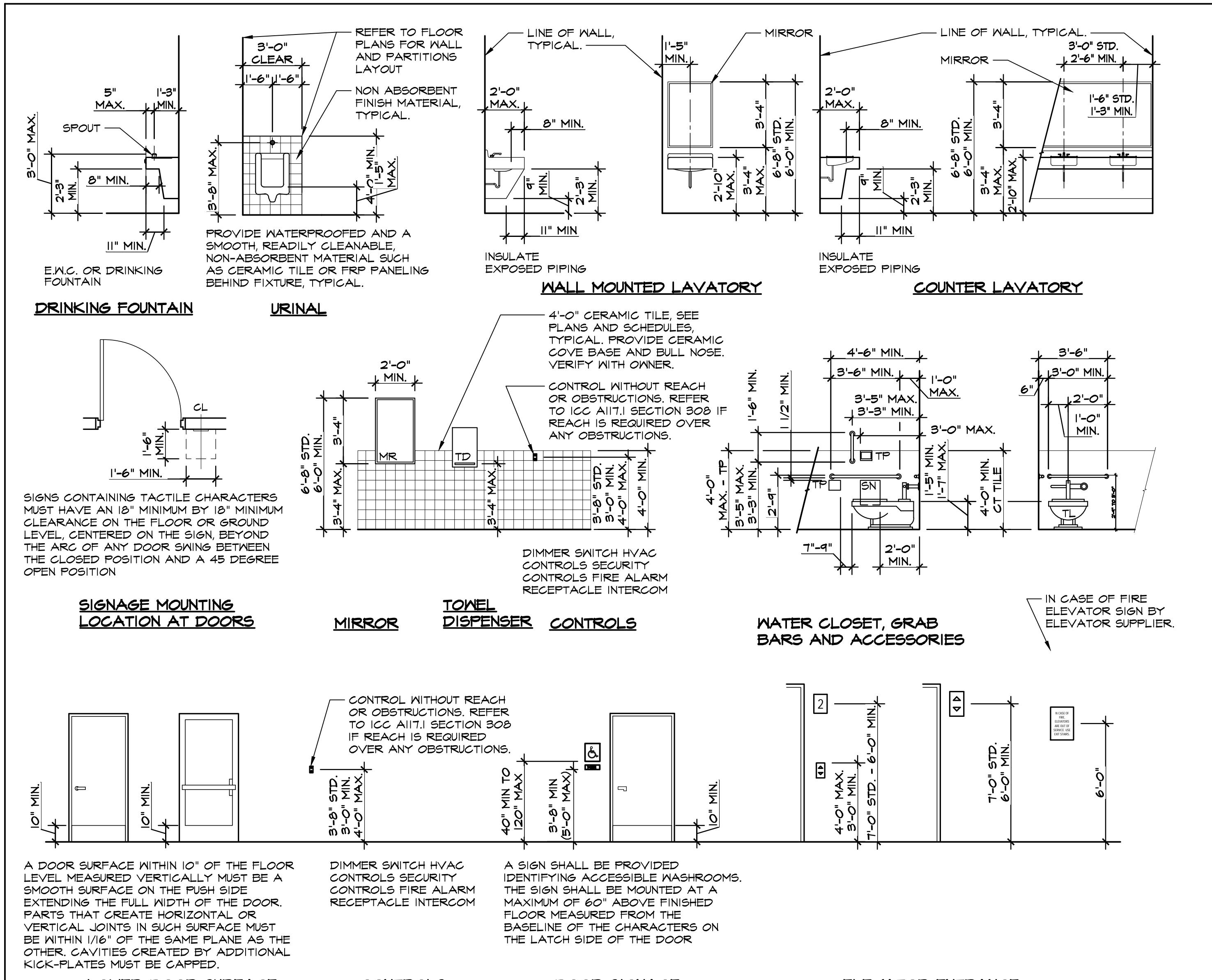
GEOTECHNICAL EXPLORATION AND ENGINEERING REPORT PEA ENGINEERS

PERMIT APPROVAL DOCUMENTS (PLAN REVIEW):

DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS:
OFFICE _____ PROJECT NUMBER _____ DATE _____
BUREAU OF FIRE SERVICES _____
BUREAU OF CONSTRUCTION CODES _____
GC/CM TO INCLUDE AND PROVIDE TO ALL CONTRACTORS. _____



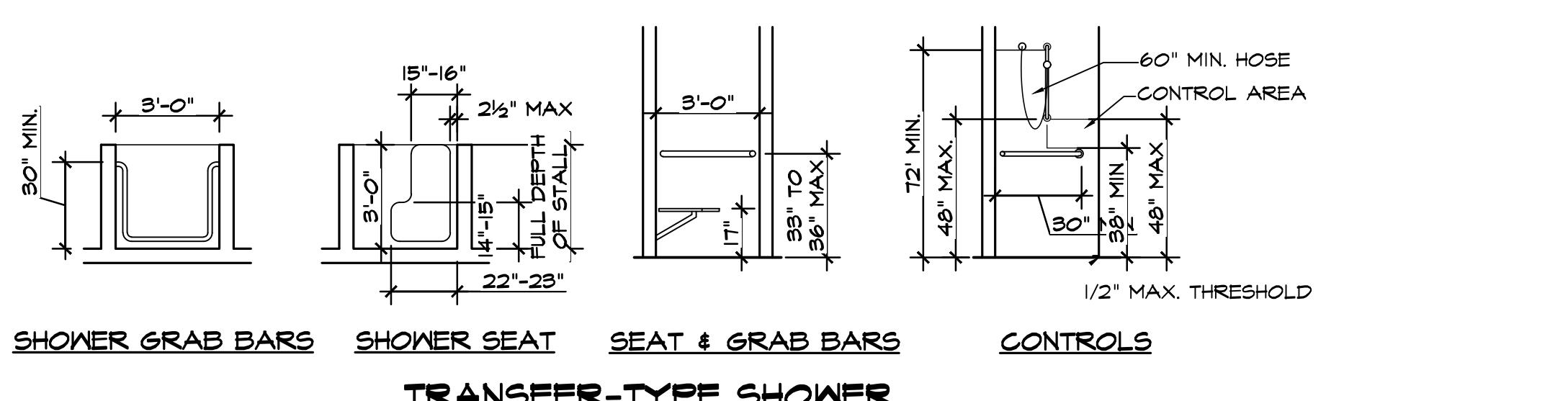
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A DOOR SURFACE WITHIN 10" OF THE FLOOR LEVEL MEASURED VERTICALLY MUST BE A SMOOTH SURFACE ON THE PUSH SIDE EXTENDING THE FULL WIDTH OF THE DOOR. PARTS THAT CREATE HORIZONTAL OR VERTICAL JOINTS IN SUCH SURFACE MUST BE WITHIN 1/6" OF THE SAME PLANE AS THE OTHER CAVITIES CREATED BY ADDITIONAL KICK-PLATES MUST BE CAPPED.

LOWER DOOR SURFACE

TYPICAL RESTROOMS BARRIER FREE MOUNTING HEIGHTS AND REQUIREMENTS

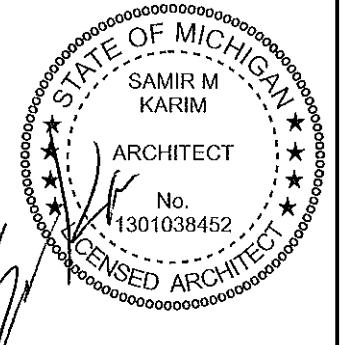


ABBREVIATIONS:

AFF	ABOVE FINISH FLOOR
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
ALUM	ALUMINUM
ANOD	ANODIZED
AT	ARCHITECTURAL TILE
BC	BOTTOM CHORD
BRD	BOARD
BFF	BELLOW FINISH FLOOR
BLK	BLOCK
BM	BEAM
BO	BOTTOM OF
BOF	BOTTOM OF FOOTING
BU	BUILT UP
CAB	CABINET
C.B.	CATCH BASINS
C.D.	OLD
CER	CERAMIC
C.J.	CENTER JOINT
C.L.	CENTER LINE
CLG	CEILING
CLOS	CLOSET
C.O.	CLEAN OUT
CM	CONSTRUCTION MANAGER
CH	CONTINUOUS
CONC	CONCRETE
CONT	CONTINUOUS
DEPS	DIRECT APPLIED FINISH SYSTEM
DET	DETAIL
DIM	DIMENSION
DIA	DIAMETER
DL	DEAD LOAD
DN	DOWN
D.O.	DOOR OPENING
DS	DOWN SPOUT
DWS	DRAWING
E.C.	ELC. CONTRACTOR
EF	EACH FACE
E.J.	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATION
EXI	EXHAUST
EXIST	EXISTING
EXT	EXTERIOR
EW	EACH WAY
F&I	FURNISH AND INSTALL
FD	FLOOR DRAIN
FFE	FINISH FLOOR ELEVATION
FNT	FINISH
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOG	FACE OF GYPSUM
FOM	FACE OF MASONRY
FTG	FOOTING
GALV	GALVANIZED
GEN	GENERAL CONTRACTOR
GL	Glass
GRB	GRAB BAR
GYP	GYPSUM
HM	HOLLOWED METAL
HVAC	HEATING & VENT.
ID	INNER DIAMETER
INSUL	INSULATION
JST	JOIST
JOINT	JOINT
LD	LIVE LOAD
LP	LIGHT POLE
MAS	MATERIAL
MAX	MAXIMUM
MCM	METAL COMPOSITE
MFG	MANUFACTURER
MFR	MANUFACTURE
MIC	MINIMUM
M.O.	Masonry Opening
MTL	METAL
OC	ON CENTER
OD	OUTER DIAMETER
OPH	OPPOSITE HAND
NIC	NOT IN CONTRACT
NO.SCALE	NOT TO SCALE
PLATE	PLATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PFT	PAINT
RA	RETURN AIR
REIN	REINFORCING
REQ	REQUIRED
RO	ROUGH OPENING
SA	SUPPLY AIR
SIM	SIMILAR
STL	STEEL
AASHO	AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
CRSI	CONCRETE REINFORCING SOCIETY INSTITUTE
MBC	MICHIGAN BUILDING CODE
MMC	MICHIGAN MECHANICAL CODE
MPC	MICHIGAN PLUMBING CODE
MEC	MICHIGAN ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
UL	UNDERWRITERS LABORATORIES

DRAWING INDEX		ISSUED FOR:
NO.	SHEET TITLE	● ISSUED ○ DELETED SHEET ☒ NEW SHEET
CIVIL	NOT INCLUDED	08/17/2022 PERMITS
A.000	COVER SHEET	●
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A.003	LIFE SAFETY PLAN AND INFORMATION	●
A.004	ARCHITECTURAL SITE PLAN	●
A.005	SITE LIGHTING PHOTOMETRIC	●
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A.052	GENERAL INFORMATION AND SCHEDULES	●
A.053	GENERAL INFORMATION AND SCHEDULES	●
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A.302	BUILDING SECTIONS	●
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S.126	ENLARGED FRAMING PLANS AREA "D"	●
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M.100	OVERALL SANITARY & VENT PLUMBING GROUND LEVEL FLOOR PLAN	●
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DRAWING INDEX		ISSUED FOR:
NO.	SHEET TITLE	● ISSUED ○ DELETED SHEET ☒ NEW SHEET
M.107	PARTIAL DOMESTIC WATER & GAS PIPING GROUND LEVEL FLOOR PLAN - AREA "D & C"	●
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E203	GROUND LEVEL ENLARGED LIGHTING FLOOR PLAN - AREA "C"	●
E204	GROUND LEVEL ENLARGED LIGHTING FLOOR PLAN - AREA "D"	●
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E303	GROUND LEVEL ENLARGED POWER FLOOR PLAN - AREA "C"	●
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E305	POWER - 2ND FLOOR PLAN - AREA "D"	●
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E600	LIGHTING CONTROL DIAGRAMS	●
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FS-2	FOODSERVICE ELECTRICAL (FOR REFERENCE ONLY)	●
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FS-4	FOODSERVICE BLOCKING (FOR REFERENCE ONLY)	●
1	FOODSERVICE EQUIPMENT DRAWINGS (FOR REFERENCE ONLY)	●
2	FOODSERVICE EQUIPMENT DRAWINGS (FOR REFERENCE ONLY)	●
3	FOODSERVICE EQUIPMENT DRAWINGS (FOR REFERENCE ONLY)	●
4	FOODSERVICE EQUIPMENT DRAWINGS (FOR REFERENCE ONLY)	●
5	FOODSERVICE EQUIPMENT DRAWINGS (FOR REFERENCE ONLY)	●
6	FOODSERVICE EQUIPMENT DRAWINGS (FOR REFERENCE ONLY)	●
7	FOODSERVICE EQUIPMENT DRAWINGS (FOR REFERENCE ONLY)	●

DRAWN:	SSA	DESIGNED:	GA	CHECKED:	GA
SCALE :					
FILE NAME :	22010_A001				
JOB # :	22010				
SHEET TITLE					
DRAWING INDEX AND GENERAL INFORMATION					
SHEET #					
 STATE OF MICHIGAN SAMIR M. KARIM No. 1301038452 LICENSED ARCHITECT					
A.001					

GENERAL CONDITIONS:

- THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERALLY THE LOCATIONS OF MATERIAL AND EQUIPMENT; THESE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. CONSTRUCTION MANAGER IS RESPONSIBLE FOR REVIEWING, COORDINATING AND APPROVING ALL WORK TO BE DONE BY CONTRACTORS. ANY SUBMITTAL TO ARCHITECT / ENGINEER SHALL BE REVIEWED BY THE C.M. BEFORE SUBMITTING TO ARCHITECT / ENGINEER.
- BUILDING SHALL BE FULLY FIRE SUPPRESSED IN ACCORDANCE WITH 2015 MBC AND ALL APPLICABLE CODES.
- SPRINKLER CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF FIRE SUPPRESSION SYSTEM FOR FIRE MARSHALS REVIEW AND APPROVAL.
- BUILDING SHALL HAVE A FIRE ALARM SYSTEM PER ELECTRICAL DRAWINGS AND THE SYSTEM SHALL COMPLY WITH 2015 MBC AND ALL APPLICABLE CODES.
- ALL EXTERIOR WOOD, PLYWOOD, ETC. SHALL BE PRESERVATIVE TREATED.
- CONSTRUCTION MANAGER AND THE CONTRACTORS SHALL COMPLY WITH ALL CODES CURRENTLY IN EFFECT IN THE CITY OF AUBURN HILLS AND THE STATE OF MICHIGAN.
- CONFORM TO A.I.A. DOCUMENT NO. A-201, LATEST EDITION, AND COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, LAWS, RULES AND REGULATIONS.
- ALL CONTRACTORS SHALL CARRY ADEQUATE INSURANCE OR OTHERWISE SECURE, PROTECT AND HOLD HARMLESS THE OWNER AND ITS AGENTS AND THE ARCHITECT/ENGINEER FROM ANY LIABILITY OR DAMAGE WHATSOEVER, FOR INJURY (INCLUDING DEATH) TO ANY PERSON OR PROPERTY.
- SUSPENDED ACOUSTICAL CEILING TILES AND GRID SYSTEM SHALL COMPLY NFPA 101-2012 AND MBC 2015.
- GRID WORK SHALL BE SUPPORTED WITH A MINIMUM OF 2-12 GA. HANGER WIRES TO STRUCTURE ABOVE.
- PROVIDE A KNOX BOX FOR FIRE DEPARTMENT ACCESS. LOCATE ON BUILDING, AS PER FIRE MARSHALL.
- INSTALL 6" HIGH ADDRESS NUMBERS WHICH ARE VISIBLE FROM THE STREET. VERIFY LOCATION WITH FIRE MARSHAL.
- ALL WALLS SHALL EXTEND UP TO AND BE SEALED TO THE UNDERSIDE OF FLOOR / ROOF DECK.
- CONTRACTOR SHALL PROVIDE ALL NECESSARY SIGNAGE PER SECTION II 104 OF THE 2015 MBC AND SECTION 703 OF THE ANSI A111.
- ALL PROTRUDING OBJECTS ON CIRCULATION PATHS SHALL COMPLY WITH SECTION 307 OF THE ANSI A111-2009.
- ANY RATED WALL THAT HAS PROTECTED OPENINGS OR PENETRATIONS SHALL BE PERMANENTLY IDENTIFIED ABOVE CEILING WITH SIGNS OR STENCILING @ NOT LESS THAN 30" O.C. ALONG THE HORIZONTAL DIMENSION. LETTERS SHALL NOT BE LESS THAN 0.5" IN HT. AND CONTAIN THE WORDS "FIRE & SMOKE BARRIER-PROTECT ALL OPENINGS". ALL PENETRATIONS IN WALLS FOR PIPING.
- ALL PENETRATIONS IN RATED WALLS SHALL BE SEALED w/ APPLICABLE FIRE RATED SEALANT, STOP, OR OTHER APPROVED METHOD PER I.F.C. 2012. ANY PENETRATIONS SHALL BE SEALED WITH FIRE RATING EQUIVALENT TO PENETRATED SYSTEM.
- A PORTABLE FIRE EXTINGUISHER MUST BE PRESENT DURING CONSTRUCTION. PERMANENT PORTABLE FIRE EXTINGUISHER LOCATIONS TO BE DETERMINED PER I.F.C. AND FIELD BUILDING INSPECTOR.
- FIRESTOPPING SHALL BE TESTED IN ACCORDANCE WITH ASTM E-814 TEST STANDARDS. CONTRACTOR TO SUBMIT TEST REPORT ATTACHED WITH THE SUBMITTAL COVER SHEET FOR EACH APPLICATION, I.E., FOR EACH KIND OF CONSTRUCTION (RATED FLOOR/CEILING RATED WALLS/ETC.) BEFORE INSTALLATION. FIRESTOPPING INSTALLATION SHALL NOT BE CONCEALED WITH FINAL CONSTRUCTION UNTIL APPROVED BY BUILDING INSPECTOR.
- ALL HAZARDous ROOMS TO HAVE DOOR CLOSURE AND SHALL BE SMOKE TIGHT ENCLOSURES IN JANITOR CLOSETS, MECHANICAL / ELECTRICAL ROOMS AND STORAGE ROOMS.
- DO NOT SCALE DRAWINGS. USE GIVEN DIMENSIONS ONLY. DIMENSIONS ARE NOT FACED DRAWINGS. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERALLY THE LOCATION OF MATERIAL AND EQUIPMENT. THESE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. GENERAL CONTRACTOR IS RESPONSIBLE FOR REVIEWING, COORDINATING AND APPROVING ALL WORK TO BE DONE BY SUB CONTRACTORS. ANY SUBMITTAL TO ARCHITECT / ENGINEER SHALL BE REVIEWED BY THE G.C. BEFORE SUBMITTING TO ARCHITECT / ENGINEER. IF DIMENSIONS ARE IN QUESTION THE CONTRACTOR IS RESPONSIBLE FOR CONSULTING WITH THE TENANT AND OWNER BEFORE CONTINUING WITH THE WORK FOR POSSIBLE REDESIGN.
- VERIFY LOCATION OF ALL EQUIPMENT AND VERIFY SIZES, WALL OPENINGS, AND SUPPORT REQUIREMENTS. WITH MANUFACTURER, PROVIDE OPENINGS, BRACING AND REINFORCEMENT AS REQUIRED BY MANUFACTURER.
- CONSTRUCTION MANAGER WILL SUPPLY SECURED STAGING AREA AND OFFICE TRAILER.
- CONSTRUCTION MANAGER WILL COMPLY WITH ENVIRONMENTAL AGENCIES.
- CONSTRUCTION MANAGER WILL SUPPLY TOILET FACILITIES FOR ALL TRADES.
- CONSTRUCTION MANAGER WILL COMPLY WITH DEMATERIALIZATION AS NECESSARY.
- CONSTRUCTION MANAGER WILL BE RESPONSIBLE TO KEEP A CLEAN SITE AT ALL TIMES.
- TEMPORARY BRACING, GUYING AND TIE DOWNS OF THE STRUCTURE DURING ERECTION SHALL BE THE RESPONSIBILITY OF THE ERECTOR AND CONTRACTOR(S). THE ENGINEER AND ARCHITECT ASSUME NO RESPONSIBILITY FOR THE ABSENCE, PRESENCE OR ADEQUACY OF ANY TEMPORARY BRACING. ALL EXISTING STRUCTURES THAT MAY BE AFFECTED BY THE NEW CONSTRUCTION SHALL BE BRAZED AND PROTECTED AS REQUIRED.
- WHERE A DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS (UNLESS NOTED OTHERWISE).
- ALL FURRED/ STUDPED WALLS SHALL HAVE FIRE BLOCKING AS REQUIRED BY CODE.
- VERIFY ALL EXISTING FIELD CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK. VERIFY ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS. IN THE EVENT OF DISCREPANCY, NOTIFY THE G.C. AND/OR THE ARCHITECT AND OBTAIN RESOLUTION BEFORE PROCEEDING. FAILURE TO NOTIFY THE ARCHITECT WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO PERFORM THE WORK AS INTENDED BY THE CONTRACT DOCUMENTS. CONTRACTOR(S) SHALL BE RESPONSIBLE FOR ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT.
- ALIGN PARTITIONS WITH FACE OF OTHER PARTITIONS OR COLUMNS, UNLESS NOTED OTHERWISE. THE FACE OF EVERY PARTITION SHALL BE FLUSH WITHOUT OFFSETS. CHANGES IN PARTITION THICKNESS SHALL OCCUR AT CORNERS, PARTITION INTERSECTIONS OR OTHER FEATURES WHICH INTERRUPT THE PLANE OF THE PARTITION. FACE OF CORRIDOR PARTITIONS SHALL BE FLUSH FOR THE ENTIRE LENGTH OF THE CORRIDOR REGARDLESS OF CHANGES IN PARTITION THICKNESS. ALL ADJUSTMENTS SHALL BE MADE TO THE ROOM SIDE OF THE CORRIDOR PARTITION AND AT CORNERS.
- ALL GYPSUM BOARD MATERIALS AND ACCESSORIES SHALL CONFORM TO THE APPROPRIATE STANDARDS IN ACCORDANCE WITH TABLE 2506.2 MBC 2015.
- REFER TO INTERIOR FINISHES REQUIREMENT ON LIFE SAFETY SHEET A.091. ALL INTERIOR FINISHES SHALL HAVE A CLASS C FLAME SPREAD OF 76 TO 200 AND A SMOKE DEVELOPMENT INDEX NOT GREATER THAN 450 IN ACCORDANCE WITH ASTM E84 OR UL 723. ALL INTERIOR CARPET INCLUDING THOSE IN EXIT ENCLOSURES SHALL COMPLY WITH MBC SECTION 204. DOC FF-1 "PILL TEST" (SPEC 16 CFR, PART 1630) CONTRACTOR TO PROVIDE COMPLETE DOCUMENTATION TO FIELD INSPECTOR. FLOOR FINISH SHALL MEET A MIN. OF CLASS II FOR THE MIN. CRITICAL RADIANT FLUX INCLUDING THOSE IN EXIT ENCLOSURES. ALL FLOOR FINISHES SHALL BE IN ACCORDANCE WITH NFPA 253.

GENERAL CONDITIONS (CONTINUED):

- ALL EXPOSED INSULATION SHALL HAVE A CLASS A FLAME SPREAD NOT GREATER THAN 25 AND A SMOKE DEVELOPMENT NOT GREATER THAN 450 IN ACCORDANCE WITH ASTM E84 REQUIREMENTS. OWNER TO PROVIDE DOCUMENTATION.
- ALL EXIT DOORS & MEANS OF EGRESS DOORS SHALL BE SIDE HINGED, NON-LOCKING & SWING IN DIRECTION OF EGRESS.
- ALL PLYWOOD, WOOD BLOCKING & NAILERS TO BE NON COMBUSTIBLE.
- INFILL AROUND ALL EXTERIOR WALL PENETRATIONS. FLASH WITH METAL & RUBBER AND SEAL TIGHT AT WALL.
- "EXIT" SIGNS SHALL HAVE RED LETTERS AT LEAST 6" HIGH AND THE MINIMUM WIDTH OF EACH STROKE SHALL BE 3/4" ON A WHITE BACKGROUND OR IN OTHER APPROVED DISTINGUISHABLE COLOR. THE WORD "EXIT" EXCEPT THE LETTER "I" SHALL HAVE LETTERS HAVING A WIDTH NOT LESS THAN 2 INCHES AND THE MINIMUM SPACING BETWEEN LETTERS SHALL NOT BE LESS THAN 3/8" OF AN INCH. SIGNS LARGER THAN THE MINIMUM SIZE REQUIRED SHALL HAVE LETTERS WIDTH AND SPACING IN THE SAME PROPORTION TO THE HEIGHT AS INDICATED IN THIS CODE. IF AN ARROW IS PROVIDED AS PART OF AN EXIT SIGN, THE CONSTRUCTION SHALL BE SUCH THAT THE ARROW CAN NOT BE READILY CHANGED. THE WORD "EXIT" SHALL BE CLEARLY DISCERNIBLE WHEN THE SIGN IS ILLUMINATION MEANS IS NOT ENERGIZED.
- MIN. AVERAGE ILLUMINATION OF 10 FOOTCANDLES IS REQUIRED AT A HEIGHT OF 30' AFF OVER THE AREA OF ALL ROOMS
- PROVIDE TYVEK DRAWRAP SHEET FOR ALL E.F.I.S. WORK INDICATED ON DRAWINGS.

SITE WORK:

REFER TO CIVIL DRAWINGS FOR ALL SITE INFORMATION. CIVIL DRAWINGS SHALL OVERRIDE THE SITE NOTES IN THIS SECTION.

- PLACE FOUNDATIONS ON UNDISTurbed SOIL, UNO. VERIFY IN THE FIELD BY TEST AS REQUIRED THE BEARING CAPACITY UNDER FOOTINGS.
- WHERE FOOTINGS CHANGE ELEVATIONS, STEP DOWN FOOTINGS ON FIRM BEARING AT THE RATE OF ONE FOOT VERTICAL TO TWO FEET HORIZONTAL.
- STEP DOWN ALL FOOTINGS ADJACENT TO SUMPS, PITS, SEWERS, TANKS, EXISTING UNDERGROUND WORK, ETC., AND WHEREVER PRESSURE PLANE OF FOOTINGS MAY BE CUT BY DEEPER EXCAVATION. DROP THE FOOTING DOWN TO THE BOTTOM OF THE EXCAVATION FOR SUCH WORK TO FIRM BEARING.
- ALL CONTINUOUS REINFORCING BARS SHALL BE LAPPEd AS PER TENSION EMBEDMENT OR TENSION CLASS "C" SPLICE LENGTH, LAP CONTINUOUS TOP REINFORCING AT CENTER OF SPAN AND BOTTOM REINFORCING AT SUPPORTS. TERMINATE TOP BARS AT NON-CONTINUOUS END WITH STANDARD HOOK.
- REMOVE ALL EXCESS MATERIAL OFF THE SITE. REMOVE ALL TOP SOIL, BRUSH, ROOTS, TREES, RUBBISH AND ALL OBSTRUCTIONS TO THE WORK FROM THE AREAS OF BOTH CUT AND FILL. REMOVE EXISTING FILL WITHIN BUILDING AREA AND REPLACE WITH COMPACTED SAND FILL AS REQUIRED.
- PRIOR TO BACKFILLING TRENCHES OR FILLING EMBANKMENTS AT THE BUILDING AREA PRO ROLL THE AREA WITH A 10 TON TRUCK LOADED WITH SOIL. ANY AREA UNDER THE WHEEL THAT SHOWS A DEPRESSION MORE THAN ONE INCH SHALL BE REMOVED TWO FOOT DEEP AND REPLACED WITH APPROVED FILL MATERIAL FREE OF ORGANIC MATERIAL AND WITH GRAIN SIZE LESS THAN 2 INCHES AND WITH GRADATION THAT CAN BE COMPACTED TO 95% MAXIMUM DRY DENSITY PER ASTM D-157.
- AND SHALL BE COMPACTED IN 6 INCH LOOSE LIFTS TO 95% MAXIMUM DENSITY PER ASTM D-157 AND THE REMAINING 12 INCH SPACE SHALL BE FILLED WITH CRUSHED AGGREGATE MDOT-22A COMPACTED IN 6 INCH LAYERS TO 98% MAXIMUM DENSITY PER ASTM D-157. ALL COMPACTION SHALL BE SUPERVISED BY A COMPETENT TESTING LABORATORY RETAINED BY THE CONTRACTOR AND APPROVED BY THE ARCHITECT.
- BACKFILL AGAINST GRADE BEAMS OR WALLS SHALL CONSIST OF GRANULAR FILL FREE OF ORGANICS AND NO MORE THAN 3 PERCENT SILT OR CLAY WITH PARTICLE SIZE LESS THAN 4 INCHES IN DIAMETER AND PASSING NO 4 SIZE BY 25 TO 10 PERCENT NOTIFY ARCHITECT/ENGINEER IF POOR SOIL CONDITIONS ARE FOUND AT THE SITE. BACKFILL SHALL BE PLACED IN 6 INCH LOOSE LIFTS AND COMPACTED TO 95% MAXIMUM DENSITY PER ASTM D-157 ON BOTH SIDES OF THE STRUCTURE BY HAND COMPACTORS. HEAVY COMPACTING ROLLERS SHALL BE KEPT 10 FEET CLEAR OF THE STRUCTURE.
- NO FROZEN MATERIAL SHALL BE USED AS FILL AND NO FILL SHALL BE PLACED ON FROZEN GROUND.
- USE ONLY CLEAN COMPACTED SAND UNDER THE FLOOR SLAB AND PAVED AREAS WHERE AGGREGATE BASE COURSE IS NOT SPECIFIED. PLACE FOUNDATIONS ON UNDISTurbed SOIL, UNO. VERIFY IN THE FIELD BY TEST AS REQUIRED THE BEARING CAPACITY UNDER FOOTINGS.
- WHERE FOOTINGS CHANGE ELEVATIONS, STEP DOWN FOOTINGS ON FIRM BEARING AT THE RATE OF ONE FOOT VERTICAL TO TWO FEET HORIZONTAL. WALL AND PIER FOOTINGS SHALL BE A MIN. OF 12 INCH THICK AND SHALL PROJECT A MINIMUM OF 6" BEYOND THE FACE OF WALLS, PIERS, STACKS, ETC.
- UNLESS OTHERWISE NOTED, PROVIDE (2) #5 ADDITIONAL BARS AROUND ALL OPENINGS IN WALL OR SLAB. EXTEND BARS 2 FEET BEYOND OPENING IN TO THE WALL OR SLAB.
- PLACE SLAB ON GRADE IN CHECKERBOARD PATTERN OR IN AN ALTERNATE LANES. CONSTRUCTION JOINTS OR CONTROL JOINTS SHALL BE PROVIDED SPACED NO GREATER THAN 20 FEET, UNLESS SHOWN OTHERWISE.
- SLAB ON GRADE SHALL BE 5" THICK WITH SMOOTH FLOAT FINISH.
- CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING SIZE, LENGTH, AND LOCATION OF REINFORCING INTENDED POURING SEQUENCE AND LOCATION OF CONSTRUCTION JOINTS TO ARCHITECT FOR REVIEW.
- BEFORE PLACING THE PIT MAT SPREAD AT NO COST TO THE OWNER ONE 94 LB. BAG OF DRY CEMENT PER 3 SY OF AREA AT THE BOTTOM OF THE EXCAVATION WHENEVER THE SOIL AT THE BOTTOM IS COMPOSED OF MORE THAN 16 PERCENT SILT AS DETERMINED BY THE TESTING AGENCY.

FOUNDATION & EARTH WORK

- FOOTINGS SHALL BEAR ON THE FIRM UNDISTurbed SOIL WITH A SAFE NET CAPACITY OF 1500 PSF. IF SOIL OF THIS CAPACITY IS NOT FOUND AT THE ELEVATIONS INDICATED, FOOTINGS SHALL BE ENLARGED OR LOWERED AT THE DIRECTION OF THE ENGINEER. VERIFY FOUNDATION SOIL BEARING PRESSURE IN FIELD BY SOILS ENGINEER.
- EXCAVATION OF FILLS, ORGANIC MATERIALS AND OTHER UNSUITABLE MATERIAL IS TO BE REMOVED UNTIL THE MIN. SOIL BEARING IS OBTAINED PER AN ONSITE SOILS ENGINEER. PAD FOOTING IS TO EXTEND TO THAT POINT. IF WATER IS ENCOUNTERED DURING EXCAVATION, CONTRACTOR TO CONSULT WITH DEMATERIALIZATION CONTRACTOR FOR RECOMMENDATIONS.
- ALL FOOTINGS SHALL BE PLACED ONTO COMPACTED SUB GRADE OR ENGINEERED FILL (95% MINIMUM DENSITY AT OPTIMUM MOISTURE CONTENT). FOOTING ELEVATIONS SHOWN DESIGNATE A MINIMUM DEPTH OF FOOTINGS WHERE A SAFE SOIL BEARING PRESSURE OF 3000 PSF FOR COLUMNS AND WALL FOOTINGS IS EXPECTED. UNDERCUT AND PROVIDE ENGINEERED FILL AS NECESSARY TO ACHIEVE BEARING CAPACITY INDICATED.
- ALL FOUNDATION EXCAVATIONS SHALL BE INSPECTED AND CERTIFIED. CONTRACTOR TO SUBMIT TESTING REPORT TO CITY.
- NO FOOTINGS SHALL BE PLACED ONTO OR AGAINST SUB GRADES CONTAINING FROST OR ICE. CROSS REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS TO ASSURE PROPER DIMENSIONS AND PLACEMENT OF ALL ANCHORS, BOLTS, INSERTS, ETC.
- AFTER EXCAVATING FOR ALL EARTH-SUPPORTED FLOOR AND STAIR SLABS, THE EXPOSED NATURAL SOIL SHALL BE THOROUGHLY COMPACTED PRIOR TO PLACING FILL.

