MECHANICAL SYMBOLS LIST

RTU-1 EF-1	EQUIPMENT TAG
XX / X	RISER SYMBOL
AIR DEVICES	
	CEILING DIFFUSER SUPPLY
	CEILING DIFFUSER RETURN
	EXHAUST GRILLE
DUCT ACCESSORIES	
BD	GRAVITY BACKDRAFT DAMPER
VD	VOLUME DAMPER W/ ACCESS DOOR
M	MOTORIZED DAMPER
	FIRE DAMPER
FSD	FIRE AND SMOKE DAMPER
CONTROLS AND SENSORS	
T S	THERMOSTAT, SENSOR
S D	SMOKE DETECTOR
DUCTWORK	
	NEW SHEET METAL DUCTWORK & SIZE
	SUPPLY OR OUTSIDE AIR DUCT
	RETURN AIR DUCT
	DUCTWORK TRANSITION
	SUPPLY DUCT ELBOW UP OR DOWN
	RETURN DUCT ELBOW UP OR DOWN
	DUCT ELBOW WITH FIXED TURNING VANES
	DUCT BRANCH TAKE-OFF
	FLEXIBLE DUCTWORK

MECHANICAL ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
BD	BACKDRAFT DAMPER
BOD	BOTTOM OF DUCT
BOE	BOTTOM OF EQUIPMENT
BTU	BRITISH THERMAL UNIT
CC	COOLING COIL
CDS	CEILING DIFFUSER SUPPLY
CDR	CEILING DIFFUSER RETURN
CFM	CUBIC FEET PER MINUITE
DN	DOWN
DOAS	DEDICATED OUTDOOR AIR SYSTEM
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EG	EXHAUST GRILLE
EWH	ELECTRICAL WALL HEATER
FC	FLEXIBLE CONNECTION
FU	FURNACE
GC	GENERAL CONTRACTOR
GPS	GLOBAL PLASMA AIR DUCT TUBE SCHEDULE
HZ	HERTZ
LAT	LEAVING AIR TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MOCP	MAXIMUM OVERCURRENT PROTECTION
NC	NOISE CRITERIA
OA	OUTSIDE AIR
RA	RETURN AIR
RG	RETURN GRILLE
RL	RELIEF LOUVER
RTU	ROOF TOP UNIT
SG	SUPPLY GRILLE
VD	VOLUME DAMPER

SUN PRAIRIE, WI BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE INTERNATIONAL BUILDING CODE 2015, AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

1. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
2. VENTILATION FOR ALL AREA SHALL COMPLY WITH INTERNATIONAL MECHANICAL CODE 2015 CHAPTER 4 WITH WISCONSIN AMENDMENTS.
3. AS PER 408.3.2 OF INTERNATIONAL ENERGY CONSERVATION CODE 2015, CONSTRUCTION DOCUMENT SHALL REQUIRE THAT, WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL INSTALLATION BE PROVIDED TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE BUILDING OWNER.
4. AS PER 408.2.5 OF INTERNATIONAL ENERGY CONSERVATION CODE 2015, CONSTRUCTION DOCUMENT SHALL REQUIRE THAT AN OPERATING MANUAL AND A MAINTAINED MANUAL BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS.
5. TESTS WILL BE CONDUCTED UNDER DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS. THE TESTS WILL SHOW COMPLIANCE WITH INTERNATIONAL BUILDING CODE, 2015 REQUIREMENTS AS OUTLINES IN SECTION [BC 1704].
6. THE LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE DOCUMENTATION AND REPORTS OF TESTS THAT THE SYSTEM COMPLIES WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS.
7. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE INTERNATIONAL MECHANICAL CODE 2015:
   A. VENTILATION SYSTEM BALANCING- IMC2015 - 403.7
   B. SMOKE CONTROL SYSTEMS - IMC2015 - 513.3
8. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
   A. STANDARDS OF HEATING - IMC 2015 - 309.1 WITH WI AMENDMENTS.
   B. DUCT CONSTRUCTION AND INSTALLATION- IMC 2015 - 603 WITH WI AMENDMENTS.
   C. AIR INTAKES, EXHAUSTS AND RELIEF - IMC 2015 - 401.5 WITH WI AMENDMENTS
   D. AIR FILTERS - IMC2015 - 605 WITH WI AMENDMENTS.
   E. MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS - IMC2015 - 513 WITH WI AMENDMENTS.
   F. GAS FIRED EQUIPMENT - FUEL GAS CODE WITH WI AMENDMENTS.
9. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
10. VENTILATION FOR ALL AREA SHALL COMPLY WITH IMC 2015-401.
11. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY IMC 2015 - 403.3
12. SMOKE DETECTION SYSTEMS SHALL BE INSTALLED AND SEQUENCED TO FOLLOW CONTROLS OPERATIONS WITH THE REQUIREMENTS OF SECTION IMC 2015 - 606 TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN.
13. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
14. THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

BUILDING CODE COMPLIANCE

ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THESE PROJECT:

a. WISCONSIN BUILDING CODE 2015.

b. WISCONSIN MECHANICAL CODE 2015.

c. WISCONSIN ENERGY CONSERVATION CODE (COMMERCIAL) 2015.

d. WISCONSIN FIRE CODE 2015.

e. WISCONSIN PLUMBING CODE 2015.

MECHANICAL DRAWING LIST

DWG. NO.	DRAWING NAME
M001	MECHANICAL SYMBOLS LIST, ABBREVIATIONS & GENERAL NOTES
M002	MECHANICAL GENERAL NOTES
M101	MECHANICAL FLOOR PLAN
M102	MECHANICAL ROOF PLAN
M201	MECHANICAL SCHEDULES (01 OF 02)
M202	MECHANICAL SCHEDULES (02 OF 02)
M300	MECHANICAL VENTILATION CALCULATION
M401	MECHANICAL DETAILS (01 OF 03)
M402	MECHANICAL DETAILS (02 OF 03)
M403	MECHANICAL DETAILS (03 OF 03)
M404	HOOD DETAIL (01 OF 03)
M405	HOOD DETAIL (02 OF 03)
M406	HOOD DETAIL (03 OF 03)

GENERAL NOTES

1. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.
2. BEFORE PROCEEDING WITH ANY WORK IN OCCUPIED OR USED AREAS, THE CONTRACTOR SHALL APPLY TO OWNER FOR PERMISSION TO ENTER SUCH AREAS. THE CONTRACTOR IS OBLIGED TO PERFORM HIS WORK ONLY AT THE TIMES DESIGNATED BY OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THE WORK PERFORMED AFTER HOURS OR ON OFF-DAYS WITHOUT PRIOR WRITTEN APPROVAL.
3. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.
4. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
5. CONTRACTOR SHALL ASCERTAIN THE APPROPRIATE METHOD FOR BRINGING THE UNITS INTO AND THROUGH THE BUILDING TO POSITION UNIT IN LOCATION SHOWN ON THE PLANS. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH RESTRICTIVE SPACES. COORDINATE WITH BUILDING OWNER APPROPRIATE TIMES OF DAY SUCH EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.
6. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN MAKING UP THE WORK PROPOSAL.
7. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
8. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT.
9. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. PROVIDE TEMPORARY DUCT CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME.
10. SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES, DUCTWORK CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER.
11. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.
12. SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL (FIBERGLASS INSULATION IS NOT ACCEPTABLE).
13. WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRE PROOFED THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY.
14. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
15. ACCESS DOORS ARE REQUIRED FOR ALL FANS, AND ACCESS DOOR SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL. COORDINATE ALL LOCATIONS OF ACCESS DOORS WITH THE ARCHITECT.
16. REMOVABLE ACCESS TILE AND/OR ACCESS DOOR ARE REQUIRED IN HUNG CEILINGS, SHAFTS AND WALLS FOR ALL VOLUME AND FIRE DAMPERS, AUTOMATIC DAMPERS AND ALL OTHER MECHANICAL EQUIPMENT AND DEVICES. HVAC CONTRACTOR TO FURNISH ACCESS LOCATION REQUIREMENTS TO GENERAL CONTRACTOR. ACCESS TILE IDENTIFICATION: PROVIDE BUTTONS, TABS, AND MARKERS TO IDENTIFY LOCATION OF CONCEALED VALVES, DAMPERS AND EQUIPMENT.
17. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.
18. UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.
19. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
20. ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE
21. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST, OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FAILURE OF ANY DUCTWORK SYSTEM OR EQUIPMENT TO FUNCTION PROPERLY UPON COMPLETION OF HIS WORK UPON SAID SYSTEM OR EQUIPMENT.
24. SUBMIT SHOP DRAWING OF ALL WORK WHICH MUST BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE WORK COMMENCES.
25. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
26. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING DUCTWORK, PIPING (SIZES, CLEARANCES, ETC) AND CONDITIONS.
27. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS THE CONTRACTOR SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
28. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.
29. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.
30. WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS, THE SPECIFICATIONS OR ANY OTHER CONSTRUCTION DOCUMENT, THE ONE WITH THE MOST STRINGENT REQUIREMENT(S) SHALL APPLY.

DEFINITIONS:

1) "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

3) "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

SCOPE OF WORK

1. THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS AS DESCRIBED IN THE SPECIFICATIONS, FLOOR PLAN(S), DESIGN, DETAIL DRAWINGS, NOTED, RFI'S, ETC. FOR THIS PROJECT. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.
2. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.
3. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OF ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES, BY OWNER, INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

GENERAL HVAC NOTE

1. PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
3. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
4. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
5. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
6. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
7. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
8. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
9. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.
10. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
11. LOCATE ALL TEMPERATURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP- AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
12. WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING SIZE AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO THE FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.
13. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
14. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION. ACCESS PANELS SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL.
15. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.
16. ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
17. ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
18. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
19. ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.
20. ALL RTU AND AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH RTU AND AIR HANDLING UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO THE NEAREST DRAIN. SEE THE DETAILS SHOWN IN THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP.
21. REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.
22. ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
23. TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE AABC STANDARDS.

THERMOSTATIC NOTES

C403.2.4.1 THERMOSTATIC CONTROLS
THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE. WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, AT LEAST ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.

EXCEPTION: INDEPENDENT PERIMETER SYSTEMS THAT ARE DESIGNED TO OFFSET ONLY BUILDING ENVELOPE HEAT LOSSES, GAINS OR BOTH SERVING ONE OR MORE PERIMETER ZONES ALSO SERVED BY AN INTERIOR SYSTEM PROVIDED:

1. THE PERIMETER SYSTEM INCLUDES AT LEAST ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN +/-45 DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15 240 MM); AND
2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.

C403.2.4.1.2 DEADBAND
WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CAPABLE OF PROVIDING A TEMPERATURE RANGE OR DEADBAND OF AT LEAST 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM.

EXCEPTIONS:

1. THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.
2. OCCUPANCIES OR APPLICATIONS REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL AS APPROVED BY THE CODE OFFICIAL.

C403.2.4.1.3 SETPOINT OVERLAP RESTRICTION
WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE , A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE PROVIDED WITH THE CAPABILITY TO PREVENT THE HEATING SET POINT FROM EXCEEDING THE COOLING SET POINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.2.4.1.2.

C403.2.4.2 OFF-HOUR CONTROLS
EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.

EXCEPTIONS:

1. ZONES THAT WILL BE OPERATED CONTINUOUSLY.
2. ZONES WITH A FULL HVAC LOAD DEMAND NOT EXCEEDING 6,800 BTU/H (2 KW) AND HAVING A READILY ACCESSIBLE MANUAL SHUTOFF SWITCH.

C403.2.4.2.1 THERMOSTATIC SETBACK CAPABILITIES
THERMOSTATIC SETBACK CONTROLS SHALL HAVE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).

C403.2.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN CAPABILITIES
AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS; A MANUALLY OPERATED TIMER CAPABLE OF BEING ADJUSTED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

C403.2.4.2.3 AUTOMATIC START CAPABILITIES
AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE CONTROLS SHALL BE CAPABLE OF AUTOMATICALLY ADJUSTING THE DAILY START TIME OF THE

HVAC DUCTWORK - SHEET METAL

1. CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK,ACCESS DOORS, VOLUME DAMPERS, ETC., ARE INDICATED ON THE CONTRACT DOCUMENT DRAWINGS FOR CLARITY FOR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THESE ITEMS.

2. CONTRACTOR TO CHECK AND CORRECT ANY AND ALL DEFICIENCIES IN EXISTING DUCTS. ALL NEW DUCTWORK WILL COMPLY WITH THE LATEST SMACNA GUIDELINES AND CONFORM WITH REQUIREMENTS OF THE LATEST HANDBOOKS PUBLISHED BY ASHRAE.

3. PROVIDE VOLUME DAMPER AT EACH TAP TO MAIN DUCT AND WHERE NECESSARY TO PROPERLY BALANCE SYSTEM.

4. SUPPLY AND RETURN DUCTWORK 10' FROM ALL AC UNITS SHALL BE LINED WITH 1" ACOUSTICAL LINING.

5. RE-INSULATE ALL DUCTWORK AND PIPING IN WHICH INSULATION HAS BEEN REMOVED OR DAMAGED WITH INSULATION EQUAL TO THE EXISTING INSULATION.

6. CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY SUPPLY DIFFUSERS AND RETURN AIR REGISTERS WHERE INDICATED ON THE DRAWING. COORDINATE LOCATION OF DIFFUSERS AND REGISTERS WITH REFLECTED CEILING PLAN.

7. IN CORRIDORS WHERE CEILING SPEAKERS AND AIR DIFFUSERS ARE INDICATED BETWEEN THE SAME LIGHT FIXTURES, INSTALL BOTH DEVICES AT THE QUARTER POINTS BETWEEN THE FIXTURES.

8. UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS 4'-0" (CENTER LINE) ABOVE THE FINISHED FLOOR. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE PRECEDING LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.

9. ALL DUCTWORK SHALL CLEAR DOORS AND WINDOWS.

10. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.

11. PROVIDE ALL 90-DEGREE SQUARE ELBOWS WITH DOUBLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED. ELBOWS IN KITCHEN EXHAUSTS SHALL BE OF UN-VANED SMOOTH RADIUS CONSTRUCTION WITH A RADIUS EQUAL TO 1-1/2 TIMES THE WIDTH OF THE DUCT. PROVIDE ACCESS DOORS UPSTREAM OF ALL ELBOWS WITH TURNING VANES.

12. COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.

13. ALL RTU AND AIR HANDLING UNITS SHALL OPERATE WITHOUT MOISTURE CARRYOVER.

14. LOCATE ALL MECHANICAL EQUIPMENT FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS, AND VALVING.

15. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN, AND EXHAUST) CONNECTED TO AIR HANDLING UNITS, FANS, AND OTHER EQUIPMENT THAT REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.

16. UNLESS OTHERWISE NOTED, ALL DUCTWORK IS OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION IF NEEDED.

17. RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 5 FT.

18. ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

19. PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL SMOKE DETECTORS, FIRE DAMPERS, SMOKE DAMPERS, VOLUME DAMPERS, COILS, AND OTHER ITEMS LOCATED IN THE DUCTWORK THAT REQUIRE SERVICE AND/OR INSPECTION.

20. PROVIDE ACCESS DOORS IN DUCTWORK FOR THE OPERATION, ADJUSTMENT, AND MAINTENANCE OF ALL FANS, VALVES, AND MECHANICAL EQUIPMENT.

21. ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.

22. SMOKE DETECTORS SHALL BE FURNISHED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MOUNTING THE SMOKE DETECTOR IN DUCTWORK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

23. SEE SPECIFICATIONS FOR DUCTWORK GAUGES, BRACING, HANGERS, AND OTHER REQUIREMENTS.

24. EXTERIOR LOUVERS ARE INDICATED FOR SIZE, GENERAL LOCATION AND PERFORMANCE ONLY. DETAILED LOUVER DESCRIPTIONS ARE PROVIDED IN THE ARCHITECTURAL SPECIFICATIONS.

SPECIFICATIONS

SECTION 0001 - NOTICE TO BIDDERS

1.1 BIDDERS REPRESENTATIONS

A. THE BIDDER BY MAKING A BID REPRESENTS THAT:

THE BIDDER HAS READ AND UNDERSTANDS THE BIDDING DOCUMENTS, TO THE EXTENT THAT SUCH DOCUMENTATION RELATES TO THE WORK FOR WHICH THE BID IS SUBMITTED, AND FOR OTHER PORTIONS OF THE PROJECT, IF ANY, BEING BID CONCURRENTLY OR PRESENTLY UNDER CONSTRUCTION.

B. THE BID IS MADE IN COMPLIANCE WITH THE BIDDING DOCUMENTS.

C. THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS FOR THE BIDDER TO SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOR.

D. SHOULD CONFLICTS OR DISCREPANCIES OCCUR WITHIN THE BIDDING DOCUMENTS, THE ITEM OR ITEMS IN DISPUTE THAT REPRESENT THE GREATER COST SHALL PREVAIL IN THE FINAL BID.

E. THE BID IS BASED UPON THE MATERIALS, EQUIPMENT AND SYSTEMS REQUIRED BY THE BIDDING DOCUMENTS WITHOUT EXCEPTION.

1.2 EXISTING CONDITIONS AND COORDINATION

A. THE BIDDER HAS VISITED THE SITE, BECOME FAMILIAR WITH LOCAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND HAS CORRELATED THE BIDDER'S PERSONAL OBSERVATIONS WITH THE REQUIREMENTS OF THE PROPOSED BIDDING DOCUMENTS.

B. THE BIDDER SHALL PROPOSE COORDINATION OF WORK SUCH THAT CONFLICTS WITH OTHER TRADES AND SPACE ALLOCATIONS ARE AVOIDED.

1.3 RESPONSIBILITIES

A. THE BIDDER UNDERSTANDS THAT ANY CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE TIMELY COMPLETION AND ACCEPTANCE OF THEIR WORK AND THAT ANY ITEMS DAMAGED, LOST OR STOLEN DURING TIME OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED WITHOUT ANY ADDITIONAL COST TO THE OWNER.

B. THE BIDDER UNDERSTANDS THAT ANY PROPOSED WORK IN OCCUPIED TENANT SPACES SHALL BE PERFORMED DURING TIMES OF NON-TENANT OCCUPANCY OR AS SCHEDULED OR DIRECTED BY THE BUILDING MANAGER.

C. THE BIDDER UNDERSTANDS THAT ANY PROPOSED SHUT-DOWN OF EXISTING SYSTEMS DURING CONSTRUCTION SHALL BE PRE-ARRANGED WITH THE BUILDING MANAGER AND THAT SUCH SHUT-DOWNS ARE TO BE KEPT TO A MINIMUM.

END OF SECTION 0001

SECTION 0101 - QUALITY OF WORK

1.1 WORKMANSHIP

A. ALL WORK SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.

B. ALL DEFECTS WHICH DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ARCHITECT OR BUILDING MANAGER AT NO ADDITIONAL COST TO THE OWNER.

C. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE FROM THE SITE, ALL TOOLS, DEMOLISHED APPLIANCES AND ANY SURPLUS MATERIAL.

1.2 CODE COMPLIANCE

A. ALL WORK SHALL MEET ALL STATE AND LOCAL CODES HAVING JURISDICTION.

END OF SECTION 0101

SECTION 0102 -REQUIRED DOCUMENTS

1.1 SHOP DRAWINGS

A. A SET OF PRINTS FOR ANY MECHANICAL WORK INCLUDING BUT NOT LIMITED TO, DUCTWORK AND PIPING LAYOUT SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO CONSTRUCTION OR PURCHASE OF MATERIALS.

1.2 SUBMITTALS

A. EQUIPMENT SUBMITTALS OF ALL PROPOSED MECHANICAL AND ANCILLARY EQUIPMENT INCLUDING ALL ACCESSORIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. ALL PERTINENT MODELS, SIZES, ACCESSORIES AND CHOICES SHALL BE CLEARLY CHECKED, PRINTED OR OTHERWISE INDICATED ON THE SUBMITTALS.

1.3 RECORD DRAWINGS

A. UPON COMPLETION OF THE WORK, A RECORD DRAWING SHALL BE SUBMITTED TO THE OWNER DEPICTING ALL SUBSEQUENT CHANGES, ADDITIONS AND OR CORRECTIONS TO THE CONTRACT DRAWINGS AND OR CONTRACT SCOPE MADE DURING CONSTRUCTION. THIS DRAWING SHALL REPRESENT A COMPLETE RECORD OF THE WORK INSTALLED.

1.4 EQUIPMENT OPERATING INSTRUCTIONS

A. ON COMPLETION AND ACCEPTANCE OF WORK, THIS CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS,EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE-RING BINDERS WITH CLEAR ACETATE COVERS. THE CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE ELECTRONIC COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE COVER OF THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS.

END OF SECTION 0102

SECTION 078413-PENETRATION FIRE-STOPPING

1.1 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: AN FM GLOBAL-APPROVED FIRE-STOP CONTRACTOR OR A UL-QUALIFIED FIRE-STOP CONTRACTOR.

B. FIRE-TEST-RESPONSE CHARACTERISTICS: UL, INTERTEK ETL SEMKO OR FM GLOBAL

1.2 PENETRATION FIRESTOPPING

A. PENETRATIONS IN FIRE-RESISTANCE-RATED WALLS: F-RATINGS PER ASTM E 814 OR UL 1479.

B. PENETRATIONS IN HORIZONTAL ASSEMBLIES: F- AND T-RATINGS PER ASTM E 814 OR UL 1479:

C. PENETRATIONS IN SMOKE BARRIERS: L-RATINGS PER UL 1479.

D. W-RATINGS: PER UL 1479.

1.3 INSTALLATION

A. IDENTIFICATION: PREPRINTED METAL OR PLASTIC LABELS.

1.4 FIELD QUALITY CONTROL

A. INSPECTION OF INSTALLED FIRE-STOPPING: BY OWNER-ENGAGED AGENCY ACCORDING TO ASTM E 2174.

1.5 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE

WHERE UL-CLASSIFIED SYSTEMS ARE INDICATED, THEY REFER TO SYSTEM NUMBERS IN UL'S "FIRE RESISTANCE DIRECTORY" UNDER PRODUCT CATEGORY XHEZ.

FOR THE FOLLOWING SYSTEMS:

METALLIC AND NON-METALLIC PIPES, CONDUIT, OR TUBING, ELECTRICAL CABLES, CABLE TRAYS WITH ELECTRIC CABLES, MISCELLANEOUS ELECTRICAL PENETRANTS, INSULATED PIPES, GROUPINGS OF PENETRANTS, USE ON OR MORE THE FOLLOWING MATERIALS:

a. LATEX SEALANT
b. SILICONE SEALANT
c. INTUMESCENT PUTTY
d. MORTAR
h. SILICONE FOAM
i. PILLOWS/BAGS
j. INTUMESCENT WRAP STRIPS
k. INTUMESCENT COMPOSITE SHEET

1.6 MANUFACTURERS

1. HILTI CONSTRUCTION CHEMICAL, INC
2. TREMCO INC.
3. 3M FIRE PROTECTION PRODUCTS

END OF SECTION 078413

SECTION 230517 - SLEEVES AND SLEEVE SEALS FOR HVAC PIPING

1.1 SLEEVE-SEAL SYSTEMS

A. FIELD-ASSEMBLED, MODULAR SEALING-ELEMENT UNIT FOR FILLING ANNULAR SPACE BETWEEN PIPING AND SLEEVE

1. SEALING ELEMENTS: EPDM RUBBER OR NBR.
2. PRESSURE PLATES: CARBON STEEL, PLASTIC, STAINLESS STEEL.
3. CONNECTING BOLTS AND NUTS: CARBON STEEL WITH CORROSION-RESISTANT COATING, STAINLESS STEEL.

B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

1. ADVANCE PRODUCTS & SYSTEMS, INC.
2. CALPICO, INC.
3. METRAFLEX COMPANY (THE).
4. PIPELINE SEAL AND INSULATOR, INC.
5. PROCO PRODUCTS, INC.

1.2 SLEEVE-SEAL FITTINGS

A. MANUFACTURED PLASTIC, SLEEVE-TYPE, PLASTIC OR RUBBER WATER-STOP ASSEMBLY MADE FOR IMBEDDING IN CONCRETE SLAB OR WALL.

1.3 GROUT

A. NON-SHRINK, FACTORY PACKAGED.

1.4 SLEEVE AND SLEEVE-SEAL SCHEDULE

A. USE SLEEVES AND SLEEVE SEALS FOR THE FOLLOWING PIPING-PENETRATION APPLICATIONS:

1. INTERIOR PARTITIONS:
a. PIPING SMALLER THAN NPS 6 (DN 150): GALVANIZED-STEEL-PIPE SLEEVES, PVC-PIPE SLEEVES.
b. PIPING NPS 6 (DN 150) AND LARGER: GALVANIZED-STEEL-SHEET SLEEVES.

END OF SECTION 230517

SECTION 230518 - ESCUTCHEONS FOR HVAC PIPING

PART 2 - PRODUCTS

2.1 ESCUTCHEONS

A. ONE-PIECE, CAST-BRASS TYPE: WITH POLISHED, CHROME-PLATED AND ROUGH-BRASS FINISH AND SETSCREW FASTENER.

B. ONE-PIECE, DEEP-PATTERN TYPE: DEEP-DRAWN, BOX-SHAPED BRASS WITH CHROME-PLATED FINISH AND SPRING-CLIP FASTENERS.

C. ONE-PIECE, STAMPED-STEEL TYPE: WITH CHROME-PLATED FINISH AND SPRING-CLIP FASTENERS.

2.2 FLOOR PLATES

A. ONE-PIECE FLOOR PLATES: CAST-IRON FLANGE WITH HOLES FOR FASTENERS.

PART 3 - EXECUTION

3.1 INSTALLATION

A. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FINISHED FLOORS.

B. INSTALL ESCUTCHEONS WITH ID TO CLOSELY FIT AROUND PIPE, TUBE, AND INSULATION OF PIPING AND WITH OD THAT COMPLETELY COVERS OPENING.

1. ESCUTCHEONS FOR NEW PIPING:
a. PIPING WITH FITTING OR SLEEVE PROTRUDING FROM WALL: ONE-PIECE, DEEP-PATTERN TYPE.
b. INSULATED PIPING: ONE-PIECE, STAMPED-STEEL TYPE.
c. BARE PIPING AT WALL AND FLOOR PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED, CHROME-PLATED FINISH OR STAMPED-STEEL TYPE.
d. BARE PIPING AT CEILING PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED, CHROME-PLATED FINISH OR STAMPED-STEEL TYPE.

3.2 FIELD QUALITY CONTROL

A. REPLACE BROKEN AND DAMAGED ESCUTCHEONS AND FLOOR PLATES USING NEW MATERIALS.

END OF SECTION 230518

SECTION 230529 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

1.1 PERFORMANCE REQUIREMENTS

A. DELEGATED DESIGN: DESIGN TRAPEZE PIPE HANGERS AND EQUIPMENT SUPPORTS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.

B. STRUCTURAL PERFORMANCE: HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED ACCORDING TO ASCE/SEI 7.

1. DESIGN SUPPORTS FOR MULTIPLE PIPES CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, SYSTEM CONTENTS, AND TEST WATER.
2. DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND
3.DESIGN SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

1.2 SUBMITTALS

A. SHOP DRAWINGS: SIGNED AND SEALED BY A PROFESSIONAL ENGINEER

1.3 QUALITY ASSURANCE

A. AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE - STEEL."

1.4 COMPONENTS

A. METAL PIPE HANGERS AND SUPPORTS: CARBON OR STAINLESS STEEL
B. TRAPEZE PIPE HANGERS: CARBON OR STAINLESS STEEL
C. FIBERGLASS PIPE HANGERS: CLEVIS, CENTURY COMPOSITES, COOPER B-LINE
D. METAL FRAMING SYSTEMS: MFMA MANUFACTURER
E. FIBERGLASS STRUT SYSTEMS: COOPER B-LINE
F. THERMAL-HANGER SHIELD INSERTS:
G. FASTENER SYSTEMS: POWDER-ACTUATED FASTENERS OR MECHANICAL-EXPANSION ANCHORS
H. PIPE STANDS: COMPACT, LOW TYPE, SINGLE PIPE, HIGH TYPE, SINGLE PIPE, HIGH TYPE, MULTIPLE PIPES, CURB-MOUNTED TYPE
I. EQUIPMENT SUPPORTS.

END OF SECTION 230529

SECTION 230548 - VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 COMPONENTS

A. VIBRATION ISOLATORS:
1. ISOLATOR PADS: NEOPRENE, RUBBER, HERMETICALLY AND/OR SEALED COMPRESSED FIBERGLASS
2. MOUNTS: DOUBLE-DEFLECTION TYPE.
3. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST-DUCTILE-IRON HOUSING.
4. SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN-SPRING TYPE.
5. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN-SPRING TYPE WITH SEISMIC RESTRAINT.
6. HOUSED SPRING MOUNTS: DUCTILE-IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.
7. ELASTOMERIC HANGERS: DOUBLE-DEFLECTION TYPE.
8. SPRING HANGERS: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.
9. SPRING HANGERS WITH VERTICAL-LIMIT STOP: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL-LIMIT STOP.
10.PIPE RISER RESILIENT SUPPORT: ALL-DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.
11.RESILIENT PIPE GUIDES.

B. AIR-MOUNTING SYSTEMS:
1. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED-AIR BELLOWS.
2. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED-AIR BELLOWS.

C. RESTRAINED VIBRATION ISOLATION ROOF-CURB RAILS: FACTORY-ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR- AND WATERTIGHT CURB RAIL; WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.

D. VIBRATION ISOLATION EQUIPMENT BASES:
1. STEEL BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS.
2. INERTIA BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE

1.2 FIELD QUALITY CONTROL

A. TESTING: BY EITHER: OWNER-ENGAGED AGENCY, CONTRACTOR-ENGAGED AGENCY, OR CONTRACTOR.

PART-2 PRODUCTS

1.1 VIBRATION ISOLATORS & SEISMIC-RESTRAINT DEVICES

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

B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. ACE MOUNTINGS CO., INC.
2. AMBER/BOOTH COMPANY, INC.
3. CALIFORNIA DYNAMICS CORPORATION.
4. HILTI, INC.
5. ISOLATION TECHNOLOGY, INC.
6. KINETICS NOISE CONTROL.
7. LOOS & CO.; CABLEWARE DIVISION.
8. MASON INDUSTRIES.
9. TOLCO INCORPORATED; A BRAND OF NIBCO INC.
10. UNISTRUT; TYCO INTERNATIONAL, LTD.

END OF SECTION 230548

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

1.1 SUMMARY

A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:

1. AIR SYSTEMS: CONSTANT-VOLUME SYSTEMS

1.2 QUALITY ASSURANCE

A. THE CONTRACTOR SHALL PROCURE THE SERVICES OF A TESTING, ADJUSTING AND BALANCING (TAB) SPECIALIST WHO SPECIALIZES IN HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS. THE TAB AGENT SHALL HAVE THE FOLLOWING QUALIFICATIONS: AABC, NEBB OR TABB CERTIFIED.

1.3 EXECUTION

A. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL EXISTING AIR AND HYDRONIC SYSTEMS THAT ARE TO REMAIN OR TO BE INCORPORATED INTO NEW WORK PRIOR TO THE STARTING OF WORK IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.

B. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL NEW AIR AND HYDRONIC SYSTEMS AS LISTED ABOVE IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.

C. THE REPORT SHALL INDICATE A SCHEMATIC DIAGRAM INDICATING LOCATIONS OF ALL EQUIPMENT TESTED AND MEASUREMENT LOCATIONS.

D. PRIOR TO FINAL INSPECTION OF THE WORK, THE TAB SPECIALIST SHALL BALANCE ALL SYSTEMS AS INDICATED ABOVE TO THE REQUIREMENTS OF THE DESIGN.

E. THE CONTRACTOR SHALL HAVE FURNISH AND INSTALL ALL ADDITIONAL BALANCING EQUIPMENT, PRESSURE TAPS, GAUGES AND OTHER EQUIPMENT AS REQUIRED FOR A PROPERLY BALANCED SYSTEM AT NO ADDITIONAL COST TO THE OWNER. SUCH ADDITIONAL EQUIPMENT SHALL ADHERE IN STRICT ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

F. THE CONTRACTOR SHALL HAVE THE TESTING AND BALANCING SPECIALIST COORDINATE ALL WORK OF THIS SSECTION WITH THE BUILDING MANAGER. BALANCING WORK SHALL NOT CONFLICT WITH OTHER WORK SO AS TO MAINTAIN COMPLETION WITHIN THE SPECIFIED TIME.

G. ALL INSTRUMENTS USED FOR TAB SHALL BE MAINTAINED IN GOOD WORKING CONDITION AND ACCURATELY CALIBRATED.

H. TOLERANCES: PLUS OR MINUS 5 PERCENT OF DESIGN VALUES.

I. INSPECTIONS: RANDOM CHECKS BY OWNER OR ARCHITECT TO VERIFY FINAL TESTING, ADJUSTING, AND BALANCING REPORT.

J. ADDITIONAL TESTS: RANDOM TESTS WITHIN 90 DAYS OF COMPLETING TAB TO VERIFY BALANCE CONDITIONS AND SEASONAL TESTS.

END OF SECTION 230593

SECTION 230713 - DUCT INSULATION

1.1 QUALITY ASSURANCE

SURFACE-BURNING CHARACTERISTICS: ALL INSULATION SHALL HAVE COMPOSITE (INSULATION JACKET OR FACING AND ADHESIVE USED TO ADHERE THE FACING OR JACKET TO THE INSULATION) A FLAME-SPREAD INDEX OF 25, AND SMOKE-DEVELOPED INDEX OF 50 FOR INSULATION INSTALLED INDOOR, 75, AND SMOKE-DEVELOPED INDEX OF 150 FOR INSULATION INSTALLED OUTDOORS; ACCORDING TO ASTME 84.

1.2 FIELD QUALITY CONTROL

A. FIELD INSPECTIONS: BY OWNER-ENGAGED AGENCY.

1.3 INDOOR DUCT AND PLENUM INSULATION SCHEDULE:

A. CONCEALED, RECTANGULAR, ROUND AND FLAT-OVAL, SUPPLY-RETURN, OUTDOOR-AND EXHAUST-AIR DUCT AND AIR PLENUM INSULATION:

B. FLEXIBLE ELASTOMERIC, MINERAL-FIBER BLANKET, MINERAL-FIBER BOARD OR POLYOLEFIN WITH MINIMUM INSTALLED THERMAL RESISTANCE AS FOLLOWS:

UNCONDITIONED SPACES WITHIN BUILDING: R-6
WITHIN BUILDING ENVELOPE ASSEMBLY : R-12
OUTSIDE OF BUILDING : R-12

1.4 ITEMS NOT INSULATED:

1. FIBROUS-GLASS DUCTS.
2. METAL DUCTS WITH DUCT LINER OR SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE/IESNA 90.1.
3. FACTORY-INSULATED FLEXIBLE DUCTS.
4. FACTORY-INSULATED PLENUMS AND CASINGS.
5. FLEXIBLE CONNECTORS.
6. VIBRATION-CONTROL DEVICES.
7. FACTORY-INSULATED ACCESS PANELS AND DOORS.
8. DUCTS THAT HAVE INTERNAL ACOUSTICAL LINING.

1.5 PRODUCTS

A. THE FOLLOWING INSULATION MANUFACTURERS WILL BE ACCEPTABLE:

1. JOHNS-MANVILLE
2. OWENS-CORNING

1.6 ACOUSTICAL TREATMENT

1. WHERE SHOWN ON THE DRAWINGS, LOW PRESSURE DUCTWORK SHALL BE LINED WITH 1.5" THICK R-6 AS MANUFACTURED BY DUCTMATE, 1-1/2 POUND MINIMUM DENSITY, NEOPRENE COATED, FLEXIBLE FIBERGLASS DUCT LINER. LINING SHALL COMPLY WITH NFPA 90A AND SHALL HAVE A FLAME SPREAD CLASSIFICATION OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT MORE THAN 50. DUCT SIZES WHERE LINING IS INDICATED ON PLANS ARE MINIMUM INSIDE CLEAR DIMENSIONS REQUIRED.

1.7 SEALANT MATERIALS

1. TWO-PART TAPE SEALING SYSTEM.
2. WATER-BASED JOINT AND SEAM SEALANT.
3. SOLVENT-BASED JOINT AND SEAM SEALANT.
4. FLANGED JOINT SEALANT.
5. FLANGE GASKETS.

END OF SECTION 230713

SECTION 233113 - METAL DUCTS

1.1 CONSTRUCTION

A. EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS. WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 2-1/2 INCH WG PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THESE STANDARDS, REGARDLESS OF THE VELOCITY IN THE DUCT.

B. ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 2" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:

1. DUCTWORK SHALL BE TRANSVERSELY JOINTED BY CONNECTING SEAMS OF COMPANION ANGLES, FORMED FROM 1-1/2"X1-1/2"X1-1/2"X1/8" GALVANIZED ANGLES, TACK-WELDED OR RIVETED TO THE DUCT. THE ANGLE FRAME SHALL BE CONTINUOUSLY FLANGED UP INTO UPRIGHT OF ANGLE AND EACH CORNER SHALL BE FILLED IN AND GROUND SMOOTH. JOINTS SHALL BE GASKETED WITH 1/8" THICK REINFORCED GASKET, OVERLAPPED AT CORNERS. GASKET SIMILAR TO 3M-1202 OR APPROVED EQUAL.
2. RECTANGULAR FITTINGS AND ALL TRANSITION PIECES FROM RECTANGULAR TO ROUND SHALL BE NO. 16 GAUGE ALL WELDED CONSTRUCTION.
3. HORIZONTAL DUCTS SHALL BE SUPPORTED ON NOT MORE THAN 6' CENTERS. VERTICAL RISERS SHALL BE SUPPORTED AT EACH FLOOR.
4. LONGITUDINAL SEAMS FOR RECTANGULAR DUCTWORK SHALL BE PITTSBURGH LOCK SEAMS WITH SEALING COMPOUND, EQUAL TO BENJAMIN FOSTER NO. 30-03 INSERTED INTO SEAM. ALL SEAMS SHALL BE BRUSHED WITH NO. 30-02 AND COVERED WITH APPROVED SEALING TAPE.
5. RECTANGULAR DUCTWORK 18 GAUGE AND HEAVIER, FILLER RODS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS FOR IRON AND STEEL GAS WELDING RODS, ASTM 215; AWG 45.
6. ALL FITTINGS SUCH AS ELBOWS, TEES, ETC., SHALL BE NO. 20 GAUGE ZINC COATED STEEL. ELBOWS SHALL BE OF FIVE (5) PIECE WELDED AIRTIGHT CONSTRUCTION.

C. WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR, WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:

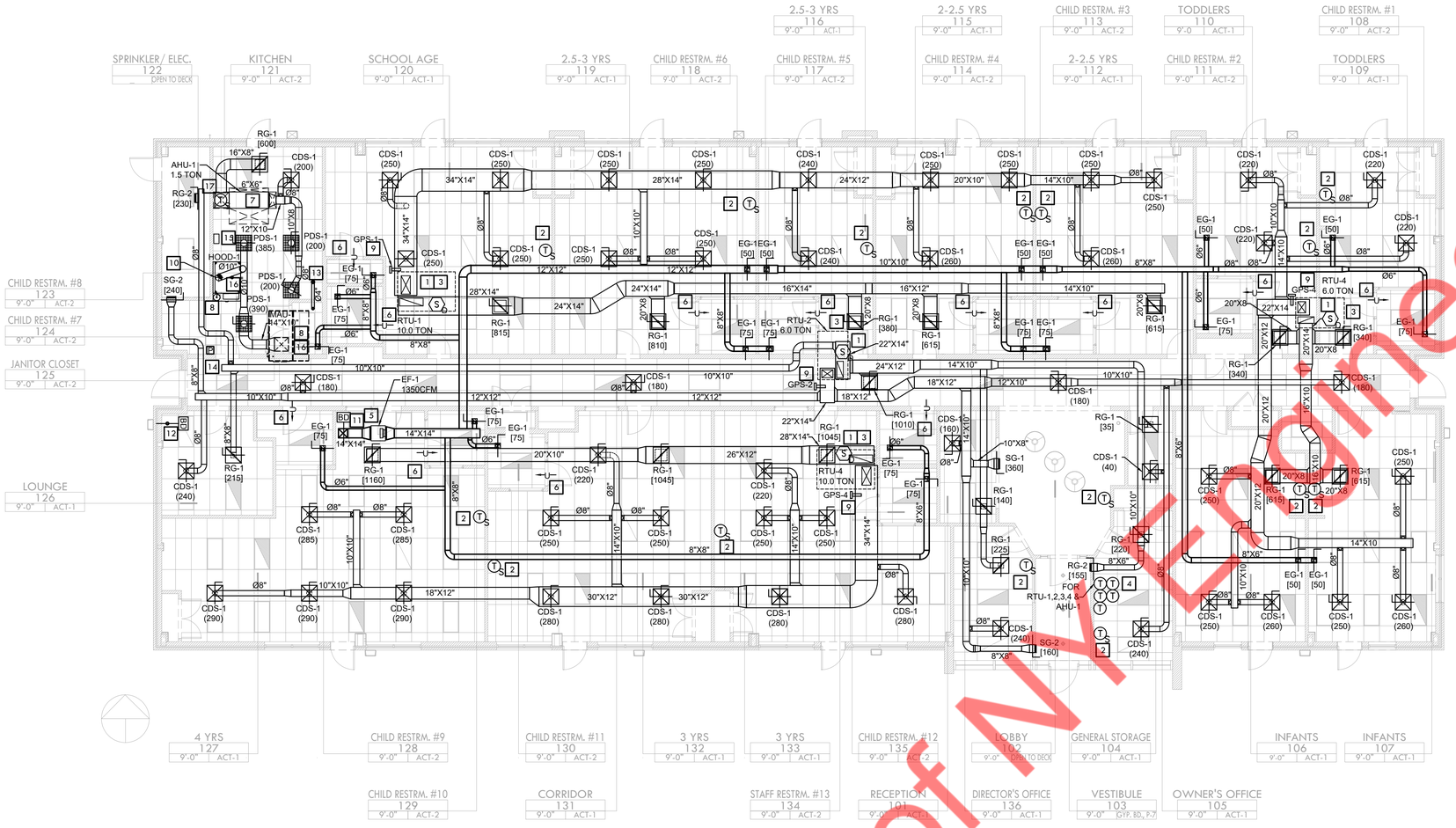
USG	MAX. SIDE INCHES	TRANSVERSE JOINTS AND BRACING
22	UP TO 12	S SLIP, DRIVE SLIP, ONE INCH 8 FOOT CENTERS
22	13 TO 24	POCKET LOCK ON 1"X1"X1/8" ANGLES ON 4 FOOT CENTERS
20	25 TO 35	1"X1"X1/8" ANGLES ON 2 FOOT CENTERS

D. PROVIDE TAPPING IN DUCTS FOR THERMOMETERS WHERE SPECIFIED. IN ADDITION, PROVIDE AN AIRTIGHT PLUGGED TAPPING LOCATED AS FOLLOWS:

1. UPSTREAM OF EACH REHEAT COIL AND VAV BOX.
2. DOWNSTREAM OF EACH REHEAT COIL AND VAV BOX.

E. FLAT OVAL OR ROUND DUCTWORK MAY BE PROVIDED IN LIEU RECTANGULAR DUCTWORK WITH THE REINFORCEMENT FOR FLAT SIDES SAME AS SPECIFIED FOR THE RECTANGULAR DUCTWORK AND AS PER SMACNA FLAT OVAL DUCT CONSTRUCTION STANDARDS SHOWN IN FIG. 3-6 AND AS SHOWN IN FIG. 3-1 AND 3-2 FOR ROUND DUCTWORK.

F.



KITCHEN EXHAUST SYSTEM NOTES

1. PROVIDE CLEAN OUT AT ALL ELBOWS AND BOTTOM OF RISER AND EVERY 20 FEET HORIZONTAL KITCHEN EXHAUST DUCT.
2. COMMERCIAL KITCHEN GREASE DUCTS SHALL BE DESIGNED FOR THE TYPE OF COOKING APPLIANCE AND HOOD SERVED.
3. JOINTS, SEAMS AND PENETRATIONS OF GREASE DUCTS SHALL BE MADE WITH A CONTINUOUS LIQUID TIGHT WELD OR BRAZE MADE IN THE EXTERNAL SURFACE IF THE DUCT SYSTEMS.
4. DUCT TO EXHAUST FAN CONNECTIONS SHALL BE FLANGED, GASKETED AND BOLTED TO THE INLET OF THE FAN. APPROVED FLEXIBLE CONNECTIONS MAY BE PROVIDED.
5. A VIBRATION ISOLATION CONNECTOR FOR CONNECTING A DUCT TO A FAN SHALL CONSIST OF NON-COMBUSTIBLE PACKING IN A METAL SLEEVE JOINT OF APPROVED DESIGN OR SHALL BE A COATED-FABRIC FLEXIBLE DUCT CONNECTOR LISTED AND LABELED FOR THE APPLICATION. VIBRATION ISOLATION CONNECTORS SHALL BE INSTALLED ONLY AT THE CONNECTION OF A DUCT TO A FAN INLET OR OUTLET.
6. PRIOR TO THE USE OR CONCEALMENT OF ANY PORTION OF A GREASE DUCT SYSTEM, A LEAKAGE TEST SHALL BE PERFORMED. DUCT SHALL BE CONSIDERED TO BE CONCEALED WHERE INSTALLED IN SHAFTS OR COVERED BY COATINGS OR WRAPS THAT PREVENT THE DUCTWORK FROM VISUALLY INSPECTED ON ALL SIDE. THE DUCT INSTALLER SHALL BE RESPONSIBLE FOR PROVIDING THE NECESSARY EQUIPMENT AND PERFORMING THE GREASE DUCT LEAKAGE TEST. THE DUCT LEAKAGE TEST SHALL BE PERFORMED FOR ALL THE DUCT SYSTEMS, INCLUDING THE DUCT-TO-DUCT CONNECTION. THE DUCTWORK SHALL BE PERMITTED TO BE TESTED IN SECTIONS, PROVIDED THAT EVERY JOINT IS TESTED (IF TEST IS FAILED, CONTRACTOR TO PROVIDE NEW KITCHEN EXHAUST DUCT).
7. PROVIDE SMOKE TEST TO PROOF TIGHTNESS OF THE GREASE DUCT.
8. GREASE DUCT BRACING AND SUPPORTS SHALL BE OF NON-COMBUSTIBLE MATERIAL SECURELY ATTACHED TO THE STRUCTURE AND DESIGNED TO CARRY GRAVITY AND SEISMIC LADS WITHIN THE IMITATIONS OF THE WISCONSIN BUILDING CODE. BOLTS, SCREWS, RIVETS AND OTHER MECHANICAL FASTENERS SHALL NOT PENETRATE DUCT WALLS.
9. A RESIDUE TRAP SHALL BE PROVIDED AT THE BASE OF EACH VERTICAL RISER WITH PROVISION FOR CLEANOUT IN ACCORDANCE WITH NFPA 96.
10. CLEANOUT OPENINGS SHALL BE PROVIDED AT EVERY CHANGE IN DIRECTION, NOT MORE THAN 10 FEET FROM CHANGES IN DIRECTION GREATER THAN 45 DEGREES.
11. CLEANOUT OPENINGS SHALL BE EQUIPPED WITH TIGHT-FITTING DOORS CONSTRUCTED OF STEEL HAVING A THICKNESS NOT LESS THAN THAT REQUIRED FOR THE DUCT. DOORS SHALL BE EQUIPPED WITH A SUBSTANTIAL METHOD OF LATCHING, SUFFICIENT TO HOLD THE DOOR TIGHTLY CLOSED. DOOR ASSEMBLIES SHALL HAVE A GASKET OR SEALANT THAT IS NON-COMBUSTIBLE AND LIQUID TIGHT AND SHALL NOT HAVE FASTENERS THAT PENETRATED THE DUCT.
12. THE CLEANOUTS FOR HORIZONTAL GREASE DUCT SHALL BE LOCATED ON THE SIDE OF THE DUCT WITH THE OPENING NOT LESS THAN 1.5" ABOVE THE BOTTOM OF THE DUCT AND NOT LESS THAN 1" BELOW THE TOP OF THE DUCT.
13. A GREASE DUCT SERVING THE TYPE-1 HOOD THAT PENETRATED A CEILING, WALL OR FLOOR SHALL BE ENCLOSED FROM THE FIRE POINT OF PENETRATION TO THE OUTLET TERMINAL. DUCT ENCLOSURES SHALL HAVE A FIRE-RESISTANCE RATING NOT LESS THAN THAT OF THE FIRE-RESISTANCE RATED ASSEMBLY PENETRATED BUT NEED NOT EXCEED 2 HOURS.
14. KITCHEN-EXHAUST OUTLETS SHALL BE LOCATED NOT LESS THAN 10 FEET HORIZONTALLY FROM PARTS OF THE SAME OR CONTIGUOUS BUILDINGS, ADJACENT BUILDINGS AND ADJACENT PROPERTY LINE. THIS EXHAUST OUTLETS SHALL BE LOCATED NOT LESS THAN 10 FEET HORIZONTALLY FROM AND NOT LESS THAN 3 FEET ABOVE AIR INTAKE OPENINGS INTO ANY BUILDING AND 40 INCH ABOVE THE ROOF.
15. PROVIDE TYPE-I EXHAUST DUCT FOR HOOD-1 EXHAUST, IN COMPLIANCE WITH IMC 2015 WITH WI AMENDMENTS.
16. PROVIDE UL LISTED 2 LAYERS OF 1.5" THICK FIRE WARP, TESTED IN ACCORDANCE WITH ASTM E2336 FOR TYPE-I EXHAUST DUCTS. FIRE WRAP TO PROVIDE 2-HR ENCLOSURE. THROUGH PENETRATION FIRE STOP SYSTEMS ARE TO BE TESTED IN ACCORDANCE WITH ASTM E 814 (UL1479). FOIL COVERING TO BE PROVIDED ABOVE INSULATION.
17. A CLEANOUT OPENING SHALL BE LOCATED AT THE BASE OF THE SHAFT TO PROVIDE ACCESS TO THE DUCT TO ALLOW FOR CLEANING AND INSPECTION. THE FINISHED OPENING SHALL BE NOT LESS THAN 12 INCHES BY 12 INCHES.

