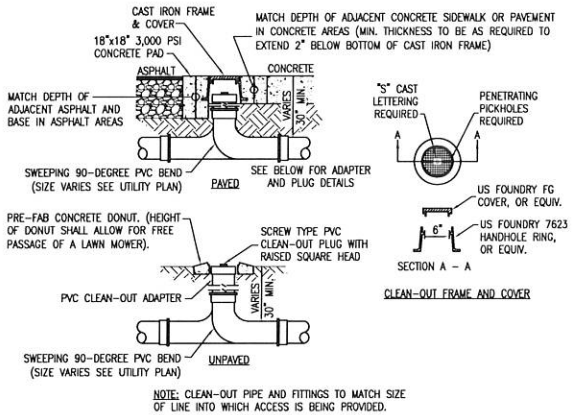
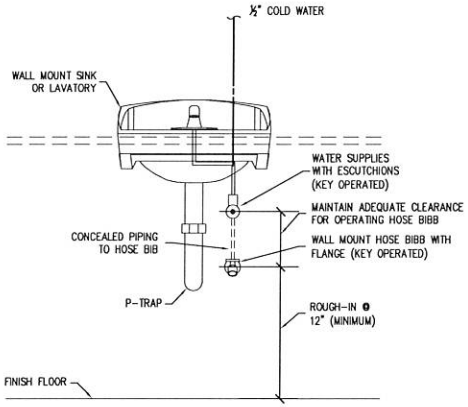
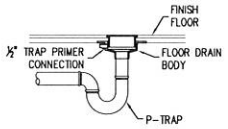


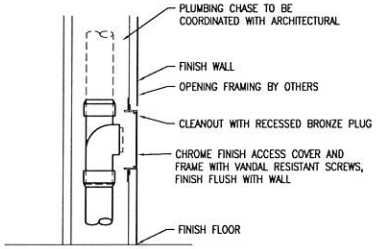
1 CLEANOUT TO GRADE (GOTG) DETAIL
P101
NOT TO SCALE



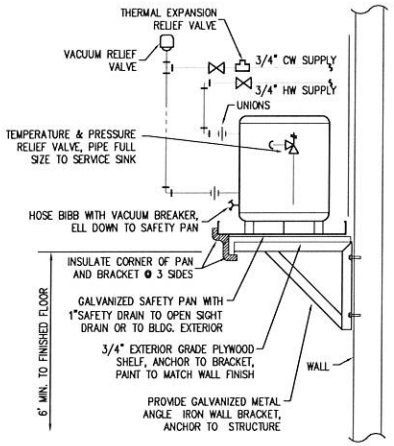
2 TYPICAL HOSE BIBB INSTALLATION
P102
NOT TO SCALE



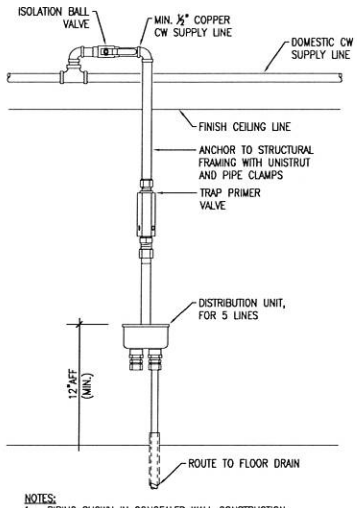
3 FLOOR DRAIN WITH TRAP PRIMER DETAIL
P101
NOT TO SCALE



4 WALL CLEANOUT (WCO) DETAIL
P101
NOT TO SCALE

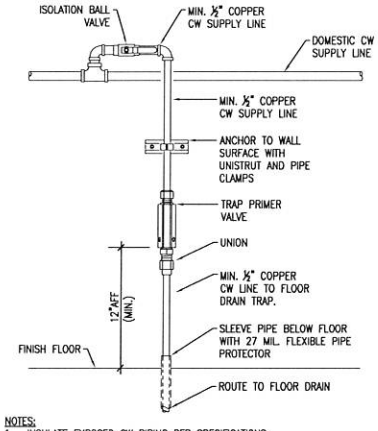


5 LOW BOW ELECTRIC WATER HEATER
P102
NOT TO SCALE



NOTES:
1. PIPING SHOWN IN CONCEALED WALL CONSTRUCTION.
2. COORDINATE CEILING AND WALL ACCESS PANEL WITH ARCHITECTURAL.
3. INSULATE ABOVE CEILING CW PIPING AND INSIDE WALL CW PIPING PER SPECIFICATIONS.

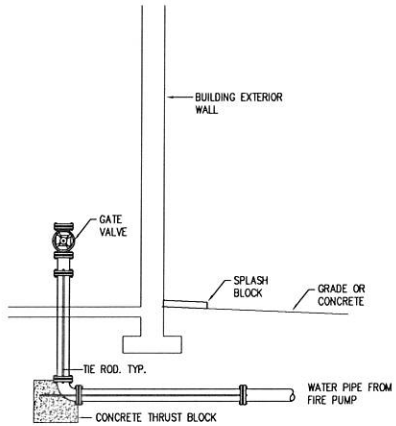
CONCEALED APPLICATION



NOTES:
1. INSULATE EXPOSED CW PIPING PER SPECIFICATIONS.
2. THIS IS INTENDED FOR MECHANICAL ROOM APPLICATION ONLY.

EXPOSED MECHANICAL ROOM APPLICATION

6 TRAP PRIMER DETAIL
NOT TO SCALE



7 FIRE RISER FUTURE CONNECTION DETAIL
NOT TO SCALE

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

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Drawn By: CAD
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Drawing No.: P301

ABOVE GROUND GAS PIPING NOTES

FABRICATE AND INSTALL GAS SYSTEMS IN ACCORDANCE WITH NFPA 54 "NATIONAL FUEL GAS CODE", 2015 FLORIDA BUILDING CODE, AND WITH LOCAL GAS UTILITY COMPANY REQUIREMENTS AND STANDARDS.

SUBMIT MANUFACTURER'S TECHNICAL PRODUCT DATA AND INSTALLATION INSTRUCTIONS FOR GAS SYSTEMS PRODUCTS.

SUBMIT MAINTENANCE DATA AND PARTS LISTS FOR GAS SYSTEMS MATERIALS AND PRODUCTS. INCLUDE THIS DATA, PRODUCT DATA, SHOP DRAWINGS, AND RECORD DRAWINGS IN MAINTENANCE MANUAL.

PROVIDE PIPING MATERIALS AND FACTORY-FABRICATED PIPING PRODUCTS OF SIZES, TYPES, PRESSURE RATINGS, AND CAPACITIES AS INDICATED. WHERE NOT INDICATED, PROVIDE PROPER SELECTION AS DETERMINED BY INSTALLER TO COMPLY WITH INSTALLATION REQUIREMENTS. PROVIDE MATERIALS AND PRODUCTS COMPLYING WITH NFPA 54 WHERE APPLICABLE; BASE PRESSURE RATING ON GAS PIPING SYSTEM MAXIMUM DESIGN PRESSURES. PROVIDE SIZES AND TYPES MATCHING PIPING AND EQUIPMENT CONNECTIONS; PROVIDE FITTINGS OF MATERIALS WHICH MATCH PIPE MATERIALS USED IN NATURAL GAS SYSTEMS. WHERE MORE THAN ONE TYPE OF MATERIALS OR PRODUCTS ARE INDICATED, SELECTION IS INSTALLER'S OPTION. PROVIDE IDENTIFICATION AND PAINT GAS PIPING YELLOW.

ALL GAS PIPING UNDER THIS CONTRACT SHALL BE BLACK STEEL PIPE; SCHEDULE 40; MALLEABLE IRON THREADED FITTINGS.

PROVIDE AND INSTALL PIPING SPECIALTIES IN ACCORDANCE WITH THE PIPE ESCUTCHEONS, DIELECTRIC UNIONS, PIPE SLEEVES, AND SLEEVE SEALS. PROVIDE AND INSTALL SUPPORTS AND ANCHORS.

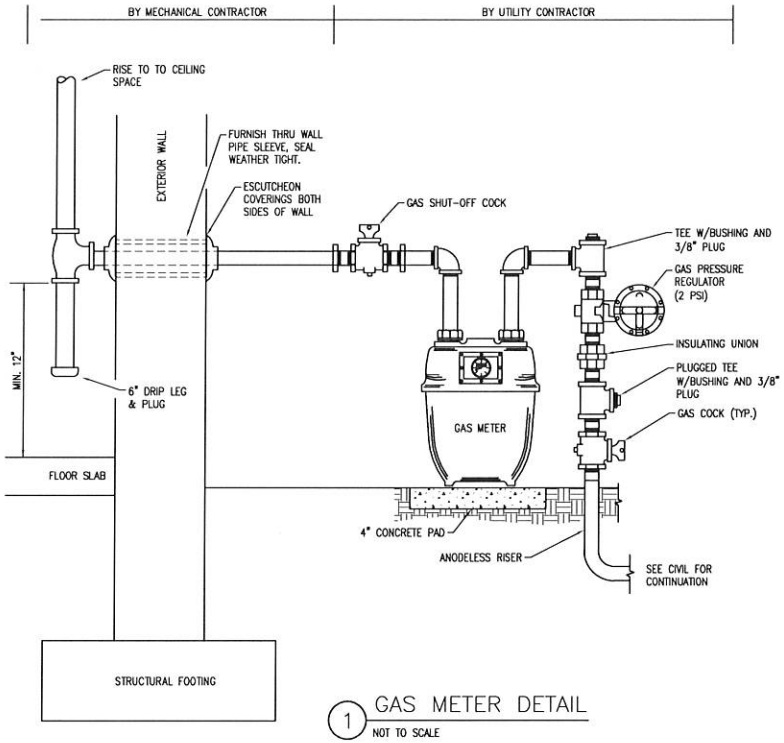
PROVIDE AGA APPROVED SPECIAL VALVES REQUIRED FOR GAS SYSTEMS INCLUD-ING THE FOLLOWING TYPES:
1. GAS COCKS 2" AND SMALLER: 150 PSI NON-SHOCK WOG, BRONZE STRAIGHTWAY COCK, FLAT OR SQUARE HEAD, THREADED ENDS.
2. WRENCHES: PROVIDE OPERATING WRENCHES FOR ALL GAS COCKS SERVING BOILERS.
3. ACCEPTABLE PRODUCERS FOR GAS COCKS: DEZURIK, JENKINS BROS., LUNKEN-HEIMER, NIBCO, POWELL, STOCKHAM, WALWORTH, ROCKWELL.

GAS REGULATORS
1. FIRST STAGE REGULATORS: PROVIDE UL LISTED FIRST STAGE (HIGH PRESSURE) REGULATORS. SEE PLANS FOR PRESSURE REQUIREMENTS.
2. SECOND STAGE REGULATORS: PROVIDE UL LISTED SECOND STAGE ADJUSTABLE REGULATORS WITH INTEGRAL RELIEF VALVES. SEE PLANS FOR PRESSURE REQUIREMENTS.
3. ACCEPTABLE PRODUCERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE REGULATORS BY REGO, OR APPROVED EQUAL.
4. GAS METER AND REGULATOR: PROVIDED BY LOCAL UTILITY COMPANY
5. EXAMINE AREAS AND CONDITIONS UNDER WHICH GAS SYSTEMS, MATERIALS, AND PRODUCTS ARE TO BE INSTALLED. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN MANNER ACCEPTABLE TO INSTALLER. COORDINATE WITH GAS SUPPLIER PRIOR TO STARTING WORK.

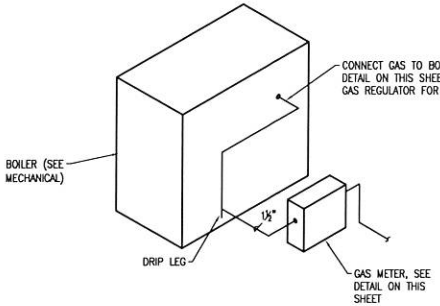
INSTALL GAS PIPING IN ACCORDANCE WITH DIVISION-23 BASIC MECHANICAL MATERIALS AND METHODS.
1. USE SEALANTS ON METAL GAS PIPING THREADS WHICH ARE CHEMICALLY RESISTANT TO GAS. USE SEALANTS SPARINGLY, AND APPLY TO ONLY MALE THREADS OF METAL JOINTS.
2. REMOVE CUTTING AND THREADING BURRS BEFORE ASSEMBLING PIPING.
3. DO NOT INSTALL DEFECTIVE PIPING OR FITTINGS. DO NOT USE PIPE WITH THREADS WHICH ARE CHIPPED, STRIPPED OR DAMAGED. DO NOT USE BUSHINGS IN THE GAS SYSTEM.
4. PLUG EACH GAS OUTLET, INCLUDING VALVES, WITH THREADED PLUG OR CAP IMMEDIATELY AFTER INSTALLATION AND RETAIN UNTIL CONTINUING PIPING, OR EQUIPMENT CONNECTIONS ARE COMPLETED.
5. GROUND GAS PIPING ELECTRICALLY AND CONTINUOUSLY WITHIN PROJECT, AND BOND TIGHTLY TO GROUNDING CONNECTION.
6. INSTALL DRIPLEGS IN GAS PIPING WHERE INDICATED, AND WHERE REQUIRED BY CODE OR REGULATION.
7. INSTALL "TEE" FITTING WITH BOTTOM OUTLET PLUGGED OR CAPPED, AT BOTTOM OF PIPE RISERS.
8. USE DIELECTRIC UNIONS WHERE DISSIMILAR METALS ARE JOINED TOGETHER.
9. INSTALL PIPING WITH 1/64" PER FOOT (1/8%) DOWNWARD SLOPE IN DIRECTION OF FLOW.
10. INSTALL PIPING PARALLEL TO OTHER PIPING, BUT MAINTAIN MINIMUM OF 12" CLEARANCE BETWEEN GAS PIPING AND STEAM OR HYDRONIC PIPING ABOVE 200°F.

VALVES INSTALLATION:
- GAS COCKS: PROVIDE AT CONNECTION TO GAS TRAIN FOR EACH GAS-FIRED EQUIPMENT ITEM; AND ON RISERS AND BRANCHES WHERE INDICATED.
- LOCATE GAS COCKS WHERE EASILY ACCESSIBLE, AND WHERE THEY WILL BE PROTECTED FROM POSSIBLE INJURY.
- CONTROL VALVES: INSTALL AS INDICATED. REFER TO ELECTRICAL FOR WIRING; NOT WORK OF THIS SECTION.
- CONNECT GAS PIPING TO EACH GAS-FIRED EQUIPMENT ITEM, WITH DRIP LEG AND SHUTOFF GAS COCK. COMPLY WITH EQUIPMENT MANUFACTURER'S INSTRUCTIONS.

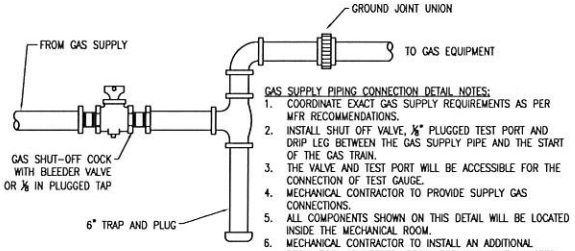
GAS VENT INSTALLATION:
- INSTALL GAS VENTS FOR ALL DRAFT GAS-FIRED APPLIANCES IN ACCORDANCE WITH NFPA 54 AND THE MANUFACTURER'S INSTRUCTIONS.
- GAS VENTS SHALL TERMINATE AT LEAST 3 FEET ABOVE THE ROOF AND 2 FEET HIGHER THAN ANY PORTION OF A BUILDING WITHIN A HORIZONTAL DISTANCE OF 10 FEET.
- MINIMUM VERTICAL GAS VENT LENGTH IS 5 FEET.
- SLOPE HORIZONTAL GAS VENT CONNECTORS UPWARD AT LEAST 1/4 INCH PER FOOT.
- INSPECT, TEST, AND PURGE GAS SYSTEMS IN ACCORDANCE WITH NFPA 54, LOCAL UTILITY REQUIREMENTS, AND AS PER SPECIFICATION SECTION "TESTING, CLEANING AND STERILIZATION OF PIPING SYSTEMS".



1 GAS METER DETAIL
NOT TO SCALE

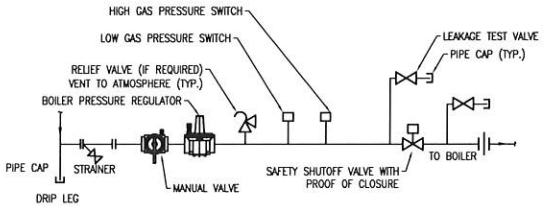


2 GAS RISER DIAGRAM
NOT TO SCALE



GAS SUPPLY PIPING CONNECTION DETAIL NOTES:
1. COORDINATE EXACT GAS SUPPLY REQUIREMENTS AS PER MFR RECOMMENDATIONS.
2. INSTALL SHUT OFF VALVE, ⅛" PLUGGED TEST PORT AND DRIP LEG BETWEEN THE GAS SUPPLY PIPE AND THE START OF THE GAS TRAIN.
3. THE VALVE AND TEST PORT WILL BE ACCESSIBLE FOR THE CONNECTION OF TEST GAUGE.
4. MECHANICAL CONTRACTOR TO PROVIDE SUPPLY GAS CONNECTIONS.
5. ALL COMPONENTS SHOWN ON THIS DETAIL WILL BE LOCATED INSIDE THE MECHANICAL ROOM.
6. MECHANICAL CONTRACTOR TO INSTALL AN ADDITIONAL REGULATOR, AS NEEDED. REGULATOR WILL HAVE A LISTED LIMITING DEVICE OR TO BE VENTED TO THE OUTDOOR.

3 TYPICAL GAS SUPPLY PIPING CONNECTION DETAIL
NOT TO SCALE



NATURAL GAS TRAIN CSD-1 DIAGRAM NOTES:
1. GAS SOLENOID SHUT-OFF VALVE - COORDINATE SHUTOFF VALVE POWER REQUIREMENT WITH ELECTRICAL.
2. GAS TRAIN AND REGULATOR, AS SHOWN IN THIS DIAGRAM, SHALL BE COORDINATED WITH BOILER MFR.

4 NATURAL GAS TRAIN CSD-1 DIAGRAM
NOT TO SCALE

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

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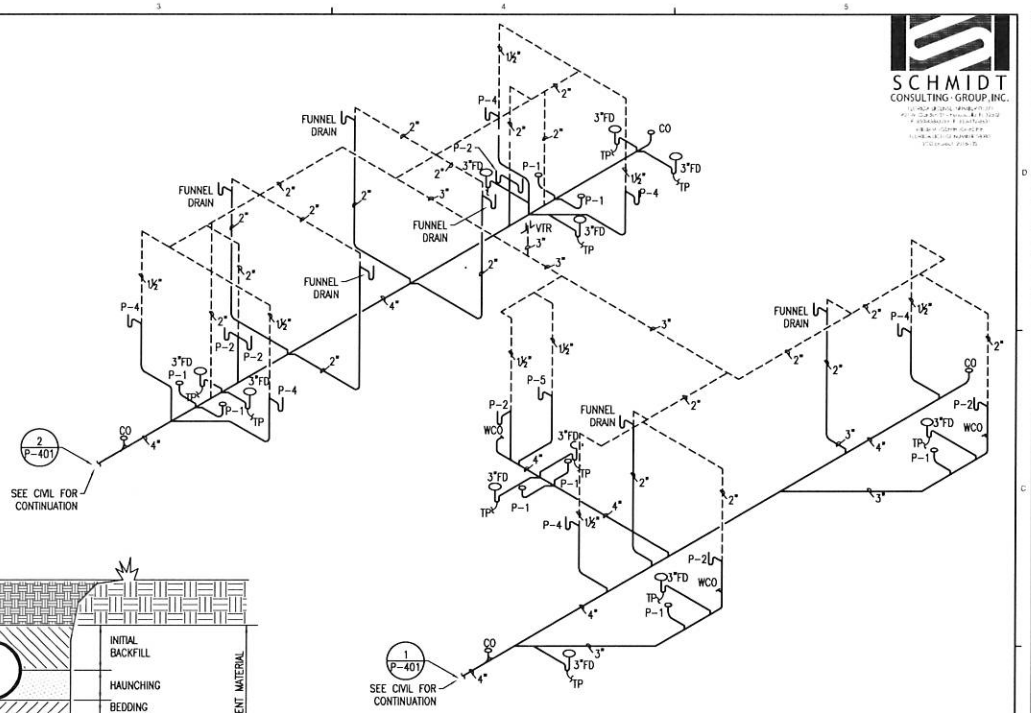
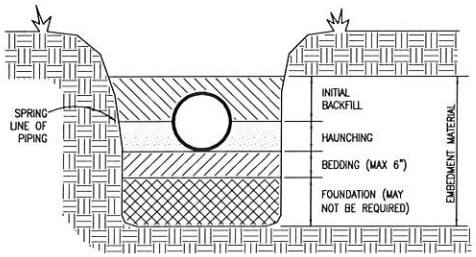
PLUMBING DETAILS

Drawing No.: P302



1 SANITARY RISER DIAGRAM

NOT TO SCALE



EMBEDMENT MATERIALS

CLASS I: ANGULAR, ¼"–1 ½", GRADED STONE, INCLUDING A NUMBER OF FILL MATERIALS THAT HAVE REGIONAL SIGNIFICANCE SUCH AS CORAL, SLAG, CINDERS, CRUSHED STONE AND CRUSHED SHELLS.

CLASS II: COARSE SANDS AND GRAVELS WITH MAXIMUM PARTICLE SIZE OF 1½" INCLUDING VARIOUS GRADED SANDS AND GRAVELS CONTAINING SMALL PERCENTAGES OF FINES, GENERALLY GRANULAR AND NON–COHESIVE, EITHER WET OR DRY. SOIL TYPES GW, GP, SW, AND SP ARE INCLUDED IN THIS CLASS.