DESIGN LOADS:

THE STRUCTURE IS DESIGN FOR THE FOLLOWING LIVE LOADS, IN ADDITION TO THE LATERAL LOADS AND SUPERIMPOSED DEAD LOADS AND SELF-WEIGHT OF THE STRUCTURE.
BUILDING OCCUPANCY CATEGORY: II
LIVE LOADS:
1. ROOF SNOW LOAD:
A. GROUND SNOW LOAD: 25 PSF
B. FLAT ROOF SNOW LOAD (PI): (MIN ROOF LOAD): 20 PSF
C. SNOW EXPOSURE FACTOR (Ge): 1.0
D. SNOW LOAD IMPORTANCE FACTOR (I): 1.0
E. THERMAL FACTOR (Cs): 1.0
F. ADDITIONAL LOADING DUE TO DRIFTING AT CHANGES IN ROOF ELEVATIONS AND ICE AT OVERHANGS PER APPLICABLE CODE.
ROOF DEAD LOAD: 15 PSF
TOTAL ROOF DESIGN LOAD: 35 PSF

SECOND FLOOR DESIGN LOADS:

- DEAD LOAD 65 PSF
- LIVE LOAD (CLASSROOMS): 60 PSF
- LIVE LOAD (HALLWAYS): 100 PSF

WIND LOAD:

- BASIC WIND SPEED (3-SECOND GUST): 115 MPH
- RISK CATEGORY FACTOR: II
- EXPOSURE CATEGORY: A
- INTERNAL PRESSURE COEFFICIENT: +/- 0.18
- MAIN FORCE RESISTING STRUCTURAL SYS (EQUIVALENT STATIC FORCE): 6 MIN UNIFORM: 16 PSF

EARTHQUAKE DATA:

- OCCUPANCY CATEGORY: II
- MAPPED SPECTRAL RESPONSE ACCELERATION Ss=0.085g & SI=0.044g
- SITE CLASS: D
- SPECTRAL RESPONSE COEFFICIENTS SDs=0.091g & SDI=0.071g
- SEISMIC DESIGN CATEGORY A
- SECTION II.7 (ASCE-10) DESIGN REQUIREMENT FOR SDC A
- DESIGN BASE SHEER Fx=0.01kN
- Cs=SDs / (Ra)
- RESPONSE MODIFICATION FACTOR R=5
- SECTION II.7 (ASCE-10) DESIGN REQUIREMENT FOR SDC A

STRUCTURAL STEEL:

- ALL EXPOSED STEEL SHALL BE MEET ARCHITECTURALLY EXPOSED STRUCTURAL STEEL A352-2 OR AS NOTED FOR AISC STANDARDS.
- THE STRUCTURAL INTEGRITY OF THE BUILDING SHOWN ON THESE PLANS IS DEPENDENT UPON COMPLETION ACCORDING TO THE PLANS AND SPECIFICATIONS. STRUCTURAL MEMBERS ARE NOT SELF-BRACING UNTIL PERMANENTLY AFFIXED TO THE STRUCTURE AS DIRECTED. THE ARCHITECT/STRUCTURAL ENGINEERS ASSUME NO LIABILITY FOR THE STRUCTURE DURING CONSTRUCTION, MEANS AND METHODS OF CONSTRUCTION AND JOB SITE SAFETY ARE THE SOLE RESPONSIBILITY OF THE CONTRACTORS.
- ALL CONTINUOUS REINFORCING BARS SHALL BE LAPPEd AS PER TENSION EMBEDMENT OR TENSION CLASS "C" SPLICE LENGTH, LAP CONTINUOUS TOP REINFORCING AT CENTER OF SPAN AND BOTTOM REINFORCING AT SUPPORTS. TERMINATE TOP BARS AT NON-CONTINUOUS END WITH STANDARD HOOK.
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS GRADE 60 CONFORMING TO THE LATEST EDITION OF ASTM A-615/A 615M-00 OR ASTM-616 AND HAVE A MINIMUM YIELD STRENGTH OF 60000 PSI
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A25-85 USING COLD DRAWN WIRE CONFORMING TO ASTM A82-01.
- UNLESS OTHERWISE NOTED, MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE 3/4 INCH FOR SLABS, 1.5 INCH FOR BEAMS, COLUMNS AND PIERS, AND 1 INCH FOR WALLS. ALL CONCRETE EXPOSED TO WEATHER OR EARTHFLUID SHALL HAVE A MINIMUM COVER OF 1.5 INCHES FOR #8 BARS OR SMALLER, 2 INCH FOR BARS LARGER THAN #5 AND 3 INCH FOR CONCRETE PLACED AGAINST EARTH.
- ALL STRUCTURAL STEEL CONSTRUCTION TO CONFORM TO AISC-360 "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" AND AISC CODE OF STANDARD PRACTICE, UNLESS MODIFIED.
- ALL DETAILING FABRICATION AND ERECTION SHALL CONFORM TO MBC SECTION 2204 CODE, THE LATEST EDITION OF "AISC SPECIFICATION FOR STRUCTURAL FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND BRIDGES."
- CONTRACTOR TO USE AISC SPECIFICATIONS FOR THE MANUFACTURE OF ALL STRUCTURAL STEEL MEMBERS WITH TENSILE YIELD STRENGTH FY = 50 KSI, AND WHICH SHALL CONFORM TO ASTM A-992 STANDARDS, AND SHALL SUBMIT SHOP DRAWINGS. ALL STRUCTURAL STEEL SHALL BE ASTM A-992 (UNLESS NOTED OTHERWISE) HAVING FY=50,000 PSI.
- STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B OR ASTM A50. SEE DRAWING FOR EACH APPLICATION.
- ALL DRAWINGS SHOW THE INTENT AND CONCEPT OF THE CONNECTIONS BUT NOT THE DETAIL OF BOLTS AND WELDS. ALL CONNECTIONS NOT DETAILED SHALL BE DESIGNED, DETAILED AND MANUFACTURED BY THE FABRICATOR.
- SHOP CONNECTIONS SHALL BE WELDED FIELD CONNECTIONS USE ETTOX ELECTRODES, RUN PARALLEL TO THE TENSION MEMBERS, AND USE HIGH STRENGTH BOLTS WITH WASHER AND NUT.
- FIELD BOLT CONNECTIONS WITH ASTM A-325 OR ASTM A-490.
- PROVIDE PERIMETER STEEL ANGLES FOR METAL ROOF DECK SUPPORT AS REQUIRED, INCLUDING AROUND ALL ELEVATORS, STAIRS, AND OPENINGS IN FLOOR OR ROOF.
- ALL WELDING TO CONFORM TO AIA'S D11 "STRUCTURAL WELDING CODE", E 70 XX LOW HYDROGEN ELECTRODES CONFORMING TO AWS SPECIFICATION A5.1 SHALL BE USED FOR WELDING.
- ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS USING ELECTRIC ARC METHODS IN ACCORDANCE WITH LATEST EDITION OF "AWS CODE FOR WELDING IN BUILDING CONSTRUCTION." ETTOX ELECTRODES TO BE USED.
- UNLESS OTHERWISE NOTED, ALL FIELD CONNECTIONS SHALL BE FASTENED WITH 3/4 INCH DIAMETER ASTM A325-X, BEARING TYPE (WITH THREADS EXCLUDED FROM SHEAR PLANE) BOLTS.
- UNLESS OTHERWISE SHOWN, ALL BEAM END CONNECTIONS SHALL BE DESIGNED TO SUPPORT ONE-HALF THE TOTAL UNIFORM LOAD CAPACITY SHOWN IN AISC MANUAL FOR GIVEN BEAM, SPAN AND GRADE OF STEEL SPECIFIED. FOR COMPOSITE BEAM CONNECTIONS SHALL BE DESIGNED FOR THREE-FOURTHS OF THE TOTAL UNIFORM LOAD CAPACITY.
- ALL ANCHOR BOLTS SHALL CONFORM TO ASTM A-307-00.
- MINIMUM CONNECTION SHALL BE 3/4 INCH DIAMETER BOLTS OR A WELD DEVELOPING A FORCE OF 10 KIPS.
- PAINT ONE COAT OF PRIMER ON ALL EXPOSED SURFACES EXCEPT FOR THE FOLLOWING SURFACES WHICH WILL NOT BE PAINTED:
A. SURFACES THAT ARE IN CONTACT WITH CONCRETE.
B. CONTACT SURFACES IN FRICTION TYPE CONNECTIONS.
C. SURFACES WHICH METAL FLOOR DECK AND/OR SHEAR STUDS ARE TO BE WELDED.
D. SURFACES TO BE WELDED SHALL NOT BE PAINTED WITHIN THREE INCHES OF THE WELD.
- THE CONTRACTOR SHALL FURNISH AND INSTALL STEEL ANGLES WITH ANCHORS AT MECHANICAL CURBS WHERE INDICATED.
- FLOOR AND ROOF OPENINGS ARE TO BE FRAMED WITH STEEL ANGLES AS INDICATED. FRAMES TO BE CONNECTED TO THE PANEL POINTS OF BAR JOISTS OR GIRDER AND TRUSSES.
- REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL ANGLES, PLATES, BARS, CLIPS, ETC., ATTACHED TO STRUCTURAL STEEL. VERIFY EXACT SIZE AND LOCATION OF ALL FLOOR AND ROOF OPENINGS WITH CONTRACTOR INVOLVED.
- PROVIDE "DUR-O-WALL" RE-STEEL; USE NO. 8 LADDER TYPE ONLY. BLOCKWORK - EVERY 24" STEEL FABRICATOR TO PROVIDE SHOP DRAWINGS FOR ARCHITECTS APPROVAL PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL INCLUDE CONNECTION DETAILS FOR ALL STRUCTURAL STEEL MEMBERS. SPECIFY THAT STEEL JOIST AND JOIST GIRDER STRUCTURAL.
- NO COMBUSTIBLES IN PLENUM SPACE

SPECIAL INSPECTIONS:

BUILDER SHALL BE SELECT AND PROVIDE A THIRD PARTY TESTING AGENCY - PER SECTION. I705 MBC 2015.
THE SPECIAL INSPECTIONS SHALL INCLUDE:
SECTION I705.2 STEEL CONSTRUCTION
SECTION I705.3 CONCRETE CONSTRUCTION
SECTION I705.4 MASONRY CONSTRUCTION
SECTION I705.6 SOILS

REINFORCING STEEL:

- DETAILING AND PLACING OF REINFORCING SHALL CONFORM TO AIC MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES.
- SECURE REBAR AND HOLD IN PLACE WITH GALVANIZED METAL ACCESSORIES, OR PLASTIC BOOTED CHAIRS.
- ALL RE-STEEL SHALL BE INTERMEDIATE GRADE NEW BILLET STEEL, ASTM 15.
- PLACE (2) #5 BARS CONTINUOUS IN TOP AND BOTTOM OF ALL WALL FOOTINGS, GRADE BEAMS, AND AT THE SIDES OF ALL OPENINGS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- UNLESS NOTED, ROOF DECK SHALL BE MANUFACTURED FROM STEEL CONFORMING TO ASTM A100, 33 KSI.
- LOADS SHALL NOT BE HUNG FROM ROOF DECK.
- METAL DECK TO BE CONNECTED TO SUPPORTING MEMBERS AS PER RECOMMENDATION BY SDI OR AS SPECIFIED.
- THE CONTRACTOR SHALL FURNISH ALL ACCESSORIES INCLUDING CLOSURES, "Z" CLOSURES, COLUMN CLOSURES, SCREW ANGLES AND GIRDERS, AS REQUIRED.
- ROOF DECK SHALL HAVE MANUFACTURER'S STANDARD RUST INHIBITIVE PAINT.
- METAL DECK SHALL BE CONTINUOUS OVER THREE SPANS WHEREVER INDICATED. SINGLE AND DOUBLE SPANS SHALL COMPLY WITH "STEEL DECK" REQUIREMENT.
- ALL METAL DECKING SHALL BE WELDED TO THE STEEL BEAM WITH A 3/4 INCH PLUG WELD AT THE FLUTES NOT EXCEEDING 12 INCHES APART.
- ALL INTERIOR ROOF Sumps SHALL HAVE AN OVER FLOW 3" ABOVE ROOF SURFACE

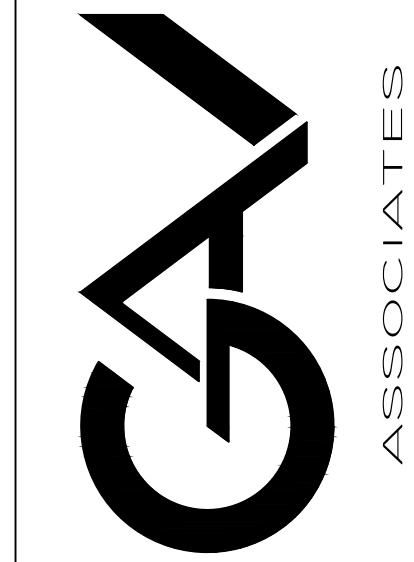
METAL DECK:

- METAL DECK SHALL CONFORM TO ALL REQUIREMENTS OF "BASIC DESIGN SPECIFICATION" AS ADOPTED BY THE STEEL DECK INSTITUTE (SDI).
- ALL METAL

ISSUED FOR	DATE
PROGRESS	7-26-22
PROGRESS	8-2-22
100% COORDINATION	8-12-22

ARCHITECTURAL DESIGN
RESIDENTIAL COMMERCIAL INDUSTRIAL

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ABBREVIATIONS

A.L.	ACOUSTICAL LINING
B.V.	BALANCING VALVE
C.D.	CEILING DIFFUSER
C.F.M.	CUBIC FEET PER MINUTE
C.I.	CAST IRON
C.O.	CLEAN OUT
D.P.R.	DAMPER
D.F.	DRINKING FOUNTAIN
D.W.S.	DRINKING WATER SUPPLY
D.W.R.	DRINKING WATER RETURN
E.F.	EXHAUST FAN
ER-#	EXHAUST REGISTER
EWC	ELECTRIC WATER COOLER
F.D.	FLOOR DRAIN
F.D.P.R.	FIRE DAMPER
H.B.	HOSE BIBB
H.O.	HUB OUTLET
I.E.	INVERT ELEVATION
I.W.	INDIRECT WASTE
LAV.	LAVATORY
LD-#	LINEAR SUPPLY AIR DIFFUSER
LR-#	LINEAR RETURN AIR DIFFUSER
O.A.	OUTSIDE AIR
O.B.D.	OPPOSED BLADE DAMPER
O.E.D.	OPEN END DUCT
P.H.	PHYSICAL HANDICAPPED
P.REL.V.	PRESSURE RELIEF VALVE
P-1	PUMP #1
R.A.	RETURN AIR
R.C.	RAIN CONDUCTOR
RC -#	RETURN AIR GRILLE
R.P.B.P.	REDUCED PRESSURE BACKFLOW PREVENTER
RR-#	RETURN AIR REGISTER
R.S.	ROOF SUMP
S.A.	SUPPLY AIR
SD-#	SUPPLY DIFFUSER
SR-#	SUPPLY REGISTER
SAN.	SANITARY
S.S.	SERVICE SINK
ST.	STORM
S.W.S.	SAFE WASTE SINK
T.A.D.	TRANSFER AIR DUCT
T.W.	TEMPERED WATER
U/GRD.	UNDERGROUND
U.H.	UNIT HEATER
UR.	URINAL
V.	VENT
V.T.R.	VENT THRU ROOF
V.V.B.	VARIABLE VOLUME AIR TERMINAL BOX
W.C.	WATER CLOSET
W.H.	WATER HEATER
W.	WASTE

PLUMBING & PIPING SYMBOLS

— — —	DOMESTIC COLD WATER (C.W.)
— — —	DOMESTIC HOT WATER (H.W.)
— GAS OR NG	NATURAL GAS
— SAN — —	SANITARY SEWER—UNDER GROUND
— SAN —	SANITARY SEWER—ABOVE GROUND
COO	FLOOR CLEAN-OUT
WCO	WALL CLEAN-OUT
ST	STORM SEWER
V	VENT
△	GATE VALVE
□	CHECK VALVE
■	BALANCING VALVE
○	THERMOMETER
□	STRAINER
○	UNION
○	FLEXIBLE CONNECTOR
○	BALL VALVE
○	NEW CONNECTION
○	VALVE
○	GLOBE VALVE
○	NEEDLE VALVE
○	GAS COCK VALVE
○	VALVE WITH HANDWHEEL
○	MODULATING VALVE
○	DAMPER
○	STOP CHECK STRAIGHT VALVE
○	CHECK VALVE
○	PNEUMATIC CONTROL VALVE
○	PRESSURE REGULATOR
○	BACK PRESSURE REGULATOR
○	DIFFERENTIAL REGULATOR
○	SOLENOID VALVE (NORM. OPEN)
○	SOLENOID VALVE (NORM. CLOSED)
○	MOTOR ACTUATOR
○	BALL VALVE
○	PRESSURE GAUGE TO MATCH EXISTING
○	TURBINE FLOW METER
○	FLEX COUPLING (2 FT MIN)
○	SPARK PLUG
○	PUMP
○	STEAM TRAP
○	CURRENT / PNEUMATIC POSITIONER
○	ELECTRIC MOTOR / ACTUATOR
○	INSTRUMENT – NON-ACCESSIBLE

GENERAL MECHANICAL NOTES:

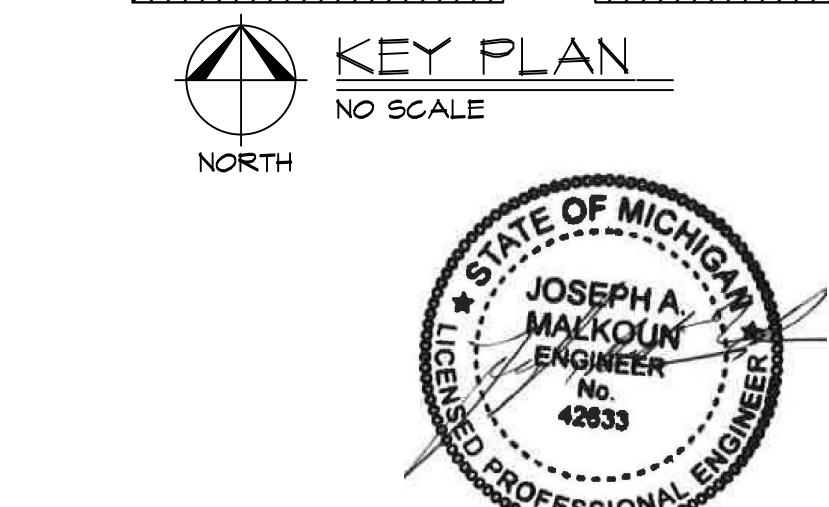
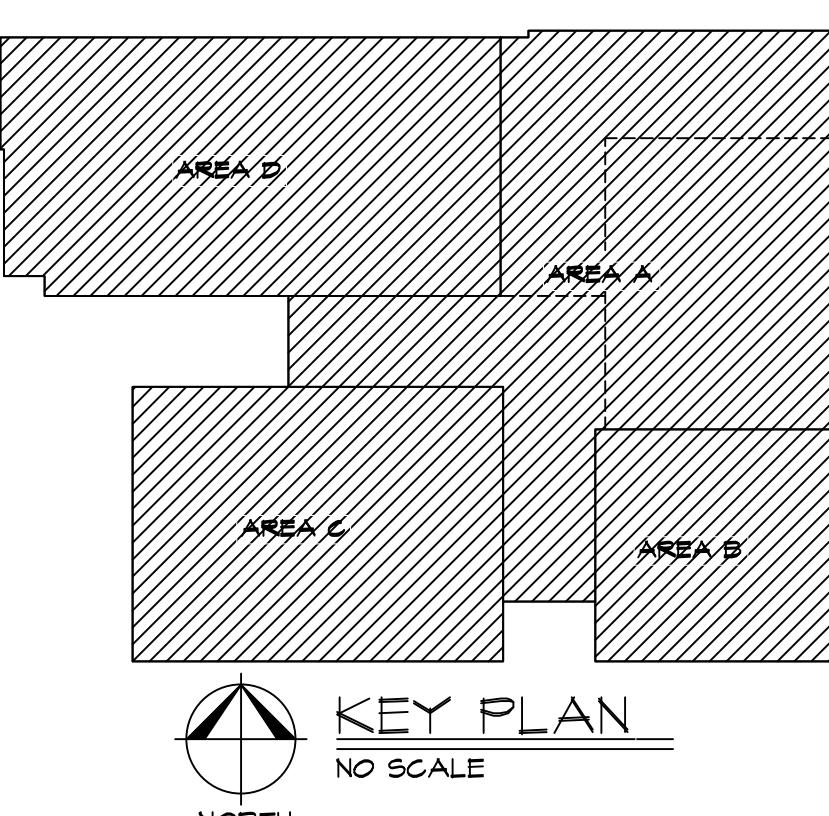
- COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSULATION. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.
- ALL NEW MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED.
- NEW MECHANICAL EQUIPMENTS, DUCTWORK, AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.
- REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR DUCTWORK AND PIPING MEET REQUIREMENTS.
- INSTALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.
- OVERHEAD HANGERS AND SUPPORTERS FOR EQUIPMENT, DUCTWORK, AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.
- COORDINATE LOCATION OF EQUIPMENT SUPPORTERS WITH LOCATION OF EQUIPMENT ACCESS PANELS/DOORS TO ENABLE SERVICE OF EQUIPMENT AND/OR FILTER REPLACEMENT.
- SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
- COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS, AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL, AND DUCT INSTALLATION REQUIREMENTS.
- ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.
- LOCATE AND SET THERMOSTATS AT LOCATIONS SHOWN ON PLANS. VERIFY EXACT LOCATIONS WITH ARCHITECTS PRIOR TO INSTALLATION. INSTALL DEVICES WITH TOP OF DEVICE AT MAXIMUM 48" AFF TO MEET ADA REQUIREMENTS UNLESS NOTED OTHERWISE ON PLANS. MECHANICAL CONTROLS CONTRACTOR SHALL INSTALL WIRING IN CONDUIT PROVIDED BY DIVISION 16. AT A MINIMUM, PROVIDE CONDUIT IN THE WALL FROM THE JUNCTION BOX TO 6" ABOVE THE CEILING.
- COORDINATE THE LOCATION AND ELEVATION OF WALL-MOUNTED DEVICES WITH PRESENTATION BOARD, DISPLAY CABINETS, SHELVES, OR OTHER COMPONENTS SHOWN ON THE ARCHITECTURAL DRAWINGS THAT ARE TO BE INSTALLED UNDER OTHER DIVISIONS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION.
- PROVIDE A MANUAL BALANCING DAMPER IN EACH BRANCH DUCT TAKEOFF FROM MAIN SUPPLY, RETURN, AND EXHAUST AIR DUCTS.

MECHANICAL SHEET INDEX	
SHEET No.	DESCRIPTION
M.000	MECHANICAL LEGEND, SYMBOLS AND SHEET INDEX
M.100	OVERALL SANITARY & VENT PLUMBING GROUND LEVEL FLOOR PLAN
M.101	OVERALL SANITARY & VENT PLUMBING SECOND LEVEL FLOOR PLAN
M.102	PARTIAL SANITARY & VENT PIPING GROUND LEVEL FLOOR PLAN – AREA "D & C"
M.103	PARTIAL SANITARY & VENT PIPING GROUND LEVEL FLOOR PLAN – AREA "A & B"
M.104	PARTIAL SANITARY & VENT PIPING SECOND LEVEL FLOOR PLAN – AREA "D"
M.105	OVERALL DOMESTIC WATER & GAS PIPING GROUND LEVEL FLOOR PLAN
M.106	OVERALL DOMESTIC WATER & GAS PIPING SECOND LEVEL FLOOR PLAN
M.107	PARTIAL DOMESTIC WATER & GAS PIPING GROUND LEVEL FLOOR PLAN – AREA "D & C"
M.108	PARTIAL DOMESTIC WATER & GAS PIPING GROUND LEVEL FLOOR PLAN – AREA "A & B"
M.109	PARTIAL DOMESTIC WATER & GAS PIPING SECOND LEVEL FLOOR PLAN – AREA "D"
M.200	OVERALL HVAC GROUND LEVEL FLOOR PLAN
M.201	OVERALL HVAC SECOND LEVEL FLOOR PLAN
M.202	HVAC GROUND LEVEL ENLARGED FLOOR PLAN – AREA "D"
M.203	HVAC GROUND LEVEL ENLARGED FLOOR PLAN – AREA "C"
M.204	HVAC GROUND LEVEL ENLARGED FLOOR PLAN – AREA "A"
M.205	HVAC GROUND LEVEL ENLARGED FLOOR PLAN – AREA "A & B"
M.206	HVAC SECOND LEVEL ENLARGED FLOOR PLAN – AREA "D"
M.300	OVERALL MECHANICAL ROOF PLAN
M.400	MECHANICAL SCHEDULES 1.
M.401	MECHANICAL SCHEDULES 2.
M.402	MECHANICAL DETAILS 1.
M.403	MECHANICAL DETAILS 2 (FOR REFERENCE ONLY).
M.500	MECHANICAL SPECIFICATIONS.

NOT ALL SYMBOLS ARE USED ON THIS PROJECT

H.V.A.C. SYMBOLS

↑ ↓	SPIN-IN FITTING W/DAMPER
WW	FLEXIBLE DUCT
□	RETURN AIR GRILLE
□	SUPPLY AIR DIFFUSER
Horizontal duct with damper	HORIZONTAL FIRE DAMPER
Vertical duct with damper	VERTICAL FIRE DAMPER
Two ducts meeting at a corner with diffusers	RADIANT TYPE DIFFUSERS IN GYP. BD. CEILING AREA
Vertical duct with damper	VOLUME DAMPER
Rectangular duct transitioning to round	RECTANGULAR TO ROUND TRANSITION
Thermostat symbol	THERMOSTAT
Damper symbol	DAMPER



DRAWN: JK
DESIGNED: JK
CHECKED: JM

SCALE :
FILE NAME : M.000
JOB #: 22010
SHEET TITLE
MECHANICAL LEGEND,
SYMBOLS & SHEET
INDEX
SHEET #
M.000

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PROVIDE A CONSTRUCTION RECORD SET OF "AS-BUILT" DOCUMENTS TO THE ARCHITECT REFLECTING ANY VARIANCES OF INSTALLED PIPING LOCATIONS OR EQUIPMENT CONTRARY TO THE CONSTRUCTION DOCUMENTS, REFER TO SPECIFICATIONS.

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INSTALLATION SHALL COMPLY WITH LEGALLY CONSTITUTED CODES AND THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

PLANS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.

VERIFY LOCATION AND DEPTH OF UTILITIES AT POINTS OF CONNECTION BEFORE START OF PIPING INSTALLATION.

REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.

DO NOT SCALE FLOOR PLANS FOR EXACT HORIZONTAL LOCATION OF PIPE ROUTING.

INSTALL CONCEALED PIPING TIGHT TO THE STRUCTURE AND AS HIGH AS POSSIBLE. INSTALL EXPOSED PIPING TIGHT TO THE STRUCTURE, WALL OR CEILING AND AS HIGH AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS.

VALVES SHALL BE LINE SIZE UNLESS OTHERWISE NOTED.

PIPING IN FINISHED AREAS SHALL BE ROUTED CONCEALED; EXPOSED PIPING, WHERE NECESSARY, SHALL BE ROUTED AS HIGH AS POSSIBLE AND TIGHT TO WALLS.

INSTALL NO PLASTIC PIPE OF ANY KIND ABOVE SLAB INSIDE THE BUILDING. INSTALL NO PLASTIC PIPE IN THE CEILING RETURN AIR PLENUM ONLY CODE APPROVED PIPING WITH FLAME SPREAD AND SMOKE DEVELOPED INDICES WHEN TESTED ACCORDING TO ASTME 84 OR UL 723 IS ALLOWED.

COORDINATE ALL WORK WITH OTHER TRADES AND CONTRACTORS.

COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. DO NOT INSTALL PIPING OVER ELECTRICAL PANELS.

COORDINATE ALL ROOF PENETRATIONS WITH OTHER TRADES. MAINTAIN 25' MINIMUM CLEARANCE FROM ALL AIR INTAKES. MAINTAIN 2' CLEARANCE FROM ALL OTHER EQUIPMENT.

PROVIDE "HEAVY-DUTY" NO-HUB COUPLINGS ON SANITARY PIPING 3" AND LARGER, SOIL STACKS 4" AND LARGER AND CONNECTIONS TO SOIL STACKS. SEE DIVISION 22 SPECIFICATION SECTION "SANITARY DRAINAGE AND VENT AND PIPING SPECIALTIES" FOR MORE INFORMATION.

PROVIDE TRANSITION ADAPTER COUPLINGS FOR CONNECTION OF PVC DWV TO CAST IRON SANITARY, WASTE AND VENT PIPE AT SLAB ON GRADE. SEE DIVISION 22 SPECIFICATION SECTION "SANITARY DRAINAGE AND VENT PIPING AND SPECIALTIES" FOR MORE INFORMATION.

VERIFY EXISTING EQUIPMENT, INCLUDING ACCESSORIES, IS NOT DAMAGED AND IS IN GOOD WORKING ORDER. REPORT ANY DEFICIENCIES TO THE ARCHITECT.

INSULATE LAST 25 LINEAL FEET OF NEW AND EXISTING VENT PIPING INSIDE BUILDING PER SPECIFICATIONS AT VENT THRU ROOF PENETRATIONS WITHIN SCOPE.

RUN SANITARY LINE WITH 1/8" SLOPE.

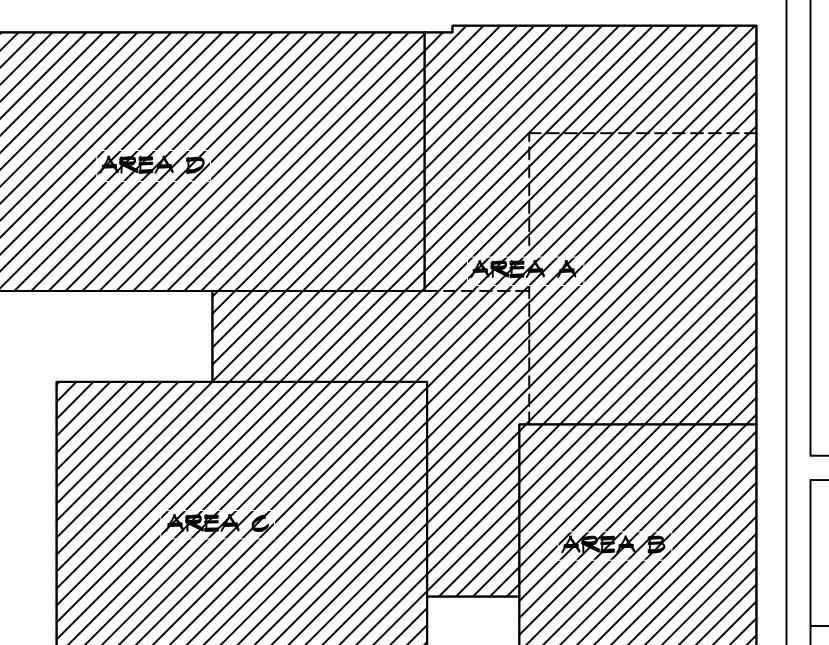
ARCHITECTURAL DESIGN

RESIDENTIAL

G.A.V. ASSOCIATES, INC
24001 ORCHARD LAKE RD., STE. 180A
FARMINGTON, MICHIGAN 48336
PH: (248) 985-9101
WEB: WWW.GAVASSOCIATES.COM

The logo consists of a large, bold, black graphic on the left. It features a vertical line segment extending from the top-left towards the middle-right, and a curved line segment below it that forms a shape resembling a stylized letter 'G'. To the right of this graphic, the word 'ASSOCIATES' is written vertically in a smaller, all-caps, sans-serif font.

NOOR INTERNATIONAL
ACADEMY
4050 COOLIDGE HWY
TROY, MI 48098
586-365-5000



The logo consists of a circle divided into four quadrants by a crosshair. The top-left quadrant contains a black triangle pointing towards the center. Below the circle, the word "NORTH" is written in capital letters.