SEQUENCE OF OPERATION FOR T-STAT

TEMPERATURE SENSOR AND THERMOSTAT SEQUENCE OF OPERATION

REMOTE TEMPERATURE SENSORS AT MULTIPLE LOCATIONS (AS SHOWN IN THE PLAN) AND CONNECTED BACK TO THE THERMOSTAT AT A SINGLE LOCATION AS SHOWN IN THE PLAN WHICH IS CONNECTED TO THE HVAC UNIT TO CONTROL THE TEMPERATURE.

THE THERMOSTAT WILL AVERAGE OUT THE TEMPERATURE READING FROM THE MULTIPLE SENSORS PLACED AT DIFFERENT LOCATIONS. SO WHEN THE AVERAGE TEMPERATURE REACHES THE SET TEMPERATURE, THE THE COMPRESSOR WILL GET TURNED OFF/ MODULATE THE SPEED AS REQUIRED. AND WHEN AVERAGE TEMPERATURE REACHES BELOW SET TEMPERATURE IT WILL GIVE A SIGNAL TO THE UNIT TO START/ MODULATE THE UNIT COMPRESSOR AGAIN.

NOTE:

1. THERMOSTAT SHALL BE TC500 WITH SYLK BUS TEMPERATURE SENSORS (TR-40) AND ADDITIONAL TR-21 TEMPERATURE SENSORS SHALL BE PROVIDED ALONG WITH THE T-STAT.
2. MAXIMUM 9 SENSORS FOR EVERY (1) THERMOSTAT AND THERMOSTAT ALSO SHALL BE USED AS ONE SENSORS.
3. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH HONEYWELL MANUFACTURER/VENDOR FOR THE COMPATIBILITY OF THE T-STAT WITH THE HVAC UNIT.
4. THE LOCATIONS OF THE REMOTE SENSORS FOR THE EACH ROOMS SHOWN ON THE PLANS SHALL BE CONFIRMED WITH CLIENT/FRANCHISEE.
5. CONTRACTOR TO COORDINATE WITH THE HONEYWELL FOR ALL THE NECESSARY CONTROLS AND WIRING FOR THE PROPER INSTALLATION AND FUNCTIONING OF THE SYSTEM PRIOR BASE BID.
6. FAN SHALL BE OPERATING THROUGHOUT FOR THE INTAKE OF THE FRESH AIR.

GENERAL NOTES

1. FOR SUPPLY AND RETURN AIR DUCTS PROVIDE 1.5" ACOUSTICAL LINING (R-6) UP TO 10' OF DUCT RUN FROM AC UNITS. PROVIDE 1.5" THERMAL INSULATION (R-6) AFTER 10' OF DUCT RUN FROM AC UNITS. FOR OA DUCTS PROVIDE 2" THERMAL INSULATION (R-12).
2. CONTRACTOR SHALL BALANCE EACH DEVICE WITH THE CFM SHOWN ON PLAN.
3. NEW DUCTWORK SHOWN ON PLAN ARE SCHEMATIC ONLY. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR PIPING AND DUCTWORK ROUTING. OFFEST AND RUN PIPING, DUCTWORK INSIDE THE STRUCTURE IF REQUIRED. PROVIDE ANY EXTRA PIPING, DUCTWORK, FITTINGS, INSULATIONS AND OTHER ACCESSORIES IN ORDER TO COMPLETE THE INSTALLATION.
4. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
5. DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE AIR STREAM DIMENSIONS.
6. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
7. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
8. COORDINATE WITH ALL TRADES FOR MATERIALS IN RATED AND PLENUM SPACES.
9. MOUNT DUCTWORK AS HIGH AS POSSIBLE.
10. TEST AND BALANCE AIR SYSTEMS. PROVIDE REPORT TO G.C AND OWNER.
11. PROVIDE R-6 INSULATION FOR SUPPLY AND RETURN DUCT INSIDE THE SPACE AND R-12 INSULATION FOR DUCTWORK OUTSIDE THE BUILDING.
12. COORDINATE ALL EQUIPMENT WITH STRUCTURAL.
13. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE&SMOKE RATED WALLS/ BARRIERS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
14. PROVIDE CORD-OPERATED DAMPERS IN INACCESSIBLE CEILINGS.
15. PROVIDE INTERNAL INSULATION FOR EXPOSE DUCTING AND EXTERNAL INSULATION FOR DUCTING IN CEILING SPACE.
16. DUCT SMOKE DETECTOR SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH NFPA 72 FOR SHUT SHOWN OF RTUS AND NOTIFICATION/ ALARM SYSTEM. IT SHALL BE CONNECTED TO BUILDING'S FIRE ALARM CONTROL UNIT.

KEY NOTES

1	CONTRACTOR SHALL PROVIDE DUCT SMOKE DETECTOR IN RETURN AIR DUCTWORK UPON DETECTION OF SMOKE, EQUIPMENT WILL SHUTDOWN AND ACTIVATE ALARM. COORDINATE INSTALLATION LOCATION WITH ACCESS REQUIREMENT.
2	PROVIDE NEW REMOTE TEMPERATURE SENSOR IN SPACE AND WIRE BACK TO THERMOSTAT LOCATED IN OWNER'S OFFICE RESPECTIVE RTU SERVING THE SPACE. MOUNT ON WALL AT 72" A.F.F. AVOID LOCATING NEAR DIRECT SOURCE OF HEAT. CONFIRM FINAL LOCATION OF TEMPERATURE SENSOR WITH ARCHITECT/CLIENT. SEE SEQUENCE OF OPERATION.
3	EXTEND FULL SIZE SUPPLY & RETURN DUCTWORK FROM HVAC EQUIPMENT AS SHOWN. ACOUSTICALLY LINE THE FIRST 10-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
4	LOCATION OF DIGITAL THERMOSTAT CONTROL. INSTALL AND WIRE NEW 7-DAY PROGRAMMABLE THERMOSTAT. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN. PROVIDE LOCKABLE COVER.
5	PROVIDE NEW CEILING MOUNTED INLINE EXHAUST FAN (EF-1). INSTALL IT AS PER MANUFACTURER RECOMMENDATION. FAN SHALL BE SUSPENDED FROM STRUCTURE ABOVE. VERIFY EXACT LOCATION OF STRUCTURE MEMBER PRIOR TO INSTALLATION.
6	PROVIDE 1" DOOR UNDER CUT FOR AIR TRANSFER.
7	INSTALL CEILING MOUNTED AHU AS PER MANUFACTURER SPECIFICATION. ROUTE REFRIGERANT LINE TO THE ROOF AND CONNECT TO THE CONDENSER UNIT ON ROOF.
8	SEE HOOD, MAKEUP AIR UNIT AND KITCHEN EXHAUST FAN DETAILS ON SHEET M404 TO M406.
9	PROVIDE ELECTRICAL SUPPLY FOR EACH GPS UNIT. COORDINATE WITH ELECTRICAL ENGINEER FOR FINAL REQUIREMENT.
10	ROUTE KITCHEN EXHAUST Ø10" DUCT UP TO THE ROOF & CONNECT TO ROOF MOUNTED EXHAUST FAN KEF-1. FIRE DAMPER AND SMOKE DAMPER SHALL NOT BE INSTALLED IN GREASE DUCT.
11	ROUTE EXHAUST 14"X12" DUCT UP TO THE ROOF & TERMINATE WITH GOOSENECK AND BIRD SCREEN. CONTRACTOR TO FIELD VERIFY FIRE RATING OF ROOF. PROVIDE FIRE DAMPER AT ROOF PENETRATION AS/IF REQUIRED BY LOCAL CODES.
12	DRYER VENT UP TO ROOF AS SHOWN. TERMINATE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS AND SECTION 504 OF THE 2015 INTERNATIONAL MECHANICAL CODE. SCREEN SHALL NOT BE INSTALLED IN THE DUCT TERMINATION. FIRE/SMOKE DAMPERS & ANY SIMILAR DEVICE THAT WILL OBSTRUCT THE EXHAUST FLOW SHALL BE PROHIBITED IN EXHAUST DUCT. COORDINATE WITH THE MANUFACTURER FOR THE VENT SIZE. EXHAUST DUCT SHALL BE METAL OF MINIMUM 0.016 INCH THICK.
13	Ø4" CONCENTRIC VENT FOR WATER HEATER FLUE VENT & COMBUSTION AIR INTAKE UP TO THE ROOF. CONTRACTOR TO INSTALL AS PER MANUFACTURE'S INSTRUCTION
14	PULL STATION FURNISHED AND INSTALLED BY HOOD FIRE SUPPRESSION CONTRACTOR MOUNTED @ 48" AFF. PROVIDE FINAL CABLING AND CONNECTION TO HOOD FIRE SUPPRESSION CABINET AND MECHANICAL GAS VALVE. COORDINATE FINAL LOCATION WITH HOOD MANUFACTURER.
15	HOOD CONTROL PANEL AND FIRE SUPPRESSION SYSTEM FURNISHED BY HOOD SUPPLIER AND INSTALLED ON WALL BY HVAC CONTRACTOR SEE ELECTRICAL PLAN FOR WIRING. HOOD FIRE SUPPRESSION SYSTEM FURNISHED AND INSTALLED BY LICENSED FIRE SUPPRESSION CONTRACTOR. F.S. CONTRACTOR TO SUBMIT PLAN AND OBTAIN APPROVAL UNDER SEPARATE PERMIT APPLICATION PRIOR TO COMMENCEMENT OF WORK.
16	KITCHEN EXHAUST HOOD, EXHAUST FAN AND MAKEUP AIR UNIT AND ALL RELATED ACCESSORIES SHALL BE PROVIDED BY KITCHEN EQUIPMENT VENDOR/SUPPLIER AND SHALL BE INSTALLED BY MECHANICAL CONTRACTOR AS PER MANUFACTURER'S RECOMMENDATION.
17	PROVIDE TEMPERATURE SENSOR ON THE RETURN AIR DUCT.

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/ 2026

CONTRACTOR'S NOTES:

WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF, THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS NEED TO BE APPROVED BY KIDDIE ACADEMY CONSTRUCTION MANAGER FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK.

	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

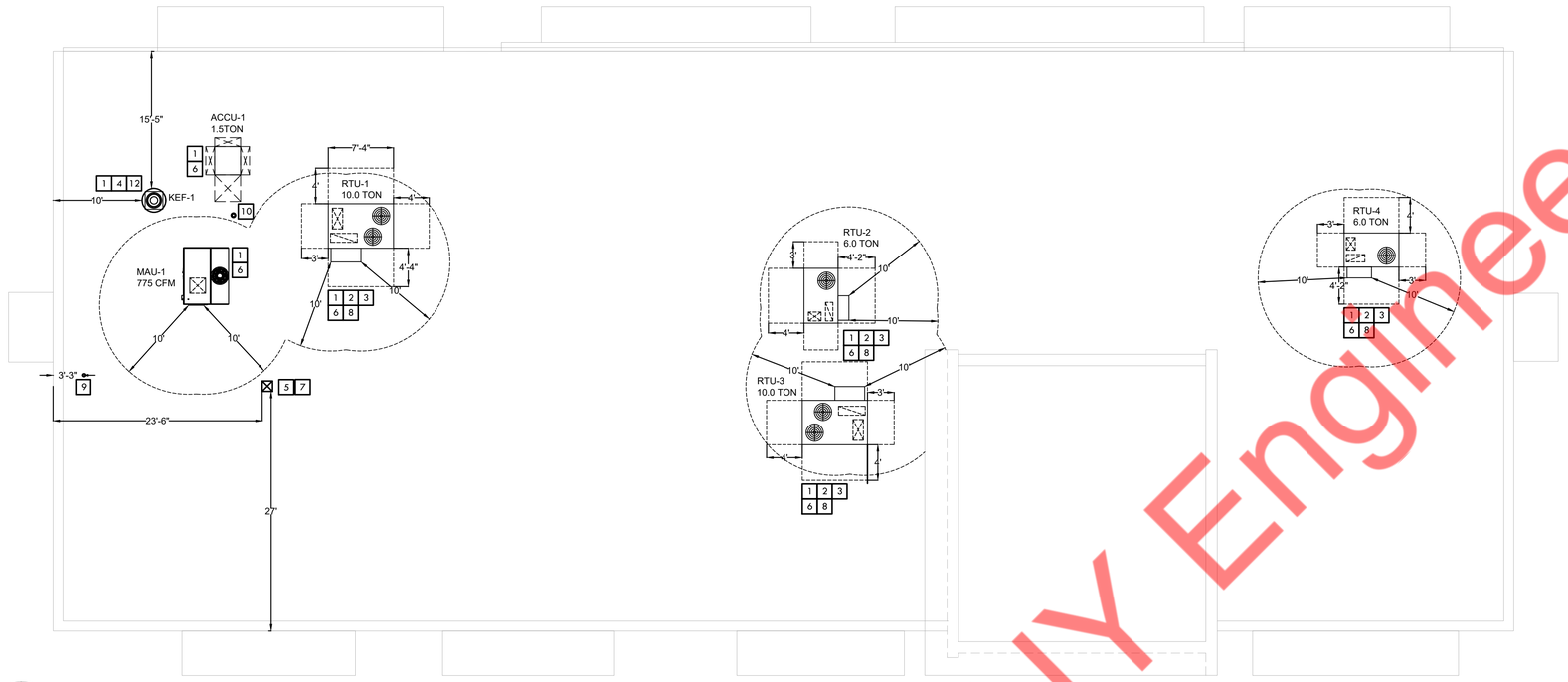
TITLE:

MECHANICAL FLOOR PLAN

SHEET NUMBER:

M101

1 | SCALE 1 / 8" = 1' - 0" | MECHANICAL FLOOR PLAN



GENERAL NOTES

1. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS.
2. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
3. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
4. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
5. COORDINATE WITH ALL TRADES FOR MATERIALS IN RATED AND PLENUM SPACES.
6. TEST AND BALANCE AIR SYSTEMS. PROVIDE REPORT TO G.C AND OWNER.
7. COORDINATE ALL EQUIPMENT WITH STRUCTURAL.
8. FOR SUPPLY AND RETURN AIR DUCTS PROVIDE ACOUSTICAL LINING WITH R-6 INSULATION RATING UP TO 10' OF DUCT RUN FROM RTUS. PROVIDE R-6 THERMAL INSULATION AFTER 10' OF DUCT RUN FROM RTUS.
9. ALL DUCT SIZES SHOWN ON MECHANICAL FLOOR PLANS ARE CLEAR INSIDE INTERNAL AND EXTERNAL INSULATION THICKNESS OF DUCTS SHALL BE CONSIDERED SEPARATELY.
10. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING ANY HOLES ON ROOF, CEILING OR WALLS RESULTING FROM THE REMOVAL OF MECHANICAL DEVICES.
11. THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR VISTING THE SITE PRIOR TO BID TO DETERMINE FIELD CONDITIONS AND TO FIELD VERIFY THE EXTENT OF THE REMOVALS WORK.
12. CONTRACTOR SHALL NOTIFY ARCHITECT / ENGINEER IMMEDIATELY OF ANY DISCREPANCY BETWEEN DRAWINGS AND FIELD CONDITIONS.
13. CONTRACTOR SHALL NOTIFY ARCHITECT / ENGINEER IMMEDIATELY OF ANY DISCREPANCY OR CONFLICTS SHOWN ON MEP DRAWINGS.

KEY NOTES

1	COORDINATE FINAL LOCATION OF THE MECHANICAL EQUIPMENT WITH ARCHITECT.
2	PROVIDE CLEARANCE AROUND RTUs PER MANUFACTURER'S RECOMMENDATIONS.
3	CONTRACTOR TO RUN 1" CONDENSATE DRAIN FROM RTU'S TO NEAREST APPROVED PLACE OF DISPOSAL. COORDINATE IN FIELD.
4	ALL EXHAUST AIR SOURCES ON THE ROOF SHALL BE MINIMUM 10 FT. AWAY FROM OUTSIDE AIR INTAKES.
5	EXHAUST TERMINATION SHALL BE 10 FEET (3048 MM) FROM THE PROPERTY LINES; 3 FEET (914 MM) FROM EXTERIOR WALLS AND ROOFS; 3 FEET (3048 MM) FROM OPERABLE OPENINGS INTO BUILDINGS; 10 FEET (3048 MM) ABOVE ADJOINING GRADE. 10 FT FROM MECHANICAL AIR INTAKES.
6	PROVIDE PERMANENT NAMEPLATE PER SCHEDULE/PLAN FOR EACH SYSTEM UNIT, OUTDOOR DISCONNECT & THERMOSTAT.
7	TERMINATE WITH GOOSENECK AND BIRDSCREEN, 24 INCHES ABOVE ROOF CONSTRUCTION. COORDINATE EXACT LOCATION IN FIELD
8	PROVIDE ALL NEW RTU AS PER THE SCHEDULE ALONG WITH NEW SUITABLE CURB. COORDINATE THE FINAL LOCATION ON FIELD
9	DRYER EXHAUST DUCT. TERMINATE AT ROOF W/MANUFACTURER APPROVED RAIN AND TERMINAION CAP. SEAL ALL PENETRATIONS AIR TIGHT. ENSURE EXHAUST DISCHARGE IS A MINIMUM OF 10' AWAY FROM ANY OUTSIDE AIR. COORDINATE WITH MANUFACTURER FOR VENT SIZE AND TERMINATION.
10	DIA. Ø4" CONCENTRIC VENT FOR WATER HEATER FLUE VENT & COMBUSTION AIR INTAKE . CONTRACTOR TO TERMINATE THE VENT AS PER MANUFACTURER'S SPECIFICATIONS.
11	KEF-1(N) ROOF MOUNTED EXHAUST FAN & CURB FURNISHED BY HOOD SUPPLIER AND INSTALLED BY HVAC CONTRACTOR. HVAC CONTRACTOR TO PROVIDE 16 GA WELDED BLACK IRON DUCT FROM HOOD, UP THROUGH ROOF TO EXHAUST FAN. FLASH & SEAL WATER TIGHT. PROVIDE 3M, FIRE MASTER DUCT WRAP TO FORM 0" CLEARANCE TO COMBUSTIBLE, 1HR RATED ENCLOSURE. SEE HOOD DRAWINGS FOR ADDITIONAL REQUIREMENTS. ON SHEET M404 TO 406. KEF-1 SHALL BE UL 762 LABELED UPBLAST TYPE GREASE, BELT-DRIVEN CENTRIFUGAL EXHAUST FAN CONSISTING OF HOUSING, WHEEL, FAN SHAFT, BEARINGS, MOTOR AND DISCONNECT SWITCH, DRIVE ASSEMBLY, HEAT BAFFLE, CURB BASE, AND ACCESSORIES. EXHAUST TO BE TERMINATE AT 40" ABOVE THE ROOF.
12	KITCHEN EXHAUST SHALL BE LOCATED NOT LESS THAT 10 FEET HORIZONTALLY FROM PARTS OF THE SAME OR CONTIGUOUS BUILDINGS, ADJACENT BUILDINGS AND ADJACENT PROPERTY LINES AND SHALL BE LOCATED NOT LESS THAN 10 FEET ABOVE THE ADJOINING GRADE LEVEL. EXHAUST OUTLETS SHALL BE LOCATED NOT LESS THAN 10 FEET HORIZONTALLY FROM AND NOT LESS THAN 3 FEET ABOVE AIR INTAKE OPENING INTO ANY BUILDING.

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

MECHANICAL ROOF PLAN

SHEET NUMBER:

M102

1 | SCALE 1 / 8" = 1' - 0" | MECHANICAL ROOF PLAN

GAS FIRED PACKAGED ROOF TOP UNIT SCHEDULE

UNIT ID	MANUFACTURER	MODEL	NOMINAL TONS	SUPPLY FAN DATA			HEATING				COOLING DATA				ELECTRICAL DATA					EER	IEER	OPERATING WEIGHT (LBS)
				TOTAL	OUTSIDE AIR	EXTERNAL STATIC	TYPE	INPUT	OUTPUT	EFFICIENCY	TOTAL	SENSIBLE	AMBIENT TEMP.	ENTERING TEMP.	VOLTS	PHASE	Hz	MCA(A)	MOCP(A)			
				CFM	CFM	PRESSURE (IN. W.G.)		MBH	MBH	%	MBH	MBH	DB (°F)	DB / WB(°F)								
RTU-1	CARRIER	48FEDM12B2A5 (OR EQUIVALENT)	10.0	4000	765	1.00	LOW HEAT	180	148	82	123.9	92.5	89	80/67	208/230	3	60	56	60	11.0	15.0	1850
RTU-2	CARRIER	48FEEM07B2A5 (OR EQUIVALENT)	6.0	2400	170	1.50	MEDIUM GAS HEAT	110	88	80	76.4	57.1	89	80/67	208/230	3	60	33	50	11.2	15.0	950
RTU-3	CARRIER	48FEDM12B2A5 (OR EQUIVALENT)	10.0	4000	750	1.00	LOW HEAT	180	148	82	123.9	92.5	89	80/67	208/230	3	60	56	60	11.0	15.0	1850
RTU-4	CARRIER	48FEEM07B2A5 (OR EQUIVALENT)	6.0	2400	490	1.00	MEDIUM GAS HEAT	110	88	80	76.4	57.1	89	80/67	208/230	3	60	33	50	11.2	15.0	950

NOTES:

1. ALL EQUIPMENTS MUST BE HIGH EFFICIENT, MEETING OR EXCEEDING THE BRAND MINIMUM REQUIREMENTS.
2. PROVIDE ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF AND FDD
3. PROVIDE 8-WIRE, 24VAC, AUTOMATIC CHANGEOVER, 2 STAGE HEAT/COOL, REMOTELY PROGRAMMABLE THERMOSTAT.
4. PROVIDE 5-MINUTE ANTI-SHORT CYCLE TIMER.
5. PROVIDE THRU THE BASE ELECTRICAL AND SINGLE POINT CONNECTION.
6. PROVIDE WITH 2" MERV 8 FILTERS.
7. PROVIDE 14" HIGH ROOF CURBS TO INSTALL UNIT AS PER MANUFACTURERS RECOMMENDATIONS. COORDINATE WITH STRUCTURAL ENGINEERS FOR LOAD.
8. PROVIDE UNPOWERED CONVENIENCE OUTLET.
9. PROVIDE WITH FACTORY INSTALLED NON-FUSED DISCONNECT.
10. PROVIDE WITH MOTORIZED DAMPER AND OUTSIDE AIR INTAKE HOOD.
11. PROVIDE MANUFACTURER'S MOTOR AND DRIVE PACKAGE AS REQUIRED TO MEET SCHEDULED AIR CAPACITIES AND PRESSURE DROP.
12. PROVIDE WITH RETURN AIR SMOKE DETECTOR.
13. PROVIDE ALL COMPRESSORS WITH 5 YEAR WARRANTY.
14. PROVIDE HOT GAS REHEAT.
15. RUN 1" CONDENSATE DRAIN LINE TO NEAREST APPROVED DRAINAGE LOCATION.
16. PROVIDE CONDENSER COIL HAIL GUARDS.
17. REFRIGERANT R-454B OR R-32 SHALL BE PROVIDED.

AIR TERMINAL SCHEDULE

TAG	MANUFACTURER	MODEL	TYPE	CFM RANGE	NECK SIZE	NOMINAL FACE SIZE
CDS-1	TITUS	TMSA	SUPPLY DIFFUSER	0-150	6"Ø	24"X24"
			SUPPLY DIFFUSER	160-300	8"Ø	
			SUPPLY DIFFUSER	310-400	10"Ø	
			SUPPLY DIFFUSER	410-500	12"Ø	
PDS-1		PAS	PERFORATED DROP FACE 4WAY SQUARE DIFFUSER	150-300	8"Ø	24"X24"
SG-1		300FL	WALL MOUNTED	250-380	16"X6"	18"X8"
SG-2		300FL	WALL MOUNTED	100-240	12"X6"	14"X8"
RG-1		350RL	CEILING MOUNTED RETURN GRILLE	0-100	6"X6"	24"X24"
				110-220	8"X8"	
				230-350	10"X10"	
				360-520	12"X12"	
				550-700	14"X14"	
				710-1000	18"X18"	
				1010-1300	20"X20"	
				1310-1500	22"X22"	
RG-2		350RL	DUCT/WALL MOUNTED	100-240	12"X6"	14"X8"
EG-1		350FL	EXHAUST GRILLE	0-80	6"X6"	6"X6"

NOTES:

1) ALL DIFFUSERS : CONTRACTOR SHALL COORDINATE WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS PLANS TO ENSURE PROPER AIR DEVICE BORDER SELECTION.
2) REFER ARCHITECTURAL DRAWINGS FOR CEILING TYPE.
3) COORDINATE COLOR/FINISH WITH ARCHITECT.
4) PROVIDE VOLUME CONTROL DAMPER/OPPOSED BLADE DAMPER AS ACCESSORY FOR ALL AIR TERMINAL FOR AIR BALANCING.

INDOOR UNIT SCHEDULE

UNIT TAG	LOCATION	ODU	AREA SERVED	TYPE	CAP. (TON)	COOLING MBH	TOTAL CFM (MAX.)	MAX. ESP. (IN. WG)	OUTSIDE AIR(CFM)	MAX. SOUND PRESS.(DBA)	ELECTRICAL DATA				DIMENTIONS (HXWXD) (IN.)	PIPE SIZE			BASIS OF DESIGN:TRANE (OR EQUIVALENT) WEIGHT (LBS.)	BASIS OF DESIGN:TRANE (OR EQUIVALENT) MODEL NO.
											PH/VOLT/HZ	ELECTRIC HEATER (kW)	MCA	MOCP	UNIT	LIQ.	SUCTION	DRAIN (ID)		
AHU-1	SEE PLAN	ACCU-1	SEE PLAN	AIR HANDLER	1.5	18.3	600	1	-	44	1/208-230/60	3.6	25	30	22X25X60	3/8"	7/8"	1"	200	5TAM5B01AC21 (OR EQUIVALENT)

NOTES:

1) SUPPLY AIR CFM BASED ON HIGH STATIC.
2) REFRIGERANT R-454B OR R-32 SHALL BE PROVIDED.
3) PROVIDE MOUNTING BRACKETS AND ALL ASSOCIATED ACCESSORIES.
4) ALL REFRIGERANT PIPING TO BE SIZED PER MANUFACTURERS RECOMMENDATIONS.
5) PROVIDE MERV8 FILTER ON ALL RETURNS TO UNIT.
6) INDOOR UNIT ACCESS PANEL FIELD-PROVIDED.
7) PROVIDE SPRING MOUNTED VIBRATION ISOLATORS FOR UNITS.
8) PROVIDE DRIP PAN , LEAK DETECTOR & CONDENSATE PUMP.

OUTDOOR UNIT SCHEDULE

UNIT TAG	LOCATION	INDOOR UNITS SERVED	CAP.TR	COOLING MBH	TYPE	UNIT DIMENSIONS IN.(HXWXD)	WEIGHT (LBS)	PIPING DIMENSION		ELECTRICAL			SOUND LEVEL (Dba)	EER2	SEER2	BASIS OF DESIGN:TRANE (OR EQUIVALENT) MODEL NO.
								LIQUID-HI PRESSURE	GAS LOW-PRESSURE	(V/Hz/Ph)	MCA	MOP				
ACCU-1	AS SHOWN	AHU-1	1.5	18.3	COOLING ONLY	36X30X33	250	3/8"	3/4"	208-230/60/3	9	20	74	11.7	14.3	5TTR4018A1 (OR EQUIVALENT)

NOTES:

1) UNIT SHALL HAVE TEN YEAR EXTENDED WARRANTY FOR COMPRESSORS/PARTS.
2) PROVIDE COMPRESSOR CYCLE PROTECTOR.
3) PROVIDE CONDENSING UNIT MOUNTING PAD.
4) CONTRACTOR SHALL PROVIDE A LONG LINE SET FOR REFRIGERANT PIPING IN THE EVENT THAT TOTAL REFRIGERANT LENGTH EXCEED THE MANUFACTURER'S STANDARD RECOMMENDED LENGTH.
5) PROVIDE COMPRESSOR THERMAL PROTECTION , COMPRESSOR OVERCURRENT DETECTION AND FAN MOTOR OVERHEATING/VOLTAGE PROTECTION.
6) FAN AND COMPRESSORS SHALL BE INTERNALLY ISOLATED.
7) REFRIGERANT R-454B OR R-32 SHALL BE PROVIDED

HOOD SCHEDULE

UNIT ID	MANUFACTURER	LENGTH (INCHES)	MODEL	SERVICE	COOKING EXHAUST TEMPERATURE (DEG F)	EXHAUST AIR (CFM)	EXHAUST COLLAR WXL (INCH)	EXHAUST S.P (IN. W.G.)	HOOD TYPE	WEIGHT (LBS)
HOOD-1	CAPTIVEAIRE	48	4224 ND-2	SEE PLAN	600	1000	10" DIA	0.906	I	550

1. REFER TO CAPTIVEAIRE HOOD DRAWINGS FOR EXACT REQUIREMENTS & ACCESSORIES.
2. HOOD TO BE INSTALLED AS PER MANUFACTURER RECOMMENDATION.
3. COORDINATE WITH ELECTRICAL CONTRACTOR FOR POWER SUPPLY AND INTEGRATION.
4. CONNECT TO BUILDING MAIN FIRE ALARM PANEL FOR ALARM INITIATING SWITCH.
5. DRY CONTACT FOR HOOD FIRE SUPRESSION SYSTEM TO BE PROVIDED AND ANSUL SYSTEM DESIGN & SUPPLY SHALL BE UNDER THIRD PARTY SCOPE.
6. INCLUDE HOOD CONTROLLER WITH CONTROL PANEL FOR CONTROL OF HOOD, EXHAUST FAN AND MAKE-UP AIR UNIT. THE CONTROLLER SHOULD INTEGRATE AND CONTROL KITCHEN EXHASUT FAN AND MAKEUP AIR UNITS CONNECTED TO HOOD.

GLOBAL PLASMA AIR DUCT TUBE SCHEDULE

TAG	MANUFACTURER	MODEL	QUANTITY	LOCATION	ELECTRICAL POWER (W)	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL HZ	ELECTRICAL AMPS (A)	WEIGHT
GPS-1	GLOBAL PLASMA SOLUTIONS	DM48-AC	1	SEE PLAN	<2	24	1	60	0.1	4
GPS-2		DM48-AC	1	SEE PLAN	<2	24	1	60	0.1	4
GPS-3		DM48-AC	1	SEE PLAN	<2	24	1	60	0.1	4
GPS-4		DM48-AC	1	SEE PLAN	<2	24	1	60	0.1	4

NOTES:

1) ALL TUBES SHALL BE MOUNTED ON THE SUPPLY DUCTWORK AS PER PLANS.
2) ONE DEVICE PER UNIT.
3) SEPARATE POWER SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR. PROVIDE TRANSFORMER WHEREVER REQUIRED.
4) THE PROJECT UTILIZES THE EXCEPTION TO MECAHNICAL CODE SECTION 403.2 FOR REDUCED VENTILATION RATES BASED ON AN ENGINEERED VENTILATION SYSTEM.

KITCHEN MAKEUP AIR UNIT

UNIT TAG	SERVICE	AIR FLOW CFM	E.S.P. (IN. OF WG)	MOTOR (HP)	HEATING GAS TYPE	HEATING INPUT (MBH)	HEATING OUTPUT (MBH)	HEATING TEMP RISE	HEATING EFFICIENCY (%)	COOLING COIL TYPE	COOLING TOTAL CAPACITY (MBH)	COOLING SENSIBLE CAPACITY (MBH)	ELECTRIC DETAILS ELECT. (V/HZ/PH)	ELECTRIC DETAILS MCA (A)	ELECTRIC DETAILS MOP (A)	IEER	WEIGHT (LBS)	BASIS OF DESIGN: CAPTIVEAIRE MANUFACTURER	BASIS OF DESIGN: CAPTIVEAIRE MODEL NO.
MAU-1	HOOD-1	775	1	1	NATURAL	98.3	79.6	85	81	DX	64.00	27	208/60/3	26.2	30	17.90	1550	CAPTIVEAIRE	CAS-HVAC1-I.125-13-5T-MPU

NOTE:

1. UNIT TO BE PROVIDED WITH CLASS 1A LOW LEAKAGE MOTORIZED DAMPER, NEMA 3R DISCONNECT, FAN WITH VFD, VIBRATION ISOLATION SPRING SUPPORTED BLOWER, INTAKE HOOD, SCREEN INTAKE, AND MERV -13 FILTER.
2. DOUBLE WALL CONSTRUCTION WITH WEATHER PROOF COATING WITH 1 INCH FIBERGLASS INSULATION ALL AROUND THE UNIT.
3. PROVIDE 14 INCH HIGH CURB FOR UNIT.
4. PROVIDE SINGLE POINT CONNECTION FOR EACH MAU.
5. REFER TO CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION.

FANS

TAG	MANUFACTURER	MODEL	LOCATION	AREA SERVED	FAN PERFORMANCE CFM	FAN PERFORMANCE ESP	FAN PERFORMANCE FAN RPM	ELECTRICAL DATA FLA	MCA	MOCP	VOLTS	PHASE	HZ	WEIGHT	CONTROL
EF-1	GREENHECK	SQ-120-VG	SEE PLAN	SEE PLAN	1350	1.3	1689	6	7.5	15	208	1	60	80	TIME CLOCK
KEF-1	CAPTIVEAIRE	DU85HFA	SEE PLAN	KITCHEN	1000	1.25	1271	2.6	-	-	208	3	60	200	INTERLOCK WITH HOOD CONTROLS

NOTES FOR EF-1:

1) PROVIDE FACTORY MOUNTED AND INSTALLED DISCONNECT.
2) COORDINATE EXACT POWER REQUIREMENT WITH ELECTRICAL CONTRACTOR.
3) PROVIDE FAN WITH BACKDRAFT DAMPER, AND SPEED CONTROLLER FOR BALANCING PURPOSE.
4) ALL DIRECT DRIVE FANS TO HAVE ECM MOTORS.
5) FAN SHALL RUN ON TIME CLOCK.

NOTES FOR KEF-1:

1) PROVIDE GREASE BOX.
2) FAN BASE CERAMIC SEAL- INSTALLED AT PLANT-FOR GREASE DUCTS.
3) 2 YEAR PARTS WARRANTY.
4) INTERLOCK WITH HOOD CONTROLS.
5) REFER TO CAPTIVIEAIRE SHEETS FOR ADDITIONAL INFORMATION.
6) PROVIDE NEMA 3R DISCONNECT.

BUILDING AIR BALANCE

UNIT	SUPPLY AIR	OUTSIDE AIR	RETURN AIR	EXHAUST AIR
RTU-1	4000	765	3235	-
RTU-2	2400	170	2230	-
RTU-3	4000	750	3250	-
RTU-4	2400	490	1910	-
AHU-1	600	-	600	-
EF-1	-	-	-	1350 CFM
KEF-1	-	-	-	1000 CFM
MAU-1	-	775	-	-
TOTAL:	9400 CFM	2950 CFM	7990 CFM	2350 CFM
BUILDING PRESSURE:			**600 CFM**	**POSITIVE**

CONSULTANTS (ENGINEERS):

NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

MECHANICAL SCHEDULES (01 OF 02)

SHEET NUMBER:

M201

VENTILATION CALCULATION

ROOM NUMBER	ROOM NAME	AREA (SQ.FT.)	HEIGHT (FT.)	NUMBER OF PEOPLE/1000 SQ.FT AS PER SPS 364.403	NUMBER OF PEOPLE AS PER SPS 364.403	AS PER ARCH	FINAL PEOPLE NO.	MIN OUTSIDE AIR AS PER SPS IMC		REQ. OA (CFM)	OUTSIDE AIR AFTER IAQ (CFM) 70%	PROVIDED OUTSIDE AIR (CFM)	COMMON VENT WITH A/C AS PER SPS 364.403			EXHAUST AIRFLOW RATE (CFM/SQ.FT. OR /FIXT.)	REQ. EXHAUST AIR (CFM)	PROVIDED EXHAUST AIR (CFM)
								CFM/PEOPLE	CFM/SQ.FT				ACPH	REQ. COMMON VENT. (CFM)	PROVIDED COMMON VENT WITH A/C (CFM)			
101	RECEPTION	101	18	60	7	2	4	5	0.06	27	19	20	2	61		-	-	-
102	LOBBY	256	18	30	8	3	3	5	0.06	31	22	25	2	154		-	-	-
103	VESTIBULE	91	18	30	3	0	0	0	0.06	6	4	5	2	55		-	-	-
104	GENERAL STORAGE	53	18	0	0	0	0	0	0.12	7	5	5	1	16		-	-	-
105	OWNERS OFFICE	198	18	7	2	2	2	5	0.06	22	15	20	1.5	89		-	-	-
106	INFANTS	447	18	30	14	8	12	10	0.18	201	141	145	2	268		-	-	-
107	INFANTS	448	18	30	14	8	12	10	0.18	201	141	145	2	269		-	-	-
108	CHILD RESTROOM #1	48	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
109	TODDLERS	309	18	30	10	8	8	10	0.18	136	95	100	2	185		-	50	50
110	TODDLERS	325	18	30	10	8	8	10	0.18	139	97	100	2	195		-	50	50
111	CHILD RESTROOM #2	49	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
112	2-2.5 YEARS	468	18	30	15	12	12	10	0.18	205	144	145	2	281		-	50	50
113	CHILD RESTROOM #3	49	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
114	CHILD RESTROOM #4	49	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
115	2-2.5 YEARS	468	18	30	15	12	12	10	0.18	205	144	145	2	281		-	50	50
116	2.5-3 YEARS	324	18	30	10	8	8	10	0.18	139	97	100	2	194		-	50	50
117	CHILD RESTROOM #5	49	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
118	CHILD RESTROOM #6	49	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
119	2.5-3 YEARS	613	18	30	19	16	16	10	0.18	271	190	190	2	368		-	50	50
120	SCHOOL AGE	663	18	30	20	18	18	10	0.12	260	182	185	2	398		-	-	-
121	KITCHEN	384	18	20	8	4	4	0	0	0	0	775	1	115		-	1000	1000
122	SPRINKLER/ ELECTRICAL	114	18	0	0	0	0	0	0.12	14	10	10	1	34		-	-	-
123	CHILD RESTROOM #8	22	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
124	CHILD RESTROOM #7	49	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
125	JANITOR CLOSET	17	18	0	0	0	0	0	0.12	3	2	0	-	-		75	75	75
126	LOUNGE	180	18	0	4	4	4	5	0.06	31	22	25	2	108		0	-	-
127	4 YEARS	885	18	30	27	24	24	10	0.18	400	280	280	2	531		0	-	-
128	CHILD RESTROOM #9	56	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
129	CHILD RESTROOM #10	49	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
130	CHILD RESTROOM #11	49	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
131	CORRIDOR	1015	18	30	31	0	0	0	0.06	61	43	45	2	609		-	-	-
132	3 YEARS	742	18	30	23	20	20	10	0.18	334	234	235	2	445		-	-	-
133	3 YEARS	742	18	30	23	20	20	10	0.18	334	234	235	2	445		-	-	-
134	STAFF RESTROOM #13	47	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
135	CHILD RESTROOM #12	49	18	0	0	0	0	0	0	0	0	0	-	-		75	75	75
136	DIRECTORS OFFICE	163	18	7	2	1	1	5	0.06	15	11	15	1.5	73		0	-	-
	TOTAL						**188**	**-**	**-**	**3042**	**2129**	**2950**	**-**	**5174**	**13400**	**-**	**2350**	**2350**

CONSULTANTS (ENGINEERS):

NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

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	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

MECHANICAL SCHEDULES (02 OF 02)

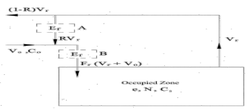
SHEET NUMBER:

M202

GPS Air
3101 Yorkmont Rd
Suite 400
Charlotte, NC 28208
www.gpsair.com
VERSION 2.2 running ASHRAE 62.1-2016

Zone Tag	Facility Type	Zone Use	Zone Floor Area (square ft) Az	Zone Max Occupancy Pz	Table 6.1 OA per Occupant Rp	Table 6.1 cfm/ft2 Ra	Pz * Rp Pz * Rp	Az * Ra Az * Ra	Table 6.2 Ventilation Effectiveness Ez	Outdoor Air to Zone (CFM) with Ez correction (Vbz/Ez)
RTU-1	Educational Facilities	Daycare (through age 4)	2,803.0	66.0	10.0	0.18	660	505	0.8	1456 OA required per VRP

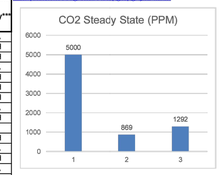
Zone Height (feet)	10.0
Desired Outside Air (Vo) IAQP (CF	765
Supply Air (Vs) (CFM)	4,000
Return Air (Vr)	3235
Recirc. Flow Factor (R)	0.81
Ventilation Effectiveness (Ez)	0.8
Level of Physical Activity	Sedentary
Filter Location	B
HVAC Flow Type	Constant
Outdoor Air Flow Type	Constant



Air Changes Per Hour	8.6	VRP OA CFM per person	22.1
Outside Air Per VRP	1456 CFM	IAQ OA CFM per person	11.6
Outside Air Per IAQ	765 CFM		
Outside Air Savings	691 CFM	Winter Heating Savings	
OA Summer Drybulb	89.2	OA Winter Design DB (F)	-6.8
OA Summer Wetbulb	74.0	Supply Air DB Setpoint (F)	95
Coil Leaving Air Drybulb (F	56.0	MBH Saved Winter	76.3
Coil Leaving Air Wetbulb (F	54.0	KW Saved Winter	22.4
OA MBH Saved Summer*	46.5		
OA Tons Saved Summer*	3.9		

*OA = Outside Air
***OSHA, NIOSH & WHO most conservative values used
http://www.cdc.gov/niosh/npg/npgsyn-a.html

Indoor Contaminants Generated By People & From Outdoors	Maximum Threshold Value Based on OSHA or NIOSH (PPM)	Steady State (lb/ft3) Using the VRP* (Prescribed OA) Ionization Off	Steady State (lb/ft3) Using the IAQ Method (Reduced OA) Ionization On	Is Steady State Level Acceptable at Reduced OA Levels?	Contaminant Generation Rate lb/person/min	Filtration Effectiveness	Cognizant Authority***
Acetaldehyde	100.0	1.9803E-09	7.4393E-10	Yes	1.2903E-08	50%	OSHA
Acetone	250.0	7.5512E-09	5.2051E-09	Yes	1.2993E-07	50%	NIOSH
Ammonia	25.00	1.7306E-07	1.2147E-07	Yes	3.0522E-06	50%	NIOSH
Benzene	1.0	8.7753E-09	5.9030E-09	Yes	1.4602E-07	50%	OSHA
2- Butanone (MEK)	200.0	5.0100E-07	3.5177E-07	Yes	8.8396E-06	50%	NIOSH
Carbon dioxide**	5000	4.6355E-05	4.7619E-05	Yes	2.4692E-05	0%	NIOSH
Chloroform	2.0	1.5558E-08	1.0892E-08	Yes	2.7342E-07	50%	NIOSH
Dioxane	100.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	OSHA
Hydrogen Sulfide	10.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	NIOSH
Methane	NA	6.8698E-08	6.8698E-08	Yes	0.0000E+00	0%	NA
Methanol	200.0	6.3265E-09	1.2038E-08	Yes	1.1163E-07	0%	NIOSH
Methylene Chloride	25.0	4.5503E-07	3.1943E-07	Yes	8.0262E-06	50%	OSHA
Propane	1000.0	1.1242E-09	1.1242E-09	Yes	0.0000E+00	0%	NIOSH
Tetrachloroethane	5.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	OSHA
Tetrachloroethylene	100.0	5.1669E-07	3.6272E-07	Yes	9.1140E-06	50%	OSHA
Toluene	100.0	2.5416E-09	1.1380E-09	Yes	2.2806E-08	50%	NIOSH
1,1,1 - Trichloroethane	350.0	2.1717E-05	1.5248E-05	Yes	3.8318E-04	50%	NIOSH
Xylene	100.0	6.2453E-10	1.1523E-10	Yes	0.0000E+00	50%	OSHA



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Is IAQ acceptable at reduced outside air levels? **Yes**

Date	2/14/2025
Job Name	KIDDIE ACADEMY, WI
Representative	-
Engineer	NY Engineers
Contractor	-

IMC 2006 & later allows for ASHRAE 62 IAQP through the engineered exception found in Section 403.2
Exhaust flow rates may differ from Table 6.5 based on ASHRAE 62 IAQP via Section 6.5.2

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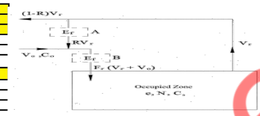
VERSION 2.2 running ASHRAE 62.1-2016

Zone Tag	Facility Type	Zone Use	Zone Floor Area (square ft) Az	Zone Max Occupancy Pz	Table 6.1 OA per Occupant Rp	Table 6.1 cfm/ft2 Ra	Pz * Rp Pz * Rp	Az * Ra Az * Ra	Table 6.2 Ventilation Effectiveness Ez	Outdoor Air to Zone (CFM) with Ez correction (Vbz/Ez)
RTU-2	Educational Facilities	Daycare (through age 4)	2,274.0	14.0	10.0	0.18	140	409	0.8	687 OA required per VRP

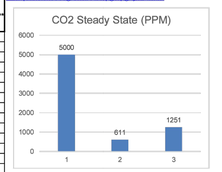
Zone Height (feet)	10.0
Desired Outside Air (Vo) IAQP (CF	170
Supply Air (Vs) (CFM)	2,400
Return Air (Vr)	2230
Recirc. Flow Factor (R)	0.93
Ventilation Effectiveness (Ez)	0.8
Level of Physical Activity	Sedentary
Filter Location	B
HVAC Flow Type	Constant
Outdoor Air Flow Type	Constant



Air Changes Per Hour	6.3	VRP OA CFM per person	49.0
Outside Air Per VRP	687 CFM	IAQ OA CFM per person	12.1
Outside Air Per IAQ	170 CFM		
Outside Air Savings	517 CFM	Winter Heating Savings	
OA Summer Drybulb	89.2	OA Winter Design DB (F)	-6.8
OA Summer Wetbulb	74.0	Supply Air DB Setpoint (F)	95
Coil Leaving Air Drybulb (F	56.0	MBH Saved Winter	57.1
Coil Leaving Air Wetbulb (F	54.0	KW Saved Winter	16.7
OA MBH Saved Summer*	34.8		
OA Tons Saved Summer*	2.9		

*OA = Outside Air
***OSHA, NIOSH & WHO most conservative values used
http://www.cdc.gov/niosh/npg/npgsyn-a.html