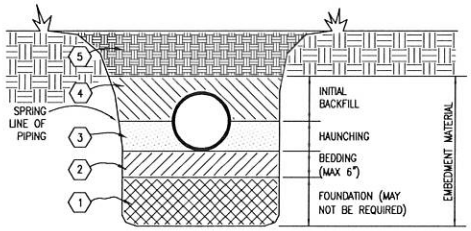
CLASS III: FINE SAND AND CLAY GRAVELS, INCLUDING FINE SANDS, SANDCLAY MIXTURES AND GRAVEL–CLAY MIXTURES. SOIL TYPES GM, GC, SM, AND SC ARE INCLUDED IN THIS CLASS.

CLASS IV: SILT, SILTY CLAYS, AND CLAYS, INCLUDING INORGANIC CLAYS AND SILT OF MEDIUM TO HIGH PLASTICITY AND LIQUID LIMITS. SOIL TYPES MH, ML, CH, AND CL ARE INCLUDED IN THIS CLASS. THESE MATERIALS ARE NOT TO BE USED FOR BEDDING, HAUNCHING, OR INITIAL BACKFILL.

CLASS V: THIS CLASS INCLUDES THE ORGANIC SOILS, AS WELL AS SOILS CONTAINING FROZEN EARTH, DEBRIS, ROCKS LARGER THAN 1 ½" IN DIAMETER AND OTHER FOREIGN MATERIALS. THESE MATERIALS ARE NOT TO BE USED FOR BEDDING, HAUNCHING, OR INITIAL BACKFILL.

2 GENERAL DATA SOIL CLASSIFICATION

NOT TO SCALE



(1) A FOUNDATION MAY BE REQUIRED IN VERY POOR SOIL CONDITIONS.

(2) BEDDING IS REQUIRED PRIMARILY TO BRING THE TRENCH BOTTOM UP TO GRADE. BEDDING MATERIALS SHALL PROVIDE A UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE. IN DRY SOIL CONDITIONS, CLASS II OR III MATERIAL SHALL BE HAND PLACED IN 4–6", LIGHTLY COMPACTED UNIFORM AND NOT FINER THAN THE FOUNDATION MATERIAL. IN WET CONDITIONS, CLASS I, II OR III MATERIAL SHALL BE HAND PLACED, 4–6", UNIFORM AND NOT FINER THAN THE FOUNDATION MATERIAL. WHEN UTILIZING CLASS I MATERIAL, SUFFICIENT AMOUNTS OF CLASS II OR III MATERIAL SHALL BE ADDED TO FILL ALL VOIDS CREATED BY THE USE OF CLASS I MATERIAL.

(3) HAUNCHING MATERIAL SHALL BE HAND PLACED TO THE SPRINGLINE OF THE PIPE. CLASS II OR III MATERIAL SHALL BE CONSOLIDATED UNDER THE PIPE AND HAND TAMPED TO PROVIDE ADEQUATE SIDE SUPPORT.

(4) INITIAL BACKFILL MATERIAL SHALL BE CLASS II OR III. IT SHALL BE PLACED WITHIN 24–30" ABOVE THE TOP OF THE PIPE AND TAMPED BY A PORTABLE VIBRATOR.

(5) FINAL BACKFILL MATERIAL MAY BE MACHINE PLACED. THE MATERIAL SHALL BE CLASS II OR III MATERIAL. CLASS IV MATERIAL MAY BE INSTALLED OUTSIDE OF ROADWAY. FINAL BACKFILL UNDER ROADWAYS MAY REQUIRE SPECIAL COMPACTION AND DENSITY TESTS. A MINIMUM OF 30" OF COVER OVER THE TOP OF THE PIPE SHALL BE PROVIDED BEFORE THE TRENCH IS WHEEL–LOADED.

NOTE:
ALL EMBEDMENT MATERIALS SHALL BE NO LESS THAN 95% OF MAXIMUM DENSITY. LABORATORY TESTING OF THE SOIL WILL BE REQUIRED. THIS PROCEDURE SHALL BE REQUIRED ON ALL INSTALLATIONS.

3 GENERAL DATA BACKFILLING REQ.

NOT TO SCALE

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

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Drawing No.:	P401

ABBREVIATIONS

@	AT
ACC	AIR COOLED CHILLER
ACD	AUTOMATIC CONTROL DAMPER
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AS	AIR SEPARATOR
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS
B	BOILER
BD	BELT DRIVE
BMS	BUILDING MANAGEMENT SYSTEM
BP	BOILER PUMP -PRIMARY LOOP
CD	CEILING DIFFUSER
CF	CHEMICAL FEEDER
CHWS	CHILLED WATER PIPING SUPPLY
CHWR	CHILLED WATER PIPING RETURN
CHWP	CHILLED WATER PUMP
CFM	CUBIC FEET PER MINUTE
COAC	CLEANOUT ABOVE CEILING
CONT	CONTINUOUS
COP	COEFFICIENT OF PERFORMANCE
DAC	DUCTLESS SPLIT DX AIR CONDITIONING UNIT
DCU	DUCTLESS SPLIT DX CONDENSING UNIT
DD	DIRECT DRIVE
DDC	DIRECT DIGITAL CONTROL
DPS	DIFFERENTIAL PRESSURE SENSOR
DPT	DEW POINT TEMPERATURE
DWGS	DRAWINGS
EA	EXHAUST AIR
EAL	EXHAUST AIR LOUVER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EL	ELEVATION
EMCS	ENERGY MANAGEMENT AND CONTROL SYSTEM
ENT	ENTERING
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
FD	FIRE DAMPER
FPM	FEET PER MINUTE
GI	GRAVITY INTAKE
GR	GRAVITY RELIEF
HD	HUB DRAIN (SEE SHEET M002)
HP	HORSEPOWER
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
HWP	HOT WATER PUMP
MAX	MAXIMUM
MIN	MINIMUM
MMS	MODULE MANAGEMENT SYSTEM
MVD	MANUAL VOLUME DAMPER
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
OA	OUTSIDE AIR
OAU	OUTSIDE AIR UNIT
O.C.	ON CENTER
PPM	PARTS PER MILLION
PRV	PRESSURE REDUCING VALVE
P/T	PRESSURE/TEMPERATURE
RA	RETURN AIR
SA	SUPPLY AIR
SD	SMOKE DETECTOR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SF	SUPPLY FAN
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
SPT	STATIC PRESSURE TRANSMITTER
T'STAT	THERMOSTAT
TT	TEMPERATURE TRANSMITTER
TSP	TOTAL STATIC PRESSURE
TYP.	TYPICAL
U/G	UNDERGROUND
W/	WITH
W.G.	WATER GAUGE

LEGEND

- POSITIVE PRESSURE SUPPLY DUCT TURNING UP
- NEGATIVE PRESSURE RETURN OR EXHAUST DUCT TURNING UP
- POSITIVE PRESSURE SUPPLY DUCT TURNING DOWN
- NEGATIVE PRESSURE RETURN OR EXHAUST DUCT TURNING DOWN
- 24x12 — RECTANGULAR DUCT SIZE. FIRST SIZE LISTED IS SIDE SHOWN IN PLANS.
- EXTERNALLY INSULATED DUCTWORK
- EXTERNALLY INSULATED ROUND FLEXIBLE DUCTWORK
- DUCT ELBOW WITH TURNING VANES
- RADIUSED DUCT ELBOW
- FLEXIBLE DUCT CONNECTION
- MANUAL VOLUME BALANCING DAMPER
- TRANSITION
- FLEX DUCT TAKE OFF WITH MVD
- BRANCH DUCT TAKEOFF WITH MVD
- RETURN OR SUPPLY DEVICE WITH MVD DIRECTLY BELOW MAIN TRUNK DUCT
- TEE WITH TURNING VANES
- M — MOTORIZED DAMPER
- F — FIRE DAMPER
- 1 DETAIL — X-000 → SHEET REFERENCED
- EF-1 — EQUIPMENT TAG
- 1 — SHEET NOTE
- T1 — THERMOSTAT MOUNTED AT 48" AFF OR TO MATCH LIGHT SWITCH. ('1' INDICATES AHU OR FCU OR BCU CONTROLLED). PROVIDE LOCKABLE COVER WITH USER OVERRIDE.
- S — SMOKE DETECTOR (PROVIDED BY DIVISION 26, INSTALLED BY DIVISION 23 AND WIRED BY DIVISION 26).
- UNDER CUT DOOR 3/4"
- HVAC EQUIPMENT WITH CLEARANCE

PIPING

- ELBOW TURN UP
- ELBOW TURN DOWN
- CONNECTION, BOTTOM
- CONNECTION, TOP
- CHWS — CHILLED WATER SUPPLY PIPING
- CHWR — CHILLED WATER RETURN PIPING
- HWS — HEATING WATER SUPPLY PIPING
- HWR — HEATING WATER RETURN PIPING
- NEW UNDERGROUND PIPING
- R — REFRIGERANT PIPING
- D — CONDENSATE DRAIN PIPING
- GATE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- SWING CHECK VALVE
- SPRING CHECK VALVE
- PRV — PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE. PIPE FULL SIZE DISCHARGE TO FLOOR DRAIN.
- CS — CIRCUIT SETTER
- T — TRIPLE DUTY VALVE
- OR AFV — AUTOMATIC FLOW CONTROL VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- B — COMBINATION VENTURI AND BALL VALVE WITH MEMORY STOP FOR FLOW BALANCING AND SHUT OFF SERVICE
- B — MULTI-TURN BALANCING VALVE
- UNION
- GLOBE VALVE
- THERMAL EXPANSION VALVE
- TRIPLE DUTY VALVE
- ANGLE VALVE
- SOLENOID VALVE
- BACKPRESSURE RELIEF OR SAFETY VALVE
- BACKPRESSURE REGULATOR (SELF-CONTAINED)
- BACKPRESSURE REGULATOR (EXTERNAL PRESSURE)
- FLEXIBLE PIPE CONNECTOR
- P/T — COMBINATION PRESSURE AND TEMPERATURE TEST PLUG WITH EXTENDED NECK AND CAP
- STRAINER WITH BLOW DOWN GATE VALVE FULL SIZE OF STRAINER AND 3/4" HOSE END CONNECTION WITH CAP
- MANUAL AIR VENT WITH 1/2" BALL VALVE. ROUTE 1/2" SOFT COPPER TUBING FROM DISCHARGE TO FLOOR DRAIN UNLESS OTHERWISE NOTED.

DIFFUSER/GRILLE LEGEND

GENERAL NOTES: COORDINATE DIFFUSERS/GRILLES/LOUVERS COLOR REQUIREMENTS WITH ARCHITECTURAL.

CEILING DIFFUSER (CD)	EQUAL TO TITUS OMNI-AA CEILING DIFFUSER SUITABLE FOR INSTALLATION IN GYPSUM BOARD CEILINGS OR LAY-IN INSTALLATION IN TILE CEILINGS. SIZE AND AIRFLOW AS INDICATED. PROVIDE WITH SQUARE-TO-ROUND NECK TRANSITION AS REQUIRED.
RETURN REGISTER (RAR) OR RETURN GRILLE (RAG) OR TRANSFER GRILLE (TAG) OR EXHAUST GRILLE (EAG) OR EXHAUST REGISTER (EAR)	EQUAL TO TITUS 350 2F WITH 0° DEFLECTION AND 3/4" SPACING SUITABLE FOR SURFACE MOUNTING TO SIDEWALL GYPSUM BOARD CEILINGS OR LAY-IN INSTALLATION IN TILE CEILING. REGISTER DESIGNATION INDICATES GRILLE TO BE PROVIDED WITH OPPOSED BLADE DAMPER. SIZE AS INDICATED. FOR LAY-IN INSTALLATION, PROVIDE LAY-IN BORDER FRAME AND PROVIDE FILLER PANEL FOR CEILING TILE LOCATION.
SUPPLY REGISTER (SAR) OR SIDEWALL SUPPLY REGISTER (SWR)	EQUAL TO TITUS 300FS SUPPLY GRILLE. PROVIDE WITH OPPOSED BLADE DAMPER. SIZE AND AIRFLOW AS INDICATED. FOR LAY-IN INSTALLATION, PROVIDE LAY-IN BORDER FRAME AND PROVIDE FILLER PANEL FOR CEILING TILE LOCATION.
SOFFIT GRILLE (SG)	SOFFIT GRILLE EQUAL TO TITUS 350 2F WITH 0° DEFLECTION AND 3/4" SPACING SUITABLE FOR SURFACE MOUNTING TO EXTERIOR SOFFIT. ALUMINUM CONSTRUCTION. COORDINATE FINISH WITH ARCHITECT. PROVIDE WITH INSECT SCREEN. SIZE AS INDICATED (FACE AREA). COORDINATE OPENING WITH OTHER TRADES.
OUTSIDE AIR LOUVER (OAL) OR EXHAUST AIR LOUVER (EAL)	WALL LOUVER SHALL BE FLORIDA PRODUCT APPROVED, MIAMI-DADE QUALIFIED, AND COMPLIES WITH AMCA 540 AND 550. STATIONARY DRAINABLE BLADE EXTRUDED ALUMINUM LOUVER. PROVIDE WITH BIRD SCREEN. COORDINATE FINISH WITH ARCHITECT. LOUVER SIZE AS INDICATED (FACE AREA) WITH A MINIMUM OF 30% FREE AREA. COORDINATE EXACT WALL OPENING WITH STRUCTURAL. LOUVER EQUAL TO POTTORFF ECV-645 OR EQUIVALENT.
DOOR GRILLE (DG)	DOOR GRILLE EQUAL TO TITUS CT-7003 WITH V BLADES. ALUMINUM CONSTRUCTION. COORDINATE FINISH WITH ARCHITECT. SIZE AS INDICATED (FACE AREA). COORDINATE OPENING WITH OTHER TRADES.

DESIGN CONDITIONS

	OUTSIDE		INSIDE	
	DB (DEG. F)	WB (DEG. F)	DB (DEG. F)	RH
SUMMER	93	81	74	50%
WINTER	30	-	70	-

NOTES:
1. INSIDE SUMMER DESIGN TEMPERATURE IS +0/-2 DEG. F.
2. INSIDE SUMMER DESIGN RELATIVE HUMIDITY IS +10%.
3. INSIDE WINTER DESIGN TEMPERATURE IS +2/-0 DEG. F.

COMMUNICATIONS ROOMS

	OUTSIDE		INSIDE	
	DB (DEG. F)	WB (DEG. F)	DB (DEG. F)	RH
SUMMER	93	81	70	50%
WINTER	30	-	68	-

NOTES:
1. INSIDE SUMMER DESIGN TEMPERATURE IS +0/-1 DEG. F.
2. INSIDE SUMMER DESIGN RELATIVE HUMIDITY IS +10%.
3. INSIDE WINTER DESIGN TEMPERATURE IS +1/-0 DEG. F.

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

Rev.	No.	Description

Drawn By: AL
Checked By: WJJ
Date: 8-2-2018
Project No.: 17052
Drawing Title:
MECHANICAL LEGEND NOTES & ABBREVIATIONS
Drawing No.: M001

GENERAL MECHANICAL NOTES

1. THE MECHANICAL CONTRACTOR IS TO COORDINATE WITH OTHER TRADES REQUIRED OPENINGS IN WALLS, FOUNDATIONS, FLOORS, AND ROOFS.
2. OUTSIDE AIR INLETS TO BE LOCATED A MINIMUM OF 10 FT FROM ANY EXHAUST AIR OUTLET OR PLUMBING VENT STACK. FIELD COORDINATE WITH EXISTING CONDITIONS.
3. THE MECHANICAL CONTRACTOR TO VERIFY MECHANICAL EQUIPMENT LOCATIONS AND BE RESPONSIBLE FOR ALL RELATED CLEARANCES IN THE FIELD. PROVIDE ADEQUATE MAINTENANCE CLEARANCE AROUND EACH PIECE OF EQUIPMENT PER THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE CLEARANCE IN FRONT OF ELECTRICAL PANELS AND OTHER ELECTRICAL EQUIPMENT PER THE NATIONAL ELECTRICAL CODE REQUIREMENTS. COORDINATE WITH THE ELECTRICAL AND GENERAL CONTRACTORS IN THE FIELD.
4. PROVIDE WATER PROOF SEALING OF PIPE AND DUCT PENETRATIONS OF EXTERIOR WALLS, FLOORS, AND/OR ROOF.
5. THE PIPING SYSTEM IS TO BE FLUSHED UNTIL CLEAN BEFORE EQUIPMENT CONNECTION.
6. PIPING PENETRATING THROUGH INTERIOR WALLS IS TO BE SLEEVED.
7. PIPING SHOWN ON THESE DRAWINGS IS DIAGRAMMATIC. ARRANGE IN A NEAT AND ORDERLY MANNER.
8. THE CONTRACTOR IS TO COORDINATE EXISTING FLOOR DRAIN LOCATIONS IN MECHANICAL ROOMS WITH ANY EQUIPMENT LOCATED IN THE MECHANICAL ROOM.
9. ALL DUCTWORK AND PIPING PENETRATING THROUGH RATED WALLS TO BE FIRE STOPPED. PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS ARE TO BE FIRE SEALED SO AS TO MAINTAIN FLOOR OR WALL INTEGRITY IN THE EVENT OF A FIRE. PENETRATIONS OF FIREWALLS, CEILINGS, FLOORS, ETC. FOR PIPING TO BE UL LISTED FIRESTOPS AND SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION. CONTRACTOR TO OBTAIN MANUFACTURER SHOP DRAWINGS AT JOBSITE FOR PENETRATIONS.
10. VERIFY COLLAR SIZES ON ALL EQUIPMENT INLETS AND OUTLETS. TRANSITION DUCTWORK AS NECESSARY. EXTERNALLY INSULATE ALL TRANSITIONS AT EQUIPMENT CONNECTIONS.
11. INSTALL EQUIPMENT AND DUCTWORK TO MANUFACTURERS RECOMMENDED CLEARANCES.
12. PROVIDE FLEXIBLE DUCT, PIPE CONNECTIONS, AND VIBRATION ISOLATORS FOR INTERNALLY ISOLATED UNITS.
13. DO NOT MOUNT DISCONNECT SWITCHES ON HVAC EQUIPMENT EXCEPT AS RECOMMENDED BY MANUFACTURER.
14. ALL NEW ROUND FLEXIBLE DUCT TO BE FACTORY PRE-INSULATED. MAXIMUM LENGTH OF ANY FLEXIBLE DUCT RUNOUT TO BE 6'. WHERE LENGTH REQUIRED EXCEEDS 6', INSTALL EXTERNALLY INSULATED ROUND SNAPLOCK DUCT FOR BALANCE OF DISTANCE TO SPIN-IN TAP AT MAIN DUCT TRUNK.
15. NEW SUPPLY AIR DUCTWORK EXCEPT TAKEOFFS TO SUPPLY AIR DIFFUSERS TO BE SINGLE WALL RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A, EXTERNALLY INSULATED WITH 2" THICK FIBERGLASS DUCT WRAP. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
16. NEW RETURN AIR DUCTWORK TO BE SINGLE WALL RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS. PROVIDE 2" THICK EXTERNAL FIBERGLASS WRAP.
17. NEW OUTSIDE AIR INTAKE DUCTWORK TO BE SINGLE WALL RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A, EXTERNALLY INSULATED WITH 2" THICK FIBERGLASS WRAP. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
18. NEW EXHAUST AIR DUCTWORK TO BE LOW PRESSURE SINGLE WALL RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A. EXTERNALLY INSULATED WITH 2" THICK FIBERGLASS WRAP. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
19. AVOID ROUTING DUCTWORK OVER LIGHTS WHEREVER POSSIBLE. MAINTAIN MINIMUM 6" CLEARANCE BETWEEN DUCT INSULATION TO TOP OF LIGHTS.
20. WORK SHALL COMPLY WITH THE FOLLOWING AGENCIES
    - 2017 FLORIDA BUILDING CODE.
    - 2017 FLORIDA MECHANICAL CODE.
    - 2017 FLORIDA PLUMBING CODE.
    - 2017 FLORIDA FUEL GAS CODE.
    - NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
    - AMERICAN SOCIETY OF HEATING AND REFRIGERATION ENGINEERS (ASHRAE)
21. TRANSFER DUCTS TO BE INTERNALLY INSULATED WITH 1" THICK ACOUSTICAL DUCT LINER. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
22. KEEP MECHANICAL SYSTEMS TIGHT TO STRUCTURE AT ALL TIMES.
23. ALL ROOF PENETRATIONS AND ROOF MOUNTED EQUIPMENT THRU AND /OR LOCATED ON THE SLOPED PORTION OF THE ROOF SHALL BE PAINTED.
24. ALL PIPING LOCATIONS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL PIPING ELEVATIONS IN THE FIELD PRIOR TO FABRICATION. CONTRACTOR TO FIELD ADJUST PIPING RUNS TO COORDINATE WITH STRUCTURAL AND BUILDING SYSTEMS AS NECESSARY.
25. REFER TO SPECIFICATIONS FOR COMMISSIONING REQUIREMENTS. PROVIDE COMMISSIONING ASSISTANCE AS REQUIRED.
26. ALL REQUIRED TESTING AND BALANCING OF HVAC SYSTEMS AS REQUIRED BY THE PROJECT MANUAL WILL BE OWNER PROVIDED UNDER SEPARATE CONTRACT. SEE SPECIFICATION. THE CONTRACTOR SHALL COORDINATE ALL SCHEDULED TEST AND BALANCE ACTIVITIES WITH THE OWNER'S TEST AND BALANCE CONTRACTOR AS REQUIRED. PROVIDE TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS BY A NEBB OR AABC CERTIFIED TESTING, ADJUSTING, AND BALANCING CONTRACTOR. PROVIDE TAB REPORTS AS PER THE STANDARD NEBB OR AABC REPORT FORMS. BALANCE AND ADJUST SYSTEMS AS PER DESIGN DOCUMENT REQUIREMENTS. PROVIDE WARRANTY AND PERFORMANCE GUARANTEE FOR TESTING, ADJUSTING, AND BALANCING.