DRAWN:	DESIGNED:	CHECKED:
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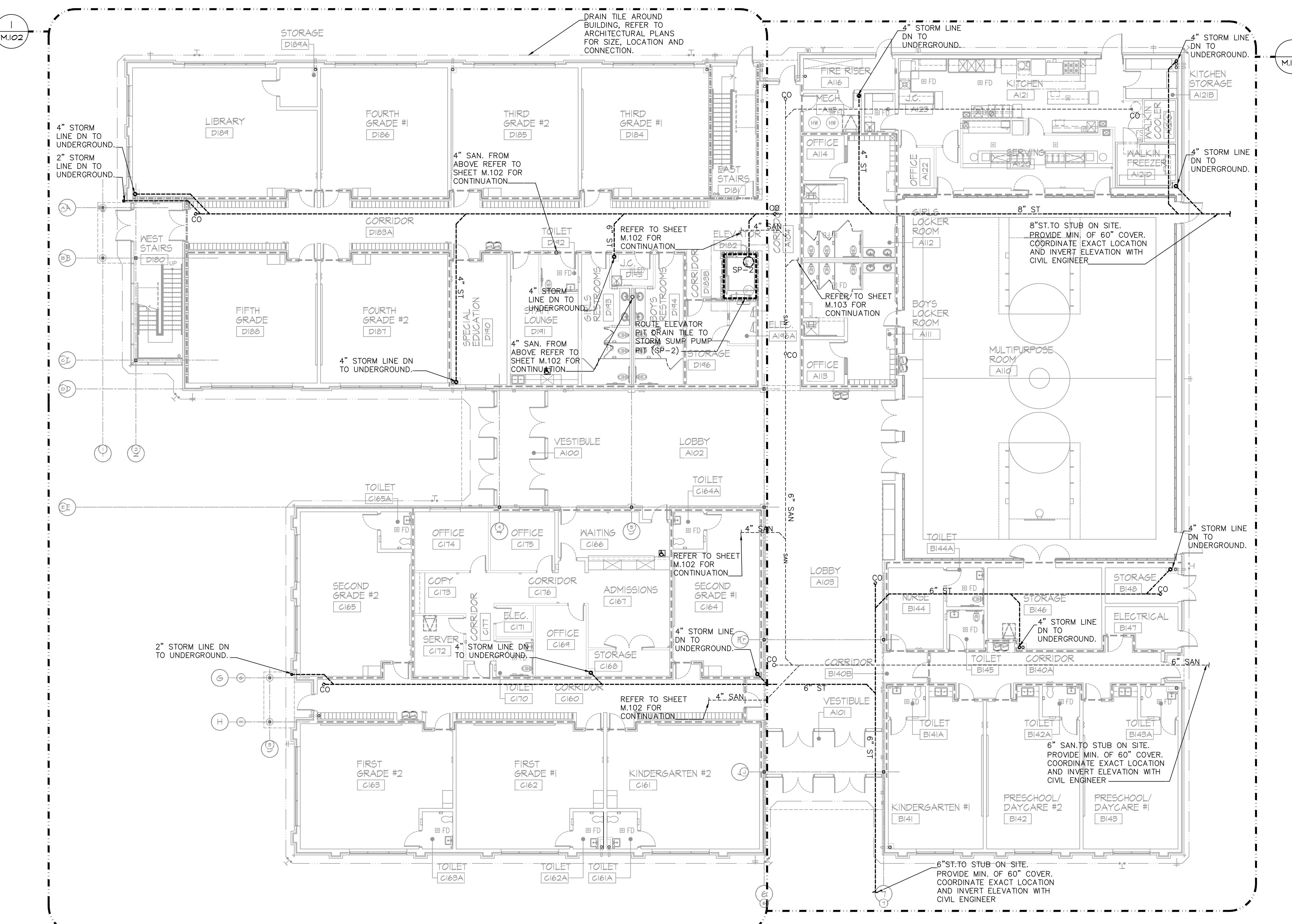
SCALE :

FILE NAME : M.100

JOB #: 22010

SHEET TITLE

**PLUMBING GROUND LEVEL
FLOOR PLAN**



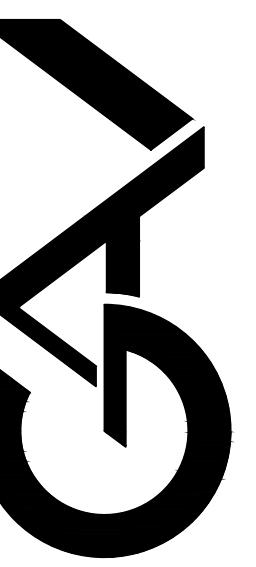
NORTH

OVERALL SANITARY & VENT PLUMBING GROUND LEVEL FLOOR PLAN
SCALE: 3/32" = 1'-0"

ISSUED FOR	DATE
PROGRESS	7-26-22
PROGRESS	8-2-22
100% COORDINATION	8-12-22
PERMITS	8-17-22

ARCHITECTURAL DESIGN
RESIDENTIAL COMMERCIAL INDUSTRIAL

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ASSOCIATES

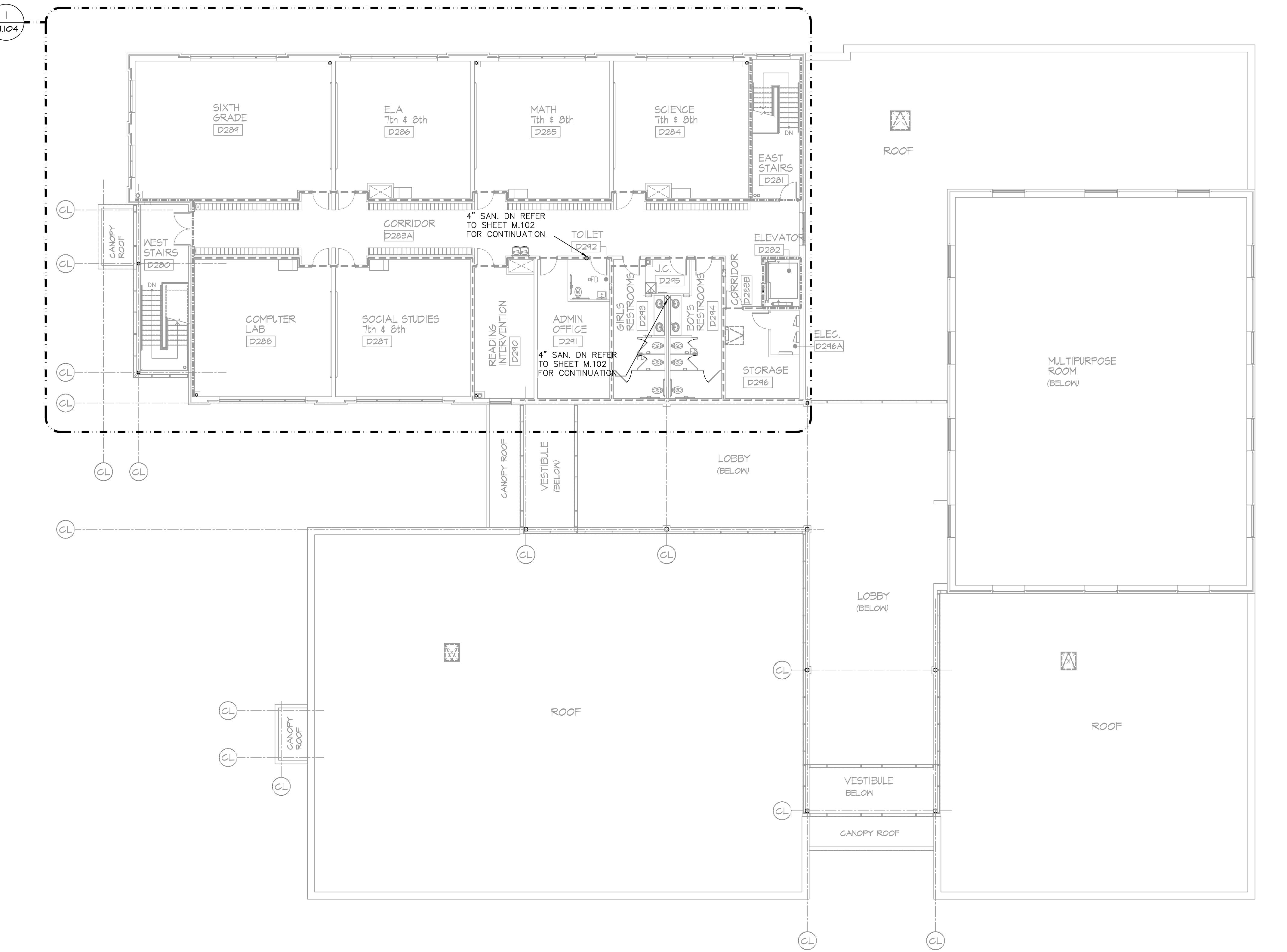
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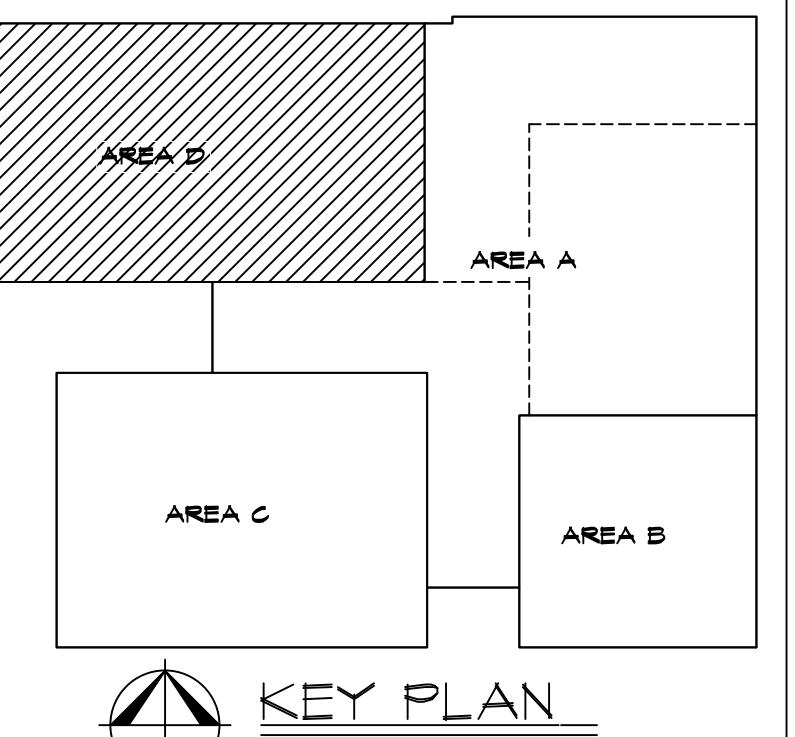
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SCALE :
FILE NAME : M101
JOB #: 22010
SHEET TITLE
OVERALL SANITARY & VENT PLUMBING SECOND LEVEL FLOOR PLAN SHEET #
FLOOR PLAN
SHEET #
JOSEPH A. MALKOUN ENGINEER No. 42833 STATE OF MICHIGAN PROFESSIONAL ENGINEER
1977 * 1997
M.101

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20. RUN SANITARY LINE WITH 1/8" SLOPE.

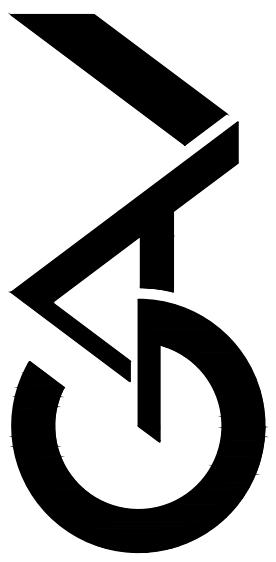


NORTH
OVERALL SANITARY & VENT PLUMBING SECOND LEVEL FLOOR PLAN
SCALE: 3/32" = 1'-0"



KEY PLAN
NO SCALE



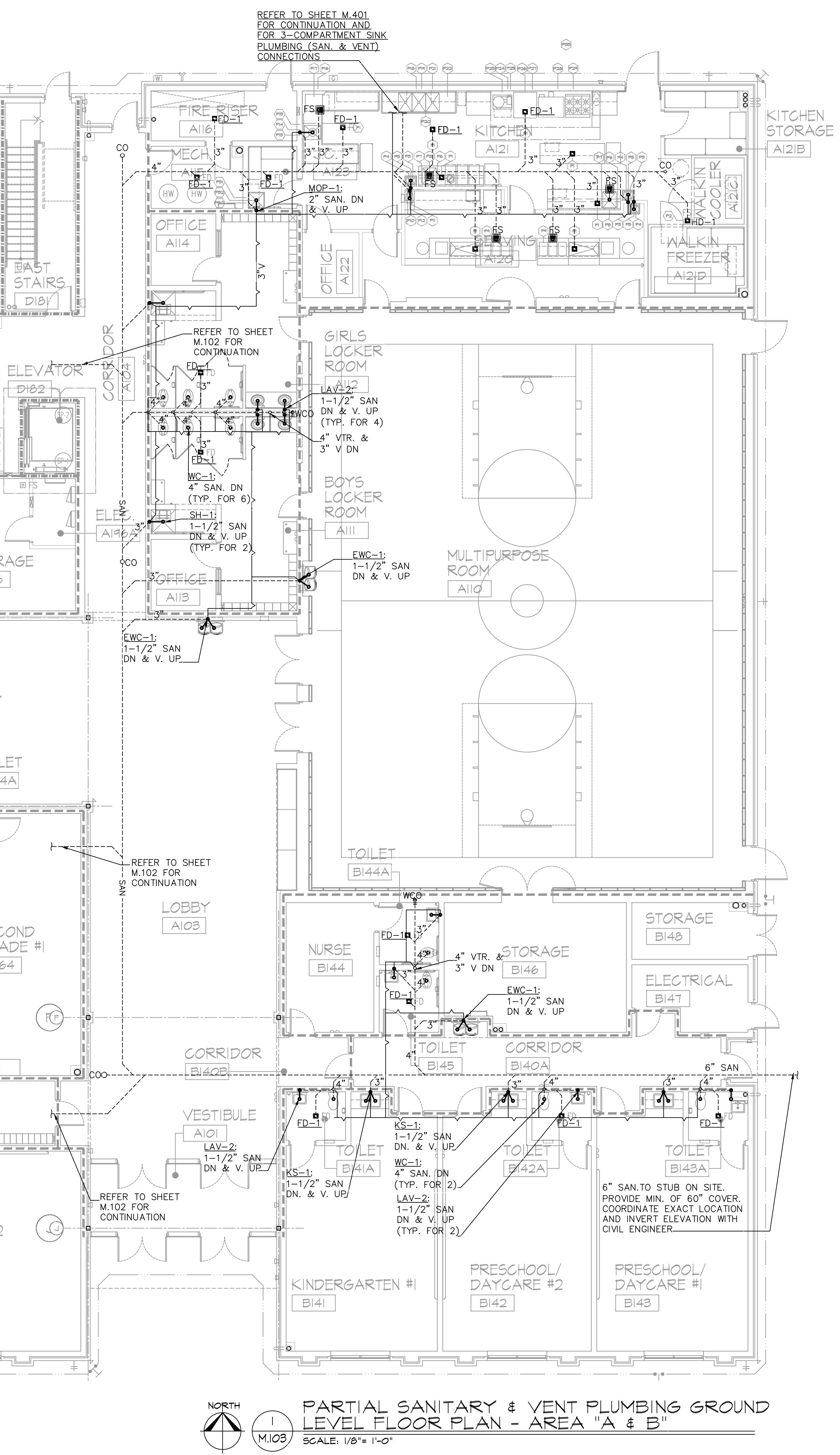


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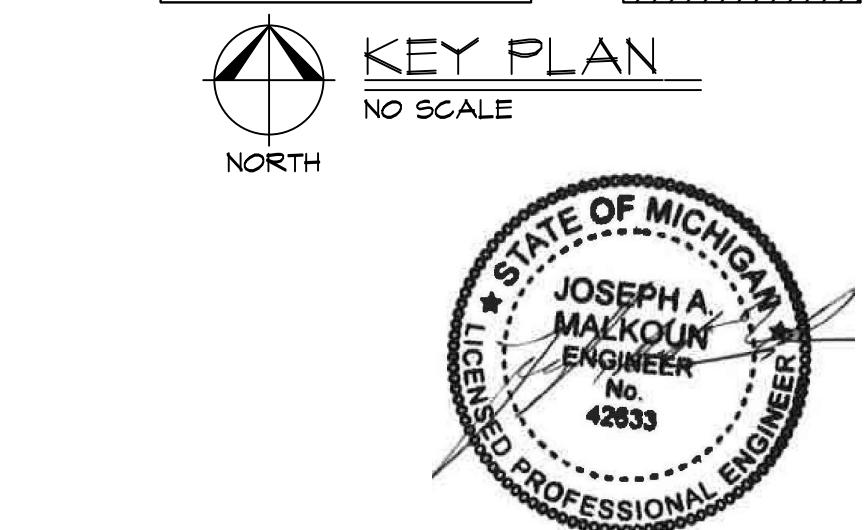
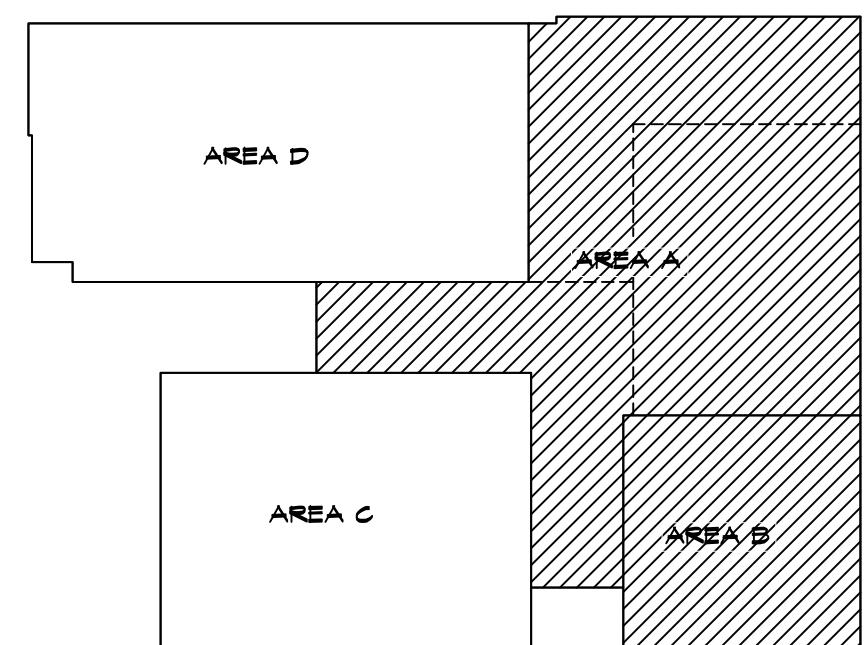
DRAWN: JK DESIGNED: JM CHECKED: JM
SCALE :
FILE NAME: M103
JOB #: 22010
SHEET TITLE
PARTIAL SANITARY & VENT PLUMBING GROUND LEVEL FLOOR PLAN - AREA "A & B"
FLOOR PLAN - AREA "A & B"
SHEET # M.103
STATE OF MICHIGAN
JOSEPH A. MALKOUN
ENGINEER
No. 42633
PROFESSIONAL ENGINEER

P1	FLOOR DRAIN
P2	FLOOR DRAIN W/ FUNNEL TO ACCEPT WALK-IN COOLER/FREEZER EVAPORATOR CONDENSATE DRAIN LINES
P3	1/2" HW. 20" A.F.F. - CT HAND SINK FAUCET
P4	1/2" CW. 20" A.F.F. - CT HAND SINK FAUCET
P5	1 1/2" W. 16" A.F.F. - CT HAND SINK DRAIN
P6	1/2" CW. 16" A.F.F. - CT PREPARATION SINK FAUCET
P7	1/2" CW. 16" A.F.F. - CT PREPARATION SINK FAUCET
P8	OPEN FLOOR SINK FOR PREPARATION SINK DRAIN LINE
P9	OPEN FLOOR SINK FOR HOT & COLD SERVING UNITS DRAIN LINES
P10	1/2" HW. 20" A.F.F. - CT HAND SINK FAUCET
P11	1/2" CW. 20" A.F.F. - CT HAND SINK FAUCET
P12	1 1/2" W. 16" A.F.F. - CT HAND SINK DRAIN
P13	1/2" HW. 20" A.F.F. - CT PRE-RINSE FAUCET
P14	3/4" CW. 20" A.F.F. - CT PRE-RINSE FAUCET, SOLENOID VALVE & DISPOSER
P15	2" W. 12" A.F.F. - CT DISPOSER
P16	3/4" HW. 73" A.F.F. - CT DISHWASHER
P17	OPEN FLOOR SINK FOR DISHWASHER DRAIN LINE
P18	3/4" HW. 16" A.F.F. - CT SINK FAUCET(S)
P19	3/4" CW. 16" A.F.F. - CT SINK FAUCET(S)
P20	OPEN FLOOR SINK TO ACCEPT RINSE & SANITIZE SINK DRAINS
P21	2" W. 12" A.F.F. - CT SOILED SINK DRAIN & RUN TO GREASE TRAP
P22	GREASE TRAP - VERIFY REQUIREMENTS W/ LOCAL/STATE CODES
P23	OPEN FLOOR SINK FOR KETTLE STAND DRAIN
P24	1/2" HW. 12" A.F.F. - CT KETTLE FILL FAUCET
P25	3/4" CW. 12" A.F.F. - BT & CT KETTLE FILL FAUCET & COMBI STEAMERS
P26	OPEN FLOOR SINK TO ACCEPT COMBI OVEN/STEAMER DRAINS
P27	1" G. 18" A.F.F. - CT COMBI OVEN/STEAMER @ 82,000 BTU EACH - TOTAL 164,000 BTU
P28	3/4" G. 18" A.F.F. - CT CONVECTION OVEN @ 144,000 BTU
P29	3/4" G. 18" A.F.F. - CT RANGE @ 203,000 BTU
P30	1/2" HW. 30" A.F.F. - CT MOP SINK FAUCET
P31	1/2" CW. 30" A.F.F. - CT MOP SINK FAUCET
P32	2" W. IN FLOOR - CT MOP SINK DRAIN - VERIFY REQUIREMENTS W/ SUPPLIER
P33	PROVIDE NECESSARY GAS SUPPLY ON ROOF OF BLDG. FOR MAKE-UP AIR UNIT - VERIFY REQMTS. W/ SUPPLIER



PLUMBING GENERAL NOTES:

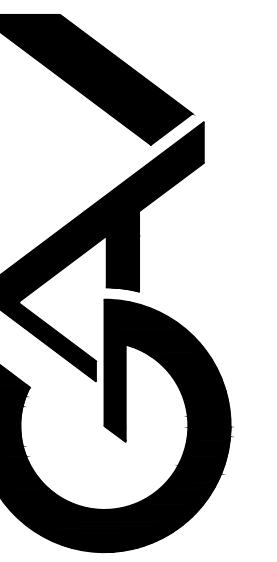
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ISSUED FOR	DATE
PROGRESS	7-26-22
PROGRESS	8-2-22
100% COORDINATION	8-12-22
PERMITS	8-17-22

ARCHITECTURAL DESIGN
RESIDENTIAL COMMERCIAL INDUSTRIAL

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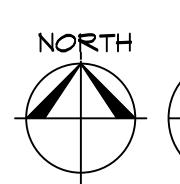
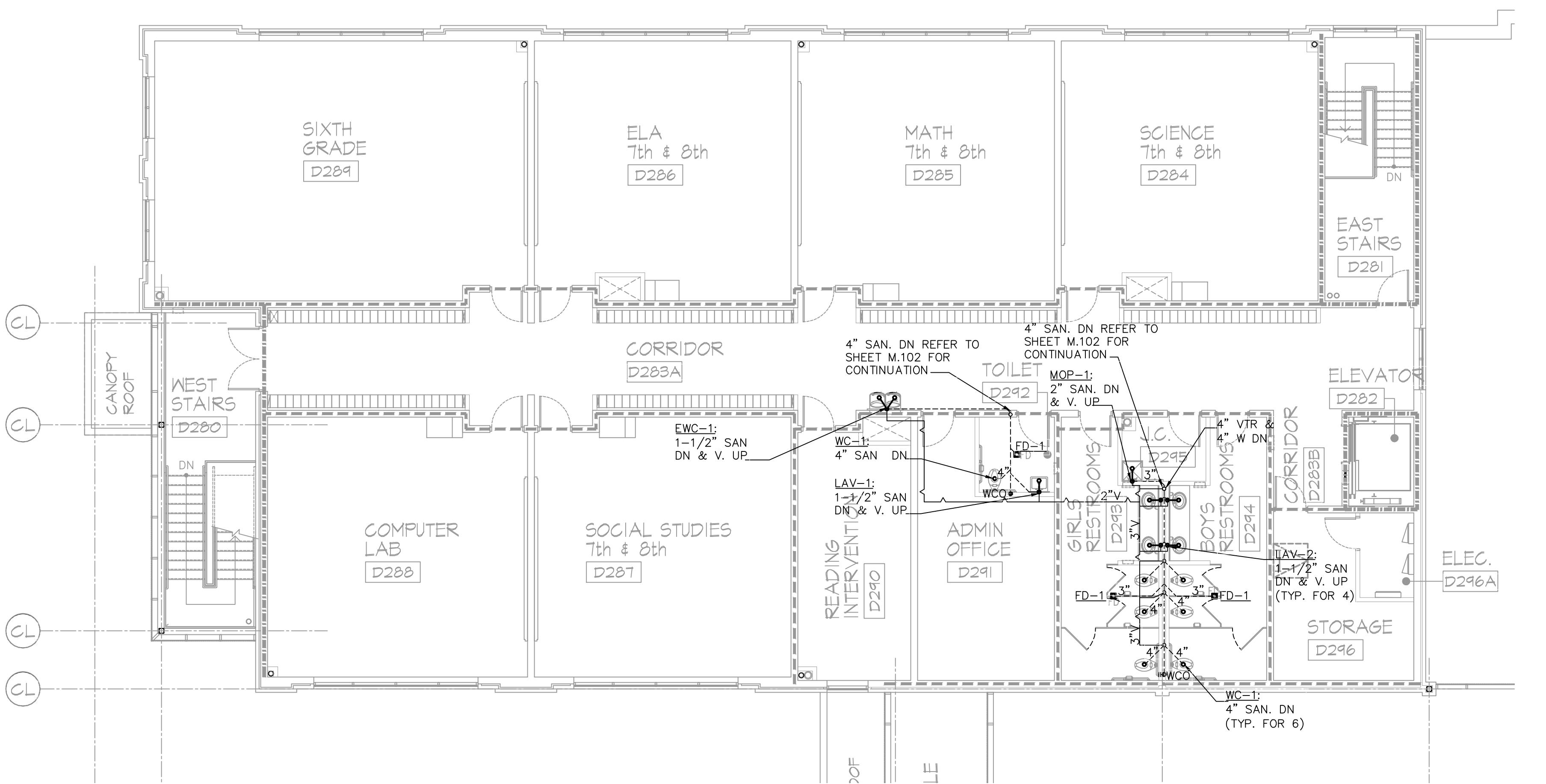
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TROY, MI 48098

DRAWN: JK DESIGNED: JM CHECKED: JM
SCALE :
FILE NAME : M104
JOB #: 22010
SHEET TITLE
PARTIAL SANITARY & VENT PLUMBING SECOND LEVEL FLOOR PLAN - AREA "D"
SHEET # M.104
JOSEPH A. MALKOUN, ENGINEER No. 42833
STATE OF MICHIGAN
PROFESSIONAL ENGINEER

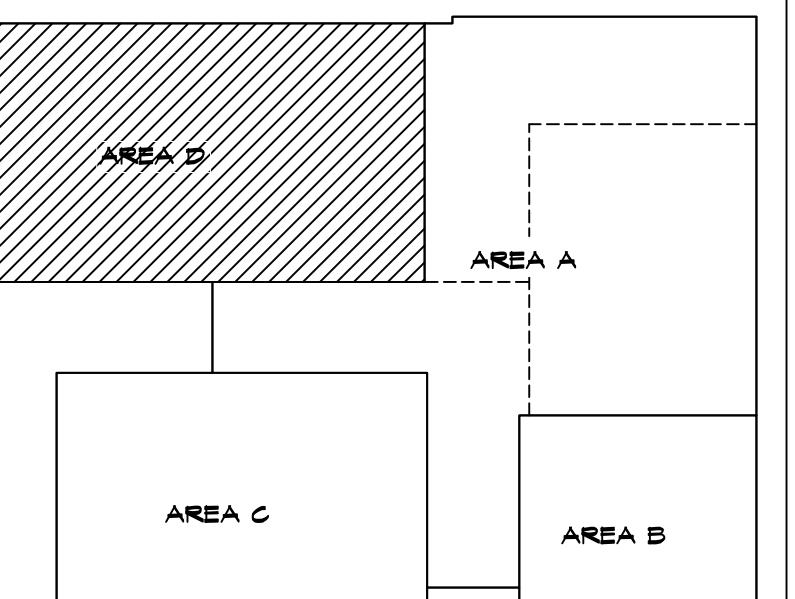
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10. PROVIDE SHUT OFF VALVE AT EACH FIXTURE AND EQUIPMENT. VALVES SHALL BE LINE SIZE UNLESS OTHERWISE NOTED.
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12. COORDINATE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
13. CLEAN FAUCET AERATORS AND PIPE STRAINERS PRIOR TO TURNING BUILDING OVER TO THE OWNER.
14. COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. INSTALL PIPING OVER ELECTRICAL PANELS.
15. COORDINATE ALL ROOF PENETRATIONS WITH OTHER TRADES. MAINTAIN 25' MINIMUM CLEARANCE FROM ALL AIR INTAKES. MAINTAIN 2' CLEARANCE FROM ALL OTHER EQUIPMENT.
16. WATER HAMMER ARRESTORS SHALL BE SIZE "A" UNLESS NOTED OTHERWISE.



NORTH
M104

PARTIAL SANITARY & VENT PLUMBING SECOND LEVEL FLOOR PLAN - AREA "D"
SCALE: 1/8" = 1'-0"



KEY PLAN
NO SCALE
NORTH

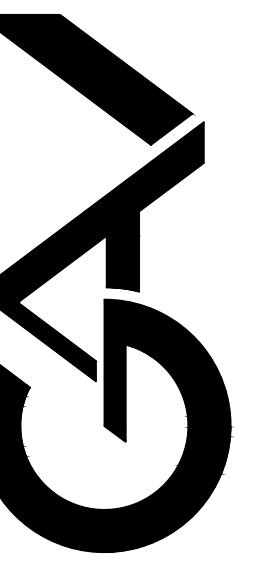


M.104

ISSUED FOR	DATE
PROGRESS	7-26-22
PROGRESS	8-2-22
100% COORDINATION	8-12-22
PERMITS	8-17-22

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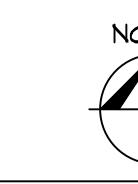
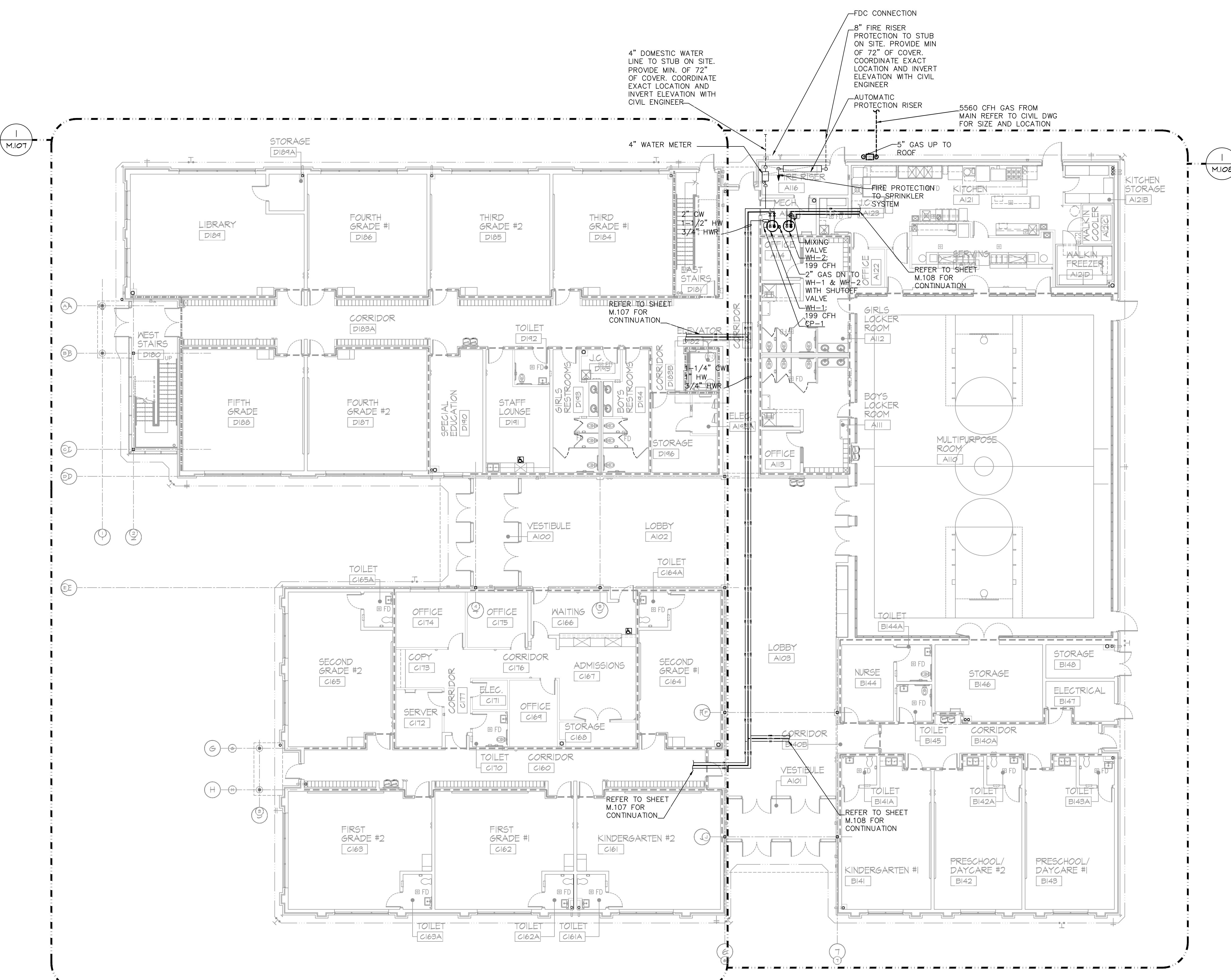
DRAWN: JK
DESIGNED: JK
CHECKED: JM

SCALE :
FILE NAME : M105
JOB #: 22010
SHEET TITLE
OVERALL DOMESTIC WATER & GAS PIPING GROUND LEVEL FLOOR PLAN
SHEET # M.105

KEY PLAN
NO SCALE
NORTH
STATE OF MICHIGAN
JOSEPH A. MALKOUN, ENGINEER
No. 42833
PROFESSIONAL ENGINEER

PLUMBING GENERAL NOTES:

1. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF THE WORK. PRIOR TO SUBMITTING BID, VISIT THE JOB SITE TO OBSERVE THE EXISTING CONDITIONS OF THE PROJECT. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
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5. PLANS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.
6. DO NOT SCALE FLOOR PLANS FOR EXACT HORIZONTAL LOCATION OF PIPE ROUTING.
7. PROVIDE TRANSITION ADAPTER COUPLINGS FOR CONNECTION OF PVC DWV TO CAST IRON SANITARY, WASTE AND VENT PIPE AT SLAB ON GRADE.
8. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.
9. INSTALL CONCEALED PIPING TIGHT TO THE STRUCTURE AND AS HIGH AS POSSIBLE. INSTALL EXPOSED PIPING TIGHT TO THE STRUCTURE, WALL OR CEILING AND AS HIGH AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS.
10. PROVIDE SHUT OFF VALVE AT EACH FIXTURE AND EQUIPMENT. VALVES SHALL BE LINE SIZE UNLESS OTHERWISE NOTED.
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12. COORDINATE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
13. CLEAN FAUCET AERATORS AND PIPE STRAINERS PRIOR TO TURNING BUILDING OVER TO THE OWNER.
14. COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. DO NOT INSTALL PIPING OVER ELECTRICAL PANELS.
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16. WATER HAMMER ARRESTORS SHALL BE SIZE "A" UNLESS NOTED OTHERWISE.