Indoor Contaminants Generated By People & From Outdoors	Maximum Threshold Value Based on OSHA or NIOSH (PPM)	Steady State (lb/ft3) Using the VRP* (Prescribed OA) Ionization Off	Steady State (lb/ft3) Using the IAQ Method (Reduced OA) Ionization On	Is Steady State Level Acceptable at Reduced OA Levels?	Contaminant Generation Rate lb/person/min	Filtration Effectiveness	Cognizant Authority***
Acetaldehyde	100.0	1.5779E-09	2.7526E-10	Yes	1.2903E-08	50%	OSHA
Acetone	250.0	3.4988E-09	1.8686E-09	Yes	1.2993E-07	50%	NIOSH
Ammonia	25.00	7.7864E-08	4.4294E-08	Yes	3.0522E-06	50%	NIOSH
Benzene	1.0	4.2211E-09	2.1540E-09	Yes	1.4602E-07	50%	OSHA
2- Butanone (MEK)	200.0	2.2538E-07	1.2827E-07	Yes	8.8396E-06	50%	NIOSH
Carbon dioxide**	5000	4.5585E-05	4.7498E-05	Yes	2.4692E-05	0%	NIOSH
Chloroform	2.0	7.0309E-09	3.9719E-09	Yes	2.7342E-07	50%	NIOSH
Dioxane	100.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	OSHA
Hydrogen Sulfide	10.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	NIOSH
Methane	NA	6.8698E-08	6.8698E-08	Yes	0.0000E+00	0%	NA
Methanol	200.0	2.8449E-09	1.1491E-08	Yes	1.1163E-07	0%	NIOSH
Methylene Chloride	25.0	2.0471E-07	1.1647E-07	Yes	8.0262E-06	50%	OSHA
Propane	1000.0	1.1242E-09	1.1242E-09	Yes	0.0000E+00	0%	NIOSH
Tetrachloroethane	5.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	OSHA
Tetrachloroethylene	100.0	2.3244E-07	1.3226E-07	Yes	9.1140E-06	50%	OSHA
Toluene	100.0	1.1430E-09	4.1895E-10	Yes	2.2806E-08	50%	NIOSH
1,1,1 - Trichloroethane	350.0	9.7660E-06	5.5602E-06	Yes	3.8318E-04	50%	NIOSH
Xylene	100.0	6.2453E-10	4.4017E-11	Yes	0.0000E+00	50%	OSHA



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Is IAQ acceptable at reduced outside air levels? **Yes**

Date	2/14/2025
Job Name	KIDDIE ACADEMY, WI
Representative	-
Engineer	NY Engineers
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GPS Air
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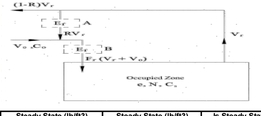
Zone Tag	Facility Type	Zone Use	Zone Floor Area (square ft) Az	Zone Max Occupancy Pz	Table 6.1 OA per Occupant Rp	Table 6.1 cfm/ft2 Ra	Pz * Rp Pz * Rp	Az * Ra Az * Ra	Table 6.2 Ventilation Effectiveness Ez	Outdoor Air to Zone (CFM) with Ez correction (Vbz/Ez)
RTU-3	Educational Facilities	Daycare (through age 4)	2,518.0	64.0	10.0	0.18	640	453	0.8	716 OA required per VRP

Zone Height (feet)	10.0
Desired Outside Air (Vo) IAQP (CF	750
Supply Air (Vs) (CFM)	4,000
Return Air (Vr)	3250
Recirc. Flow Factor (R)	0.81
Ventilation Effectiveness (Ez)	0.8
Level of Physical Activity	Sedentary
Filter Location	B
HVAC Flow Type	Constant
Outdoor Air Flow Type	Constant



Air Changes Per Hour	9.5	VRP OA CFM per person	21.3
Outside Air Per VRP	1366 CFM	IAQ OA CFM per person	11.7
Outside Air Per IAQ	750 CFM		
Outside Air Savings	616 CFM	Winter Heating Savings	
OA Summer Drybulb	89.2	OA Winter Design DB (F)	-6.8
OA Summer Wetbulb	74.0	Supply Air DB Setpoint (F)	95
Coil Leaving Air Drybulb (F	56.0	MBH Saved Winter	68.1
Coil Leaving Air Wetbulb (F	54.0	KW Saved Winter	19.9
OA MBH Saved Summer*	41.5		
OA Tons Saved Summer*	3.5		

*OA = Outside Air
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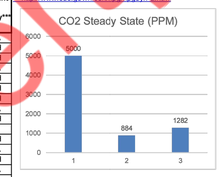
Indoor Contaminants Generated By People & From Outdoors	Maximum Threshold Value Based on OSHA or NIOSH (PPM)	Steady State (lb/ft3) Using the VRP* (Prescribed OA) Ionization Off	Steady State (lb/ft3) Using the IAQ Method (Reduced OA) Ionization On	Is Steady State Level Acceptable at Reduced OA Levels?	Contaminant Generation Rate lb/person/min	Filtration Effectiveness	Cognizant Authority***
Acetaldehyde	100.0	2.0047E-09	7.2484E-10	Yes	1.2903E-08	50%	OSHA
Acetone	250.0	7.7963E-09	5.0547E-09	Yes	1.2993E-07	50%	NIOSH
Ammonia	25.00	1.7882E-07	1.1796E-07	Yes	3.0522E-06	50%	NIOSH
Benzene	1.0	9.0907E-09	5.7329E-09	Yes	1.4602E-07	50%	OSHA
2- Butanone (MEK)	200.0	5.1767E-07	3.4158E-07	Yes	8.8396E-06	50%	NIOSH
Carbon dioxide**	5000	4.6402E-05	4.7590E-05	Yes	2.4692E-05	0%	NIOSH
Chloroform	2.0	1.6074E-08	1.0577E-08	Yes	2.7342E-07	50%	NIOSH
Dioxane	100.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	OSHA
Hydrogen Sulfide	10.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	NIOSH
Methane	NA	6.8698E-08	6.8698E-08	Yes	0.0000E+00	0%	NA
Methanol	200.0	6.5370E-09	1.1907E-08	Yes	1.1163E-07	0%	NIOSH
Methylene Chloride	25.0	4.7017E-07	3.1017E-07	Yes	8.0262E-06	50%	OSHA
Propane	1000.0	1.1242E-09	1.1242E-09	Yes	0.0000E+00	0%	NIOSH
Tetrachloroethane	5.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	OSHA
Tetrachloroethylene	100.0	5.3388E-07	3.5221E-07	Yes	9.1140E-06	50%	OSHA
Toluene	100.0	2.5846E-09	1.1075E-09	Yes	2.2806E-08	50%	NIOSH
1,1,1 - Trichloroethane	350.0	2.2440E-05	1.4807E-05	Yes	3.8318E-04	50%	NIOSH
Xylene	100.0	6.2453E-10	1.1312E-10	Yes	0.0000E+00	50%	OSHA



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Date	2/14/2025
Job Name	KIDDIE ACADEMY, WI
Representative	-
Engineer	NY Engineers
Contractor	-

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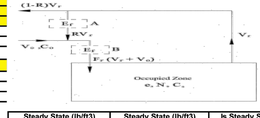
Zone Tag	Facility Type	Zone Use	Zone Floor Area (square ft) Az	Zone Max Occupancy Pz	Table 6.1 OA per Occupant Rp	Table 6.1 cfm/ft2 Ra	Pz * Rp Pz * Rp	Az * Ra Az * Ra	Table 6.2 Ventilation Effectiveness Ez	Outdoor Air to Zone (CFM) with Ez correction (Vbz/Ez)
RTU-4	Educational Facilities	Daycare (through age 4)	1,626.0	28.0	10.0	0.18	280	293	0.8	716 OA required per VRP

Zone Height (feet)	10.0
Desired Outside Air (Vo) IAQP (CF	490
Supply Air (Vs) (CFM)	2,400
Return Air (Vr)	1910
Recirc. Flow Factor (R)	0.80
Ventilation Effectiveness (Ez)	0.8
Level of Physical Activity	Sedentary
Filter Location	B
HVAC Flow Type	Constant
Outdoor Air Flow Type	Constant



Air Changes Per Hour	8.9	VRP OA CFM per person	25.6
Outside Air Per VRP	716 CFM	IAQ OA CFM per person	17.5
Outside Air Per IAQ	490 CFM		
Outside Air Savings	226 CFM	Winter Heating Savings	
OA Summer Drybulb	89.2	OA Winter Design DB (F)	-6.8
OA Summer Wetbulb	74.0	Supply Air DB Setpoint (F)	95
Coil Leaving Air Drybulb (F	56.0	MBH Saved Winter	24.9
Coil Leaving Air Wetbulb (F	54.0	KW Saved Winter	7.3
OA MBH Saved Summer*	15.2		
OA Tons Saved Summer*	1.3		

*OA = Outside Air
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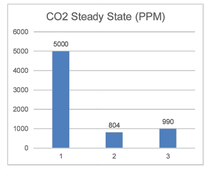
Acetaldehyde	100.0	1.8799E-09	6.0609E-10	Yes	1.2903E-08	50%	OSHA
Acetone	250.0	6.5401E-09	3.6748E-09	Yes	1.2993E-07	50%	NIOSH
Ammonia	25.00	1.4931E-07	8.5475E-08	Yes	3.0522E-06	50%	NIOSH
Benzene	1.0	7.6390E-09	4.1864E-09	Yes	1.4602E-07	50%	OSHA
2- Butanone (MEK)	200.0	4.3221E-07	2.4751E-07	Yes	8.8396E-06	50%	NIOSH
Carbon dioxide**	5000	4.6163E-05	4.6720E-05	Yes	2.4692E-05	0%	NIOSH
Chloroform	2.0	1.3431E-08	7.6679E-09	Yes	2.7342E-07	50%	NIOSH
Dioxane	100.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	OSHA
Hydrogen Sulfide	10.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	NIOSH
Methane	NA	6.8698E-08	6.8698E-08	Yes	0.0000E+00	0%	NA
Methanol	200.0	5.4578E-09	7.9734E-09	Yes	1.1163E-07	0%	NIOSH
Methylene Chloride	25.0	3.9257E-07	2.2476E-07	Yes	8.0262E-06	50%	OSHA
Propane	1000.0	1.1242E-09	1.1242E-09	Yes	0.0000E+00	0%	NIOSH
Tetrachloroethane	5.0	0.0000E+00	0.0000E+00	Yes	0.0000E+00	50%	OSHA
Tetrachloroethylene	100.0	4.4577E-07	2.5522E-07	Yes	9.1140E-06	50%	OSHA
Toluene	100.0	2.3641E-09	8.8336E-10	Yes	2.2806E-08	50%	NIOSH
1,1,1 - Trichloroethane	350.0	1.8735E-05	1.0729E-05	Yes	3.8318E-04	50%	NIOSH
Xylene	100.0	6.2453E-10	1.2241E-10	Yes	0.0000E+00	50%	OSHA



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Engineer	NY Engineers
Contractor	-

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CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:
WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS NEED TO BE APPROVED BY KIDDIE ACADEMY CONSTRUCTION MANAGER FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK.

	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

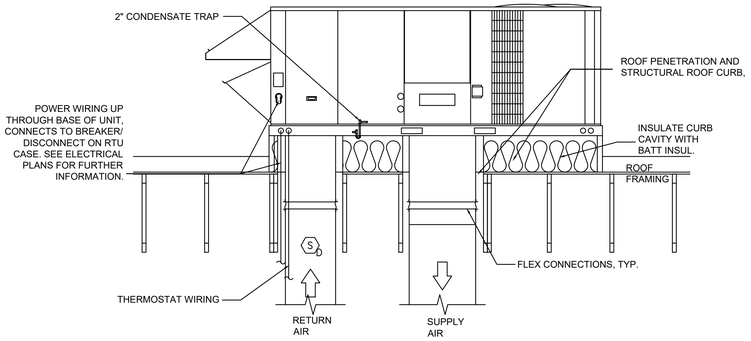
KIDDIE ACADEMY
EDUCATIONAL CHILD CARE

LOCATION:

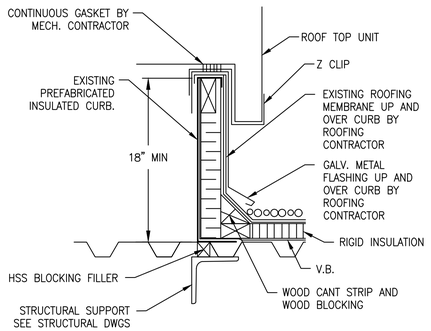
PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:
MECHANICAL VENTILATION CALCULATION

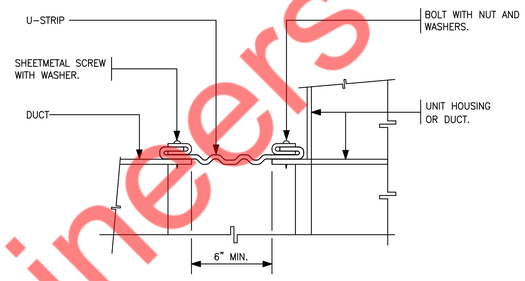
SHEET NUMBER:
M300



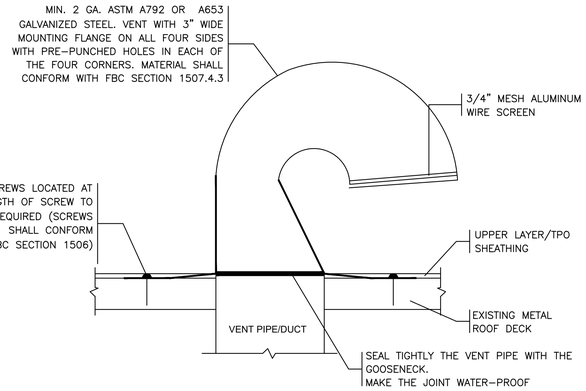
1 M401 ROOF TOP UNIT DETAIL N.T.S



2 M401 ROOF TOP UNIT CURB DETAIL N.T.S



3 M401 FLEXIBLE CONNECTION (DUCT-EQUIPMENT) N.T.S



WISCONSIN MECHANICAL CODE –
301.15 WIND RESISTANCE – MECHANICAL EQUIPMENT, APPLIANCES AND SUPPORTS THAT ARE EXPOSED TO WIND SHALL BE DESIGNED AND INSTALLED TO RESIST THE WIND PRESSURES DETERMINED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, BUILDING.

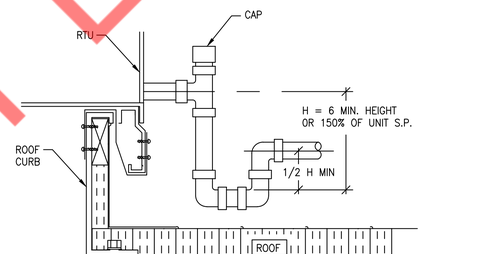
ATTACHMENT METHOD:
CUT OUT THE GOOSENECK VENT OPENING IN THE ROOF SHEATHING ACCORDING WITHIN MAXIMUM DIMENSIONS. DO NOT CUT INTO TRUSSES OR RAFTERS WHEN CUTTING OPENING IN THE ROOF.

REMOVE INTERFERING SHINGLE NAILS AROUND THE PERIMETER OF THE OPENING AND ANY DEBRIS SO THAT THE NAILING FLANGE OF THE VENT LAYS FLAT TO THE ROOF SHEATHING. SLIDE THE TOP AND SIDE FLANGES OF THE VENT UNDERNEATH THE SHINGLES AND ALLOW THE BOTTOM FLANGE TO LIE ON THE TOP OF THE SHINGLES. CARE SHOULD BE TAKEN IN KEEPING THE VENT PROPERLY ALIGNED. VENT PIPE IS SEALED IF UTILIZED. SCREW IN PLACE USING FOUR (4) TEK SCREWS LOCATED AT EACH CORNER (SCREWS SHALL CONFORM WITH FBC SECTION 1506). ROOFING CEMENT SHOULD BE APPLIED TO ALL SHINGLE EDGES NEAR THE OUTER EDGE AND AROUND THE ENTIRE PERIMETER.

ALLOWABLE ROOF COVERINGS: ASPHALT SHINGLES

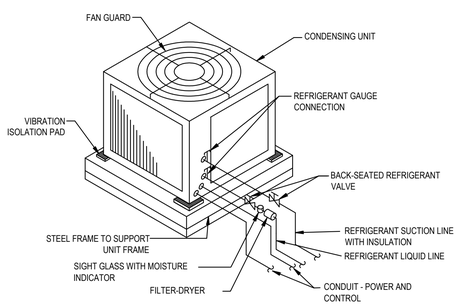
MAXIMUM DESIGN PRESSURE:
-52.5 PSF FOR INSTALLATIONS OVER PLYWOOD DECK
-22.5 PSF FOR INSTALLATION OVER OSB DECK
PRESSURES CALCULATED USING 2.1 MARGIN OF SAFELY PER 1504.9.

4 M401 TYPIAL GOOSENECK DETAIL N.T.S

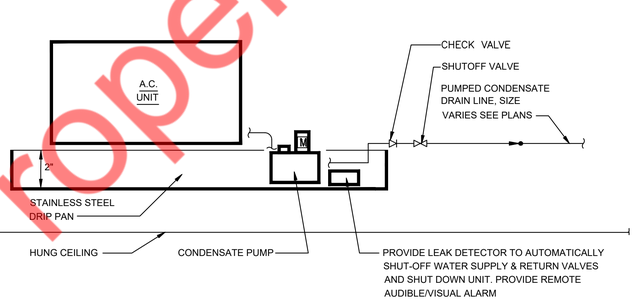


PROVIDE CONDENSATE DRAIN FROM EACH RTU DRAIN PAN FULL SIZE OF DRAIN PAN OUTLET ADJACENT TO UNIT SERVED.

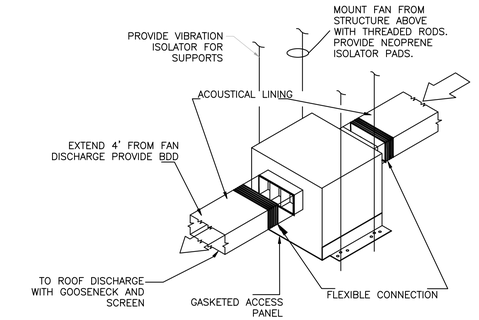
5 M401 P-TRAP DETAIL N.T.S



6 M401 CONDENSING UNIT MOUNTING DETAIL N.T.S



7 M401 AC DRAIN PAN DETAILS N.T.S



8 M401 INLINE FAN DETAIL N.T.S

CONSULTANTS (ENGINEERS):

NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION
△	DATE	REVISION

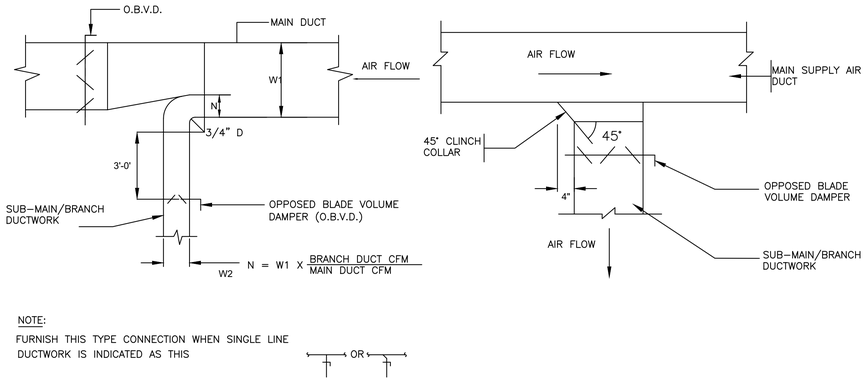
KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

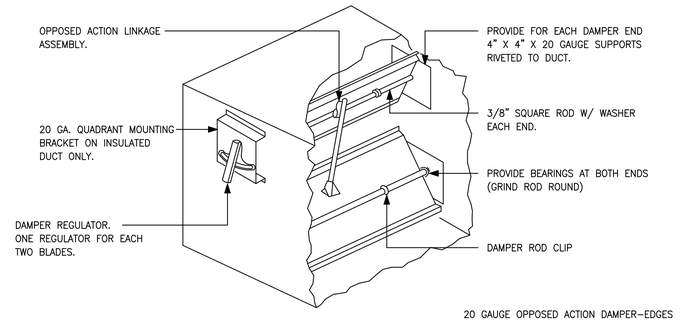
PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:
MECHANICAL DETAILS (01 OF 03)

SHEET NUMBER:
M401

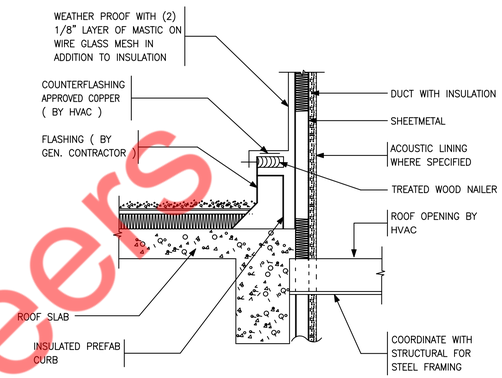


1 M402 SUPPLY AIR DUCTWORK SUB-MAIN/BRANCH DUCT CONNECTION
N.T.S

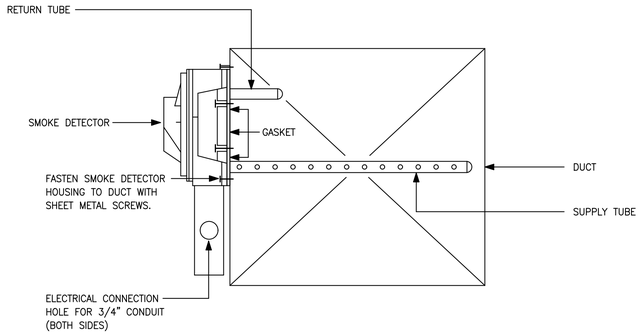


NOTE : 1. FOR DUCTS OVER 29" WIDE AND/OR OVER 12" HIGH.

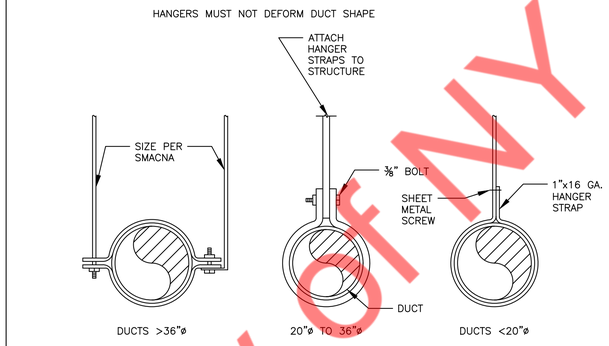
2 M402 LOW PRESSURE BALANCING DAMPER
N.T.S



3 M402 DUCT PENETRATION THRU CONCRETE ROOF
N.T.S



4 M402 SMOKE DETECTOR MOUNTING DETAIL
N.T.S



5 M402 ROUND DUCT SUPPORT DETAIL
N.T.S

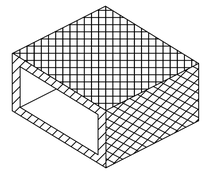


FIG. A

NOTES:
DUCTS TO BE ACOUSTICALLY LINED SHALL BE DESIGNATED BY THE SYMBOL IN FIG. "C" TO THE EXTENT OF LINING. THICKNESS SHALL BE AS SPECIFIED.
DUCTS LINED WITH ACOUSTICAL MATERIAL SHOULD BE FASTENED WITH CLIPS, ADHESIVE, OR PINS

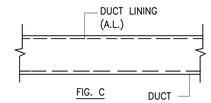


FIG. C

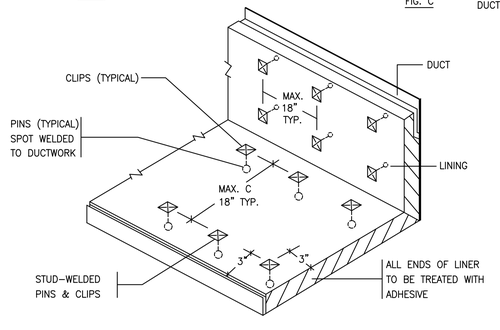
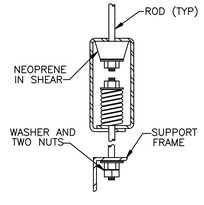
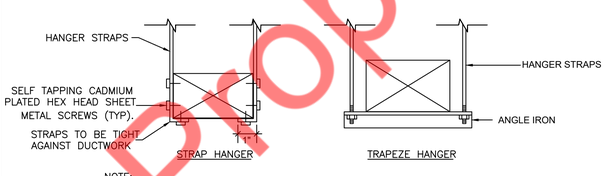


FIG. B

8 M402 ACOUSTICAL TREATMENT DUCT LINING
N.T.S



6 M402 VIBRATION ISOLATOR
N.T.S



NOTE:
NO POP RIVETS ALLOWED, USE SELF-TAPPING SHEETMETAL SCREWS ONLY.

HANGER SIZES*

MAX. SIDE	HANGER	HORIZONTAL SUPPORT ANGLE	MAXIMUM SPACING
30"	1"x18" GAUGE STRAP	NONE REQUIRED	10'-0"
36"	1/4" ROD	1-1/2"x1-1/2"x1/8"	8'-0"
48"	1/4" ROD	2"x2"x1/8"	8'-0"
60"	5/16" ROD	2"x2"x1/8"	8'-0"
84"	3/8" ROD	2"x2"x1/8"	8'-0"

* FOR RECTANGULAR DUCTS

7 M402 DUCT HANGING DETAILS
N.T.S

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

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△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:
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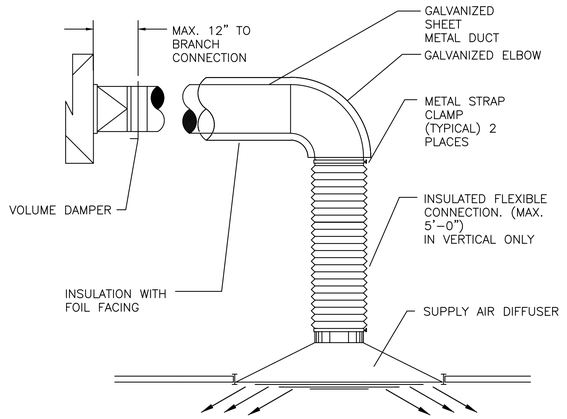
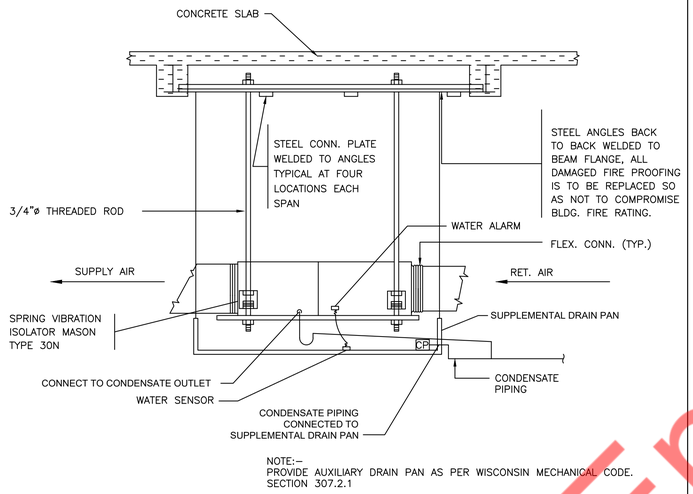
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:
MECHANICAL DETAILS (02 OF 03)

SHEET NUMBER:
M402

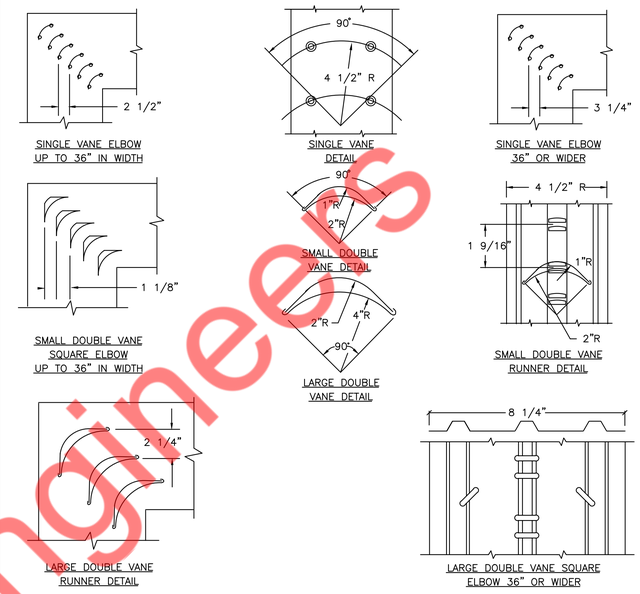


1 M403 DIFFUSER DETAIL
N.T.S



NOTE:-
PROVIDE AUXILIARY DRAIN PAN AS PER WISCONSIN MECHANICAL CODE. SECTION 307.2.1

2 M403 AC INSTALLATION DETAIL
N.T.S



3 M403 LOW VELOCITY DUCTWORK ELBOWS
N.T.S

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

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AREA: 10,000 SQ. FT.

TITLE:
MECHANICAL DETAILS (03 OF 03)

SHEET NUMBER:
M403

FOR QUESTIONS, CALL THE
Broward-Palm Beach Mechanical
REGION 64
PHONE: (305) 710 – 6110
EMAIL: reg64@captiveaire.com

PATENT NUMBERS
EXHAUST HOODS ND-2/BD-2/SND-2 (CANADA) – CA PATENT 2520435 C.

HOOD INFORMATION – JOB#7318591

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1		4224 ND-2	CAPTIVEAIRE	4' 0"	600 DEG	I	HEAVY	250	1000			4"	10"	1000	1833	-0.906"	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1		CAPTRATE SOLO FILTER	2	16"	20"	85% SEE FILTER SPEC	1	RECESSED ROUND	NO	LEFT	12"x42"x24"	TANK FS	4.0	SC-311110MA	1 LIGHT 1 FAN	YES	428 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1		FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		RISER SENSOR INSTALL 6IN PLEN.

GREASE DUCT & CHIMNEY SPECIFICATIONS:
PROVIDE GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW" ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "DW" IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "DW" DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER THE MANUFACTURES INSTALLATION GUIDE.
PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURES LISTING MODEL "DW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12".
DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN HORIZONTAL RUNS.

IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW- 2R, 2R TYPE HT, 3R, OR 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

CAPTIVEAIRE SYSTEMS RECOMMENDS THE USE OF LISTED, PRE-FABRICATED ROUND GREASE EXHAUST DUCT TO REDUCE STATIC PRESSURE IN THE SYSTEM, MINIMIZE INSTALLATION AND INSPECTION TIMES, AND ENSURE DUCT IS LIQUID TIGHT

HVAC DISTRIBUTION NOTE

HIGH VELOCITY DIFFUSERS OR HVAC RETURNS SHOULD NOT BE PLACED WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.

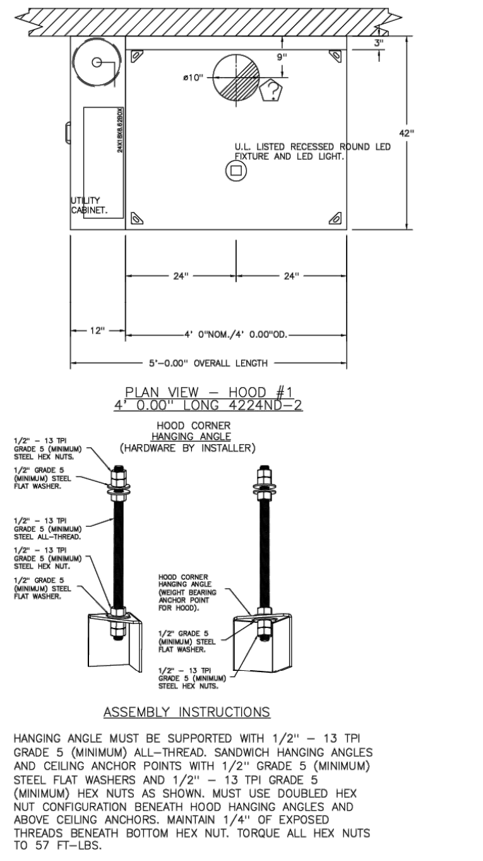
VERIFY CEILING HEIGHT

___' - ___"

HEIGHT REQUIRED TO VERIFY THAT HOOD FITS SPACE AND TO SIZE THE ENCLOSURE PANELS

CUSTOMER APPROVAL TO MANUFACTURE:

APPROVED AS NOTED ☐
APPROVED WITH NO EXCEPTION TAKEN ☐
REVISE AND RESUBMIT ☐
SIGNATURE ____
YOUR TITLE ____ DATE ____



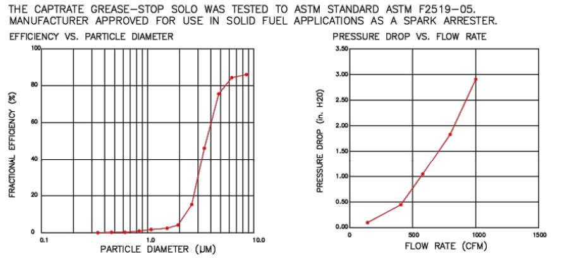
SPECIFICATION: CAPTRATE GREASE-STOP SOLO FILTER

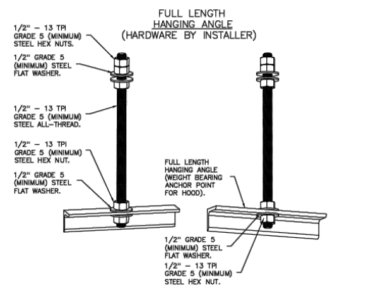
THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.
THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05.
MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.





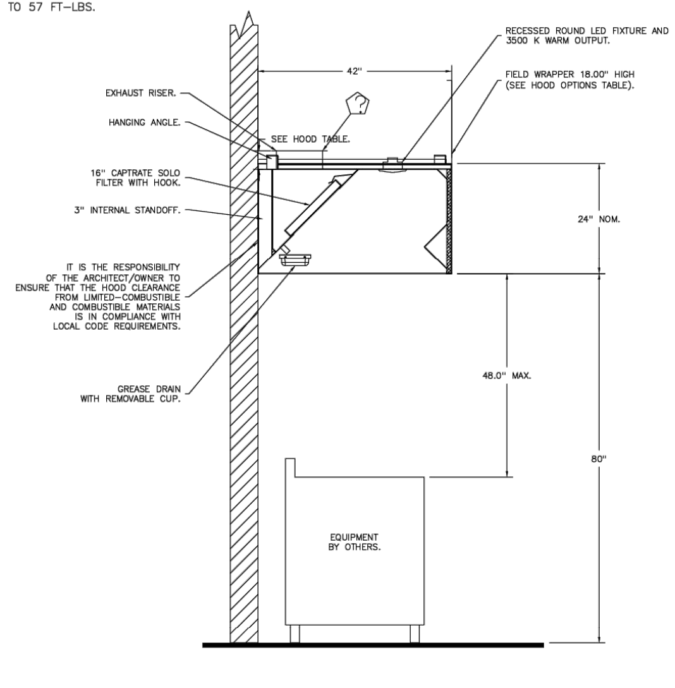
ASSEMBLY INSTRUCTIONS

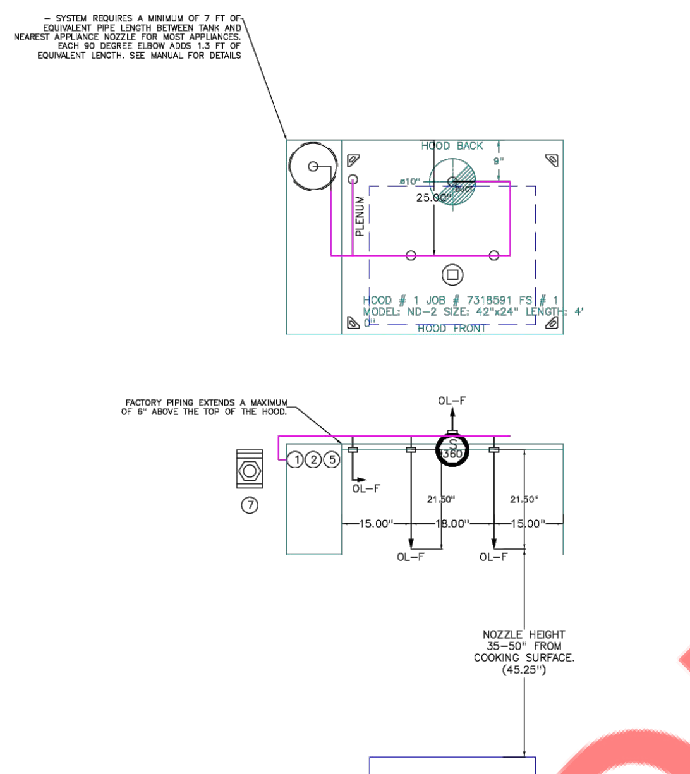
HANGING ANGLE MUST BE SUPPORTED WITH 1/2" – 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" – 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS ACCEPTABLE FOR FULL LENGTH HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

CLEARANCE TO COMBUSTIBLES

HOODS #	SURFACE	*CLEARANCE
1	TOP	18"
	FRONT	0"
	BACK	18"
	LEFT	0"
	RIGHT	18"

- *0" CLEARANCE TO COMBUSTIBLES CONFORMS TO UL710 STANDARD.
- HOOD MOUNTED UTILITY CABINETS REQUIRE 36" SERVICE CLEARANCE.





NOTES
- FIELD PIPE DROPS AS SHOWN
  PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- FIELD INSTALLED DROP: FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
- SHIP LOOSE DROP: FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED LOOSE TO BE FIELD-INSTALLED.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
- IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
- FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

- OL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS

JOB #: 7318591.
JOB NAME: KIDDIE ACADEMY – MADISON, WI.

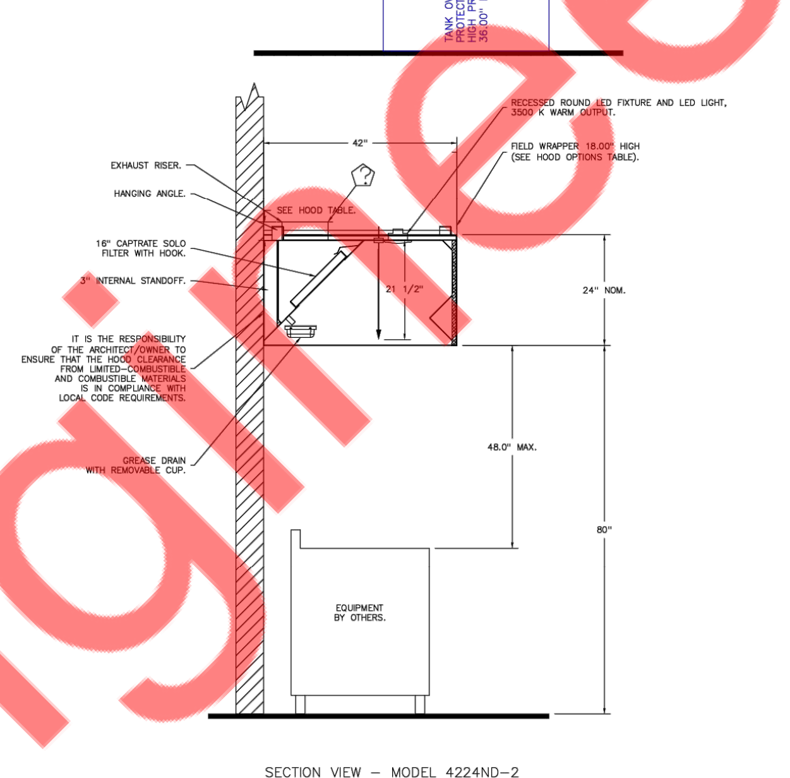
SYSTEM SIZE: TANK-SP-1 DESIGN FP: 18. MAXIMUM FP: 20.
HOOD # 1 4' 0.00" LONG x 42" WIDE x 24" HIGH.
RISER # 1 SIZE: 10" DIA.
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.

- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

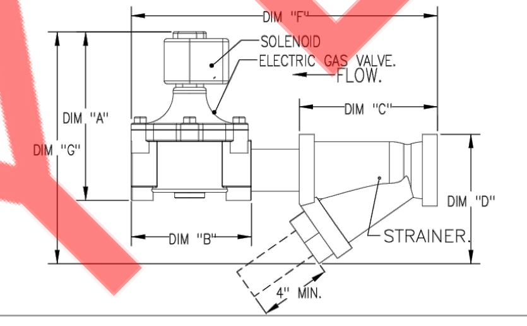
AGENT DISTRIBUTION PIPING LIMITATIONS	
PIPE SECTION	MAX PIPE LENGTH (FT)
MAX SUPPLY LINE TO FIRST OVERLAPPING NOZZLE	42
OVERLAPPING NOZZLE APPLIANCE BRANCH	10
DEDICATED NOZZLE APPLIANCE BRANCH	10

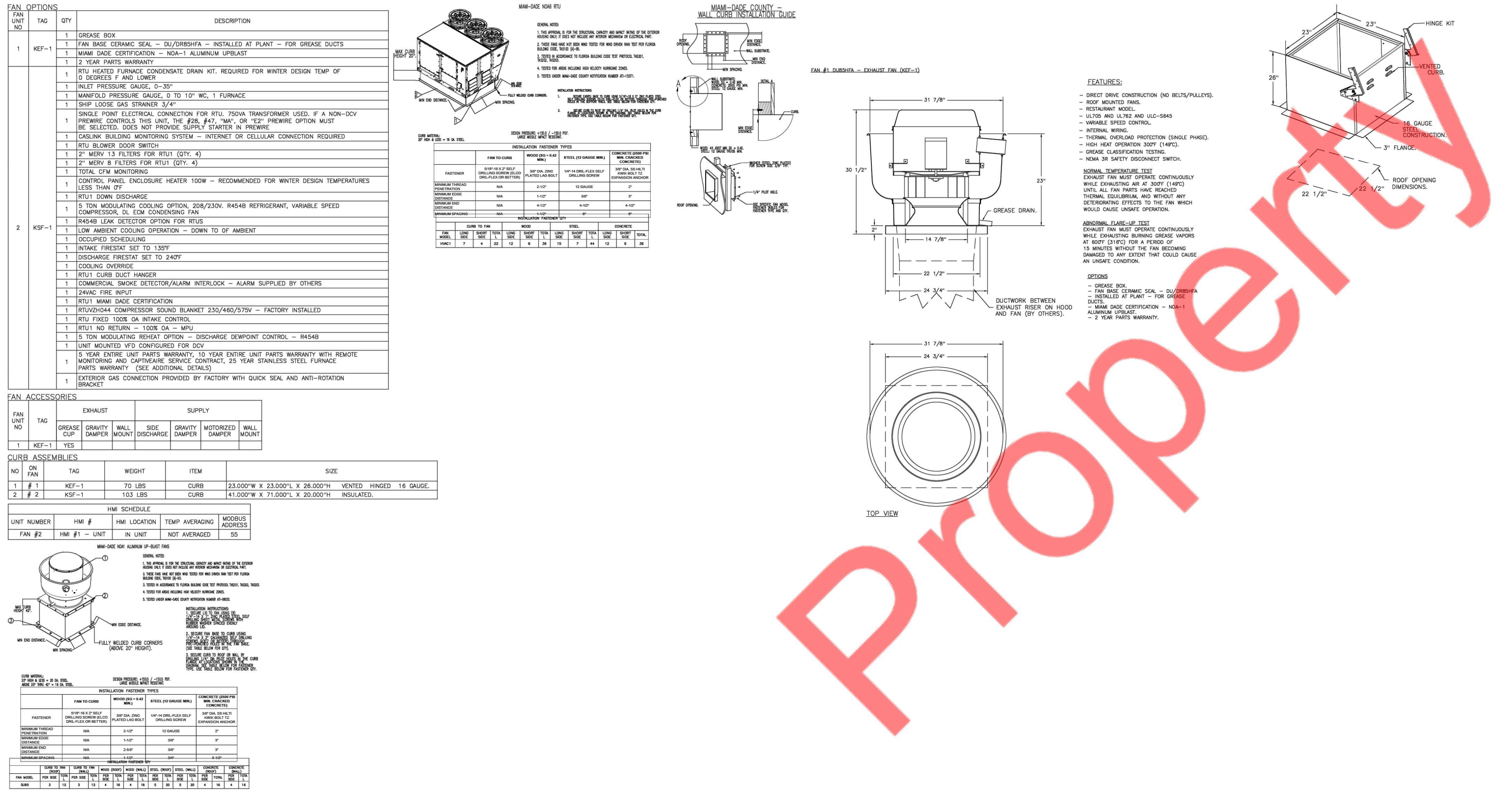
LEGEND – FIRE CABINET TANK SYSTEM

1	4 GALLON TANK.
2	PRIMARY ACTUATOR RELEASE.
3	SECONDARY ACTUATOR RELEASE.
4	PRESSURE SUPERVISION SWITCH.
5	PRIMARY HOSE ASSEMBLY.
6	SECONDARY HOSE ASSEMBLY.
7	REMOTE MANUAL ACTUATION DEVICE.



GAS VALVES AND STRAINERS

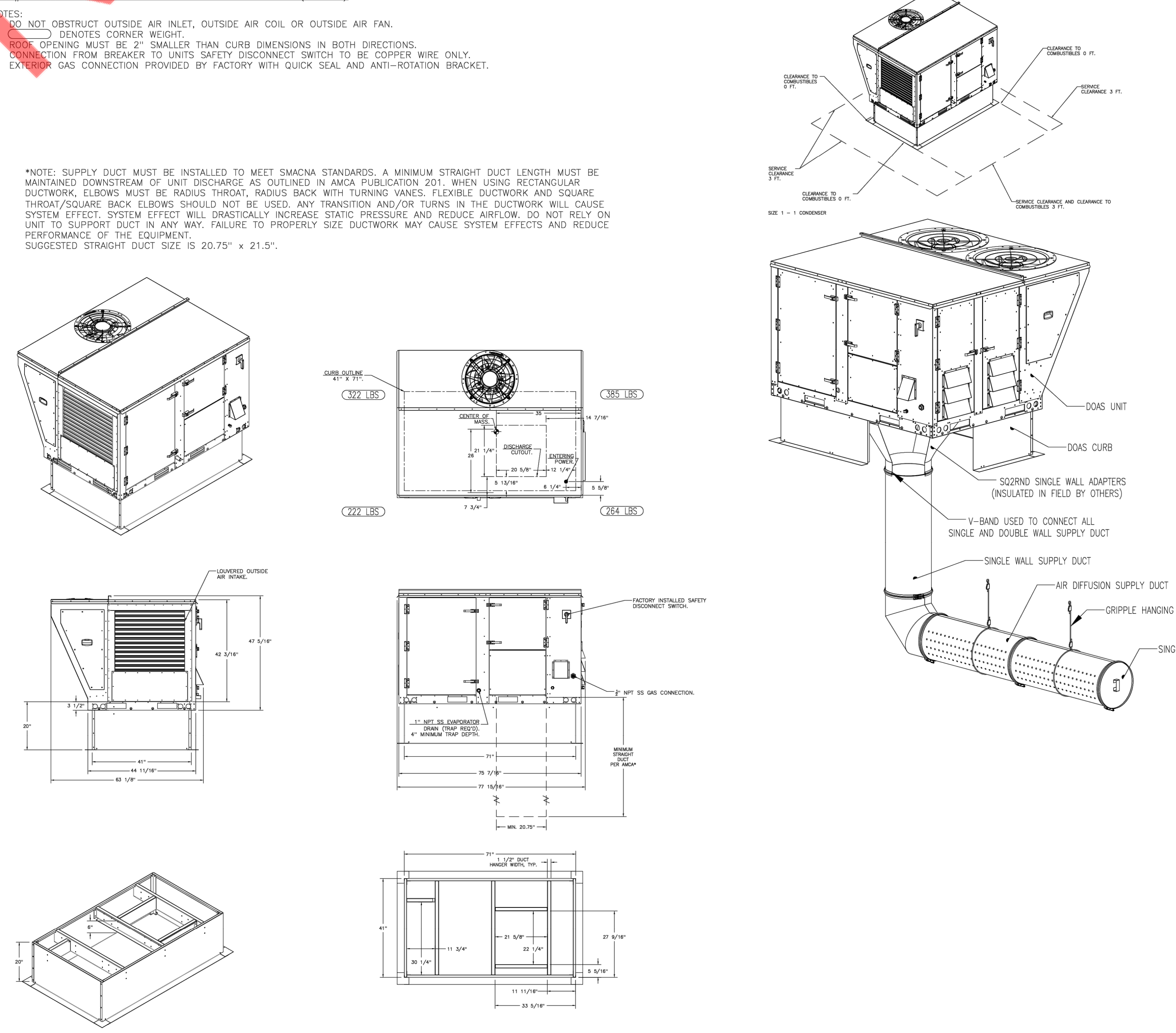




FAN #2 CAS-HVAC1-I.125-13-5T-MPU – HEATER (KSF-1)

NOTES:
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2. ( ) DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
4. CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.
5. EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET.

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.
SUGGESTED STRAIGHT DUCT SIZE IS 20.75" x 21.5".