GENERAL PIPING NOTES

1. ALL PIPING LOCATIONS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL PIPING ELEVATIONS IN THE FIELD PRIOR TO FABRICATION.
2. INSULATE ALL INDOOR CHILLED WATER AND HOT WATER PIPING, FITTINGS, VALVES AND ACCESSORIES PER SPECIFICATIONS.
3. PROVIDE ADHESIVE PIPE MARKER EVERY 50' IN EXPOSED LOCATIONS AND EVERY 25' IN CONCEALED LOCATIONS INDICATING PIPE SERVICE. PIPE MARKER COLOR SHALL BE GREEN AND INDICATE DIRECTION OF FLOW.
4. BUTTERFLY VALVES SHALL BE RATED AT A MINIMUM OF 150 PSIG WOG AND SHALL PROVIDE BUBBLETIGHT SHUTOFF. VALVES SHALL HAVE LUG STYLE CAST IRON BODY, ALUMINUM BRONZE DISC, 416 STAINLESS STEEL STEM, EPDM SLEEVES, SEATS AND O-RINGS, AND GEAR OPERATOR WITH DUCTILE IRON HANDWHEEL. VALVES SHALL BE SUITABLE FOR DEAD END SERVICE AND SHALL BE MILWAUKEE 'M' SERIES. -NO EQUAL. GEAR OPERATORS SHALL HAVE MEMORY POSITIONING DEVICE (TRAVEL ADJUSTMENT SCREW) FOR PERMANENT REGISTERING OF FINAL TAB SETTING.
5. ALL BALL VALVES SHALL BE BRONZE BODY, THREADED ENDS, ALL STAINLESS STEEL TRIM, MILWAUKEE 20BSOR-02.
6. PRESSURE/TEMPERATURE TEST PORTS SHALL BE BRASS BODY 1/4" MPT WITH DUAL NORDEL SEALS AND BRASS CAP W/RETAINER STRAP, FLOW DESIGN INC. SUPERSEAL. PROVIDE 2-3/4" LENGTH FOR INSULATED PIPING AND 1-1/4" LENGTH FOR NON-INSULATED PIPING. INSTALL P/T PORTS IN GALVANIZED MALLEABLE IRON SCREWED REDUCING TEE IN STEEL PIPING SIZE 2" AND SMALLER. INSTALL P/T PORTS IN FORGED STEEL THREDOLETS OR WELDED REDUCING TEE IN PIPING SIZE 2 1/2" AND LARGER. HALF COUPLINGS ARE NOT ALLOWABLE. MOUNT P/T PORTS IN VERTICAL POSITION.
7. THE USE OF BUSHINGS AND CLOSE NIPPLES FOR THREADED CONNECTIONS OF ANY KIND IS NOT ALLOWABLE.
8. NEW BUILDING AND OUTDOOR CHILLED WATER AND HOT WATER PIPING TO BE DOMESTIC MADE SCHEDULE 40 STEEL. PROVIDE FLANGED, WELDED, OR GROOVED END CONNECTIONS.
9. PROVIDE PIPE CONNECTIONS AND VIBRATION ISOLATORS FOR INTERNALLY ISOLATED MECHANICAL EQUIPMENTS.
10. COMPLY WITH MSS SP-58 (PIPE HANGERS AND SUPPORTS-MATERIALS, DESIGN, AND MANUFACTURE), MSS SP-69 (PIPE HANGERS AND SUPPORTS-SELECTION AND APPLICATION), MSS SP-89 (PIPE HANGERS AND SUPPORTS-FABRICATION AND INSTALLATION) FOR PIPE HANGER SELECTIONS AND APPLICATIONS.
11. PROVIDE WALL SLEEVE AND ESCUTCHEON PLATES FOR ALL WALL PIPING PENETRATIONS. GALVANIZED STEEL SHEET SLEEVES. PROVIDE A MINIMUM 1" ANNULAR SPACE. PROVIDE CONTINUOUS INSULATION THROUGH SLEEVE.
12. ALL PIPING PENETRATIONS (FIRE WALLS, CEILINGS, FLOORS) SHALL BE UL LISTED FIRESTOPS AND SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL OBTAIN MANUFACTURER SHOP DRAWINGS AT JOBSITE FOR ALL PENETRATIONS.
13. PROVIDE HEAT TRACE AND POWER FOR ALL NEW WEATHER EXPOSED INSULATED CHILLED WATER PIPING AND DOMESTIC WATER PIPING.
14. PROVIDE INSULATION AND ALUMINUM JACKET FOR ALL NEW WEATHER EXPOSED INSULATED HYDRONIC PIPING AND DOMESTIC WATER PIPING.
15. ALL PIPING INSIDE MECHANICAL ROOM SHALL BE INSULATED PER SPECIFICATIONS. PROVIDE WITH PVC JACKET.
16. ALL WORK WHICH REQUIRES POWER OUTAGE SHUTDOWN SHALL BE COMPLETED IN A CONSECUTIVE 24 HOUR PERIOD. THE WORK SHALL BE COMMENCED AT 7:00 AM ON THE SHUTDOWN DAY AND SHALL BE COMPLETED AT OR BEFORE 7:00 AM ON THE FOLLOWING DAY. COORDINATE WITH OWNER.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND DELIVERING TO THE SITE ALL EQUIPMENT, PIPING, VALVES, ACCESSORIES AND OTHER MATERIALS REQUIRED FOR COMPLETION OF THE SHUTDOWN WORK IN THE SPECIFIED TIME PERIOD. THE CONTRACTOR IS ENCOURAGED TO UTILIZE PREFABRICATED PIPING ASSEMBLIES TO THE MAXIMUM EXTENT PRACTICABLE.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REFILLING THE SYSTEM AND LEAK TESTING THE PIPING PRIOR TO COMPLETION OF SHUTDOWN WORK.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VENTING AIR FROM THE SYSTEM AND ASSISTING THE OWNER IN RESTARTING THE SYSTEM FOLLOWING COMPLETION OF SHUTDOWN WORK AT 7:00 AM ON THE DAY FOLLOWING THE SHUTDOWN DAY.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND DELIVERING TO THE SITE ALL EQUIPMENT, PIPING, VALVES, ACCESSORIES AND OTHER MATERIALS REQUIRED FOR COMPLETION OF THE SHUTDOWN WORK IN THE SPECIFIED TIME PERIOD. THE CONTRACTOR IS ENCOURAGED TO UTILIZE PREFABRICATED PIPING ASSEMBLIES TO THE MAXIMUM EXTENT PRACTICABLE.
21. RE-INSULATION WORK, CLEAN-UP, AND OTHER TASKS NOT REQUIRING SYSTEM SHUTDOWN SHALL BE ACCOMPLISHED WITHIN 3 WORKING DAYS OF SUCCESSFUL SYSTEM START-UP.

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
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Revision

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Drawing No.: M002

AIR COOLED CHILLER SCHEDULE

MARK	NOMINAL CHILLER CAPACITY (TONS)	MIN. CHILLER CAPACITY (TONS)	CHILLER TYPE	REFRIG. TYPE	LIQUID TYPE	AHRI EER	AHRI IPLV	EVAPORATOR DATA					CONDENSER DATA				COMPRESSOR DATA			ELECTRICAL DATA			
								GPM	ENT. WATER TEMP. (DEG F)	LVG. WATER TEMP. DEG F)	MAX. WATER PD (FT. WC)	FOULING FACTOR	DB AMB. TEMP. DB (DEG F)	DB LOW AMB. TEMP. DB (DEG F)	CONDENSER FANS QTY	CONDENSER FANS FLA	MIN. QTY.	RLA	PART LOAD APPROX. % RANGE	MCA	VOLTS	PHASE	Hz
ACC-1	55	50	SCROLL	R410A	WATER	10.6	15.6	100	56	44	10	0.00010	95	0	4	4.0	4	58.0	25-100	291	208	3	60

NOTES:

1. EER – ENERGY EFFICIENCY RATIO. POWER INPUTS SHALL INCLUDE ALL COMPRESSORS, CONDENSER FANS, AND CONTROL POWER AT FULL LOAD CONDITIONS.
2. IPLV – INTEGRATED PART LOAD VALUE OF EER'S AT ARI CONDITIONS.
3. PROVIDE CHILLER WITH LOW AMBIENT CONTROLS AND HOT GAS BYPASS.
4. PROVIDE FACTORY MOUNTED DISCONNECT SWITCH, POWER SUPPLY MONITOR, AND ACROSS THE LINE STARTER.
5. PROVIDE COMPLETE COAT – FACTORY DIP AND BAKE COATING FOR CONDENSER COIL.
6. PROVIDE VANDAL-PROOF LOUVERS AROUND BOTTOM OF CHILLER PERIMETER OPENING TO PROTECT PIPING, INSULATION, ETC.
7. PROVIDE WITH SINGLE POINT POWER CONNECTION WITH CONVENIENCE OUTLET.
8. PROVIDE LOW SOUND PACKAGE; LOW NOISE FANS, COMPRESSOR SOUND ATTENUATION PACKAGE
9. PROVIDE EVAPORATOR WITH FREEZE PROTECTION. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL.
10. PROVIDE FACTORY WEATHERPROOF CONTROL PANEL WITH MICROPROCESSOR BASED OPERATING AND SAFETY CONTROLS, STARTERS AND CONTROL VOLTAGE TRANSFORMER.
11. PROVIDE WITH FACTORY INSTALLED HYDRO-KIT – TWO PUMPS AND HYDRONIC ACCESSORIES PACKAGE.
12. PROVIDE WITH VFD FOR PUMPS (5HP, 100 GPM, 65' HEAD), BALANCING VALVE, DISCHARGE CHECK VALVE, DISCHARGE SHUTOFF VALVE, THERMAL DISPERSION FLOW SWITCH PRESSURE PORTS, INLET WYE-STRAINER, BLEED AND DRAIN VALVES AND FROST PROTECTION.
13. PROVIDE WITH EXPANSION TANK, SERVICE SHUTOFF VALVES, P/T PORTS FOR EXPANSION TANK.
14. SEE PUMP SCHEDULE AND EXPANSION TANK SCHEDULE FOR DETAILS.
15. CONTROLS CONTRACTOR SHALL PROVIDE DIFFERENTIAL PRESSURE SENSOR AND SENSOR SHALL BE CONNECTED TO CHILLER CONTROLS TO MODULATE THE CHILLED WATER PUMP.
16. PROVIDE CHILLER WITH BACNET INTERFACE TO BUILDING DDC SYSTEM.
17. BASIS OF DESIGN IS QUANTECH QTC 3055 EQUAL TO DAIKIN AGZ050E OR ENGINEER APPROVED EQUAL.

CONDENSING BOILER SCHEDULE

MARK	BOILER RATINGS				FUEL TYPE	FIRING RATE (CFH)	COMBUSTION CONTROL	GPM	EWT (DEG. F)	LWT (DEG. F)	ELECTRICAL DATA		
	MIN. INPUT (MBH)	MIN. GROSS OUTPUT (MBH)	MIN. EFFICIENCY (%)	DESIGN PRESS. (PSIG)							VOLTS	PHASE	Hz
B-1	282	260	92%	125	NATURAL GAS	283	MODULATING	26	110	130	115	1	60

NOTES:

1. MINIMUM EFFICIENCY TO BE THE STEADY STATE THERMAL EFFICIENCY AT HIGH FIRE RATE.
2. PROVIDE NATURAL GAS TRAIN CSD-1 AND SOLENOID VALVE BY BOILER MANUFACTURER.
3. INTERLOCK BOILER WITH DEDICATED BOILER PRIMARY PUMP PER BOILER MFR CONTROLS REQUIREMENTS.
4. COORDINATE 120V POWER WITH ELECTRICAL.
5. PROVIDE GAS REGULATOR FOR THE BOILER.
6. BASIS OF DESIGN IS RAYPAK XFYRE 300.

AIR SEPARATOR SCHEDULE

MARK	SERVICE	FLOW RATE (GPM)	MAX. PRESS. DROP (FT. W.C.)	MAX. WORKING PRESS. (PSI)	MIN. INLET SIZE (IN.)	MIN. OUTLET SIZE (IN.)
AS-1	CHW	200	5	125	4	4
AS-2	HW	26.0	5	125	2.5	2.5

NOTES

1. PROVIDE TANGENTIAL INLINE TYPE.
2. BASIS OF DESIGN IS TACO.

EXPANSION TANK SCHEDULE

MARK	VOLUME (GAL.) TANK MIN.	VOLUME (GAL.) MIN. ACCEPTANCE VOL.	CHARGE PRESS. (PSI)	SERVICE
ET-1	8	8	25	CHW
ET-2	31	31	25	HW

NOTES:

1. ET-2 FULL BLADDER TYPE EXPANSION TANK.
2. RATED PRESSURE 125 PSI.
3. ET-1 PROVIDED AS PART OF CHILLER PACKAGE. BASIS OF DESIGN FOR ET-2 IS TACO.

CHEMICAL FEEDER SCHEDULE

MARK	SERVICE	VOLUME (GAL)	RATED PRESSURE (PSI)
CF-1	CHW	5	200
CF-2	HW	5	200

NOTE:

1. BASIS OF DESIGN IS J. L. WINGERT 5HD

HYDRONIC PUMP SCHEDULE

MARK	SERVICE	TYPE	PERFORMANCE DATA FLOW (GPM)	HEAD (FT. W.C)	MIN. EFF. (%)	MAX. SPEED (RPM)	ELECTRICAL DATA MIN. POWER HP	VOLTS	PHASE	Hz	REMARKS
CHWP-1	CHILLED	IL	100	65	60%	1,760	5	208	3	60	NOTE 3
CHWP-2	CHILLED	IL	100	65	60%	1,760	5	208	3	60	NOTE 3
HWP-1	HOT WATER	IL	25.5	50	60%	1,760	2	208	3	60	NOTE 4
HWP-2	HOT WATER	IL	25.5	50	60%	1,760	2	208	3	60	NOTE 4
BP-1	BOILER #1	IL	SIZED PER BOILER MANUFACTURER				1.0	115	1	60	INTERLOCK WITH BOILER

PUMP SCHEDULE NOTES:

1. IL – INLINE CLOSE COUPLED PUMP.
2. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL.
3. ALL CHWP VFD'S ARE TO BE PROVIDED AS PART OF THE CHILLER-PUMP PACKAGE. BALANCE PUMP TO 70.2 GPM PER CLASSROOM FCU SCHEDULE.
4. ALL HWP VFD'S ARE TO BE PROVIDED BY CONTROLS CONTRACTOR.
5. BASIS OF DESIGN FOR HWP AND BP IS TACO.

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

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Date: 8-2-2018

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Drawing Title:
MECHANICAL SCHEDULES

Drawing No.: M003

DX DUCTLESS SPLIT (COOLING ONLY) SCHEDULE

	SEE NOTE 1		WALL MOUNT INDOOR UNIT										OUTDOOR UNIT									
				COOLING PERFORMANCE						ELECTRICAL DATA				AMBIENT TEMP.						ELECTRICAL DATA		
				EAT		LAT								SUMMER		WINTER	COMPRESSOR		CONDENSER FAN				
MARK	ARI COOLING CAPACITY (MBH)	MIN. SEER	AIRFLOW (CFM)	DB (DEG F)	WB (DEG F)	DB (DEG F)	WB (DEG F)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	VOLTS	PHASE	Hz	MARK	DB (DEG F)	WB (DEG F)	DB (DEG F)	QTY	MOCP	QTY	UNIT MCA	VOLTS	PHASE	Hz
DAC-1	12.0	15	380	72.2	58.2	55.0	51.1	7.4	7.3	208	1	60	DCU-1	93	81	29	1	15	1	8.6	208	1	60

NOTES:

1. MANUFACTURER RATED CAPACITY AT ARI STANDARD CONDITIONS.
2. PROVIDE UNIT WITH LOW AMBIENT CONTROLS FOR OPERATION DOWN TO 0 DEG F.
3. REFRIGERANT PIPING SIZE, ROUTING, AND CONFIGURATION SHALL BE AS RECOMMENDED BY MANUFACTURER OF AIR CONDITIONING UNIT. INSULATE ENTIRE SUCTION AND LIQUID LINE WITH MINIMUM 3/4" THICK UNICELLULAR INSULATION.
4. PROVIDE COMPRESSOR WITH ANTI-SHORT CYCLE CONTROLS AND TIME DELAY ON COMPRESSOR RESTART.
5. PROVIDE OUTDOOR UNIT WITH CORROSION PROTECTION FOR COILS AND CASINGS.
6. BASIS OF DESIGN IS DAIKIN.

CLASSROOM FAN COIL UNIT SCHEDULE

						OA COOLING COIL DATA (PRECONDITIONED)											OA HEATING COIL DATA (PREHEAT)							
									EAT (DEG F)		LAT (DEG F)		CHW TEMP. (DEG F)					MIN. TOTAL CAP. (MBH)	AIR TEMP. (DEG F)		HW TEMP. (DEG F)				
MARK	TYPE	SA FAN (CFM)	SA ESP (IN. W.C.)	OA FAN (CFM)	OA ESP (IN. W.C.)	MIN. TOTAL CAP. (MBH)	MIN. SENS. CAP. (MBH)	MIN. LAT. CAP. (MBH)	DB	WB	DB	WB	EWT	LWT	GPM	CV TYPE	MAX. PD (FT. W.C.)		EAT	LAT	EWT	LWT	GPM	CV TYPE	MAX. PD (FT. W.C.)
FCU-9	VDT	1,460	0.5	410	0.5	42.0	17.4	24.6	93	81	53.9	52.7	44	56	7.0	2-WAY	15	11.6	29	55	130	110	1.2	2-WAY	10
FCU-10	VDT	1,675	0.5	410	0.5	42.0	17.4	24.6	93	81	53.9	52.7	44	56	7.0	2-WAY	15	11.6	29	55	130	110	1.2	2-WAY	10
FCU-11	VDT	1,140	0.5	405	0.5	41.5	17.2	24.3	93	81	53.9	52.7	44	56	6.9	2-WAY	15	11.4	29	55	130	110	1.1	2-WAY	10
FCU-12	VDT	1,345	0.5	405	0.5	41.5	17.2	24.3	93	81	53.9	52.7	44	56	6.9	2-WAY	15	11.4	29	55	130	110	1.1	2-WAY	10
FCU-13	VDT	1,300	0.5	405	0.5	41.5	17.2	24.3	93	81	53.9	52.7	44	56	6.9	2-WAY	15	11.4	29	55	130	110	1.1	2-WAY	10
FCU-14	VDT	1,500	0.5	415	0.5	42.5	17.6	24.9	93	81	53.9	52.7	44	56	7.1	2-WAY	15	11.7	29	55	130	110	1.2	2-WAY	10
FCU-15	VDT	1,300	0.5	N/A	N/A	NOT APPLICABLE																			

CLASSROOM FAN COIL UNIT SCHEDULE CONTINUED

	COOLING COIL DATA (PRIMARY)												HEATING COIL DATA (REHEAT)								ELECTRICAL DATA		
					EAT (DEG F)		LAT (DEG F)		CHW TEMP. (DEG F)														
MARK	SA FAN (CFM)	MIN. TOTAL CAP. (MBH)	MIN. SENS. CAP. (MBH)	MIN. LAT. CAP. (MBH)	DB	WB	DB	WB	EWT	LWT	GPM	CV TYPE	MAX. PD (FT. W.C.)	MIN. TOTAL CAP. (MBH)	AIR TEMP. (DEG F) EAT	AIR TEMP. (DEG F) LAT	HW TEMP. (DEG F) EWT	HW TEMP. (DEG F) LWT	GPM	CV TYPE	MAX. PD (FT. W.C.)	SA FAN POWER (HP)	OA FAN POWER (HP)	V/PH/HZ
FCU-9	1,460	25.9	21.6	4.3	67.0	57.7	54.0	51.2	44	56	4.3	3-WAY	10	28.5	66.0	84.0	130	110	2.9	3-WAY	10	3/4	1/8	208/1/60
FCU-10	1,675	29.6	25.0	4.6	67.5	57.8	54.0	51.3	44	56	4.9	3-WAY	10	32.0	66.4	84.0	130	110	3.2	3-WAY	10	3/4	1/8	208/1/60
FCU-11	1,140	18.6	14.4	4.2	65.4	57.6	54.0	51.7	44	56	3.1	3-WAY	10	23.4	65.1	84.0	130	110	2.3	3-WAY	10	3/4	1/8	208/1/60
FCU-12	1,345	25.2	20.4	4.8	66.6	57.7	53.2	50.8	44	56	4.2	3-WAY	10	26.7	65.7	84.0	130	110	2.7	3-WAY	10	3/4	1/8	208/1/60
FCU-13	1,300	22.9	18.5	4.4	66.6	58.0	54.0	51.6	44	56	3.8	3-WAY	10	25.8	65.7	84.0	130	110	2.6	3-WAY	10	3/4	1/8	208/1/60
FCU-14	1,500	26.7	22.2	4.5	67.5	58.0	54.0	51.6	44	56	4.5	3-WAY	10	29.1	66.1	84.0	130	110	2.9	3-WAY	10	3/4	1/8	208/1/60
FCU-15	1,300	33.9	28.2	5.7	73.6	61.0	54.0	51.9	44	56	5.7	3-WAY	10	25.0	66.3	84.0	130	110	2.5	3-WAY	10	3/4	1/8	208/1/60

CLASSROOM FAN COIL UNIT SCHEDULE NOTES:

1. MANUFACTURER SHALL ALLOW A MINIMUM OF 0.5" EXTRA STATIC FOR DIRTY INITIAL FILTERS. EXTERNAL STATIC DOES NOT INCLUDE PRESSURE DROP THROUGH COILS AND FILTERS LOCATED INSIDE FAN COIL UNIT.
2. PROVIDE WITH FACTORY CONTROL VALVE PACKAGE, AUTOFLOW, MANUAL AIR VENT, AND INTERNAL COIL DRAIN. SEE SPECS.
3. PROVIDE SINGLE POWER POINT CONNECTION. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL.
4. PROVIDE WITH FACTORY SIZED AND MOUNTED INTERNAL CONDENSATE PUMP.
5. PROVIDE INSULATED IAQ STAINLESS STEEL DRAIN PANS. FURNISH AND FIELD INSTALL CONDENSATE DRAIN PAN FLOAT VALVE.
6. WIRE VALVE INTO LOW VOLTAGE POWER SUPPLY TO SHUT UNIT DOWN IF THE CONDENSATE PUMP FAILS. PROVIDE ALARM TO DDC PANEL.
7. PROVIDE FACTORY MOUNTED AND WIRED SPEED CONTROLLER.
8. PROVIDE WITH FACTORY MOUNTED DISCONNECT.
9. VDT – VERTICAL DRAW THROUGH (DUCTED UNIT) WITH HINGED FRONT ACCESS PANEL.
10. VDT TYPE FCU – PROVIDE TOP DUCTWORK CONNECTION. COORDINATE WITH ARCHITECTURAL DWGS FOR CLASSROOM CEILING HEIGHT.
11. CABINET SHALL BE POWDER COATED 14 GA. STEEL WITH 1" THICK. COATED 3.0 P.C.F. DENSITY INSULATION.
12. PROVIDE 2 INCH MERV 8 RATED PLEATED FILTERS.
13. FCU 9-14: PROVIDE FACTORY FURNISHED OUTDOOR AIR PLENUM AND MOTORIZED DAMPER. SEE SPECIFICATIONS.
14. FCU 9-14: PROVIDE UNIT WITH FACTORY MOUNTED FREEZESTAT FOR FREEZE PROTECTION.
15. FCU 9-14: BASIS OF DESIGN IS TEMSPEC VGB.
16. FCU-15: BASIS OF DESIGN IS TEMSPEC TC SERIES.