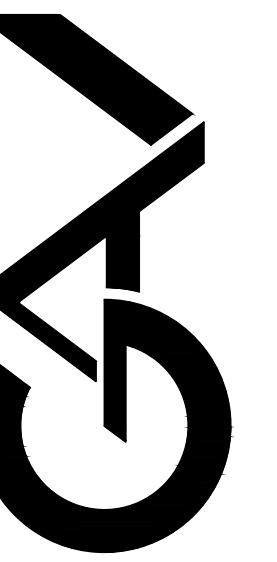


OVERALL DOMESTIC WATER & GAS PIPING GROUND LEVEL FLOOR PLAN
SCALE: 3/32" = 1'-0"

ISSUED FOR	DATE
PROGRESS	7-26-22
PROGRESS	8-2-22
100% COORDINATION	8-12-22
PERMITS	8-17-22

ARCHITECTURAL DESIGN
RESIDENTIAL COMMERCIAL INDUSTRIAL

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FARMINGTON HILLS, MICHIGAN 48336
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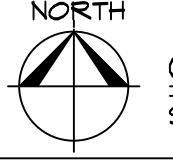
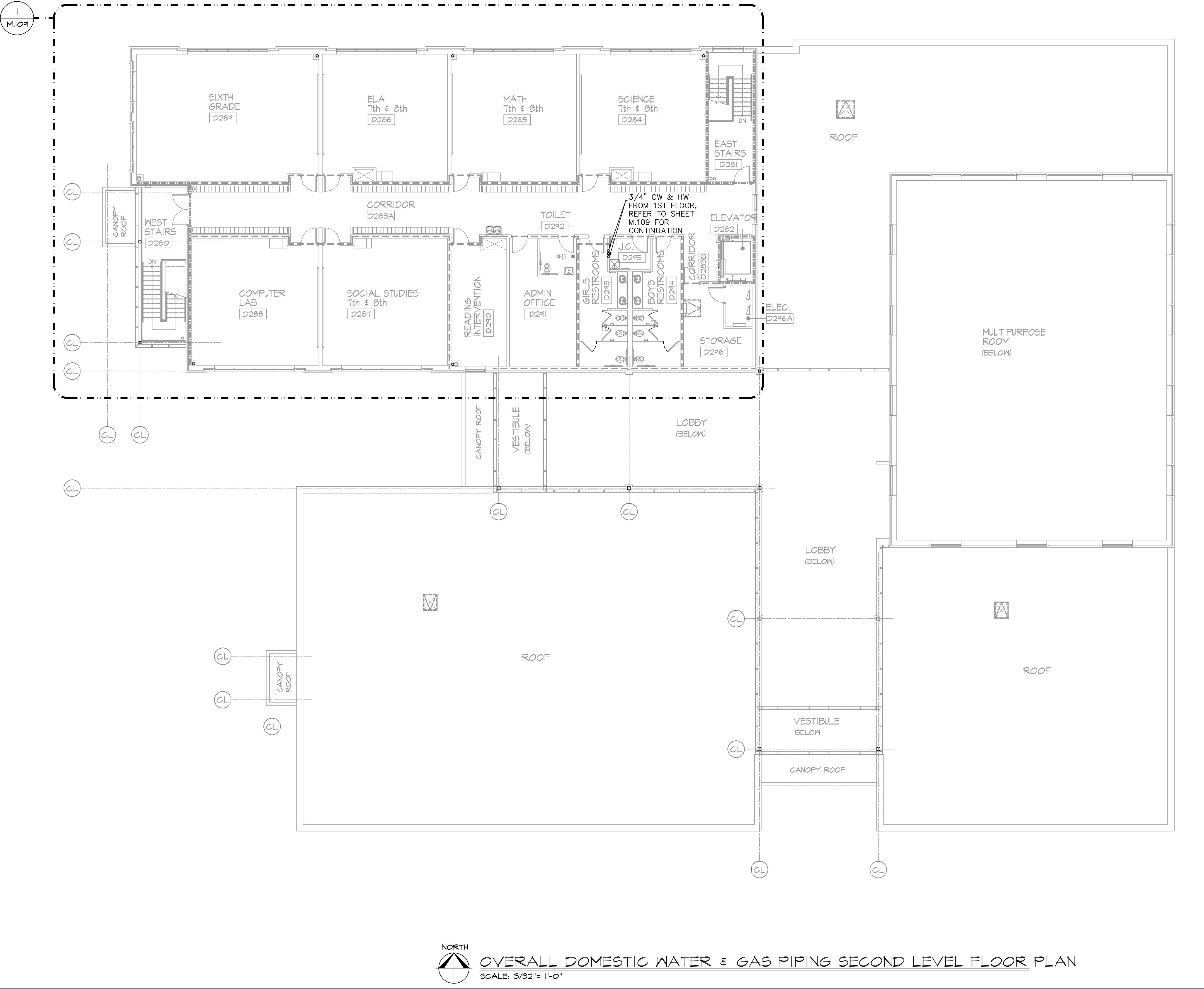
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TROY, MI 48098
586-365-5000

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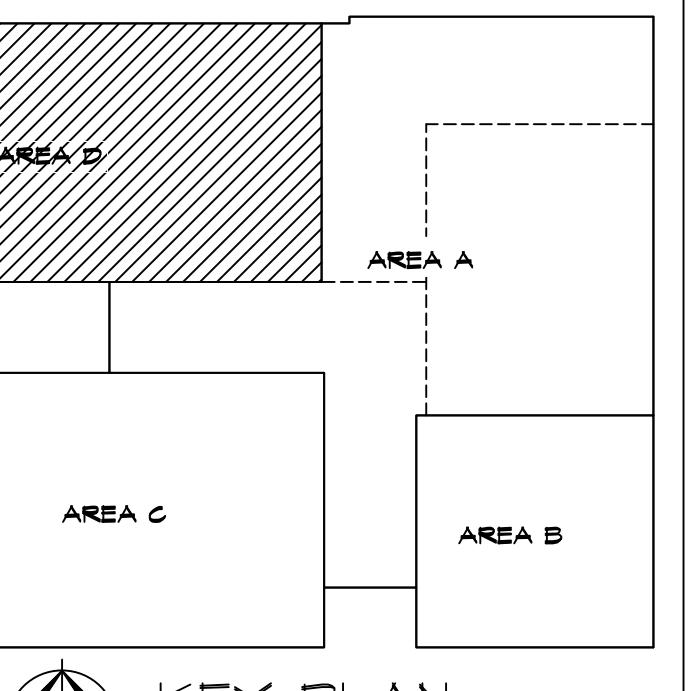
DRAWN: JK DESIGNED: JM CHECKED: JM
SCALE :
FILE NAME : M106
JOB #: 22010
SHEET TITLE
OVERALL DOMESTIC WATER & GAS PIPING SECOND LEVEL FLOOR PLAN SHEET #
STATE OF MICHIGAN
JOSEPH A. MALKOUN ENGINEER No. 42833
PROFESSIONAL ENGINEER

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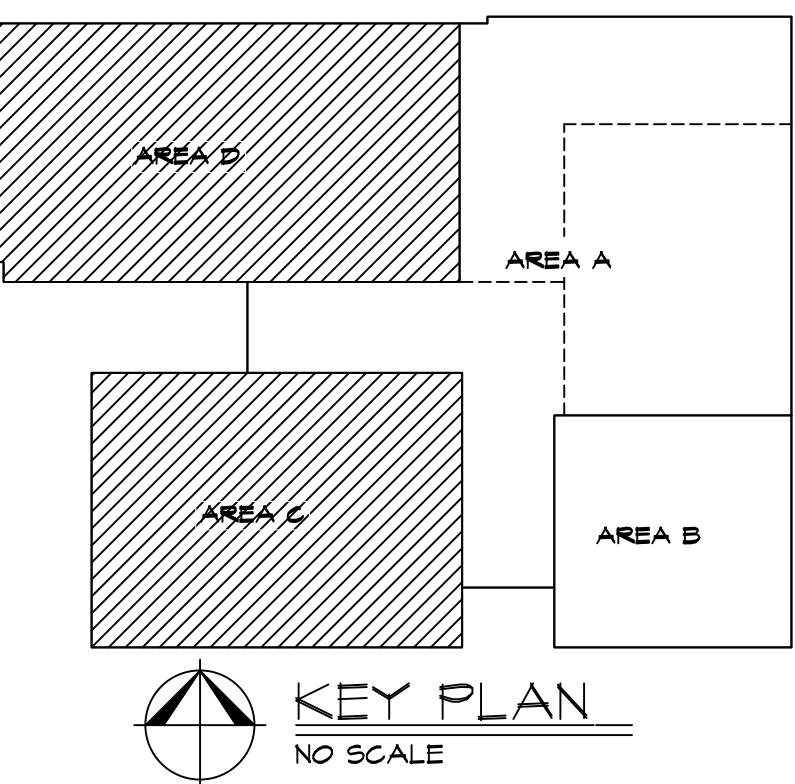
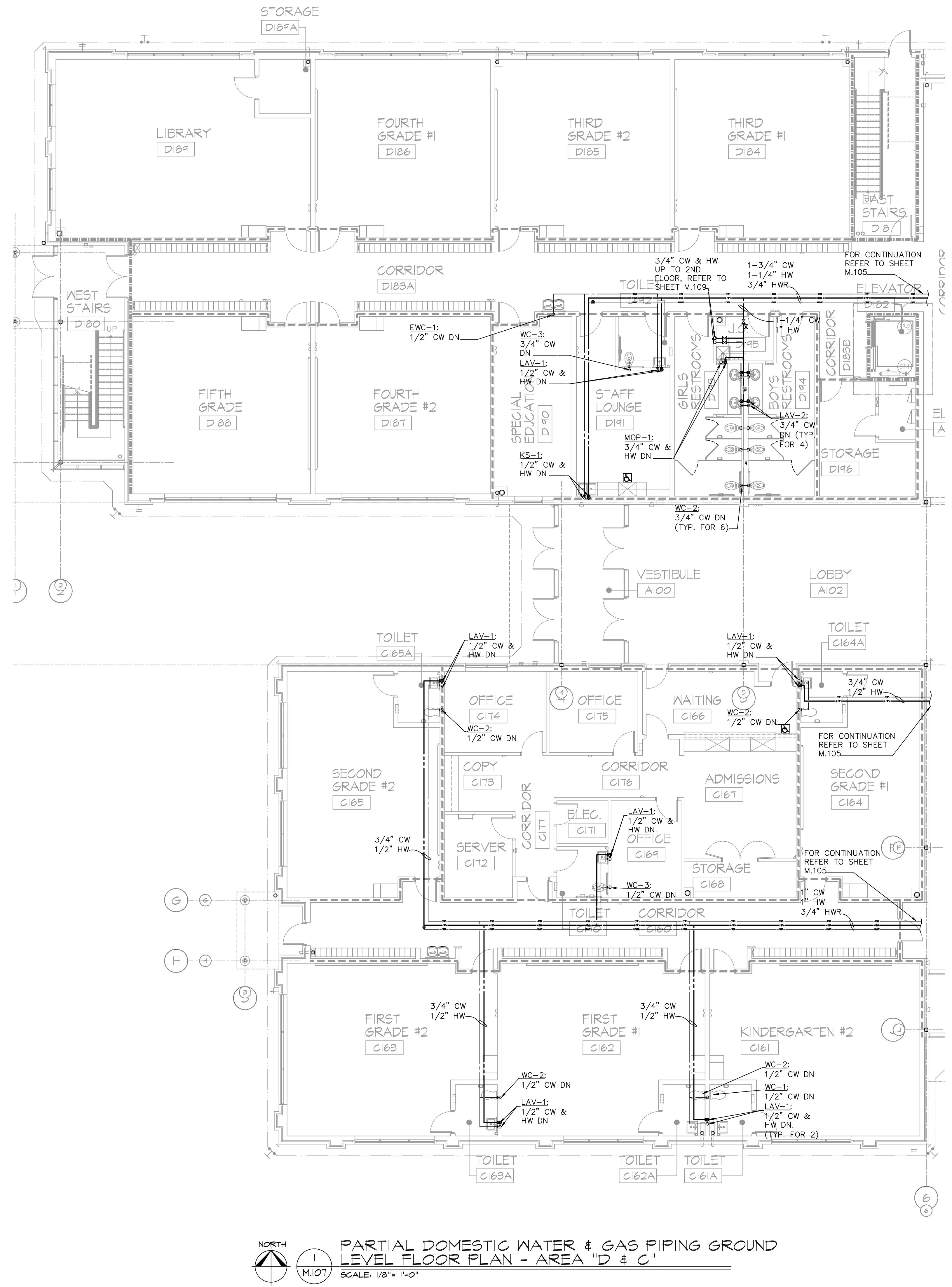
NORTH
OVERALL DOMESTIC WATER & GAS PIPING SECOND LEVEL FLOOR PLAN
SCALE: 3/32" = 1'-0"



KEY PLAN
NO SCALE
NORTH



M.106

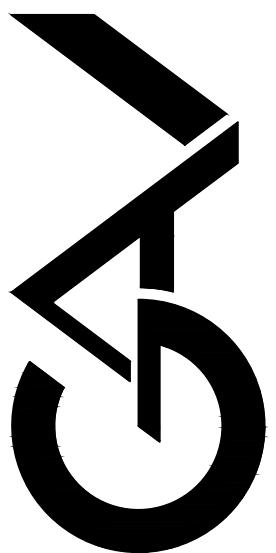


M.107

ISSUED FOR	DATE
PROGRESS	7-26-22
PROGRESS	8-2-22
100% COORDINATION	8-12-22
PERMITS	8-17-22

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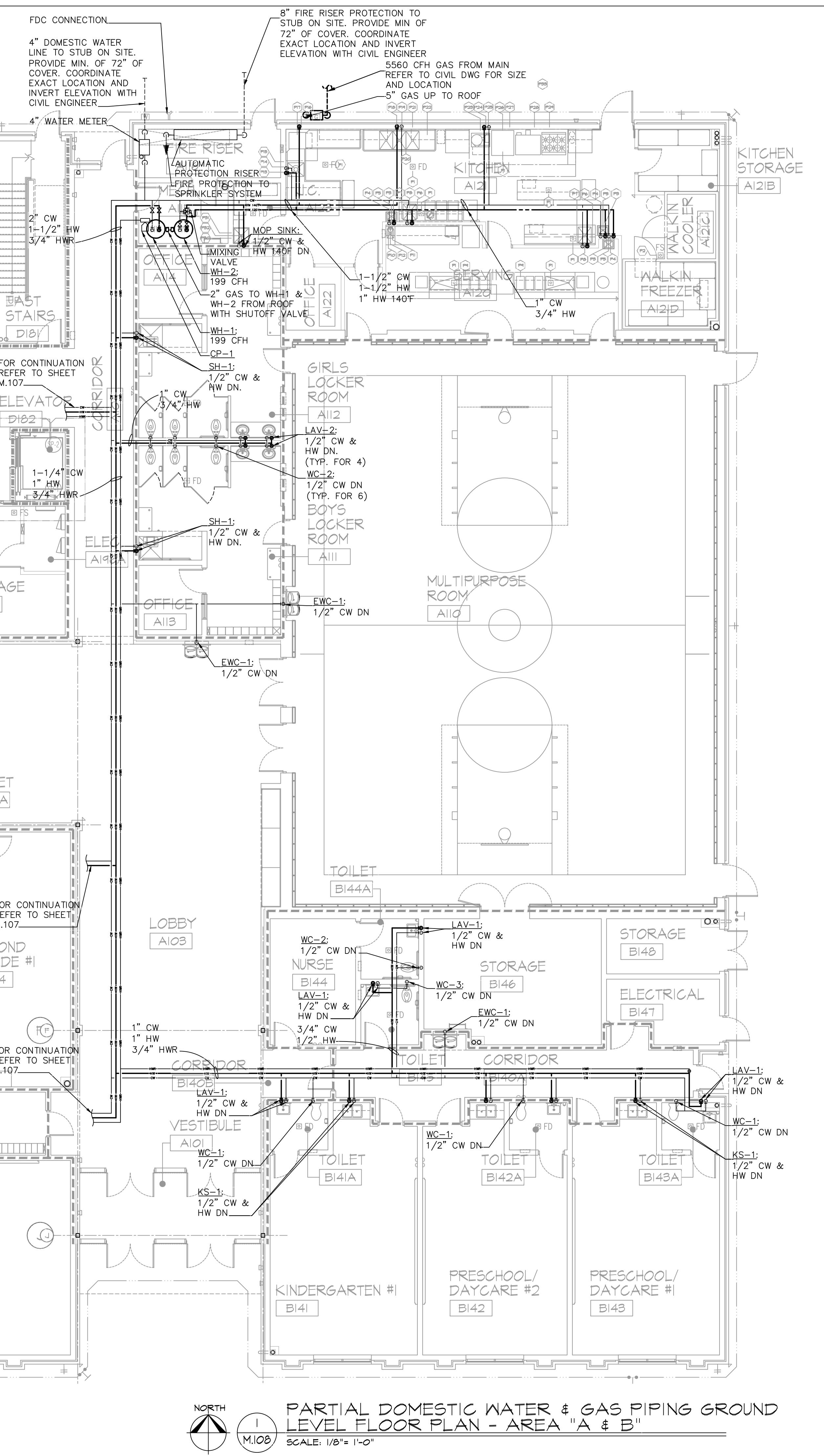


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DRAWN: JK DESIGNED: JM CHECKED: JM
SCALE :
FILE NAME : M108
JOB #: 22010
SHEET TITLE
PARTIAL DOMESTIC WATER & GAS PIPING GROUND LEVEL FLOOR PLAN - AREA 'A' & 'B'
JOSEPH A. MALKOUN, ENGINEER No. 42833
STATE OF MICHIGAN
PROFESSIONAL ENGINEER
SHEET # M.108

P1	FLOOR DRAIN
P2	FLOOR DRAIN W/ FUNNEL TO ACCEPT WALK-IN COOLER/FREEZER CONDENSATE DRAIN LINES
P3	1/2" HW. 20" A.F.F. - CT HAND SINK FAUCET
P4	1/2" CW. 20" A.F.F. - CT HAND SINK FAUCET
P5	1 1/2" W. 16" A.F.F. - CT HAND SINK DRAIN
P6	1/2" HW 16" A.F.F. - CT PREPARATION SINK FAUCET
P7	1/2" CW 16" A.F.F. - CT PREPARATION SINK FAUCET
P8	OPEN FLOOR SINK FOR PREPARATION SINK DRAIN LINE
P9	OPEN FLOOR SINK FOR HOT & COLD SERVING UNITS DRAIN LINES
P10	1/2" HW. 20" A.F.F. - CT HAND SINK FAUCET
P11	1/2" CW. 20" A.F.F. - CT HAND SINK FAUCET
P12	1 1/2" W. 16" A.F.F. - CT HAND SINK DRAIN
P13	1/2" HW. 20" A.F.F. - CT PRE-RINSE FAUCET
P14	3/4" CW. 20" A.F.F. - CT PRE-RINSE FAUCET, SOLENOID VALVE & DISPOSER
P15	2" W. 12" A.F.F. - CT DISPOSER
P16	3/4" HW 73" A.F.F. - CT DISHWASHER
P17	OPEN FLOOR SINK FOR DISHWASHER DRAIN LINE
P18	3/4" HW 16" A.F.F. - CT SINK FAUCET(S)
P19	3/4" CW. 16" A.F.F. - CT SINK FAUCET(S)
P20	OPEN FLOOR SINK TO ACCEPT RINSE & SANITIZE SINK DRAINS
P21	2" W. 12" A.F.F. - CT SOILED SINK DRAIN & RUN TO GREASE TRAP
P22	GREASE TRAP - VERIFY REQUIREMENTS W/ LOCAL/STATE CODES
P23	OPEN FLOOR SINK FOR KETTLE STAND DRAIN
P24	1/2" HW. 12" A.F.F. - CT KETTLE FILL FAUCET
P25	3/4" CW. 12" A.F.F. - BT & CT KETTLE FILL FAUCET & COMBI STEAMERS
P26	OPEN FLOOR SINK TO ACCEPT COMBI OVEN/STEAMER DRAINS
P27	1" G. 18" A.F.F. - CT COMBI OVEN/STEAMER @ 82,000 BTU EACH - TOTAL 164,000 BTU
P28	3/4" G. 18" A.F.F. - CT CONVECTION OVEN @ 144,000 BTU
P29	3/4" G. 18" A.F.F. - CT RANGE @ 203,000 BTU
P30	1/2" HW. 30" A.F.F. - CT MOP SINK FAUCET
P31	1/2" CW. 30" A.F.F. - CT MOP SINK FAUCET
P32	2" W. IN FLOOR - CT MOP SINK DRAIN - VERIFY REQUIREMENTS W/ SUPPLIER
P33	PROVIDE NECESSARY GAS SUPPLY ON ROOF OF BLDG. FOR MAKE-UP AIR UNIT - VERIFY REQMTS. W/ SUPPLIER



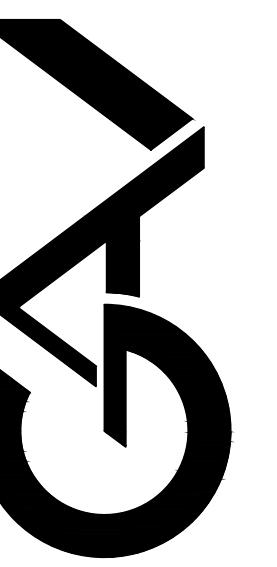
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PROGRESS	8-2-22
100% COORDINATION	8-12-22
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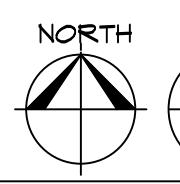
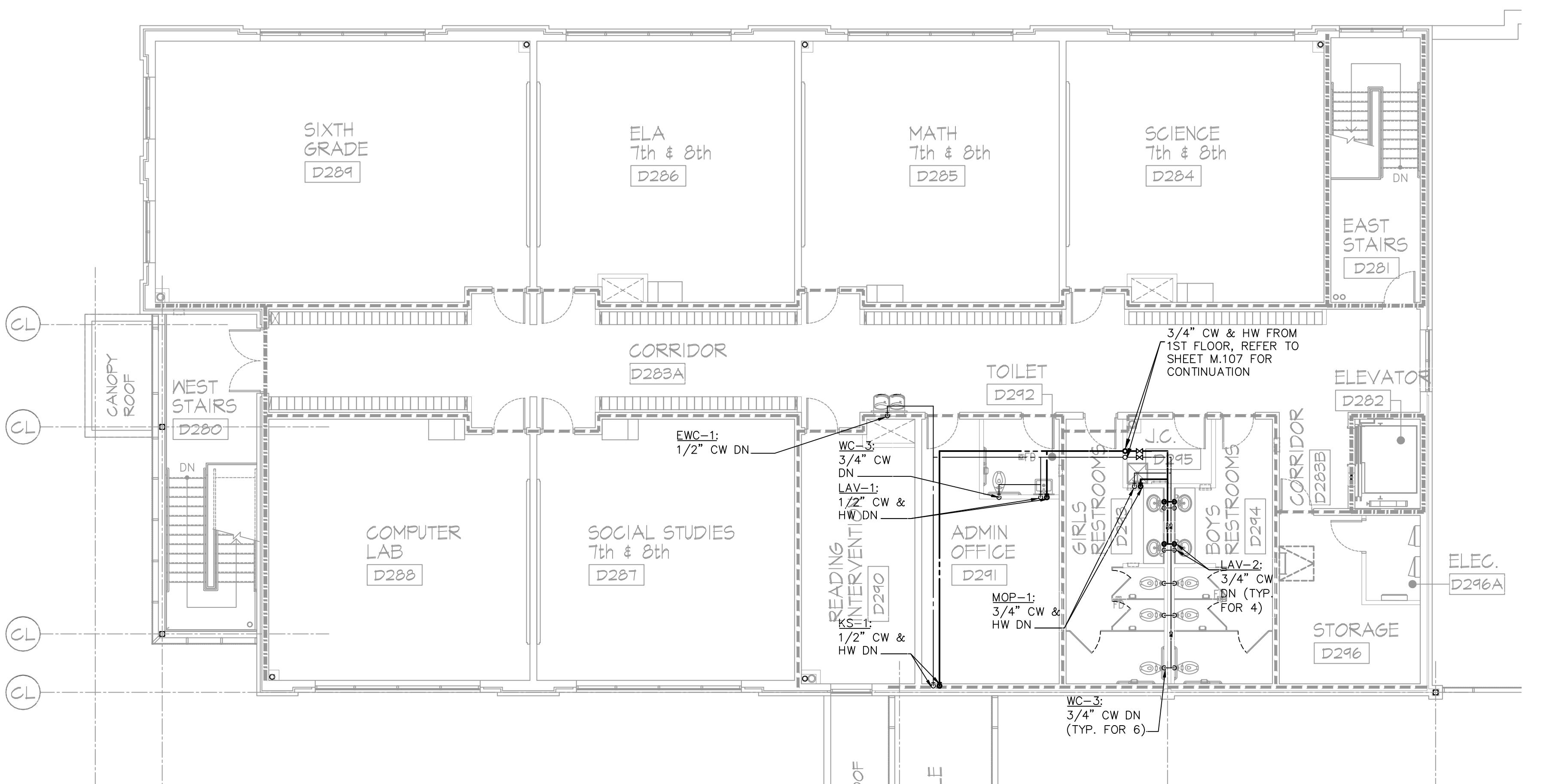
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TROY, MI 48098

DRAWN:	DESIGNED:	CHECKED:
JK	JK	JM
SCALE :		
FILE NAME : M109		
JOB # : 22010		
SHEET TITLE		
PARTIAL DOMESTIC WATER & GAS PIPING SECOND		
FLOOR PLAN - AREA "D"		
SHEET #		
JOSEPH A. MALKOUN ENGINEER No. 42833 PROFESSIONAL ENGINEER STATE OF MICHIGAN 1977*		

M.109

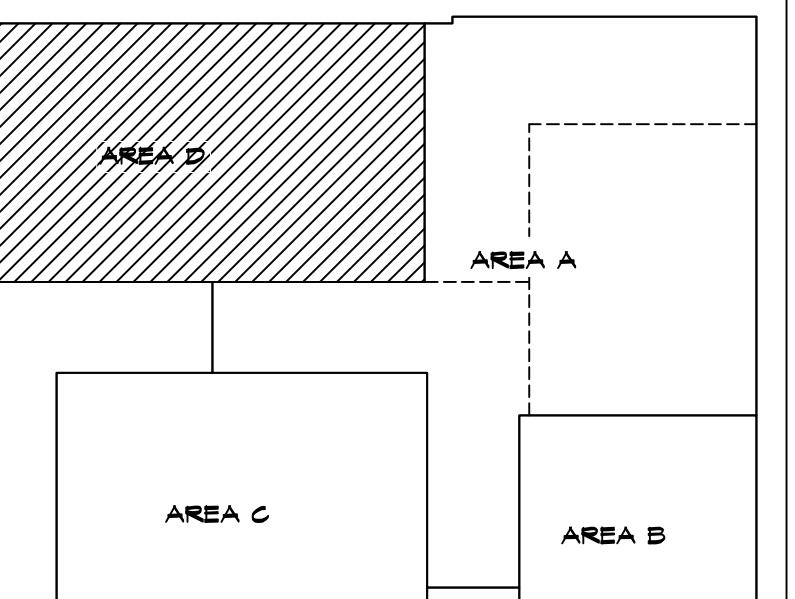
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M109

PARTIAL DOMESTIC WATER & GAS PIPING SECOND
LEVEL FLOOR PLAN - AREA "D"
SCALE: 1/8" = 1'-0"

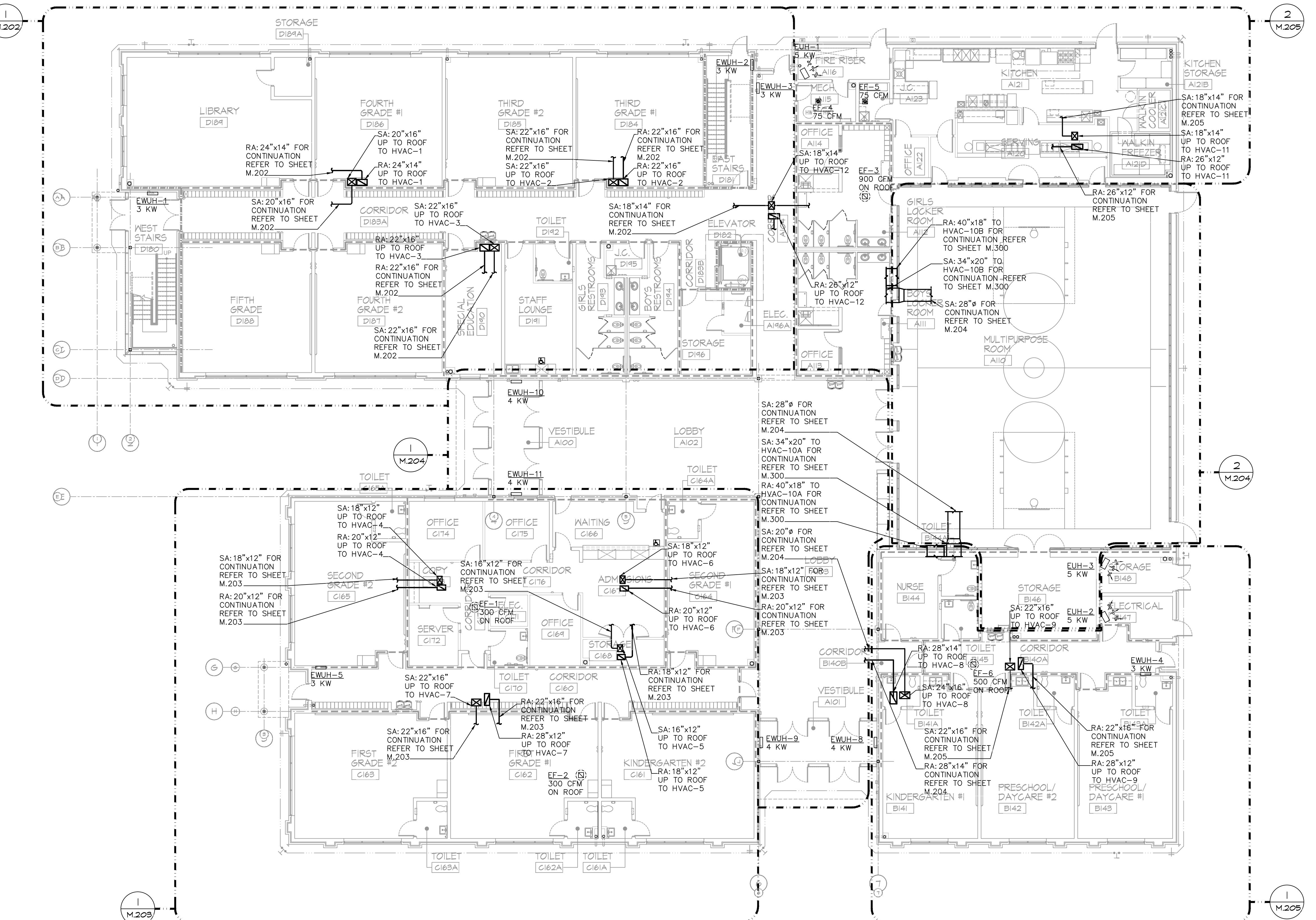


KEY PLAN
NO SCALE
NORTH

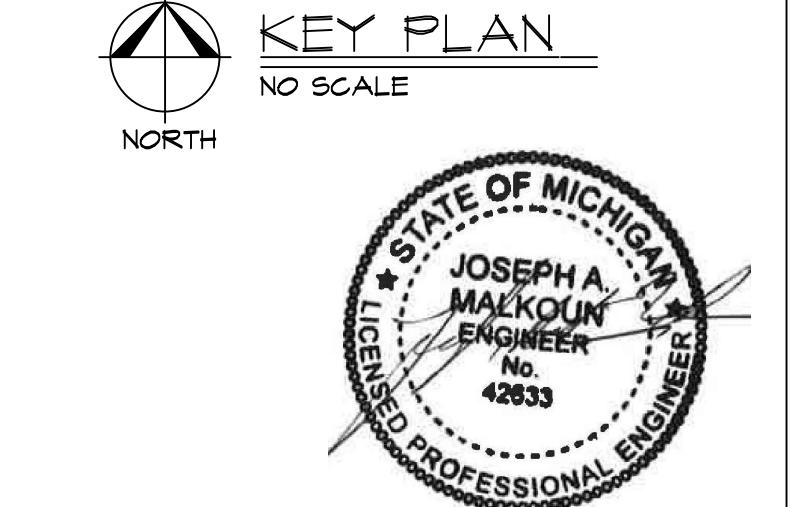
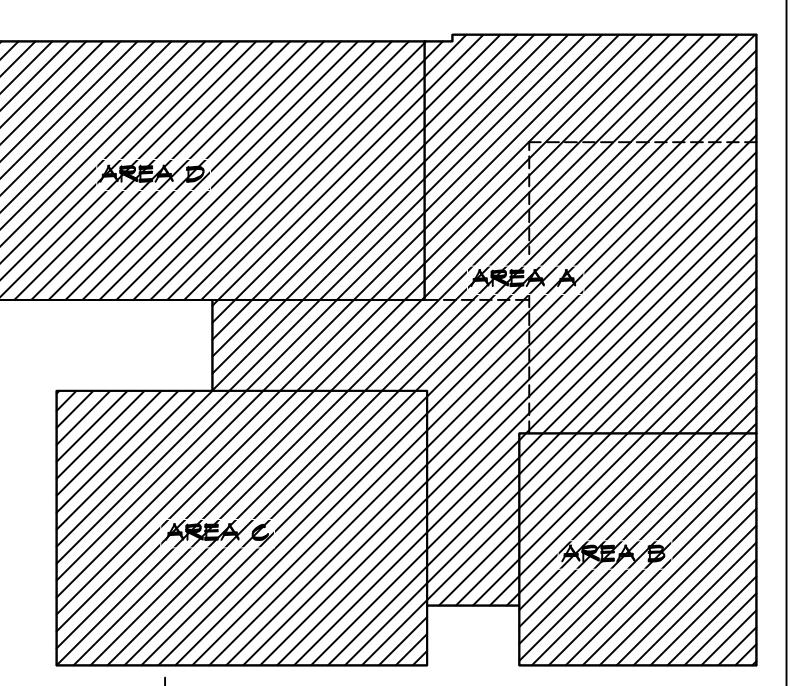


MECHANICAL GENERAL NOTES:

- COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.
- ALL NEW MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED.
- REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR DUCTWORK AND PIPING MEET REQUIREMENTS.
- OVERHEAD HANGERS AND SUPPORTERS FOR EQUIPMENT, DUCTWORK, AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.
- SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
- COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS, AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL, AND DUCT INSTALLATION REQUIREMENTS.
- ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.
- PROVIDE A PREFABRICATED RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT FOR BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS AND GRILLES.
- BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
- REFER TO SPECIFICATIONS FOR DUCTWORK AND PIPING INSULATION REQUIREMENTS. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS.
- Flexible ductwork shall not exceed 5'-0" in length and shall be installed and supported to avoid sharp bends and sagging. Refer to specifications for additional requirements.
- In exposed area (no ceiling). provide prefabricated spiral round duct of sizes as shown on dwg unless otherwise noted.
- Coordinate location of equipment supporters with location of equipment access panels/doors to enable service of equipment and/or filter replacement.
- Provide 1/2" undercut doors for all the interior restrooms to allow make up air thru the rooms.