Kiddie Academy – Madison, WI
MADISON, WI, 53701
DATE: 2/4/2025
DWG.#: 7318591
SCALE: 3/4" = 1'-0"
MASTER DRAWING

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

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DATE	ISSUE
03.04.25	PERMIT SUBMISSION

△ DATE REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

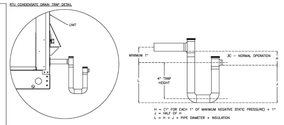
TITLE:
HOOD DETAILS
(01 OF 03)

SHEET NUMBER:
M404

AIR DIFFUSION SUPPLY DUCT SPECIFICATIONS:
PROVIDE AIR DIFFUSION SUPPLY DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL DW-S0(HC), DW-S90(HC), & DW-S180(HC).
THREE DISTINCT HOLE PATTERN OPTIONS TO COVER A VARIETY OF CEILING HEIGHTS.
NO ADDITIONAL DIFFUSERS REQUIRED, AS THE DUCT ITSELF PROVIDES AIR DIFFUSION.
MADE OF HIGH QUALITY STAINLESS STEEL DESIGNED TO LAST 20+ YEARS.
HIGH INDUCTION SUPPLY DUCT IS CONSTRUCTED USING 24 GAUGE, 430 SS – 5" THRU 24".
HIGH INDUCTION SUPPLY DUCT IS CONSTRUCTED USING 20 GAUGE, 430 SS – 26" THRU 36".
QUICK ONSITE ASSEMBLY USING EPDM GASKETS & UNIVERSAL V-BANDS.
DOUBLE WALL SUPPLY DUCT AVAILABLE FOR INTERIOR AND EXTERIOR SPACES, EITHER CONDITIONED OR UNCONDITIONED.
DOUBLE WALL SUPPLY DUCT AVAILABLE IN DW-15, DW-25, & DW-35 TO MEET SPECIFIC REGIONAL "R" VALUE REQUIREMENTS.

Insulation R-Value Recommendations		
Supply Duct Type	Minimum R-value	Space Type
Single Wall – S & –HC	N/A	Conditioned Space Only
Double Wall – 1S	R-4	Unconditioned Interior Space Only
Double Wall – 2S	R-8	Unconditioned Space Climate Zones 1-4
Double Wall – 3S	R-12	Unconditioned Space Climate Zones 5-8

DOUBLE WALL SUPPLY DUCT IS INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.
AIR DIFFUSION SUPPLY DUCT COMPLIES WITH SMACNA (SHEET METAL AND AIR CONDITIONING CONTRACTORS) BEST PRACTICES.
POSITIONING OF SPRINKLERS TO AVOID OBSTRUCTION TO DISCHARGE, SEE NFPA 13, TABLE 8.12.5.1.1.

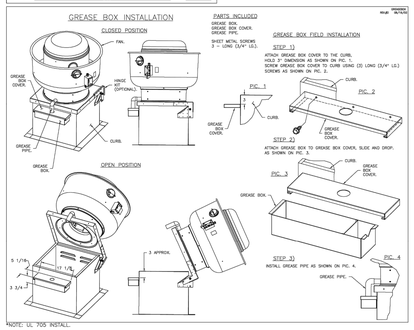


GREASE DUCT & CHIMNEY SPECIFICATIONS:
PROVIDE GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW" ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "DW" IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "DW" DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER THE MANUFACTURES INSTALLATION GUIDE.
PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURES LISTING MODEL "DW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12". DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN HORIZONTAL RUNS.

IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW- 2R, 2R TYPE HT, 3R, OR 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

CUSTOMER APPROVAL TO MANUFACTURE:

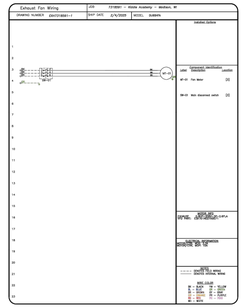
APPROVED AS NOTED ☐
APPROVED WITH NO EXCEPTION TAKEN ☐
REVISE AND RESUBMIT ☐
SIGNATURE _____
YOUR P.O.# _____ DATE _____



NOTE: UL 705 INSTALL.

CAPTIVEAIRE
NC10 300A Lane North, Lumberton, FL 32679 Phone: 910-738-8208 Fax: 910-738-8208 www.captiveaire.com
Brennan Fabre Beech Reckwinkel
Mechanical Engineer
Kiddie Academy – Madison, WI
MADISON, WI, 53701

DATE: 2/4/2025
DWG.#: 7318591
DRAWN BY:
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 5



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Mechanical Engineer
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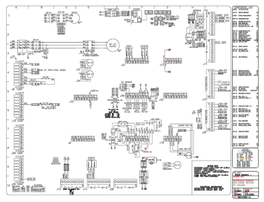
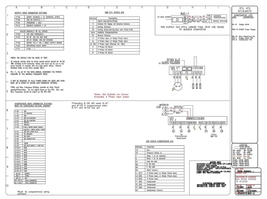
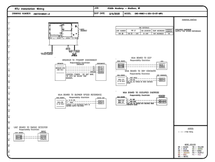
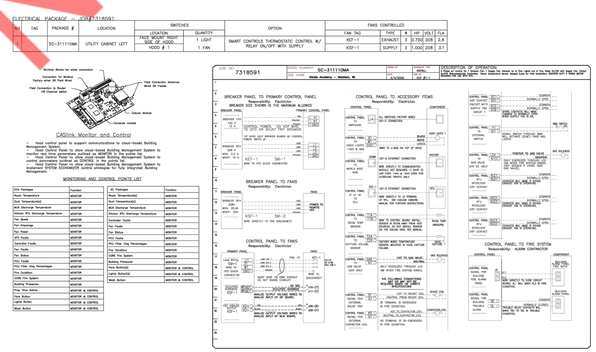
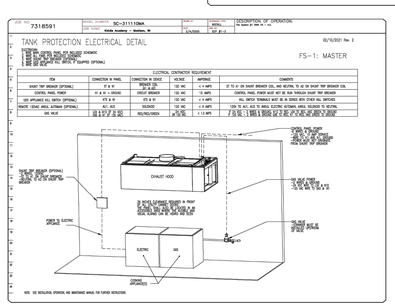
SHEET NO. 6

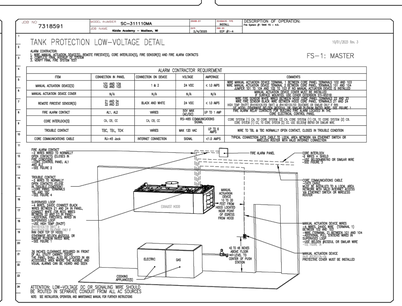












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Brennan Fabre Beech Reckwinkel
Mechanical Engineer
Kiddie Academy – Madison, WI
MADISON, WI, 53701

DATE: 2/4/2025
DWG.#: 7318591
DRAWN BY:
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 7

CAPTIVEAIRE
NC10 300A Lane North, Lumberton, FL 32679 Phone: 910-738-8208 Fax: 910-738-8208 www.captiveaire.com
Brennan Fabre Beech Reckwinkel
Mechanical Engineer
Kiddie Academy – Madison, WI
MADISON, WI, 53701

DATE: 2/4/2025
DWG.#: 7318591
DRAWN BY:
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 8

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

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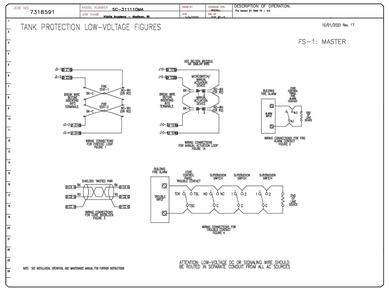
KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

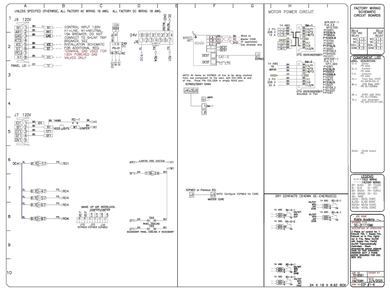
LOCATION:

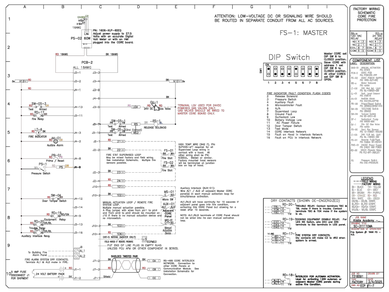
PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:
HOOD DETAILS
(02 OF 03)

SHEET NUMBER:
M405







REVISIONS	
DESCRIPTION	DATE
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△2	
△3	
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CAPTIVE-AIRE
NC125 Eliza Lane North, Lumberton, NC, 28358 Phone: (910) 738-8208 Fax: (910) 738-8240 www.captiveaire.com

Kiddie Academy – Madison, WI
MADISON, WI, 53701

DATE: 2/4/2025
DWG.#: 7318591
DRAWN BY:
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 9

SYSTEM DESIGN VERIFICATION (SDV)

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

REVISIONS
DESCRIPTION DATE
△1
△2
△3
△4

CAPTIVE-AIRE
NC125 Eliza Lane North, Lumberton, NC, 28358 Phone: (910) 738-8208 Fax: (910) 738-8240 www.captiveaire.com

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SHEET NO. 10

CONSULTANTS (ENGINEERS):
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KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:
HOOD DETAILS
(03 OF 03)

SHEET NUMBER:
M406

SPRINKLER GENERAL NOTES

1. ALL SPRINKLER WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF N.F.P.A.-13-2013 AND ALL LOCAL AUTHORITIES.
2. ALL SPRINKLER WORK SHALL COMPLY WITH BUILDING STANDARDS AND REQUIREMENTS.
3. ALL SPRINKLER HEADS SHALL BE INSTALLED AT CENTER OF TILE IF CEILING IS PROVIDED.
4. GENERAL CONTRACTOR SHALL COORDINATE FINAL FURNITURE/ EQUIPMENT HEIGHT ELEVATIONS AND LOCATIONS WITH SPRINKLER INSTALLATION. ENGINEER SHALL BE NOTIFIED WHEN FURNITURE/ EQUIPMENT IS LESS THAN 18" TO UNDERSIDE OF CEILING.
5. THE SPRINKLER SYSTEMS ARE TO BE HYDROSTATIC TESTED FOR A (2) HOUR MINIMUM AT 200 PSI. PRESSURE AND ARE TO BE WITNESSED BY AUTHORIZED BUILDING PERSONNEL. COORDINATE ALL TESTING WITH BUILDING MANAGER.
6. PIPES SIZES SHOWN ARE BASED ON DESIGN PIPING LAYOUTS ONLY. ACTUAL PIPE SIZES SHALL BE DETERMINED BY CONTRACTORS HYDRAULIC CALCULATIONS BASED ON HIS INSTALLATION DRAWINGS. CONTRACTOR SHALL ALLOW FOR THIS AND INCLUDE THIS IN HIS CONTRACT PRICE.
7. DRAWING INDICATES SPRINKLER SYSTEM DESIGN ONLY. CONTRACTOR RESPONSIBLE FOR OFFSETS, DROPS AND RISES FOR COORDINATION WITH OTHER TRADES.
8. G.C. SHALL BE RESPONSIBLE FOR ALL FINAL TESTS AND INSPECTIONS OF COMPLETED WORK REQUIRED BY THE BUILDING MANAGEMENT PRIOR TO OCCUPANCY OF SPACE.
9. ALL SPRINKLER WORK SHALL BE TESTED AND MADE OPERATIONAL PRIOR TO CARPET AND FURNITURE INSTALLATION. G.C. SHALL REPAIR AND/OR REPLACE ALL FINISHES DAMAGED BY DEFECTIVE SPRINKLER WORK AT HIS EXPENSE.
10. ALL BURNING, CUTTING, SOLDERING AND WELDING SHALL BE COORDINATED WITH BUILDING FIRE SYSTEMS WITH BUILDING MANAGEMENT, AS REQUIRED.
11. G.C. SHALL BE RESPONSIBLE FOR OBTAINING PERMITS AND APPROVALS REQUIRED BY BUILDING INSPECTOR AND FIRE MARSHALL IN CONJUNCTION WITH CHANGES TO EXISTING SPRINKLER SYSTEM.
12. REFER TO ENGINEERING DRAWINGS FOR SPRINKLER HEADS, LIGHT SENSORS AND FIRE DETECTION DEVICES.
13. ALL WORK TO BE DONE DURING THE HOURS DESIGNATED BY OWNER.
14. UPON COMPLETION OF ALL SPRINKLER WORK, CONTRACTOR SHALL TEST AND INSPECT ENTIRE SPRINKLER SYSTEM. ENTIRE SYSTEM SHALL BE FULLY OPERATIONAL AND APPROVED IN COMPLIANCE WITH ALL AHJ.
15. UPON SUCCESSFUL COMPLETION OF ALL TESTING, CONTRACTOR SHALL PRIME AND PAINT ALL EXPOSED SPRINKLER PIPING. COLOR AND FINISH SHALL BE AS PER ARCHITECT.
16. CONTRACTOR SHALL INCLUDE IN HIS BID THE COST TO PROVIDE (5) FIVE ADDITIONAL SPRINKLERS INSTALLED. EXACT LOCATIONS OF THESE SPRINKLER HEADS SHALL BE DETERMINED IN FIELD.
17. FOR SPRINKLER WORK DONE IN ACCORDANCE WITH THE REQUIREMENTS OF N.F.P.A.-13-2013, HYDROSTATIC TESTS IN ACCORDANCE WITH REFERENCE STANDARD NFPA 13-2013, AS MODIFIED FOR SUN PRAIRIE, WISCONSIN ARE NECESSARY.
18. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND SHALL INSTALL NEW WORK TO CLEAR DUCTWORK AND LIGHTING FIXTURES.
19. ALL SPRINKLER WORK SHALL COMPLY WITH BUILDING STANDARDS AND REQUIREMENTS.
20. DRAWING INDICATES SPRINKLER SYSTEM DESIGN ONLY. CONTRACTOR RESPONSIBLE FOR OFFSETS, DROPS AND RISES FOR COORDINATION WITH OTHER TRADES.
21. PIPES SIZES SHOWN ARE BASED ON SCHEDULE OF PIPE SIZE PIPING LAYOUTS ONLY. ACTUAL PIPE SIZES SHALL BE DETERMINED BY CONTRACTORS HYDRAULIC CALCULATIONS BASED ON HIS INSTALLATION DRAWINGS. CONTRACTOR SHALL ALLOW FOR THIS AND INCLUDE THIS IN HIS CONTRACT PRICE.
22. PROVIDE AUXILIARY DRAINS AT TRAPPED SECTIONS OF PIPING AS REQUIRED BY NFPA.
23. GENERAL CONTRACTOR SHALL COORDINATE FINAL FURNITURE/ EQUIPMENT HEIGHT ELEVATIONS AND LOCATIONS WITH SPRINKLER INSTALLATION ENGINEER SHALL BE NOTIFIED WHEN FURNITURE/EQUIPMENT IS LESS THAN 18" TO UNDERSIDE OF CEILING PRIOR TO INSTALLATION.
24. COMPOSITE DRAWINGS

    CONTRACTOR SHALL BE GIVEN A SEPIA TRANSPARENCIES TO IMPOSE THEIR WORK FOR A COORDINATED ALLOCATION OF SPACE. PROCEDURE SHALL INCLUDE HVAC CONTRACTOR TO INDICATE DUCT WORK, PIPING, STRUCTURAL AND ARCHITECTURAL DETAILS. SEPIAS SHALL BE GIVEN TO PLUMBING, SPRINKLER AND ELECTRICAL TRADES WHO WILL DRAW HIS WORK ON DRAWINGS. HVAC CONTRACTORS SHALL HOLD A COORDINATION MEETING WITH ALL CONTRACTORS TO ELIMINATE INTERFERENCE OR CONFLICTS IN INSTALLING WORK. IF UNABLE TO EACH AGREEMENT ISSUE, ARCHITECT SHALL MAKE BINDING DECISION.
25. CONTRACTOR SHALL COORDINATE SPRINKLER MAIN AND BRANCHES WITH NEW CONSTRUCTION TO AVOID CONFLICTS WITH CEILING HEIGHTS, DUCTWORK, LIGHTING FIXTURES, BEAMS. CONTRACTOR TO ADJUST PIPING ACCORDINGLY TO ACCOMMODATE NEW CONSTRUCTION.

BUILDING DEPARTMENT SPRINKLER NOTES

1. THE INSTALLATION, COMPONENTS, SIZING, SPACING, CLEARANCES, POSITION AND TYPE OF SYSTEMS SHALL CONFORM TO THE WISCONSIN BUILDING CODE 2015 (IBC 2015), SECTION 903.
2. ONLY APPROVED MATERIALS SHALL BE USED AS PER THE WISCONSIN BUILDING CODE 2015 (IBC 2015), SECTION 201.
3. DIRECT CONNECTION OF SPRINKLERS TO THE PUBLIC WATER SYSTEM SHALL CONFORM TO THE WISCONSIN BUILDING CODE 2015 (IBC 2015), SECTION 903.3.5.
4. SPRINKLER SHALL BE PROTECTED AGAINST FREEZING AND INJURY AS PER NFPA 13-2013 CHAPTER 8 SECTION 8.16.4.1.
5. THE OCCUPANCY OF THE AREAS TO BE SPRINKLERED IN ACCORDANCE WITH THE WISCONSIN BUILDING CODE 2015 (IBC 2015), SECTION 903.2.
6. PIPING, FITTINGS, SPECIFICATIONS, PIPE SCHEDULES, SYSTEM TEST PIPES, PROTECTION AGAINST CORROSION, DAMAGE, VALVES, HANGERS, SPRINKLERS GUARDS AND SHIELDS SHALL BE AS PER WITH THE WISCONSIN BUILDING CODE 2015 (IBC 2015), SECTION 903.
7. STOCK OF EXTRA SPRINKLERS WILL BE FURNISHED AS PER NFPA 13-2013 SECTION 6.2.9 (REQUIRED FOR EACH TEMPERATURE RATING).
8. SPRINKLER ALARM SHALL BE IN ACCORDANCE WITH THE WISCONSIN BUILDING CODE 2015 (IBC 2015), SECTION 907.
9. SPACING, LOCATION AND POSITION OF SPRINKLER WILL BE AS PER THE WISCONSIN BUILDING CODE 2015 (IBC 2015), SECTION 903.3.
10. ALL BLIND SPACES EXCEEDING 6" IN WIDTH OR DEPTH WHICH CONTAIN COMBUSTIBLE MATERIAL WILL BE SPRINKLERED.
11. ALL PIPE PASSING THROUGH WALLS WILL COMPLY WITH SECTION THE WISCONSIN BUILDING CODE 2015 (IBC 2015), SECTION 714.
12. THERE IS NO HIGH PILED STORAGE AS DEFINED IN THE WISCONSIN BUILDING CODE 2015 (IBC 2015), SECTION 3201.
13. DISTANCE OF SPRINKLERS FROM HEAT SOURCE SHALL BE AS PER NFPA 13-2013 SECTION 8.3.2.5
14. THIS APPLICATION IS NOT FILED AS A RESULT OF ACTION BY THE FIRE COMMISSIONER AS AUTHORIZED BY BS & A TO MODIFY THE CERTIFICATE OF OCCUPANCY NOR IS SUCH ACTION PENDING.
15. ALL VALVES SHALL BE IDENTIFIED AS REQUIRED BY NFPA 13-2013, SECTION 7.6.3.
16. A ONE PIECE REDUCING FITTING OF GOOD DESIGN SHOULD BE USED WHEREVER A CHANGE IS MADE IN THE SIZE OF PIPE, AS PER NFPA 13-2013 SECTION 6.4.7.
17. ALL VALVES ON CONNECTIONS TO WATER SUPPLIES TO SPRINKLER SHALL BE APPROVED O.S. & Y. OR APPROVED INDICATOR TYPE.
18. DRAIN VALVES AND TEST VALVES SHALL BE APPROVED TYPE AS PER NFPA-13-2013 SECTION 6.7.3.
19. HANGERS SHOULD BE SUPPORTED BY WROUGHT IRON U TYPE OR APPROVED ADJUSTABLE HANGERS. HANGERS SHALL BE OF THE TYPE APPROVED FOR USE WITH THE PIPE OR TUBE INVOLVED, AS PER NFPA-13-2013 SECTION 9.1.
20. TEMPERATURE RATING SHALL COMPLY WITH NFPA-13-2013 SECTION 8.3.2.
21. 18" MINIMUM CLEARANCE TO BELOW SPRINKLER DEFLECTOR AS PER NFPA-13-2013 SECTION 8.5.6
22. MINIMUM BRANCH PIPE SIZE TO BE ONE INCH (1").
23. THIS APPLICATION IS MADE ONLY FOR WORK INDICATED ON THE SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
24. WET SPRINKLER SYSTEM SUBJECTED TO FREEZING SHOULD COMPLY WITH NFPA 13-2013 SECTION 8.6.
25. INSPECTION AND TESTS OF SPRINKLERS SHALL BE CONDUCTED AS PER THE WISCONSIN BUILDING CODE 2015 (IBC 2015), SECTION 904.4.

SPRINKLER DRAWING LIST

DWG NO.	DRAWING NAME
FP-001	FIRE PROTECTION COVER SHEET
FP-002	FIRE PROTECTION SPECIFICATIONS
FP-003	FIRE PROTECTION DETAILS
FP-100	FIRE PROTECTION PLAN

SPACING BETWEEN SPRINKLER HEADS

LIGHT HAZARD: 15' MAX.
ORDNIARY HAZARD: 15' MAX

NOTE: MAXIMUM DISTANCE BETWEEN SPRINKLER HEADS & WALLS IS 1/2 THE DISTANCE BETWEEN HEADS.

PROTECTION AREA OF SPRINKLER HEADS

LIGHT HAZARD:	225 SQ. FT.
ORDINARY HAZARD:	130 SQ. FT.

DESIGN CRITERIA SUMMARY:

HYDRAULIC CALCULATIONS FOR SCHOOL AREA BASED ON THE FOLLOWING:

OCCUPANCY:	ORDINARY I
MINIMUM DESIGN DENSITY:	0.15 GPM/SQ. FT.
DESIGN AREA OF APPLICATION:	1500 SQ. FT.

OCCUPANCY:	LIGHT
MINIMUM DESIGN DENSITY:	0.1 GPM/SQ. FT.
DESIGN AREA OF APPLICATION:	1500 SQ. FT.

GENERAL NOTES:

1. FOR SPRINKLER WORK ONLY
2. ALL SPRINKLER HEADS MEET DESIGN CRITERIA PER COVERAGE.
3. PROVIDE FREEZE PROTECTION FOR ALL SPRINKLER PIPING AND EQUIPMENTS SUBJECT TO TEMPERATURE BELOW 40°F.

PERFORMANCE SPECIFICATION CRITERIA:

SPRINKLER PLANS AS SHOWN ARE FOR BIDDING PURPOSES ONLY.
SPRINKLER CONTRACTOR IS TO OBTAIN CURRENT HYDRANT FLOW TEST DATA AND PROVIDE HYDRAULIC CALCULATIONS FOR SYSTEM PIPE SIZING IN ACCORDANCE WITH NFPA 13.
CONTRACTOR IS TO SUBMIT SHOP DRAWINGS INDICATING HYDRAULIC CALCULATIONS, PIPING LAYOUT AND SIZING. ALL WORK IS TO BE DONE IN ACCORDANCE WITH ALL STATE,LOCAL, GOVERNING AND APPLICABLE CODES.

SPRINKLER LEGEND

EX.SP	EXISTING SPRINKLER RISER PIPING TO REMAIN
SP	NEW SPRINKLER PIPING
●	CONCEALED SPRINKLER HEAD (NEW)
⊙	UPRIGHT SPRINKLER HEAD (NEW)
FCVA	FLOOR CONTROL VALVE ASSEMBLY
WFS	WATER FLOW SWITCH
⊢	SPRINKLER CAPPED OUTLET
⫩	PIPE THRU RATED WALL
TS	TAMPER SWITCH

SPRINKLER SCHEDULE

SYMBOL	NAME	COVERAGE	AREA	METAL	TEMPERATURE (°F)	K-FACTOR	NPT	MFG	MODEL NO./ SIN	REMARK
●	CONCEALED PENDENT	STANDARD	CEILING	BRASS	155	5.6	1/2"	TYCO	SERIES RF-II TY3531	FM APPROVED
⊙	UPRIGHT	STANDARD	OPEN AREAS	BRASS	155	5.6	1/2"	TYCO	SERIES TY-FRL TY3121	FM APPROVED

NOTE: 1. COORDINATE ALL SPRINKLER COLOR FINISHES WITH ARCHITECT.
2. ALL SPRINKLER SHOULD BE UL/FM APPROVED

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

FIRE PROTECTION COVER SHEET

SHEET NUMBER:

FP-001

1 FIRE PROTECTION COVER SHEET
SCALE: N.T.S.

SPRINKLER SPECIFICATIONS

PART 1 - GENERAL

1.01 REQUIREMENTS

A. THE SPRINKLER CONTRACTOR SHALL BE A LICENSED, AUTHORIZED INSTALLER OF SPRINKLER SYSTEMS AND SHALL HAVE HAD A MINIMUM OF FIVE YEARS EXPERIENCE IN THE INSTALLATION OF SPRINKLER SYSTEMS IN THE CITY CODE.

B. BEFORE SUBMITTING HIS BID, THE SPRINKLER CONTRACTOR SHALL VISIT THE SITE AND SHALL FULLY FAMILIARIZE HIMSELF WITH, AND BECOME FAMILIAR WITH THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. CONTRACTOR SHALL PERFORM THIS PRIOR TO SUBMITTING HIS PROPOSAL. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

C. UPON REVIEW OF THE DRAWINGS AND SPECIFICATIONS, PRIOR TO SUBMITTING HIS PROPOSAL, THE SPRINKLER CONTRACTOR SHALL INFORM ARCHITECT AND/OR ENGINEER OF ANY DISCREPANCIES OR REQUEST CLARIFICATION IN WRITING, IF NECESSARY, CONCERNING THE INTENT OF THE PLANS AND SPECIFICATIONS TO PROVIDE A COMPLETE SPRINKLER SYSTEM INSTALLATION. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OF MATERIALS SHOULD SUCH PROCEDURE NOT BE FOLLOWED.

D. THE SCHEDULING OF THE SPRINKLER WORK SHALL BE COORDINATED WITH BUILDING MANAGEMENT, WITH OTHER CONTRACTORS AND WITH THE ENGINEER.

E. NECESSARY SHUT-DOWNS OF BASE BUILDING SPRINKLER SYSTEM MUST BE COORDINATED WITH BUILDING MANAGEMENT. SHUT-DOWNS OF BASE BUILDING SYSTEMS SHALL TAKE PLACE AFTER OR BEFORE NORMAL BUSINESS HOURS AND SHALL BE CONSIDERED OVERTIME WORK. THE CONTRACTOR MUST GIVE BUILDING MANAGEMENT AND CITY FIRE DEPARTMENT 48 HOURS NOTICE PRIOR TO SHUT-DOWN OF SPRINKLER, OR OTHER SYSTEMS.

1.02 WORK INCLUDED

A. WORK SHALL INCLUDE ALL SPRINKLER WORK FURNISHED AND INSTALLED AS INDICATED ON THE PLANS AND AS SPECIFIED HEREIN.

1. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF THE CITY BUILDING CODE, N.F.P.A. STANDARD 13-2013, WISCONSIN FIRE DEPARTMENT AND OWNERS INSURANCE RATING ORGANIZATION.
2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION OF WORK. SCALED DIMENSIONS SHALL NOT BE USED. ANY DIMENSIONS NOT SHOWN SHALL BE OBTAINED FROM FIELD MEASUREMENTS.
3. PROVIDE COMPUTER GENERATED HYDRAULIC CALCULATIONS IN ACCORDANCE WITH FLORIDA BUILDING CODE OR LOCAL AHJ. BUILDING DEPARTMENT AND NFPA STANDARDS.

1.03 SHOP DRAWINGS AND SUBMITTALS

A. THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL, FULLY COORDINATED SHOP DRAWINGS, CAPACITY, DATA, AND CATALOG CUTS OF THE FOLLOWING:

1. PIPE AND FITTINGS
2. VALVES
3. HANGERS AND SUPPORTS
4. SPRINKLER PIPING LAYOUT
5. TESTS
6. SPRINKLER HEADS
7. HYDROULIC CALCULATION
8. SIAMESE CONNECTION

B. THE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY DESIGNED. CONTRACTOR SHALL SUBMIT CALCULATIONS WITH SHOP DRAWINGS. CALCULATIONS SHALL BE PERFORMED IN ACCORDANCE WITH REQUIREMENTS OF NFPA 13-2013, AND WISCONSIN BUILDING CODE 2015 (IBC 2015) .

1.04 BUILDING DEPARTMENT FILING, PERMITS AND CERTIFICATES

A. THE SPRINKLER CONTRACTOR SHALL FILE ALL REQUIRED DRAWINGS AND HYDRAULIC CALCULATIONS WITH THE BUILDING DEPARTMENT AND BE RESPONSIBLE FOR OBTAINING FINAL APPROVAL.

B. ARRANGE FOR INSPECTION AND TESTS OF ANY AND ALL PARTS OF THE WORK AS REQUIRED BY AUTHORITIES HAVING JURISDICTION AND PAY ALL CHARGES FOR SAME.

1.05 INSPECTION AND TESTING

A. THE SPRINKLER SYSTEM SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY BUILDING CODE FIRE DEPARTMENT INSPECTOR.

B. THE SPRINKLER SYSTEM SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE TEST FOR A PERIOD OF TWO HOURS AT A PRESSURE OF AT LEAST 200 PSIG OR 50 PSI IN EXCESS OF THE MAXIMUM PRESSURE TO BE MAINTAINED WHEN THE MAXIMUM PRESSURE IN THE SYSTEM IS IN EXCESS OF 150 PSI AS PER NFPA.

C. THE BUILDING DEPARTMENT SHALL BE NOTIFIED THAT THE SYSTEM IS READY FOR REINSPECTION AND TESTING. THE BUILDING DEPARTMENT INSPECTOR SHALL WITNESS THE TEST. FINAL APPROVAL OF THE SPRINKLER SYSTEM SHALL BE OBTAINED FROM BUILDING DEPARTMENT, AND FIRE DEPARTMENT.

PART 2 - MATERIALS

2.01 GENERAL

A. THE SPRINKLER SYSTEM SHALL BE COMPLETE WITH ALL PIPE, FITTINGS, VALVES, DRAINAGE SYSTEM AND VALVES, HANGERS AND SUPPORTS. ALSO, MISCELLANEOUS WORK ITEMS, SUCH AS, SIGNS AS REQUIRED, VALVE TAGS, ETC., AND ALL OTHER RELATED EQUIPMENT, APPARATUS AND MATERIAL ITEMS NECESSARY FOR COMPLETE, APPROVED TYPE SYSTEM, READY FOR FUTURE EXTENSION.

B. ALL PIPE, FITTINGS, HANGERS, SUPPORTS, SPRINKLER HEADS, ETC., SHALL CONFORM TO THE CITY BUILDING CODE AND NATIONAL FIRE PROTECTION ASSOCIATION'S REQUIREMENTS AS TO TYPES OF MATERIALS, ARRANGEMENT, SIZES AND INSTALLATION. PIPING PENETRATING FIRE RATED PARTITIONS SHALL HAVE OPENING SEALED WITH U.L. APPROVED FIREPROOF SEALANT.

2.02 SPRINKLER PIPING

A. ALL SPRINKLER PIPING SHALL BE SCHEDULE 40 IN ACCORDANCE WITH NFPA 13-2013. PIPE SHALL BE UL/FM APPROVED.

B. STEEL PIPE SHALL BE BETHLEHEM STEEL CO., ALLIED TUBE, BERGER INDUSTRIES OR APPROVED.

C. AS PER NFPA 13-2013, PIPE OR TUBE USED IN SPRINKLER SYSTEMS SHALL BE OF THE MATERIALS SPECIFIED IN SECTION 6.3.1.1 OR SHALL BE IN ACCORDANCE WITH 6.3.1.1

D. AS PER NFPA 13-2013, FITTINGS USED IN SPRINKLER SYSTEMS SHALL BE OF THE MATERIALS LISTED IN TABLE 6.4.1. FITTING SHALL BE UL/FM APPROVED. CONTRACTOR.

2.03 CUTTING AND PATCHING

1. DO ALL CUTTING AND CORE DRILLING NECESSARY FOR THE INSTALLATION OF SPRINKLER WORK. ACCURATELY LAYOUT WORK FOR WHICH CUTTING IS REQUIRED. PATCH AND RESTORE ANY DAMAGE WORK TO LIKE NEW CONDITION.
2. FOR REPLACEMENT OF THE WORK REMOVED, MATCH EXISTING IN NATURE, CONSTRUCTION AND FINISH.
3. MAINTAIN THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH COVERED BY THE WORK, REMOVE ALL SURPLUS MATERIALS, TOOLS ETC. AND LEAVE PREMISES CLEAN.

2.04 FIRE STOPPING

INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURERS PUBLISHED DIRECTIONS AND PER FIRE TESTED DESIGNS THAT HAVE BEEN ACCEPTED BY THE APPROPRIATE CODE AUTHORITY HAVING JURISDICTION.

2.05 PHASING

PHASING SHALL BE COORDINATED BETWEEN THE SPRINKLER CONTRACTOR AND GENERAL CONTRACTOR. SPRINKLER INSTALLATION SHALL BE PHASED IN A MANNER WHICH WILL ALLOW FULL OCCUPANCY OF THE EXISTING FACILITY WHILE THE INSTALLATION IS IN PROGRESS.

2.06 ALTERNATES/SUBSTITUTIONS

CONTRACTOR SHALL STATE IN THEIR PROPOSAL ANY CONTRACTOR PROPOSED SUBSTITUTIONS OF THE MATERIALS OR METHODS OF INSTALLATION FROM THAT SPECIFIED. THESE ALTERATIONS SHALL BE LISTED ON THE PROPOSAL AS CONTRACTOR ALTERNATIVE.

2.07 LEAK DAMAGE

THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE DURING THE INSTALLATION AND TESTING PERIODS OF THE SPRINKLER SYSTEM FOR ANY LOSS OR DAMAGE TO THE WORK OF OTHERS, TO THE BUILDING, IT'S CONTENTS ETC. CAUSED BY LEAKS IN THE EQUIPMENT. BY UNPLUGGED OR DISCONNECTED PIPES, FITTINGS ETC. OR BY OVERFLOW, AND SHALL PAY FOR THE NECESSARY REPLACEMENTS OR REPAIRS TO THE WORK OF OTHERS, DAMAGED BY SUCH LEAKAGE.

2.08 INSERTS, HANGERS, ETC.

A. ALL SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED AND SHALL COMPLY WITH THE STANDARDS FOR THE NATIONAL FIRE PROTECTION ASSOCIATION FOR THE INSTALLATION OF SPRINKLER SYSTEMS AND AS REQUIRED BY THE WISCONSIN BUILDING CODE 2015 (IBC 2015).

B. HANGERS AND THEIR COMPONENTS SHALL BE FERROUS. HANGERS SHALL BE ADJUSTABLE FLAT IRON TYPE OF CLEVIS TYPE.

C. SPRINKLER PIPING OR HANGERS SHALL NOT BE USED TO SUPPORT NON-SYSTEM COMPONENTS.

D. SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE WHICH MUST SUPPORT THE ADDED LOAD OF THE WATER-FILLED PIPE PLUS A MINIMUM OF 250 LBS. APPLIED AT THE POINT OF HANGING. CONTRACTOR SHALL SUBMIT DETAIL OF SUPPORT FOR REVIEW AND APPROVAL.

E. SPRINKLER PIPING SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING SHEATHING.

F. WHEN SPRINKLER PIPING IS INSTALLED BELOW DUCTWORK, PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE, NOT FROM THE DUCTWORK.

G. MAXIMUM DISTANCE BETWEEN HANGERS SHALL NOT EXCEED 12 FT. FOR 1 AND 1-1/4" SIZES NOR 15' FOR SIZES 1-1/2" AND LARGER.

H. EXPANSION SHIELDS FOR SUPPORTING PIPES UNDER CONCRETE CONSTRUCTION MAYBE USED IN A HORIZONTAL POSITION IN THE SIDES OF BEAMS. IN CONCRETE HAVING GRAVEL OR CRUSHED STONE AGGREGATE, EXPANSION SHIELDS MAY BE USED IN THE VERTICAL POSITION TO SUPPORT PIPES 4" OR LESS IN DIAMETER.

2.09 ESCUTCHEONS

PROVIDE ESCUTCHEONS ON ALL EXPOSED PIPING PASSING THROUGH WALLS, PARTITIONS, FLOORS AND CEILINGS. ESCUTCHEON SHALL BE HELD IN PLACE BY INTERNAL TENSION OR SET SCREW.

2.10 AS-BUILT DRAWINGS

PREPARE AND SUBMIT "AS BUILT" DRAWINGS AT THE COMPLETION OF THE PROJECT.

2.11 SPRINKLER HEADS

A. SPRINKLERS SHALL BE RATED FOR ORDINARY TEMPERATURES (135/165 DEG. F) EXCEPT AS REQUIRED NEAR HEATERS OR LOCATIONS WHERE ELEVATED TEMPERATURES MAY NORMALLY BE EXPECTED OR AS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS.

B. SPRINKLER HEADS SHALL BE BY TYCO SPRINKLER CO., INC. MANUFACTURE OR APPROVED EQUAL, UL AND FM APPROVED, AS FOLLOWS:

1. SPRINKLER HEADS IN FINISHED CEILINGS WITH CONCEALED PIPING SHALL BE AUTOMATIC TYCO MODEL TY3531.
2. PROVIDE SPARE SPRINKLER EMERGENCY CABINETS CONFORMING TO NFPA 13-2013.
3. SPRINKLER EMERGENCY CABINETS SHALL BE OF TYCO SPRINKLER CO., INC. ORAPPROVED EQUAL, UL AND FM APPROVED.
4. CABINET SHALL BE CONSTRUCTED OF 22 GAUGE STEEL WITH PRIME COAT AND MANUFACTURER'S BAKED ENAMEL FINISH IN COLOR SELECTED BY THE ARCHITECT.
5. CABINET SHALL CONTAIN A MINIMUM OF 6 SPRINKLER HEADS OF EACH TYPE EMPLOYED..

2.12 PRESSURE GAUGE

A. ASHCROFT SERIES 1079, OR APPROVED OTHER, 4-1/2" DIAMETER, 0-300 P.S.I. RANGE, 5 P.S.I. INTERVALS.

PART 3 - EXECUTION

3.01 GUARANTEE

A. GUARANTEE FOR A PERIOD OF ONE (1) YEAR FORM THE DATE OF ACCEPTANCE BY THE OWNER, ALL MATERIALS, APPARATUS AND WORKMANSHIP WHETHER FURNISHED BY HIMSELF OR BY HIS SUBCONTRACTORS AND HE SHALL REPLACE OR REPAIR IN A MANNER APPROVED BY THE ARCHITECTS, WITHOUT COST TO THE OWNER, ANY PART OR PARTS OF THE WORK WHICH MAY PROVE DEFECTIVE OR UNSATISFACTORY WITH IN THE PERIOD OF THE GUARANTEE.

3.02 INSTALLATION

A. PIPING

1. INSTALL PIPING AS SHOWN ON THE CONTRACT DRAWINGS AND STRAIGHT AND DIRECT AS POSSIBLE, FORMING RIGHT ANGLES OR PARALLEL LINES WITH BUILDING WALLS, NEATLY SPACED, WITH RISERS PLUMB AND TRUE.
2. SPRINKLER PIPING SHALL BE INSTALLED SO THAT THE SYSTEM CAN BE DRAINED
3. PIPE SHALL BE REMOVED BY REAMING.
4. BEFORE INSTALLING PIPE, THOROUGHLY CLEAN THE INSIDE FREE OF CUTTING AND FOREIGN MATTER. CUT ALL PIPE SQUARE AND SMOOTH AND MAKE UP ALL JOINTS TO REQUIRED LIMITS.

B. PIPE JOINTS

1. THREADED JOINTS SHALL BE MADE UP OF TIGHT USING PIPE JOINT TEFLON COMPOUND OR TAPE, APPLIED ON THE MALE THREADS ONLY.

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

FIRE PROTECTION SPECIFICATION

SHEET NUMBER:

FP-002

1 FIRE PROTECTION SPECIFICATION
SCALE: N.T.S.

FIRE PROTECTION KEY NOTES:

1. CONNECT NEW SPRINKLER MAIN PIPE WITH FCVA TO THE EXISTING SPRINKLER MAIN FOR THE SPACE. CONTRACTOR TO FILED VERIFY THE EXISTING SPRINKLER MAIN LOCATION AND SIZE.
2. CONTRACTOR TO COORDINATE WITH LANDLORD / CIVIL FOR THE DCDA AND FIRE DEPARTMENT CONNECTION LOCATION AND SIZE AS PER NFPA. PROVIDE NEW DCDA AND FIRE DEPARTMENT CONNECTION IF NOT EXISTING.
3. CONTRACTOR SHALL CONNECT THE SPRINKLER MAIN PIPE TO THE SPRINKLERS WITH REQUIRED BRANCH PIPES AND FITITNGS AS PER NFPA STANDRD. MODIFY THE PIPE ROUTING AND ELEVATION AS REQUIRED IN THE FILED.

SPRINKLER HEAD COUNT

NEW CONCEALED SPRINKLER	96
NEW UPRIGHT SPRINKLER	22
TOTAL SPRINKLER	118

FIRE PROTECTION GENERAL NOTES:

1. THE SPRINKLER SYSTEM SHALL BE DESIGNED TO MEET THE BUILDING CODE AND NFPA-13-2013 REQUIREMENTS.
2. ALL CONSTRUCTION INCLUDING EQUIPMENT AND PIPING SHOULD COMPLY WITH RETURN AIR PLENUM STANDARDS.
3. ALL SPRINKLER HEADS IN AREA OF WORK TO BE FULLY COORDINATED WITH ALL CEILING ELEMENTS AND ROOF TRUSS IN ADDITION TO WORK FROM OTHER TRADES. CONTRACTOR TO VERIFY PIPE LAYOUT INCLUDING PIPE ROUTING, SIZE, AND SPRINKLER HEAD LOCATIONS.
4. CONTRACTOR TO PROVIDE SPRINKLER HYDRAULIC CALCULATIONS BASED ON HYDRANT FLOW TEST NO OLDER THAN ONE YEAR IN ADDITION TO SHOP DRAWINGS FOR REVIEW AND APPROVAL.

1 FIRE PROTECTION PLAN
SCALE: 1/8"=1'-0"

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

FIRE PROTECTION PLAN

SHEET NUMBER:

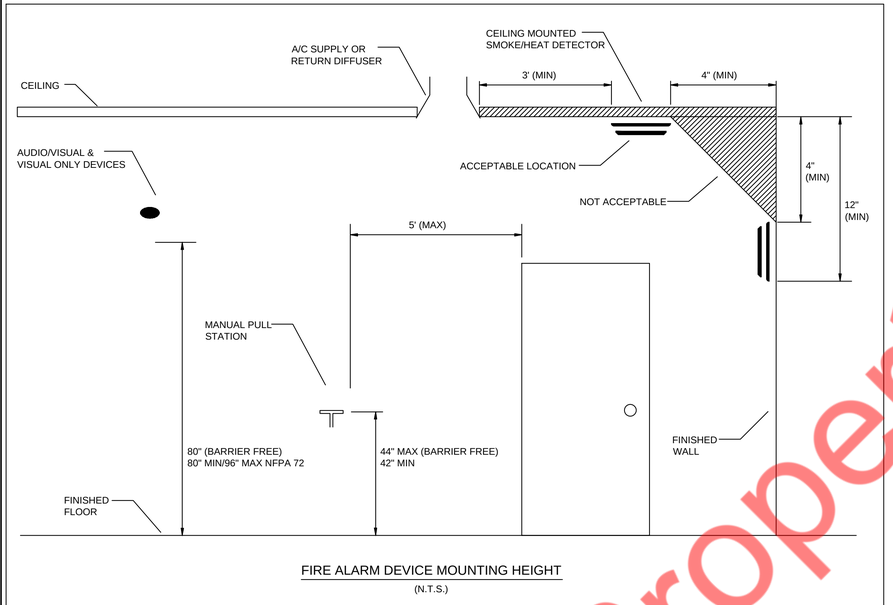
FP-100

FIRE ALARM SYMBOLD LIST

SYMBOLS	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FSD	FIRE SMOKE DAMPER
H	HEAT DETECTOR
S	SMOKE DETECTOR
D	DUCT SMOKE DETECTOR
CO	CARBON MONOXIDE DETECTOR
S/CO	SMOKE/CARBON MONOXIDE DETECTOR COMBINATION DEVICE
F	FIRE ALARM VISUAL NOTIFICATION DEVICE
F	MANUAL FIRE ALARM PULL STATION
F	FIRE ALARM AUDIO/VISUAL NOTIFICATION DEVICE
CM	CONTROL MODULE
MM	MONITOR MODULE
TS	TAMPER SWITCH
WF	WATER FLOW SWITCH
R	FIRE ALARM RELAY MODULE
KH	KITCHEN HOOD

FIRE ALARM GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND PLACE IN OPERATING CONDITION, A COMPLETE FIRE ALARM SYSTEM AS SPECIFIED IN THIS SECTION, TO INCLUDE THE FURNISHING OF ALL LABOR, EQUIPMENT, MATERIALS AND THE PERFORMANCE OF ALL OPERATIONS ASSOCIATED WITH THE INSTALLATION OF THE FIRE ALARM SYSTEM, AS SHOWN ON THE CONTRACT DRAWINGS AND HEREIN SPECIFIED.
2. THE COMPLETE SYSTEM INSTALLATION SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE NATIONAL FIRE SAFETY CODE, THE (ADA) AMERICAN DISABILITIES ACT,THE NATIONAL ELECTRICAL CODE, REQUIREMENTS, AND ALL THE REQUIREMENTS OF THE LOCAL FIRE DEPARTMENT.
3. THE REQUIREMENTS OF THE GENERAL CONDITIONS AND THE SUPPLEMENTARY CONDITIONS OF THE CONTRACT DOCUMENTS SHALL APPLY TO ALL WORK SPECIFIED IN THIS SECTION.
4. THE WORK COVERED UNDER THIS SECTION OF THE CONTRACT SPECIFICATIONS SHALL BE COORDINATED WITH ALL OTHER WORK SPECIFIED IN THE OTHER SECTIONS OF THE CONTRACT SPECIFICATIONS.
5. THE FIRE ALARM SYSTEM DESCRIBED HEREIN AND AS SHOWN ON THE PLANS; SHALL BE WIRED, CONNECTED, TESTED AND LEFT IN FIRST CLASS OPERATING CONDITION. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE PROPER CONTROL EQUIPMENT, CONTROL INTERFACE ANNUNCIATORS, ALARM INITIATING DEVICES, ALARM NOTIFICATION APPLIANCES, WIRING, TERMINATIONS, ELECTRICAL BOXES, AND ALL OTHER NECESSARY MATERIALS FOR A COMPLETE OPERATING SYSTEM



FIRE ALARM DEVICE MOUNTING HEIGHT

(N.T.S.)