FAN SCHEDULE

				PERFORMANCE DATA					ELECTRICAL DATA		
MARK	TYPE	DRIVE	CONTROL INTERLOCKS	CFM	E.S.P. (IN. W.C.)	MAX. RPM	MAX. SONES	MAX. POWER	VOLTS	PHASE	Hz
EF-9	CEF	DD	LIGHT SWITCH	200	0.75	1,250	4	135 W	115	1	60
EF-10	CEF	DD	LIGHT SWITCH	200	0.75	1,250	4	135 W	115	1	60
EF-11	CEF	DD	LIGHT SWITCH	200	0.75	1,250	4	135 W	115	1	60
EF-12	CEF	DD	LIGHT SWITCH	200	0.75	1,250	4	135 W	115	1	60
EF-13	CEF	DD	LIGHT SWITCH	200	0.75	1,250	4	135 W	115	1	60
EF-14	CEF	DD	LIGHT SWITCH	200	0.75	1,250	4	135 W	115	1	60
EF-15	CEF	DD	LIGHT SWITCH	200	0.75	1,250	4	135 W	115	1	60
EF-16	CEF	DD	LIGHT SWITCH	200	0.75	1,250	4	135 W	115	1	60

FAN SCHEDULE NOTES:

1. CEF – CEILING MOUNT, ICF – INLINE CABINET FAN, DD– DIRECT DRIVE
2. PROVIDE FANS WITH SPEED CONTROLLER FOR AIR FLOW BALANCING. MOUNT CONTROLLER WITHIN FAN HOUSING.
3. PROVIDE FAN WITH AN INTEGRAL DISCONNECT.
4. PROVIDE WITH GRAVITY BACKDRAFT DAMPER.
5. REFER TO FIRE ALARM DRAWINGS FOR FIRE ALARM SHUTDOWN RELAYS.
6. SEE ELECTRICAL FOR COMBINATION MOTOR STARTER/DISCONNECT.
7. BASIS OF DESIGN IS GREENHECK SP.

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

Rev.	No.	Description

Drawn By: AL
Checked By: WJJ
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Drawing Title: MECHANICAL SCHEDULES
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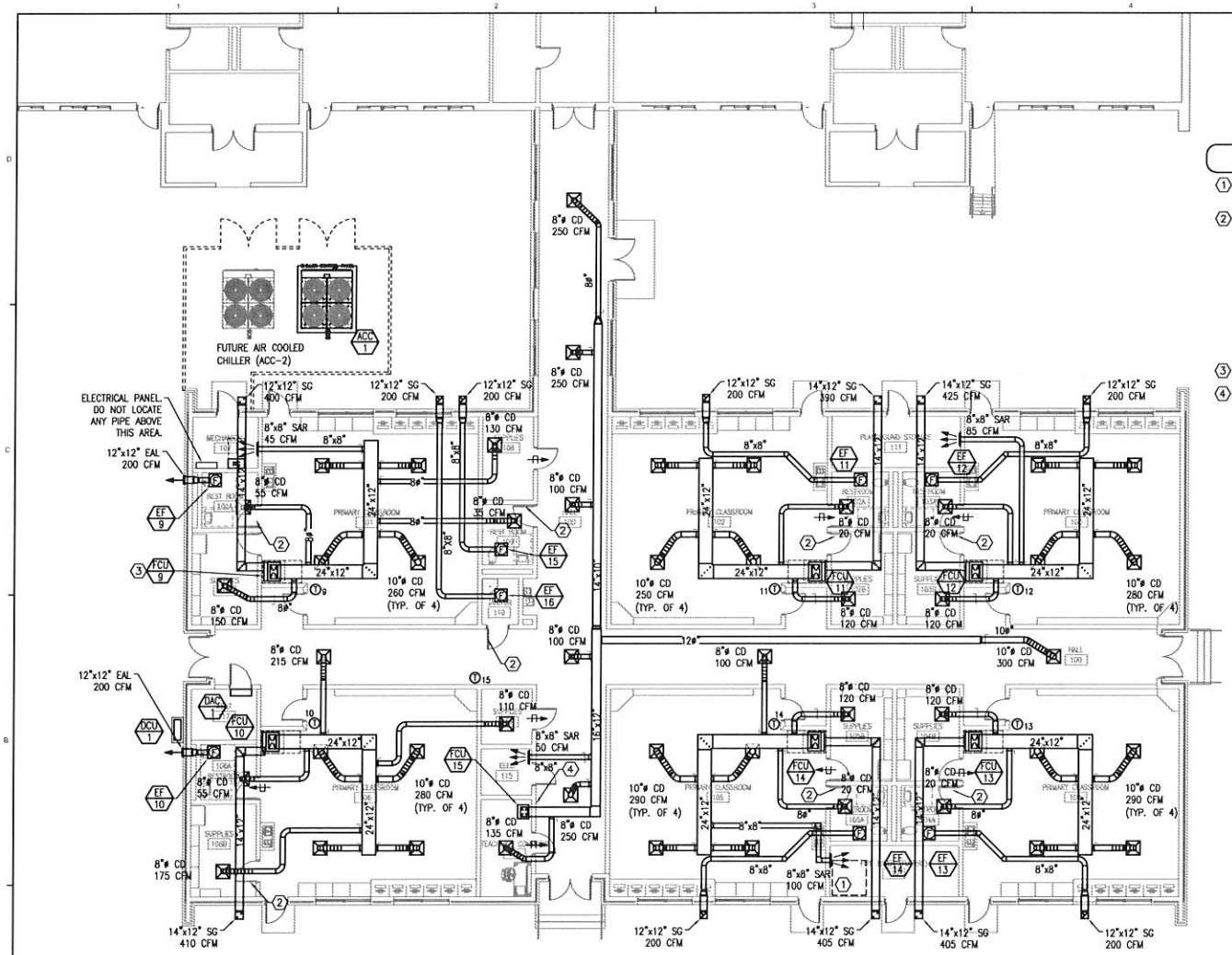

1 MECHANICAL PLAN

SCALE: 1/8"=1'-0"

SHEET NOTES

1. FIRE RISER LOCATION. DASHED LINE INDICATES RISER CLEARANCE. DO NOT IMPEDE THIS AREA.
2. PROVIDE 24"x12" DOOR GRILLE FOR THE FOLLOWING ROOMS:
   - RM. 101A – RESTROOM
   - RM. 101B – SUPPLIES
   - RM. 102A – RESTROOM
   - RM. 103A – RESTROOM
   - RM. 104A – RESTROOM
   - RM. 105A – RESTROOM
   - RM. 106A – RESTROOM
   - RM. 106B – SUPPLIES
   - RM. 108 – SUPPLIES
   - RM. 109 – RESTROOM
   - RM. 116 – TEACHER COMMONS
3. REFER TO DETAIL 6/M301 FOR TYPICAL CLASSROOM FAN COIL UNITS.
4. FULL LOUVERED DOOR. COORDINATE WITH ARCHITECTURAL.

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
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Revision

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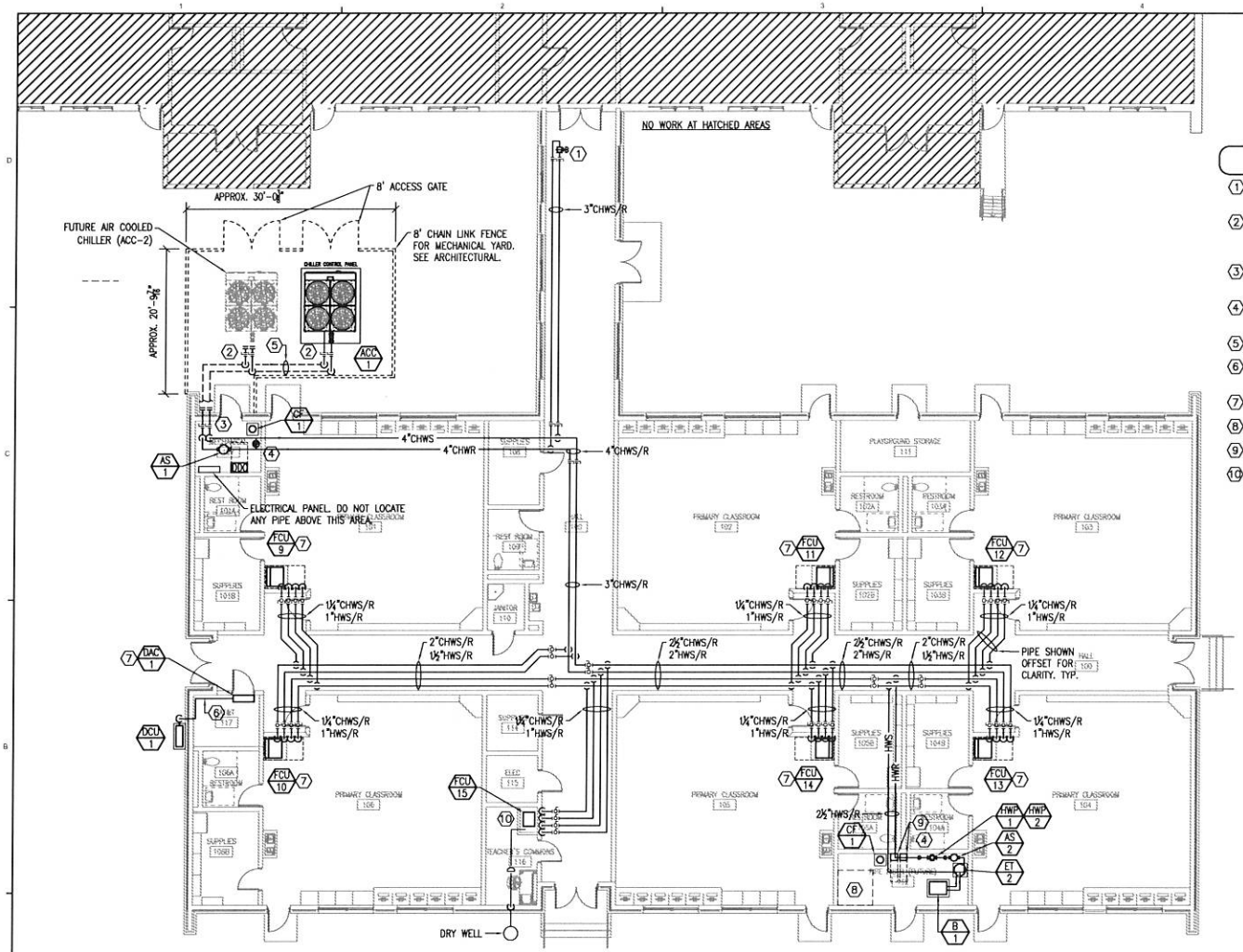
Drawing No.:	M101



SHEET NOTES

1. FUTURE CONNECTION. PROVIDE WITH BALANCING VALVE, ISOLATION VALVES AND DRAIN POINT. BALANCE FLOW TO 35 GPM.
2. PROVIDE WITH GALVANIZED PIPE SUPPORT PER DETAIL 4/M301. PROVIDE INSULATION PER SPECIFICATION AND ALUMINUM JACKET ALONG WITH 5W/SF HEAT TRACE. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL. 115V/1PH.
3. 4"CHWS/R EMERGENCY CHILLER CONNECTION. PROVIDE WITH ISOLATION VALVES AND BLIND FLANGES.
4. MOTORIZED BYPASS VALVE AND DIFFERENTIAL PRESSURE SENSOR LOCATION. SEE CONTROLS.
5. PRE-INSULATED UNDERGROUND 4"CHWS/R PIPING.
6. ROUTE REFRIGERANT PIPING ABOVE CEILING AND DOWN TO CONDENSING UNIT. REFER TO DETAIL 5/M301.
7. ROUTE CONDENSATE TO HUB DRAIN. SEE PLUMBING FOR HUB DRAIN LOCATIONS.
8. AREA RESERVED FOR FUTURE FIRE RISER.
9. PROVIDE VFDS FOR HWP. COORDINATE LOCATION WITH ELECTRICAL.
10. ROUTE FCU-15 CONDENSATE DRAIN ABOVE CEILING, DOWN INSIDE WALL CAVITY AND TO EXTERIOR DRY WELL. LOCATE DRY WELL AT APPROX. 2' FROM BUILDING STRUCTURE.

1 MECHANICAL PLAN

SCALE: 1/8"=1'-0"

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
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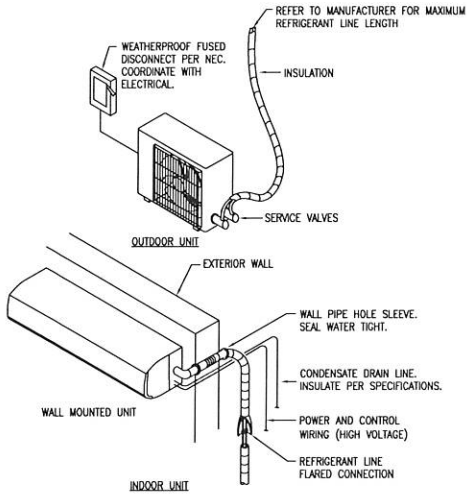
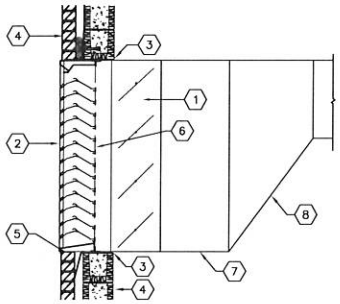


NOTES:
1. MOUNT UNIT PER MANUFACTURER SPECIFICATIONS AND MINIMUM INSTALLATION CLEARANCES.
2. INSTALL ACCORDING TO ALL APPLICABLE NATIONAL AND LOCAL ELECTRICAL, MECHANICAL AND BUILDING CODES.
3. CONDENSATE LINE AND POWER LINE SHOWN OFFSET FOR CLARITY.

1 DUCTLESS HPU – INDOOR (WALL MOUNT) AND OUTDOOR UNIT DETAIL

NOT TO SCALE

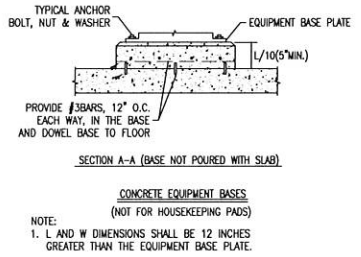


KEYNOTES:

1. MOTORIZED DAMPER WHERE INDICATED ON PLANS.
2. LOUVER SIZE AS INDICATED ON PLANS AND SCHEDULES.
3. SECURE TO STRUCTURE PER MANUFACTURER.
4. FACE OF WALL.
5. SEAL WEATHER PROOF
6. BIRD SCREEN
7. PLENUM FOR TRANSITION TO DUCT, OR SLEEVE FOR TRANSITION TO UNIT. EXTERNALLY INSULATE.
8. PROVIDE SLOPE TRANSITION FROM DUCTWORK CONNECTION TO BOTTOM OF LOUVER FOR DRAINING OF ANY WATER INTRUSION.

2 TYPICAL FLANGELESS LOUVER MOUNTING DETAIL

NOT TO SCALE



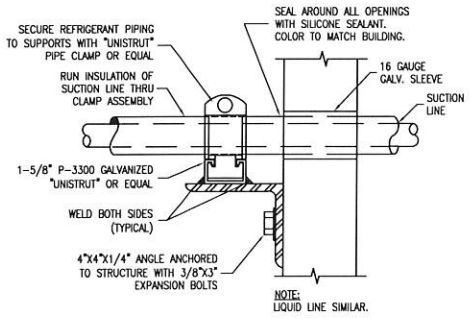
SECTION A-A (BASE NOT POURED WITH SLAB)

CONCRETE EQUIPMENT BASES
(NOT FOR HOUSEKEEPING PADS)

NOTE:
1. L AND W DIMENSIONS SHALL BE 12 INCHES GREATER THAN THE EQUIPMENT BASE PLATE.

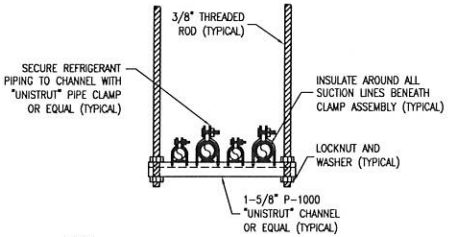
3 CONCRETE BASE DETAIL

M202
NOT TO SCALE



4 REFRIGERANT PIPE SUPPORT AT WALL DETAIL

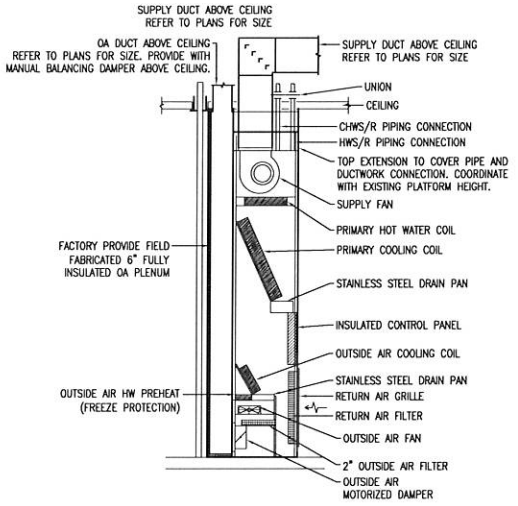
M201
NOT TO SCALE



NOTES:
1. PREP AND PAINT CHANNEL AFTER CUTTING AND BEFORE INSTALLATION
2. SUPPORT CHANNEL FROM STRUCTURE ABOVE
3. PROVIDE SUPPORT PER PROJECT SPECIFICATIONS AND WITHIN 6" OF ANY ELBOW

5 OVERHEAD INTERIOR REFRIGERANT PIPE SUPPORT DETAIL

M201
NOT TO SCALE



6 TYPICAL CLASSROOM FAN COIL UNIT DETAILS

NOT TO SCALE

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
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Revision

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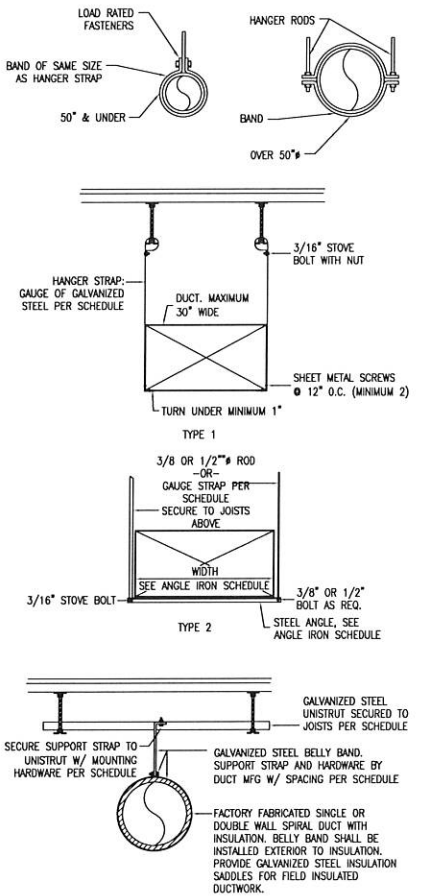


1 DUCT SUPPORT DETAILS

M202
NOT TO SCALE

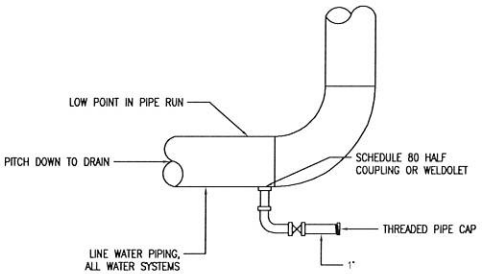
HANGER STRAPS OR RODS			
MAX. DUCT ø (IN)	QUANTITY/SIZE (IN)	MAX. LOAD (LBS)	MAX. SPACING (IN)
26	ONE 1 x 22 GA STRAP	260	120
36	ONE 1 x 18 GA STRAP	420	120
50	ONE 1 x 16 GA STRAP	700	120
60	TWO 3/8 ø RODS	1320	120
84	TWO 1/2 ø RODS	2500	120

NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

ANGLE IRON SCHEDULE	
WIDTH	ANGLE SIZE
31" THRU 42"	1-1/2" x 1-1/2" x 1/8"
43" THRU 60"	1-1/2" x 1-1/2" x 1/8"
61" THRU 84"	2" x 2" x 1/4"
85" & OVER	2" x 2" x 1/4"

DUCT SCHEDULE				
1/2 DUCT PERIMETER(P/2)	GAUGE	HANGERS	MAXIMUM HANGER SPACING	JOINTS
30"	26	1"-22 GAUGE	10'-0" (TYPE 1)	FLAT "S" & DRIVE SLIP
72"	24	1"-18 GAUGE	10'-0" (TYPE 1)	STANDING "S"
96"	22	1"-16 GAUGE OR 1/2" ROD	10'-0" (TYPE 2)	STANDING "S"
120"	20	1.5"-18 GAUGE OR 1/2" ROD	10'-0" (TYPE 2)	STANDING "SR"
168"	18	1.5"-16 GAUGE OR 1/2" ROD	10'-0" (TYPE 2)	STANDING "SR"

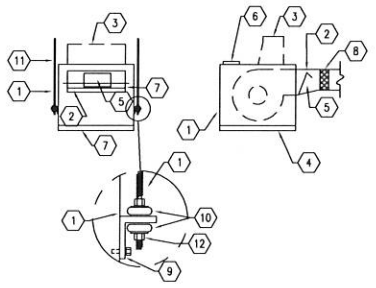
NOTES:
1. WHERE SCHEDULE CONFLICTS WITH MORE STRINGENT SMACNA DUCT CONSTRUCTION STANDARD, SMACNA SHALL BE USED.
2. UTILIZE RECTANGULAR DUCT INSTALLATION INSTRUCTIONS FOR FLAT OVAL DUCTWORK.