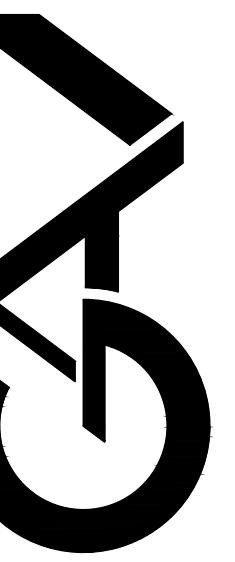
NORTH
OVERALL HVAC GROUND LEVEL FLOOR PLAN
SCALE: 3/32" = 1'-0"



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PROGRESS	8-2-22
100% COORDINATION	8-12-22
PERMITS	8-17-22

ARCHITECTURAL DESIGN
RESIDENTIAL COMMERCIAL INDUSTRIAL

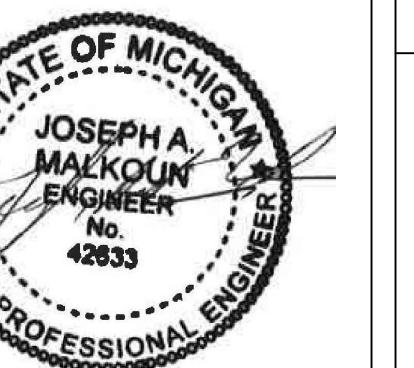
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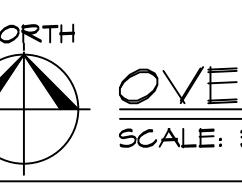
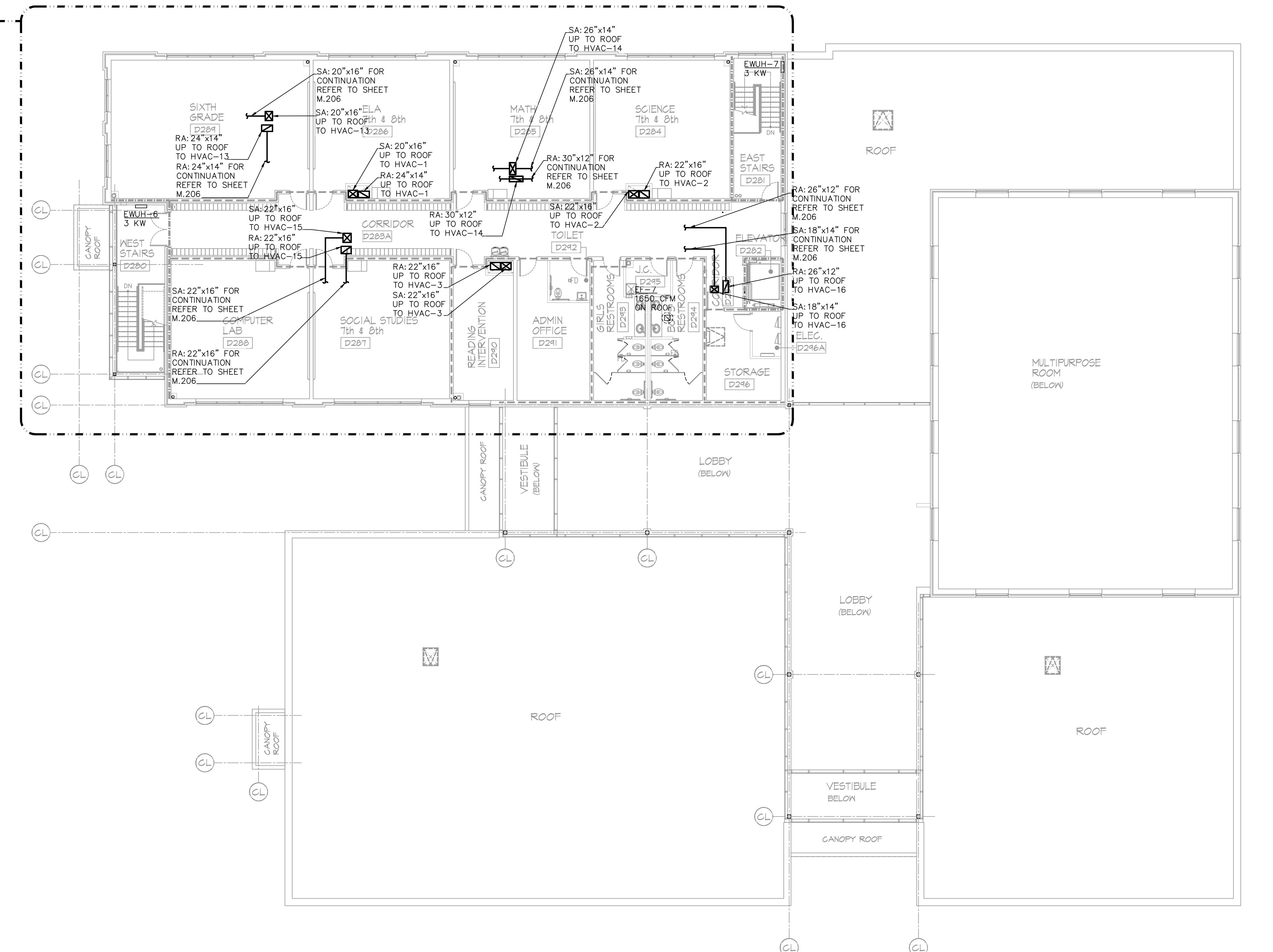
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4050 COOLIDGE HLY
TROY, MI 48098

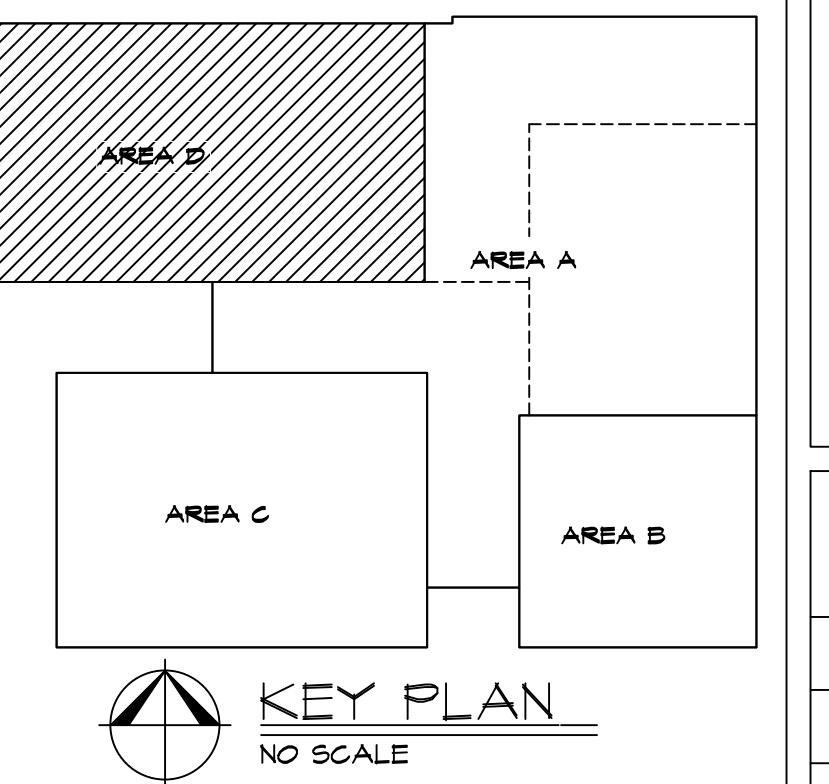
DRAWN:	DESIGNED:	CHECKED:
J.K.	J.K.	J.M.
SCALE :		
FILE NAME :	M.201	
JOB #:	22010	
SHEET TITLE	OVERALL HVAC SECOND LEVEL FLOOR PLAN	
		
SHEET #		
M.201		

MECHANICAL GENERAL NOTES:

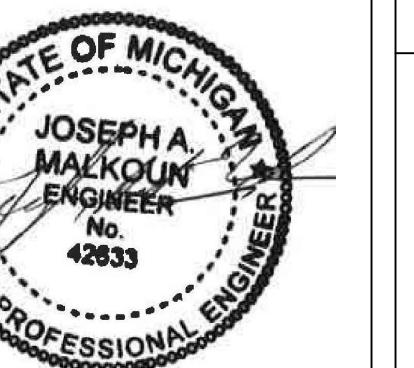
- COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.
- ALL NEW MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED.
- REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR DUCTWORK AND PIPING MEET REQUIREMENTS.
- OVERHEAD HANGERS AND SUPPORTERS FOR EQUIPMENT, DUCTWORK, AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.
- SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
- COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS, AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL, AND DUCT INSTALLATION REQUIREMENTS.
- ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.
- PROVIDE A PREFABRICATED RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT FOR BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS AND GRILLES.
- BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
- REFER TO SPECIFICATIONS FOR DUCTWORK AND PIPING INSULATION REQUIREMENTS. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS.
- Flexible ductwork shall not exceed 5'-0" in length and shall be installed and supported to avoid sharp bends and sagging. Refer to specifications for additional requirements.
- In exposed area (no ceiling), provide prefabricated spiral round duct of sizes as shown on DWG unless otherwise noted.
- Coordinate location of equipment supporters with location of equipment access panels/doors to enable service of equipment and/or filter replacement.
- Provide 1/2" undercut doors for all the interior restrooms to allow make up air thru the rooms.



OVERALL HVAC SECOND LEVEL FLOOR PLAN
SCALE: 3/32" = 1'-0"



KEY PLAN
NO SCALE
NORTH



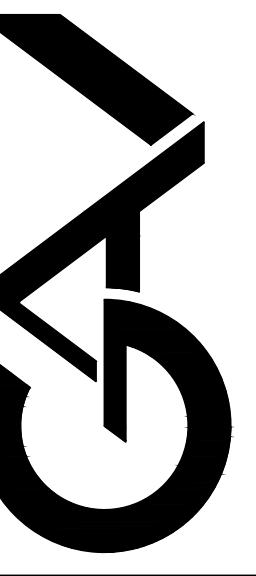
SHEET #

M.201

ISSUED FOR	DATE
PROGRESS	7-26-22
PROGRESS	8-2-22
100% COORDINATION	8-12-22
PERMITS	8-17-22

ARCHITECTURAL DESIGN
RESIDENTIAL COMMERCIAL INDUSTRIAL

G.A.V. ASSOCIATES, INC.
24001 ORCHARD LAKE, STE. 180A
FARMINGTON HILLS, MICHIGAN 48336
PH: (248) 985-9101
WEB: WWW.GAVASSOCIATES.COM



ASSOCIATES

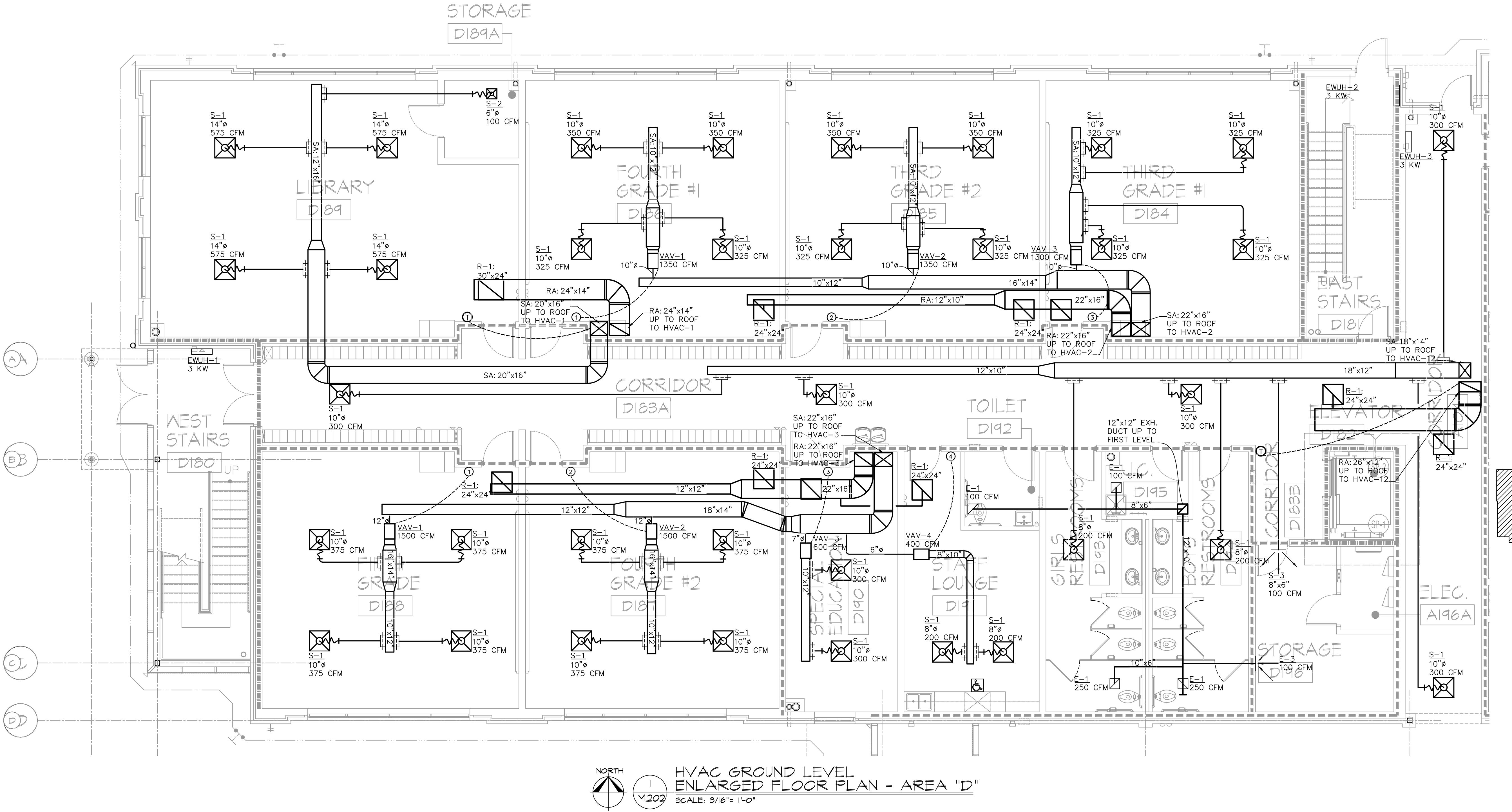
NOOR INTERNATIONAL ACADEMY
4050 COOLIDGE HLY
TROY, MI 48098
586-365-5000

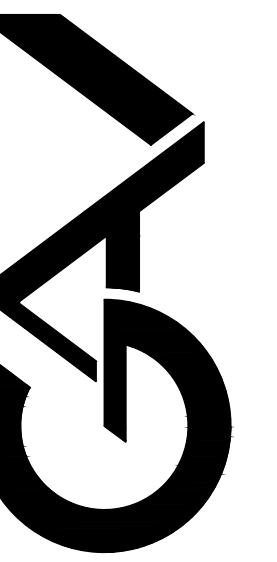
NOOR INTERNATIONAL ACADEMY
4050 COOLIDGE HLY
TROY, MI 48098

DRAWN: JK DESIGNED: JM CHECKED: JM
SCALE :
FILE NAME : M.202
JOB #: 22010
SHEET TITLE
HVAC GROUND LEVEL ENLARGED FLOOR PLAN
AREA "D" SHEET #
JOSEPH A. MALKOUN ENGINEER No. 42633
STATE OF MICHIGAN PROFESSIONAL ENGINEER
M.202

MECHANICAL GENERAL NOTES:

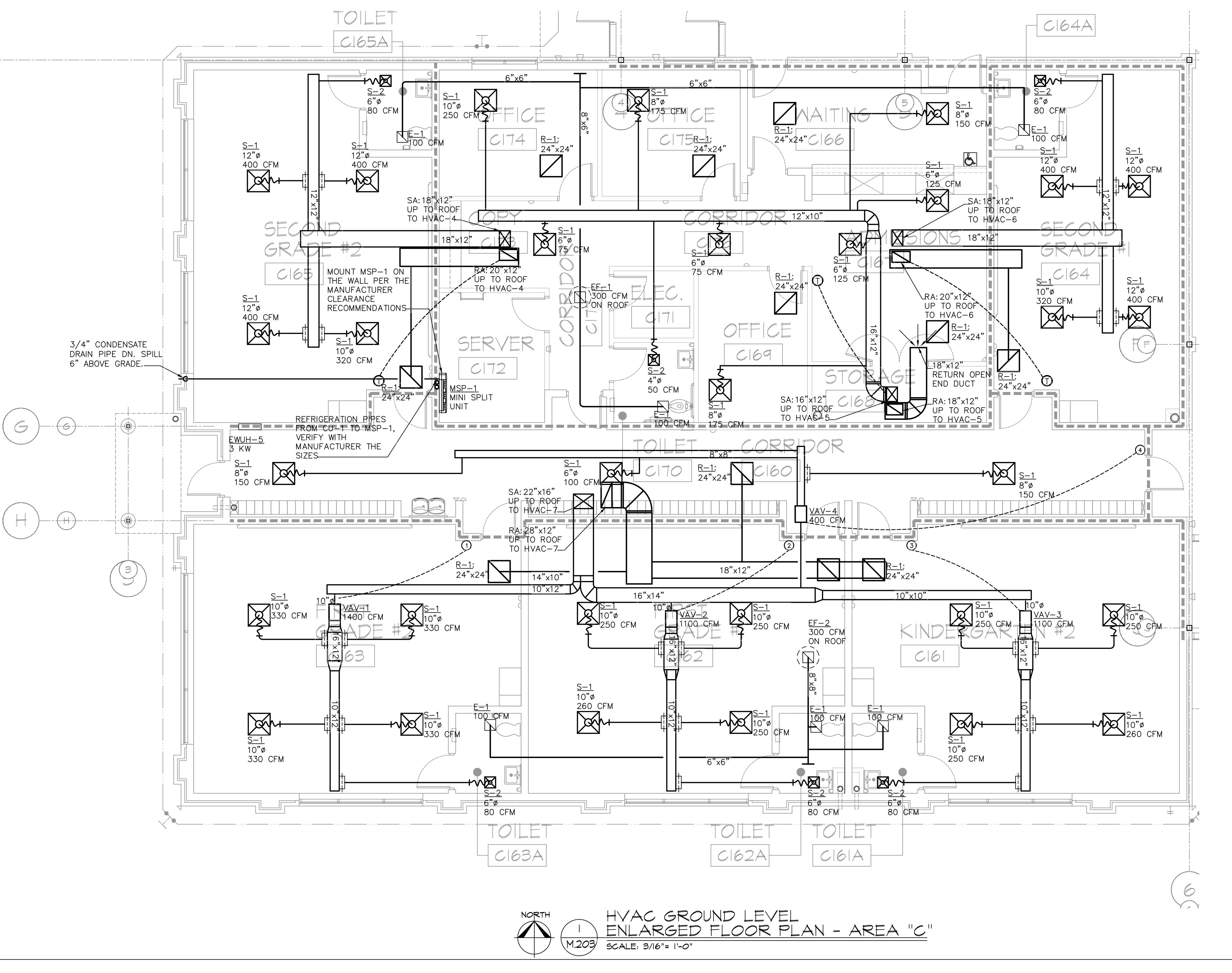
1. COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.
2. ALL NEW MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED.
3. REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR DUCTWORK AND PIPING MEET REQUIREMENTS.
4. OVERHEAD HANGERS AND SUPPORTERS FOR EQUIPMENT, DUCTWORK, AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.
5. SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
6. COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS, AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL, AND DUCT INSTALLATION REQUIREMENTS.
7. ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.
8. PROVIDE A PREFABRICATED RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT FOR BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS AND GRILLES.
9. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
10. REFER TO SPECIFICATIONS FOR DUCTWORK AND PIPING INSULATION REQUIREMENTS. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS.
11. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORTED TO AVOID SHARP BENDS AND SAGGING. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. IN EXPOSED AREA (NO CEILING). PROVIDE PREFABRICATED SPIRAL ROUND DUCT OF SIZES AS SHOWN ON DWG UNLESS OTHERWISE NOTED.
13. COORDINATE LOCATION OF EQUIPMENT SUPPORTERS WITH LOCATION OF EQUIPMENT ACCESS PANELS/DOORS TO ENABLE SERVICE OF EQUIPMENT AND/OR FILTER REPLACEMENT.
14. PROVIDE 1/2" UNDERCUT DOORS FOR ALL THE INTERIOR RESTROOMS TO ALLOW MAKE UP AIR THRU THE ROOMS.

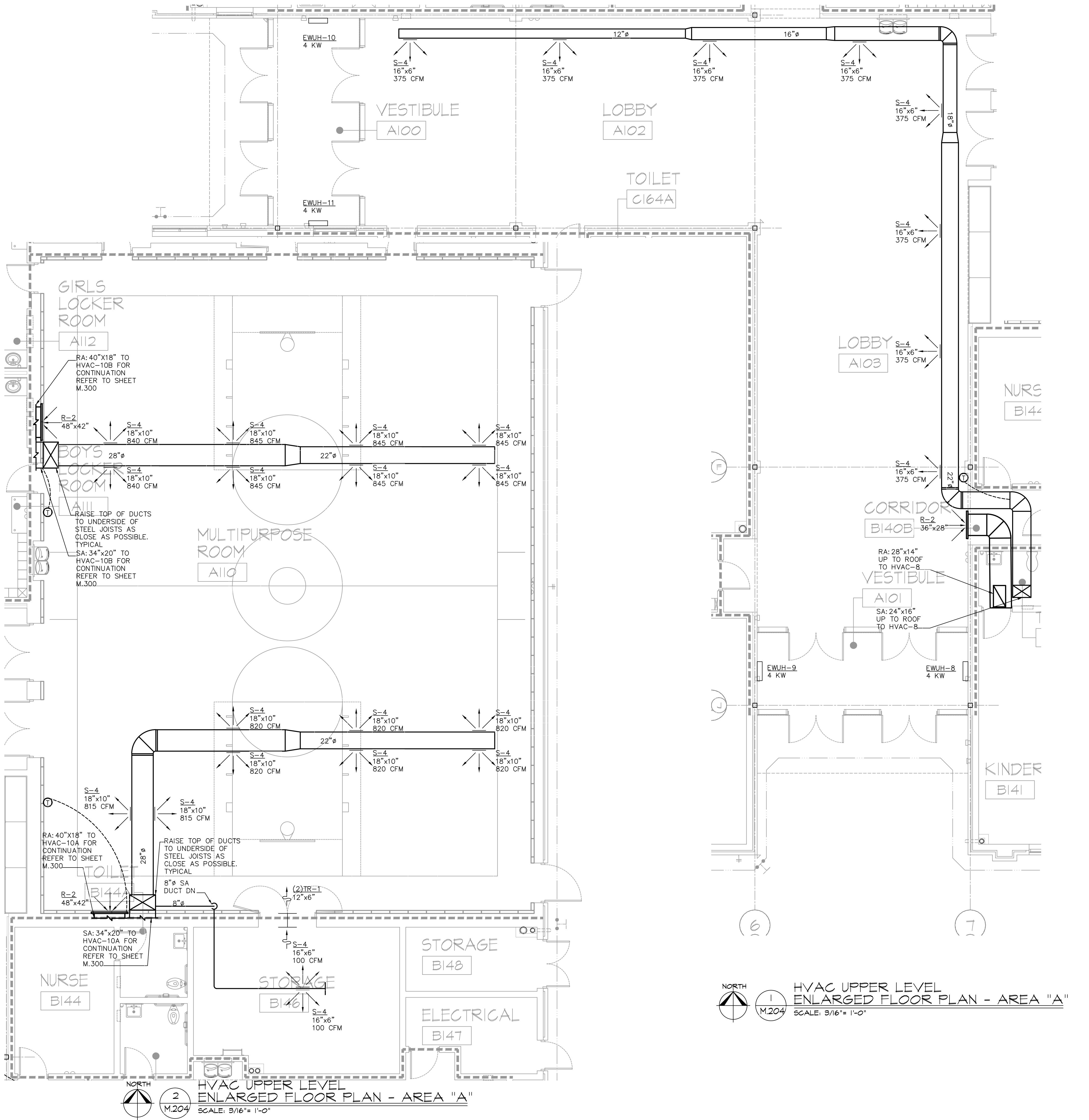




MECHANICAL GENERAL NOTES:

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- PROVIDE 1/2" UNDERCUT DOORS FOR ALL THE INTERIOR RESTROOMS TO ALLOW MAKE UP AIR THRU THE ROOMS.





MECHANICAL GENERAL NOTES:



MEP Engineers LLC

Mechanical | Electrical | Plumbing | Energy
380 North Main Street
Clawson, MI 48017
Tel: (248) 488-9822 Fax: (248) 488-9811
Web: www.mepmi.com Email: mep@mepmi.com

ARCHITECTURAL DESIGN

RESIDENTIAL

INDUSTRIAL
G.A.V. ASSOCIATES, INC.
24001 ORCHARD LAKE RD., STE. 180A
FARMINGTON, MICHIGAN 48336
PH: (248) 985-9101
WEB: WWW.GAVASSOCIATES.COM

The logo for GAI Associates consists of a large, bold, black graphic on the left. The graphic is composed of several thick black lines forming a stylized letter 'G' at the bottom, which is partially enclosed by a larger 'A' shape above it. To the right of this graphic, the word "GAI" is written vertically in a bold, sans-serif font. Below "GAI", the word "ASSOCIATES" is also written vertically in a smaller, all-caps, sans-serif font.

NOOR INTERNATIONAL
ACADEMY
4050 COOLIDGE HWY
TROY, MI 48098
586-365-5000

NOOR INTERNATIONAL ACADEMY
4050 COOLDGE HWY
TROY, MI 48098

DRAWN: J.K.	DESIGNED: J.K.	CHECKED: J.M.
SCALE :		
FILE NAME : M.204		
JOB #: 22010		
SHEET TITLE		
HVAC GROUND LEVEL		
ENLARGED FLOOR PLAN		
AREA "A"		
SHEET #		
M.204		

**HVAC UPPER LEVEL
ENLARGED FLOOR PLAN - AREA "A"**

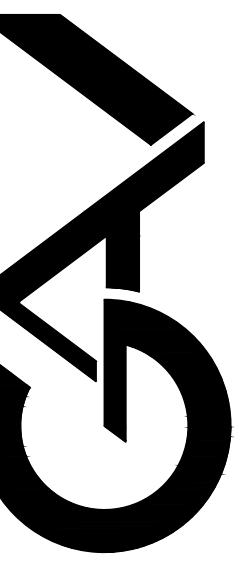
M.204

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

ISSUED FOR	DATE
PROGRESS	7-26-22
PROGRESS	8-2-22
100% COORDINATION	8-12-22
PERMITS	8-17-22

ARCHITECTURAL DESIGN
RESIDENTIAL COMMERCIAL INDUSTRIAL

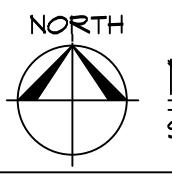
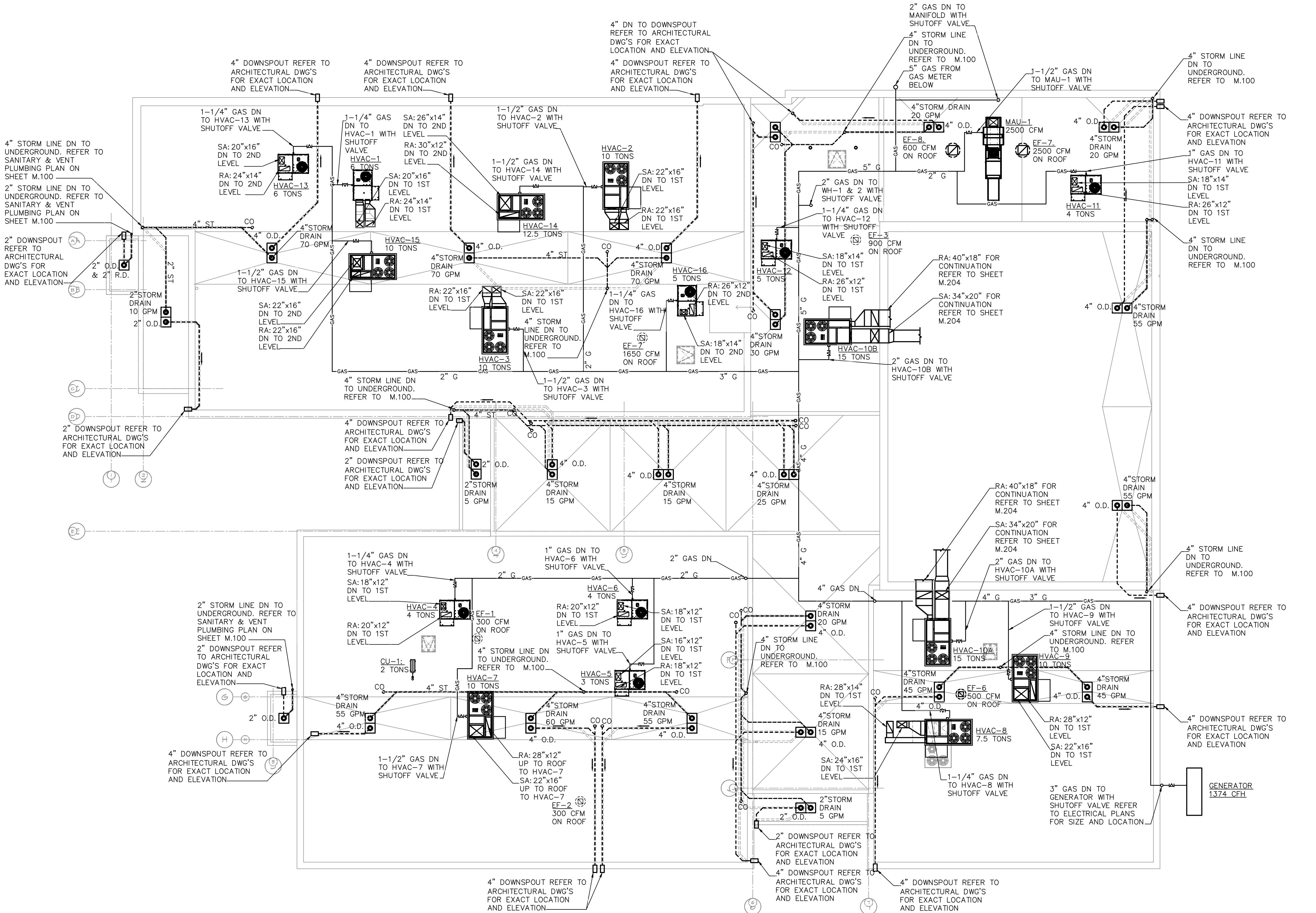
G.A.V. ASSOCIATES, INC.
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FARMINGTON HILLS, MICHIGAN 48336
PH: (248) 985-9101
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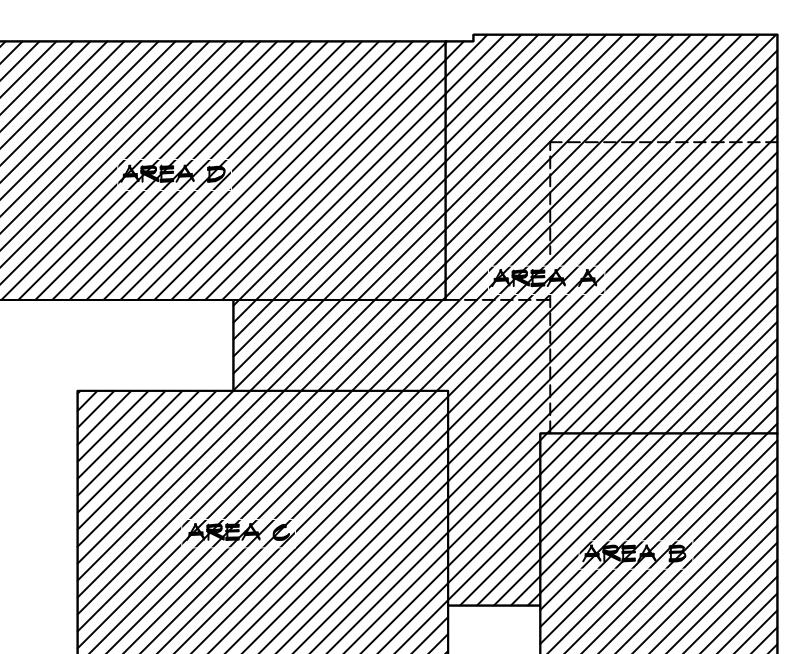
NOOR INTERNATIONAL ACADEMY
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TROY, MI 48098
586-365-5000

NOOR INTERNATIONAL ACADEMY
4050 COOLIDGE HWY
TROY, MI 48098

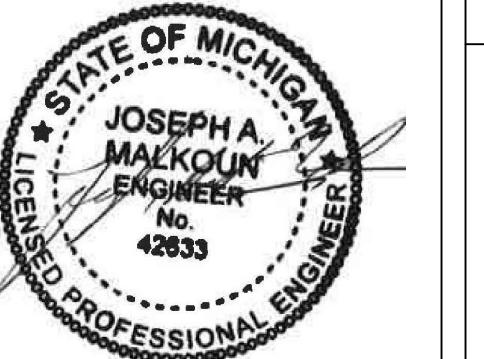
DRAWN:	JK	DESIGNED:	JM	CHECKED:	JM
SCALE :					
FILE NAME :	M.300				
JOB #:	22010				
SHEET TITLE	MECHANICAL ROOF PLAN				
MECHANICAL					
ROOF PLAN					
SHEET #					M.300



NORTH
MECHANICAL ROOF PLAN
SCALE: 3/32" = 1'-0"