FIRE ALARM DRAWING LIST

FA001	FIRE ALARM SYMBOLS AND GENERAL NOTES
FA101	FIRE ALARM PLAN
FA201	FIRE ALARM RISER

FIRE ALARM SPECIFICATIONS

A. FIRE ALARM OPERATION:

1. UPON ACTIVATION OF ANY MANUAL PULL STATION THE FOLLOWING SHALL OCCUR:
   a. AUDIBLE AND VISUAL ANNUNCIATION OF ALARM TYPE AND LOCATION AT THE FIRE COMMAND STATION ALONG WITH A HARD COPY OF ALL EVENTS AND A FLASHING FIRE SIGNAL.
   b. AUDIBLE AND VISUAL ANNUNCIATION OF ALARM TYPE AND LOCATION AT THE MECHANICAL CONTROL CENTER.
   c. AUDIBLE AND VISUAL ANNUNCIATION OF ALARM DEVICE TYPE AND LOCATION AT THE FIRE SAFETY DIRECTOR'S LOCATION.
   d. FLASH ALL VISUAL SIGNALS (STROBES) AND SOUND STANDARD EVACUATION ALARM SIGNAL ON THE FLOOR OF INCIDENCE AND THE FLOOR ABOVE.
   e. SOUND STANDARD INQUIRY TONE ON ALL FLOORS OTHER THAN THE ALARM FLOOR AND THE FLOOR ABOVE.
   f. SEND THE APPROPRIATE SIGNAL TO THE CENTRAL STATION.
2. THE ACTIVATION OF ANY DUCT SMOKE DETECTOR OR AIR CONDITIONING AREA SMOKE DETECTORS SHALL CAUSE THE FOLLOWING TO OCCUR:
   a. AUDIBLE AND VISUAL ANNUNCIATION OF ALARM TYPE AND LOCATION AT THE FIRE COMMAND STATION ALONG WITH A HARD COPY OF ALL EVENTS AND A FLASHING FIRE SIGNAL.
   b. AUDIBLE AND VISUAL ANNUNCIATION OF ALARM TYPE AND LOCATION AT THE MECHANICAL CONTROL CENTER.
   c. AUDIBLE AND VISUAL ANNUNCIATION OF ALARM DEVICE TYPE AND LOCATION AT THE FIRE SAFETY DIRECTOR'S LOCATION.
   d. FLASH ALL VISUAL SIGNALS (STROBES) AND SOUND STANDARD EVACUATION ALARM SIGNAL ON THE FLOOR OF INCIDENCE AND THE FLOOR ABOVE.
   e. SOUND STANDARD INQUIRY TONE ON ALL FLOORS OTHER THAN THE ALARM FLOOR AND THE FLOOR ABOVE.
   f. SEND THE APPROPRIATE SIGNAL TO THE CENTRAL STATION.
   g. RELEASE ALL FAIL-SAFE STAIR RE-ENTRY DOORS, ALL FAIL-SAFE ELECTRIC LOCKING DEVICES, AND ALL ELECTRICALLY HELD OPEN FIRE OR SMOKE DOORS IN THE PATH OF EGRESS.
   h. STOP THE AIR SUPPLY INTO AND RETURN AIR FROM THE FLOOR OF INCIDENCE ASSOCIATED FAN.
3. THE ACTIVATION OF ANY OTHER AUTOMATIC ALARM INITIATING DEVICE (IE. WATER FLOW, AREA SMOKE DETECTOR AND/OR HEAT DETECTOR) SHALL CAUSE THE FOLLOWING TO OCCUR:
   a. AUDIBLE AND VISUAL ANNUNCIATION OF ALARM TYPE AND LOCATION AT THE FIRE COMMAND STATION ALONG WITH A HARD COPY OF ALL EVENTS AND A FLASHING FIRE SIGNAL.
   b. AUDIBLE AND VISUAL ANNUNCIATION OF ALARM TYPE AND LOCATION AT THE MECHANICAL CONTROL CENTER.
   c. AUDIBLE AND VISUAL ANNUNCIATION OF ALARM DEVICE TYPE AND LOCATION AT THE FIRE SAFETY DIRECTOR'S LOCATION.
   d. FLASH ALL VISUAL SIGNALS (STROBES) AND SOUND STANDARD EVACUATION ALARM SIGNAL ON THE FLOOR OF INCIDENCE AND THE FLOOR ABOVE.
   e. SOUND STANDARD INQUIRY TONE ON ALL FLOORS OTHER THAN THE ALARM FLOOR AND THE FLOOR ABOVE.
   f. SEND THE APPROPRIATE SIGNAL TO THE CENTRAL STATION.
   g. RELEASE ALL FAIL-SAFE STAIR RE-ENTRY DOORS, ALL FAIL-SAFE ELECTRIC LOCKING DEVICES, AND ALL ELECTRICALLY HELD OPEN FIRE OR SMOKE DOORS IN THE PATH OF EGRESS.
4. TENANT FIRE PROTECTION SUB-SYSTEMS SHALL BE MONITORED BY THE BUILDING CLASS "I-4" FIRE ALARM SYSTEM AND UPON ALARM ACTIVATION SHALL, IN ADDITION TO THE SPECIFIC SUB-SYSTEM FUNCTIONS, PERFORM THE SAME FUNCTIONS AS DESCRIBED IN 10 THROUGH 11.
5. WHEN LOCATED WITHIN THE ROOM SERVED, LOCAL SUPPLEMENTARY AIR CONDITIONING UNIT DUCT SMOKE DETECTORS SHALL STOP THE ASSOCIATED UNIT SYSTEM AND INDICATE AUDIBLE AND VISUAL SIGNALS AT THE FIRE COMMAND STATION.

B. FIRE ALARM EQUIPMENT SPECIFICATIONS:

1. ALL DEVICES AND WORK SHALL BE COMPATIBLE WITH EXISTING FIRE ALARM BSA/MEA APPROVED SYSTEM AND HAVE B.S.A. APPROVAL.
2. STROBE PANELS
   a. IF REQUIRED, FIRE ALARM SYSTEM STROBE PANELS SHALL BE B.S.A. APPROVED PANELS WITH INTEGRAL BATTERY BACK-UP. PANELS SHALL BE CAPABLE OF SUPPLYING AT LEAST 30 A.D.A. APPROVED, 75 CANDELA STROBES PER FLOOR. PANELS SHALL BE NON-LATCHING TYPE ALLOWING FOR MANUAL RESETTING OF PANEL FROM THE FIRE COMMAND STATION. CONTRACTOR SHALL PROVIDE ADDITIONAL STROBE CARDS & POWER SUPPLIES IN ORDER TO SERVE ALL ADDITIONAL DEVICES REQUIRED.
   b. IF REQUIRED, PROVIDE A FUSE CUT-OUT TAPPED AHEAD OF THE MAIN OF A LOCAL UTILITY PANEL FOR A LIFE SAFETY STROBE PANEL. LOCATE THE CUT-OUT NEAR ITS ASSOCIATED POWER PANEL AND SIZE THE WIRES ACCORDING TO NATIONAL ELECTRICAL CODE. FUSE CUT-OUT SHALL BE PAINTED FIRE ALARM RED AND LABELED WITH A PHENOLIC NAME PLATE READING "VISUAL ALARM POWER" IN A LOCKABLE NEMA 1 ENCLOSURE. IT SHALL BE RATED FOR 120V-2P WITH A SOLID COPPER NEUTRAL BAR AND A LPN 20A FUSE.
3. FIRE STROBE LIGHTS

   FIRE ALARM STROBE LIGHTS, WHETHER IN COMBINATION WITH A HORN UNIT, OR AS A STAND ALONE DEVICE, SHALL HAVE A XENON STROBE OR EQUIVALENT,WITH A CLEAR OR WHITE LENS WITH A FINISHED WHITE PLATE, MAXIMUM PULSE DURATION OF 0.2 SECONDS (MAX DUTY CYCLE OF 40%), 75 CANDELA MINIMUM, FLASH RATE MINIMUM OF 1 HZ/MAXIMUM 3 HZ, AND A.D.A. AND B.S.A. APPROVAL. UNIT SHALL BE AS MANUFACTURED BY FARADAY, WHEELOCK OR AS APPROVED.

   THE ASSEMBLY SHALL MOUNT ON A STANDARD OUTLET BOX. THIS DEVICE CAN BE MOUNTED AS AN INTEGRAL ASSEMBLY WITH SURFACE MOUNTED RE ENTRANT LIFE SAFETY HORNS USING SPECIAL MOUNTING ASSEMBLY TO HORN, WHICH WILL NOT AFFECT THE RATED AUDIO-OUTPUT OF THE HORN ATTACH TAP SETTING.

   COMBINATION FIRE ALARM HORN/FLASHING "FIRE" STROBE LIGHT UNITS SHALL BE AN INTEGRAL UNIT, COMBINING THE INDIVIDUAL FEATURES OF THE HORN AND STROBE LIGHT DESCRIBED ABOVE.
4. ELECTRIC WIRING AND POWER SUPPLIES

   ELECTRICAL WIRING AND COMPONENTS SHALL CONFORM TO THE FOLLOWING STANDARDS:

   INSTALLATION OF CONDUIT, WIRE, SLEEVES, OUTLET BOXES, INSULATING BUSHINGS, SYSTEM CABINETS, TERMINAL BOXES, PULL BOXES, JUNCTION BOXES, INSERTS, ANCHORS, SYSTEM DEVICES AND SIMILAR ELEMENTS, SHALL BE IN ACCORDANCE WITH THE APPROPRIATE REQUIREMENTS OF THESE SPECIFICATIONS AND IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF LATEST ADAPTED NEC CODE FOR SIGNALING SYSTEMS, AND ALL AUTHORITIES HAVING JURISDICTION.

   COMPONENTS SHALL BE LISTED OR APPROVED BY BSA/MEA AND UNDER WRITERS LABORATORIES, INC. (UL), OR FACTORY MUTUAL (FM). ALL LIFE SAFETY SYSTEM WIRING AND SYSTEM OPERATION SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF LOCAL OFFICIALS, WHOSE APPROVAL ON THE COMPLETED SYSTEM IS REQUIRED.

   ALL CABLE USED SHALL BE No. 16 AWG MINIMUM. MULTICONDUCTOR CABLE SHALL BE PROVIDED WITH A MINIMUM OF 10% SPARE PAIRS.

   ALL CABLING SHALL COMPLY WITH UL-1424 AND UL910. ADDITIONALLY, CABLING SHALL CONFORM TO THE FOLLOWING:
   a. A MINIMUM TEMPERATURE RATING OF 200° C.
   b. A MINIMUM AVERAGE INSULATION THICKNESS OF 15 MILS.
   c. A MINIMUM AVERAGE JACKET THICKNESS OF 25 MILS.
   d. THE COLOR OF THE CABLE SHALL BE RED.
   e. THE CABLE SHALL BE A TYPE FPLP (PLENUM TYPE).
   f. THE CABLE SHALL BE VISIBLY MARKED EXTERNALLY THAT IT MEETS THE ABOVE REQUIREMENTS AND IS LISTED BY UL.
   g. THE CABLE SHALL HAVE THE FOLLOWING MARKINGS:

      COMPANY NAME
      "TYPE FPLP"
      SIZE (AWG)
      TEMPERATURE RATING
      THE UL REGISTER MARK
6. AUTOMATIC SMOKE DETECTORS

   PRODUCTS OF COMBUSTION DETECTORS SHALL OPERATE ON THE IONIZATION PRINCIPLE TO DETECT THE PRESENCE OF COMBUSTION GASES, FIRE AND IT SHALL BE OF THE TWO (2) CHAMBER DESIGN. THE FIRST, OR REFERENCE CHAMBER, SHALL COMPENSATE AGAINST SENSITIVITY CHARGES DUE TO TEMPERATURE, BAROMETRIC PRESSURE AND HUMIDITY VARIATIONS. THE SECOND, OR SENSING CHAMBER, SHALL BE OPEN TO THE OUTSIDE ELEMENTS. THE DETECTOR SHALL CONTAIN NO HOT FILAMENT TUBES OR MOVING PARTS, AND SHALL PLUG INTO A BASE HAVING AN LED ALARM INDICATING LAMP. THE DETECTOR SHALL NOT REQUIRE REPLACEMENT OR READJUSTMENT AFTER A FIRE ALARM HAS BEEN GIVEN. THE DETECTOR SENSITIVITY SHALL BE INDIVIDUALLY ADJUSTABLE. AUTOMATIC SMOKE DETECTORS SHALL OPERATE ON THE PHOTO-ELECTRONIC PRINCIPLE, SET TO RESPOND TO PREDETERMINED SMOKE DENSITY. A NOMINAL 1.5% LIGHT OBSCURATION PER FOOT IS CONSIDERED MAXIMUM DETECTED WITH A SOLID STATE LIGHT EMITTING DIODE AND A HIGH-SPEED LIGHT SENSING PHOTO-DIODE WITHIN A LIGHT SENSING CHAMBER. COMPONENTS SHALL BE LONG-LIFE, SOLID STATE, WITH A DESIGN LIFE IN EXCESS OF 40 YEARS. THIS INCLUDES THE POWER ON/ALARM LED, WHICH IS PULSED UNDER NORMAL CONDITIONS AND CONSTANT IN ALARM.

   DUCT TYPE DETECTORS SHALL BE PRODUCT-OF-COMBUSTION DETECTORS WITH IONIZATION PRINCIPLES. IN ADDITION, THIS DEVICE SHALL BE PROVIDED WITH FULL LENGTH SAMPLING TUBES IN LOCATIONS AS DIRECTED BY THE HVAC SECTION OF THE SPECIFICATIONS. THIS DEVICE SHALL BE A FULL ADDRESSABLE UNIT USING ANALOG AND/OR INTELLIGENT TECHNOLOGY. INCLUDE IN SHOP DRAWING SUBMISSION THE METHODS AND EXPECTED LEVELS FOR TESTING THE DEVICE SENSITIVITY AND REQUIRED VELOCITY, WITH VERIFICATION OF THE STATED VALUES INCLUDED IN THE SYSTEM SITE APPROVAL AND TESTING PROCEDURE. THE DUCT TYPE SMOKE DETECTORS SHALL BE EQUIPPED WITH AUXILIARY CONTACTS FOR REMOTE INDICATION.
7. ALL DEVICES THAT ARE RECESSED OR SEMI-RECESSED INTO TWO-HOUR FIRE RATED PARTITIONS SHALL:
   a. PENETRATE INTO THE PARTITION A MAXIMUM OF 2-1/2 INCHES.
   b. ALLOW A MAXIMUM PENETRATION OF 25 SQUARE INCHES PER 10 SQUARE FEET.
8. ALL STROBES, HORNS, HORN/STROBES, SMOKE DETECTORS, DUCT, AREA, OR HEAT SHALL BE BASE BUILDING STANDARD, COMPATIBLE WITH THE EXISTING CLASS "I-4" SYSTEM. DUCT TYPE SMOKE DETECTORS SHALL BE CAPABLE OF BEING INTERFACED WITH THE H.V.A.C. EQUIPMENT AND ASSOCIATED DUCT WORK.
9. ALL EQUIPMENT AND WIRING SHALL BE BSA/MEA APPROVED.
10. ALL ELECTRICAL LOCKING SYSTEMS (IF ANY) INTERFACED WITH MEANS OF EGRESS MUST FAIL-SAFE ON POWER FAILURE. PROVIDE CONNECTION TO THE CLASS "I-4" SYSTEM'S DOOR RELEASE CIRCUIT. ALL COMPONENTS SHALL BE BSA/MEA APPROVED.

C. FIRE ALARM INSTALLATION PROCEDURE:

1. FURNISH AND INSTALL ALL NEW LIFE SAFETY DEVICES AND ASSOCIATED CABLING AND CONDUIT. CONDUIT SHALL FURNISHED AS REQUIRED BY CODE (U.O.N.)
2. COORDINATE AND PAY FOR ALL REQUIRED MODIFICATIONS AND CONNECTIONS TO THE EXISTING FIRE ALARM SYSTEM WHICH INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
   a. HARDWARE MODIFICATIONS TO FIRE COMMAND STATION DISPLAY PANEL.
   b. MODIFICATIONS TO SYSTEM SOFTWARE.
   c. ADDITIONS TO THE EXISTING REMOTE DATA GATHERING PANELS TO INCORPORATE NEW PANELS OR DEVICES.
   d. ADDITIONAL POWER FROM FUSED CUT-OUTS TO SERVE ADDITIONAL SYSTEM OR SUB-SYSTEM PANELS.
3. PAY ALL REQUIRED FEES TO THE EXISTING FIRE ALARM SYSTEM VENDOR TO MAKE ALL FINAL CONNECTIONS AND REVISE THE LIFE SAFETY RISER DIAGRAM FOR FILING TO INCORPORATE THE ASSOCIATED SYSTEM MODIFICATIONS.
4. ALL RELOCATED OR NEW EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE ELECTRICAL AND BUILDING CODES AND THE REQUIREMENTS SET FORTH BY THE NEW AMERICANS WITH DISABILITIES ACT (A.D.A.), WHICH INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
   a. STROBE LIGHTS PLACED 80 INCHES ABOVE THE FLOOR OR 6 INCHES BELOW THE CEILING, WHICH EVER IS LOWER.
   b. AUDIBLE DEVICES TAPPED AT WATTAGE SETTINGS WHICH ALLOW FOR SOUND PRESSURE LEVELS OF THE UNIT TO EXCEED THE LEVEL IN THE ROOM BY 15DBA OR THE 60 SECOND MAXIMUM LEVEL OF THE ROOM BY 5 DBA, WHICH EVER IS HIGHER, BUT NOT TO EXCEED 120 DBA.
5. SPEAKERS, STROBES, SMOKE DETECTORS, WARDEN STATIONS AND PULL STATIONS SHALL BE ALTERNATELY WIRED ON TWO SEPARATE CLASS "A" SIGNAL CIRCUITS AND THESE CIRCUITS MUST BE INSTALLED IN SEPARATE CONDUIT IN ORDER TO PROVIDE RELIABLE ALARM SIGNALS SO THAT LOSS OF A PORTION OF THE WIRING ON A FLOOR SHALL NOT DISABLE THE ENTIRE ALARM CAPABILITY OF THAT FLOOR.
6. RECONNECT ALL EXISTING BASE BUILDING LIFE SAFETY DEVICES WHICH HAVE BEEN RELOCATED OR TEMPORARILY REMOVED DURING CONSTRUCTION. COORDINATE CHANGES IN LOCATION WITH ARCHITECT AND LEAVE IN AN OPERATIONAL STATE AND IN ACCORDANCE WITH ALL GOVERNING CODES, INCLUDING A.D.A.
7. SURVEY ALL SPACES PRIOR TO BID SUBMISSION, AND INCLUDE IN THE BID PROPOSAL, THE REPLACEMENT OF ALL LIFE SAFETY DEVICES WHICH WERE INTENDED TO BE REUSED, AND HAVE BEEN DESTROYED OR LOST DURING DEMOLITION.
8. PROVIDE RIGID CONDUIT FOR BOTH POWER AND DATA CABLING ASSOCIATED WITH ALL SUB-SYSTEMS AND AS REQUIRED BY CODE. INCLUDE ALL RACEWAYS AS SHOWN ON THE PLANS AND AS DESCRIBED IN THE SPECIFICATIONS.PROVIDE CONDUIT FOR ALL FIRE ALARM CABLING WHICH IS EITHER RUN BELOW 8'-0" OR ROUTED WHERE SUBJECT TO DAMAGE.
9. SEPARATELY ZONE LIFE SAFETY DEVICES AND CONNECT TO THE FIRE ALARM CLASS "I-4" SYSTEM SO THAT THE SYSTEM OPERATION AS DESCRIBED ABOVE IS PERFORMED IN CONFORMANCE WITH THE BUILDING CODE.
10. FUSED CUTOUTS SHALL BE TAPPED AHEAD OF THE MAIN OF A 120 VOLT PANEL (SUBMIT LOCATION TO ENGINEER/ARCHITECT FOR REVIEW), AND BE MOUNTED IN AN ACCESSIBLE LOCATION ADJACENT TO THE PANEL FROM WHICH IT IS FED. ALL FUSED CUT-OUTS (FCO'S) SHALL BE LOCKABLE WITH SOLID COPPER NEUTRAL BARS AND CONTAIN LPN FUSES AS REQUIRED. LABEL ALL FCO'S.
11. SHOP DRAWINGS AND SAMPLES

    SHOP DRAWINGS AND MANUFACTURER'S DATA SHEETS SHALL BE SUBMITTED FOR APPROVAL FOR THE FOLLOWING ITEMS:
    a. MANUFACTURER'S DRAWINGS, SHOWING ALL EQUIPMENT TERMINALS, WIRING DIAGRAMS, INSTALLATION INSTRUCTIONS AND OTHER PERTINENT INFORMATION FOR ALL ITEMS BEING FURNISHED.
    b. CATALOGUE CUTS OF EQUIPMENT AND SENSORS FURNISHED IN THIS SECTION, INCLUDING (BUT NOT LIMITED TO) THE FOLLOWING:

       SMOKE DETECTORS - SPACE MOUNTED.

       SMOKE DETECTORS - DUCT MOUNTED.

       HEAT DETECTORS (HEAT ACTUATED DEVICES).

       VOICE ALARM AND COMMUNICATION SYSTEM EQUIPMENT.

       MANUAL FIRE ALARM STATIONS.

       FLASHING "FIRE" STROBE LIGHTS.

       SPEAKERS AND HORNS.
    c. A WRITTEN DESCRIPTION OF THE SYSTEM OPERATION FOR EACH ALARM AND/OR TROUBLE SIGNAL. WRITTEN DESCRIPTION CAN BE PRESENTED IN THE FORM OF A MATRIX.
    d. SUBMIT SAMPLES, AS DIRECTED, FOR APPROVAL.
    e. SUBMIT A PARAGRAPH-BY-PARAGRAPH LETTER OF COMPLIANCE (OF THIS SPECIFICATION) FOR THE LIFE SAFETY SYSTEM, IDENTIFYING COMPLIANCE OR NON-COMPLIANCE AND REASONS FOR NON-COMPLIANCE.
12. WIRE AND CABLE FOR POWER, SPRINKLER AND MOTOR CONTROL SHALL BE COPPER AND HAVE CURRENT CARRYING CAPACITY PER CODE REQUIREMENTS AND SHALL CONFORM TO THE STANDARDS OF THE UNDERWRITERS LABORATORIES, INC. CONDUCTOR SIZES SHALL NOT BE LESS THAN No.12 AWG FOR POWER WORK AND No.14 AWG FOR SPRINKLER AND MOTOR CONTROL UNLESS OTHERWISE INDICATED OR SPECIFIED. VOLTAGE RATING OF CONDUCTORS SHALL BE 600 VOLTS. PLENUM RATED CABLE SHALL BE USED FOR ALL SIZES OF WIRE, UNLESS OTHERWISE NOTED ON PLANS.
13. MANUAL PULL STATIONS
    1. PROVIDE ADDRESSABLE PULL STATIONS WHICH CONTAIN ELECTRONICS THAT COMMUNICATE THE STATION'S STATUS (ALARM, NORMAL) TO THE CONTROL PANEL OVER ONE TWISTED PAIR. THE ADDRESS WILL SET ON THE STATION. THEY WILL BE MANUFACTURED FROM HIGH IMPACT RED LEXAN. STATION WILL MECHANICALLY LATCH UPON OPERATION AND REMAIN SO UNTIL MANUALLY RESET BY OPENING WITH A KEY COMMON TO ALL SYSTEM LOCKS. PULL STATIONS WILL BE DOUBLE ACTION AND AS IDENTIFIED BY A SCHEDULE ON THE PRINTS.
    2. THE FRONT OF THE STATION IS TO BE HINGED TO A BACKPLATE ASSEMBLY AND MUST BE OPENED WITH A KEY TO RESET THE STATION. THE KEY SHALL BE COMMON WITH THE CONTROL PANELS. STATIONS WHICH USE ALLEN WRENCHES OR SPECIAL TOOLS TO RESET WILL NOT BE ACCEPTED. THE STATION SHALL CONSIST OF HIGH IMPACT LEXAN PLASTIC, RED IN COLOR.
    3. THE ADDRESSABLE MANUAL STATION SHALL BE CAPABLE OF FIELD PROGRAMMING OF ITS "ADDRESSABLE" LOCATION ON AN ADDRESSABLE INITIATING CIRCUIT.
    4. THERE SHALL BE NO LIMIT TO THE NUMBER OF STATIONS, DETECTORS OR ZONE ADAPTER MODULES, WHICH MAY BE ACTIVATED OR "IN ALARM" SIMULTANEOUSLY.
    5. THE ADDRESSABLE MANUAL STATION SHALL BE UNDERWRITER'S LABORATORIES INC. LISTED.
    6. PROVIDE PROTECTIVE COVERS, EQUAL TO STOPPER II, WHERE REQUIRED BY THE AHJ.
14. WARRANTY:
    1. THE CONTRACTOR SHALL WARRANT THE COMPLETE FIRE ALARM SYSTEM WIRING AND EQUIPMENT TO BE FREE FROM INHERENT MECHANICAL AND ELECTRICAL DEFECTS FOR A PERIOD OF (3) THREE YEARS FROM THE DATE OF THE COMPLETED AND CERTIFIED TEST OR FROM THE DATE OF FIRST BENEFICIAL USE.
    2. THE EQUIPMENT MANUFACTURER SHALL MAKE AVAILABLE TO THE OWNER A MAINTENANCE CONTRACT PROPOSAL TO PROVIDE A MINIMUM OF TWO (2) INSPECTIONS AND TEST PER YEAR IN COMPLIANCE WITH NFPA-72H GUIDELINES.
15. SUBMITTALS
    1. PROVIDE COMPLETE SETS OF DOCUMENTATION TO INCLUDE THE FOLLOWING:

A. A COMPLETE POINT TO POINT RISER DIAGRAM OF THE FIRE ALARM SYSTEM SHOWING ALL DEVICES AND EQUIPMENT AND SIZE, TYPE AND NUMBERS OF ALL CONDUCTORS.

B. BATTERY STANDBY AND POWER SUPPLY CALCULATIONS SHOWING TOTAL POWER REQUIRED TO MEET THE SPECIFIED SYSTEM REQUIREMENTS INCLUDING SPARE CAPACITY ALLOWANCES. CALCULATIONS SHALL INCLUDE A COMPLETE LIST OF CURRENT REQUIREMENTS DURING NORMAL, SUPERVISORY, TROUBLE AND ALARM CONDITIONS. CALCULATIONS SHALL ALSO DEMONSTRATE PROPER CONSIDERATION OF CURRENT REQUIREMENTS, WIRE SIZE, WIRE LENGTH AND VOLTAGE DROP CHARACTERISTICS.

C. MANUFACTURER'S ORIGINAL CATALOG DATA SHEETS SHALL BE SUPPLIED FOR ALL OF THE EQUIPMENT TO BE SUPPLIED. ALL EQUIPMENT SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER AND NO EQUIPMENT SHALL BE ORDERED WITHOUT PRIOR APPROVAL.

D. LARGE SCALE DRAWINGS OF THE MAIN CONTROL PANEL AND EACH REMOTE PANEL DEPICTING OVERALL MECHANICAL DIMENSIONS, LAYOUT INCLUDING FUTURE ALLOWANCES, AND FIELD WIRING IN FULL DETAIL.

E. DOCUMENTATION OF THE SUPPLIER'S QUALIFICATIONS INDICATING YEARS IN BUSINESS SERVICE POLICIES, WARRANTY DEFINITIONS, AND A LIST OF SIMILAR INSTALLATIONS IN THE LOCAL MUNICIPALITY.

F. PROVIDE A COMPLETE DETAILED DESCRIPTION OF THE SYSTEM OPERATION.

G. ADDRESSES FOR ALL FIELD DEVICES SHALL BE SHOWN ON FLOOR PLANS

1	SCALE	FIRE ALARM SYMBOLS AND GENERAL NOTES
	N.T.S.	

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6. EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:

WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS NEED TO BE APPROVED BY KIDDIE ACADEMY CONSTRUCTION MANAGER FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK.

	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION
△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

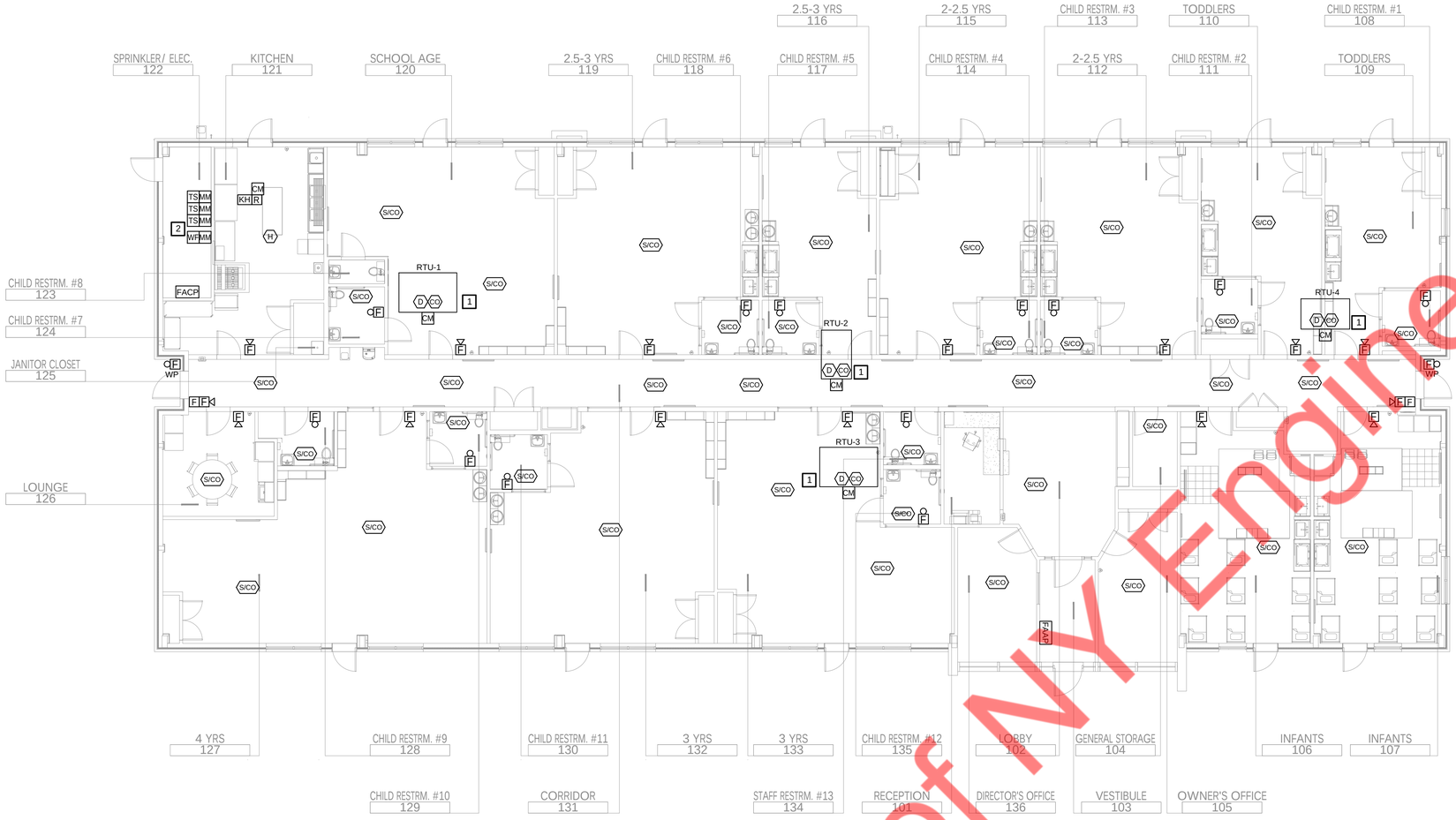
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

FIRE ALARM SYMBOLS AND GENERAL NOTES

SHEET NUMBER:

FA001



LEGEND:
——— NEW
- - - - - - - EXISTING

1	SCALE	FIRE ALARM PLAN
	1 / 8" = 1' - 0"	

FIRE ALARM GENERAL NOTES

1. FIRE ALARM PULL STATIONS SHALL BE EQUIPPED WITH LIFT COVER AND AUDIBLE SIGNAL. AUDIBLE SIGNAL SHALL SOUND WHEN COVER IS LIFTED TO PREVENT ACCIDENTAL ACTIVATION OF THE FIRE ALARM SYSTEM.
2. E.C. SHALL COORDINATE FINAL LOCATION OF FIRE ALARM ANNUNCIATOR PANEL AND FIRE ALARM CONTROL PANEL WITH AHJ.
3. FIRE ALARM DEVICES ARE PLACED IN ACCORDANCE WITH CODE REQUIREMENTS. HOWEVER, FINAL LOCATIONS SHOULD BE CONFIRMED WITH THE OWNER/ARCHITECT TO ENSURE ALIGNMENT WITH ARCHITECTURAL AND FUNCTIONAL CONSIDERATIONS, AS WELL AS COORDINATION WITH OTHER BUILDING SYSTEMS

FIRE ALARM KEYED NOTES

[1] THE FIRE ALARM CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF HVAC EQUIPMENT ASSOCIATED TO PROJECT SPACE WITH THE MECHANICAL CONTRACTOR IN THE FIELD, PROVIDE A DUCT DETECTOR AS REQUIRED, AND PROVIDE CONNECTION TO NEW DEVICES FROM THE FIRE ALARM PANEL AS NEEDED.

[2] FIRE ALARM CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF TAMPER AND WATER FLOW SWITCHES IN FIELD. COORDINATE THE EXACT QUANTITY OF TAMPER AND WATER FLOW SWITCHES WITH SPRINKLER CONTRACTOR IN FIELD. BASE BID ACCORDINGLY.

CONSULTANTS (ENGINEERS):
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WWW.NY-ENGINEERS.COM

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	03.04.25	PERMIT SUBMISSION
△	DATE	REVISION

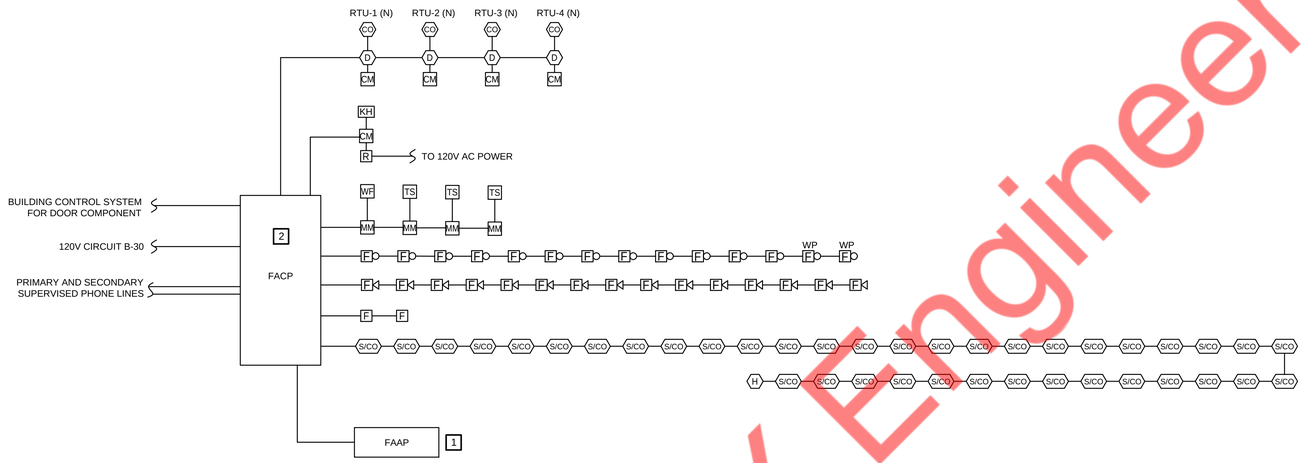
KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:
FIRE ALARM PLAN

SHEET NUMBER:
FA101



1	SCALE N.T.S	FIRE ALARM RISER

FIRE ALARM GENERAL NOTES :

1. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS WITH SINGLE LINE RISER DIAGRAM SHOWING ALL EQUIPMENT, CONNECTIONS, NUMBER, VOLTAGE DROP & BATTERY CALCS, AND SIZE OF ALL CONDUCTORS.
2. PROVIDE NEW ADDRESSABLE FIRE ALARM SYSTEM.
3. ALL EQUIPMENT AND DEVICES USED SHALL BE BY APPROVED MANUFACTURERS AND SHALL BE LISTED FOR THEIR USE.
4. PROVIDE SUFFICIENT CAPACITY FOR FUTURE DEVICES.
5. PROVIDE CLASS A WIRING FOR ALL NOTIFICATION CIRCUITS AND CLASS B WIRING FOR ALL INITIATION CIRCUITS.
6. RADIO ENHANCED COMMUNICATIONS MAY BE REQUIRED DEPENDING ON FINAL INSPECTION REVIEW.
7. REFER TO PLAN FOR EXACT QUANTITIES AND LOCATION OF ALL DEVICES.
8. ALL FIRE ALARM WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF NFPA, STATE, AND LOCAL BUILDING CODES AND THE AMERICANS WITH DISABILITIES ACT (ADA).

FIRE ALARM DESIGN CRITERIA

FURNISH AND INSTALL FIRE ALARM CONTROL SYSTEM THAT CAN DO THE FOLLOWING:

- DETECT FIRE, SMOKE, AND WATER FLOW
- INITIATING AN ALARM OF FIRE
- INITIATING OTHER ACTION AS ARRANGED

FIRE ALARM CIRCUITS SHALL CONSIST OF VISUAL AND/OR AUDIBLE WARNING. UPON ACTIVATION, SYSTEM SHALL DEACTIVATE DESIGNATED KITCHEN EQUIPMENT AND SEND SIGNAL TO EACH LIGHTING CONTROL UNIT. SYSTEM SHALL ALSO INCLUDE MANUAL ACTIVATION.

SYSTEM SHALL BE ABLE TO TRANSMIT REQUIRE DATA TO LOCAL FIRE DEPARTMENT AND SHALL FUNCTION IN OVERRIDE MANUAL MODE BY OFFICIALS FOR MANDATORY ROUTINE INSPECTION.

SYSTEM SHALL BE EQUIPPED WITH THE POSITIVE ALARM SEQUENCE (PAS) FEATURE.

IN ADDITION TO NFPA STANDARDS, FIRE ALARM SYSTEM SHALL CONTAIN A ONE-WAY PRIVATE RADIO ALARM SYSTEM AND TWO-WAY RADIO FREQUENCY MULTIPLEX SYSTEM.

FIRE ALARM KEYED NOTES:

1. NEW FAAP SHOULD BE COMPATIBLE WITH NEW FACP AND SHALL BE INTERGRATED.
2. FIRE ALARM CONTROL PANEL WITH BUILT IN DIALER. FIRE ALARM CONTROL PANEL SHALL BE PROVIDED IN SPRINKLER/ELECTRICAL ROOM.

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

FIRE ALARM RISER

SHEET NUMBER:

FA201

ELECTRICAL SYMBOLS LIST

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON DRAWINGS.)

LIGHTING

	LIGHTING FIXTURE AND OUTLET BOX. HALF SHADED FIXTURE OR "EM" INDICATES FIXTURES WITH INTEGRAL BATTERY PACK FOR EMERGENCY SERVICE, U.O.N. (REFER LIGHTING FIXTURE SCHEDULE FOR MORE DETAILS)
$A O_a^2$	LUMINAIRE TYPE : INDICATE BY UPPERCASE LETTER SEE LIGHTING FIXTURE SCHEDULE. CIRCUIT NUMBER : INDICATED BY NUMBER SWITCHING INDICATED BY LOWER CASE LETTERS.
EM	DENOTES LUMINAIRE ON EMERGENCY CIRCUIT.
NL	DENOTES FIXTURES DESIGNATED AS NIGHTLIGHT, WIRED TO 24 HOURS UNSWITCHED CIRCUIT.
	CEILING/WALL MOUNTED EXIT SIGN WITH DIRECTIONAL ARROWS AS INDICATED. SHADED AREA DENOTES FACE(S).
	EMERGENCY BATTERY UNIT

SWITCHES AND CONTROLS

$\$_3^d$	3-WAY DIMMER SWITCH.
OS	CEILING MOUNTED OCCUPANCY SENSOR.
$\$_{OS}$	WALL OCCUPANCY SENSOR
PC	WALL MOUNTED PHOTOCELL IN NEMA 3R ENCLOSURE.
$\$_a$	SINGLE POLE SWITCH
TC	TIME CLOCK
$\$_D$	DIMMER SWITCH.

DEVICES PATHWAYS

	CONDUIT AND/OR WIRING SYSTEM CONCEALED BEHIND WALL OR ABOVE CEILING.
	CONDUIT AND/OR WIRING SYSTEM CONCEALED IN SLAB, UNDER SLAB, OR UNDERGROUND.
	CIRCUIT HOMERUN TO PANEL CALLED OUT ON PLANS. EACH ARROWHEAD REPRESENTS (1) CIRCUIT.
	DUPLEX RECEPTACLE MOUNTED 18"AFF UNLESS NOTED OTHERWISE. SEE SPECIFICATIONS FOR TYPE AND EQUALS.
	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER OR AT HEIGHT NOTED. MOUNT 48" TO CENTER OF DEVICE IF NO HEIGHT NOTED AND/OR NOT SHOWN AT A COUNTER TOP.
	QUAD RECEPTACLE, (2) 5-20R DUPLEX RECEPTACLES.
EMC	QUAD RECEPTACLE FOR ELECTRIC WATER COOLER. EXACT LOCATION SHALL BE COORDINATED WITH PLUMBING CONTRACTOR. PROVIDE CIRCUIT WITH GFI (CLASS-A 6mA, PERSONNEL) BREAKER.
GFI	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE. NEMA 5-20R.
GFIB	DUPLEX RECEPTACLE WITH GFI AT BREAKER. NEMA 5-20R. REFER TO PANEL SCHEDULES.
	FLOOR MOUNTED QUAD RECEPTACLE
	CEILING MOUNTED DUPLEX RECEPTACLE
WP/GFI	WEATHERPROOF AND GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE. COVER BASED ON INTERMATIC #WP1020 (CLEAR).
J	JUNCTION BOX. 4" SQUARE BOX WITH SINGLE GANG OPENING AND PLASTER RING, UNLESS NOTED OTHERWISE.
J	WALL MOUNTED JUNCTION BOX. 4" SQUARE BOX WITH SINGLE GANG OPENING AND PLASTER RING, UNLESS NOTED OTHERWISE. BOX SHALL BE RECESSED IN WALL WITH NOT EXPOSED CONDUIT, UNLESS NOTED OTHERWISE.
	SPECIAL RECEPTACLE; SEE PLANS FOR TYPE.
TV	TV POWER AND DATA CONNECTION, SEE DETAIL. MOUNT 72"AFF UNLESS NOTED OTHERWISE.
	PHONE/DATA OUTLET
	DATA OUTLET
	PHONE OUTLET

ELECTRICAL DRAWING LIST

DWG. NO.	DRAWING NAME
E001	ELECTRICAL SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES
E002	ELECTRICAL SPECIFICATION (1 OF 2)
E003	ELECTRICAL SPECIFICATION (2 OF 2)
E101	LIGHTING PLAN
E201	ELECTRICAL POWER PLAN
E202	ELECTRICAL ROOF POWER PLAN
E301	ELECTRICAL RISER DIAGRAM
E302	ELECTRICAL PANEL SCHEDULE AND LOAD SUMMARY
E401	ELECTRICAL DETAILS (1 OF 2)
E402	ELECTRICAL DETAILS (2 OF 2)

ELECTRICAL EQUIPMENTS

	PANELBOARD. REFER TO POWER RISER DIAGRAM AND PANEL SCHEDULES FOR DETAILS. TOP OF PANEL AT 6'-6" AFF. (ELECTRICAL PANEL / ENCLOSURE AS NOTED ON PLAN DRAWINGS, SURFACE/RECESSED)
	FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING/FUSE SIZE. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
	NON FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
S_a M	AC INDOOR UNIT MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.
M WP	AC OUTDOOR UNIT MOTOR AS NOTED WITH CONTROLLER AND DISCONNECT SWITCH WITH WEATHER PROOF.
S_M	MOTOR RATED SWITCH WITH OVERLOAD PROTECTION.
S_T	THERMAL OVERLOAD SWITCH AT MOTOR. PROVIDE THERMAL ELEMENTS AS PER MOTOR RATING.
1.5KW	ELECTRICAL HEATER, NUMBER DENOTES HEATER RATING
MD	MOTORIZED DAMPER

ANNOTATION

+24"	INDICATES MOUNTING HEIGHT, CENTER LINE TO FINISHED FLOOR.
X	KEYED NOTE REFERENCE
1 E/2-1	DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM
- - - - - -	EXISTING
———	NEW

COMcheck Software Version COMcheckWeb

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2015 IECC
Project Title: KIDDIE ACADEMY, SUN PRAIRIE, WI
Project Type: New Construction

Construction Site:
KIDDIE ACADEMY, 1470 IRONWOOD DR,
SUN PRAIRIE, Wisconsin 53590

Owner/Agent:

Designer/Contractor:
MICHAEL TOBIAS
NY ENGINEERS
382 NE 191ST STREET SUITE 49674
MIAMI, Florida 33179

Additional Efficiency Package(s)

Credits: 1.0 Required 0.0 Proposed

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-KIDDIE ACADEMY (School/University)	10000	0.87	8700
		Total Allowed Watts =	8700

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
1-KIDDIE ACADEMY (School/University)				
LED 1: LT-1: 2X4 LED FIXTURE: Other:	1	157	38	5966
LED 2: LT-2: RECESSED DOWNLIGHT: Other:	1	1	22	22
LED 3: LT-3: RECESSED DOWNLIGHT: Other:	1	3	22	66
LED 4: LT-4: LED ROUND PENDANT: Other:	1	3	72	216
		Total Proposed Watts =		6270

Interior Lighting PASSES: Design 28% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

MICHAEL TOBIAS — Name - Title
Signature
03/20/25 — Date

WISCONSIN — MICHAEL TOBIAS — E-47373-6 — WISCONSIN — PROFESSIONAL ENGINEER

Project Title: KIDDIE ACADEMY, SUN PRAIRIE, WI — Report date: 03/20/25

ELECTRICAL ABBREVIATIONS

A	AMPERES	EA	EACH
A/C, AC	AIR CONDITIONING UNIT	EC	EMPTY CONDUIT/ ELECTRICAL CONTRACTOR
AF	AMPERE FRAME/AMP FUSE	EF	EXHAUST FAN
AFF	ABOVE FINISHED FLOOR	EM	EMERGENCY
AS	AMP SWITCH	EMT	ELECTRICAL METALLIC TUBING
AIC	AMPS INTERRUPTING CAPACITY	EQUIP	EQUIPMENT
AT	AMP TRIP	ER	EXISTING TO BE RELOCATED
ATS	AUTOMATIC TRANSFER SWITCH	ETR	EXISTING TO REMAIN
AUTO	AUTOMATIC	EWF	ELECTRIFIED WORKSTATION FURNITURE
AWG	AMERICAN WIRE GAUGE	EWH	ELECTRIC WATER HEATER
C	CONDUIT	FA	FIRE ALARM
C/B,CB	CIRCUIT BREAKER	FBO	FURNISHED BY OTHERS, INSTALLED & WIRED BY EC
CKT	CIRCUIT	FDR	FEEDER
CL	CEILING MOUNTED	FIBO	FURNISHED & INSTALLED BY OTHERS, WIRED BY EC
CLG	CEILING	FIXT	FIXTURE
COMM	COMMUNICATION	FL	FLOOR
CP	CHILD PROOF	FLUOR	FLUORESCENT
CT	CURRENT TRANSFORMR	G	GROUND
CU	COPPER	GFI	GROUND FAULT INTERRUPTER
°C	DEGREE CELSIUS	GP	GENERAL PURPOSE
FR	FREEZER	HC	HUNG CEILING
D	DEDICATED	HP	HORSEPOWER
DIA	DIAMETER	HWH	HOT WATER HEATER
DISC	DISCONNECT	HZ	HERTZ
DR	DRYER	IC	INTERRUPTING CAPACITY
DP	DISTRIBUTION PANEL	PP	POWER PANEL
DWH	DOMESTIC WATER HEATER	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	PWR	POWER
DW	DISHWASHER	REF	REFRIGERATOR
JB	JUNCTION BOX	RE	RELOCATED EXISTING
KCMIL	ONE THOUSAND CIRCULAR MILS	REC	RECEPTACLE
KV	KILOVOLT	RGS	RIGID GALVANIZED STEEL
KVA	KILOVOLT-AMPERES	RR	REMOVE & RELOCATE
KW	KILOWATTS	WA	WASHER
LP	LIGHTING PANEL	SPDT	SINGLE POLE DOUBLE THROW
LTG	LIGHTING	SPST	SINGLE POLE SINGLE THROW
MAX	MAXIMUM	SPEC	SPECIFICATION
MC	MOTOR CONTROLLER	SW	SWITCH
MCB	MAIN CIRCUIT BREAKER	SWBD	SWITCHBOARD
MER	MECHANICAL EQUIPMENT ROOM	SYM	SYMMETRICAL
MIN	MINIMUM	SYS	SYSTEMS
MLO	MAIN LUGS ONLY	TELE	TELEPHONE
MTD	MOUNTED	TEMP	TEMPERATURE
MTS	MANUAL TRANSFER SWITCH	TXF	TOILET EXHAUST FAN
N	NEUTRAL	TYP	TYPICAL
NE	NEW DEVICE TO REPLACE EXISTING	U.O.N.	UNLESS OTHERWISE NOTED
NIC	NOT IN CONTRACT	V	VOLT/VOLTAGE
NL	NIGHT LIGHT	VA	VOLT AMPERE
NTS	NOT TO SCALE	VAV	VARIABLE AIR VOLUME
OC	ON CENTER	VFD	VARIABLE FREQUENCY DRIVE
P	POLES	D, GFCI	GROUND FOULT CURRENT INTERRUPTER BREAKER
PB	PULLBOX	WP	WEATHERPROOF
PC	PERSONAL COMPUTER	XFMR	TRANSFORMER
Ø	PHASE	GFCI	GROUND FOULT CURRENT INTERRUPTER
PNL	PANEL	IG	ISOLATED GROUND
W	WATT	E	EXISTING
W	WIRE	WH	WATER HEATER

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CURRENT VERSION OF THE NATIONAL ELECTRICAL CODE (NEC).
2. CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
3. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
4. FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED WATERTIGHT.
5. SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK) MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAW PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
6. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
7. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
8. CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
9. ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
10. CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
11. MINIMUM SIZE OF CONDUIT SHALL BE 3/4", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
12. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
13. PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVIDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CONCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
14. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
15. FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
16. ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAINTIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
17. ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TOINSTALLATION.
18. ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL, DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
19. ALL CONDUITS AND EQUIPMENT TO BE CONCEALED IN FINISHED SPACESUNLESS OTHERWISE NOTED.
20. ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BEAPPROVED FOR THAT APPLICATION.
21. OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE-RATEDWALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE-RATED BOXES OR PUTTY PADS ARE UTILIZED.
22. COORDINATE ALL FLOOR PENETRATIONS WITH THE ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH THE ENGINEER AND OWNER BEFORE INSTALLATION.
23. LIGHTING FIXTURES DESIGNATED AS EMERGENCY TYPE SHALL BE WIRED AHEAD OF ANY CONTROL DEVICES.
24. NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.
25. PROVIDE RACEWAY, BACK-BOXES, GROUNDING PROVISIONS AND 120V POWER AS NECESSARY FOR LOW VOLTAGE SYSTEMS (SECURITY, TELEPHONE DATA, CABLE TELEVISION, PAGING, INTERCOM. ETC. AS APPLICABLE TO PROJECT). REFER TO ASSOCIATED CONSULTANT'S DRAWING FOR EXACT REQUIREMENTS AND LOCATIONS OF DEVICES.
26. PROVIDE HANDLE TIES TO ALLOW FOR SIMULTANEOUS DISCONNECTION OF CONDUCTORS IN ANY MULTI-BRANCH CIRCUITS WITH A SHARED NEUTRAL.