NOTES:
1. LOW POINTS IN ALL HEATING WATER AND CHILLED WATER TO BE PROVIDED WITH DRAINS.
2. CONTRACTOR HAS OPTION TO PROVIDE ¾" DRAIN COCKS ON ALL PIPING 2" AND SMALLER.

3 PIPE DRAIN DETAIL

NOT TO SCALE

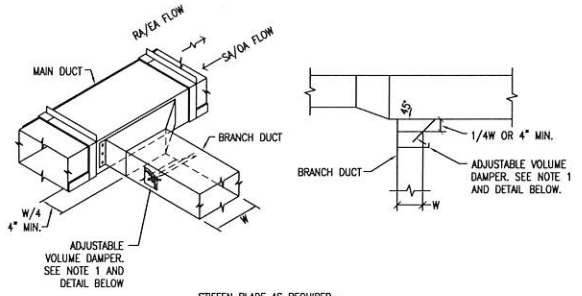


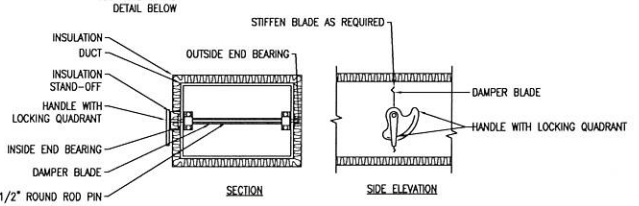
NOTE:
1. PROVIDE WITH BUILT IN BACKDRAFT DAMPER AND PAINTABLE WHITE CEILING GRILLE.
2. COORDINATE GRILLE COLOR WITH ARCHITECT.

KEYNOTES:
1. GALVANIZED STEEL HOUSING
2. HORIZONTAL DISCHARGE DUCT CONNECTION
3. OPTIONAL VERTICAL DISCHARGE
4. CEILING GRILLE
5. BACKDRAFT DAMPER
6. EXTERNAL ELECTRICAL ACCESS COVER
7. REMOVABLE AIRTIGHT ACCESS PANEL
8. FLEXIBLE DUCT CONNECTOR
9. ADJUSTABLE MOUNTING FLANGE
10. VIBRATION ISOLATOR, TOP AND BOTTOM
11. 3/16" DIAMETER THREADED HANGER RODS, TOTAL OF FOUR, SUPPORT FROM BUILDING STRUCTURE
12. NUT AND WASHER, TOP AND BOTTOM

2 CEILING MOUNT EXHAUST FAN DETAIL

M201
NOT TO SCALE





NOTES:
1. PROVIDE ADJUSTABLE VOLUME DAMPER WITH POSITIONING LEVER, EXTENSION SECTION (INSULATED DUCT ONLY) AND LOCKING WING NUT. VOLUME DAMPER SHALL BE SINGLE BLADE OR MULTI-BLADE DEPENDING ON DUCT SIZE.
2. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
3. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

4 BRANCH DUCT TAKEOFF AND VOLUME DAMPER DETAIL

NOT TO SCALE

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
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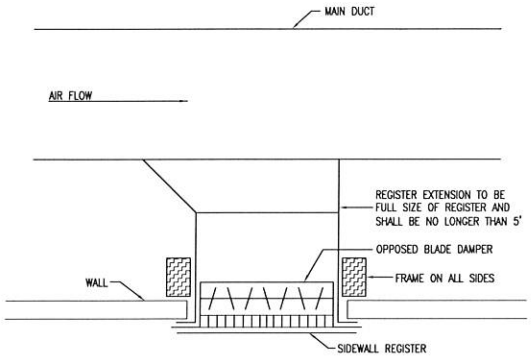
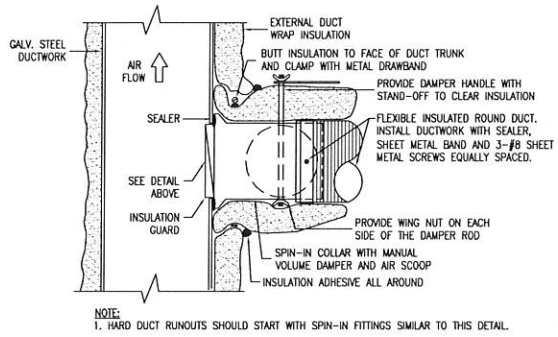
Drawing No.: M302

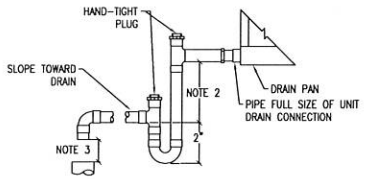


1 SIDEWALL REGISTER DETAIL
M201
NOT TO SCALE



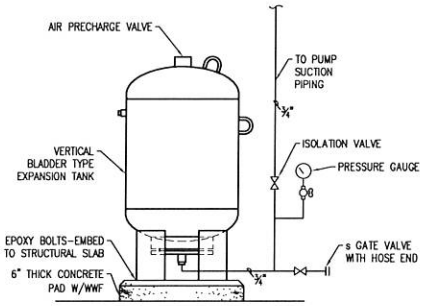
NOTE:
1. HARD DUCT RUNOUTS SHOULD START WITH SPIN-IN FITTINGS SIMILAR TO THIS DETAIL.

2 ROUND DUCT TAP-IN MOUNTING DETAIL
NOT TO SCALE

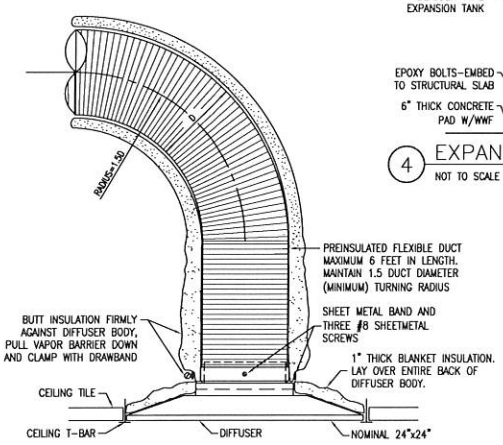


NOTE:
1. LOCATE TRAPS AND DRAIN SO AS TO BE ACCESSIBLE FOR CLEANING.
2. HEIGHT SHALL BE EQUAL TO AIR UNIT TOTAL STATIC PRESSURE IN INCHES WATER COLUMN PLUS ONE INCH. (TSP+1 IN W.G.)
3. PROVIDE AIR GAP BETWEEN FLOOR DRAIN AND CONDENSATE DRAIN EQUAL TO TWO TIMES THE DRAIN DIAMETER.

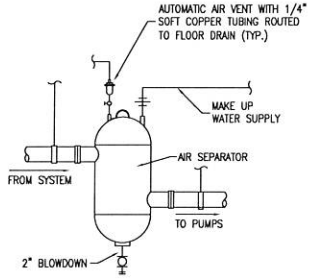
3 CONDENSATE DRAIN TRAP DETAIL
NOT TO SCALE



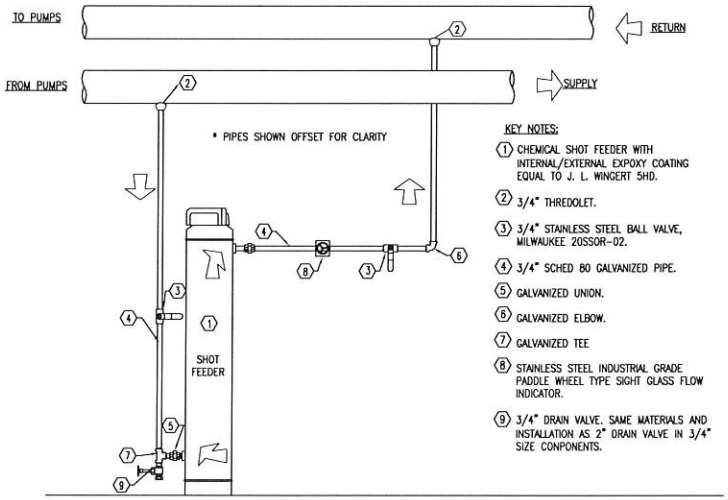
4 EXPANSION TANK DETAIL
NOT TO SCALE



5 CEILING DIFFUSER DETAIL
NOT TO SCALE



6 AIR SEPARATOR DETAIL
NOT TO SCALE



KEY NOTES:
1. CHEMICAL SHOT FEEDER WITH INTERNAL/EXTERNAL EXPOXY COATING EQUAL TO J. L. WINGERT 5HD.
2. 3/4" THREDOLET.
3. 3/4" STAINLESS STEEL BALL VALVE, MILWAUKEE 20SSOR-02.
4. 3/4" SCHED 80 GALVANIZED PIPE.
5. GALVANIZED UNION.
6. GALVANIZED ELBOW.
7. GALVANIZED TEE
8. STAINLESS STEEL INDUSTRIAL GRADE PADDLE WHEEL TYPE SIGHT GLASS FLOW INDICATOR.
9. 3/4" DRAIN VALVE. SAME MATERIALS AND INSTALLATION AS 2" DRAIN VALVE IN 3/4" SIZE CONPONENTS.

7 CHEMICAL SHOT FEEDER TYPICAL INSTALLATION DETAIL
NOT TO SCALE
TYP. FOR CF-1 AND CF-2

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CONSTRUCTION DOCUMENTS (PHASE III)

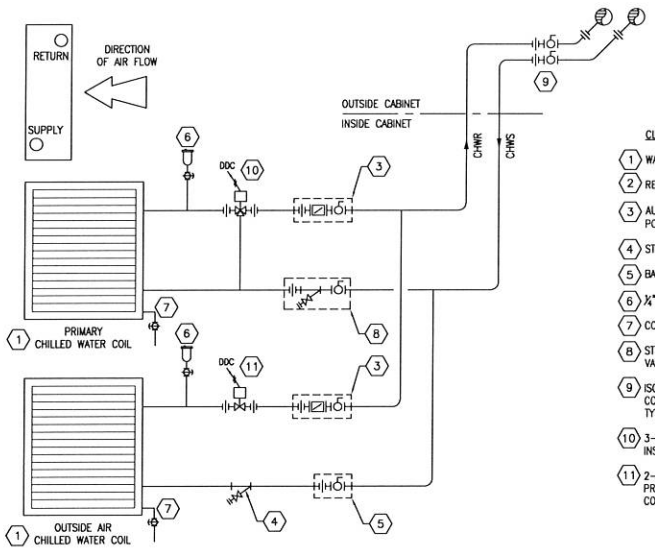
Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

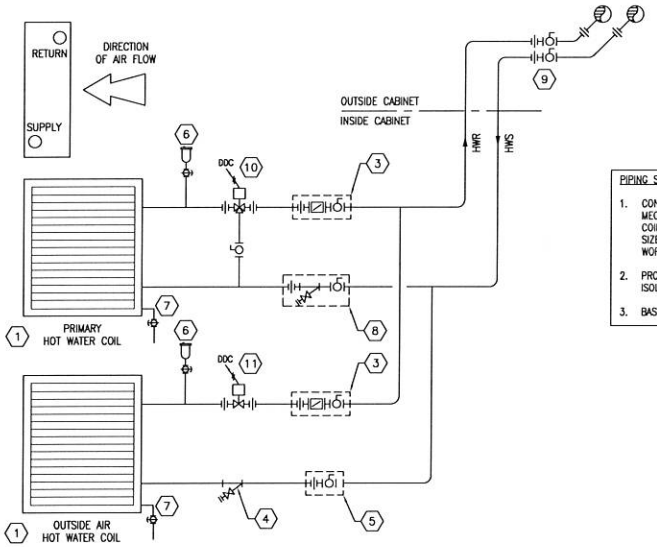
Rev.	No.	Description

Drawn By: AL
Checked By: WJJ
Date: 8-2-2018
Project No.: 17052
Drawing Title: MECHANICAL DETAILS
Drawing No.: M303



CLASSROOM FAN COIL UNIT PIPING SCHEMATIC KEYNOTES:

1. WATER COIL
2. RESERVED
3. AUTOMATIC BALANCING /BALL VALVE WITH MEMORY STOP, PT PORTS AND UNION
4. STRAINER WITH BLOWDOWN VALVE
5. BALL VALVE FOR ISOLATION SERVICE WITH UNION.
6. ¼" MANUAL AIR VENT WITH ¼" BALL VALVE.
7. COIL DRAIN COCK
8. STRAINER-UNION-BALL VALVE WITH BLOW DOWN DRAIN VALVE.
9. ISOLATION VALVE AND DIELECTRIC UNION AT POINT OF CONVERSION FROM STEEL PIPE TO COPPER TUBING. TYPICAL.
10. 3-WAY CONTROL VALVE. CONNECT TO DDC. PROVIDED AND INSTALLED BY FCU MFR. COORDINATE WITH CONTROLS.
11. 2-WAY, 2-POSITION CONTROL VALVE. CONNECT TO DDC. PROVIDED AND INSTALLED BY FCU MFR. COORDINATE WITH CONTROLS.



PIPING SCHEMATIC NOTES:

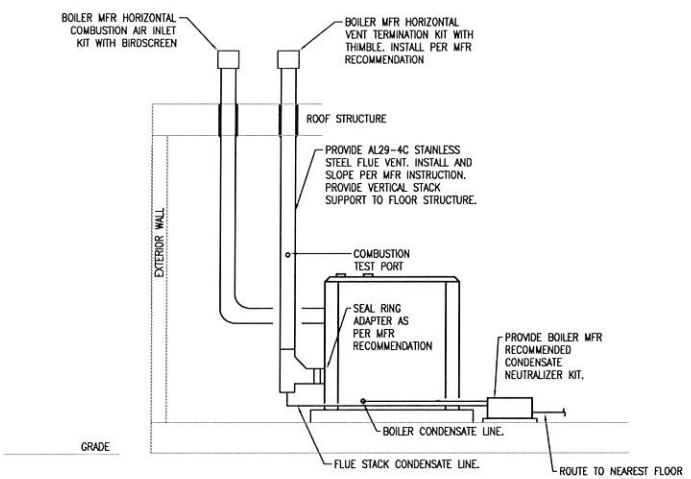
1. CONTROLS CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR AND CLASSROOM FAN COIL EQUIPMENT MFR REGARDING THE PIPE SIZES, TYPE, INSTALLATION AND SCOPE OF WORK.
2. PROVIDE EACH UNIT WITH ABOVE CEILING ISOLATION VALVE AS NOTED IN FLOOR PLAN.
3. BASIS OF DESIGN IS TEMSPEC

1 CLASSROOM FAN COIL UNIT PIPING SCHEMATIC

NOT TO SCALE

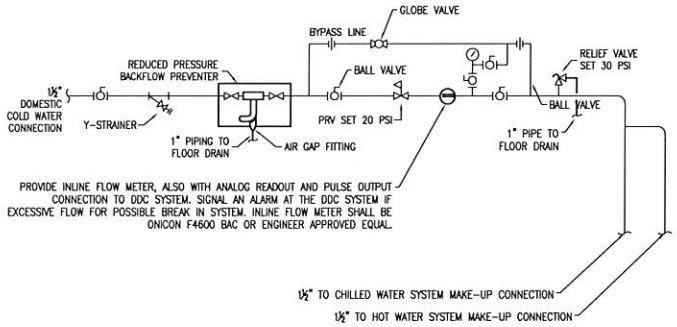
COORDINATION NOTES

1. ROUTE CONDENSATE FROM THE DISCHARGE OF EACH BOILER AND FLUE STACK TO THE NEAREST FLOOR DRAIN. FLEXIBLE TUBING IS NOT ACCEPTABLE.
2. ALL DIMENSIONS SHALL BE FIELD VERIFIED BEFORE ANY FABRICATION.
3. ALL CONNECTIONS AND PIPING/VENT DIAGRAM SHALL BE COORDINATED WITH THE BOILER MANUFACTURER PRIOR TO FABRICATION.



2 BOILER VENTING DETAIL

NOT TO SCALE



3 MAKEUP WATER PIPING DIAGRAM

NOT TO SCALE

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

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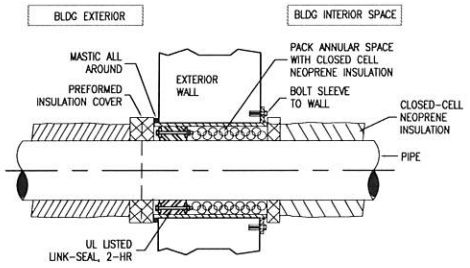
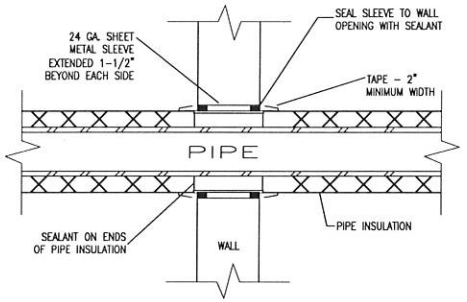


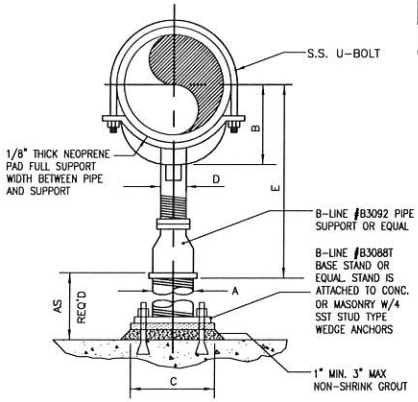
1 EXTERIOR WALL PENETRATION DETAIL

NOT TO SCALE



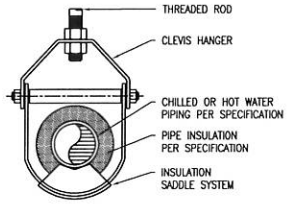
2 TYPICAL INTERIOR WALL SLEEVE DETAIL

NOT TO SCALE



PIPE SIZE	A	B	C	D	E MIN.	E MAX.
2 1/2	2 1/2	3 1/2	9	1 1/2	8	13
3	2 1/2	3 3/4	9	1 1/2	8 1/4	13 1/4
3 1/2	2 1/2	4	9	1 1/2	8 1/2	13 1/2
4	3	4 1/4	9	2 1/2	9 1/4	14
5	3	4 7/8	9	2 1/2	10	14 3/4
6	3	5 1/2	9	2 1/2	10 1/2	15 1/4
8	3	6 7/8	9	2 1/2	11 3/4	16 1/2
10	3	8 1/2	9	2 1/2	13 1/2	18 1/4

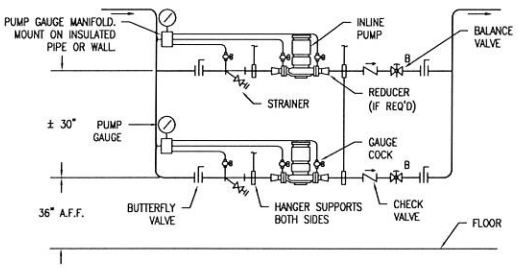
KEYNOTES:
1. PROVIDE HALF ROUND RIGID INSULATION & INSULATION PROTECTION SHIELD, SIMILAR TO GRINNELL FIG.167 OR ELCEN FIG.219 WHEN PIPING IS INSULATED.
2. FOR BASE, HEIGHT, & FLANGE DIMENSIONS, SEE TABLE TO RIGHT. ALL DIMENSIONS IN INCHES.
3. ALL COMPONENTS OF PIPE SUPPORT SHALL BE STAINLESS STEEL.



NOTES:
1. PROVIDE INSULATED SADDLE SYSTEM EQUAL TO ANVIL 260 ISS OR ENGINEER APPROVED EQUAL.
2. SIZE CLEVIS HANGER, THREADED ROD PER MANUFACTURER'S RECOMMENDATION BASED ON HYDRONIC PIPE SIZE AND INSULATION THICKNESS.