KEY PLAN
NO SCALE
NORTH





PACKAGE ROOF TOP UNIT SCHEDULE																	
TAG	MANUFACTURER & MODEL NO.	AREA SERVED	NOMINAL CAPACITY		ELECTRICAL			HEATING DATA		COOLING DATA @ 95°F OAT			SUPPLY FAN DATA			WEIGHT (LB)	NOTES/ACCESSORIES
			TONS	MIN	V / PH / Hz	MCA (AMPS)	MAX. FUSE SIZE (AMPS)	INPUT MBH	OUTPUT MBH	TOTAL MBH	SENSIBLE MBH	EAT db/wb °F	CFM	ESP "WC	BHP	MIN OA	
HVAC-1	CARRIER/48FCM0719MS-0A2QO	SEE DWG	6	208/3/60	35	50	110	88	72.83	54.81	78.8/65.9	2400	1.38	1.85	480	1250	A,B,C,D,E,G,H,I,J,K,L,M,N
HVAC-2	CARRIER/48LCR12A3M5-1A2C0	SEE DWG	10	208/3/60	62	80	240	195	124.06	94.33	79.5/66.4	4000	1.64	3.67	1000	2500	A,B,C,D,E,G,H,I,J,K,L,M,N
HVAC-3	CARRIER/48LCR12A3M5-1A2C0	SEE DWG	10	208/3/60	62	80	240	195	124.06	94.33	79.5/66.4	4000	1.64	3.67	1000	2500	A,B,C,D,E,G,H,I,J,K,L,M,N
HVAC-4	CARRIER/48FCM0719MS-0W2Q0	SEE DWG	4	208/3/60	29	40	110	88	48.72	34.13	78.8/65.9	1600	1.24	1.22	320	1000	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-5	CARRIER/48FCM0719MS-0W2Q0	SEE DWG	3	208/3/60	25	30	67	54	35.2	24.88	78.8/65.9	1200	1.16	0.63	240	900	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-6	CARRIER/48FCM0719MS-0W2Q0	SEE DWG	4	208/3/60	29	40	67	54	48.72	34.13	78.8/65.9	1600	1.24	1.22	320	1000	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-7	CARRIER/48LCR12B3M5-1R2C0	SEE DWG	10	208/3/60	62	80	240	195	124.06	94.33	79.5/66.4	4000	1.64	3.85	1000	2250	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-8	CARRIER/48FCM0719MS-0W2Q0	SEE DWG	7.5	208/3/60	45	50	180	148	90.9	65.35	78.8/65.9	3000	1.31	2.21	600	1000	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-9	CARRIER/48LCR12B3M5-1R2C0	SEE DWG	10	208/3/60	62	80	240	195	124.06	94.33	79.5/66.4	4000	1.64	3.85	1000	2250	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-10A	CARRIER/48FCM11G1M5-0A2Q0	SEE DWG	15	208/3/60	77	100	350	284	190.11	145.66	79.5/66.4	6750	1.64	4.65	1688	2500	A,B,C,D,E,G,H,I,J,K,L,M,N
HVAC-10B	CARRIER/48FCM11G1M5-0A2Q0	SEE DWG	15	208/3/60	77	100	350	284	187.99	143.86	79.5/66.4	6750	1.48	4.9	1688	2500	A,B,C,D,E,G,H,I,J,K,L,M,N
HVAC-11	CARRIER/48FCM11G1M5-0A2Q0	SEE DWG	4	208/3/60	29	40	67	54	48.72	34.13	78.8/65.9	1600	1.24	1.22	320	1000	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-12	CARRIER/48FCM11G1M5-0A2Q0	SEE DWG	5	208/3/60	33	45	110	88	59.3	43.65	78.8/65.9	2000	1.35	1.62	400	1250	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-13	CARRIER/48FCM11G1M5-0A2Q0	SEE DWG	6	208/3/60	35	50	110	88	72.83	54.81	78.8/65.9	2400	1.37	2.03	480	1250	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-14	CARRIER/48LCB14B3M5-1S2C0	SEE DWG	12.5	208/3/60	88.3	100	220	178	152.98	116.43	79.5/66.4	5000	1.18	22.31	1250	3000	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-15	CARRIER/48LCR12B3M5-1R2C0	SEE DWG	10	208/3/60	62	80	240	195	124.06	94.33	79.5/66.4	4000	1.64	3.85	1000	2250	A,B,C,D,E,F,G,H,I,J,K,L,M
HVAC-16	CARRIER/48FCM11G1M5-0A2Q0	SEE DWG	5	208/3/60	33	45	110	88	59.3	43.65	78.8/65.9	2000	1.35	1.62	400	1250	A,B,C,D,E,F,G,H,I,J,K,L,M

NOTES AND ACCESSORIES DESIGNATION

A 18" HIGH ROOF CURB

B 2" THROWAWAY FILTERS-MERV 8

C 7-DAY PROGRAMMABLE STAT

D FACTORY MOUNTED COMBINATION STARTER / DISCONNECT SWITCH WITH SHUTDOWN CONTACTS

E SINGLE PORT POWER

F VERTICAL W/ ECONOMIZER & BAROMETRIC RELIEF

G STAINLESS STEEL Drip PAN

H CONVENIENCE OUTLET

I SMOKE DETECTORS

J STAINLESS STEEL HEAT EXCHANGER

K 0-100% ECON, DIFF ENTHALPY CONTROL WTRAQ

L BELT DRIVE

M MEDIUM HEAT

N HORIZONTAL FLOW W/ECONOMIZER & BAROMETRIC RELIEF

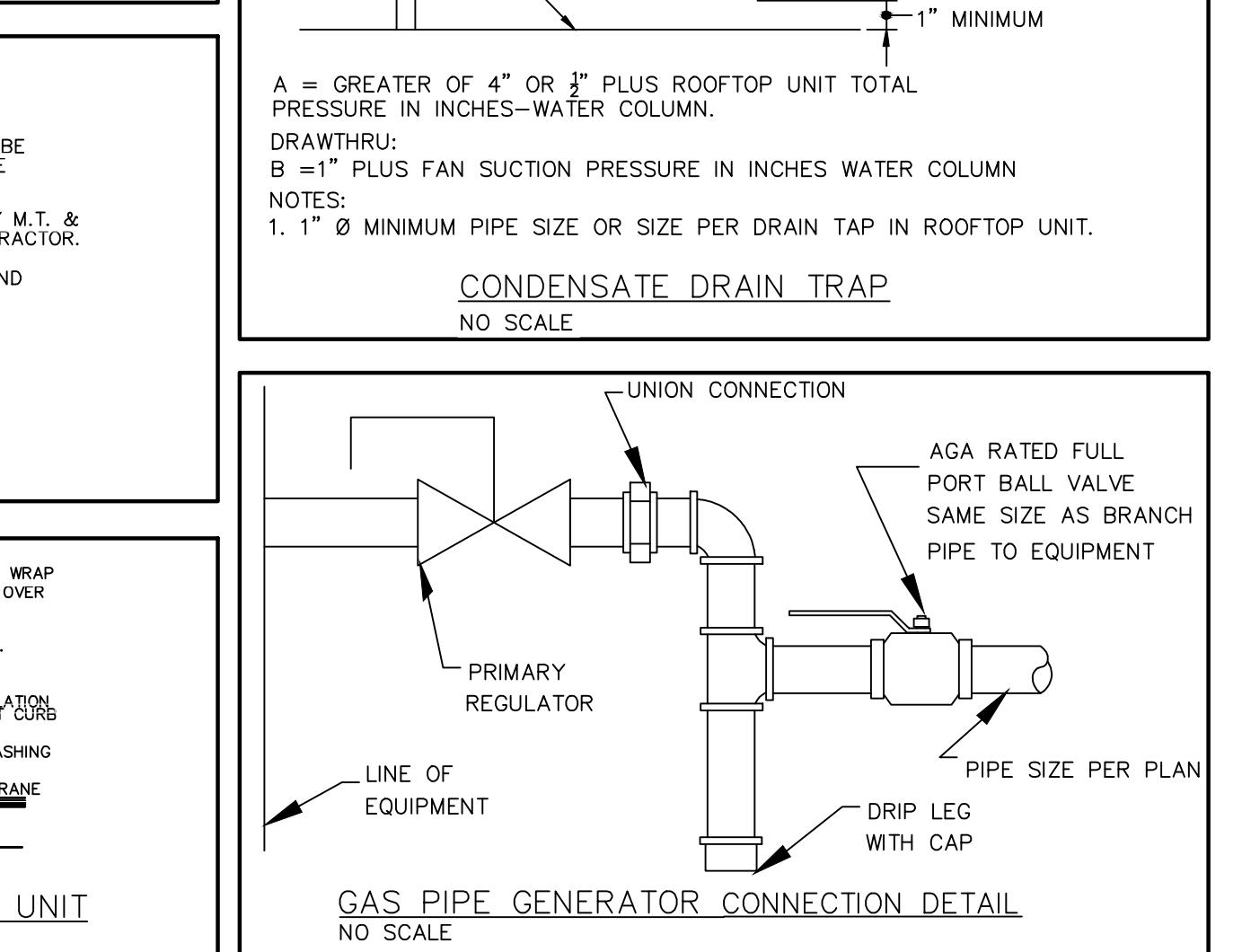
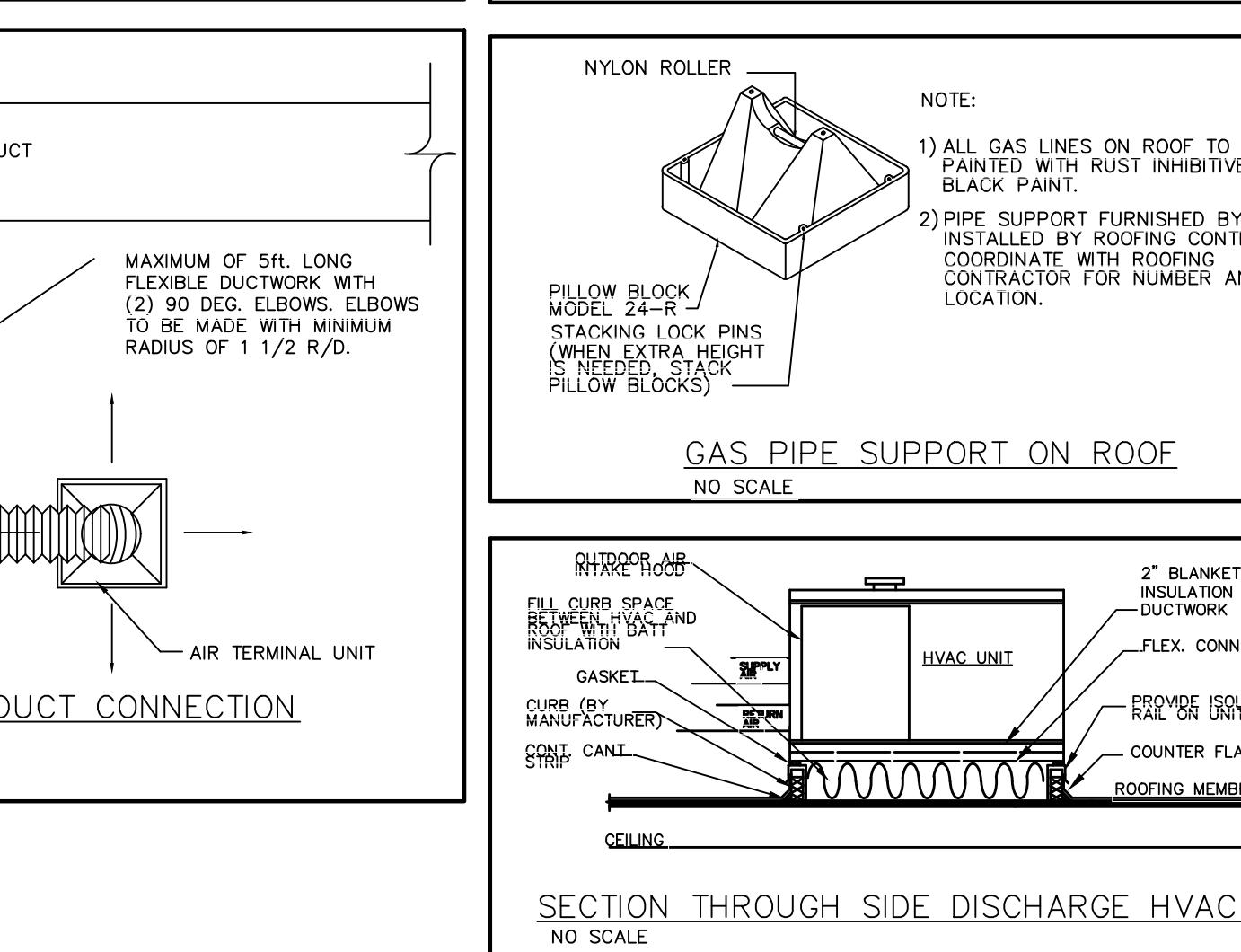
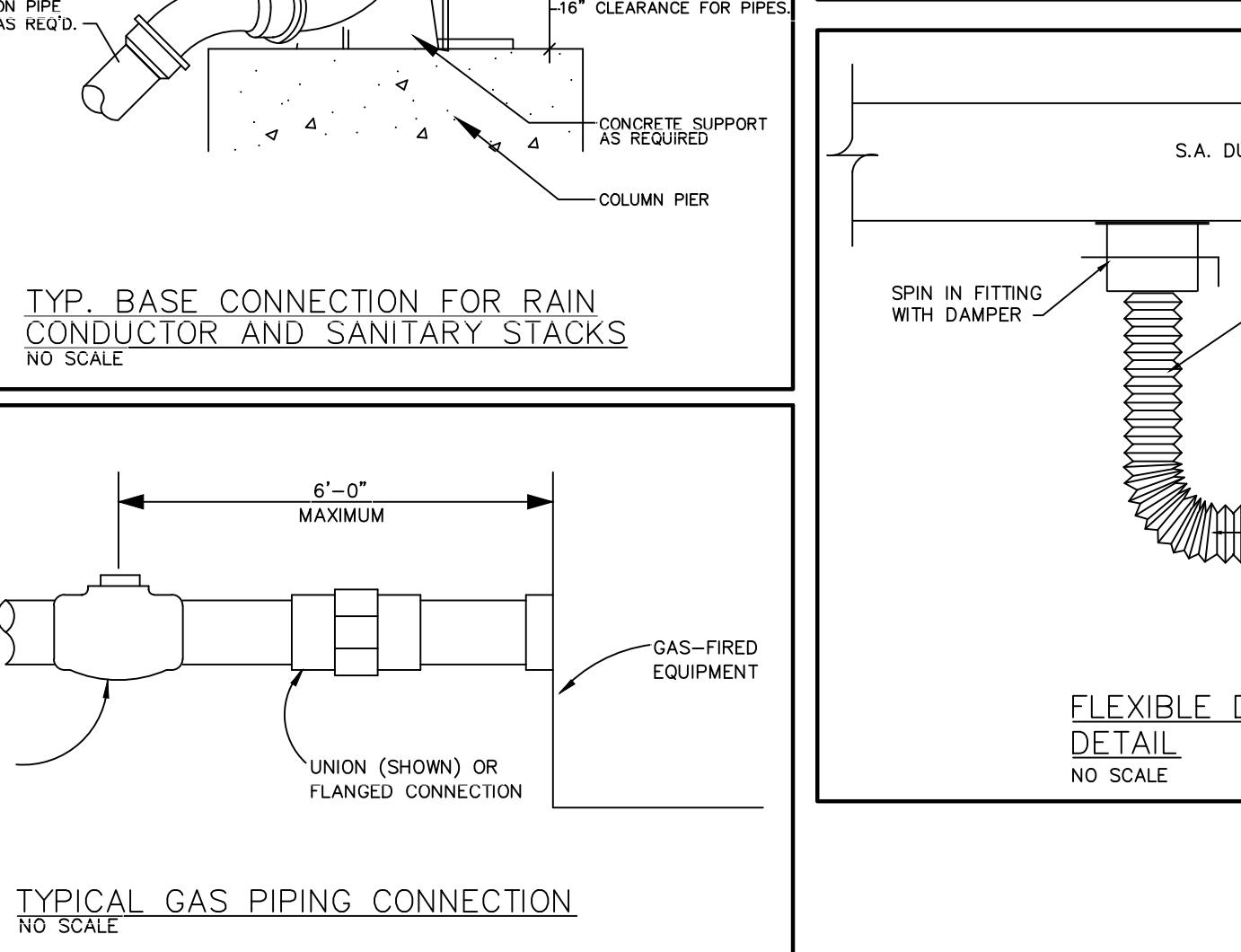
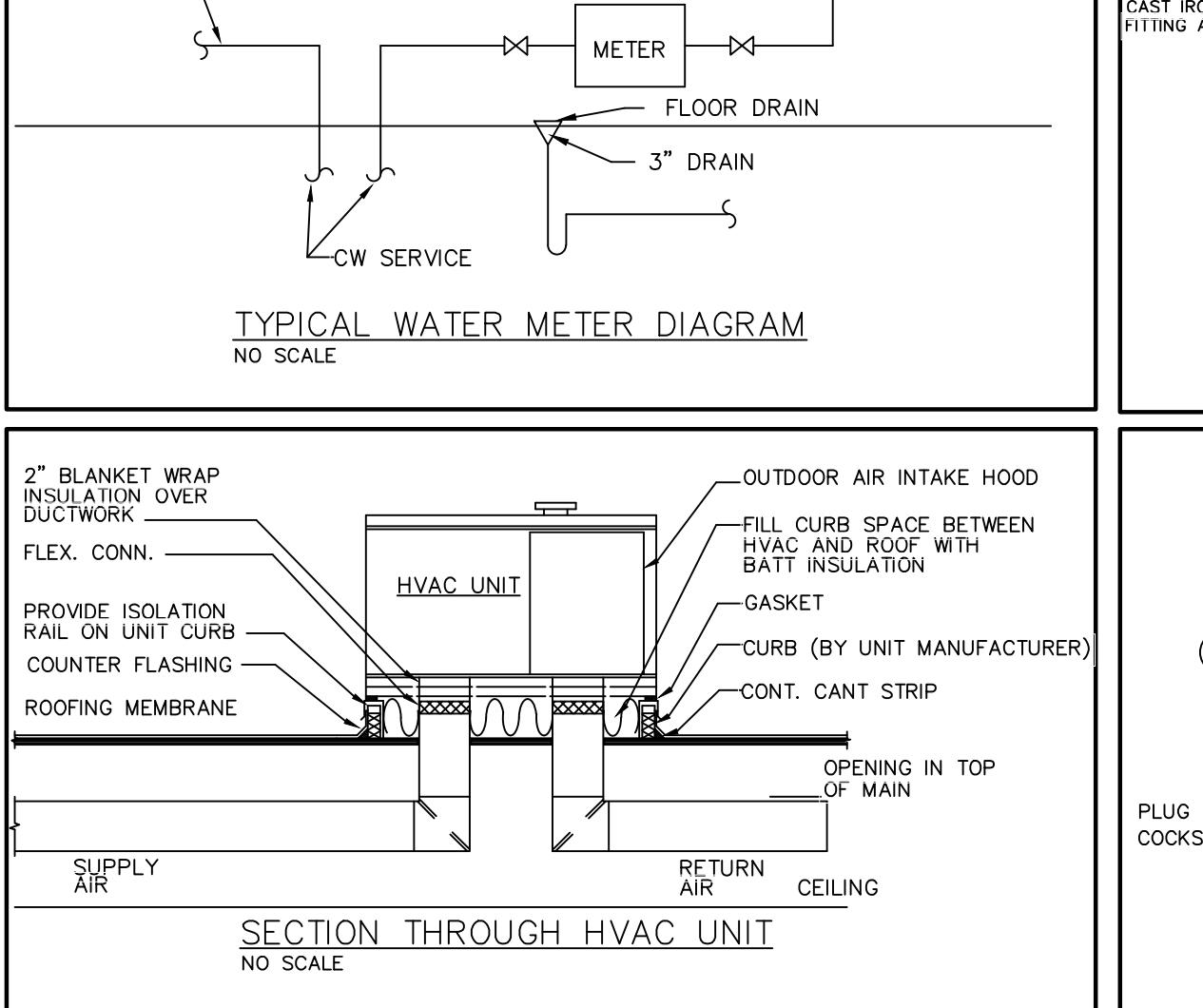
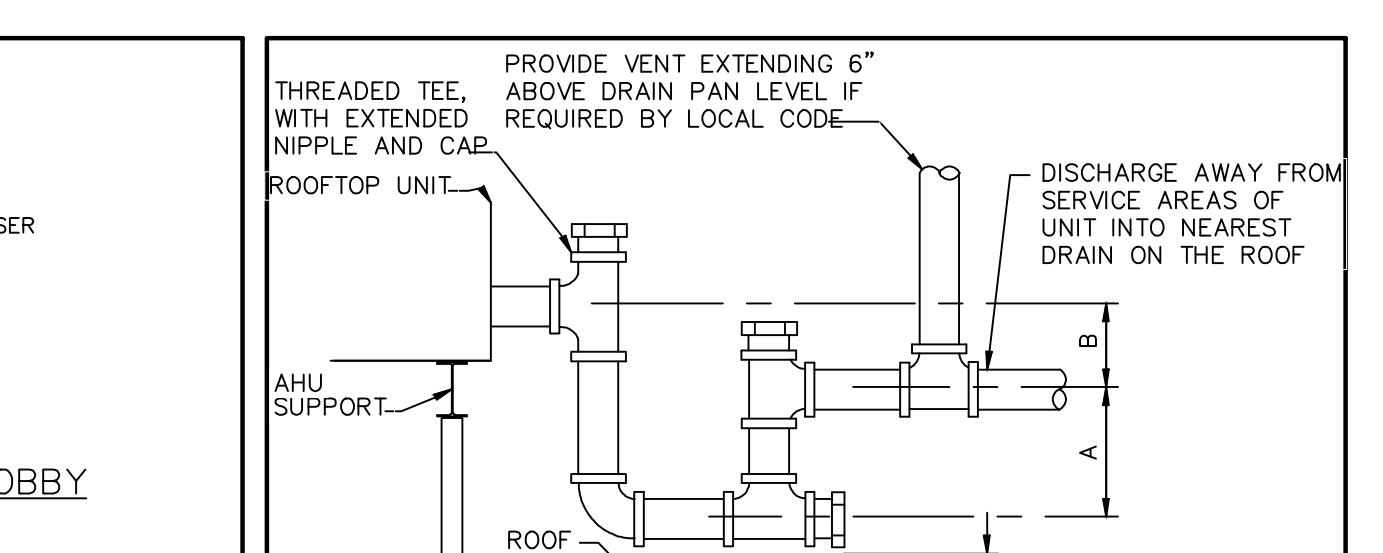
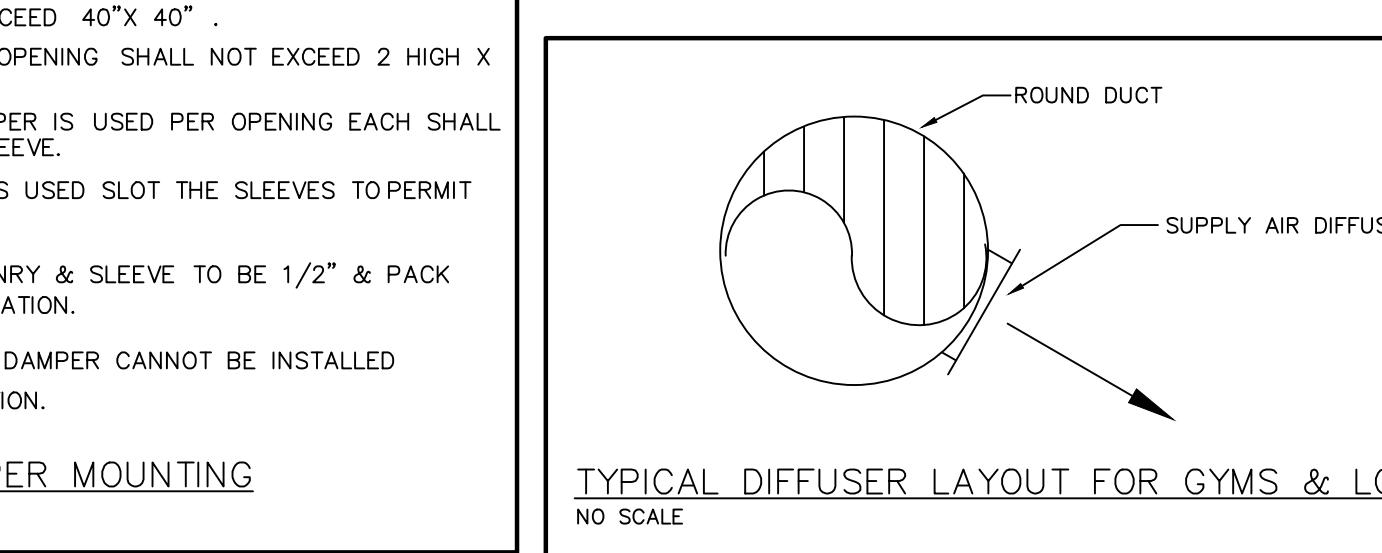
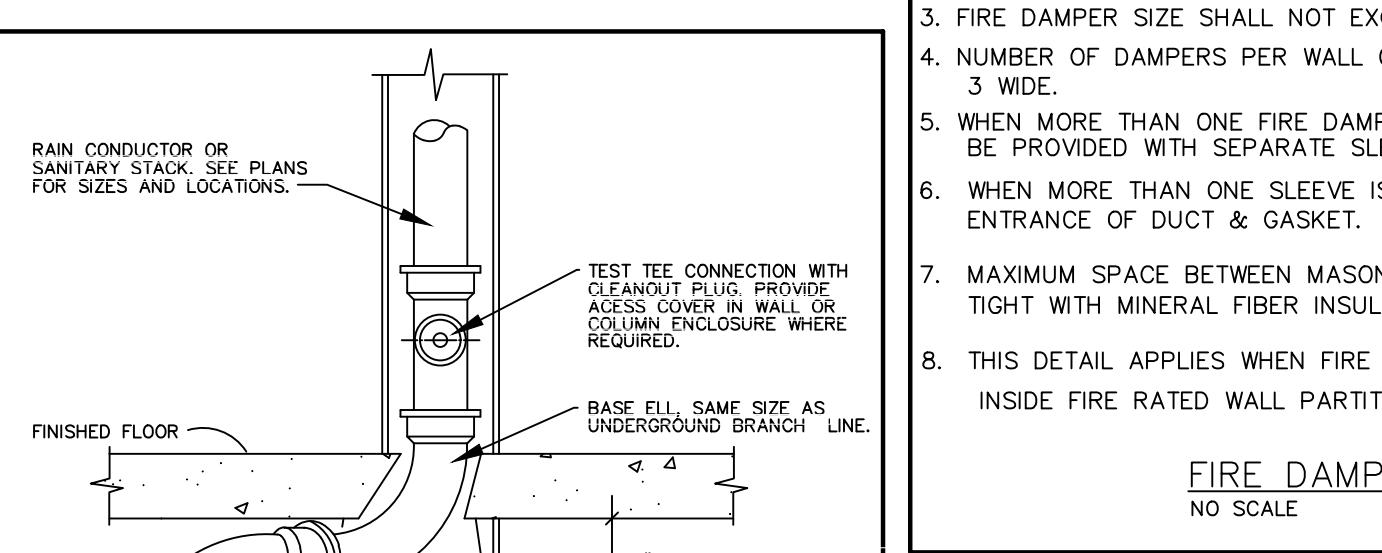
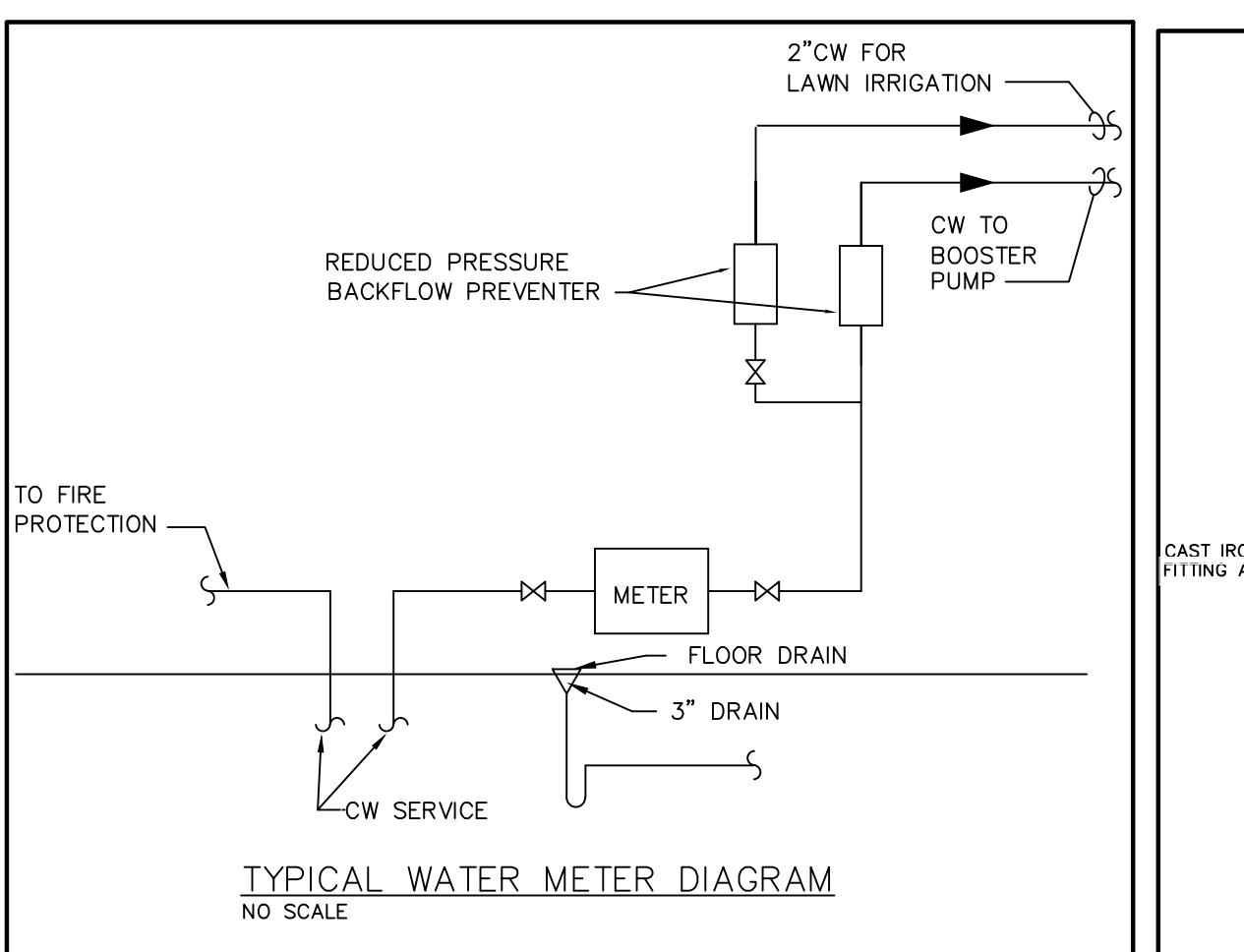
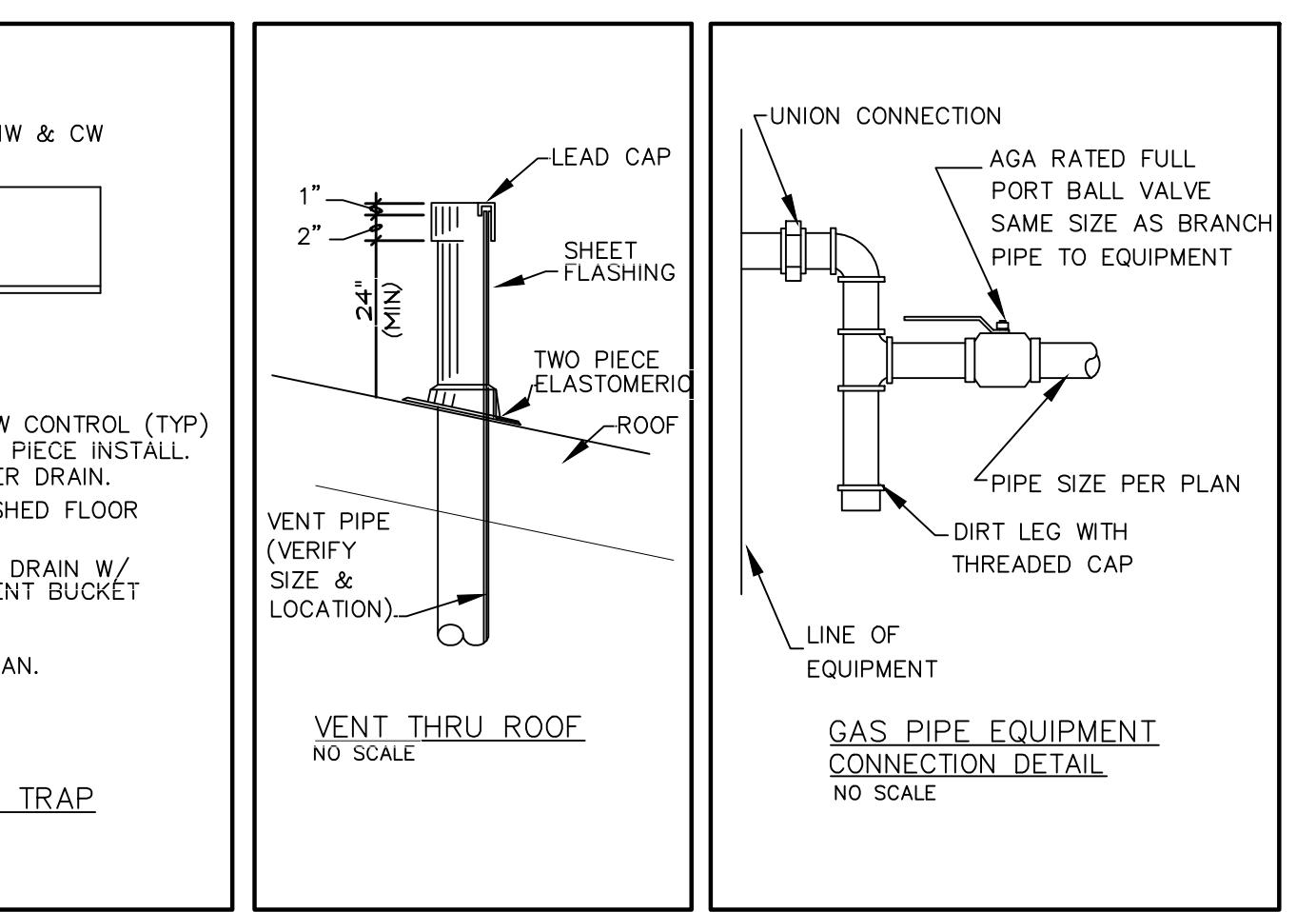
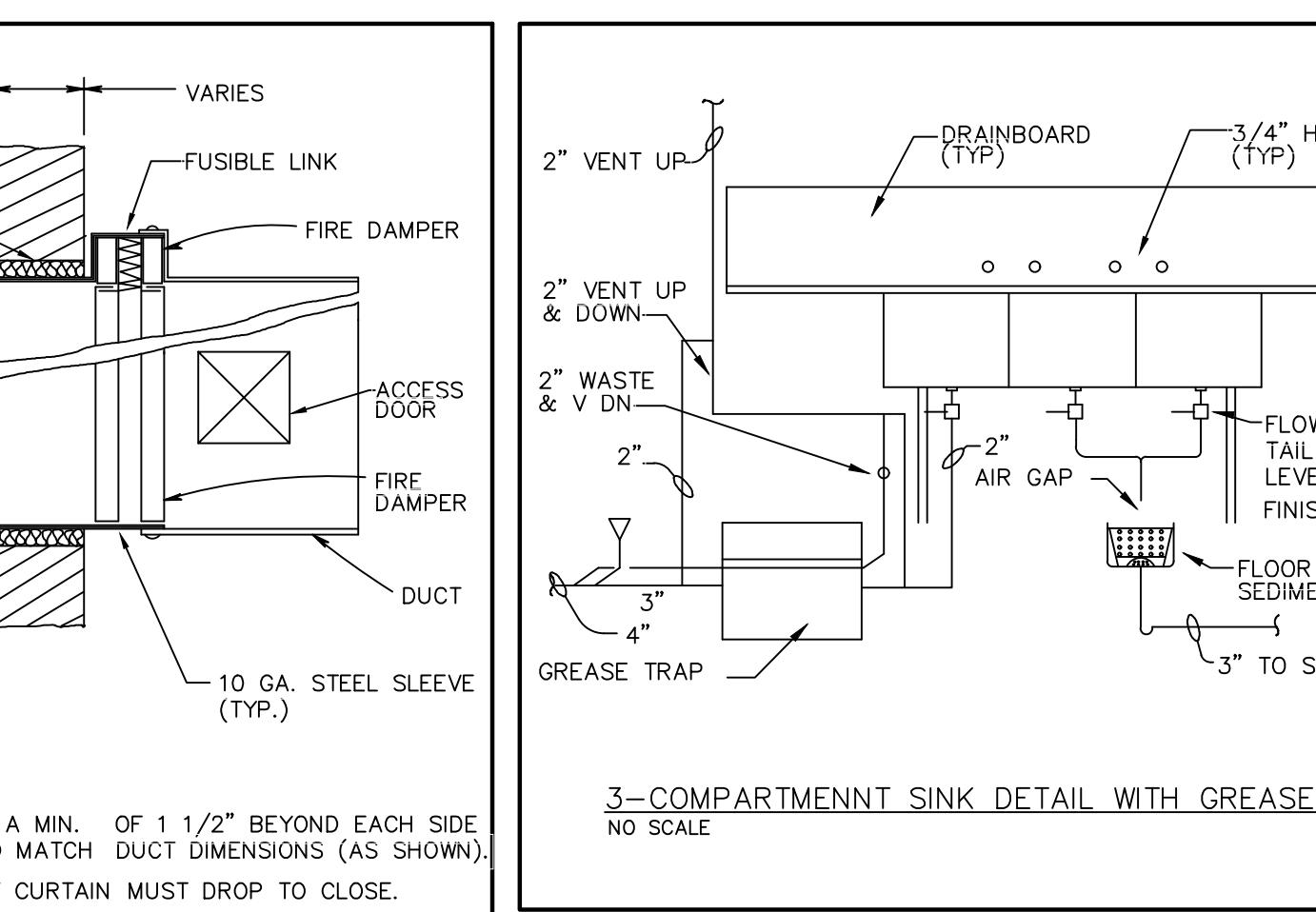
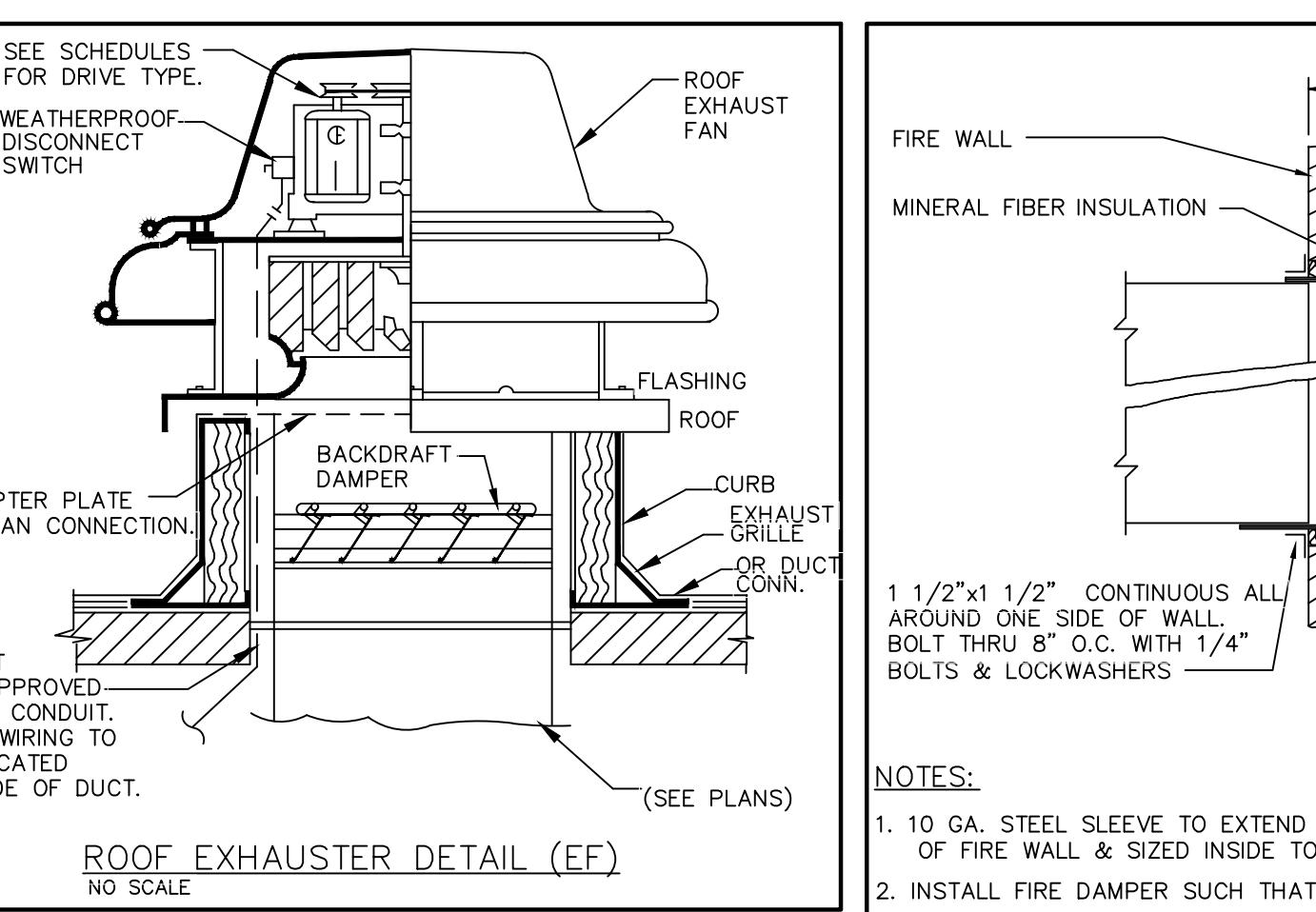
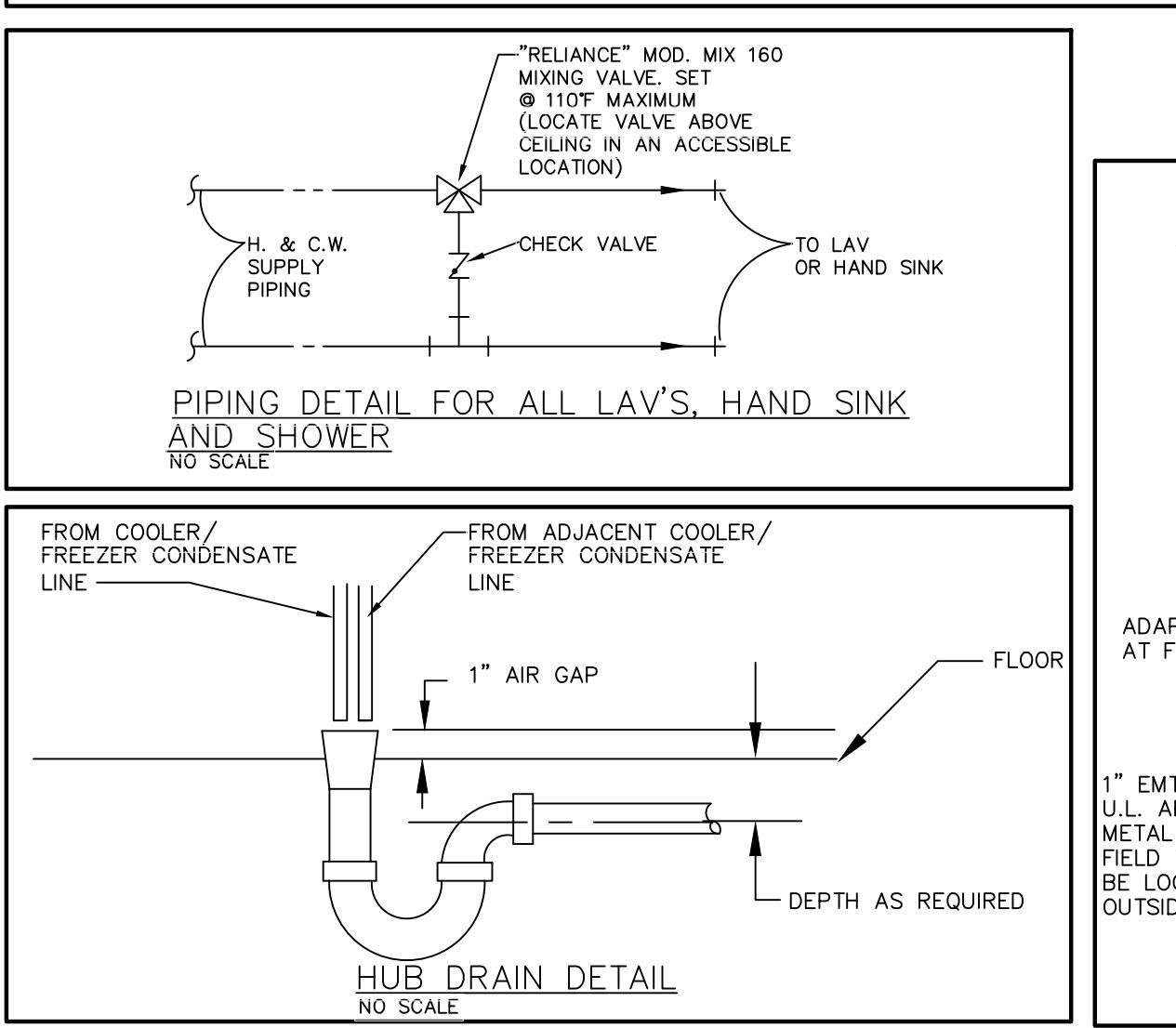
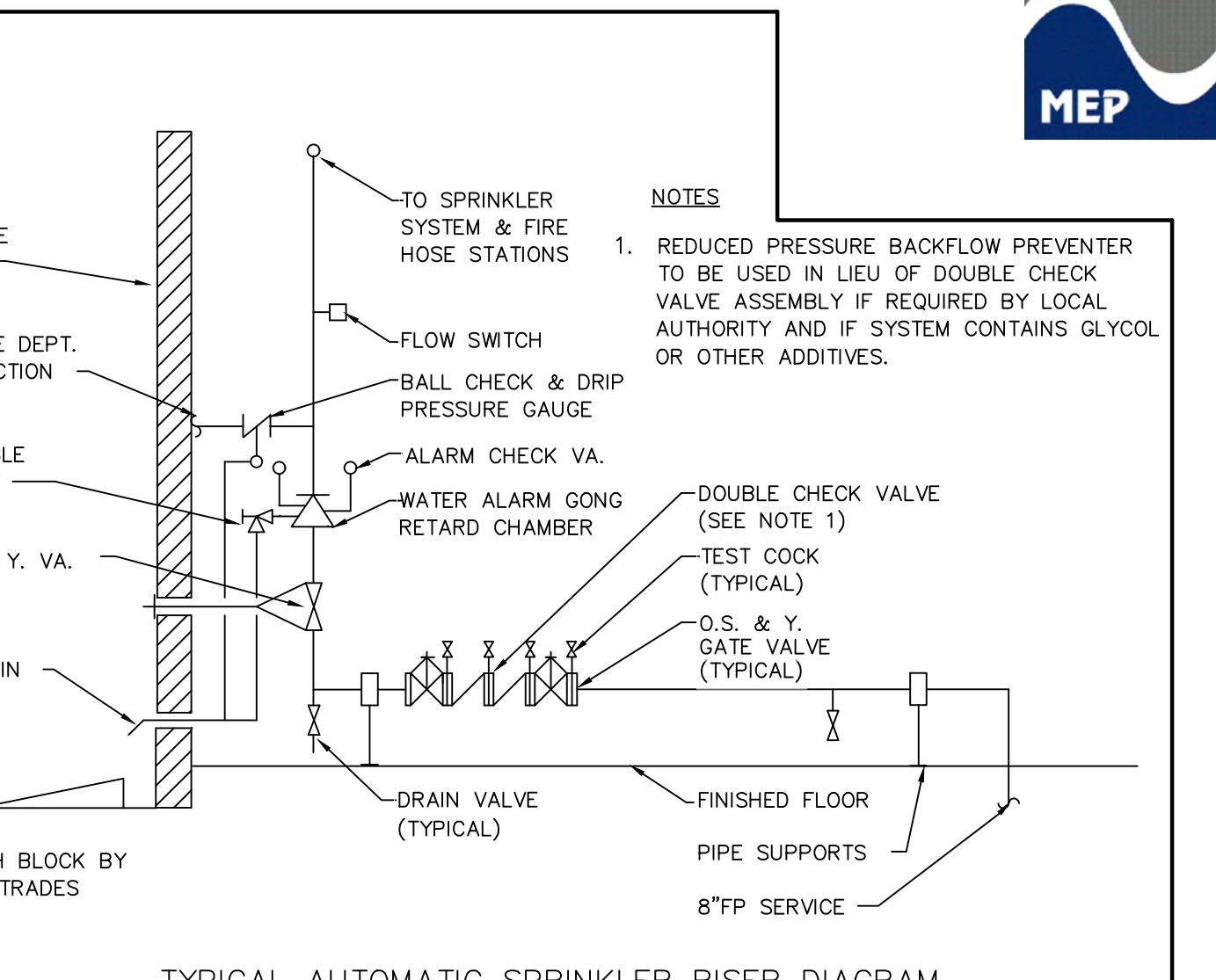
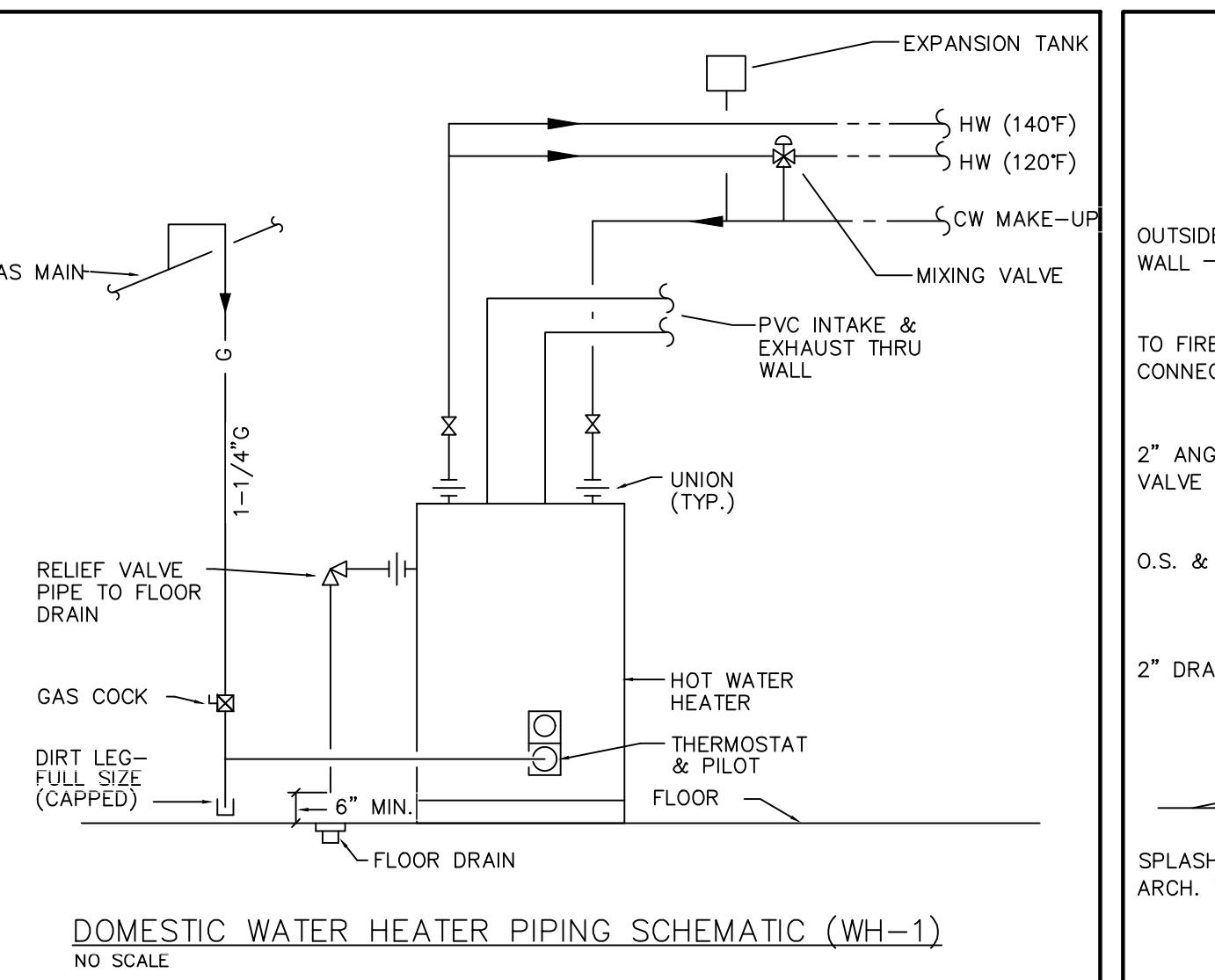
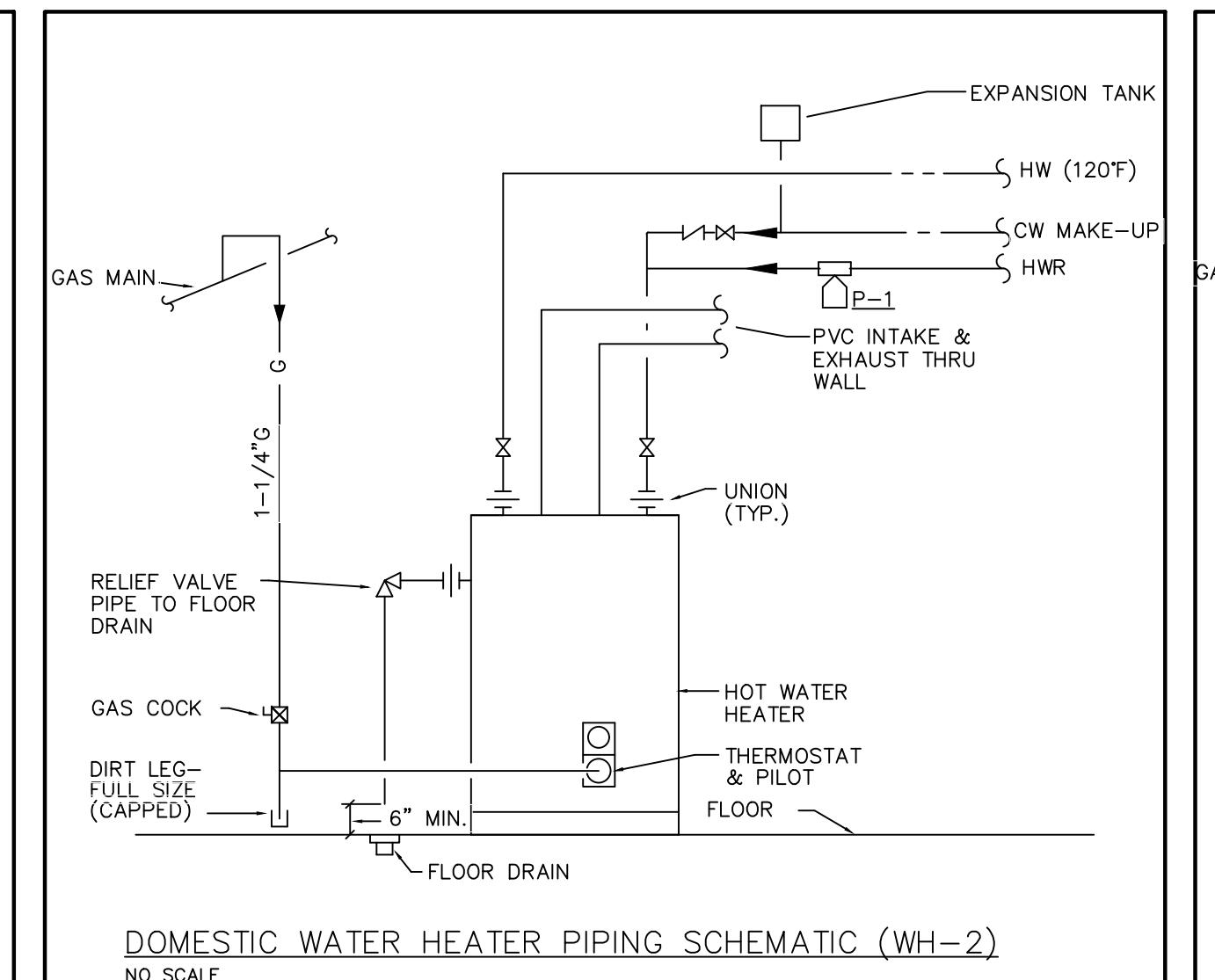
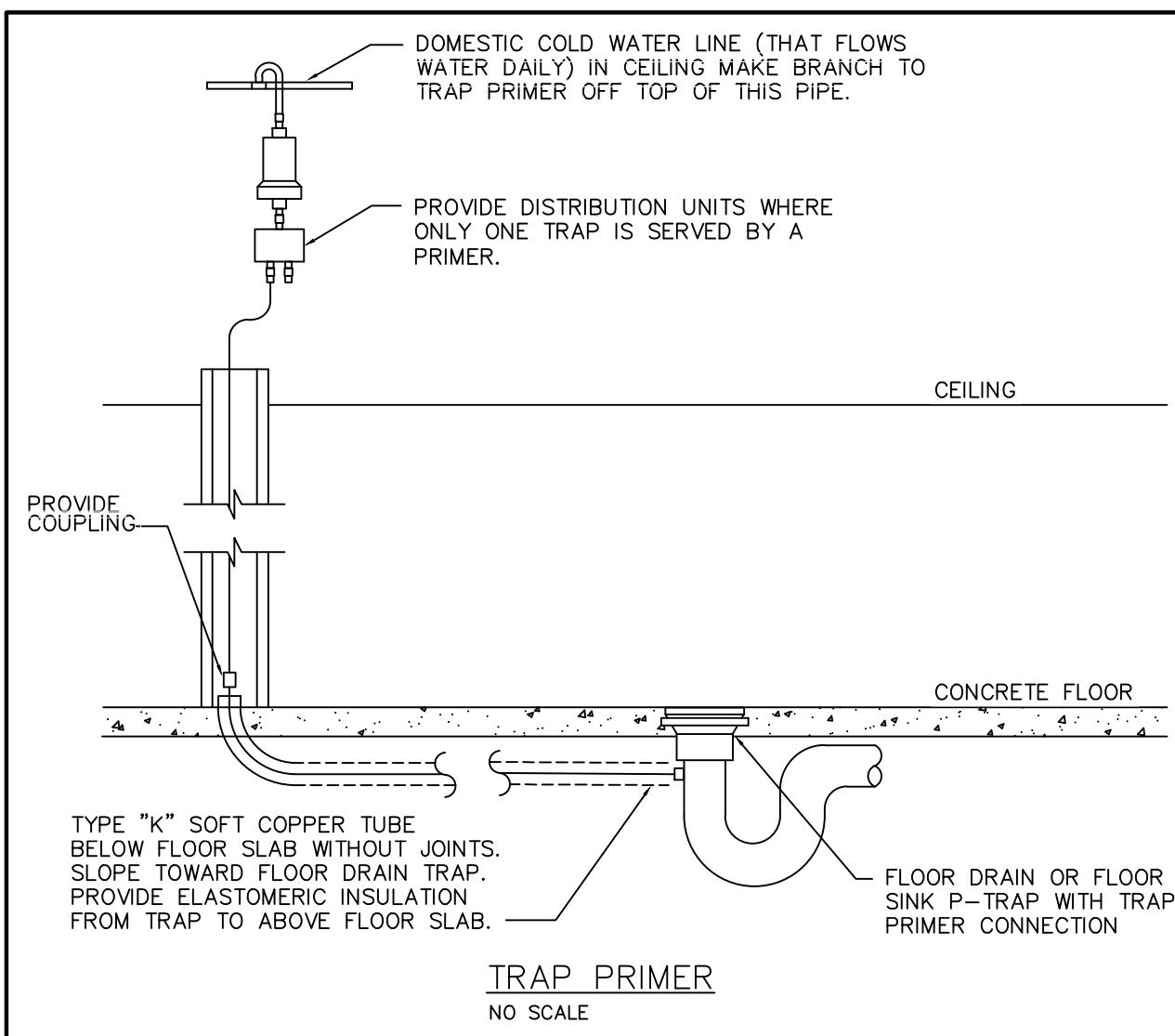
O VARIABLE FREQUENCY DRIVE