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

ELECTRICAL SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES

SHEET NUMBER:

E001

ELECTRICAL SPECIFICATIONS:

1. GENERAL:

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN THEIR PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED, MAINTAIN HEADROOM AND SPACE CONDITIONS.

C. BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS, REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

D. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

E. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

F. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.

G. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT, PROVIDE EQUIPMENT CURBS AS REQUIRED.

H. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT OR APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

I. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

J. UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

K. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

L. INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

M. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATED OF INSPECTION AND APPROVAL.

2. GENERAL PROVISIONS FOR ELECTRICAL WORK:

A. DEFINITIONS:

· "PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

· "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

· "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE. AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

· "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

· "WIRING": RACEWAY. FITTINGS, WIRE, BOXES, AND RELATED ITEMS.

· "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

· "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

· "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

B. TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING HOURS. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

C. QUALITY ASSURANCE

1) QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2) GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.

3) HEIGHTS OF OUTLETS: REFER TO ARCHITECTURAL AND/OR INTERIOR DESIGNER'S PLANS FOR DEVICE HEIGHTS IN NON BOH SPACES.

a. FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:

- RECEPTACLES AND TELEPHONES: 1 FT-6 IN.
- WALL SWITCHES: 4 FT-0 IN.
- WALL FIXTURES: 7 FT-0 IN.
- MOTOR CONTROLLERS: 5 FT-0 IN.
- CLOCKS: 7 FT 6 IN

b. EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

c. REFER TO ARCHITECTURAL AND/OR INTERIOR DESIGNER'S PLANS FOR DEVICE HEIGHTS IN NON BOH SPACES

D. PRODUCT DELIVERY, STORAGE AND HANDLING

1) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2) ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

E. MATERIALS

1) NAMEPLATES: PROVIDE BLACK LAMACOID SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.

2) CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULL BOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.

3) INSERTS AND SUPPORTS:

a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.

- SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
- MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
- CLIP FORM NAILS FLUSH WITH INSERTS.
- MAXIMUM LOADING 75 PERCENT OF RATING.

b. SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.

c. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.

d. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

F. SUBMIT ELECTRICAL POWER SYSTEM STUDIES INCLUDING SUPPORTING DATA AND RECOMMENDATIONS FOR THE FOLLOWING:

1) SHORT CIRCUIT CURRENT AND PROTECTIVE DEVICE COMBINATION.
2) ARC FLASH HAZARD ANALYSIS.
EQUIPMENT SHOP DRAWINGS SHALL NOT BE SUBMITTED UNTIL THESE STUDIES HAVE BEEN COMPLETED.

G. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION. UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC BASED PRIMER FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. ZINC BASED PRIMER WITH FINISH TO MATCH SURROUNDINGS SHALL BE USED FOR MARRED SURFACES OF STEEL EQUIPMENT AND RACEWAYS. A FIELD-APPLIED ZINC BASED PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRONWORK.

H. BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

I. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.

J. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

3. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH THE 2015 NATIONAL ELECTRICAL CODE (NEC) AMENDMENTS, AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLIED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER, DATE IS EARLIER, THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER ,THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

E. CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE NYC BUILDING CODE. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.

F. AREAS WITH NO ELECTRICAL WORK SHALL REMAIN AS IS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS TO ALL AREAS NOT COVERED BY THIS RENOVATION AND SHALL PROVIDE 48 HOUR NOTICE TO LANDLORD OF ANY PLANNED POWER INTERRUPTIONS OR SIGNAL SYSTEM OUTAGES.

4. SHOP DRAWINGS

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION

2) NAME OF ARCHITECT AND ENGINEER

3) ITEM IDENTIFICATION

4) APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

1) SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

2) SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1) SAFETY/DISCONNECT SWITCHES
2) FUSES
3) CIRCUIT BREAKERS
4) DISTRIBUTION EQUIPMENT INCLUDING SWITCHBOARDS, TRANSFORMERS, PANELBOARDS AND LOAD CENTERS.
5) RACEWAYS
6) WIRE AND CABLE
7) LIGHTING CONTROL DEVICES
8) INSERTION RECEPTACLES
9) MOMENTARY CONTACT SWITCHES
10) TIME SWITCHES
11) LIGHTING FIXTURES, BALLASTS AND LAMPS.
12) FIRE ALARM EQUIPMENT AND DEVICES.
13) MOTOR STARTERS: SUBMIT ELECTRICAL POWER SYSTEM STUDIES INCLUDING SUPPORTING DATA AND RECOMMENDATIONS FOR THE FOLLOWING:

a. SHORT CIRCUIT CURRENT AND PROTECTIVE DEVICE COORDINATION ARC FLASH HAZARD ANALYSIS: EQUIPMENT SHOP DRAWINGS SHALL NOT BE SUBMITTED UNTIL THESE STUDIES HAS BEEN COMPLETED.

E. ASSIST AND PROVIDE ALL NECESSARY INFORMATION, DIAGRAMS, SKETCHES, ETC. TO THE HVAC CONTRACTOR, FOR THE PREPARATION OF COORDINATED SHOP DRAWINGS INDICATING ROUTING OF FEEDERS, CONTROL CONDUITS, RECESSED FIXTURES AND ADJACENT NEARBY PIPING AND DUCTWORK WHERE APPLICABLE, CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN ESTABLISHED. SUBMIT FOUR(4) BOOKBOUND OPERATING AND SERVICE MANUALS WHICH SHALL INCLUDE COPIES OF ALL SHOP DRAWING. PROVIDE SHOP DRAWINGS FOR PANELS, FIXTURES, WIRING DEVICES, CONDUIT, CABLE, DISCONNECT SWITCH, RELAYS, CONTRACTORS, AND OTHER SYSTEMS AS DIRECTED BY THE ENGINEER.

5. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

6. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

A. PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.

B. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.

C. DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. TWO-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 7810F. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE-QUICK-BREAK, UL CLASS R UP TO 600 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800AMP. ARC QUENCHER SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.

7. FUSES:

A. OVERCURRENT AND SHORT CIRCUIT PROTECTION WITHIN FUSIBLE SWITCHES SHALL BE CLASS L CURRENT LIMITING TIME DELAY FUSES FOR SWITCHES RATED 800A AND LARGER AND CLASS RK-1 CURRENT LIMITING TIME DELAY FUSES FOR SWITCHES RATED 600A AND SMALLER. MANUFACTURER SHALL BE BUSSMAN.

B. INDIVIDUAL MOTOR STARTERS SHALL INCLUDE TWO SETSOF NORMALLY OPEN CONTACTS, ONE SET OF NORMALLY CLOSED CONTACTS, THREE OVERLOAD RELAYS, INDIVIDUALLY FUSED CONTROL TRANSFORMER, HAND OFF AUTO SELECTOR SWITCH FOR AUTOMATIC START AND PILOT LIGHT(S) AS REQUIRED. COMBINATION STARTER DISCONNECTS SHALL INCLUDE FUSIBLE SWITCHES. CONTACTORS SHALL BE NEMA TYPE WITH REPLACEABLE COIL AND CONTACT TIPS. MANUFACTURER SHALL BE EATON, SIEMENS OR SQUARE D.

C. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

D. PROVIDE 1 SPACE MATCHING FUSE FOR EACH SET OF 3.

E. CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE-QUICK-BREAK, BOLT-ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP-FREE HANDLE. MULTI-POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT-TRIPPING, OPEN AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED. FRAMES, IC AND INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

1) 120 VOLTS, 100-AMP FRAME: 10,000 AMPS, 1 POLE.

2) 120/240 VOLTS, 225-AMP FRAME: 22,000 AMPS MINIMUM

8. DISTRIBUTION PANELBOARDS, CIRCUIT BREAKER TYPE:

A. DISTRIBUTION PANELBOARDS SHALL BE FULLY RATED WITH COPPER PHASE, NEUTRAL, AND GROUND BUS, BRACED AT 65000 AIC FOR 480/277 VOLT SYSTEM AND 42000 AIC FOR 208Y/120 VOLT SYSTEM, OR MORE TO BE GREATER THAN THE AVAILABLE SHORT CIRCUIT CURRENT. ISOLATED GROUND BUS SHALL BE AS REQUIRED. MANUFACTURERS SHALL BE EATON, SIEMENS OR SQUARE D.

B. BRANCH PANELBOARDS SHALL BE FULLY RATED WITH COPPER PHASE, NEUTRAL AND GROUND BUS, BRACED AT 14000 AIC FOR 480/277 VOLT SYSTEM AND 10000 AIC FOR 208Y/120 VOLT SYSTEM, OR MORE TO BE GREATER THAN THE AVAILABLE SHORT CIRCUIT CURRENT. NEUTRAL BUS SHALL BE RATED AT 200 PERCENT WITHIN PANELS SERVING NON-LINEAR LOADS. ISOLATED GROUND BUS SHALL BE AS REQUIRED. MANUFACTURER SHALL BE EATON, SIEMENS, OR SQUARE D.

9. DISTRIBUTION PANELBOARDS, SWITCH AND FUSE:

A. THREE PHASE, 3 OR 4 WIRE WITH COPPER BUS BARS. ALL THROUGH BUS SHALL BE INSULATED.

B. NEMA CLASS 1 CONSTRUCTION TO ACCOMMODATE FUSIBLE, INDIVIDUALLY ENCLOSED SWITCHES, FRONT REMOVABLE, SWITCH AND DOOR INTERLOCKS. COVERS TO BE PAD-LOCKABLE.

C. PANELBOARD SHALL BE CONSTRUCTED OF CODE-GAUGE STEEL, GRAY FINISH OVER RUST INHIBITOR, FOR SURFACE MOUNTING. BOX AND PANEL FRAME SHALL BE FLANGED AND REINFORCED FOR RIGID SUPPORT OF INTERIOR AND ACCURATE ALIGNMENT OF INTERIOR WITH FRONT. TRIMS TO BE FASTENED TO BACK BOX WITH SCREWS.

D. ALL BRANCH SWITCHES SHALL HAVE INDIVIDUAL ENGRAVED LAMICOID NAMEPLATES (BLACK WITH WHITE CORE).

E. DISCONNECTS

1) DISCONNECT SWITCHES SHALL CONFORM TO NEMA AND UL STANDARDS, AND SHALL BE HORSEPOWER RATED.

2) SWITCHING MECHANISM SHALL BE QUICK-MAKE, QUICK-BREAK, SINGLE THROW WITH EXTERNAL OPERATING HANDLE MECHANICALLY INTERLOCKED WITH ENCLOSURE COVER TO PROVIDE ACCESS TO INTERIOR WHEN DISCONNECT IS IN OFF POSITION ONLY. PROVIDE MEANS TO LOCK OPERATING HANDLE IN THE OPEN AND CLOSED POSITION. DESIGNATE ON THE ENCLOSURE THE OPEN AND CLOSED POSITION OF THE OPERATING HANDLE.

3) SWITCHES SHALL BE OF THE DOUBLE STATIONARY CONTACT TYPE.

4) SWITCHES SHALL BE EQUIPPED WITH REJECTION TYPE FUSE HOLDERS, FUSIBLE AS SHOWN ON THE DRAWINGS; PROVIDE COMPLETE WITH FUSES AS SCHEDULED.

F. INSTALLATION

1) DISTRIBUTION PANELBOARD SHALL BE MOUNTED TO STRUCTURAL STEEL CHANNEL (KINDORF) WHICH SHALL BE BOLTED TO THE WALL USING EXPANSION ANCHORS FOR LARGE PANELS.

G. IDENTIFICATION

1) PROVIDE NAMEPLATE AT EACH SWITCH IDENTIFYING THE LOAD SERVED.

2) NAMEPLATES SHALL BE MOUNTED ON THE FRONT COVER SECURED WITH SELF-TAPPING SCREWS OR NUTS AND BOLTS. NAMEPLATES SHALL BE LAMINATED PHENOLIC, BLACK WITH A MINIMUM OF ½" HIGH WHITE LETTERING.

H. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

I. POWER PANELBOARDS SHALL BE SIMILAR TO GENERAL ELECTRIC TYPE "OMR", AS MANUFACTURED BY ATLAS SWITCH COMPANY, ELECTRIC SWITCHBOARD COMPANY OR APPROVED EQUAL.

J. PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

K. PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANE TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

10. MATERIALS

1) RACEWAYS:

a. RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED, THREADED.

b. ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADLESS.

c. FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED.

d. WIREWAYS: STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

e. SURFACE METAL RACEWAY: SURFACE METAL RACEWAY INCLUDING POWER DEVICES, FITTINGS, CONNECTORS, FEEDS, ELBOWS, COUPLINGS, BLANKS, TEES, WIRE CLIPS, DEVICE BRACKETS, DEVICE COVERS AND OTHER ASSOCIATED APPARATUS SHALL BE SIZED TO FACILITATE PULLING THE QUANTITY AND SIZE OF WIRES AND CABLES, AND INSTALLING THE DEVICES CONTAINED. RACEWAY SHALL BE OF CODE GAUGE GALVANIZED STEEL, SHALL INCLUDE MOUNTING KNOCK-OUTS, AND SHALL BE FINISHED AS DIRECTED BY THE ARCHITECT. MANUFACTURER SHALL BE WIREMOLD.

2) FITTINGS AND ACCESSORIES:

a. RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.

b. ELECTROMETALLIC TUBING: COMPRESSION TYPE. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER.

c. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.

d. BUSHINGS: METALLIC INSULATED TYPE.

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:

WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF. THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS NEED TO BE APPROVED BY KIDDIE ACADEMY CONSTRUCTION MANAGER FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK.

△	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

ELECTRICAL SPECIFICATION (1 OF 2)

SHEET NUMBER:

E002

ELECTRICAL SPECIFICATIONS (CONT.):

3) BOXES:

A. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4 IN. DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER. OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 IN. SEPARATION. Manufacturer shall be Appleton, Raco or Steel City.

B. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN 120/208 VOLT AND 265/460 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE ADJUSTABLE CONCRETE TIGHT PRESSED STEEL WITH BRASS FLANGE AND COVERS. FLUSH FLOOR BOXES SHALL INCLUDE BRASS TRIM AND HINGED OUTLET OPENING COVERS. FIRE RATED POKE-THROUGH FLOOR FITTINGS SHALL BE UL LISTED AND APPROVED FOR THE FLOOR SLAB FIRE RATING. FLOOR MOUNTED SERVICE FITTING FOR SERVICE FITTINGS FOR CONNECTION TO UNDER-FLOOR ELECTRIFIED METAL DECK SHALL BE COMPATIBLE WITH THE DECK MANUFACTURER. ACCESS FLOOR MOUNTED FITTINGS FOR USE WITH RAISED FLOOR SHALL BE FLUSH TYPE WITH SPACE FOR EQUIPMENT CORD PLUG DEVICES AND SUITABLE FLIP TYPE COVER. MANUFACTURER SHALL BE HUBBELL, WIREMOLD, OR STEEL CITY

C. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.

PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH-FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK. NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPLATES.

EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

MAINTAIN GROUNDING CONTINUITY OF INTERRUPTED METALLIC RACEWAYS WITH GROUND CONDUCTOR, AND IN FLEXIBLE CONDUIT FOR FEEDERS AND MOTOR TERMINAL CONNECTIONS.

EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE, GALVANIZED OR NYLON ROPE.

RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS, CRC-COLD GALVANIZED. EMT SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY, IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

ALL COUPLINGS SHALL BE COMPRESSION TYPE. NO SET SCREW FITTINGS.

EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.

D. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS MANUFACTURED BY OZ-GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.

INSTALL CABLE SUPPORTS AT THE TOP OF A VERTICAL RISE AND PROVIDE INTERMEDIATE ADDITIONAL SUPPORTS AS REQUIRED TO LIMIT SUPPORTED CONDUCTOR LENGTHS TO NOT GREATER THAN THOSE SPECIFIED IN NEC TABLE 300.19(A).

E. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIERS BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.

F. PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

G. FIRE SEALANTS: PROVIDE FOR RACEWAYS AND WIRE PASSING THROUGH FLOOR SLOTS, SLEEVES OR OPENINGS IN FIRE-PARTITIONS ROOMS.

H. PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING 1 CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

11. WIRE AND CABLE:

A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.

B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. MANUFACTURER SHALL BE AMERICAN INSULATED WIRE CORP., CERRO, COLLYER, CAPITOL WIRE AND CABLE, OKONITE, SENETOR, SOUTH WIRE OR TRIANGLE.

C. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

D. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C. FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).

E. METAL-CLAD CABLE, NFPA 70 ARTICLE 330 TYPE MC:
- INTERLOCKED FLEXIBLE GALVANIZED STEEL ARMOR SHEATH, CONFORMING TO UL REQUIREMENTS FOR TYPE MC METAL CLAD CABLE.
- INSULATED COPPER CONDUCTORS, SUITABLE FOR 600 VOLTS, RATED 90°C, ONE OF THE TYPES LISTED IN NFPA 70 TABLE 310.13(A) OR OF A TYPE IDENTIFIED FOR USE IN TYPE MC CABLE.
- INTERNAL FULL SIZE COPPER GROUND CONDUCTOR WITH GREEN INSULATION.
- ACCEPTABLE COMPANIES: AFC CABLE SYSTEMS INC., SOUTHWIRE, GENERAL CABLE.
- CONNECTORS FOR MC CABLE: AFC FITTING INC.'S AFC SERIES, ARLINGTON INDUSTRIES INC.'S SADDLE GRIP, OR THOMAS & BETTS CO.'S TITE-BITE WITH ANTI-SHORT BUSHINGS.

G. COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM:	277/480 VOLT SYSTEM:
BLACK FOR A PHASE	BROWN FOR A PHASE
RED FOR B PHASE	ORANGE FOR C PHASE
BLUE FOR C PHASE	YELLOW FOR C PHASE

NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

H. PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS. FOR FEEDERS INDICATE FEEDER NUMBER, SIZE, PHASE AND POINTS OF ORIGIN AND TERMINATIONS. FOR CONTROL AND ALARM WIRING INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE, AND POINTS OF ORIGIN AND TERMINATIONS.

I. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO.8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON TANG.

J. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS, SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 265/460VOLT SYSTEMS, EXCEPT 460 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.

K. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.

L. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

12. WIRING DEVICES:

A. WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE SPECIFIED. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS OTHERWISE NOTED. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.

B. LOCAL WALL SWITCHES SHALL BE ROCKER TYPE, QUIET OPERATING, RATED 20 AMP, 120/277 VOLT, AC. SIMILAR TO LEVITON DECORA SERIES A5621 (SINGLE POLE), A5623 (3-WAY) AND A5624 (4-WAY).

C. STRAIGHT BLADE RECEPTACLES SHALL BE COMMERCIAL SPECIFICATION GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, DECORA SERIES BY LEVITON. GROUNDED, EXCEPT AS NOTED.
- SINGLE GANG, RECESSED, DUPLEX RECEPTACLE: TAMPER RESISTANT, 2-POLE, 3-WIRE GROUNDING, 15A, 125V, NEMA 5-20R; LEVITON 689 SERIES (COLOR AS SPECIFIED BY ARCHITECT).

D. DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBED VOLTAGE AVAILABLE.

E. COLORS: COORDINATE COLORS WITH ARCHITECT.

F. MOUNTING ORIENTATION OF RECEPTACLES (HORIZONTAL OR VERTICAL): COORDINATE WITH ARCHITECT.

13. LIGHTING FIXTURES:

A. FIXTURES TO BE AS SPECIFIED BY ARCHITECT U.O.N. AND SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.

B. FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.

C. BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, ET1 AND CBM APPROVED. ENERGY SAVING TYPE. TRIGGER START FOR 24-INCH LAMPS AND RAPID START FOR 48-INCH. TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL.

D. LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47, PART 15 AND COMPLY WITH NEMA SSL 1 "ELECTRONIC DRIVERS FOR LED DEVICES, ARRAYS OR SYSTEMS". LED DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.

E. DIMMABLE LED DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKER ACROSS THEIR FULL DIMMING RANGE. PROVIDE TYPE OF LED DRIVER AS PER LIGHTING FIXTURE SCHEDULE, DIMMABLE LED DRIVERS SHALL BE 0-10V WHERE NOT INDICATED.

F. FLUORESCENT LIGHTING FIXTURES, INCLUDING GENERAL CONSTRUCTION, LAMPS AND BALLASTS SHALL CONFORM TO THE ENERGY EFFICIENCY REQUIREMENTS OF CONSOLIDATED EDISON CO. AND QUALITY FOR A UTILITY REBATE TO OWNER UNDER CON EDISON'S ENLIGHTENED ENERGY LIGHTING REBATE PROGRAM. CONTRACTOR SHALL COORDINATE REBATE PROGRAM WITH CON EDISON AND ARRANGE FOR CON EDISON TO PERFORM A SURVEY TO INVENTORY ALL EXISTING FIXTURES PRIOR TO DEMOLITION.

G. EXIT SIGNS SHALL BE PRECISION DIE-CAST ALUMINUM HOUSING WITH LASER-FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE MEA APPROVED FOR USE IN NEW YORK CITY. AC POWERED WITH PREMIUM LONG-LIFE NICKEL CADMIUM BATTERY WITH STANDARD UL LISTED 3-HOUR RUN TIME. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

14. VOICE/DATA CONDUIT SYSTEM:

A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

B. OUTLETS SHALL BE:
- PROVIDE A TWO-GANG J-BOX AND SINGLE OR DOUBLE GANG FLUSH WALL OPENING AS REQUIRED FOR EACH VOICE/DATA OUTLET.

C. PROVIDE PULLSTRINGS, IN RACEWAYS OVER 10 FT LONG.

D. CONDUIT SHALL BE 3/4 IN. MINIMUM.

15. GROUNDING AND BONDING:

A. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH 2015 NATIONAL ELECTRICAL CODE AMENDMENTS, AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONTINUOUSLY GROUNDED SYSTEM.

B. USE EXOTHERMIC WELDING PROCESS FOR INACCESSIBLE CONNECTIONS.

C. EXTEND EXISTING SYSTEM GROUND TO INCLUDE ALL THE ELECTRICAL EQUIPMENT IN THE SCOPE OF WORK.

D. WHERE FLEXIBLE METALLIC CONDUIT IS USED AN INTERNAL BONDING CONDUCTOR SHALL BE INSTALLED.

E. IN ADDITION, FURNISH A SEPARATE INSULATED GREEN EQUIPMENT GROUND CONDUCTOR WHERE INDICATED ON DRAWINGS AND FOR THE FOLLOWING BRANCH CIRCUITS:
- CIRCUITS SERVING ANY WALL BOX DIMMER.
- CIRCUITS SERVING ANY ISOLATED GROUND RECEPTACLES. TERMINATE GROUND DIRECTLY AT AN EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE SOURCE AT THE SOURCE , OR AS OTHER WISE NOTED ON DRAWINGS.
- CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPTACLES
- ANY CIRCUIT SERVED VIA AN ISOLATION TRANSFORMER OR COMPUTER POWER DISTRIBUTION UNIT.

16. PANELBOARDS:

A. PANELBOARDS SHALL BE OF THE DEAD FRONT TYPE MANUFACTURED IN CODE GAUGE AND SIZE BOXES FOR MOUNTING AS INDICATED ON PLANS COMPLETE WITH TRIM, DOORS AND LOCKS. ALL LOCKS SHALL BE KEYED ALIKE.

B. CIRCUIT BREAKERS SHALL BE OF THE BOLT-ON THERMAL MAGNETIC MOLDED CASE TYPE, AND SHALL HAVE THE TRIP RATINGS AND NUMBER OF POLES SHOWN IN SCHEDULES ON THE CONTRACT DRAWINGS. FOR BLANK (SPACE) COMPARTMENTS, PROVIDE FULL RATED BUS. MINIMUM GLITTER SPACES SHALL BE 5-3/4". SIDES, TOP AND BOTTOM, INCREASE FOR THROUGH FEEDERS. PROVIDE 25% COPPER GROUND BUS AND 100% COPPER NEUTRAL BUS AND INCREASE NEUTRAL BUS INDICATED.

C. LOCKING TABS SHALL BE PROVIDED ON ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING, FIRE ALARM SYSTEM, SECURITY SYSTEMS AND OTHER EMERGENCY OR CRITICAL EQUIPMENT AND AS NOTED ON THE CONTRACT DRAWINGS. A TOTAL OF 5 SPARE LOCKING TABS SHALL BE FURNISHED TO THE OWNER.

D. BUSES SHALL BE HARD DRAWN COPPER OF 98 PERCENT CONDUCTIVITY AND SHALL HAVE CROSS SECTIONAL AREAS LARGE ENOUGH TO LIMIT THE TEMPERATURE RISE, WHEN CARRYING FULL LOAD, TO 35 DEGREES C. ABOVE AN AMBIENT INSIDE THE ENCLOSURE OF 55 DEGREES C. AS DEFINED IN IEEE STANDARD RULES. MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.

E. ENCLOSURES SHALL BE SURFACE OR FLUSH AS INDICATED. TRIMS SHALL BE SECURED TO PANEL WITH MACHINE SCREWS. COVERS SHALL BE HINGED DOOR-IN-DOOR CONSTRUCTION WITH CYLINDER LOCKS AND CATCHES. LOCKS MUST BE COMPATIBLE WITH BUILDING STANDARD KEY SYSTEM AND WHEN NONE EXISTS, THEY SHALL BE SIMILAR TO A YALE NO. 911 KEY.

F. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARD SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

G. ALL STANDARD PANELBOARDS SHALL BE A MINIMUM OF 20" WIDE AND 5 3/4" DEEP.

H. FURNISH ALL PANELBOARDS WITH FEED-THRU LUGS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

I. ALL NEW PANELBOARDS SHALL BE PROVIDED WITH AN ENGRAVED WHITE CORE LAMACOID NAMEPLATE, WITH 3/4 IN. WHITE LETTERING ON A BLACK BACKGROUND, WITH DESIGNATION LISTED (PANELBOARD NAME), FASTENED WITH EPOXY CEMENT OR OVAL HEAD CHROME PLATED MACHINE SCREWS.

J. THE CIRCUIT DIRECTORY SHALL BE TYPEWRITTEN AND PROVIDED INSIDE EACH PANEL DOOR TO INDICATE EQUIPMENT AND/OR AREA SERVED. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER. THE TYPEWRITTEN LIST INDICATING CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED.

K. TIE-BARS SHALL NOT BE USED TO CREATE MULTI-POLE CIRCUITS. MAXIMUM 42 CIRCUITS ALLOWED.

L. ONLY ONE WIRE SHALL BE INSTALLED UNDER EACH CIRCUIT BREAKER LUG.

M. SHORT CIRCUIT RATING OF PANELBOARDS SHALL NOT BE LESS THAN AS INDICATED ON THE CONTRACT DRAWINGS OR SPECIFIED HEREIN. WHERE NOT INDICATED OR SPECIFIED THE MINIMUM SHORT CIRCUIT RATING SHALL BE EQUAL TO THE INTERRUPTING CAPACITY OF THE LOWEST RATED CIRCUIT BREAKER IN THE PANELBOARD, BUT IN NO CASE LESS THAN 10,000 AMPERES R.M.S. SYMMETRICAL FOR 208Y/120 VOLT SYSTEM AND 14,000 AMPERES R.M.S. SYMMETRICAL FOR 480Y/277 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED TO ACHIEVE REQUIRED SHORT CIRCUIT RATINGS.

N. FOR ALL EXISTING PANELBOARDS, CONTRACTOR SHALL PROVIDE NEW CIRCUIT BREAKERS TO REPLACE EXISTING AS REQUIRED AS INDICATED ON DRAWINGS.

17. LOADCENTERS

A. LOAD CENTERS SHALL COMPLY WITH UL67 AND MEET FEDERAL SPECIFICATION W-P-115c.

B. CIRCUIT BREAKERS SHALL BE OF THE PLUG-IN, THERMAL MAGNETIC, MOLDED CASE TYPE, AND SHALL HAVE THE TRIP RATINGS AND NUMBER OF POLES SHOWN IN SCHEDULES ON THE CONTRACT DRAWINGS. FOR BLANK (SPACE) COMPARTMENTS, PROVIDE FULL RATED BUS. TANDEM OR DUPLEX TYPE CIRCUIT BREAKERS SHALL NOT BE PERMITTED. ONLY ONE WIRE SHALL BE INSTALLED UNDER EACH CIRCUIT BREAKER LUG. TIE-BARS SHALL NOT BE USED TO CREATE MULTI-POLE CIRCUITS. MAXIMUM 42 CIRCUITS ALLOWED.

C. BUSES SHALL BE HARD DRAWN COPPER OF 98 PERCENT CONDUCTIVITY AND SHALL HAVE CROSS SECTIONAL AREAS LARGE ENOUGH TO LIMIT THE TEMPERATURE RISE, WHEN CARRYING FULL LOAD, TO 35 DEGREES C. ABOVE AN AMBIENT INSIDE THE ENCLOSURE OF 55 DEGREES C. AS DEFINED IN IEEE STANDARD RULES. MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.

D. ENCLOSURES MANUFACTURED IN CODE GAUGE AND SIZE BOXES FOR FLUSH MOUNTING AS INDICATED ON PLANS COMPLETE WITH TRIM, DOORS AND LOCKS. ALL LOCKS SHALL BE KEYED ALIKE. MINIMUM GUTTER SPACES SHALL BE 5-3/4". SIDES, TOP AND BOTTOM, INCREASE FOR THROUGH FEEDERS. PROVIDE 25% COPPER GROUND BUS AND 100% COPPER NEUTRAL BUS AND INCREASE NEUTRAL BUS INDICATED. ALL LOAD CENTERS SHALL BE 14 ⅜" WIDE AND 3 ⅜" DEEP.

E. THE CIRCUIT DIRECTORY SHALL BE TYPEWRITTEN AND PROVIDED INSIDE EACH PANEL DOOR TO INDICATE EQUIPMENT AND/OR AREA SERVED. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER. THE TYPEWRITTEN LIST INDICATING CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED.

F. SHORT CIRCUIT RATING OF PANELBOARDS SHALL NOT BE LESS THAN AS INDICATED ON THE CONTRACT DRAWINGS OR SPECIFIED HEREIN. WHERE NOT INDICATED OR SPECIFIED THE MINIMUM SHORT CIRCUIT RATING SHALL BE EQUAL TO THE INTERRUPTING CAPACITY OF THE LOWEST RATED CIRCUIT BREAKER IN THE PANELBOARD, BUT IN NO CASE LESS THAN 22,000/10,000 AMPERES R.M.S. SYMMETRICAL SERIES RATING FOR 208Y/120 VOLT. SERIES RATED LOAD CENTERS SHALL BE USED TO ACHIEVE REQUIRED SHORT CIRCUIT RATINGS.

18. TRANSFORMERS:

A. TRAPEZE MOUNTED TRANSFORMERS SHALL BE SUPPORTED BY HANGER ROD ISOLATORS WITH NEOPRENE-IN-SHEAR ELEMENT ENCASED IN A STEEL RETAINER HOUSING, SELECTED FOR 3/8 INCH STATIC DEFLECTION AS MADE BY MASON INDUSTRIES, INC., TYPE HD; KORFUND DYNAMICS CORP. TYPE H; VIBRATION ELIMINATOR CO. TYPE SNRC OR APPROVED. FLOOR MOUNTED TRANSFORMERS SHALL BE DIRECTLY MOUNTED ON DOUBLE DEFLECTION NEOPRENE-IN-SHEAR ISOLATORS, U.O.N. SELECTED FOR MINIMUM 3/8 INCH STATIC DEFLECTION AND SHALL BE MASON INDUSTRIES, INC. TYPE ND, KORFUND DYNAMICS, CORP., TYPE F, VIBRATION ELIMINATOR TYPE 386 50 OR APPROVED EQUAL.

B. LINE, LOAD AND GROUND CONDUCTORS SHALL BE INSTALLED IN LIQUID TIGHT FLEXIBLE CONDUIT NOT LESS THAN 18 INCHES LONG FOR FINAL CONNECTION TO TRANSFORMERS.

C. TRANSFORMER SECONDARY NEUTRAL SHALL BE CONNECTED TO A LUG AND BOLT INSIDE THE ENCLOSURE.

D. AFTER PERMANENT SERVICE TO THE TRANSFORMER IS ENERGIZED, THE CONTRACTOR SHALL DETERMINE THE VOLTAGE SUPPLIED AND SELECT TRANSFORMER TAPS TO PROVIDE THE VOLTAGE SPECIFIED ON THE DRAWINGS. CONTRACTOR SHALL RECHECK VOLTAGE AFTER BUILDING LOADS ARE BEING SERVED BY TRANSFORMER AND CHANGE TAPS WHERE REQUIRED TO PROVIDE THE SPECIFIED VOLTAGE ON THE DRAWINGS. TRANSFORMER TAPS SHALL BE ADJUSTED TO PROVIDE NOMINAL VOLTAGE WITH TOLERANCE OF +1% DURING OFF PEAK LOADS.

E. TRAPEZE MOUNTED TRANSFORMERS SHALL BE SUPPORTED FROM AUXILIARY SUPPORT STEEL BEAMS SECURED TO THE BUILDING SUPPORT BEAMS.

19. INTERCOM CONDUIT SYSTEM:

A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, J-BOXES, SLEEVES AND FISHWIRES.

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF INTERCOM MANUFACTURER.

C. J-BOXES SHALL BE:
- WALL: 4 IN. SQUARE WITH SINGLE GANG COVER PLATE.

D. PROVIDE FISHWIRES, IN RACEWAYS OVER 10 FT LONG.

E. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM EACH APARTMENT TO MAIN INTERCOM CONTROLLER AT ENTRANCE.

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:

WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENS

1 | SCALE 1 / 8" = 1' - 0" | LIGHTING PLAN

GENERAL NOTES

1. PROVIDE A 20A-1P WALL MOUNTED PHOTO CELL ("PC") HOUSED IN A WEATHER PROOF ENCLOSURE FOR CONTROLLING OF EXTERIOR LIGHTS.
2. CONTRACTOR SHALL ADJUST THE EMERGENCY AND EXIT LIGHTING QUANTITIES/LOCATION AS REQUIRED TO MEET THE LOCAL AHJ REQUIREMENTS.BASE BID ACCORDINGLY.
3. ALL EMERGENCY, EXIT AND NIGHT LIGHTS SHALL BE CONNECTED TO THE NEAREST LIGHTING BRANCH CIRCUIT AHEAD OF ALL SWITCHING AND CONTROL FOR CONTINEOUS OPERATION.
4. CONTRACTOR SHALL PROVIDE THE LIGHTING CONTROLS AND ALL REQUIRED DEVICES/ACCESSORIES/WIRING AS PER CURRENT VERSION OF IECC CODE REQUIREMENTS.
5. PROVIDE AN UN-SWITCH HOT LEG TO ALL EMERGENCY AND EXIT FIXTURES.
6. ACCESS/MAINTENANCE DOOR IN CEILING SHALL NOT BE BLOCKED BY ANY DUCTS, PIPES OR OTHER PERMANENT FOREIGN ITEMS.
7. MAXIMUM VOLTAGE DROP FOR FEEDER AND BRANCH CIRCUIT CONDUCTORS COMBINED, SHALL NOT EXCEED A 5% VOLTAGE DROP.
8. COORDINATE WITH OWNER FOR TIME SCHEDULE PROGRAM INTO LIGHTING CONTROL SYSTEM.
9. ALL LIGHTING FIXTURE TYPES AND LAYOUTS TO BE VERIFIED WITH ARCHITECT/OWNER.FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES SWITCHES AND JUNCTION BOXES, SEE ARCHITECTURAL DRAWINGS.
10. ALL LIGHTING FIXTURES WHICH ARE CONTROLLED BY A DIMMER SWITCH SHALL BE WIRED TO A CIRCUIT HAVING DEDICATED NEUTRAL WIRE.
11. ALL EXTERIOR SIGNAGE & EXTERIOR LIGHT SHALL BE CONTROLLED WITH EXTERIOR MOUNTED PHOTOCELL/MANUAL. TIME CLOCK. PHOTOCELL SHALL NOT BE MOUNTED 10' ABOVE GROUND. E.C. TO COORDINATE WITH OWNER FOR EXTERNAL LIGHTING CONTROL.
12. CONTRACTOR SHALL COORDINATE WITH ARCHITECT/OWNER FOR DIMMING REQUIREMENTS. ALL THE LIGHT FIXTURE SHALL BE DIMMABLE WHICH ARE CONTROLLED THROUGH DIMMER.
13. LIGHTING FIXTURES LAYOUT TO BE COORDINATED WITH LIGHTING DESIGNER AND ARCHITECTURAL DRAWING.
14. SWITCHES LOCATIONS SHOWN IN THE DRAWINGS ARE DIAGRAMMATIC, FOR ACTUAL LOCATION AND MOUNTING HEIGHTS OF SWITCHES REFER TO ARCHITECTURAL PLANS.

LIGHTING CONTROL NARRATIVE

CORRIDORS, LOBBY (TIME SWITCH CONTROLLED):

1. CONTROLLED VIA TIME CLOCK/LIGHTING CONTACTOR. PROVIDE THE OVERRIDE SWITCH . WHEN INITIATED, SHALL PERMIT THE CONTROLLED LIGHTING TO REMAIN ON FOR NOT MORE THAN 2 HOURS. (IECC C405.2.2.1).
2. LIGHT FIXTURES DESIGNATED WITH EM TO REMAIN ENERGIZED AT EMERGENCY (POWER OUT) CONDITION.

RESTROOM, SMALL OFFICE, AREA<300 SQ. FT. :

1. CONTROLLED VIA WALL OCCUPANCY SENSOR SWITCH AUTOMATIC ON/AUTOMATIC OFF. 30-MINUTE OFF SETTING.
2. LOCAL MANUAL SWITCH FOR MANUAL ON/OFF.
3. LOCAL DIMMING SWITCH FOR MANUAL ON/OFF OR DIMMING CONTROL.
3. LIGHT FIXTURES DESIGNATED WITH EM TO REMAIN ENERGIZED AT EMERGENCY (POWER OUT) CONDITION.

CLASSROOM:

1. CONTROLLED VIA OCCUPANCY SENSORS IN VACANCY MODE. (i.e.,MANUAL ON/AUTOMATIC OFF. 30-MINUTE OFF SETTING).
2. LOCAL DIMMING SWITCH FOR MANUAL ON/OFF OR DIMMING CONTROL.
3. LIGHT FIXTURES DESIGNATED WITH EM TO REMAIN ENERGIZED AT EMERGENCY (POWER OUT) CONDITION.

UTILITY ROOMS (MANUALLY ON/OFF):

1. CONTROLLED VIA LOCAL MANUAL ON/OFF SWITCH.
2. LIGHT FIXTURES DESIGNATED WITH EM TO REMAIN ENERGIZED AT EMERGENCY (POWER OUT) CONDITION.

KITCHEN :

1. LIGHT FIXTURES DESIGNATED WITH EM TO REMAIN ENERGIZED AT EMERGENCY (POWER OUT) CONDITION.
2. CONTROLLED VIA OCCUPANCY SENSORS IN VACANCY MODE. (i.e.,MANUAL ON/AUTOMATIC OFF. 30-MINUTE OFF SETTING).

LIGHT FIXTURES CAN BE PROCURED THROUGH A NATIONAL LIGHTING PROGRAM WITH VILLA LIGHTING.
CONTACT VILLA LIGHTING AT 314-633-0516 OR Ryan.Corbitt@Villalighting.com

LIGHTING KEYNOTES

1. ELECTRICAL CONTRACTOR TO COORDINATE THE FINAL LOCATION OF DIMMER SWITCH WITH ARCHITECT/OWNER. DIMMER SWITCHES SHALL BE RATED FOR TOTAL LOAD OF SWITCHED CIRCUIT AND LAMP TYPE AS REQUIRED. DIMMERS SHALL BE PROVIDED WITH AN ON/OFF SWITCH.
2. WIRE ALL NIGHT LIGHT (NL) AND EXIT LIGHT TO THE NEAREST CIRCUIT AHEAD OF ALL CONTROLS & SWITCHING FOR CONTINUOUS OPERATION. THE EMERGENCY LIGHTING FIXTURES SHALL BE ON THE SAME CIRCUIT SERVING THE NORMAL LIGHTING IN THE AREA.
3. EXTERIOR LIGHTING CONTROL VIA PHOTOCELL AND TIME CLOCK, ROUTE CIRCUIT VIA PHOTOCELL AND AND TIME CLOCK. COORDINATE THE EXACT LOCATION OF THE PHOTOCELL WITH THE ARCHITECT / OWNER. PROVIDE ADDITIONAL JUNCTION BOX, BRANCH CIRCUITS AS REQUIRED.
4. PROVIDE A 20A-1P WALL MOUNTED PHOTO CELL ("PC") HOUSED IN A WEATHER PROOF ENCLOSURE FOR CONTROLLING OF EXTERIOR LIGHTS.
5. LIGHTING NEAR ELECTRICAL PANELS SHALL NOT BE CONTROLLED BY ANY AUTOMATIC MEANS AND SHALL BE COMPILED AS PER NEC 110.26(D).
6. TIME CLOCK WITH MANUAL OVERRIDE SWITCH. WHEN THE OVERRIDE SWITCH INITIATED, SHALL PERMIT THE CONTROLLED LIGHTING TO REMAIN ON FOR NOT MORE THAN 2 HOURS (IECC C405.2.2.1).
7. COORDINATE THE EXACT LOCATION OF TIME CLOCK WITH ARCHITECT/ OWNER IN FIELD.
8. HOOD LIGHTING PROVIDED BY HOOD MANUFACTURER. ELECTRICAL CONTRACTOR TO PROVIDE POWER PROVISION FOR HOOD SYSTEM.
9. LIGHT FIXTURES DESIGNATED WITH EM TO REMAIN ENERGIZED AT EMERGENCY (POWER OUT) CONDITION.EC TO PROVIDE UL924 OVERRIDE DEVICE FOR EVERY EMERGENCY CIRCUIT IN ENCLOSED SPACE AS INDICATED ON PLANS.

LIGHTING FIXTURES SCHEDULE

SYMBOL	TAG	MANUF.	DESCRIPTION	MODEL	COLOR TEMP	PROV. BY	INSTALL BY	REMARKS
	LT-1	METALUX	2' X 4' LED FLAT PANEL LIGHTING FIXTURES TO PROVIDE AT LEAST FIFTY (50) FOOT CANDLE LIGHTING CAPACITY, CONVENIENTLY SWITCHED PER ROOM. ALL CLASSROOM LIGHTING SHALL BE ON DIMMERS	24CGT4535C	120/277V 38W INTEGRATED LED 3500K MAX.	GC	GC	
	LT-1-EM	METALUX		-	3500K MAX.	GC	GC	
	LT-1-NL	METALUX		-	3500K MAX.	GC	GC	
	LT-2	GM LIGHTING	RECESSED DOWN LIGHTS	GMR12-120-1C-30FL/GMR9-12-RT-BZ	3000K	GC	GC	
	LT-3	CREE LIGHTING LAMP	RECESSED DOWN LIGHTS	LR6-18L35K-DR1RC6-GU24 (HOUSING-RC6-12W-GU24)	3500K	GC	GC	
	LT-3-EM	CREE LIGHTING LAMP		-	3500K	GC	GC	
	LT-4	KUZCO LIGHTING	(3) DIMMABLE LED ROUND PENDANT SIZE : 3' DIA GC SHALL INCLUDE DIMMING	#PD86132 (4760LMS)	3000K	GC	GC	
	LT-5	LUMARK	LED WAL-PAK, FULL CUTOFF DOOR	LD-WP-FC-4A-120V	5000K	GC	GC	(3) WALL PACKS IN REAR
	LT-6	SHAPER	EXTERIOR WALL PAK	651-WP-DB-LO/830-UNV-C	-	GC	GC	(4) AT FRONT AND ONE (1) AT EACH OF THE TWO SIDE DOOR EXITS.
	Z1	LITHONIA	DOUBLE FROG EYE EMERGENCY LIGHT, 90 MIN BATTERY PACK, +10 MNT 60' SPACING	ELMAL COLOR: WHITE	120V	GC	GC	PROVIDE BATTERY PACK WITH 90 MINUTE BACKUP, DUAL LAMPS PER CODE. WHITE FINISH.
	X1	LITHONIA	EXIT SIGN GREEN LED STENCIL FACE, UNIVERSAL MOUNTING. 90 MIN BATTERY PACK.	LQM S W 3 G 120/277 ELN SD COLOR: WHITE	120V	GC	GC	WHITE FINISH

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

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CONTRACTOR'S NOTES:

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

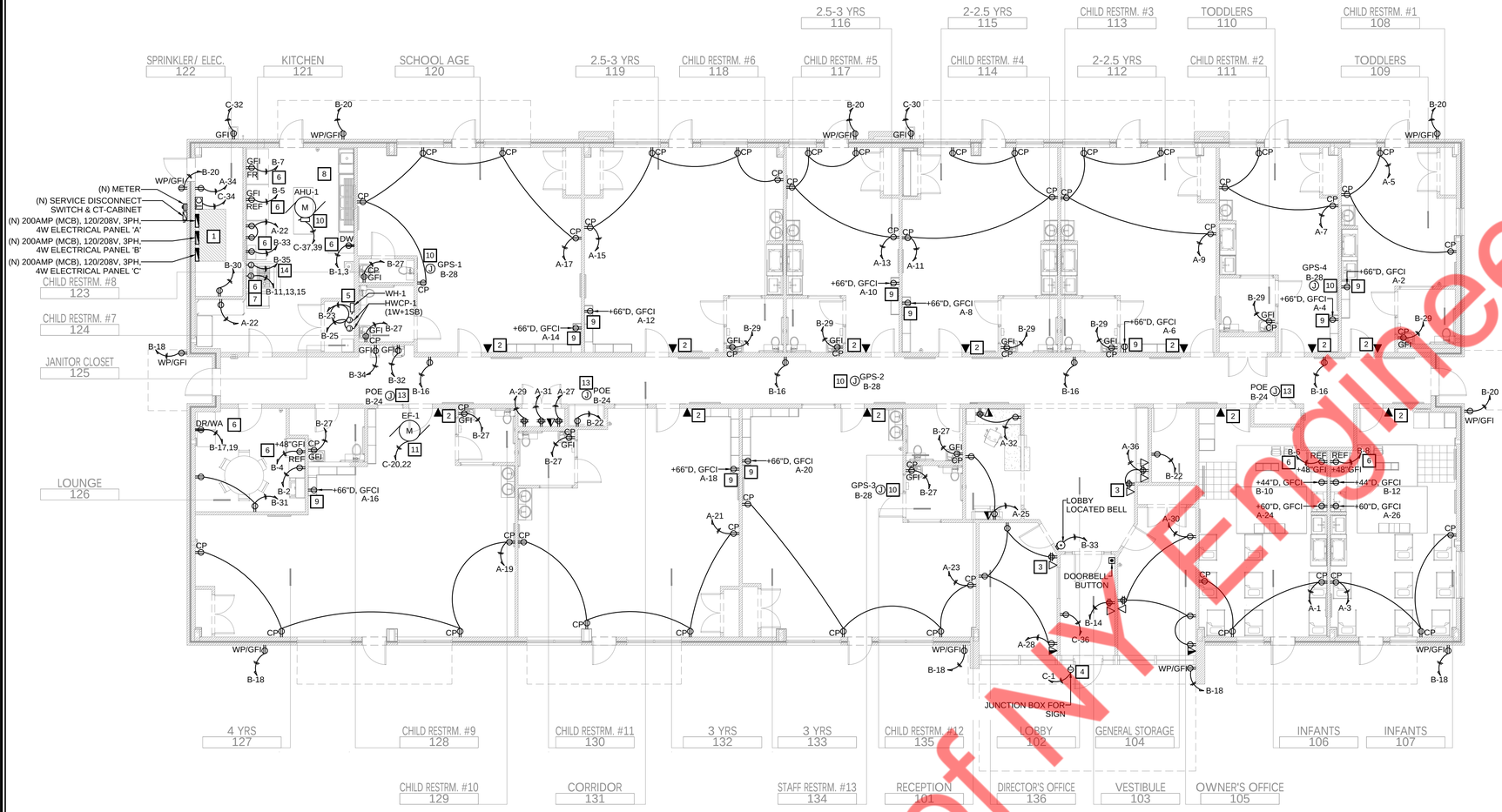
KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:
LIGHTING PLAN

SHEET NUMBER:
E101



POWER KEYNOTES

1. ELECTRICAL CONTRACTOR SHALL VERIFY THE LOCATION OF ELECTRICAL PANELS IN COMPLIANCE WITH 2020 NEC ARTICLE 110.26(A) AND (B). ELECTRICAL CONTRACTOR SHALL FIELD VERIFY THAT THE PANELS ARE UNOBSTRUCTED AND THE AREA WHERE THE PANELS ARE PLACED SHALL NOT BE USED AS A STORAGE SPACE.
2. DATA/TELPHONE OUTLET AT 48" AFF. E.C. SHALL COORDINATE THE EXACT LOCATION WITH OWNER/ARCHITECT IN FIELD.
3. E.C. TO COORDINATE EXACT LOCATION & MOUNTING OF TV RECEPTACLE & DATA OUTLETS IN FIELD.
4. PROVIDE ACCESIBLE WEATHERPROOF JUNCTION WITH SERVICE DICONNECT SWITCH FOR TENANT SIGN. FINAL LOCATION AND NUMBER OF JUNCTION BOX TO BE COORDINATE WITH SIGN VENDOR PRIOR TO START OF WORK.
5. E.C. TO COORDINATE EXACT LOCATION AND ELECTRICAL REQUIREMENT WITH PLUMBING CONTRACTOR/MANUFACTURER FOR WATER HEATER IN FIELD.
6. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER REQUIREMENTS WITH THE OWNER/ARCHITECT/MANUFACTURER PRIOR TO ROUGH-IN. PROVIDE THE OUTLET AS PER EQUIPMENT CUTSHEET. BASE BID ACCORDINGLY.
7. JUNCTION BOX FOR ELECTRIC RANGE. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECT FOR EXACT LOCATION, MOUNTING HEIGHT AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED.
8. E.C. SHALL REFER ARCHITECT ELEVATION PLANS OF KITCHEN FOR EXACT MOUNTING DETAILS AND OUTLETS PLACEMENT AS PER THE FURNITURE LAYOUT ON THE FIELD.
9. GC SHALL PROVIDE AND INSTALL A DUPLEX OUTLET IN THE LAST CUBBY FARTHEST FROM THE ENTRANCE DOOR AT 66" AFF AND 7" IN FROM THE SIDE OF THE CUBBY IN ALL TODDLER THROUGH SCHOOL-AGE CLASSROOMS.
10. E.C. TO COORDINATE EXACT LOCATION AND ELECTRICAL REQUIREMENT OF MECHANICAL EQUIPMENTS WITH MECHANICAL CONTRACTOR. PROVIDE THE ELECTRICAL CONNECTION AS PER FINAL MECHANICAL EQUIPMENTS REQUIREMENTS IN FIELD.
11. EXHAUST FAN FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. E.C. TO COORDINATE THE EXACT LOCATION AND ELECTRICAL REQUIREMENTS OF EXHAUST FAN WITH MECHANICAL CONTRACTOR. E.C. SHALL COORDINATE FOR SWITCHING AND CONTROLS AND PROVIDE ALL NECESSARY WIRING REQUIRED. BASE BID ACCORDINGLY.
12. ALL OUTDOOR ELECTRICAL EQUIPMENT SHALL BE NEMA 3R RATED. COORDINATE EXACT ELECTRICAL REQUIREMENT & LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH IN. CIRCUIT FACTORY INSTALLED RECEPTACLE AS REQUIRED. OTHERWISE PROVIDE NEW AS SHOWN.
13. PROVIDE CEILING MOUNTED J-BOX FOR ETHERNET JACK (POE). THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH IT DRAWINGS/SPECIALISTS FOR EXACT REQUIREMENTS AS PER THE EXISTING SITE CONDITIONS PRIOR TO ROUGH IN. BASE BID ACCORDINGLY.
14. E.C. SHALL PROVIDE POWER AND NECESSARY WIRING FOR HOOD SYSTEM. COORDINATE WITH HOOD MANUFACTURER DRAWINGS FOR WIRING REQUIREMENT.