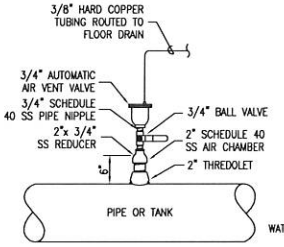
3 OVERHEAD CHILLED/HOT WATER PIPING SUPPORT DETAIL

NOT TO SCALE



4 INLINE PARALLEL PUMP DETAIL

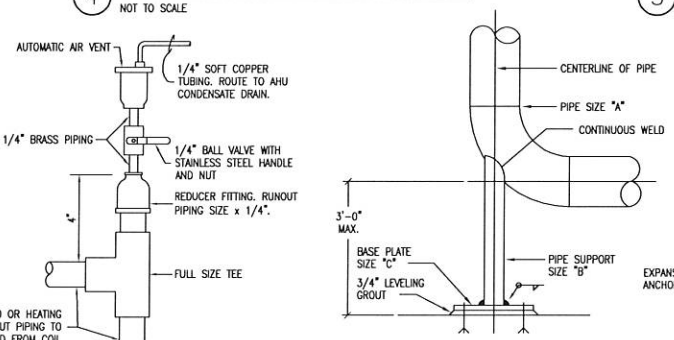
NOT TO SCALE

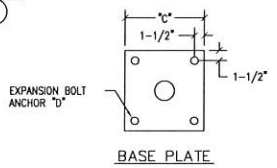


5 EXTERIOR PIPE SUPPORT DETAIL

NOT TO SCALE

"A"	"B"	"C"	"D"
8	3	1/2 X 9 X 9	3/8
10	4	3/4 X 10 X 10	1/2
12	4	3/4 X 10 X 10	1/2
14	4	3/4 X 10 X 10	1/2
16	4	3/4 X 10 X 10	1/2
18	6	7/8 X 12 X 12	1/2





BASE PLATE

NOTES:
1. ALL DIMENSIONS IN INCHES.
2. CONCRETE FLOOR SLAB TO HAVE MIN. 3500 PSI.
3. SUPPORT PIPE TO BE ASME A53, GRADE B, TYPE E OR S, STANDARD WEIGHT, CARBON STEEL.

6 AUTOMATIC AIR VENT DETAIL

NOT TO SCALE

7 EXTERIOR PIPE SUPPORT DETAIL 2

NOT TO SCALE

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DAG ARCHITECTS INC.
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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

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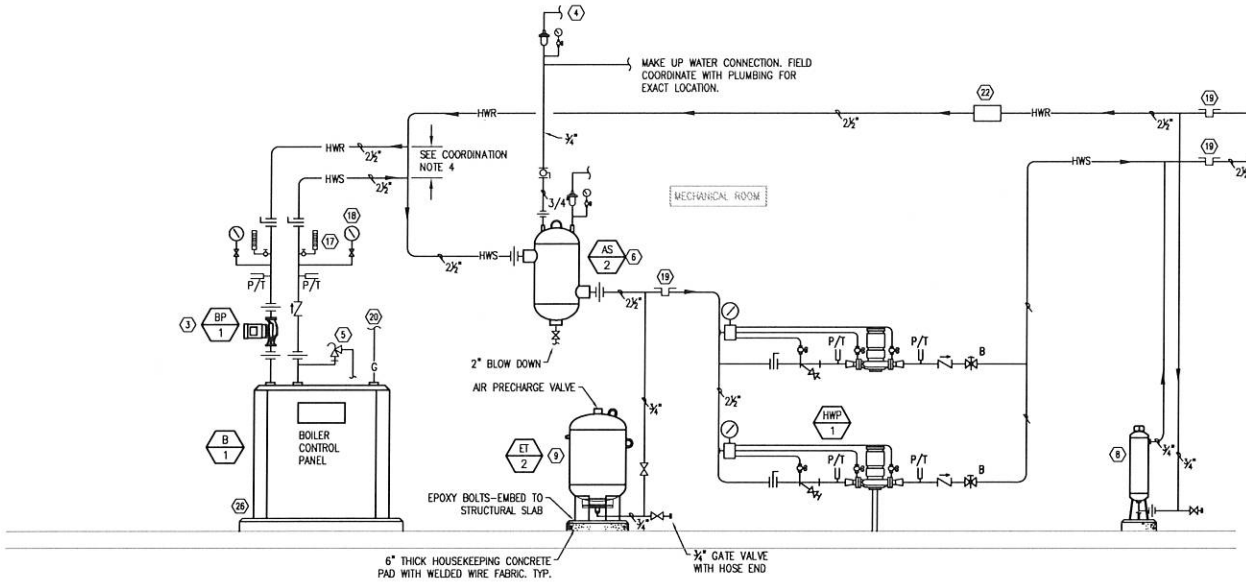
Project No.: 17052
Drawing Title: MECHANICAL DETAILS
Drawing No.: M305



COORDINATION NOTES

1. PROVIDE AUTOMATIC AIR VENTS AT ALL HIGH POINTS IN THE CHW/HW WATER SYSTEMS. ROUTE 1/4" SOFT COPPER TUBING FROM THE DISCHARGE OF EACH AUTOMATIC AIR VENT TO THE NEAREST FLOOR DRAIN.
2. ALL DIMENSIONS SHALL BE FIELD VERIFIED BEFORE ANY FABRICATION.
3. ALL CONNECTIONS AND PIPING/VENT DIAGRAM SHALL BE COORDINATED WITH THE BOILER MANUFACTURER PRIOR TO FABRICATION.
4. PROVIDE MAXIMUM 4 TIMES THE PIPE DIAMETER OR 12" WHICHEVER IS LESS. COORDINATE WITH BOILER MANUFACTURER.
5. CONTRACTOR TO PROVIDE MAKE UP WATER TEST RESULT AND VERIFY WATER HARDNESS WITH EQUIPMENT MFR RECOMMENDED HIGH LIMIT CONCENTRATION.
6. HOLD ALL HORIZONTAL PIPING 10' ABOVE FINISHED FLOOR IN MECHANICAL ROOM.

KEY NOTES

(1) HOT WATER SUPPLY TO BLDG.
(2) HOT WATER RETURN FROM BLDG.
(3) BOILER PUMP. INTERLOCK WITH BOILER INTERNAL CONTROLS. PROVIDE SUPPORT PER MFR. RECOMMENDATIONS. PUMP TO BE MOUNTED HORIZONTALLY.
(4) AUTOMATIC AIR VENT AT ALL HIGH POINTS IN SYSTEM, PIPE TO FLOOR DRAIN WITH 1/4" COPPER TUBING. TYP. REFER TO DETAIL 2/M502.
(5) ASME RELIEF VALVE SET AT 30 PSI. PIPE DISCHARGE TO FLOOR DRAIN.
(6) AIR SEPARATOR, PIPE DRAIN TO FLOOR DRAIN. SEE DETAIL 6/M504.
(7) PUMP, SUCTION DIFFUSER AND ACCESSORIES. SEE DETAIL 4/M504.
(8) CHEMICAL SHOT FEEDER. FILL FOR SHOT FEEDER SHALL BE A MAX. OF 36" AFF. LOCATE CHEMICAL FEEDER ISOLATION VALVES BELOW 60" AFF. SEE DETAIL 7/M504.
(9) EXPANSION TANK. SEE SCHEDULE AND DETAIL 5/M504.
(10) CHECK VALVE
(11) ISOLATION VALVE
(12) BALANCING VALVE. SIZE PER MFR RECOMMENDATIONS FOR SCHEDULED FLOW RATE. PROVIDE REDUCER/TRANSITION AS REQUIRED.
(13) STAINLESS STEEL WELL WITH EXTENDED NECK FOR TEMPERATURE CONTROL SYSTEM. INSTALL IN PIPE TEE. COORDINATE WITH DDC, TYPICAL.
(14) PUMP SUPPORT AND VIBRATION ISOLATION PER SPECIFICATIONS.
(15) FLEXIBLE CONNECTOR
(16) 6" THICK HOUSEKEEPING CONCRETE PAD WITH WELDED WIRE FABRIC. TYP. SIZE SHALL BE 6" LARGER THAN EQUIPMENT FOOTPRINT.
(17) THERMOMETER
(18) PRESSURE GAUGE
(19) BOILER CONTROL TEMPERATURE SENSOR. COORDINATE FINAL LOCATION AND TYPE WITH BOILER MFR AND CONTROLS CONTRACTOR.
(20) GAS PIPING CONNECTION. PROVIDE NATURAL GAS TRAIN CSD-1 PER DETAIL 2/M503. PROVIDE TRAP, PLUG, SHUT OFF VALVE AND ALL OTHER APPURTENANCES TO ACHIEVE ACCEPTABLE GAS PRESSURE LIMIT PER BOILER MFR.
(21) HOT WATER COIL. SEE DETAILS ON SHEET M503
(22) FLOW METER. SEE CONTROLS

1 HOT WATER PIPING DETAIL – CONDENSING BOILERS

NOT TO SCALE

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

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Checked By: WJJ

Date: 8-2-2018

Project No.: 17052

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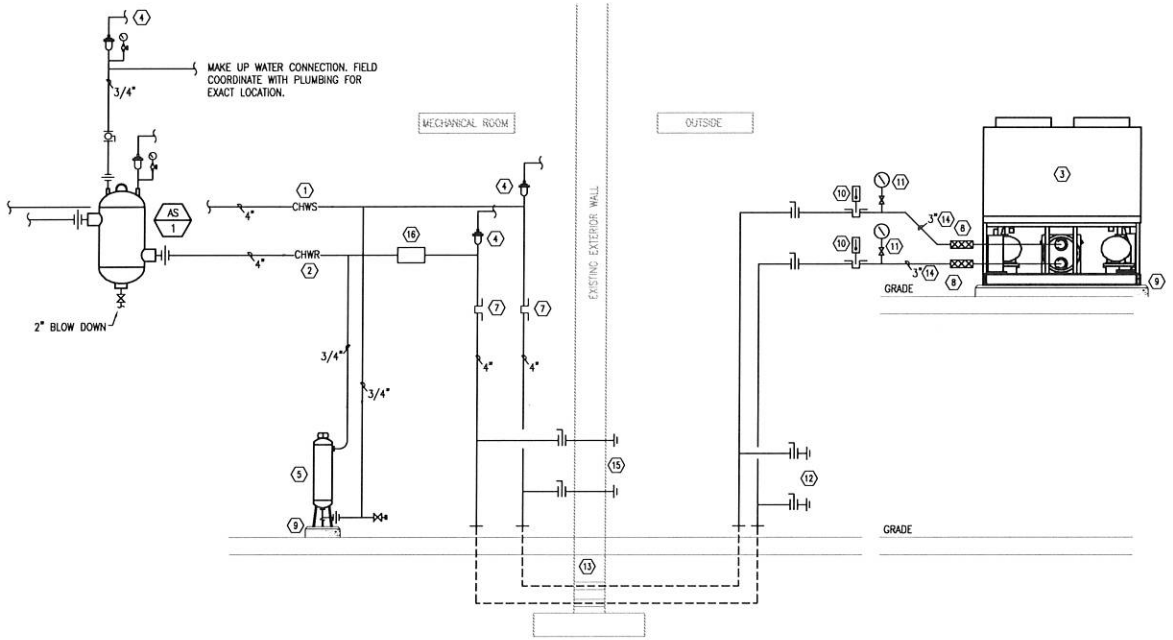
MECHANICAL DETAILS

Drawing No.: M306



COORDINATION NOTES

1. PROVIDE AUTOMATIC AIR VENTS AT ALL HIGH POINTS IN THE CHW/HW WATER SYSTEMS. ROUTE 1/4" SOFT COPPER TUBING FROM THE DISCHARGE OF EACH AUTOMATIC AIR VENT TO THE NEAREST FLOOR DRAIN.
2. ALL DIMENSIONS SHALL BE FIELD VERIFIED BEFORE ANY FABRICATION.
3. ALL CONNECTIONS AND PIPING/VENT DIAGRAM SHALL BE COORDINATED WITH THE CHILLER MANUFACTURER PRIOR TO FABRICATION.
4. PROVIDE STAINLESS STEEL HARDWARE ON ALL EXTERIOR VALVES.

KEY NOTES

(1) CHILLED WATER SUPPLY TO BLDG.

(2) CHILLED WATER RETURN FROM BLDG.

(3) AIR COOLED CHILLER (ACC) WITH PUMP PACKAGE. PUMP PACKAGE INCLUDES TWO CHILLED WATER PUMPS, AIR SEPERATOR, AND EXPANSION TANK. PROVIDE MAKE-UP WATER CONNECTION.

(4) AUTOMATIC AIR VENT AT ALL HIGH POINTS IN SYSTEM, PIPE TO FLOOR DRAIN WITH 1/4" COPPER TUBING. TYP.

(5) CHEMICAL SHOT FEEDER. FILL FOR SHOT FEEDER SHALL BE A MAX. OF 36" AFF. LOCATE CHEMICAL FEEDER ISOLATION VALVES BELOW 60" AFF.

(6) ISOLATION VALVE

(7) STAINLESS STEEL WELL WITH EXTENDED NECK FOR TEMPERATURE CONTROL SYSTEM. INSTALL IN PIPE TEE. COORDINATE WITH DDC, TYPICAL.

(8) FLEXIBLE CONNECTOR

(9) 6" THICK HOUSEKEEPING CONCRETE PAD WITH WELDED WIRE FABRIC. TYP. SIZE SHALL BE 6" LARGER THAN EQUIPMENT FOOTPRINT.

(10) THERMOMETER

(11) PRESSURE GAUGE

(12) FUTURE CHILLER CONNECTION. PROVIDE WITH ISOLATION VALVES AND BLIND FLANGES.

(13) PROVIDE SLEEVE FOR EXTERIOR WALL PENETRATION.

(14) PROVIDE INSULATION, HEAT TRACE & ALUMINUM JACKECT FOR ALL WEATHER EXPOSED ABOVE GRADE CHWS/CHWR PIPING. HEAT TRACE SHALL BE SELF REGULATING TYPE WITH 5 WATTS/LINEAR FOOT. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL

(15) EMERGENCY CHILLER CONNECTION. MOUNT AT 4' AFF. PIPE SHOWN OFFSET FOR CLARITY. PROVIDE ISOLATION VALVES INSIDE THE BUILDING.

(16) FLOW METER. SEE CONTROLS.

1 CHILLED WATER PIPING DETAIL

NOT TO SCALE

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
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Drawing No.:	M307

SEQUENCE OF OPERATION – CLASSROOM FAN COIL UNIT

STARTING AND STOPPING OF EQUIPMENT SHALL BE BY THE DDC SYSTEM. THE UNIT SHALL BE STARTED AUTOMATICALLY BY THE DDC SYSTEM AND ALL CONTROLS ACTIVATED SUBJECT TO FIRE ALARM RELAY, SAFETIES AND OVERLOADS.

OCCUPIED/UNOCCUPIED MODES: CONTROLS CONTRACTOR SHALL CONSULT WITH OWNER TO OBTAIN A GLOBAL OCCUPANCY SCHEDULE. EACH FAN COIL UNIT SHALL BE CONTROLLED ACCORDING TO THIS SCHEDULE.

OCCUPIED MODE:
THE OUTDOOR AIR DAMPER SHALL OPEN, THE OUTDOOR AIR FAN AND PRIMARY SUPPLY AIR FAN SHALL BE ENERGIZED. THE DDC SYSTEM SHALL ACTUATE THE 2-POSITION OUTDOOR AIR COIL CHILLED WATER VALVE TO MAINTAIN A DISCHARGE AIR TEMPERATURE OF MAX. 55°F (ADJ.).

THE DDC SYSTEM SHALL CLOSE THE OA CHILLED WATER COIL VALVE ANYTIME THE OUTDOOR AIR TEMPERATURE FALLS BELOW 40°F FOR LONGER THAN 5 MINUTES.

UPON FAILURE, THE OUTDOOR AIR DAMPER SHALL BE CLOSED, THE OA COIL CHILLED WATER VALVE SHALL BE CLOSED, THE OUTDOOR AIR FAN SHALL BE DE-ENERGIZED. THE SUPPLY FAN SHALL RUN CONTINUOUSLY.

DURING THE COOLING MODE, THE DDC SYSTEM SHALL MODULATE THE PRIMARY CHILLED WATER VALVE TO MAINTAIN SPACE TEMP. SET POINT OF 74°F (ADJ.).

DURING DEHUMIDIFICATION MODE, WHEN THE SPACE TEMPERATURE IS SATISFIED BUT THE HUMIDITY RISE ABOVE 60% RH, THE DDC SYSTEM SHALL MODULATE THE PRIMARY CHILLED WATER VALVE TO MAINTAIN 55°F LEAVING AIR TEMPERATURE AND MODULATE THE PRIMARY HOT WATER VALVE (IN THE RE-HEAT POSITION) TO MAINTAIN NEUTRAL LEAVING AIR TEMP OF 70°F (ADJ.) UNTIL THE SPACE RELATIVE HUMIDITY GOES DOWN TO 55% (ADJ.).

DURING THE HEATING MODE, THE DDC SYSTEM SHALL MODULATE THE PRIMARY HOT WATER VALVE TO PROVIDE HEAT AS REQUIRED TO MAINTAIN THE SPACE TEMP. SET POINT OF 70°F (ADJ.).

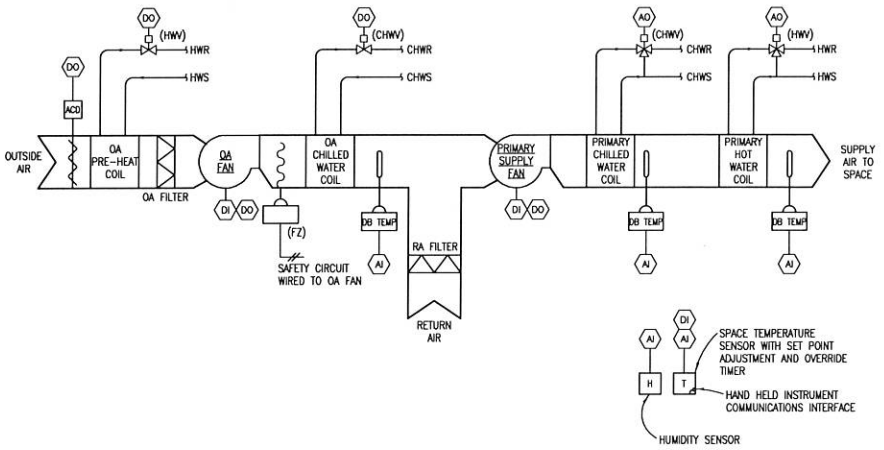
OUTDOOR AIR COOLING COIL FREEZE PROTECTION: DURING OCCUPIED MODE, THE DDC SYSTEM SHALL ACTUATE THE 2-POSITION HOT WATER PRE-HEAT COIL VALVE ANYTIME THE OUTDOOR AIR TEMPERATURE FALLS BELOW 40°F FOR LONGER THAN 5 MINUTES. THE LOW LIMIT FREEZE STAT SHALL STOP THE FCU FAN MOTOR AND CLOSE THE OUTDOOR AIR DAMPER ANYTIME THE COOLING COIL ENTERING AIR TEMPERATURE FALLS BELOW 35°F FOR LONGER THAN 5 MINUTES.

OPTIMUM START SCHEDULE:
ONE HOUR (ADJ.) PRIOR TO THE START OF THE OCCUPIED MODE, THE SPACE TEMPERATURE SHALL BE RESET TO MAINTAIN A COOLING SETPOINT OF 76°F (ADJ.) AND A HEATING SETPOINT OF 70°F (ADJ.). THE SYSTEM OUTDOOR AIR SHALL MAINTAIN OPERATION IN THE UNOCCUPIED MODE DURING THIS TIME PERIOD.

OPTIMUM STOP SCHEDULE:
ONE HOUR (ADJ.) PRIOR TO THE END OF THE OCCUPIED MODE, THE SPACE TEMPERATURE SHALL BE SET TO MAINTAIN A COOLING SETPOINT OF 76°F (ADJ.) AND A HEATING SETPOINT OF 70°F (ADJ.). THE SYSTEM OUTDOOR AIR SHALL GO INTO THE UNOCCUPIED MODE DURING THIS TIME PERIOD. AT THE END OF THE SPECIFIED POST-OCCUPIED TIME PERIOD, THE SYSTEM SHALL GO FULLY IN TO THE UNOCCUPIED MODE.

OVERRIDE MODE: THE OVERRIDE TIMER LOCATED BY THE THERMOSTAT SHALL PLACE THE FCU IN OCCUPIED MODE FOR TWO HOURS (ADJ.).

UNOCCUPIED MODE:
THE OUTDOOR AIR DAMPER SHALL CLOSE, THE OUTDOOR AIR FAN SHALL BE DISABLED AND THE OUTDOOR AIR CHILLED WATER COIL VALVE SHALL CLOSE. THE SUPPLY FAN SHALL ONLY RUN UPON A CALL FOR COOLING, HEATING OR DEHUMIDIFICATION. UPON A CALL FOR COOLING OR DEHUMIDIFICATION DURING THE UNOCCUPIED MODE, THE DDC SYSTEM SHALL FULLY OPEN THE PRIMARY COOLING COIL CHILLED WATER VALVE UNTIL A SPACE SET POINT OF 78°F (ADJ.) IS SATISFIED AND A SPACE RELATIVE HUMIDITY OF 55% (ADJ.) IS OBTAINED. IN THE UNOCCUPIED HEATING MODE, THE DDC SYSTEM SHALL MODULATE THE PRIMARY HOT WATER VALVE (IN THE RE-HEAT POSITION) TO MAINTAIN SPACE SET POINT OF 65°F (ADJ.).