P DIRECT DRIVE

NOTES	NOTES
A P & T RELIEF TO FD	E NATURAL GAS
B FLOOR MOUNTED	F 120V DISCONNECT SWITCH
C RECIRCULATING PUMP	G EXPANSION TANK
D CONCENTRIC VENT KIT THRU ROOF	

ELECTRIC WALL UNIT HEATER SCHEDULE														
SNO.	TAG	BASIS OF DESIGN	MODEL	LOCATION	TYPE	CAPACITY (WATTS)	ELECTRICAL VOLT/PH/Hz	NOTES / ACCESSORIES						
1	EWUH-1	Q-MARK	LFK 488F	WEST STAIRS 1ST	RECESSED	3000	208 / 1 / 60							
2	EWUH-2	Q-MARK	LFK 488F	EAST STAIRS 1ST	WALL	3000	208 / 1 / 60							
3	EWUH-3	Q-MARK	LFK 404F	CORRIDOR A104	RECESSED	3000	208 / 1 / 60							
4	EWUH-4	Q-MARK	LFK 404F	CORRIDOR B140	WALL	3000	208 / 1 / 60							
5	EWUH-5	Q-MARK	LFK 404F	CORRIDOR C160	WALL	3000	208 / 1 / 60							
6	EWUH-6	Q-MARK	LFK 404F	WEST STAIRS 2ND	RECESSED	3000	208 / 1 / 60							
7	EWUH-7	Q-MARK	LFK 404F	WEST STAIRS 2ND	WALL	3000	208 / 1 / 60							
8	EWUH-8	Q-MARK	LFK 40											

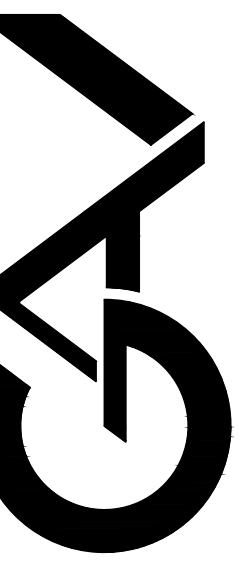
OUTDOOR AIR REQUIREMENT SYSTEM															
(2224-1) Noor International Academy, MICHIGAN, REFERENCE CODE:Michigan MECHANICAL CODE 2017, TABLE 403.3.1.1															
SYSTEM	S.NO	ROOM NAME	AREA SQ.FT (Az)	MAX. OCCUPANT LOAD. PERSONS PER 1000 SQUARE FEET	CEILING HEIGHT (ft)	ZONE POPULATION (NO. OF PEOPLE)	PEOPLE OUTDOOR AIR RATE (CFM/PERSON)	AREA OUTDOOR AIR RATE CFM/SQ.FT	AIR CHANGE	OUTDOOR AIR RATE IN BREATHING ZONE (CFM)	OUTDOOR AIR RATE IN BREATHING ZONE (CFM) BASED ON AIR CHANGE	ZONE AIR DISTRIBUTION EFFECTIVENESS	ZONE OUTDOOR AIR FLOW (CFM) BASED ON AIR CHANGE	SYSTEM OUTDOOR AIR INTAKE FLOW (CFM)	
OVERALL MIN. OA															
HVAC-1	1	LIBRARY	910	0	10	30	7.5	0.12	0	334.2	0.0	0.8	417.8	0.0	
	TOTAL MINIMUM OUTDOOR AIR REQUIRED OUTDOOR AIR PROVIDED FROM SYSTEMS														
HVAC-2	1	D184 THIRD GRADE #1	625	0	10	16	16	0.12	0	235	0.0	0.8	293.8	0.0	
	2	D185 THIRD GRADE #2	625	0	10	16	16	0.12	0	235	0.0	0.8	293.8	0.0	
	3	D186 FOURTH GRADE #1	625	0	10	22	22	0.12	0	295	0.0	0.8	368.8	0.0	
TOTAL MINIMUM OUTDOOR AIR REQUIRED OUTDOOR AIR PROVIDED FROM SYSTEMS															
HVAC-3	1	D188 FIFTH GRADE	635	0	10	20	20	0.12	0	276.2	0.0	0.8	345.3	0.0	
	2	D187 FOURTH GRADE #3	625	0	10	20	20	0.12	0	275	0.0	0.8	343.8	0.0	
	3	D190 SPECIAL EDUCATION	270	0	10	10	10	0.12	0	132.4	0.0	0.8	165.5	0.0	
	4	D191 STAFF LOUNGE	280	0	10	5	5	0.12	0	58.6	0.0	0.8	73.3	0.0	
TOTAL MINIMUM OUTDOOR AIR REQUIRED OUTDOOR AIR PROVIDED FROM SYSTEMS															
HVAC-4	1	C165 SECOND GRADE #2	680	0	10	17	17	0.12	0	251.6	0.0	0.8	314.5	0.0	
	TOTAL MINIMUM OUTDOOR AIR REQUIRED OUTDOOR AIR PROVIDED FROM SYSTEMS														
HVAC-5	1	C166 WAITING	185	0	10	3	3	0.06	0	26.1	0.0	0.8	32.6	0.0	
	2	C167 ADMISSIONS	275	0	10	4	4	0.06	0	36.5	0.0	0.8	45.6	0.0	
	3	C168 STORAGE	85	0	10	0	0	0	0.12	0	10.2	0.0	0.8	12.8	0.0
	4	C169 OFFICE	140	0	10	2	2	0	0.06	0	18.4	0.0	0.8	23.0	0.0
	5	C170 TOILET	40	0	10	0	0	0	0.12	0	4.8	0.0	0.8	6.0	0.0
	6	C174 OFFICE	170	0	10	2	2	5	0.06	0	20.2	0.0	0.8	25.3	0.0
	7	C175 OFFICE	170	0	10	2	2	5	0.06	0	20.2	0.0	0.8	25.3	0.0
	8	C176 CORRIDOR	300	0	10	0	0	0	0.06	0	18	0.0	0.8	22.5	0.0
TOTAL MINIMUM OUTDOOR AIR REQUIRED OUTDOOR AIR PROVIDED FROM SYSTEMS															
HVAC-6	1	C164 SECOND GRADE #1	520	0	10	13	13	0.12	0	192.4	0.0	0.8	240.5	0.0	
	TOTAL MINIMUM OUTDOOR AIR REQUIRED OUTDOOR AIR PROVIDED FROM SYSTEMS														
HVAC-7	1	C160 CORRIDOR	745	0	10	0	0	0	0.06	0	44.7	0.0	0.8	55.9	0.0
	2	C163 FIRST GRADE #2	685	0	10	17	17	10	0.12	0	252.2	0.0	0.8	315.3	0.0
	3	C163A TOILET	40	0	10	0	0	0	0.12	0	4.8	0.0	0.8	6.0	0.0
	4	C162 FIRST GRADE #1	660	0	10	16	16	10	0.12	0	239.2	0.0	0.8	299.0	0.0
	5	C162A TOILET	40	0	10	0	0	0	0.12	0	4.8	0.0	0.8	6.0	0.0
	6	C161 KINDERGARTEN	685	0	10	17	17	10	0.12	0	252.2	0.0	0.8	315.3	0.0
	7	C161A TOILET	40	0	10	0	0	0	0.12	0	4.8	0.0	0.8	6.0	0.0
TOTAL MINIMUM OUTDOOR AIR REQUIRED OUTDOOR AIR PROVIDED FROM SYSTEMS															
HVAC-8	1	A102-A103 LOBBY	3075	0	12	40	40	5	0.06	0	384.5	0.0	0.8	480.6	0.0
	TOTAL MINIMUM OUTDOOR AIR REQUIRED OUTDOOR AIR PROVIDED FROM SYSTEMS														
HVAC-9	1	B140A CORRIDOR	350	0	10	0	0	0	0.06	0	21	0.0	0.8	26.3	0.0
	2	B141 KINDERGARTEN #1	531	0	10	14	14	10	0.12	0	203.72	0.0	0.8	254.7	0.0
	3	B141A TOILET	40	0	10	0	0	0	0.12	0	4.8	0.0	0.8	6.0	0.0
	4	B142 PRESCHOOL #2	520	0	10	14	14	10	0.12	0	202.4	0.0	0.8	253.0	0.0
	5	B142A TOILET	40	0	10	0	0	0	0.12	0	4.8	0.0	0.8	6.0	0.0
	6	B143 RESCHOOL #1	531	0	10	14	14	10	0.12	0	203.72	0.0	0.8	254.7	0.0
	7	B143A TOILET	40	0	10										



ISSUED FOR	DATE
PROGRESS	7-26-22
PROGRESS	8-2-22
100% COORDINATION	8-12-22
PERMITS	8-17-22

ARCHITECTURAL DESIGN
RESIDENTIAL
COMMERCIAL
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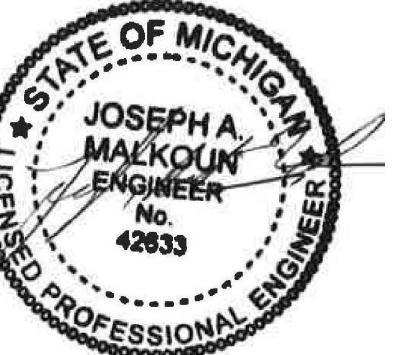


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DRAWN:	DESIGNED:	CHECKED:
J.K.	J.K.	J.M.
SCALE :		
FILE NAME :	M.402	
JOB #:	22010	
SHEET TITLE		
MECHANICAL DETAILS 2 (FOR REFERENCE ONLY)		
SHEET #		



M.403

EXHAUST FAN INFORMATION - JOB#5555672

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	I	1	DUB0HK	K-TECH	2500	1.503	1240	ODP PREMIUM	3.000	1.2990	3	208	9.5	577 FPM	180	16.9
3	I	1	DUB0HK	K-TECH	600	0.250	1014	ODP	0.250	0.0480	1	115	3.8	247 FPM	66	5.5

CONDENSER DETAILS

FAN UNIT NO	TAG	FAN UNIT MODEL #	CONDENSER NO	TONNAGE	VOLTAGE	PHASE	FREQUENCY	MCA	RLA	MAX FUSE SIZE	MIN WIRE SIZE	SEER
2		K-A2-D250-20D-MPU	I	5	208-230	3 PHASE	60 Hz	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14

MUA FAN INFORMATION - JOB#5555672

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
2	I	1	K-A2-D250-20D-MPU	20MF-2-MDP-A2-D250	2000	2500	0.975	1122	ODP PREMIUM	1.500	0.7510	3	208	6.6	0.3A	15A	1367	9.3	