1 | SCALE 1 / 8" = 1' - 0" | ELECTRICAL POWER PLAN

GENERAL NOTES

1. LOCATE RECEPTACLE FOR UNDER CABINET REFRIGERATOR AT 18" AFF. E.C. TO COORDINATE EXACT LOCATION WITH OWNER/ARCHITECT IN FIELD.
2. ALL OUTLETS IN CORRIDORS & CLASSROOMS SHALL BE MOUNTED AT 18" A.F.F. UNLESS OTHERWISE NOTED.
3. ALL WIRING/CABLING AND OTHER TELCO/DATA DEVICES SHALL BE PROVIDED BY TELCO/DATA CONTRACTOR. GENERAL CONTRACTOR SHALL VERIFY THE LOCATIONS OF DEVICES AND PROVIDE ROUGH-INS. PROVIDE BACKBOX AND CONDUIT TO ABOVE CEILING IF PARTITION IS INSULATED. COORDINATE WITH ARCHITECTURAL DRAWINGS.
4. MAXIMUM VOLTAGE DROP FOR FEEDER AND BRANCH CIRCUIT CONDUCTORS COMBINED, SHALL NOT EXCEED A 5% VOLTAGE DROP.
5. PROVIDE SERVICE EQUIPMENT AIC MARKING PER NEC 110.24(A) AND 110.24 (B) FOR MODIFICATIONS IF REQUIRED.
6. RECEPTACLES DESIGNATED WITH A SYMBOL "CP" SHALL BE EQUIPPED WITH A CHILD PROOF COVER PLATE PER NEC 406.12.
7. FURNISH AND INSTALL SWITCH RECEPTACLE CONTROL SYSTEM. ALL DUPLEX RECEPTACLES LOCATED IN ALL DAYCARE/OFFICE SHALL CONSIST AT LEAST ONE RECEPTACLE FOR EACH OUTLET TO BE CONTROLLED. COORDINATE WITH OWNER FOR TIME SCHEDULE PROGRAM IN SYSTEM.
8. CONTRACTOR SHALL LABEL IN FIELD EACH DESIGNATED OUTLET/RECEPTACLE AS FUNCTION OF AUTOMATIC CONTROL.
9. ALL CAMERA LOCATIONS TO BE COORDINATED WITH OWNER PRIOR TO INSTALLATION OF CABLING.
10. TEL/DATA OUTLET SHALL BE LOCATED BETWEEN 44" AND 48" A.F.F. WITH CENTER OF DEVICE AT 44" A.F.F.
11. ALL BRANCH CIRCUIT HOMERUNS ASSIGN INDICATED ON THIS PLAN SHALL BE CIRCUITED TO THE PANEL & CIRCUIT NUMBER AS INDICATED.
12. REFER TO E001 FOR ELECTRICAL SYMBOLS, GENERAL NOTES & ABBREVIATIONS. E002 AND E003 FOR ELECTRICAL SPECIFICATIONS.
13. ALL RECEPTACLES IN KITCHEN AREA SHALL BE "GFCI" IN ACCORDANCE WITH NEC ARTICLE 210.8 (B). PROVIDE GFI RATED BREAKER AT PANEL FOR PANTRY EQUIPMENTS.
14. E.C. SHALL VERIFY THE EXACT ELECTRICAL REQUIREMENTS INCLUDING RECEPTACLES, CIRCUIT BREAKER, PLUG, CORD & CABLE FOR ALL KITCHEN/PANTRY EQUIPMENT IN COORDINATION WITH EQUIPMENT SUPPLIER/MANUFACTURER/ARCHITECT/OWNER IN FIELD AND PROVIDE THE ELECTRICAL CONNECTION PER REQUIREMENT. BASE BID ACCORDINGLY.
15. GC SHALL PROVIDE AND INSTALL TAMPER-RESISTANT OUTLETS THROUGHOUT FACILITY.

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NY ENGINEERS
NEARBY ENGINEERS
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PH-914.257.3455
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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

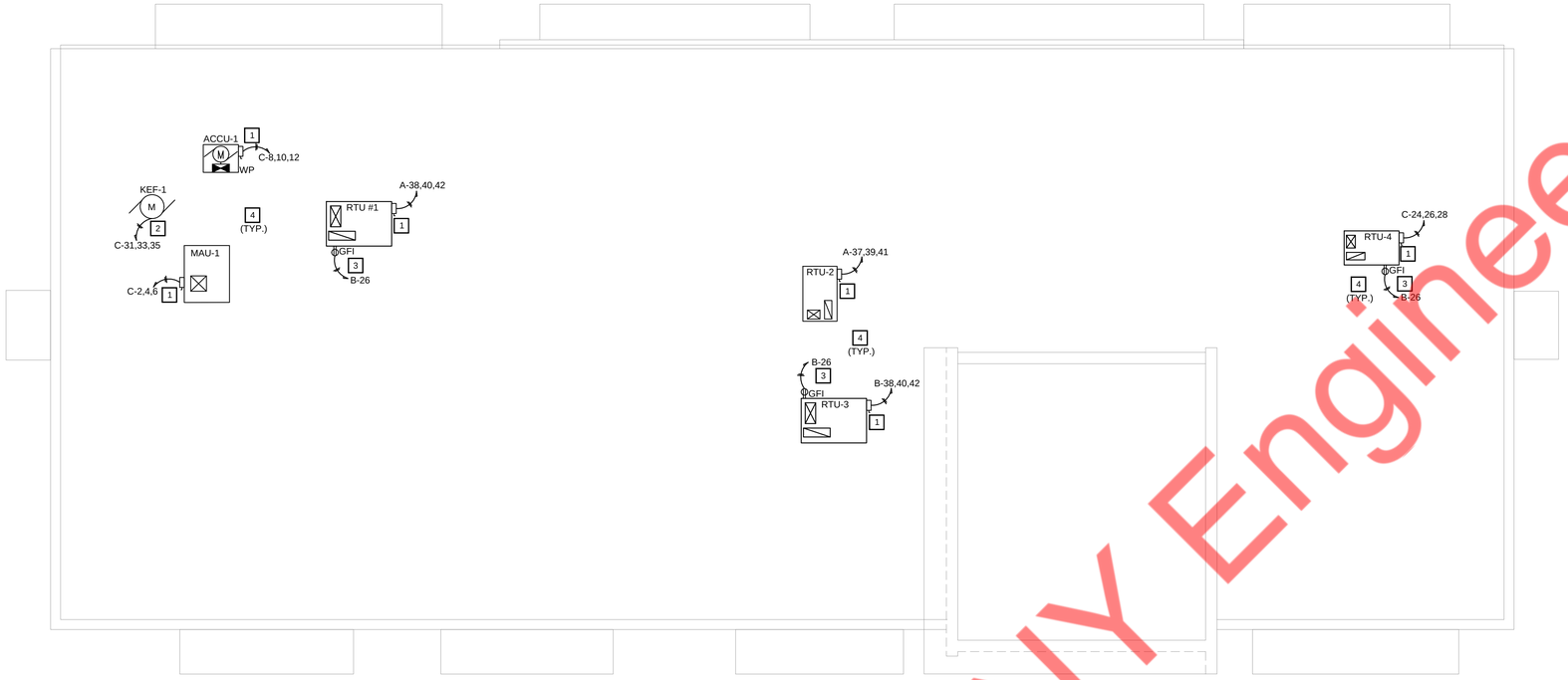
KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:
ELECTRICAL POWER PLAN

SHEET NUMBER:
E201



ROOF POWER KEYNOTES

1. ELECTRICAL CONTRACTOR SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED. COORDINATE LOCATION OF DISCONNECT WITH OWNER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.
2. EXHAUST FAN FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. E.C. TO COORDINATE THE EXACT LOCATION AND ELECTRICAL REQUIREMENTS OF EXHAUST FAN WITH MECHANICAL CONTRACTOR. E.C. SHALL COORDINATE FOR SWITCHING AND CONTROLS AND PROVIDE ALL NECESSARY WIRING REQUIRED. BASE BID ACCORDINGLY.
3. ELECTRICAL CONTRACTOR SHALL VERIFY THAT THERE ARE A POWERED 120V 20A GFI WEATHERPROOF WITHIN 25 FEET OF EACH HVAC UNIT, THE ELECTRICAL CONTRACTOR SHALL ENSURE THAT THE FACTORY-MOUNTED CONVENIENCE OUTLET IS POWERED, AND WIRE IT TO THE CIRCUIT AS SHOWN. COORDINATE FINAL HVAC PLACEMENT AND ADD EXTRA RECEPTACLES AS NEEDED.
4. ALL OUTDOOR ELECTRICAL EQUIPMENT SHALL BE NEMA 3R RATED. COORDINATE EXACT ELECTRICAL REQUIREMENT & LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH IN. CIRCUIT FACTORY INSTALLED RECEPTACLE AS REQUIRED. OTHERWISE PROVIDE NEW AS SHOWN.

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NY ENGINEERS
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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

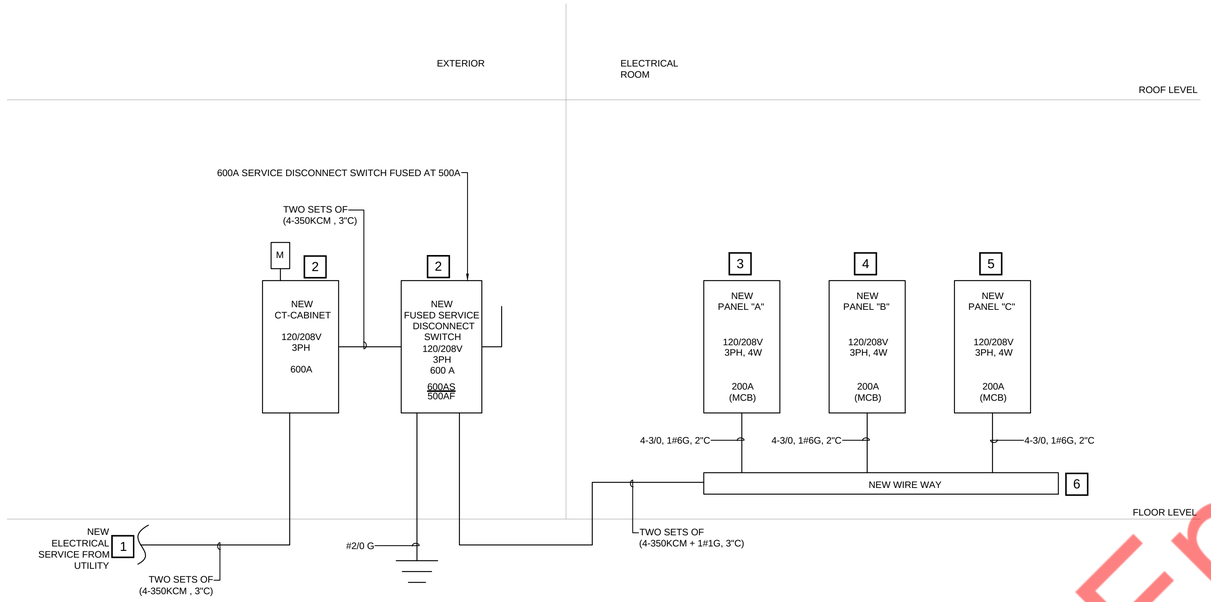
TITLE:

ELECTRICAL ROOF POWER PLAN

SHEET NUMBER:

E202

1 SCALE 1 / 8" = 1' - 0" ROOF POWER PLAN



KEYED WORK NOTES: #

1. LANDLORD SHALL PROVIDE NEW 500AMP, 120/208V, 3-PHASE DEDICATED ELECTRICAL SERVICE FOR PROJECT SPACE.
2. NEW 600AMP, 120/208V, 3-PHASE ENERGY METER WITH FUSED SERVICE DISCONNECT & CT-CABINET FOR PROJECT SPACE. E.C. TO COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION IN FILED.
3. NEW 200A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A". ELECTRICAL CONTRACTOR TO COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION IN FILED.
4. NEW 200A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "B". ELECTRICAL CONTRACTOR TO COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION IN FILED.
5. NEW 200A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "C". ELECTRICAL CONTRACTOR TO COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION IN FILED.
6. NEW WIREWAY FOR PROJECT SPACE. LANDLORD'S CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF WIREWAY WITH LANDLORD/OWNER IN FIELD.

1. ALL CONDITIONS TO BE FIELD VERIFIED BEFORE SUBMITTING BID.
2. CONTRACTOR TO MAINTAIN FIRE RATING OF PARTITION NEW ELECTRICAL EQUIPMENT IS BEING SECURED TO.
3. ALL ELECTRICAL WORK BEING SHOWN IN SCHEMATIC IS EXISTING UNLESS OTHERWISE NOTED.
4. CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL VOLTAGES ON PLANS UPON FIRST VISIT TO THE SITE. THE INCOMING SERVICE SHOULD CORRESPOND TO THE SPECIFICATIONS FOR THE LIGHTING FIXTURES AND THE H.V.A.C EQUIPMENT AND BE PROPERLY NOTED ON THE ELECTRICAL PANEL DIAGRAMS AND RISERS. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT IMMEDIATELY.
5. HVAC CIRCUIT BREAKERS SHALL BE "HACR" TYPE WHERE REQUIRED BY EQUIPMENT NAMEPLATE PER N.E.C.
6. CONTRACTOR SHALL FIELD VERIFY EXACT A.I.C. RATING OF LANDLORDS DISTRIBUTION EQUIPMENT, FURNISH AND INSTALL TENANTS SYSTEM TO MATCH.
7. ELECTRICAL CONTRACTOR SHALL BALANCE ALL PANELS AND + ELECTRICAL EQUIPMENT TO (10%) BETWEEN PHASES: A/B B/C, - A/C REGARDLESS OF CIRCUITING INDICATED.
8. PROPER CLEARANCE MUST BE MAINTAINED ABOUT ELECTRICAL EQUIPMENT PER N.E.C. FIELD VERIFY EXACT MOUNTING SPACE AVAILABLE IN ELECTRICAL ROOM/AREA PRIOR TO INSTALLATION OF ELECTRICAL EQUIPMENT.
9. CONTRACTOR SHALL MAKE ALL FINAL ELECTRICAL CONNECTIONS FOR A COMPLETE ELECTRICAL DISTRIBUTION SYSTEM.
10. ALL ELECTRICAL WORK SHALL BE INSTALLED SO AS TO READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING & REPAIRING.

ELECTRICAL WORK BEING SHOWN IN SCHEMATIC IS EXISTING UNLESS OTHERWISE NOTED.

CONTRACTOR TO VERIFY EXISTING SERVICE WIRE / CONDUIT DURING BIDDING STAGE AND REPORT TO TENANT ARCHITECT ANY DISCREPANCIES THAT IS DIFFERENT THAN SHOWN ON PLANS.

CONTRACTOR TO PROVIDE NEW NAME PLATE ON TENANT'S METER FOR IDENTIFICATION.

ANY PENETRATION THROUGH FIRE-RESISTANT/ RATED WALLS, PARTITIONS, FLOORS AND CEILINGS SHALL BE FIRE STOPPED USING APPROVED METHODS TO MAIN FIRE RESISTANT RATING. COORDINATE WITH LANDLORD REPRESENTATIVE FOR REQUIREMENTS.

CONTRACTOR TO PROVIDE PHYSICAL LABELS INDICATING PANEL AND CIRCUIT NUMBERS ON ALL EQUIPMENT AND RECEPTACLES CORRESPONDING TO THE PANEL SCHEDULE. IN ADDITION, THE KITCHEN EQUIPMENT SCHEDULE SHOULD BE PLACED INSIDE EACH PANEL.

CONTRACTOR TO VERIFY IN FIELD THE EXACT USE OF THE EXISTING LIGHTING CONTACTORS PRIOR TO BID, REUSE IF POSSIBLE. PROVIDE NEW IF REQUIRED.

ELECTRICAL CONTRACTOR TO COORDINATE WITH EMS VENDOR IF SEPARATE TIME CLOCK AND CONTACTOR REQUIRED FOR LIGHTING CONTROL PRIOR TO BID. PROVIDE NEW IF REQUIRED.

VERIFY THE FOLLOWING PRIOR TO BID/ PRICING:

- EXISTING CONDUIT AND FEEDERS SIZE BETWEEN TENANT SPACE AND LANDLORD SWITCHBOARD.
- EXISTING MAIN SERVICE DISCONNECT RATING.
- EXISTING METER.

IF THE EXISTING SERVICE DISCONNECT AND FEEDERS ARE RATED FOR LESS THAN THE RATING SHOWN ON THIS RISER. NOTIFY THE PROJECT MANAGER AND ENGINEER IMMEDIATELY PRIOR TO SUBMITTING BID/ PRICING PACKAGE SO DRAWINGS CAN BE REVISED AND UPDATED ACCORDINGLY

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KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

ELECTRICAL RISER DIAGRAM

SHEET NUMBER:

E301

1 | SCALE N.T.S. | ELECTRICAL RISER DIAGRAM

RISER GENERAL NOTES

ELECTRICAL PANEL SCHEDULE

PANELBOARD	A	VOLTAGE	120 / 208 V	PHASE	3	WIRE	4						
PANEL TYPE	MCB	MAINS	200A	BUS RATING	225A	AIC RATING	V.I.F						
NEMA TYPE ENCLOSURE		MOUNTING	SURFACE	OPTIONS		NOTE	NEW PANEL						

CKT. NO.	EQT TAG	CKT TAG	DESCRIPTION	POLE	WIRE SIZE	BKR. SIZE	TOTAL WATTS	PHASE	TOTAL WATTS	BKR. SIZE	WIRE SIZE	POLE	DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.
1		(N)	INFANT #106 GENERAL RCPTS	1	12	20	540	A	180	20	12	1	TODDLER #109 CUBBY RCPT	(N)		2
3		(N)	INFANT #107 GENERAL RCPTS	1	12	20	540	B	180	20	12	1	TODDLER #110 CUBBY RCPT	(N)		4
5		(N)	TODDLER #109 GENERAL RCPTS	1	12	20	540	C	180	20	12	1	2-2.5 YRS #112 CUBBY RCPT	(N)		6
7		(N)	TODDLER #110 GENERAL RCPTS	1	12	20	540	A	180	20	12	1	2-2.5 YRS #115 CUBBY RCPT	(N)		8
9		(N)	2-2.5 YRS #112 GENERAL RCPTS	1	12	20	720	B	180	20	12	1	2-2.5 YRS #116 CUBBY RCPT	(N)		10
11		(N)	2-2.5 YRS #115 GENERAL RCPTS	1	12	20	720	C	180	20	12	1	2-2.5 YRS #119 CUBBY RCPT	(N)		12
13		(N)	2.5-3 YRS #116 GENERAL RCPTS	1	12	20	720	A	180	20	12	1	SCHOOL AGE #120 CUBBY RCPT	(N)		14
15		(N)	2.5-3 YRS #119 GENERAL RCPTS	1	12	20	720	B	180	20	12	1	4 YRS #127 CUBBY RCPT	(N)		16
17		(N)	SCHOOL AGE #120 GENERAL RCPTS	1	12	20	900	C	180	20	12	1	3 YRS #132 CUBBY RCPT	(N)		18
19		(N)	4 YRS #127 GENERAL RCPTS	1	12	20	720	A	180	20	12	1	3 YRS #133 CUBBY RCPT	(N)		20
21		(N)	3 YRS #132 GENERAL RCPTS	1	12	20	720	B	540	20	12	1	KITCHEN GENERAL RCPTS	(N)		22
23		(N)	3 YRS #133 GENERAL RCPTS	1	12	20	720	C	180	20	12	1	INFANT #106 GENERAL OUTLET +60"	(N)		24
25		(N)	RECEPTION GENERAL RECEPTACLE	1	12	20	360	A	180	20	12	1	INFANT #107 GENERAL OUTLET +60"	(N)		26
27		(N)	IT ROOM RCPT	1	12	20	1,200	B	900	20	12	1	OFFICE #136 RCPTS	(N)		28
29		(N)	IT ROOM RCPT	1	12	20	1,200	C	900	20	12	1	OFFICE #105 RCPTS	(N)		30
31		(N)	IT ROOM RCPT	1	12	20	1,200	A	540	20	12	1	RECEPTION COUNTER RCPT	(N)		32
33			SPARE	1		20		B	180	20	12	1	ELECTRICAL ROOM RCPT	(N)		34
35			SPARE	1		20		C	720	20	12	1	LOBBY RCPT	(N)		36
37							3,963	A	6,725							38
39		(N)	RTU #2	3	6	50	3,963	B	6,725	60	4	3	RTU #1	(N)		40
41							3,963	C	6,725							42

ALL PHASES TO BE BALANCED T0 WITHIN 7%

A= 16,208 WATTS

B= 16,748 WATTS

C= 17,108 WATTS

TOTAL CONNECTED LOAD	50,063	WATTS	140 AMPS
TOTAL DEMAND LOAD	46,063	WATTS	128 AMPS

(E) EXISTING TO REMAIN
(N) NEW CIRCUIT
GFCI GROUND FAULT CURRENT INTERRUPTER
IG CIRCUITS WITH ISOLATED GROUND
TC CIRCUITS ON TIMECLOCK
SH SHUNT TRIP BREAKER
C BREAKER LOCK
a,b,c SWITCHES CONTROLLING LIGHTS

ELECTRICAL PANEL SCHEDULE

PANELBOARD	B	VOLTAGE	120 / 208 V	PHASE	3	WIRE	4						
PANEL TYPE	MCB	MAINS	200A	BUS RATING	225A	AIC RATING	FIELD VERIFY						
NEMA TYPE ENCLOSURE		MOUNTING	SURFACE	OPTIONS		NOTE	NEW PANEL						

CKT. NO.	EQT TAG	CKT TAG	DESCRIPTION	POLE	WIRE SIZE	BKR. SIZE	TOTAL WATTS	PHASE	TOTAL WATTS	BKR. SIZE	WIRE SIZE	POLE	DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.
1								A	1,610	20	12	1	MICROWAVE LOUNGE	(N)		2
3		(N)	DISHWASHER	2	10	30	2,516	B	1,500	20	12	1	LOUNGE REFRIGERATOR	(N)		4
5		(N)	REFRIGERATOR	1	12	20	650	C	1,500	20	12	1	INFANT 106 REFRIGERATOR	(N)		6
7		(N)	FREEZER	1	12	20	650	A	1,500	20	12	1	INFANT 107 REFRIGERATOR	(N)		8
9			SHUNT TRIP RELAY					B	1,500	20	12	1	INFANT #106 SMALL APPLIANCE	(N)		10
11							5,600	C	1,500	20	12	1	INFANT #107 SMALL APPLIANCE	(N)		12
13		(N)/SH	ELECTRIC RANGE	3	4	60	5,600	A	360	20	12	1	VESTIBULE TV OUTLETS	(N)		14
15							5,600	B	720	20	12	1	CORRIDOR GENERAL RCPTS	(N)		16
17							3,120	C	900	20	12	1	EXTERIOR RCPTS	(N)		18
19		(N)	DRYER/WASHER	2	10	30	3,120	A	900	20	12	1	EXTERIOR RCPTS	(N)		20
21			SPARE	1		20		B	360	20	12	1	GENERAL STORAGE RCPT	(N)		22
23		(N)	WATER HEATER (WH-1)	1	12	20	200	C	100	20	12	1	J-BOX FOR POE	(N)		24
25		(N)	HWCP-1	1	12	20	370	A	540	20	12	1	GFI HVAC UNITS RCPTS	(N)		26
27		(N)	REST ROOM RCPT	1	12	20	1,260	B	200	20	12	1	GPS-1,2,3 & 4	(N)		28
29		(N)	REST ROOM RCPT	1	12	20	1,080	C	200	20	12	1	FIRE ALARM CONTROL PANEL	(N)		30
31		(N)	LOUNGE RCPTS	1	12	20	360	A	370	20	12	1	DRINKING FOUNTAIN	(N)		32
33		(N)	MICROWAVE KITCHEN	1	12	20	1,608	B	370	20	12	1	DRINKING FOUNTAIN	(N)		34
35		(N)	J-BOX FOR HOOD	1	12	20	1,000	C		20		1	SPARE			36
37			SPARE	1		20		A	6,725							38
39			SPARE	1		20		B	6,725	60	4	3	RTU-3	(N)		40
41			SPARE	1		20		C	6,725							42

ALL PHASES TO BE BALANCED T0 WITHIN 7%

A= 24,621 WATTS

B= 22,359 WATTS

C= 22,575 WATTS

TOTAL CONNECTED LOAD	69,555	WATTS	194 AMPS
TOTAL DEMAND LOAD	55,174	WATTS	154 AMPS

(E) EXISTING TO REMAIN
(N) NEW CIRCUIT
GFCI GROUND FAULT CURRENT INTERRUPTER
IG CIRCUITS WITH ISOLATED GROUND
TC CIRCUITS ON TIMECLOCK
SH SHUNT TRIP BREAKER
C BREAKER LOCK
a,b,c SWITCHES CONTROLLING LIGHTS

ELECTRICAL PANEL SCHEDULE

PANELBOARD	C	VOLTAGE	120 / 208 V	PHASE	3	WIRE	4						
PANEL TYPE	NEW	MAINS	200A	BUS RATING	225A	AIC RATING	FIELD VERIFY						
NEMA TYPE ENCLOSURE		MOUNTING	SURFACE	OPTIONS		NOTE	NEW PANEL						

CKT. NO.	EQT TAG	CKT TAG	DESCRIPTION	POLE	WIRE SIZE	BKR. SIZE	TOTAL WATTS	PHASE	TOTAL WATTS	BKR. SIZE	WIRE SIZE	POLE	DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.
1	TC	(N)	BUILDING SIGNAGE	1	12	20	1,200	A	3,146							2
3	TC	(N)	RECEPTION + OFFICE LIGHTING	1	12	20	646	B	3,146	30	10	3	MAU-1	(N)		4
5		(N)	INFANT #106 LIGHTS	1	12	20	342	C	3,146							6
7		(N)	INFANT #107 LIGHTS	1	12	20	342	A	1,080							8
9		(N)	TODDLER #109 LIGHTS	1	12	20	228	B	1,080	20	12	3	ACCU-1	(N)		10
11		(N)	TODDLER #110 LIGHTS	1	12	20	228	C	1,080							12
13		(N)	2-2.5 YRS #112 LIGHTS	1	12	20	304	A	594	20	12	1	KITCHEN+LOUNGE+ STORAGE LIGHTS	(N)		14
15		(N)	2-2.5 YRS #115 LIGHTS	1	12	20	304	B	500	20	12	1	EXTERIOR WALL PACK LIGHTS	(N)		16
17		(N)	2.5-3 YRS #116 LIGHTS	1	12	20	228	C	500	20	12	1	EXTERIOR SITE LIGHTS	(N)		18
19		(N)	2.5-3 YRS #119 LIGHTS	1	12	20	418	A	780	15	12	2	EF-1	(N)		20
21		(N)	SCHOOL AGE #120 LIGHTS	1	12	20	456	B	780							22
23		(N)	4 YRS #127 LIGHTS	1	12	20	722	C	3,963							24
25		(N)	3 YRS #132 LIGHTS	1	12	20	456	A	3,963	50	6	3	RTU-4	(N)		26
27		(N)	3 YRS #133 LIGHTS	1	12	20	494	B	3,963							28
29	TC	(N)	CORRIDOR LIGHTING	1	12	20	550	C	370	20	12	1	DRINKING FOUNTAIN	(N)		30
31							390	A	370	20	12	1	DRINKING FOUNTAIN	(N)		32
33		(N)	KEF-1	3	12	20	390	B	200	20	12	1	TIME CLOCK	(N)		34
35							390	C	200	20	12	1	FIRE ALARM ANNUNCIATOR PANEL	(N)		36
37							2,600	A		20		1	SPARE			38
39		(N)	AHU-1	2	10	30	2,600	B		20		1	SPARE			40
41			SPARE	1		20		C		20		1	SPARE			42

ALL PHASES TO BE BALANCED T0 WITHIN 7%

A= 15,643 WATTS

B= 14,787 WATTS

C= 11,719 WATTS

TOTAL CONNECTED LOAD	42,150	WATTS	117 AMPS
TOTAL DEMAND LOAD	44,278	WATTS	123 AMPS

(E) EXISTING TO REMAIN
(N) NEW CIRCUIT
GFCI GROUND FAULT CURRENT INTERRUPTER
IG CIRCUITS WITH ISOLATED GROUND
TC CIRCUITS ON TIMECLOCK
SH SHUNT TRIP BREAKER
C BREAKER LOCK
a,b,c SWITCHES CONTROLLING LIGHTS

ELECTRICAL LOAD SUMMARY

DESCRIPTION	NEC CONNECTED kW	VOLT	PHASE	NEC DEMAND FACTOR	NEC DEMAND kW
LIGHTING- 120V	7.3	120	1	1.25	9.1
EXTERIOR SIGN	1.2	120	1	1.25	1.5
RECEPTACLES	27.2	120	1	>10kW=10+[0.5*(kW-10)]	18.6
EXH. FANS	1.6	208	1	1.00	1.6
AHU	5.2	208	1	1.00	5.2
ACCU	3.2	208	3	1.00	3.2
KITCHEN EQUIPMENT	41.1	208	3	0.65	26.7
ROOFTOP UNITS **	73.6	208	3	1.00	73.6
HOT WATER HEATER	0.2	120	1	1.00	0.2
KITCHEN EXH. FANS	1.2	208	3	1.00	1.2
TOTALS	161.8				140.9

NOTES:

* USE GREATER VALUE OF THE TWO CATEGORIES.

** 125% OF THE LARGEST MOTOR OR COMPRESSOR IN SYSTEM APPLIED ONLY ON ONE UNIT.

*** N.E.C. ARTICLE 220-12 REQUIREMENT (200 VA PER FOOT OF SHOW WINDOW) MINUS ACTUAL SHOW WINDOW LIGHTING kVA.

N.E.C. DEMAND kVA x 1,000 / SYSTEM VOLTAGE x 1.732 = MINIMUM FEEDER AMPERAGE

140.9 x 1000 = 140,900

208 x 1.732 = 360

391.1 AMPS USE (NEW) 500AMP SERVICE.

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6. EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:

WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS NEED TO BE APPROVED BY KIDDIE ACADEMY CONSTRUCTION MANAGER FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK.

	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

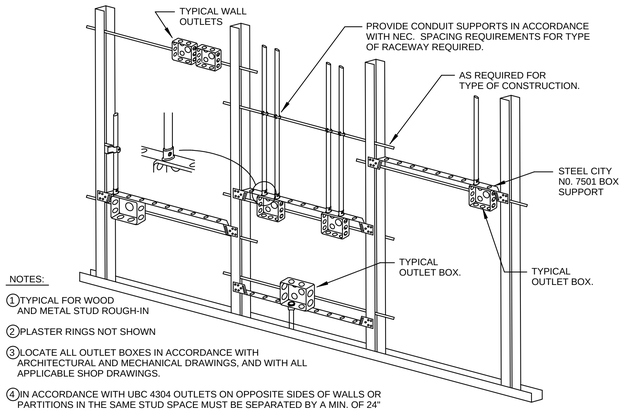
LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:
ELECTRICAL PANEL SCHEDULE & LOAD SUMMARY

SHEET NUMBER:
E302

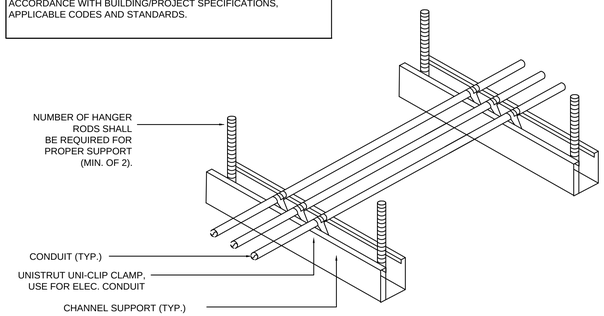


NOTES:

1. TYPICAL FOR WOOD AND METAL STUD ROUGH-IN
2. PLASTER RINGS NOT SHOWN
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH UBC 4304 OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 24" HORIZONTAL DISTANCE.

1 E-401 DETAIL TYPICAL ROUGH-IN REQUIREMENTS
N.T.S

NOTE:
THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. IT IS THE USER'S RESPONSIBILITY TO ENSURE INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.



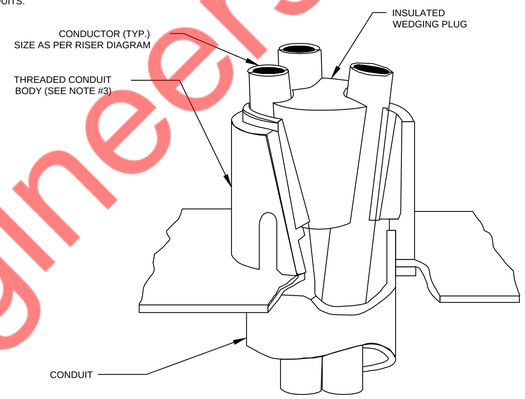
NOTES:

1. ALL CONDUIT MAY BE COMBINED ON SAME SUPPORT CHANNEL WHERE PRACTICAL.
2. SUPPORT CHANNEL LENGTH SHALL NOT BE DETERMINED UNTIL ALL PIPING, CONDUIT, ETC. TO BE SUPPORTED IS COORDINATED.
3. SUPPORT CHANNEL SPACING SHALL BE NO MORE THAN 10'-0".
4. UNISTRUT AND CONDUIT INSTALLATION MAY BE REVERSED.

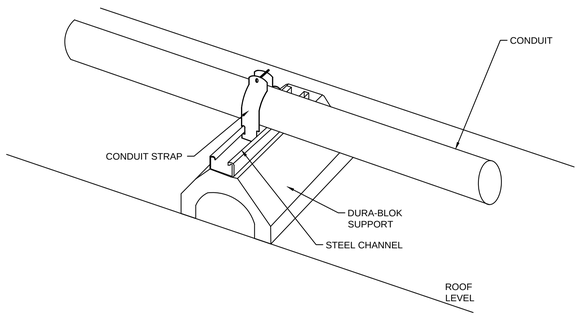
2 E-401 CONDUIT SUPPORT DETAIL
N.T.S

NOTES:

1. ALL CONDUCTORS IN VERTICAL RACEWAYS SHALL BE SUPPORTED IN ACCORDANCE WITH ARTICLE 300.19 OF NEC. CABLE SUPPORTS SHALL BE LOCATED AT THE INTERVALS REQUIRED BY THE NEC.
2. CABLE SUPPORT SYSTEM SHALL BE AS MANUFACTURED BY O-Z GEDNEY WITH pOZi-GRIP "S-STYLE" WEDGING PLUG OR APPROVED EQUAL.
3. FOR THREADLESS CONDUIT (RIGID, IMC OR EMT), ATTACH CONDUIT BODY TO MALE THREADS OF A SET SCREW OR COMPRESSION CONNECT, AS PERMITTED BY SPECIFICATIONS.
4. PROVIDE PULL BOX AT EACH LOCATION OF CABLE SUPPORTS. PULL BOX SHALL BE SIZED AS PER CODE TO ACCOMMODATE ALL CONDUITS.



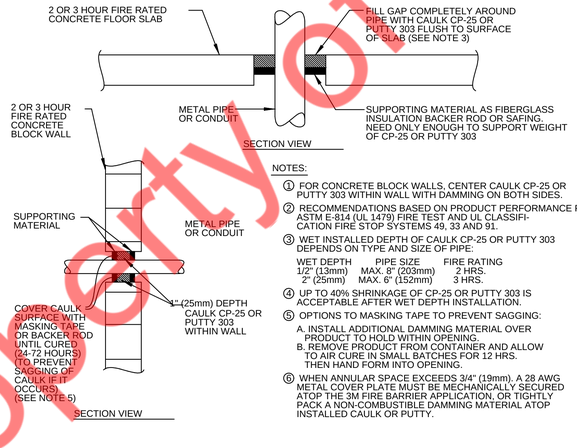
3 E-401 VERTICAL CABLE SUPPORT DETAIL
N.T.S



NOTES:

1. ALL CONDUIT MAY BE COMBINED ON SAME SUPPORT CHANNEL WHERE PRACTICAL.
2. SUPPORT CHANNEL LENGTH SHALL NOT BE DETERMINED UNTIL ALL PIPING, CONDUIT, ETC. TO BE SUPPORTED IS COORDINATED.
3. SUPPORT CHANNEL SPACING SHALL BE NO MORE THAN 10'-0".

4 E-401 CONDUIT SUPPORT DETAIL ON ROOF
N.T.S



NOTES:

1. FOR CONCRETE BLOCK WALLS, CENTER CAULK CP-25 OR PUTTY 303 WITHIN WALL WITH DAMMING ON BOTH SIDES.
2. RECOMMENDATIONS BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479) FIRE TEST AND UL CLASSIFICATION FIRE STOP SYSTEMS 49, 33 AND 91.
3. WET INSTALLED DEPTH OF CAULK CP-25 OR PUTTY 303 DEPENDS ON TYPE AND SIZE OF PIPE:

WET DEPTH	PIPE SIZE	FIRE RATING
1/2" (13mm)	MAX. 8" (203mm)	2 HRS.
2" (25mm)	MAX. 6" (152mm)	3 HRS.

4. UP TO 40% SHRINKAGE OF CP-25 OR PUTTY 303 IS ACCEPTABLE AFTER WET DEPTH INSTALLATION.
5. OPTIONS TO MASKING TAPE TO PREVENT SAGGING:
   A. INSTALL ADDITIONAL DAMMING MATERIAL OVER PRODUCT TO HOLD WITHIN OPENING.
   B. REMOVE PRODUCT FROM CONTAINER AND ALLOW TO AIR CURE IN SMALL BATCHES FOR 12 HRS. THEN HAND FORM INTO OPENING.
6. WHEN ANNULAR SPACE EXCEEDS 3/4" (19mm), A 28 AWG METAL COVER PLATE MUST BE MECHANICALLY SECURED ATOP THE 3M FIRE BARRIER APPLICATION, OR TIGHTLY PACK A NON-COMBUSTIBLE DAMMING MATERIAL ATOP INSTALLED CAULK OR PUTTY.

5 E-401 FIRE STOP DETAIL
N.T.S

AUTOMATIC MODE OPERATION

1. WHEN SENSOR ACTIVATES, LOAD TURNS ON.
2. LOAD TURNS OFF, WHEN SENSOR TIMES OUT.

RECOMMENDED WIRE

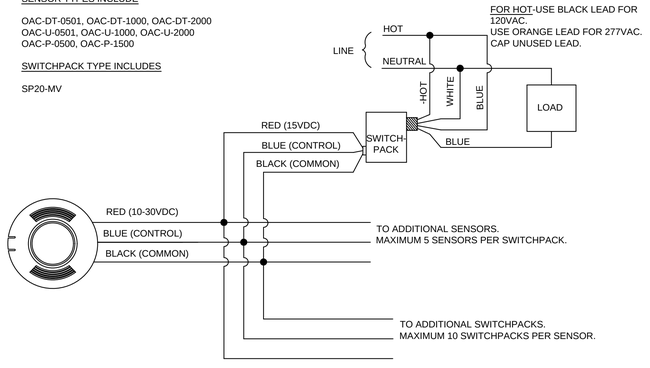
18-3 AWG STRANDED WIRE SHIELDED OR NON-SHIELDED

SENSOR TYPES INCLUDE

OAC-DT-0501, OAC-DT-1000, OAC-DT-2000
OAC-U-0501, OAC-U-1000, OAC-U-2000
OAC-P-0500, OAC-P-1500

SWITCHPACK TYPE INCLUDES

SP20-MV



6 E-401 OCCUPANCY - AUTO ON/OFF.
WIRING DIAGRAM - LOW VOLTAGE CEILING SENSOR
N.T.S

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION

△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

ELECTRICAL DETAILS (1 OF 2)

SHEET NUMBER:

E401

MANUAL MODE OPERATION:

1. PUSHBUTTON PRESS IS REQUIRED TO TURN LOAD ON.

2. LOAD TURNS OFF WHEN SENSOR TIMES OUT OR BY PRESSING PUSH BUTTON.

3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES LOAD TURNS ON.

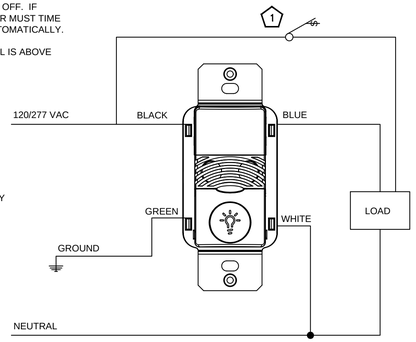
2. PUSHBUTTON CAN BE USED TO TURN LOAD ON OR OFF. IF PUSHBUTTON IS USED TO TURN LOAD OFF, SENSOR MUST TIME OUT FIRST, BEFORE LOAD CAN TURN BACK ON AUTOMATICALLY.

3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

SENSOR TYPES INCLUDE:

ONW-D-1001-MV-N

(1) PROVIDE SENSING CONDUCTOR TAPPED AHEAD OF ANY SWITCHES WHERE SWITCH SERVES EMERGENCY FIXTURES.

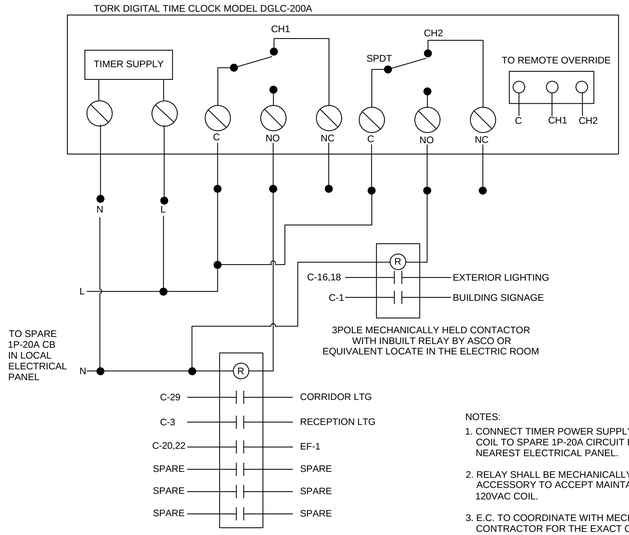


(ONW-D-1001-MV-N SENSORS)
ON (UP) = MANUAL ON
OFF (DOWN) = AUTO ON

1 E-402 CONNECTION) OCCUPANCY/VACANCY-SINGLE LEVEL WIRING DIAGRAM-LOW VOLTAGE WALL SWITCH SENSOR(NEUTRAL

N.T.S

TORK DIGITAL TIME CLOCK MODEL DGLC-200A



NOTES:

1. CONNECT TIMER POWER SUPPLY AND RELAY COIL TO SPARE 1P-20A CIRCUIT BREAKER IN NEAREST ELECTRICAL PANEL.

2. RELAY SHALL BE MECHANICALLY HELD WITH ACCESSORY TO ACCEPT MAINTAINED ON INPUT, 120VAC COIL.

3. E.C. TO COORDINATE WITH MECHANICAL CONTRACTOR FOR THE EXACT CONTROL OF EXHAUST FAN WITH TIME CLOCK.

4. ABOVE DIAGRAM IS FOR REFERENCE ONLY. FOR EXACT ARRANGEMENT E.C. SHALL COORDINATE WITH EQUIPMENT SUPPLIER/MANUFACTURER OF TIME CLOCK ON FIELD.

2 E-402 AUTOMATIC LIGHTING CONTROL DETAIL (TIME CLOCK)

N.T.S

AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES, LOAD TURNS ON.