1 CONSTANT AIR VOLUME CLASSROOM FCU CONTROL DIAGRAM
NOT TO SCALE

DDC SYSTEM GENERAL NOTES

THESE NOTES ARE APPLICABLE TO MECHANICAL CONTRACTOR AND DDC CONTRACTOR:

1. THE DDC CONTRACTOR SHALL PROVIDE A COMPLETE NEW DDC SYSTEM TO PERFORM THE INDICATED SEQUENCES, ALL OTHER FUNCTIONS REQUIRED BY THE CONTRACT DOCUMENTS, AND ALL OTHER FUNCTIONS REQUIRED FOR A COMPLETE AND FUNCTIONAL SYSTEM. THE DDC CONTRACTOR SHALL COORDINATE WITH THE OWNER PROVIDED EQUIPMENT MANUFACTURER FOR CONTROLS EQUIPMENT INSTALLATION AND TESTING REQUIREMENTS.
2. ALL SEQUENCES ARE SUBJECT TO SAFETIES. DDC CONTRACTOR SHALL PROVIDE ALL NECESSARY AND CUSTOMARY SAFETIES.
3. ALL WIRING SHALL BE IN CONDUIT. ALL CONDUIT SHALL BE INSTALLED BY CONTROLS CONTRACTOR IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS AND REQUIREMENTS FOR 120 VAC CIRCUITS.
4. ALL WELLS SHALL BE 316 STAINLESS STEEL AND SHALL BE INSTALLED IN NEW THREDOLETS. IN CHILLED AND HOT WATER PIPING, PROVIDE NEW WELLS WITH EXTENDED NECK TO SUIT INSULATION THICKNESS.
5. THE DDC CONTRACTOR IS CO-RESPONSIBLE, ALONG WITH THE MODULAR CENTRAL PLANT MANUFACTURER AND TAB CONTRACTOR FOR COORDINATING THE PROPER INSTALLATION OF WELLS, PRESSURE TAPS, AND P/T TAPS IN ALL LOCATIONS INDICATED AND OTHERWISE AS REQUIRED FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.
6. THE DDC CONTRACTOR AND THE TAB CONTRACTOR SHALL UTILIZE P/T TAPS TO CALIBRATE INSTRUMENTS TO CERTIFIED PRESSURE GAGES, PRESSURE METERS AND THERMOMETERS.
7. CONDUIT SHALL BE RUN PERPENDICULAR AND PARALLEL TO BUILDING LINES IN A FIRST CLASS WORKMANSHIP LIKE MANNER.
8. THE CONTROLS CONTRACTOR SHALL PROVIDE ALL POWER REQUIREMENTS AND CONTROL VOLTAGE TRANSFORMERS AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM. COORDINATE WITH ELECTRICAL CONTRACTOR FOR TRANSFORMER LOCATIONS AND INSTALLATION REQUIREMENTS.
9. THE CONTROLS CONTRACTOR SHALL PROVIDE ALL LOW VOLTAGE FIELD CONTROL WIRING/INTERLOCK (E.G. BOILER-PUMP INTERLOCK, TEMPERATURE SENSORS TO MFR CONTROLS, MFR FIELD MOUNTED SENSORS, ETC). COORDINATE WITH EQUIPMENT PROVIDER AND OTHER TRADES..
10. ALL MOTORIZED DAMPERS INDICATED IN CONTROLS SHALL BE 24V. COORDINATE DAMPER INSTALLATION WITH MECHANICAL CONTRACTOR.
11. PROVIDE DETAILED CONTROL SUBMITTALS FOR EACH PIECE OF EQUIPMENT VERIFYING THE SEQUENCE OF OPERATION AND INCLUDING WIRING DIAGRAMS, CONTROL PANEL LAYOUT AND WIRING, AND SUBMITTALS FOR ALL CONTROL EQUIPMENT (I.E., VARIABLE FREQUENCY DRIVES, MOTORIZED ISOLATION VALVES, FLOW METERS, DIFFERENTIAL PRESSURE SENSORS, TEMPERATURE SENSORS, WALL THERMOSTAT/HUMIDISTAT, ETC.)
12. DDC CONTRACTOR SHALL PROVIDE WATER METERS REFER TO METERING POINTS FOR ENERGY MANAGEMENT AND CONTROL SYSTEMS. THESE SHALL BE CONNECTED TO THE SCHOOL DISTRICT DDC SYSTEM. THE DDC SYSTEM SHALL BE ABLE TO MONITOR THE OVERALL CENTRAL PLANT WATER USAGE DAILY. WATER METERS TO BE PROVIDED BY DDC CONTRACTOR AND INSTALLED BY MECHANICAL MANUFACTURER. SEE MAKEUP WATER DETAIL.
13. THE DDC SYSTEM SHALL PROVIDE FOR AUTOMATIC RESTART OF ALL AIR AND WATER-SIDE SYSTEMS. IF ANY SYSTEM SHOULD FAIL TO RE-START AFTER 3 (ADJ) ATTEMPTS, AN ALARM SHALL BE GENERATED AT THE OPERATOR WORKSTATION.
14. PROVIDE CURRENT SWITCH AT ELECTRIC PANELS TO PROVIDE AN ALARM TO THE DDC PANEL WHEN HEAT TRACE IS NOT FUNCTIONING PROPERLY. HEAT TRACE SHALL BE ENERGIZED WHEN AMBIENT TEMPERATURE IS BELOW 35°F.
15. PROVIDE DIFFERENTIAL PRESSURE SENSOR FOR BOTH CHILLED WATER AND HOT WATER SYSTEMS.

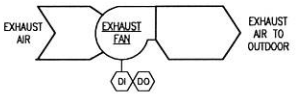
SEQUENCE OF OPERATIONS EXHAUST FANS

ALL EXHAUST FANS SHALL SHUTDOWN ON A SIGNAL FROM THE FIRE ALARM CONTROL PANEL.

EF INTERLOCKS
PROVIDE CONNECTION TO DDC SYSTEM FOR MANUAL START/STOP AND LOCAL OVERRIDE. EXHAUST FANS INTERLOCKED WITH FAN COIL UNITS SHALL RUN WHEN ITS ASSOCIATED FAN COIL UNIT SUPPLY FAN IS RUNNING, AND SHALL BE OFF WHEN ITS ASSOCIATED FAN COIL UNITS SUPPLY FAN IS NOT RUNNING.

EXHAUST FANS INTERLOCKED WITH THE LIGHT SWITCH SHALL RUN WHEN LIGHT SWITCH IS IS ON POSITION AND SHALL BE OFF WHEN LIGHT SWITCH IS IN OFF POSITION.

POINTS LIST
START/STOP
EXHAUST FAN STATUS



1 EXHAUST FAN CONTROL DIAGRAM
NOT TO SCALE

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St.
Jay, FL 32565

Revision

Rev.	No.	Description

Drawn By: AL
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Date: 8-2-2018
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Drawing No.: M401

SEQUENCE OF OPERATION – CHILLED WATER SYSTEM

SYSTEM GENERAL DESCRIPTION
THE CHILLED WATER SYSTEM CONSISTS OF THE FOLLOWING:
- ONE AIR COOLED CHILLER WITH PACKAGED PUMP AND FLOW SWITCH,
- TWO (2) VARIABLE FLOW CHILLED WATER PUMPS. PROVIDE PUMPS WITH VFD'S. CONFIGURED AS: ONE (1) LEAD AND ONE (1) LAG.
- ONE (1) CHILLED WATER ISOLATION VALVE
- ONE (1) FLOW METER: F-3100 SERIES ONICON OR EQUIVALENT
- DIFFERENTIAL PRESSURE SENSORS WITH ACCURACY OF 0.5% OR GREATER AND A MINIMUM RANGE OF 0.5-250 PSI: ONE (1) DP SENSOR FOR CHILLER EVAPORATOR COIL AND ONE (1) LOOP DIFFERENTIAL PRESSURE SENSOR.

THE DDC CONTROLLER SHALL ENABLE THE CHILLED WATER SYSTEM. THE CHILLER CONTROLLER SHALL PROVIDE LEAD/LAG CONTROL FOR THE PACKAGED CHILLED WATER PUMPS TO MAINTAIN FLOW THROUGH OPERATING CHILLER.

GENERAL – CHILLED WATER SYSTEM ENABLE/DISABLE
WHEN THE CHILLED WATER SYSTEM IS ENABLED, THE CHILLER CONTROLLER SHALL START THE LEAD CHILLED WATER PUMP.

CHILLER START-UP
THE DDC SHALL ENABLE THE CHILLER IN THE CHILLED WATER SYSTEM WHEN ANY FAN COIL UNITS CALLS FOR COOLING TO SATISFY SPACE TEMPERATURE AND/OR HUMIDITY SETPOINTS.

THE CHILLER ISOLATION VALVE SHALL REMAIN OPEN DURING ENABLED OR DISABLED PERIODS TO FACILITATE SYSTEM STARTUP FOR THIS PHASE.

WHEN ENABLED, THE LEAD CHILLED WATER PUMP SHALL START TO MAINTAIN A MINIMUM FLOW OF 65 GPM (MIN. FLOW PER BASIS OF DESIGN CHILLER), AS MEASURED BY THE CHILLED WATER FLOW METER, PRIOR TO STARTING THE LEAD CHILLER SUBJECT TO ITS' ON-BOARD CONTROLS AND SAFETIES.

THE CHILLER FLOW SHALL ALSO BE PROVEN WITH A THERMAL DISPERSION FLOW SWITCH ACROSS THE CHILLER EVAPORATOR (SET TO VERIFY MINIMUM FLOW IS EXCEEDED FOR THE CHILLER). ONCE THE LEAD CHILLER IS RUNNING UNDER STABLE OPERATION, THE CHILLED WATER VALVE FOR THE UNIT CALLING FOR COOLING AND/OR DEHUMIDIFICATION, SHALL OPEN SLOWLY AT 20% PER MINUTE (ADJ.) UNTIL LEAVING AIR TEMPERATURE SET POINT OF THE CHILLED WATER UNIT IS SATISFIED.

THE CHILLED WATER PUMP SPEED SHALL MODULATE TO MAINTAIN THE DIFFERENTIAL PRESSURE AT SET POINT. SET POINT SHALL BE CONTINUALLY TUNED BY THE DDC SYSTEM ALGORITHM SUCH THAT THE CRITICAL DEMAND LOAD SHALL BE DETERMINED, THE PRESSURE DIFFERENTIAL SHALL BE INCREMENTALLY REDUCED AND THE CONTROL VALVE AT THE CRITICAL LOAD SHALL OPEN INCREMENTALLY UNTIL THE CONTROL VALVE IS OPEN 95%. IF ANOTHER ZONE BECOMES THE CRITICAL ZONE, THE SET POINT (PRESSURE DIFFERENTIAL) SHALL BE INCREASED OR DECREASED TO TUNE TO THE NEW ZONE.

CHILLED WATER LOOP SHUTDOWN
WHEN THE CHILLED WATER SYSTEM IS DISABLED, THE CHILLER WITH ITS PUMP SHALL BE OFF.

CHILLED WATER PUMP START/STOP
THE CHILLER CONTROLLER SHALL START THE LEAD/LAG CHILLED WATER PUMP THROUGH A CONTACT CLOSURE OF THE PUMP'S VARIABLE FREQUENCY (VFD) DRIVE RUN-ENABLE CONTACTS. CONTRACTOR SHALL COORDINATE START/STOP REQUIREMENTS WITH CHILLER MANUFACTURER TO DEAL WITH REFRIGERANT MIGRATION AND OTHER COLD WEATHER/FREEZE PROTECTION ISSUES WITHIN THE CHILLER.

CHILLED WATER PUMP STATUS
THE DDC CONTROLLER SHALL DETECT EACH CHILLED WATER PUMPS RUN STATUS BY AN ON-BOARD CHILLER CONTROL.

CHILLED WATER PUMP FAILURE
IF THE PUMP START/STOP RELAY IS ENABLED AND THE VFD STATUS RELAY IS OFF FOR MORE THAN 30 SECONDS (ADJ.), THE CHILLER CONTROLLER SHALL START THE NEXT PUMP. THE DDC CONTROLLER SHALL ANNUNCIATE A CHILLED WATER FAILURE ALARM TO THE DDC WORKSTATION. ONCE THE PROBLEM HAS BEEN CORRECTED AND THE OPERATOR IS ABLE TO CLEAR THE ALARM FAILURE FROM THE DDC CONTROLLER.

CHILLED WATER PUMP SPEED
THE CHILLER CONTROLLER SHALL CONTROL PUMP SPEED THROUGH ITS VARIABLE FREQUENCY DRIVE. PROVIDED BY CHILLER MFR.

CHILLED WATER PUMP AND CHILLER LEAD/BACKUP ROTATION
THE CHILLER CONTROLLER SHALL PERFORM THE FOLLOWING: THE CHILLED WATER PUMP LEAD/BACKUP SEQUENCE SHALL BE ROTATED ON A WEEKLY SCHEDULE. THE SEQUENCE SHALL BASED ON THE CALCULATED RUN TIME WITH THE PUMP HAVING THE LEAST RUN TIME AS LEAD, THE PUMP WITH THE NEXT LOWEST RUN TIME SHALL BE THE SECOND IN THE SEQUENCE AND SO ON.

FREEZE PROTECTION
THE CHILLER CONTROL SHALL ENABLE ONE CHILLED WATER PUMP WHENEVER THE AMBIENT TEMPERATURE DROPS BELOW 35°F (ADJ.).

CHILLER CONTROL:
THE DDC PROGRAM SHALL BE FULLY EDITABLE AND SET-UP VIA POINT AND CLICK ON A STANDARD WINDOWS SCREEN. IT SHALL NOT REQUIRE SPECIAL SOFTWARE TOOLS OR A BAS TECHNICIAN TO OPERATE AND MODIFY CHILLER SEQUENCING CONTROL.

THE DDC SHALL PERFORM THE FOLLOWING CONTROL STRATEGIES:
1. CHILLER PLANT SYSTEM SCHEDULING
2. COLOR GRAPHIC BASED CHILLER PLANT STATUS SCREENS
3. COLOR GRAPHIC BASED CHILLER STATUS SCREENS
4. SYSTEM AND CHILLER DIAGNOSTIC MESSAGES
5. SYSTEM AND CHILLER REPORTS

CHILLER SYSTEM OPERATOR INTERFACE – DDC APPLICATION OPERATIONAL STATUS SCREEN TO INCLUDE:

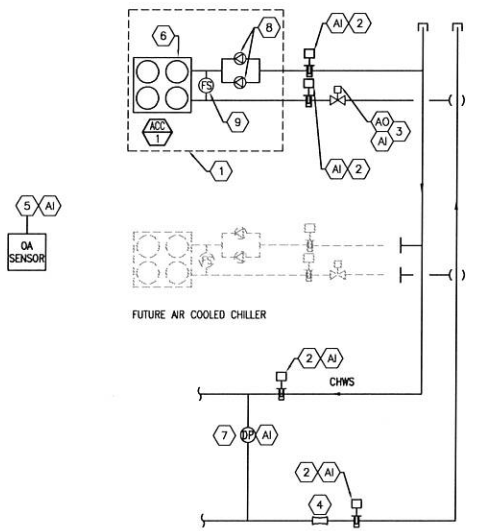
A. CHILLER SYSTEM STATUS (OFF/SOFT START/NORMAL/AMBIENT LOCKOUT/SHUTDOWN IN PROGRESS)
B. CHILLER PLANT SUPPLY WATER SETPOINT
C. CHILLED WATER SYSTEM SUPPLY WATER TEMPERATURE
D. CHILLED WATER SYSTEM RETURN WATER TEMPERATURE
E. CHILLER FAILURE RESET

SEQUENCE OF OPERATIONS DUCTLESS SPLIT SYSTEM

THE DUCTLESS SPLIT SYSTEM SHALL OPERATE ACCORDING TO THE MANUFACTURERS STAND ALONE CONTROLS. DDC CONTRACTOR SHALL PROVIDE A DEDICATED ROOM TEMPERATURE SENSOR AND PROVIDE AN ALARM WHEN ROOM TEMPERATURE IS ABOVE 80 DEG F (ADJ.) OR BELOW 55 DEG F (ADJ.).

SHEET NOTES

1. AIR COOLED CHILLER WITH DUAL PUMP PACKAGE.
2. TEMPERATURE TRANSMITTER WITH STAINLESS STEEL RTD IMMERSION SENSOR.
3. MOTORIZED ISOLATION VALVE. TO REMAIN OPEN FOR THIS PROJECT PHASE.
4. INLINE, ELECTROMAGNETIC, FLOW METER EQUAL TO ONICON F-3100.
5. OUTSIDE AIR TEMPERATURE TRANSMITTER, LOCATED ON OUTSIDE WALL UNDER SUN SHIELD.
6. PACKAGED CHILLER CONTROLS.
7. DIFFERENTIAL PRESSURE SENSOR TO CONTROL PUMP MODULATION.
8. CHILLED WATER PUMPS (LEAD/BACKUP)
9. THERMAL DISPERSION FLOW SWITCH PROVIDED BY CHILLER MFR.



1 CHILLED WATER SYSTEM CONTROL DIAGRAM
SCHEMATIC

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

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Checked By: WJJ

Date: 8-2-2018

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Drawing Title:
MECHANICAL CONTROLS

Drawing No.: M402

SEQUENCE OF OPERATION – HEATING WATER SYSTEM

SYSTEM DESCRIPTION
THE HOT WATER SYSTEM CONSISTS OF THE FOLLOWING:
- ONE (1) CONDENSING BOILER WITH DEDICATED PRIMARY CONSTANT VOLUME PUMP (FOR BOILER PRIMARY LOOP).
- TWO (2) SECONDARY HOT WATER PUMPS. PROVIDE PUMPS WITH VFD'S. CONFIGURED AS: ONE (1) LEAD AND ONE (1) LAG

GENERAL:
THE CONDENSING BOILER SYSTEM SHALL BE PROVIDED WITH COMMUNICATION INTERFACE AND CONNECTED TO THE DDC SYSTEM FOR ENABLE/DISABLE COMMANDS. THE SYSTEM SHALL BE ENABLED UNDER THE FOLLOWING CONDITIONS, ELSE THE SYSTEM SHALL BE DISABLED:
- SCHEDULED OCCUPIED PERIOD WITH OUTSIDE AIR TEMPERATURE LESS THAN 60°F.
- WHENEVER ANY ZONE DEMANDS HOT WATER DURING OCCUPIED OR UNOCCUPIED PERIODS (REGARDLESS OF OUTSIDE AIR TEMPERATURE) FOR BUILDING TEMPERATURE OR HUMIDITY CONTROL.

SECONDARY HEATING WATER LOOP START-UP
WHEN ENABLED, THE LEAD SECONDARY HEATING WATER PUMP SHALL PROVIDE CONSTANT FLOW THROUGH THE BUILDING HEATING WATER LOOP.

WHEN THE BUILDING LOOP SUPPLY HEATING WATER TEMPERATURE DROPS BELOW SETPOINT, THE DDC SYSTEM SHALL SEND A SIGNAL TO THE BOILER CONTROLS REQUESTING A START COMMAND. THE BOILER AND ASSOCIATED PRIMARY PUMP SHALL THEN OPERATE SUBJECT TO ITS ON BOARD CONTROLS, ALARMS, AND SAFETIES TO MAINTAIN A CONSTANT WATER LOOP SUPPLY TEMPERATURE.

THE SYSTEM SHALL BE CAPABLE OF MANUAL OVERRIDE VIA THE DDC SYSTEM. THE HOT WATER SYSTEM SHALL BE ENABLED AUTOMATICALLY BY THE DDC AND ALL CONTROLS ACTIVATED SUBJECT TO SAFETIES AND OVERLOADS.

SECONDARY HEATING WATER LOOP SHUTDOWN
WHEN THE HOT WATER SYSTEM IS DISABLED, THE SECONDARY HEATING WATER PUMPS SHALL BE OFF.

SECONDARY HEATING WATER PUMP START/STOP
THE DDC CONTROLLER SHALL START THE LEAD/LAG SECONDARY HOT WATER PUMP THROUGH A CONTACT CLOSURE OF THE PUMP'S VARIABLE FREQUENCY (VFD) DRIVE RUN-ENABLE CONTACTS.

SECONDARY HEATING WATER PUMP STATUS
THE DDC CONTROLLER SHALL DETECT EACH SECONDARY HEATING WATER PUMP RUN STATUS BY A VARIABLE FREQUENCY DRIVE CURRENT SWITCH.

SECONDARY HOT WATER PUMP FAILURE
IF THE LEAD PUMP START/STOP RELAY IS ENABLED AND THE CURRENT SWITCH STATUS IS OFF FOR MORE THAN 30 SECONDS (ADJ.), THE DDC CONTROLLER SHALL ANNUNCIATE A HOT WATER PUMP FAILURE ALARM TO THE DDC WORKSTATION AND START THE OTHER PUMP. ONCE THE PROBLEM HAS BEEN CORRECTED AND THE OPERATOR IS ABLE TO CLEAR THE ALARM FAILURE FROM THE DDC CONTROLLER, THE DDC SYSTEM SHALL RE-ENABLE THE LEAD/LAG SEQUENCE.

HOT WATER RESET SCHEDULE	
HOT WATER SUPPLY TEMP.	OUTSIDE AIR TEMP.
110°F	60°F
130°F	40°F

NOTE: BETWEEN 60°F AND 40°F OUTSIDE AIR TEMPERATURE, THE HOT WATER SUPPLY TEMPERATURE SHALL VARY LINEARLY BETWEEN 110°F AND 130°F

HEATING WATER PUMP LEAD/LAG OPERATION
THE HOT WATER PUMP LEAD/LAG SEQUENCE SHALL BE ROTATED ON A WEEKLY SCHEDULE. THE SEQUENCE SHALL BASED ON THE CALCULATED RUN TIME WITH THE PUMP HAVING THE LEAST RUN TIME AS LEAD, THE OPERATOR SHALL BE ABLE TO MANUALLY CHANGE THE LEAD/LAG SEQUENCE FROM THE DDC WORKSTATION.

BOILER CONTROL
THE BOILER SHALL, THROUGH IT'S MANUFACTURER PROVIDED INTERNAL CONTROLS, CYCLE AS REQUIRED TO MAINTAIN THE OUTLET TEMPERATURE OF THE HEATING WATER PLANT WHILE MAINTAINING THE HIGHEST COMBUSTION EFFICIENCY. THE BOILER CONTROLS SHALL BE CAPABLE OF INTERFACE TO DDC SYSTEM FOR SYSTEM START/STOP AND ALARMS.

PRIMARY BOILER PUMP
PUMP SHALL OPERATE WHEN BOILER IS ENABLED AND SHALL MAINTAIN CONSTANT FLOW THROUGH BOILER. WHEN THE SYSTEM CALLS FOR HEATING AND THE BOILER IS NOT RUNNING FOR 5 MINUTES (ADJ.) AN ALARM SHALL BE POSTED AT THE OPERATOR WORKSTATION. BOILER PUMP SHALL BE CONTROLLED VIA BOILER ON-BOARD CONTROLS.