COILS - JOB#5555672

FAN UNIT NO	TAG	COIL TYPE	DESIGN CFM	COOLING								HEATING											
				ENTERING DB TEMP	ENTERING WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	ENTERING DB TEMP	LEAVING DB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	STEAM PRESSURE	TOTAL CAPACITY	SENSIBLE CAPACITY
2	DX	2500	87.0°F	73.0°F	75.1°F	67.7°F	---	---	---	---	48.1 MBH	30.7 MBH	17.4 MBH	---	---	---	---	---	---	---	---	---	---

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
2		220842	203221	20°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92

FAN OPTIONS

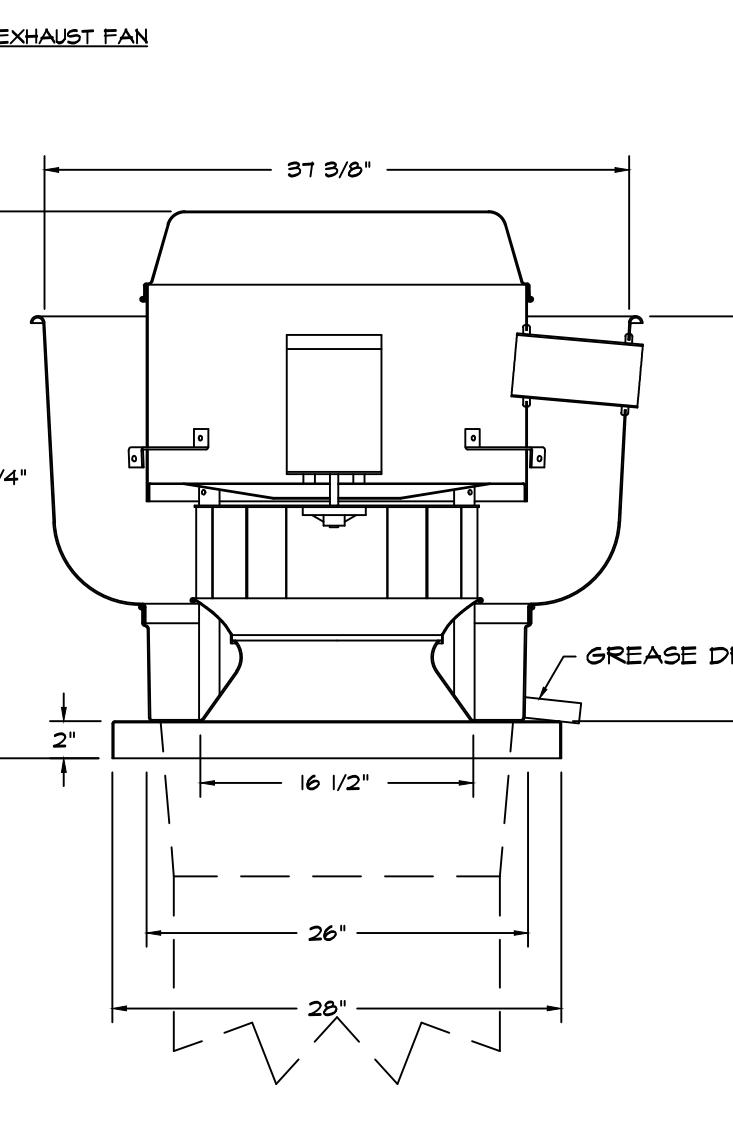
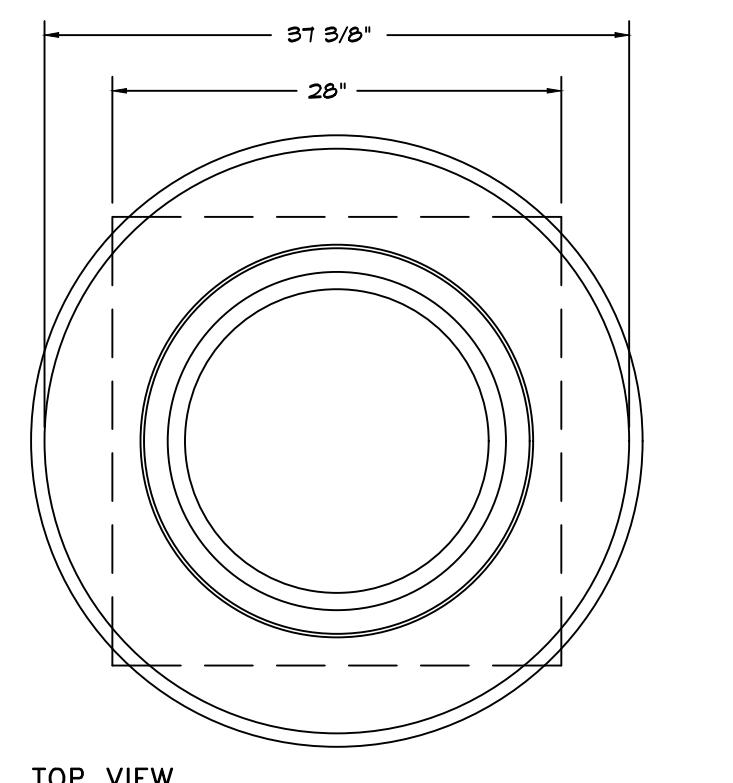
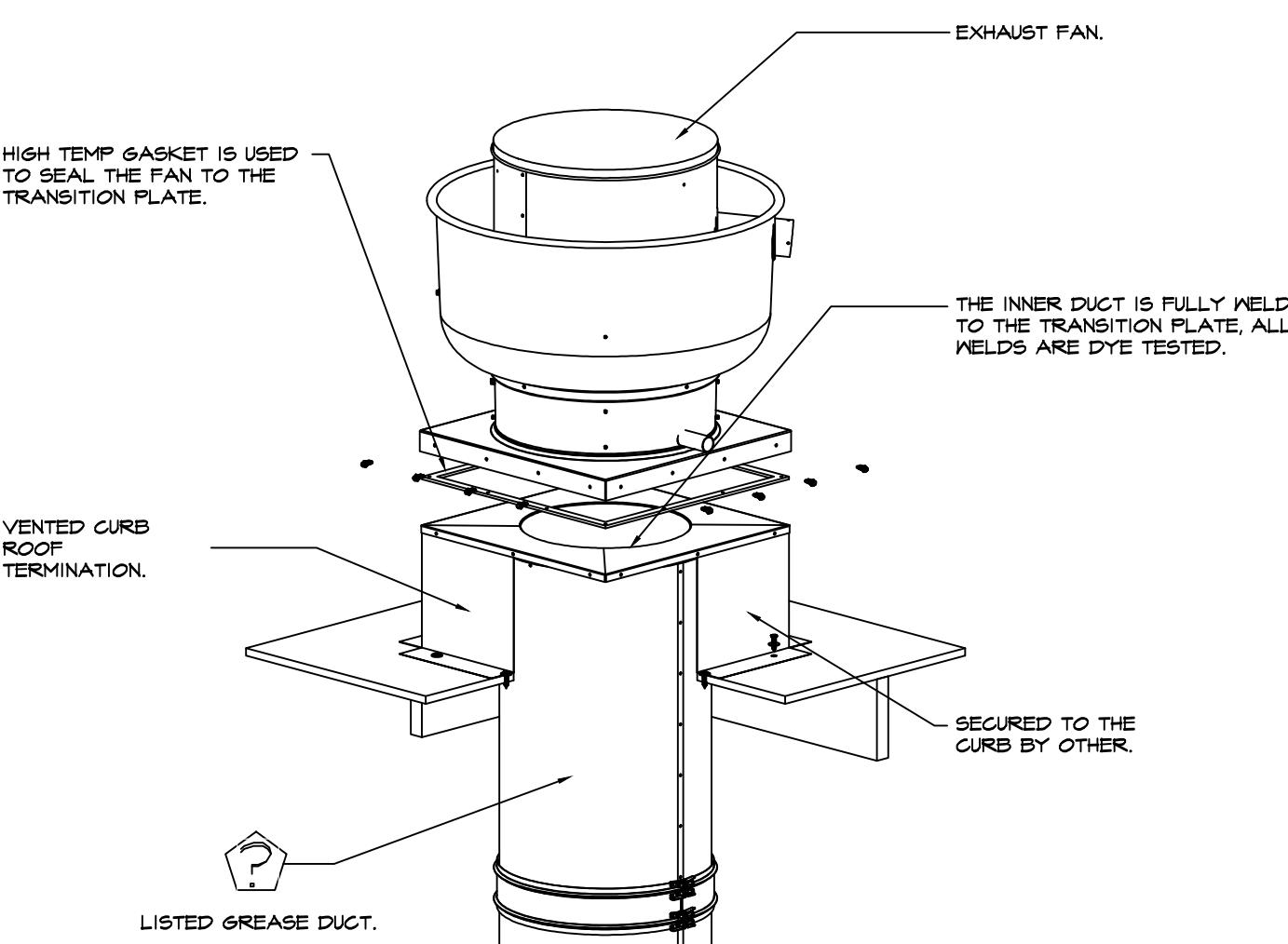
FAN UNIT NO	TAG	QTY	DESCRIPTION
1		1	GREASE BOX
1		1	FAN BASE CERAMIC SEAL - INSTALLED AT PLANT - FOR GREASE DUCTS
1		1	2 YEAR PARTS WARRANTY
2		1	INLET PRESSURE GAUGE, 0-35"
2		1	MANIFOLD PRESSURE GAUGE, -5 TO 15° WC
2		1	LOW FIRE START
2		1	SHIP LOOSE GAS STRAINER 1"
2		1	AC INTERLOCK RELAY - 24VAC COIL
2		1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING - MEETS AMCA CLASS IA RATING
2		1	5 TON SINGLE CIRCUIT MODULAR PACKAGED COOLING OPTION FOR SIZE 2 DF/EH MUA (2000 TO 3,000 CFM), 208V/230V, 3 PHASE, COOLING THERMOSTAT OR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION.
2		1	DOWNTURN PLENUM FOR SIZE 2 DX COIL MODULE
2		1	COOLING THERMOSTAT AND RELAY (NOT REQUIRED FOR EVAP)
2		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY
2		1	SIZE 2 DIRECT FIRED HEATER LOW CFM PROFILE PACKAGE - USED ON HEATERS UNDER 2500 CFM
2		1	2 YEAR PARTS WARRANTY
3		1	2 YEAR PARTS WARRANTY

FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST		SUPPLY				
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1		YES						YES
2								

CURB ASSEMBLIES

NO	ON FAN	WEIGHT	ITEM	SIZE
1	# 1	41 LBS	CURB	26.500" W X 26.500" L X 20.000" H ALONG LENGTH, RIGHT VENTED HINGED.
2	# 2	107 LBS	CURB	31.000" W X 31.000" L X 20.000" H ALONG WIDTH, RIGHT INSULATED.
3	# 2		RAIL	6.000" W X 31.000" L X 20.000" H RIGHT.
3	# 3	30 LBS	CURB	19.500" W X 19.500" L X 22.000" H ALONG LENGTH, RIGHT VENTED.

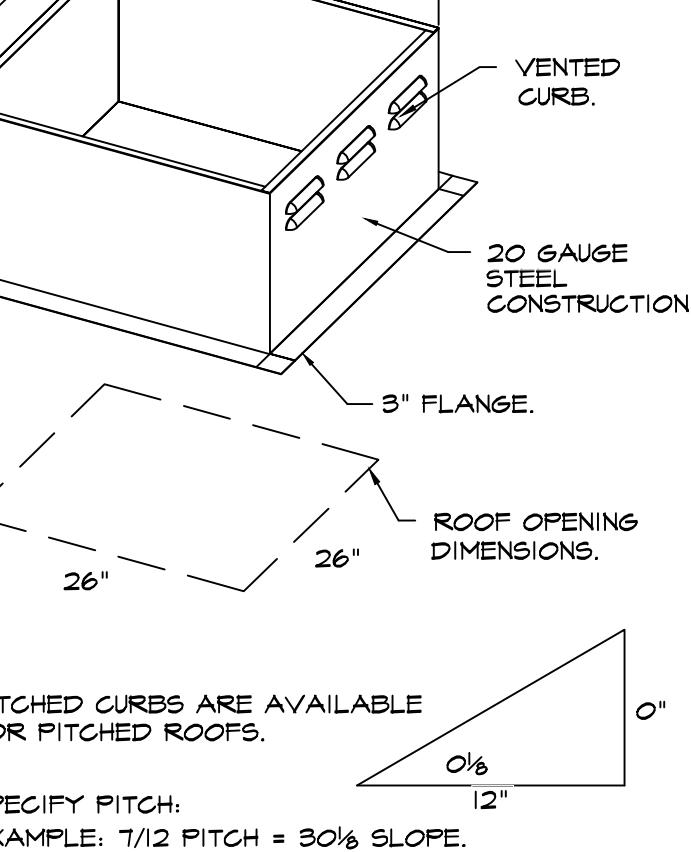


FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL105 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
 EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

ABNORMAL FLARE-UP TEST
 EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.



OPTIONS
 GREASE BOX.
 FAN BASE CERAMIC SEAL - INSTALLED AT PLANT - FOR GREASE DUCT

GENERAL MECHANICAL SPECIFICATIONS

GENERAL REQUIREMENTS:

READ AND BE BOUND BY THE ARCHITECTURAL SPECIFICATION.

THE SPECIFICATION, OTHER DOCUMENTS ATTACHED HERETO, ALL ADDENDA ISSUED AND THE ACCOMPANYING PLANS ARE INTENDED TO PROVIDE FOR THE COMPLETE FURNISHING AND INSTALLATION OF THE ENTIRE MECHANICAL SYSTEM.

THE WORK SHALL BE DONE IN ACCORDANCE WITH BEST PRACTICE SO AS TO CONTRIBUTE TO EFFICIENCY OF OPERATION AND MINIMUM MAINTENANCE AND SHALL BE INSTALLED WITH PROPER ACCESSIBILITY. THE MATERIALS AND EQUIPMENT, INCLUDING NECESSARY ACCESSORIES, SHALL BE PROVIDED IN A PROPER AND DURABLE STATE, SO THAT THE CONTRACTOR CAN EASILY MAINTAIN THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, MATERIALS AND OPERATIONS AS INDICATED EITHER ON THE DRAWINGS OR CONTAINED HEREIN OR AS MAY BE REASONABLY IMPLIED BY EITHER TO ACCOMPLISH THE COMPLETE INSTALLATION.

PROVIDE ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY FOR COMPLETE AND DURABLE MECHANICAL SYSTEMS, PROVIDED ALL NECESSARY TESTS AND PAY FOR ALL FEES, PERMITS, INSPECTIONS, ETC., AS REQUIRED BY LOCAL AUTHORITIES. SECURE PERMITS, INSPECTIONS AND BONDS. PERFORM ALL TESTS REQUIRED.

UPON COMPLETION OF THE WORK, OBTAIN AND SEND CERTIFICATES OF INSPECTION AND APPROVAL TO THE ARCHITECT/OWNER. PAY ALL FEES AND EXPENSES FOR PERMITS, LICENSES, TESTS AND INSPECTIONS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR THAT HIS WORK IS INSTALLED IN THE MOST DIRECT AND WORKMANLIKE MANNER AND THAT INTERFERENCE IS AVOIDED.

THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF THE EQUIPMENT AND SYSTEMS TO BE INSTALLED. THE CONTRACTOR IS POSITIONED TO INDICATE THE EXACT LOCATION AND ROUTING OF MECHANICAL WORK, UNLESS REFERRED, DIMENSIONS ARE SPECIFICALLY INDICATED ON DRAWINGS. DEVIATIONS FROM CONTRACT DRAWING LAYOUT IN ORDER TO AVOID INTERFERENCES WITH OTHER TRADES, OR OTHER MECHANICAL WORK, SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT, WITH NO ADJUSTMENT IN CONTRACT PRICE. ALL COSTS FOR REMOVAL AND RELOCATION OF MECHANICAL WORK RESULTING FROM FAILURE TO COORDINATE WITH OTHER TRADES SHALL BE PAID BY THE MECHANICAL SUBCONTRACTOR.

INSTALLATION SHALL CONFORM TO ALL LOCAL UTILITY COMPANIES. BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL CHECK WITH EACH UTILITY (WATER, SEWER, ETC.) AND SHALL DETERMINE FROM THEM ALL EQUIPMENT AND CHARGES WHICH THEY WILL REQUIRE, INCLUDE COST OF SAME IN THE BID.

ALL EQUIPMENT IS TO BE U.L. LISTED AND LABELED.

EACH TRADE SHALL BE RESPONSIBLE FOR ITS OWN CLEAN-UP, COORDINATE WITH THE ARCHITECTURAL TRADES (A.T.).

UNLESS OTHERWISE NOTED, ALL CUTTING SHALL BE PROVIDED BY THE M.T. AND PATCHING BY THE A.T. ROOF PENETRATIONS ARE TO BE PERFORMED BY THE OWNER'S (LANDLORD'S) ROOFER AND PAID FOR BY THE M.T. COORDINATE ALL OPENINGS WITH THE A.T.

PUSH-THROUGH EQUIPMENT, PIPING, FITTINGS IN CONNECTION WITH THE VARIOUS PIECES OF MOTOR-DRIVEN EQUIPMENT, SPECIFIED MECHANICAL WORK SECTIONS AS SPECIFIED HEREIN. ALL MOTORS SHALL BE DRIVEN BY THE "PREMIUM" HIGH EFFICIENCY TYPE.

AIR SYSTEMS BALANCING IS REQUIRED REFER TO THE HVAC SPECIFICATIONS.

FURNISH THE OWNER WITH TWO COPIES OF OPERATION/MAINTENANCE MANUALS FOR ALL EQUIPMENT AND PROVIDE FULL OPERATION INSTRUCTIONS TO THE OWNERS PERSONNEL.

GUARANTEE: THE M.T. SHALL REPAIR OR REPLACE ANY PART OF THE MECHANICAL SYSTEMS INSTALLATION WHICH MAY FAIL WITHIN A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE.

PIPEING SYSTEM—COMMON REQUIREMENTS:

A. INSTALL PIPING ACCORDING TO THE FOLLOWING REQUIREMENTS SPECIFYING PIPING SYSTEMS.

B. DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. INDICATED LOCATIONS AND ARRANGEMENTS WERE USED TO SIZE AND CALCULATE PRESSURE LOSS, EXPANSION, PUMP SIZING, AND OTHER DESIGN CONSIDERATIONS. INSTALLATION IS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON COORDINATION DRAWINGS.

C. INSTALL PIPE PARALLEL WITH LINES OF BUILDING.

D. ALLOW FOR EXPANSION AND CONTRACTION OF PIPING.

E. PROVIDE UNIONS, VALVES, HANGERS, SUPPORTS AND OTHER APPURTENANCES AS REQUIRED FOR COMPLETE INSTALLATION.

F. PROVIDE ACCESS TO ALL VALVES, CONTROL DEVICES, DAMPERS AND REHEAT BOX CONTROL PANELS.

G. PROVIDE VIBRATION ISOLATORS AT ALL MECHANICAL EQUIPMENT ITEMS PRODUCING VIBRATIONS.

H. PROVIDE ALL STEEL NECESSARY FOR MECHANICAL EQUIPMENT SUSPENSION AND FRAMED OPENINGS. COMPLY WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) REQUIREMENTS.

I. PROVIDE INDEPENDENT ISOLATION VALVES AT EVERY BRANCH. MULTIFUNCTIONAL VALVES ARE NOT ACCEPTABLE.

J. INSTALL PIPING IN CONCEALED LOCATIONS, UNLESS OTHERWISE INDICATED AND EXCEPT IN EQUIPMENT ROOMS AND SERVICE AREAS.

K. INSTALL PIPING INDICATED TO BE EXPOSED AND PIPING IN EQUIPMENT ROOMS AND SERVICE AREAS AS FLUSH, ANGLED, PULL BACK TO BUILDING WALLS. DIAGONAL RUNS ARE PROVIDED UNLESS SPECIFICALLY INDICATED OTHERWISE.

L. INSTALL PIPING ABOVE ACCESSIBLE CEILINGS TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL REMOVAL.

M. INSTALL PIPING TO PERMIT VALVE SERVICING.

N. INSTALL PIPING AT INDICATED SLOPES.

O. INSTALL PIPING FREE OF SAGS AND BENDS.

P. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS. T-DRILL SYSTEM FOR MECHANICALLY FORGED TEES CONNECTIONS AND COUPLINGS, AND VICTAULIC HOLE CUT PIPING SYSTEM ARE NOT ALLOWED.

Q. INSTALL PIPING TO ALLOW APPLICATION OF INSULATION.

R. PIPING SHALL NOT PROJECT BEYOND WALLS OR STEEL LINES NOR SHALL IT HANG BELOW SLABS MORE THAN IS ABSOLUTELY NECESSARY. PARTICULAR ATTENTION SHALL BE PAID TO THE REQUIRED CLEARANCES.

S. OFFSET PIPING WHERE REQUIRED TO AVOID INTERFERENCE WITH OTHER WORK, TO PROVIDE GREATER HEADROOM OR CLEARANCE, OR TO CONCEAL PIPE MORE READILY. OFFSETS SHALL BE PROPERLY DRAINED OR TRAPPED WHERE NECESSARY.

T. PROVIDE SWING JOINTS AND EXPANSION BENDS WHEREVER REQUIRED TO ALLOW THE PIPING TO EXPAND WITHOUT UNDUE STRESS TO CONNECTIONS OR EQUIPMENT.

U. ISOLATE PIPE FROM THE BUILDING CONSTRUCTION TO PREVENT TRANSMISSION OF VIBRATION TO THE STRUCTURE TO ELIMINATE NOISE.

V. EXPOSED PIPING, ROUND FIXTURES OR IN OTHER CONSPICUOUS PLACES SHALL NOT SHOW TOOL MARKS AT FITTINGS.

W. DO NOT ROUTE PIPING THROUGH TRANSFORMER VAULTS OR ABOVE TRANSFORMERS, PANELBOARDS, OR SWITCHBOARDS, INCLUDING THE REQUIRED SERVICE SPACE FOR THIS EQUIPMENT, UNLESS THE PIPING IS SERVING THIS EQUIPMENT.

X. SELECT SYSTEM COMPONENTS WITH PRESSURE RATING EQUAL TO OR GREATER THAN SYSTEM OPERATING PRESSURE.

Y. ECCENTRIC REDUCING COUPLINGS SHALL BE PROVIDED IN ALL CASES WHERE AIR OR WATER POCKETS WOULD OTHERWISE OCCUR DUE TO A REDUCTION IN PIPE SIZE. ECCENTRIC COUPLINGS SHALL MAKE THE PIPE FLUSH ON THE TOP FOR WATER LINES.

Z. INSTALL ESCUTCHEONS FOR PENETRATIONS OF WALLS, CEILINGS, AND FLOORS ACCORDING TO THE FOLLOWING:

1. NEW PIPING:

a. PIPING WITH FITTING OR SLEEVE PROTRUDING FROM WALL: ONE-PIECE, DEEP-PATTERN TYPE.

b. CHROME-PLATED PIPING: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED CHROME-PLATED FINISH.

c. BARE PIPING AT WALL AND FLOOR PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED CHROME-PLATED FINISH.

d. BARE PIPING AT CEILING PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED CHROME-PLATED FINISH.

e. BARE PIPING IN EQUIPMENT ROOMS: ONE-PIECE, CAST-BRASS TYPE.

AA. ALL PIPES EXTENDING THROUGH THE ROOF SHALL BE FLASHED WITH SIX POUND LEAD FLASHING EXTENDING 6 INCHES BEYOND THE PIPE, WELDED TO A LEAD SLEEVE EXTENDED UP AROUND THE VENT PIPES, AND ROLLED OVER INTO THE PIPE.

AB. INSTALL SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS AND CONCRETE FLOOR AND MASONRY FLOORS.

1. SLEEVES PLACED IN FLOORS SHALL BE FLUSH WITH THE CEILING AND SHALL HAVE PLANED, SQUARE EDGES, EXTENDING 2 INCHES ABOVE THE FINISHED FLOOR, UNLESS OTHERWISE SPECIFIED OR DETAILED.

2. WHERE SLEEVES PASS THROUGH REINFORCED CONCRETE FLOORS, THEY SHALL BE PROPERLY SET IN POSITION BEFORE THE CONCRETE IS POURED AND SHALL BE MAINTAINED IN POSITION BY THE CONTRACTOR UNTIL THE CONCRETE IS SET.

3. PIPES PASSING THROUGH ABOVE GRADE FLOOR SLABS AND MASONRY WALLS SHALL HAVE THE SPACE BETWEEN THE PIPE OR INSULATION AND THE SLEEVE PACKED WITH NON-ASBESTOS WICKING OR OTHER SUITABLE, APPROVED, NON-COMBUSTIBLE MATERIAL.

4. PIPES PASSING THROUGH WALLS OF MECHANICAL EQUIPMENT ROOMS SHALL BE MADE GAS-TIGHT BY CALKING THE SPACE BETWEEN THE PIPE AND SLEEVES WITH A FIBER GASKET. USE AN APPROPRIATE SEALANT MATERIAL.

AC. FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS. REFER TO DIVISION 07 SECTION "PENETRATION FIRESTOPPING" FOR MATERIALS.

AD. VERIFY FINAL EQUIPMENT LOCATIONS FOR ROUGHING-IN.

AE. REFER TO EQUIPMENT SPECIFICATIONS IN OTHER SECTIONS OF THESE SPECIFICATIONS FOR ROUGHING-IN REQUIREMENTS.

AF. ALL NEW DOMESTIC WATER PIPING AND EQUIPMENT SHALL BE DISINFECTED WITH CHLORINE FOR 24 HOURS, AND TER SAMPLE SHALL BE TAKEN NO SOONER THAN 24 HOURS AFTER FLUSHING, FROM VARIOUS OUTLETS, AND FROM THE MAIN WATER ENTRY AS A BASELINE SYSTEM.

THE WORK INCLUDED IN THE CONTRACT SHALL CONSIST OF FURNISHING, INSTALLING, LASTING AND GUARANTEING OF THE FOLLOWING WORK:

1. HVAC UNIT:

2. POWER VENTILATOR.
3. DOMESTIC WATER HEATER.
4. PIPING / PLUMBING.
5. ELECTRIC UNIT HEATER
6. DUCTWORK AND HVAC ACCESSORIES.
7. TEST, ADJUSTMENT AND ACCEPTANCE.
8. FIRE PROTECTION PERFORMANCE SPECIFICATIONS.

PROVIDE PIPE CONTENT AND FLOW DIRECTION IDENTIFICATION LABELS EQUAL TO SETON SETMARK ON ALL PIPE MAINS, ADJACENT TO EACH VALVE, AT EACH FITTING, AT BUILDING ENTRANCE, AT LEAST ONCE IN EACH ROOM AND AT INTERVALS NO LONGER THAN 20 FEET. TEXT TO BE 2" HIGH ON PIPES 4" AND LARGER AND 3/4" HIGH ON PIPES 3" AND SMALLER.

PROVIDE VALVE TAGS FOR EACH VALVE. TAGS ARE TO BE AT LEAST 1" DIAMETER, 1/8" THICK LAMINATED PLASTIC WITH 3/8" HIGH BLACK CHARACTERS ON WHITE FACE OR ENGRAVED BRASS. ATTACH TAGS WITH "S" HOOKS. CONSECUTIVELY NUMBER WITH PREFIX "P". AT COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE REPRODUCIBLE TRANSPARENCY "AS-BUILT" DRAWINGS OF ALL PLUMBING WORK.

PLUMBING MATERIALS

UNDERGROUND SEWERS AND VENTS SHALL BE STANDARD WEIGHT CAST IRON SOIL PIPE WITH COMPRESSION TYPE FITTINGS OR SCHEDULE 40 PVC.

ABOVEGROUND WASTE AND VENT PIPING SHALL BE CAST IRON WITH NO-HUB JOINTS OR UL LISTED 40 CALIBER STEEL SCHEDULE 40 PVC. ALL PIPING SHALL BE USED ABOVEGROUND WHERE CODE PERMITS. ALL PIPING IN RETURN AIR PLenums SHALL BE PLENUM RATED WITH MAXIMUM FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATING OF 50 OR LESS.

2. INSTALL UNIT IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS PLUMB AND LEVEL FIRMLY ANCHORED IN INDICATED LOCATION.

ACCEPTABLE MANUFACTURERS: TRANE, LENNOX, CARRIER OR EQUAL.

2. POWER VENTILATORS:

FURNISH AND INSTALL CEILING AND ROOF EXHAUST FAN THAT IS FACTORY FABRICATED AND ASSEMBLED WITH CAPACITY AS SCHEDULED.

a. PROVIDE HANGING ISOLATION ISOLATORS AND NECESSARY ACCESSORIES. COORDINATE LOCATION AND DIMENSIONS. PROVIDE WALL LOUVER WHERE APPLICABLE.

b. PROVIDE THE FOLLOWING ACCESSORIES: DISCONNECT SWITCH, BIRD SCREEN AND BACK DRAFT, FAULTY SET TO CLOSE WHEN FAN STOPS.

c. FANS SHALL COMPLY WITH "UL" 705 "POWER VENTILATORS" AND SHALL BE LISTED AND LABELED. MOTOR AND ELECTRICAL ACCESSORIES SHALL COMPLY WITH NEMA STANDARDS AND "NFPFA 70" NATIONAL ELECTRICAL CODE.

ACCEPTABLE MANUFACTURERS: COOK, GREENHECK AND ACME.

3. DOMESTIC WATER HEATERS:

FURNISH AND INSTALL GAS WATER HEATER THAT IS FACTORY TESTED AND ASSEMBLED.

4. PLUMBING SPECIALTIES:

FURNISH AND INSTALL GAS WATER HEATER THAT IS FACTORY TESTED AND ASSEMBLED.

5. ELECTRIC UNIT HEATER:

FURNISH AND INSTALL ELECTRIC UNIT HEATER THAT IS FACTORY TESTED AND ASSEMBLED.

6. DUCTWORK AND ACCESSORIES:

FURNISH AND INSTALL DUCTWORK AND ACCESSORIES THAT IS FACTORY TESTED AND ASSEMBLED.

7. TESTS, ADJUSTMENTS AND ACCEPTANCE:

UPON COMPLETION OF THE ERECTION OF ALL EQUIPMENT AND ALL WORK SPECIFIED HEREIN AND/OR SHOWN ON THE APPROVED SHOP DRAWINGS, OR AT SUCH TIME AS DIRECTED BY THE ARCHITECT, THIS SUBCONTRACTOR SHALL START ALL APPARATUS, MAKE NECESSARY TESTS AS DIRECTED AND AS SPECIFIED HEREIN, AND MAKE COMPLETE ADJUSTMENTS OF ALL ITEMS OF EQUIPMENT BEFORE ACCEPTANCE BY THE ARCHITECT TO WHOM REPRESENTATIVE THIS SUBCONTRACTOR SHALL DEMONSTRATE (BY PERFORMANCE) ALL OF THE VARIOUS APPARATUS AND EQUIPMENT. START UP AND ADJUSTMENT OF EQUIPMENT SHALL INCLUDE ALL EQUIPMENT FURNISHED AND INSTALLED BY THIS CONTRACTOR.

MANUFACTURER'S AUTHORIZED PERSONNEL MUST BE PRESENT AT THE START-UP AND CALIBRATION OF THE ROOFTOP HVAC UNITS.

WORK UNDER THIS SECTION OF THE SPECIFICATIONS SHALL NOT BE CONSIDERED COMPLETE UNTIL THIS SUBCONTRACTOR HAS OBTAINED REQUIRED INSPECTIONS, CONDUCTED PERFORMANCE TESTS, MADE NECESSARY ADJUSTMENTS AND HAS SUBMITTED SATISFACTORY EVIDENCE OF COMPLIANCE. THE ARCHITECT SHALL MAKE SPOT CHECKS TO DETERMINE THE ACCURACY AND COMPLETENESS OF FINAL ADJUSTMENTS. SHOULD SPOT CHECKS INDICATE MORE THAN A REASONABLE DIFFERENCE FROM THE SPECIFIED OR REQUIRED, THE CONTRACTOR SHALL REPEAT TESTS AND ADJUSTMENTS TO THE SATISFACTION OF THE ARCHITECT. DURING THE TESTING PERIOD, THIS SUBCONTRACTOR SHALL MAINTAIN ON THE JOB A COMPETENT INDIVIDUAL, THOROUGHLY FAMILIAR WITH ALL PHASES OF THE HEATING AND VENTILATION SYSTEMS, FOR AS LONG AS MAY BE REQUIRED TO THOROUGHLY ADJUST ALL OF THE SYSTEMS AND TO DEMONSTRATE TO THE ARCHITECT AND/OR ENGINEER THAT THEY ARE FUNCTIONING PROPERLY.

TEMPERATURE CONTROL, WIRING AND CONTROL TESTING SHALL BE BY TEMPERATURE CONTROLS CONTRACTOR.

THE AIR SYSTEMS ARE TO BE BALANCED TO WITHIN 5% OF THE QUANTITIES INDICATED ON THE DRAWINGS.

PREPARE AN AIR BALANCE REPORT COMPLETE WITH AN 8-1/2" X 11" SKETCH OF EACH SYSTEM ON FORMS SIMILAR TO AACB OR NEBB AND SCHEDULE EACH OUTLET, FAN, TERMINAL UNIT, ETC. INCLUDE SUCTION AND DISCHARGE STATIC PRESSURES AND OUTDOOR AIR RETURN AIR AND MIXED AIR TEMPERATURES AT EACH FAN.

SUBMIT (6) COPIES OF THE REPORT TO THE LANDLORD.

BALANCE IS TO BE PERFORMED BY AN INDEPENDENT AND CERTIFIED SYSTEMS BALANCE CONTRACTOR.

INSULATION SPECIFICATIONS GENERAL

INSULATION SHALL BE INSTALLED ON ALL PIPING AND DUCTWORK SYSTEMS WHERE SPECIFIED. INSULATION PRODUCTS SHALL BE MANUFACTURED BY OWENS CORNING, CERTAINTEED, JOHNS-MANVILLE OR KNAUF AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

INSULATION MATERIALS SHALL MEET CURRENT ASHRAE 90.1 REQUIREMENTS INCLUDING MAXIMUM FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATING OF 50 OR LESS.

DUCTWORK THAT IS ACOUSTICALLY LINNED SHALL NOT BE INSULATED.

INSULATION PRODUCTS

ALL DOMESTIC HOT AND COLD WATER PIPING EXCEPT FOR SHORT RUNS TO FIXTURES SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION WITH VAPOR BARRIER TAPE JOINTS AND COVER ELBOWS WITH PRE-FABRICATED PVC OR ALUMINUM ELBOW WRAPS. NOTE THAT PVC IS NOT TO BE USED IN CEILING SPACES USED AS RETURN AIR PLenums.

REFRIGERANT COPPER PIPES ASSOCIATED WITH MSP-1 SHALL BE INSULATED THROUGHOUT WITH ARMAFLEX THICKNESS 1