2. LOAD TURNS OFF, WHEN SENSOR TIMES OUT.

3. SWITCHES CAN BE USED TO TURN LOAD OFF.

RECOMMENDED WIRE:

18-3 AWG STRANDED WIRE SHIELDED OR NON-SHIELDED

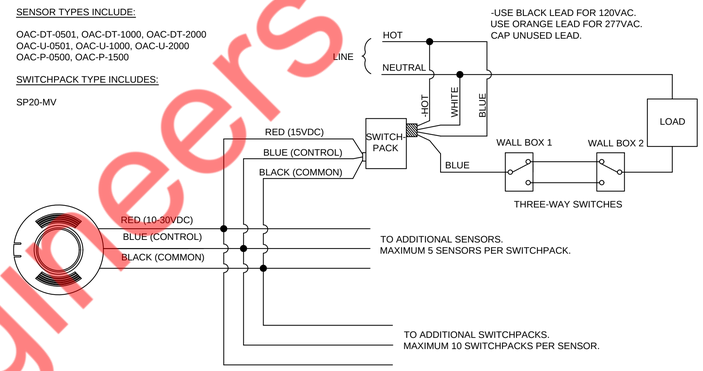
SENSOR TYPES INCLUDE:

OAC-DT-0501, OAC-DT-1000, OAC-DT-2000
OAC-U-0501, OAC-U-1000, OAC-U-2000
OAC-P-0500, OAC-P-1500

SWITCHPACK TYPE INCLUDES:

SP20-MV

-USE BLACK LEAD FOR 120VAC. USE ORANGE LEAD FOR 277VAC. CAP UNUSED LEAD.



3 E-402 WIRING DIAGRAM-LOW VOLTAGE CEILING SENSOR OCCUPANCY -AUTO ON/OFF WITH LINE VOLTAGE OVERRIDE TO OFF THREE-WAY SWITCHING.

N.T.S

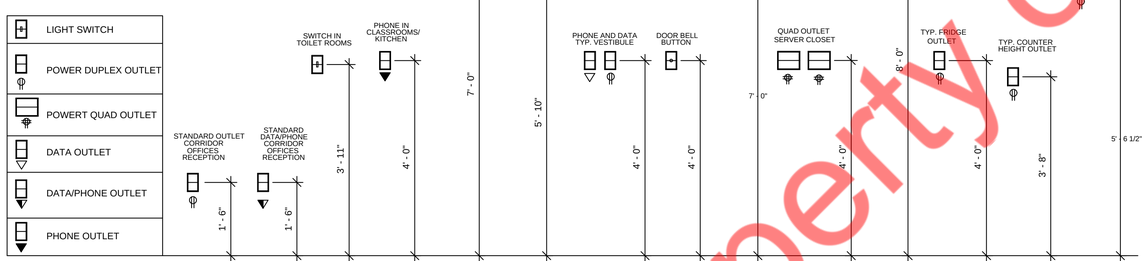
ALL POWER OUTLETS SHALL BE MOUNTED @ 18" AFF IN CORRIDOR AND ALL CLASSROOMS

ALL DATA & ELECTRIC FOR WALL MOUNTED TV MONITORS, SHALL BE MOUNTED @ 84" AFF. (TYP. IN OFFICES & OR LOBBY)

POWER & DATA/PHONE OUTLETS SHALL BE MOUNTED @ 18" AFF IN RECEPTION & OFFICES.

WALL MOUNT PHONE OUTLETS SHALL BE MOUNTED @ 48" AFF IN ALL CLASSROOMS & KITCHEN.

POWER & DATA SHALL BE MOUNTED 96" CENTERED AFF, POWER SHALL BE MOUNDTED 48" CENTERED AFF IN SERVER CLOSET



4 E-402 MOUNTING HEIGHTS OF DEVICES - ELEVATIONS

N.T.S

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:

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	DATE	ISSUE
	03.04.25	PERMIT SUBMISSION
△	DATE	REVISION

KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,000 SQ. FT.

TITLE:

ELECTRICAL DETAILS (2 OF 2)

SHEET NUMBER:

E402

PLUMBING DRAWING LIST

DWG.NO	DRAWING NAME
P001	PLUMBING SYMBOL LIST, ABBREVIATIONS & SCHEDULE
P002	PLUMBING SPECIFICATION
P100	PLUMBING SANITARY AND VENT PLAN
P101	PLUMBING WATER SUPPLY PLAN
P102	PLUMBING ROOF GAS PLAN
P200	PLUMBING RISER DIAGRAMS (1 OF 3)
P201	PLUMBING RISER DIAGRAMS (2 OF 3)
P202	PLUMBING RISER DIAGRAMS (3 OF 3)
P300	PLUMBING DETAILS (1 OF 3)
P301	PLUMBING DETAILS (2 OF 3)
P302	PLUMBING DETAILS (3 OF 3)

PLUMBING SYMBOLS LIST

- SANITARY PIPING
- VENT PIPING
- COLD WATER PIPING
- HOT WATER PIPING
- HOT WATER RETURN PIPING
- GAS PIPING
- P-TRAP
- PIPE UP
- PIPE DROP
- PLUGGED OUTLET/CLEANOUT
- SHUT-OFF VALVE
- CHECK VALVE
- SLEEVE
- GAS PLUG VALVE
- CHECK VALVE
- VACUUM BREAKER
- WATER HAMMER ARRESTOR
- AIR RELEASE VALVE
- SHOCK ABSORBER
- BALANCING VALVE
- PRESSURE RELIEF VALVE
- BACKFLOW PREVENTER
- HUB / FLOOR DRAIN
- FCO FLOOR CLEANOUT
- RE-CIRCULATION PUMP
- POINT OF NEW CONNECTION
- POINT OF DISCONNECTION

MATERIAL SCHEDULE

SYSTEMS	PIPE											FITTINGS								JOINTS							
	REQUIRED	SERVICE C I PIPE (HUB & SPIGOT)	NON HUB C.I. PIPE	PVC. SCH. 40 DRAWINGS PIPE	CPVC SCH. 40	BLACK STEEL (SCHEDULE 40)	GALVANISED STEEL	COPPER TUBING TYPE (L)	COPPER TUBING TYPE (DWV)	DUCTILE IRON PIPE	X-LINKED POLYTHLENE	SERVICE C. I. FITTINGS (HUB & SPIGOT)	NON HUB C.I. FITTINGS	PVC. D.W.V FABRICATED	C.P.V.C. SCH. 40	BLACK IRON	GALVANISED STEEL	COPPER SOLDER FITTINGS	FLANGED DUCTILE IRON PIPE	BRASS ASTM F1960 LISTED	ELATOMERIC GASKET	PVC SOLVENT CEMENT	CPVC SOLVENT CEMENT	THREADED	SOLDERED 95-5	FLANGED DUCTILE IRON PIPE	COLD EXPANSION RING
SANITARY BUILDING DRAIN(UNDER GROUND)	●	●		A								●		A							●	A					
SANITARY BRANCHES	●		●	A									●	A							●	A					
VENT STACKS	●		●	A									●	A							●	A					
VENT BRACHES	●		●	A									●	A							●	A					
C.W. (SERVICE)	●									●										●						●	
C.W (DISTRIBUTION)	●				A			●							A			●					A		●		
H.W (DISTRIBUTION)	●				A			●							A			●					A		●		
INDIRECT WASTE	●			A										A								A					
GAS DISTRIBUTION						●																					

NOTES:-
'A' - PROVIDE DEDUCT ALTERNATE PRICE TO INSTALL ALTERNATE MATERIAL.
ALL MATERIAL INSTALLED WITHIN A PLENUM ARE TO HAVE A 25 FLAME SPREAD & 50 SMOKE DEVLOPED WHEN TESTED ACCORDING TO ASTM E84 OR BE INSULATED WITH 3M FIRE BARRIER PLENUM WRAP 5A+, OR APPROVED EQUAL. SO AS TO COMPLY WITH THE ABOVE REQUIREMENTS.

PLUMBING ABBREVIATIONS

AD	AREA DRAIN
AFF	ABOVE FINISH FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
BFP	BACK FLOW PREVENTER
BT	BATH TUB
CO	CLEANOUT
CODP	CLEAN OUT DECK PLATE
CW	COLD WATER
DN	DOWN
EX.	EXISTING
ET	EXPANSION TANK
FD	FLOOR DRAIN
HW	HOT WATER
HWR	HOT WATER RETURN
HWHT	HOT WATER HEATER
HS	HAND SINK
LAV	LAVATORY
NIC	NOT IN CONTRACT
RCP	RE CIRCULATION PUMP
S	SOIL
SAN	SANITARY
GSAN	GREASE SANITARY
SQ.FT	SQUARE FEET
TYP.	TYPICAL
V	VENT
VTR	VENT THRU ROOF
W	WASTE
WC	WATER CLOSET
WH	WATER HEATER

BACKFLOW PREVENTORS / VACUUM BREAKERS SCHEDULE

DOMESTIC WATER SERVICE	WATTS	LF009/ EQUIVALENT	REDUCED PRESSURE ZONE ASSEMBLY
IRRIGATION WATER CONNECTION	WATTS	LF800M4QT	PRESSURE VACUUM BREAKER ASSE 1020
SPLASH PAD -DOMESTIC WATER	WATTS	LF009/ EQUIVALENT	REDUCED PRESSURE ZONE ASSEMBLY

GREASE INTERCEPTOR SCHEDULE

TAG	QUANTITY	MANUFACTURER & MODEL NO.	DESCRIPTION
GI-1	1	SCHIER GB-75	OUTDOOR, 75 GPM FLOW RATE (UNDERGROUND) WITH FCR2 RISER

EXPANSION TANK SCHEDULE

TAG	LOCATION	SERVICE	CAPACITY (GALLONS)	MANUFACTURER & MODEL	DIMENSION (DIA X HEIGHT)	WEIGHT (LBS)	NO. OF EXPANSION TANK
ET-1	REFER FLOOR PLANS	HW	6.4	THERM-X-TROL ST-12 C	12" X 14"	42	1

RECIRCULATING PUMP SCHEDULE

TAG	QUANTITY	GPM	TOTAL HEAD(FT)	MOTOR HP	MANUFACTURER & MODEL NO	REMARKS
HWCP-1	1WORKING + 1 STANDBY	5	10	1/2	GRUNDFOS UP 26-64F	PROVIDE WITH GRUNDFOS AQUASTAT 595656 & GRUNDFOS PROGRAMMABLE TIMER 599388

MASTER THERMOSTATIC MIXING VALVE SCHEDULE

TAG	SERVING	SERVICE	CAPACITY (GPM)	PRESSURE DROP (GPM)	MINIMUM FLOW (GPM)	MANUFACTURER & MODEL NO.	REMARKS
TMV-1	WATER HEATER HW LINE	HOT WATER	30	5	0.1	ACORN MV17-3	-BRASS VALVE BODY -ASSE CERTIFIED -OUTLET TEMPERATURE OF TMV SHALL BE 105°F.

GAS STORAGE TANK TYPE HOT WATER HEATER SCHEDULE

TAG	FIXTURES SERVING	RATED GALLONS (STORAGE)	RECOVERY CAP. (GPH@ RISE) & INPUT RATING	TYPE	MANUFACTURER & MODEL NO.	REMARKS
WH-1	PLUMBING FIXTURE (HAND SINK, MOP SINK, 3 CS, 1CS, LAVATORY, DISH WASHER)	100	178 GPH @ 100°F 150MBH GAS INPUT	GAS STORAGE WATER HEATER	A.O. SMITH BTH-150	-DIMENSIONS 27.75"DIA X 76.5" HEIGHT -WATER HEATERS SHALL HAVE 150PSI WORKING PRESSURE. -PROVIDE WITH TEMPERATURE & PRESSURE RELIEF VALVE. -MAINTAIN CLEARANCE AS PER MANUFACTURER RECOMMENDATION. -PROVIDE WITH DRAIN PAN. -SPILL T&P RELIEF DRAIN TO FLOOR DRAIN WITH APPROVED AIR GAP.

PLUMBING FIXTURE SCHEDULE

TAG	DESCRIPTION	MAKE	MODEL	FAUCET	PIPING CONNECTIONS COLD	HOT	TRAP	VENT	COMMENTS
CS-1	CHILD SINGLE BOWL SINK	STEVENS	--	MOEN DURA-CENTER 8414	1/2"	1/2"	1-1/2" ⚠1	1-1/2"	
CS-2	25" X 21.25" X 5.5" SINGLE BOWL DIAPER SINK CHANGING STAINLESS STEEL ADA SINK	ELKAY	LRAD 2521	PEERLESS WESTCHESTER P1923LF WITH ESCUTCHEON RP100095	1/2"	1/2"	1-1/2"	1-1/2"	
CS-3	25" X 21.25" X 5.5" SINGLE BOWL INFANT ROOM FOOD PREP ADA SINK	ELKAY	LRAD 2521	PEERLESS WESTCHESTER P1923LF WITH ESCUTCHEON RP100095	1/2"	1/2"	1-1/2"	1-1/2"	
CS-4	25" X 21.25" X 5.5" SINGLE BOWL STAFF LOUNGE ADA SINK	ELKAY	LRAD 2521	PEERLESS WESTCHESTER P1923LF WITH ESCUTCHEON RP100095	1/2"	1/2"	1-1/2"	1-1/2"	
CS-5	ONE-COMPARTMENT SINK (18" X 18" X 39")	ADVANCE TABCO	FC-1-1818-18R OR L	FRANKLIN MACHINE 107-1018 (8" CENTER AND 10" SPOUT)	1/2"	1/2"	1-1/2"	1-1/2"	-PROVIDE WITH ASSE 1070 THERMOSTATIC MIXING VALVE HONYWELL AM100C1070 OR EQUAL -OUTLET TEMPERATURE OF TMV SHALL BE 105°F.
CS-6	3-COMPARTMENT SINK	ADVANCE TABCO	FC-3-1818-18RL	FRANKLIN MACHINE 107-1018 (8" CENTER AND 14" SPOUT)	3/4"	3/4"	1-1/2"	-	DRAIN INDIRECTLY TO GREASE INTERCEPTOR WITH APPROVED AIR GAP
HS-1	WALL HUNG, STAINLESS STEEL, HAND WASH SINK FURNISH WITH WALL MOUNT TWO HANDLE ADA FAUCET	EAGLE GROUP	HSA-10-F	INCLUDED	1/2"	1/2"	1-1/2"	1-1/2"	-PROVIDE WITH ASSE 1070 THERMOSTATIC MIXING VALVE HONYWELL AM100C1070 OR EQUAL -OUTLET TEMPERATURE OF TMV SHALL BE 105°F.
LAV-1	WALL HUNG, VITREOUS CHINA LAVATORY FURNISH WITH PREMIUM MATERIAL WIDESPREAD, TWO HANDLE ADA FAUCET 0.5 GPM (FOR CHILDREN & TODDLERS ROOM)	KOHLER	KINGSTON / K-2005	MOEN DURA-CENTER 8414 W/0.5 GPM AERATOR	1/2"	1/2"	1-1/2"	1-1/2"	
LAV-2	WALL HUNG, VITREOUS CHINA LAVATORY FURNISH WITH PREMIUM MATERIAL WIDESPREAD, TWO HANDLE ADA FAUCET 0.5 GPM (FOR ADULT TOILET ROOM)	KOHLER	KINGSTON / K-2005	MOEN DURA-CENTER 8414 W/0.5 GPM AERATOR	1/2"	1/2"	1-1/2"	1-1/2"	
WC-1	CHILDREN'S HEIGHT (11" TO 12") WATER CLOSET WITH 1.28 GPF. FLOOR MOUNTED, FLOOR OUTLET (CHILDREN & TODDLERS TOILET ROOM)	AMERICAN STANDARD	BABY DEVORO FLOWISE 2282.001	--	1"	NA	INTEGRAL	2"	SEAT: AMERICAN STANDARD MAKE, MODEL 5001G.055 PLASTIC OPEN RIM ANTIMICROBIAL INFANT SEAT. FLUSH VALVE: AMERICAN STANDARD MAKE, 6047.121 MODEL NO, 1.28 GPF. INCLUDING 1" ANGLE STOP COCK, BACKFLOW PREVENTION & VACUUM BREAKER. COORDINATED FLUSH CONTROL LOCATION WITH OPEN SIDE OF THE WATER CLOSET.
WC-2	SCHOOL AGE HEIGHT (15.75") WATER CLOSET WITH 1.28 GPF. FLOOR MOUNTED, FLOOR OUTLET (SCHOOL AGE TOILET ROOM)	AMERICAN STANDARD	MADERA FLOWISE 15" 2858.128	--	1"	NA	INTEGRAL	2"	SEAT: AMERICAN STANDARD MAKE, MAKE 5901.100 ELONGATED HEAVY DUTY BOWL OPEN FRONT SEAT LESS COVER. COORDINATED FLUSH CONTROL LOCATION WITH OPEN SIDE OF THE WATER CLOSET. FLUSH VALVE: INBUILT, AMERICAN STANDARD, MAKE 6047.121
WC-3	ADULT (17" TO 19") ADA WATER CLOSET WITH 1.28 GPF. FLOOR MOUNTED, FLOOR OUTLET (STAFF TOILET ROOM)	AMERICAN STANDARD	MADERA FLOWISE 16.5" 2857.128	--	1"	NA	INTEGRAL	2"	SEAT: AMERICAN STANDARD MAKE, MAKE 5901.100 ELONGATED HEAVY DUTY BOWL OPEN FRONT SEAT LESS COVER. COORDINATED FLUSH CONTROL LOCATION WITH OPEN SIDE OF THE WATER CLOSET. FLUSH VALVE: INBUILT, AMERICAN STANDARD, MAKE 6047.121
MS-1	MOLDED STONE MOP SERVICE BASIN 24"X24"X10" WITH DURABLE CAST IRON BRASS WITH ROUGH CHROME PLATED SERVICE FAUCET WITH BRACE HOSE THREAD ON SPOUT & INTEGRAL VACUUM BREAKER.	SWAN	MS-24-24-3	CHICAGO 897-RCF OR EQUAL	3/4"	3/4"	3"	2"	WITH 3-INCH IPS CAST BRASS DRAIN AND A 3-INCH DRAIN SEAL GASKET, DOME STRAINER AND LINT BASKET. WITH WALL MOUNTED MOP RACK AND SHELF.
W/D-1	WASHER & DRYER	FRIGIDAIRE	FLCE7522AW		1/2"	1/2"	2"	1-1/2"	COORDINATE WITH MECHANICAL AND ELECTRICAL FOR VENT AND POWER REQUIREMENTS
FD-1	FLOOR DRAIN WITH LIGHT DUTY, 5" DIA, ROUND, NICHEL BRONZE TOP AND 3" OUTLET	ZURN	EZ1-PV2		NA	NA	3"	2"	PROVIDE WITH ASSE 1072 TRAP SEAL PROTECTION DEVICE, SURESEAL OR EQUAL
FD-2	7" DIA MEDIUM DUTY FLOOR DRAIN FOR UTILITY ROOMS	ZURN	Z507-3NH		NA	NA	4"	2"	PROVIDE WITH ASSE 1072 TRAP SEAL PROTECTION DEVICE, SURESEAL OR EQUAL
DF-1	DUEL HEIGHT, BARRIER- FREE, WALL MOUNT WATERCOOLER WITH FILTER & BOTTLE FILLER , 8 GPH (ADULT / CHILD DRINKING FOUNTAIN)	ELKAY	EZSTL8WSLK		3/8"	NA	1-1/4"	1-1/4"	ELKAY EZSTL8WSLK WITH EZH20 BOTTLE FILLING STATION, COORDINATE COLOR & INSTALLATION HEIGHT WITH ARCHITECT
DF-2	OUTDOOR, FREEZE RESISTANT, WALL MOUNTED DRINKING FOUNTAIN	HALSEY TAYLOR	HRFEBP FR		1"	NA	1-1/4"	1-1/4"	COORDINATE COLOR WITH ARCHITECT
HB-1	ANIT-SIPHON, AUTOMATIC DRAINING, FREEZELESS WALL HYDRANT WITH INTEGRAL BACKFLOW PREVENTER	WOODFORD	65 P FROST PROOF WALL HYDRANT		1"	NA	NA	NA	
FS-1	FLOOR SINK 12" X 12", 3" OUTLET	ZURN	-		NA	NA	3"	2"	
IR-1	IRRIGATION CONNECTION WITH PRESSURE VACUUM BREAKER ASSEMBLY	-	-		3/4"	NA	NA	NA	COORDINATE WITH CIVIL CONTRACTOR FOR LOCATION

NOTE: CONTRACTOR TO COORDINATE WITH ARCHITECTURAL DRAWING FOR ALL PLUMBING FIXTURE SPECIFICATIONS AND MOUNTING HEIGHT INSTALLATION.

CONSULTANTS (ENGINEERS):
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NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
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	03.14.25	CLIENT REVIEW SET
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⚠	05/30/25	BLDG. DEPT. COMMENTS
△	DATE	REVISION

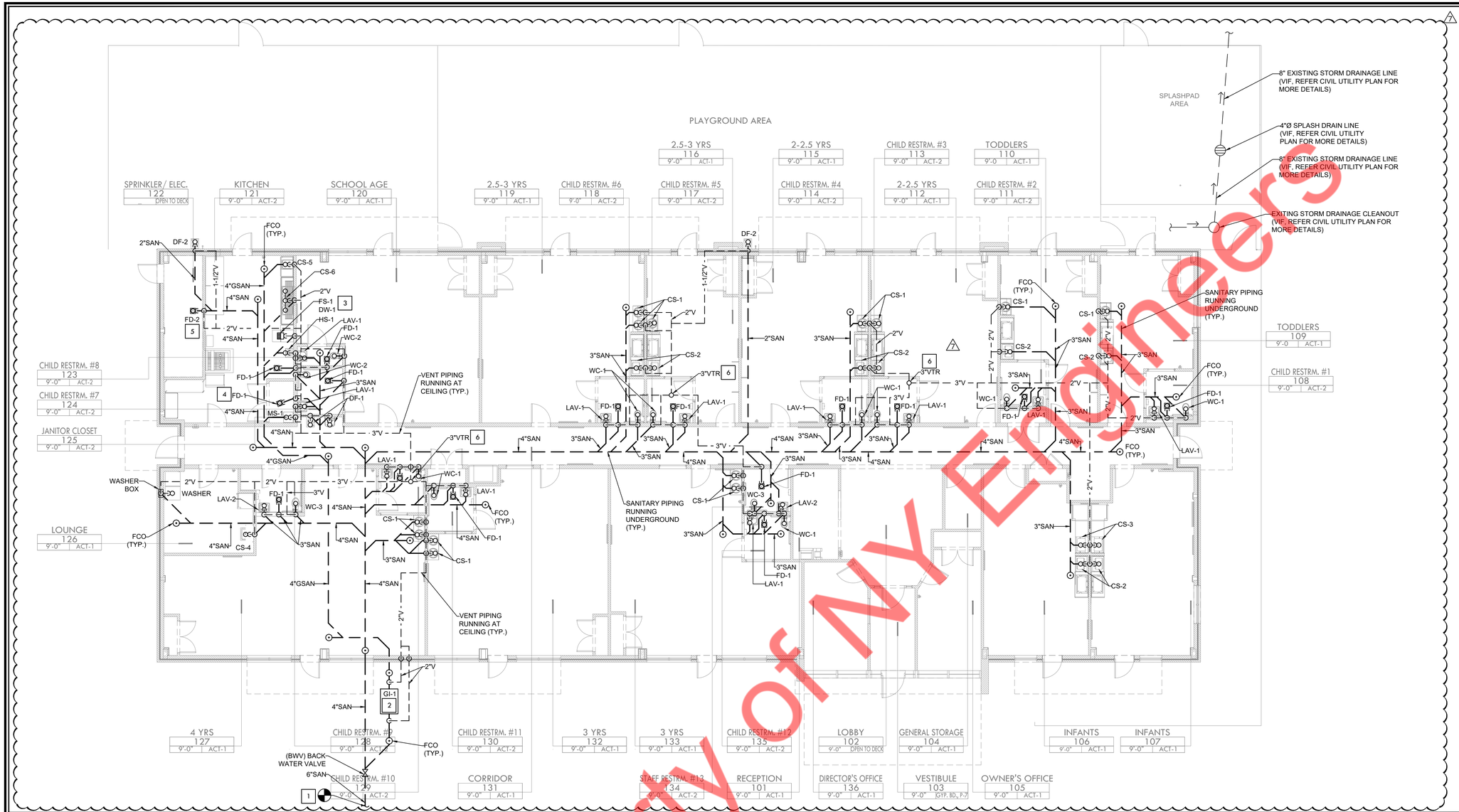
KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,660 SQ. FT.

TITLE:
PLUMBING SYMBOL LIST, ABBREVIATIONS & SCHEDULE

SHEET NUMBER:
P001



1 | SCALE 1 / 8" = 1' - 0" | PLUMBING SANITARY & VENT PLAN

GENERAL NOTES

1. ALL PIPING SHALL BE SNAKE CLEAN PRIOR TO CONNECTION.
2. ANY CHANGES AND/ OR UPGRADES EXISTING PLUMBING SYSTEMS SHALL COMPLY WITH ALL CODES. EXISTING SYSTEMS SHALL POSSESS THE CAPACITY TO HANDLE ANY AND ALL CHANGES IN LOAD.
3. ALL FLOOR PENETRATIONS MUST BE CORE BORED, SLEEVED, GROUTED, SEALED AND MADE WATERPROOF. SLEEVES MUST EXTEND A MINIMUM OF 4" AFF.
4. SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE 3" AND ABOVE. 1/4" PER FOOT OF RUN FOR PIPE LESS THAN 3". VENT PIPING SHALL BE PITCHED TO DRAIN.
5. PROVIDE ACCESS PANEL FOR CLEANOUTS AND ALL CONCEALED EQUIPMENTS THAT REQUIRE MAINTENANCE ACCESS. CONTRACTOR TO COORDINATE WITH ARCHITECT FOR LOCATION.
6. PROVIDE CLEANOUTS WHEREVER POSSIBLE FOR EACH CHANGE IN DIRECTION OF MORE THAN 45DEG.
7. EXISTING STORM WATER SYSTEM WITH ALL ASSOCIATED PIPING & EQUIPMENT TO REMAIN.
8. ALL MATERIAL INSTALLED WITHIN A PLENUM ARE TO HAVE A 25 FLAME SPREAD & 50 SMOKE DEVELOPED WHEN TESTED ACCORDING TO ASTM E84 OR BE INSULATED WITH 3M FIRE BARRIER PLENUM WRAP 5A+, OR APPROVED EQUAL. SO AS TO COMPLY WITH THE ABOVE REQUIREMENTS.
9. ALL VENT PIPES HAVE TO BE RUN ENTIRELY WITHIN WALL UNTIL THEY REACH THE ATTIC.
10. PROVIDE 1" CONDENSATE DRAIN FOR ALL HVAC UNITS AND RUN ALL CONDENSATE LINES TO THE NEAREST FLOOR DRAIN OR TO THE OUTSIDE, WHICHEVER ROUTE REQUIRES THE LEAST AMOUNT OF PIPING. COORDINATE LOCATION OF CONDENSATE UNIT WITH THE MECHANICAL CONTRACTOR AND THE ARCHITECT FOR FINAL TERMINATION.
11. PROVIDE AND INSTALL FLOOR DRAINS IN KITCHEN AND RESTROOMS WITH TRAP PRIMERS.

PLUMBING SANITARY AND VENT KEYNOTES

1	EXTEND & CONNECT NEW 6" SANITARY LINE TO THE SITE SANITARY STUB OUT (PROVIDED BY LL). REFER CIVIL UTILITY PLANS FOR EXACT PIPE SIZE, LOCATION, INVERT, DIRECTION OF FLOW & TIE-IN CONNECTION PRIOR TO BID.
2	GI-1: GREASE INTERCEPTOR SCHIER GB-75 OR EQUIVALENT. GREASE 861 LBS @ 75 GPM. INSTALL GREASE INTERCEPTOR BELOW GRADE LEVEL AS PER MANUFACTURER RECOMMENDATION AND LOCAL GUIDELINES. CONTRACTOR TO FIELD VERIFY GREASE INTERCEPTOR LOCATION AS PER SITE CONDITION PRIOR TO BID AND COORDINATE WITH ARCHITECT/LANDLORD FOR FINAL GREASE INTERCEPTOR LOCATION. BASE BID ACCORDINGLY.
3	ROUTE INDIRECT WASTE FROM DISHWASHER TO FLOOR SINK (FS-1) WITH APPROVED AIR GAP.
4	ROUTE INDIRECT WASTE FROM WATER HEATER (WH-1) TO FLOOR DRAIN (FD-1) WITH APPROVED AIR GAP.
5	ROUTE INDIRECT WASTE FROM BFP TO FLOOR DRAIN (FD-2) WITH APPROVED AIR GAP. 7
6	NEW 3" VTR. CONTRACTOR TO COORDINATE VTR LOCATION WITH MECHANICAL EQUIPMENT.

GREASE INTERCEPTOR CALCULATION

GREASE INTERCEPTOR CALCULATIONS Quote: 4D27C865

Reference No. 79968 Project Name: Kiddie Academy

CALCULATIONS - USING WISCONSIN PLUMBING CODE

Step 1: Flow rate to grease interceptor

Pipe size flow rate (4 in): 75 GPM

75 GPM

Step 2: Grease Production

Servings per day: 187

Grease production value: Cafeteria - Full Serve *(high / no flatware: 0.035 lbs per serving)*

Days between pump-outs: 90 days

187 x 0.035 x 90 = 589.05 lbs of FOG

Servings per day x Grease production value x Days between pump-outs = Grease output

SCHIER MODEL	
GB-75	**Description:** GREASE INTERCEPTOR 75 GPM, 4" PLAIN/FPT CONNECTIONS, H-20 RATED PICKABLE CAST IRON COVER **Dimensions:** Length: 47", Width: 33", Height: 39.75" **Flow Rate/Grease Capacity:** 75 GPM / 861 lbs **Liquid Capacity:** 125 gal

FIXTURE INFORMATION

NAME/TAG	TYPE	QTY	DIMENSIONS	CAPACITY
3 Compartment Sink	3 Compartment Sink	1	18" x 18" x 18"	75.74 gal
Dishwasher	Dishwasher (Conveyor)	1	N/A	10.08 gal
Floor Drain	Floor Drain	1	N/A	0 gal
Hand Sink	Hand Sink	1	10" x 14" x 6"	3.64 gal
Mop Basin	Mop Basin	1	24" x 24" x 10"	24.94 gal
Prep Sink One Bowl	Prep Sink One Bowl	1	18" x 18" x 18"	25.25 gal

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△	DATE	REVISION

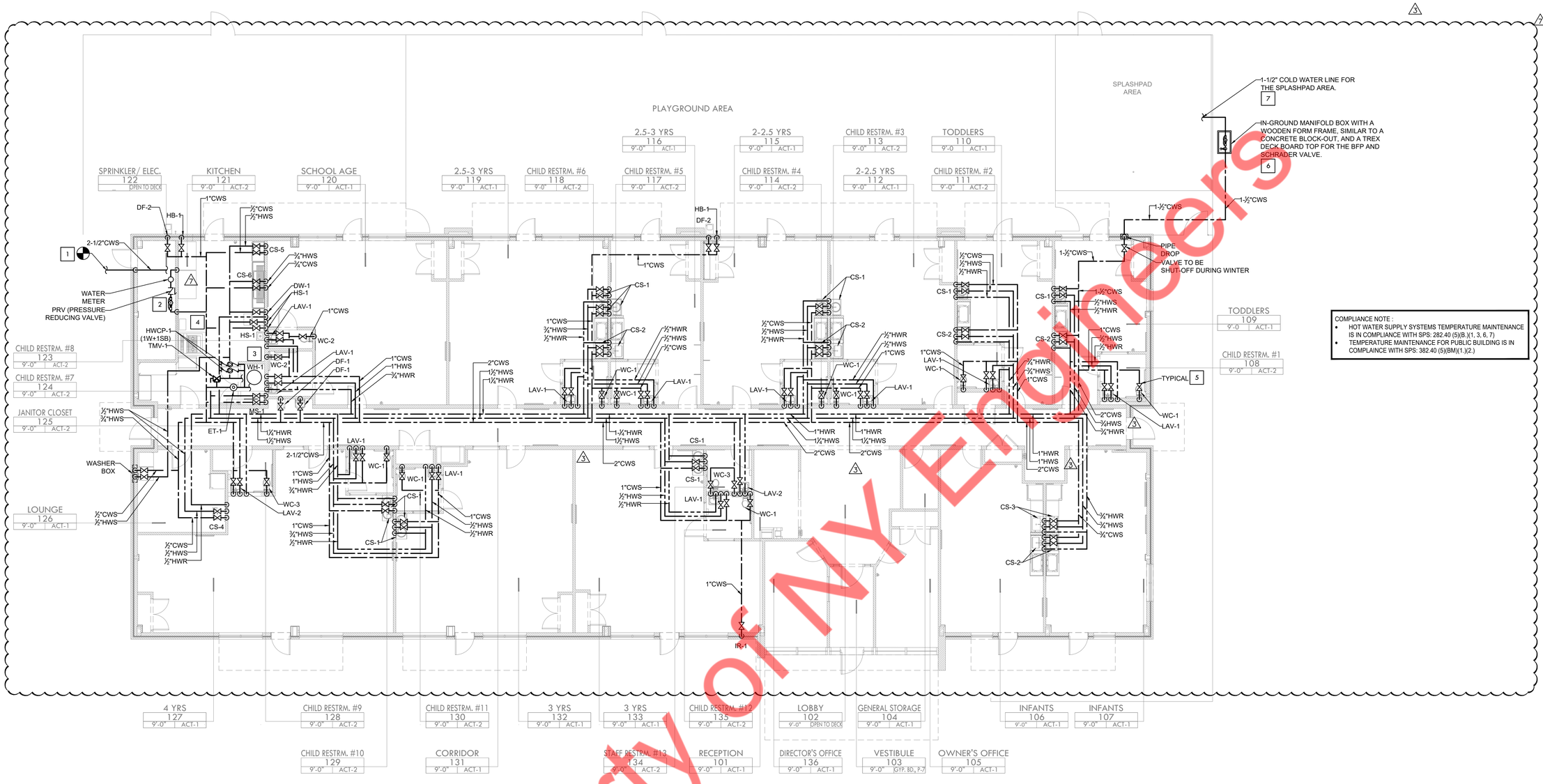
KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,660 SQ. FT.

TITLE:
PLUMBING SANITARY AND VENT PLAN

SHEET NUMBER:
P100



COMPLIANCE NOTE :
- HOT WATER SUPPLY SYSTEMS TEMPERATURE MAINTENANCE IS IN COMPLIANCE WITH SPS: 282.40 (5)(B.)(1, 3, 6, 7)
- TEMPERATURE MAINTENANCE FOR PUBLIC BUILDING IS IN COMPLAINCE WITH SPS: 382.40 (5)(BM)(1.)(2.)

1	SCALE 1 / 8" = 1' - 0"	PLUMBING WATER SUPPLY PLAN

GENERAL NOTES

1. ANY WORK SHOWN ON THE DRAWINGS AND NOT PARTICULARLY DESCRIBED IN THE SPECIFICATIONS OR DETAILS, OR ANY WORK WHICH MAY BE DEEMED NECESSARY TO COMPLETE THE CONTRACT SHALL BE PROVIDED BY THE CONTRACTOR AS PART OF THIS CONTRACT.
2. CW/ HW PIPING TO BE PROVIDED WITH INSULATION AS PER INTERNATIONAL ENERGY CONSERVATION CODE.
3. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF FLOOR SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
4. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
5. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR, CLEANOUTS & SHUT-OFF VALVES AS REQUIRED.
6. PROVIDE MINIMUM PRESSURE REQUIRED FOR WATER LINES AT EXTREME FIXTURE AS PER WISCONSIN UNIFORM PLUMBING CODE (SPS 382).
7. PROVIDE BRANCH PRV IF PRESSURE INCREASES 80 PSI.
8. PROVIDE HOT WATER RETURN AS PER MAXIMUM PIPE LENGTH.
9. STORM WATER SYSTEM WITH ALL ASSOCIATED PIPING & EQUIPMENT TO AS PER CIVIL UTILITY PLAN.
10. PROVIDE WATER HAMMER ARRESTOR AT EVERY QUICK CLOSING VALVE OF PLUMBING FIXTURES.
11. 3" AIR INTAKE AND EXHAUST FROM WH-1, PROVIDE COMBINED CONCENTRIC VENT KIT FOR AIR INTAKE AND EXHAUST OUTLETS TO ROOF, REFER TO MANUFACTURERS RECOMMENDATIONS FOR VENT KIT INSTALLATION.
12. DOMESTIC COLD WATER CONNECTION FOR COUNTERTOP APPLIANCE. PROVIDE WITH ISOLATION SHUTOFF VALVE, VACUUM BREAKER, AND UNION FITTING.
13. ALL MATERIAL INSTALLED WITHIN A PLENUM ARE TO HAVE A 25 FLAME SPREAD & 50 SMOKE DEVLOPED WHEN TESTED ACCORDING TO ASTM E84 OR BE INSULATED WITH 3M FIRE BARRIER PLENUM WRAP 5A+, OR APPROVED EQUAL. SO AS TO COMPLY WITH THE ABOVE REQUIREMENTS.
14. PROVIDE AND INSTALL FLOOR DRAINS IN KITCHEN AND RESTROOMS WITH TRAP PRIMERS.

PLUMBING WATER SUPPLY KEY NOTES

1. CONNECT NEW 2-1/2" CW LINE WITH WATER METER TO EXISTING COLD WATER LINE. CONTRACTOR TO FIELD VERIFY EXACT COLD WATER STUB-OUT LOCATION AND SIZE. REFER CIVIL UTILITY PLAN FOR MORE DETAILS.
2. PROVIDE NEW RPZA (MODEL: WATTS LF009 LEAD FREE QT TYPE OR EQUIVALENT) AS SHOWN ON THE PLAN. INSTALLED RPZA AS PER LOCAL AHJ. BASE BID ACCORDINGLY.
3. SPILL WATER HEATER (WH-1) T&P RELIEF DRAIN TO FLOOR DRAIN WITH APPROVED AIR GAP AS PER LOCAL CODE.
4. CONTRACTOR TO COORDINATE WATER SUPPLY PIPE WITH KITCHEN HOOD.
5. PROVIDE 12" X 12" ACCESS PANEL FOR ALL VALVES.
6. PROVIDE APPROVED ASSE 1013 BFP (WATTS LF009M2QT OR EQUIVALENT) & SCHRAEDER VALVE AS SHOWN ON THE PLAN, INSTALL WITHIN AN IN-GROUND MANIFOLD BOX. INSTALLED BFP AS PER LOCAL AHJ. COORDINATE WITH THE OWNER FOR THE IN-GROUND MANIFOLD BOX. BASE BID ACCORDINGLY.
7. PROVIDE 1-1/2" DOMESTIC COLD WATER LINE TO THE SPLASH PAD, MAINTAINING A MINIMUM OF 60 PSI AND NOT EXCEEDING 90 PSI. IF ANY DISCREPANCIES SHALL BE COORDINATED WITH THE LANDLORD ENGINEER.

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

PROFESSIONAL SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN, LICENSE NO. E-47373-6, EXPIRATION DATE: 07/31/2026

CONTRACTOR'S NOTES:
WRITTEN DIMENSIONS HOLD PREFERENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS. THE CONTRACTORS MUST VISIT JOB SITE TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE SUBMITTING BIDS. REPORT ANY DISCREPANCIES OF ANY CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION OF THE CONTRACT TO THE TENANT'S REPRESENTATIVE. REPORT DISCREPANCIES DURING BIDDING PROCESS AND BEFORE START OF CONSTRUCTION. CHANGE ORDERS NEED TO BE APPROVED BY KIDDIE ACADEMY CONSTRUCTION MANAGER FOR ISSUES ARISING FROM THE FIELD CONDITIONS OR CONFLICTS BETWEEN THE PLANS AND THE EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK.

	DATE	ISSUE
	02.19.25	PROGRESS SET
	03.14.25	CLIENT REVIEW SET
	03.28.25	PERMIT SUBMISSION
	05.30.25	PERMIT RESUBMISSION
	09.11.25	CLIENT STRUCT. COMMENTS
	10.20.25	IFC SET
	11.04.25	CLIENT STRUCT. / CIVIL
	11.05.25	FIELD CONDITION
	12.05.25	REVISED PLANS
	12.09.25	REVISED PLANS
3	12/09/25	CLIENT COMMENTS
3	11/04/25	CLIENT COMMENTS
3	10/20/25	CLIENT COMMENTS
3	09/11/25	CLIENT STRUCT. COMMENTS
3	05/30/25	BLDG. DEPT. COMMENTS
△	DATE	REVISION

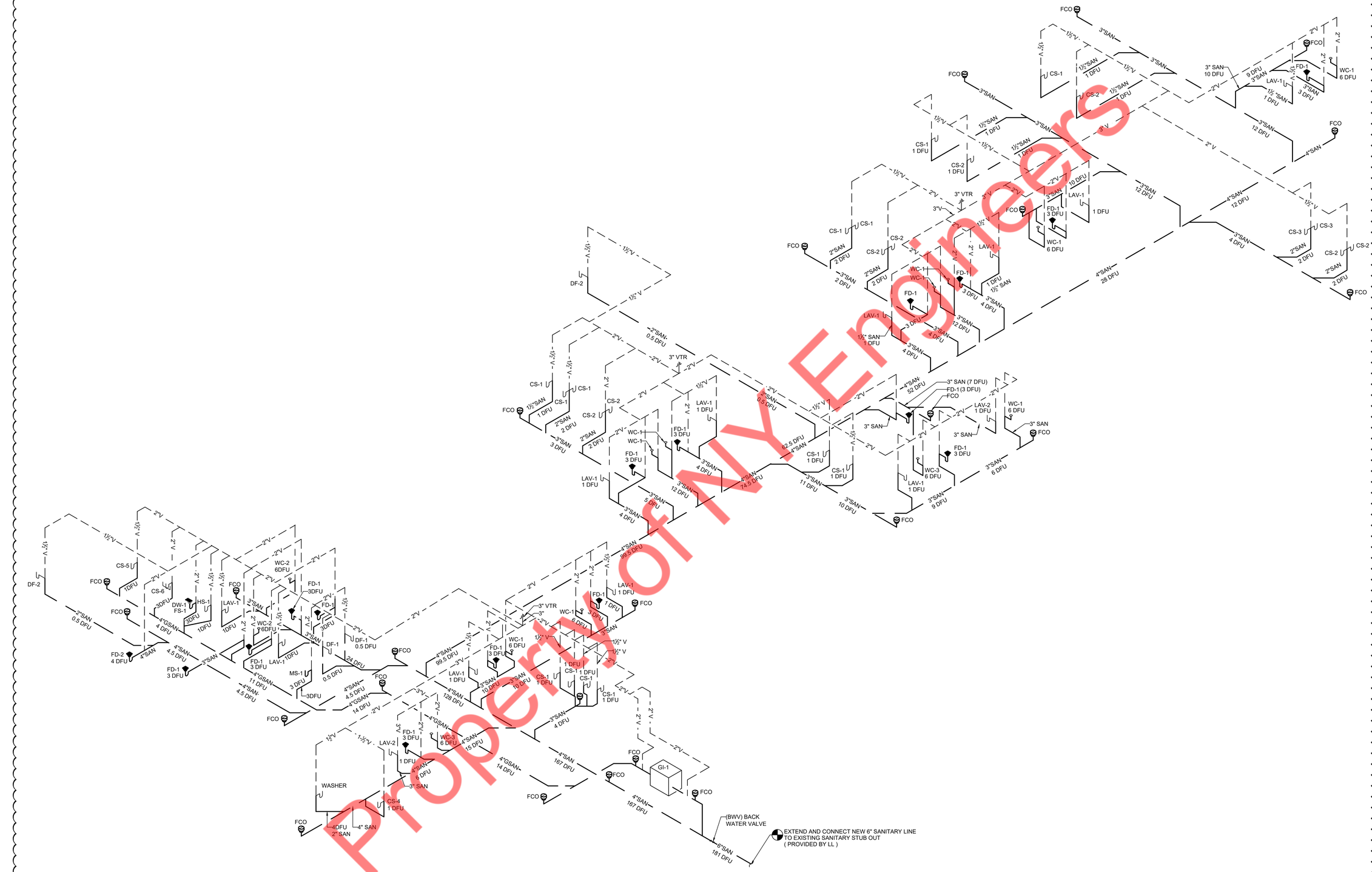
KIDDIE ACADEMY EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:
PROJECT NUMBER: 11780-24
DRAWN BY: NYE
REVIEWED BY: NYE
AREA: 10,660 SQ. FT.

TITLE:
PLUMBING WATER SUPPLY PLAN

SHEET NUMBER:
P101



1 | SCALE NTS | PLUMBING SANITARY & VENT RISER DIAGRAM

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NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
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KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

LOCATION:

PROJECT INFORMATION:

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REVIEWED BY: NYE
AREA: 10,660 SQ. FT.

TITLE:

PLUMBING RISER DIAGRAMS (1 OF 3)

SHEET NUMBER:

P200

COMPLIANCE NOTE :
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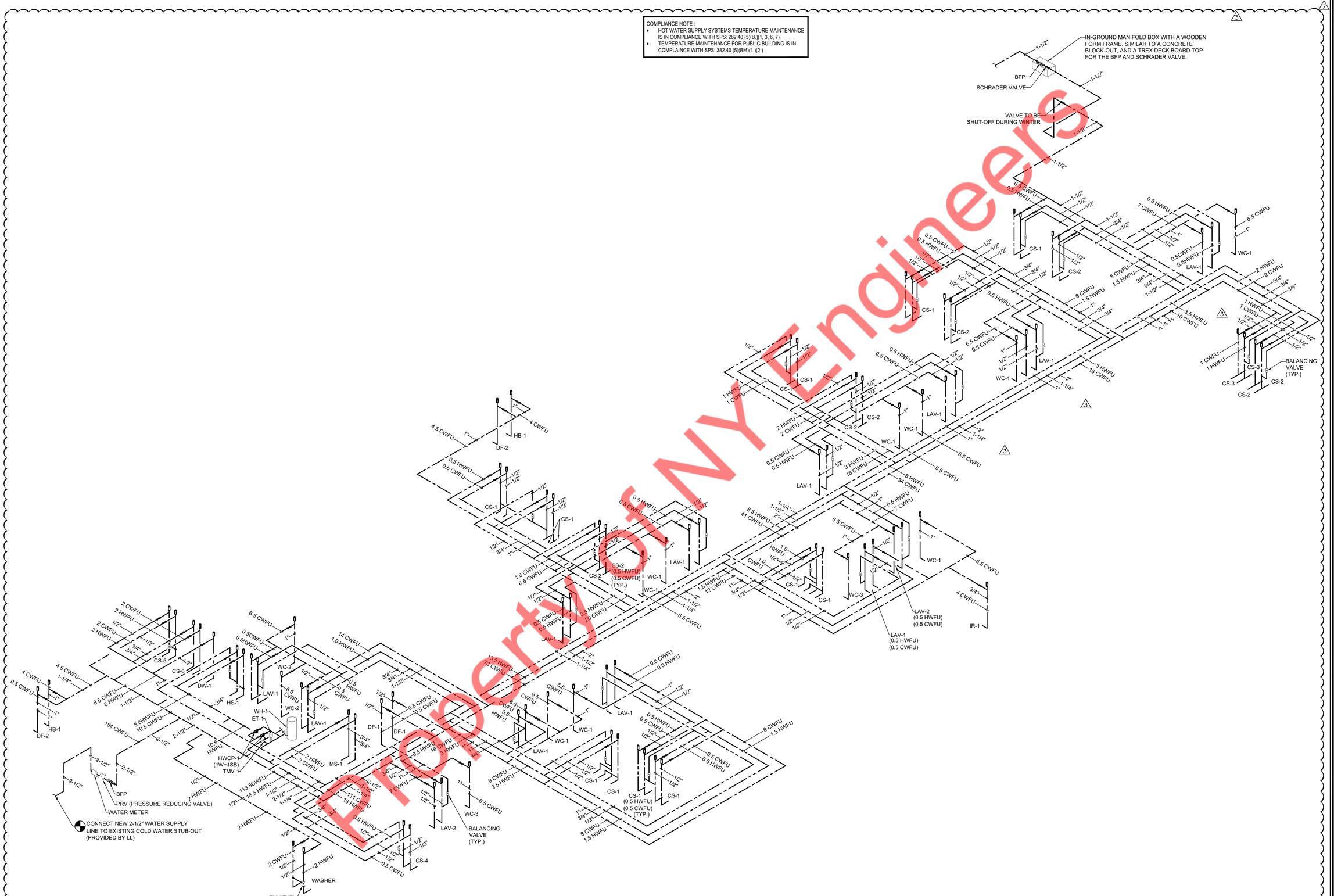

1 SCALE NTS — PLUMBING WATER SUPPLY RISER DIAGRAM

CONSULTANTS (ENGINEERS):
NY ENGINEERS
NEARBY ENGINEERS
382 NE 191ST STREET SUITE 49674,
MIAMI, FL 33179
PH-914.257.3455
WWW.NY-ENGINEERS.COM

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KIDDIE ACADEMY. EDUCATIONAL CHILD CARE

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REVIEWED BY: NYE
AREA: 10,660 SQ. FT.

TITLE:
PLUMBING RISER DIAGRAMS (2 OF 3)

SHEET NUMBER:
P201