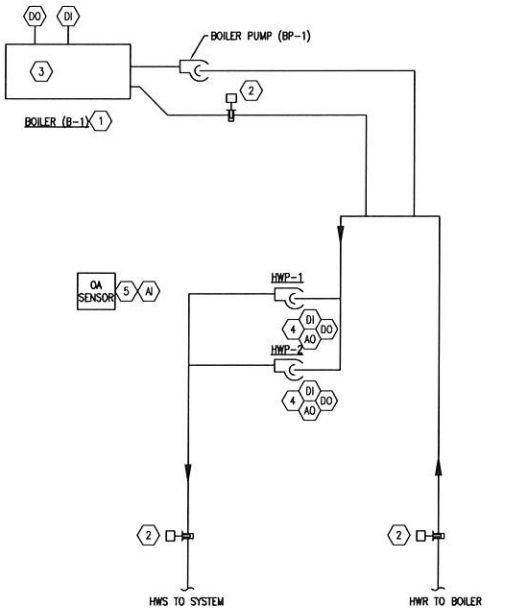
HOT WATER RESET CONTROL
THE BOILER SYSTEM THROUGH ITS INTERNAL CONTROL SHALL RESET THE TEMPERATURE OF THE HOT WATER SUPPLY TO THE BUILDING BASED ON OUTSIDE TEMPERATURE (SEE RESET SCHEDULE).

TYPICAL BOILER CONTROLS POINTS LIST BY THE BOILER MFR TO BE INTERFACED WITH DDC SYSTEM
- ENABLE/DISABLE
- OA RESET SETPOINT
- REMOTE MONITORING HW SETPOINT
- ALARM/FAILURE STATUS

ALARMS:
THE FOLLOWING SOFTWARE ALARMS SHALL BE GENERATED AND DISPLAYED AT THE OPERATOR'S WORKSTATION:
- HEATING WATER PUMP ALARM (COMMAND AND PUMP STATUS DO NOT MATCH)
- LOW HW SUPPLY TEMPERATURE (10 DEG F BELOW CURRENT HW TEMP SET POINT FOR 10 MINUTES.)
- HIGH HW SUPPLY TEMPERATURE (10 DEG F ABOVE CURRENT HW TEMP SET POINT FOR 10 MINUTES.)
- GENERAL BOILER ALARM (STATUS INPUT FROM BOILER CONTROL BOARD)

SHEET NOTES

1. PROVIDE WITH DEDICATED BOILER PUMP. SIZED AND CONTROLLED BY BOILER MFR INTERNAL CONTROLS.
2. TEMPERATURE TRANSMITTER WITH STAINLESS STEEL RTD IMMERSION SENSOR
3. BOILER MODULATING TEMPERATURE CONTROL
4. PROVIDE WITH VFD.
5. OUTSIDE AIR TEMPERATURE AND HUMIDITY TRANSMITTER. LOCATE UNDER SUN SHADE.



1 HEATING WATER SYSTEM CONTROL DIAGRAM
SCHEMATIC

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

Date	No.	Description

Drawn By: AL
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Date: 8-2-2018
Project No.: 17052
Drawing Title: MECHANICAL CONTROLS
Drawing No.: M403

ELECTRICAL LEGEND

- LED LIGHTING FIXTURE, MARK "L2A" (TYPICAL UNLESS SCHEDULED OTHERWISE). SEE LIGHTING FIXTURE SCHEDULE.
- LED LIGHTING FIXTURE, MARK "L2I" (TYPICAL UNLESS SCHEDULED OTHERWISE). SEE LIGHTING FIXTURE SCHEDULE.
- WALL MOUNTED LED LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE.
- EXIT LIGHT (DARKENED AREA INDICATES LIGHTED FACE). SEE LIGHTING FIXTURE SCHEDULE.
- PHOTOELECTRIC CELL.
- LC — LIGHTING CONTACTOR. SEE DETAIL.
- WD — WIDEVIEW PASSIVE INFARED/ULTRASONIC (DUAL TECHNOLOGY) MOTION SENSOR.
- HW — HALLWAY PASSIVE INFARED/ULTRASONIC (DUAL TECHNOLOGY) MOTION SENSOR.
- $ — SINGLE POLE LIGHTING SWITCH. MOUNT 48" AFF UNLESS NOTED OTHERWISE. SUBSCRIPT INDICATES AS FOLLOWS:
  - 3 – THREE–WAY LIGHTING SWITCH.
  - 4 – FOUR–WAY LIGHTING SWITCH.
  - P – LIGHTING SWITCH WITH INTEGRATED PASSIVE INFRARED SENSOR.
- PSR — POWER SWITCH RELAY. SEE LIGHTING CONTROL WIRING DIAGRAM, SHEET E301
- PSD — 0–10V DIMMING POWER SWITCH RELAY. SEE LIGHTING CONTROL WIRING DIAGRAM, SHEET E301
- TAMPER RESISTANCE DUPLEX RECEPTACLE NEMA 5–15R. PROVIDE NEMA 5–20R FOR SINGLE DEDICATED RECEPTACLES. MOUNT 18" AFF UNLESS NOTED OTHERWISE. VERIFY DUPLEX MOUNTING REQUIREMENTS WITH ARCHITECTUAL DRAWINGS PRIOR TO ROUGH–IN.
  SUBSCRIPT INDICATES AS FOLLOWS:
  - G – GROUND FAULT CIRCUIT INTERRUPTER TYPE
  - PRJ – COORDINATE RECEPTACLE LOCATION WITH PROJECTOR (PROJECTOR BY OTHER). MOUNT RECEPTACLE IN OWNER FURNISHED PROJECTOR MOUNTING PLATE. PROVIDE 6'–0" FLEX CONDUIT FOR FINAL CONNECTION TO RECEPTACLE OUTLET BOX.
  - C – RECEPTACLE CONTROLLED BY LOCAL OCCUPANCY SENSOR. RECEPTACLE SHALL BE MARKED WITH THE WORD "CONTROLLED" AND SYMBOL PER NEC 2014 EDITION 406.3(E) CONTROLLED RECEPTACLE MARKING. PROVIDE 20A RELAY CONTROLLED FROM LOCAL OCCUPANCY SENSOR FOR CONTROL OF RECEPTACLE.
- TAMPER RESISTANCE DUPLEX RECEPTACLE MOUNTED 42" AFF. OR MOUNT 7" ABOVE COUNTER. UNLESS NOTED OTHERWISE. VERIFY COUNTER HEIGHT PRIOR TO ROUGH–IN.
- EXISTING RECEPTACLE TO REMAIN AS–IS.
- TAMPER RESISTANCE QUADRAPLEX RECEPTACLE (NEMA 5–15R) MOUNTED 18" AFF. UNLESS NOTED OTHERWISE.
- JUNCTION BOX.
- NON–FUSED DISCONNECT SWITCH. SIZE FOR LOAD BEING SERVED. PROVIDE PHENOLIC LABEL, SEE SPECIFICATIONS.
- PANELBOARD, MOUNTED AS INDICATED. SEE PANELBOARD SCHEDULES.
- P — POWER RELAY 20 AMP, 120 VOLT OPERATION FOR CONTROL OF EXHAUST FAN. PROVIDE WITH NEMA 1 ENCLOSURE SQ. D CO–8. MOUNT IN LOCAL SERVING ELECTRICAL ROOM. COORDINATE COIL VOLTAGE WITH EQUIPMENT BEING SERVED. SQ. D CO–xx SERIES, OR APPROVED EQUAL. MOUNT IN SERVING ELECTRICAL ROOM. PROVIDE PHENOLIC LABEL, SEE SPECIFICATIONS.
- MOTOR FURNISHED BY OTHERS.

- CIRCUIT RUN CONCEALED ABOVE CEILING OR IN WALL. ANY CIRCUIT WITHOUT FURTHER DESIGNATION 2#12, 1#12 GRD, 1/2"C PER NEC. UNO.
- CIRCUIT RUN CONCEALED IN OR BELOW FLOOR SLAB OR UNDERGROUND. ANY CIRCUIT WITHOUT FURTHER DESIGNATION 2#12, 1#12 GRD, 1/2"C PER NEC. UNO.
- HOMERUN TO PANELBOARD ANY CIRCUIT WITHOUT FURTHER DESIGNATION 2#12, 1#12 GRD, 1/2"C. 3#12, 1#12 GRD, 1/2"C, ETC., PER NEC. MINIMUM SIZE ON HOMERUNS GREATER THAN 100 FEET SHALL BE #10 AWG.
- INTERCOM SYSTEM HOMERUN. ROUTE 3/4"C FROM INTERCOM DEVICE TO EXISTING INTERCOM CONSOLE. SEE SITE PLAN FOR LOCATION. PROVIDE WIRING AS DESCRIBED IN SPECIFICATIONS. SEE RISER DIAGRAM FOR ADDITIONAL REQUIREMENTS.
- GROUNDING BUSBAR HARGER GBI SERIES. PROVIDE WITH #6 GROUND IN CONDUIT FROM BUSBAR TO MAIN ELECTRICAL GROUND AT PANEL 2MP.
- F — FIRE ALARM SYSTEM ADDRESSABLE DUAL ACTION MANUAL PULL STATION. MOUNT 48" TO TOP OF DEVICE.
- FIRE ALARM SYSTEM AUDIO–VISUAL ALARM (ALL 75 CANDELA STROBES). MOUNT 80" AFF. TO BOTTOM OF DEVICE OR 6" FROM THE BOTTOM OF CEILING, WHICHEVER IS LOWER. 110 SUBSCRIPT INDICATES 110 CANDELA STROBE. 30 CANDELA STROBES ARE NOT PERMITTED. ALL STROBES IN COMMON AREAS OR CORRIDORS SHALL BE SYNCHRONIZED.
- EXTERIOR FIRE ALARM SYSTEM AUDIO ALARM (WEATHERPROOF DEVICE WITH WEATHERPROOF CAST BOX). FLUSH MOUNT 8'–0" AFF. COORDINATE MOUNTING LOCATION WITH OBSTACLES AND MOUNT AS REQUIRED.
- FIRE ALARM SYSTEM STROBE APPLIANCE (ALL75 CANDELA STROBES). MOUNT 80" AFF. TO BOTTOM OF DEVICE OR 6" FROM THE BOTTOM OF CEILING, WHICHEVER IS LOWER. 30 CANDELA STROBES ARE NOT PERMITTED. ALL STROBES IN COMMON AREAS OR CORRIDORS SHALL BE SYNCHRONIZED.
- FIRE ALARM SYSTEM ADDRESSABLE HEAT DETECTOR. CEILING MOUNT.
- FIRE ALARM SYSTEM ADDRESSABLE COMBINATION HEAT/SMOKE DETECTOR. CEILING MOUNT.
- S — INTERCOM SYSTEM CEILING MOUNTED SPEAKER.
- DATA JUNCTION BOX MOUNTED AT 18" AFF UNLESS NOTED OTHERWISE. PROVIDE WITH BLANK STAINLESS STEEL COVER PLATE. PROVIDE 1"C WITH PULL WIRE FROM BOX TO EXISTING DATA TRACK. SEE SITE PLAN FOR LOCATION.
- DATA JUNCTION BOX MOUNTED AT 18" AFF (UNLESS NOTED OTHERWISE). PROVIDE DOUBLE–GANG BOX WITH BLANK COVER PLATE. STUB 1 1/2"C WITH PULL WIRE FROM BOX TO 8"X8"X4" JUNCTION BOX ABOVE CEILING FOR ROUTING OF PROJECTOR A/V CABLES. AND DISPLAY CABLES SEE SINGLE LINE DIAGRAM.
- INTERCOM SYSTEM WALL MOUNTED CALL STATION. MOUNT 48" AFF.
- AFF — ABOVE FINISHED FLOOR.
- C — CONDUIT.
- EWC — ELECTRIC WATER COOLER
- FACP — FIRE ALARM CONTROL PANEL.
- WP — WEATHERPROOF.
- C/L — CENTERLINE
- JB — JUNCTION BOX.
- MNT — MOUNTING HEIGHT AFF
- (P2A) — LIGHTING FIXTURE MARK. SEE LIGHTING FIXTURE SCHEDULE FOR REQUIREMENTS.
- (AHU) — MECHANICAL EQUIPMENT MARK. SEE MECHANICAL EQUIPMENT ELECTRICAL SCHEDULE.
- (1) — SHEET NOTE MARK. SEE SHEET NOTES FOR SPECIFIC INSTRUCTIONS.

LIGHTING FIXTURE SCHEDULE

MARK	MANUFACTURER AND CATALOG NUMBER	TYPE	TOTAL WATTS	VOLTAGE	MOUNTING	NOTES
L2A	LITHONIA 2BLT4 30LHE ADPT LP835 OR APPROVED EQUAL	23W LED 35K	23W	120	RECESSED GRID	MITRED DOOR FRAMES W/SPRING LOADED LATCHES AND PAINTED AFTER FAB.
L3A	LITHONIA 2BLT4 40LHE ADPT LP835 OR APPROVED EQUAL	30W LED 35K	30W	120	RECESSED GRID	MITRED DOOR FRAMES W/SPRING LOADED LATCHES AND PAINTED AFTER FAB.
L2I	LITHONIA ZL1D_L48_5000LM_FST_MVOLT_35K OR APPROVED EQUAL	41W LED 40K	41W	120	SUSPENDED	
HB	LITHONIA CSXW LED 30C 700 40K T2M MVOLT SF OR APPROVED EQUAL	40W LED 40K	40W	120	WALL AT 7'2"	UL LISTED FOR WET LOCATIONS
HD	GOTHAM EVO–SQ–41–22–6AR–120–SF OR APPROVED EQUAL	32W LED 40K	32W	120	SOFFIT RECESSED	UL LISTED FOR WET LOCATIONS
BP	LITHONIA ELM2 LED SD OR APPROVED EQUAL	3W LED 40K	3W	120	WALL AT 8'0"	PROVIDE CONNECTION TO UNSWITCHED LEG. SELF DIAGNOSTICS W/LEDS. PROVIDE EMERGENCY NICAD BATTERY BACKUP.
EX	LITHONIA LIGHTING LES R 120 ELSND OR APPROVED EQUAL	LED	3W	120	WALL OR CEILING INDICATED	PROVIDE EMERGENCY NICAD BATTERY BACKUP, ARROWS AS PER PLANS, DIE CAST ALUMINUM HOUSING W/BRUSHED ALUMINUM FACEPLATE, SELF DIAGNOSTICS W/LEDS, DOUBLE FACE AS INDICATED ON PLANS.

NOTES: PRIOR APPROVALS MUST BE SUBMITTED TO THE ENGINEER 14 DAYS PRIOR TO BID DATE FOR REVIEW.

GENERAL NOTES

1. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE 2014 EDITION OF THE NATIONAL ELECTRICAL CODE.
2. CONDUIT ROUTINGS AND DEVICE/EQUIPMENT LOCATIONS SHOWN ARE DIAGRAMMATIC ONLY, CONTRACTOR SHALL FIELD ROUTE AND LOCATE AS REQUIRED. CONDUIT ROUTINGS SHALL BE NORTH/SOUTH OR EAST/WEST.
3. ALL ELECTRICAL EQUIPMENT AND DEVICES SHALL BE PROVIDED WITH SUITABLE PHENOLIC NAMEPLATES. ATTACHED WITH S.S. SCREWS OR POP RIVETS.
4. FOR OTHER THAN LIGHTING FIXTURES, CATALOG NUMBERS AND MANUFACTURERS SHOWN ARE TO INDICATE DEVICE, QUALITY, AND TYPE OF ITEM DESIRED ONLY. ANY SUBSTITUTION ON THE LIGHTING FIXTURES MUST BE PREAPPROVED TWO WEEKS PRIOR TO BID.
5. THE CONDUIT MATERIAL SHALL BE AS FOLLOWS:
   - A) BELOW GRADE – RIGID NON–METALLIC. (POWER ONLY) – 3/4" MINIMUM.
   - B) RISER FROM 36" BELOW GRADE – RIGID GALVANIZED STEEL.
   - C) CONCEALED RISER FROM 36" BELOW GRADE – RIGID NON–METALLIC. (POWER ONLY)
   - D) ABOVE GRADE SUBJECT TO PHYSICAL ABUSE – RIGID GALVANIZED STEEL OR INTERMEDIATE.
   - E) ABOVE GRADE NOT SUBJECT TO PHYSICAL ABUSE OR WEATHER – ELECTRICAL METALLIC TUBING.
   - F) INDOORS NOT SUBJECT TO PHYSICAL ABUSE – ELECTRICAL METALLIC TUBING.
   - G) ALL INTERCOM, FIRE ALARM, AND CCTV CONDUITS INSTALLED BELOW GRADE THAT ARE NOT UNDER THE BUILDING SLAB – INTERMEDIATE OR RIGID METAL. PVC NOT ALLOWED.
6. THE LOADS SHOWN FOR APPLIANCES ARE BASED ON DESIGN INFORMATION. THE CONTRACTOR SHALL VERIFY ALL APPLIANCE LOADS PRIOR TO RUNNING THE CIRCUIT. THE MINIMUM CIRCUIT REQUIREMENTS SHALL BE BASED ON THE APPLIANCE NAMEPLATE VALUE OR CODE REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ADDITIONAL COMPENSATION SHALL NOT BE ALLOWED FOR APPLIANCE MODIFICATIONS BY THE CONTRACTOR.
7. COORDINATE LOCATIONS OF ELECTRICAL EQUIPMENT, DEVICES, OUTLETS, FIXTURES, ETC., WITH ARCHITECTURAL PLANS, ELEVATIONS AND REFLECTED CEILING PLANS PRIOR TO ROUGH–IN WORK. REFER TO KITCHEN EQUIPMENT CUTSHEETS FOR ALL KITCHEN ROUGH–IN.
8. WALL OUTLETS SHALL NOT BE INSTALLED BACK TO BACK.
9. CONTRACTOR SHALL SUPPLY ALL NECESSARY ELECTRICAL DEVICES IN THE CABINETS, INCLUDING BUT NOT LIMITED TO: RECEPTACLES, CONDUIT, JUNCTION BOXES, CONDUCTORS, DEVICE PLATES.
10. PROVIDE A 6'–0" MAXIMUM FLEXIBLE CONNECTION FROM EACH RECESSED LIGHTING FIXTURE TO JUNCTION BOX ABOVE CEILING.
11. ALL FIRE ALARM CIRCUITS SHALL BE TERMINATED ON TERMINAL STRIPS. WIRE NUTS ARE PROHIBITED. ALL ANNUNCIATING AND INITIATING CIRCUITS ENTERING THE BUILDING AND AT THE FIRE ALARM PANEL SHALL BE PROVIDED WITH SUITABLE SURGE SUPPRESSORS (SEE SPECIFICATIONS).
12. VERIFY ALL POWER/DATA/PHONE RECEPTACLE ELEVATIONS LOCATED 7" CENTER LINE OVER COUNTERTOP WITH ARCHITECTURAL DETAILS PRIOR TO ROUGH–IN. LOCATE LONG AXIS HORIZONTALLY.
13. ALL CONDUITS NOT LOCATED UNDER SLAB SHALL HAVE A MINIMUM BURIAL DEPTH OF 36" UNLESS NOTED OTHERWISE.
14. ALL SAFETY SWITCH DISCONNECTS LOCATIONS IN MECHANICAL ROOMS SHALL HAVE 3'–0" MIN. OF WORKING SPACE IN FRONT OF DISCONNECT; COORDINATE WITH MECHANICAL CONTRACTOR AND EQUIPMENT LOCATIONS.
15. FINAL CONDUIT CONNECTIONS TO HEAT PUMPS, AIR HANDLERS, EXHAUST FANS, AND WATER HEATERS SHALL BE FLEXIBLE METAL (LIQUID TIGHT IN FLAMMABLE, OUTSIDE AND OTHER DAMP AND WET LOCATIONS) UNLESS NOTED OTHERWISE IN EQUIPMENT CUTSHEETS.
16. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION. REFER TO MECHANICAL AND PLUMBING DRAWINGS AND KITCHEN EQUIPMENT CUTSHEETS FOR EXACT LOCATION AND SIZE OF EQUIPMENT WHICH ARE PROVIDED BY OTHERS AND CONNECTED BY ELECTRICAL.
17. RECEPTACLES AND SWITCHES COLOR SHALL BE SELECTED BY THE ARCHITECT FROM STANDARD COLORS. COVER PLATES SHALL BE 302 STAINLESS STEEL JUMBO SIZE.
18. VERIFY ALL DOOR SWINGS WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGHING IN FOR SWITCHES.
19. CONDUITS LEAVING OR ENTERING BUILDING SHALL BE SEALED PER N.E.C. TO PREVENT ENTRANCE OF MOISTURE.
20. ALL EXHAUST FAN DISCONNECTS AND OVERLOADS ARE SCHEDULED TO BE PROVIDED UNDER DIVISION 23.
21. ALL DIMENSIONS TO DEVICES AFF SHALL BE TO CENTERLINE UNLESS NOTED OTHERWISE.
22. WORKING SPACE OF 36" FOR 120/208 SYSTEMS AND 42" FOR 277/480 SYSTEMS SHALL BE MAINTAINED IN FRONT OF ALL ELECTRICAL PANELS AND DEVICES.
23. ALL SIDEWALKS AND PARKING LOT ASPHALT AREAS THAT ARE CUT DUE TO NEW ELECTRICAL SERVICES SHALL BE REPAIRED.
24. FINAL CONNECTION TO ALL EQUIPMENT IS SHOWN DIAGRAMMATIC. PROVIDE FINAL CONNECTION AS REQUIRED PER MANUFACTURER OF EQUIPMENT.
25. ALL FIRE ALARM WORK SHALL BE ROUGH–IN ONLY. PROVIDE JUNCTION BOXES, CONDUIT, AND PULL STRINGS. DEVICES AND CABLING SHALL BE PROVIDED AND INSTALLED BY NANCO.

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

Rev.	No.	Description

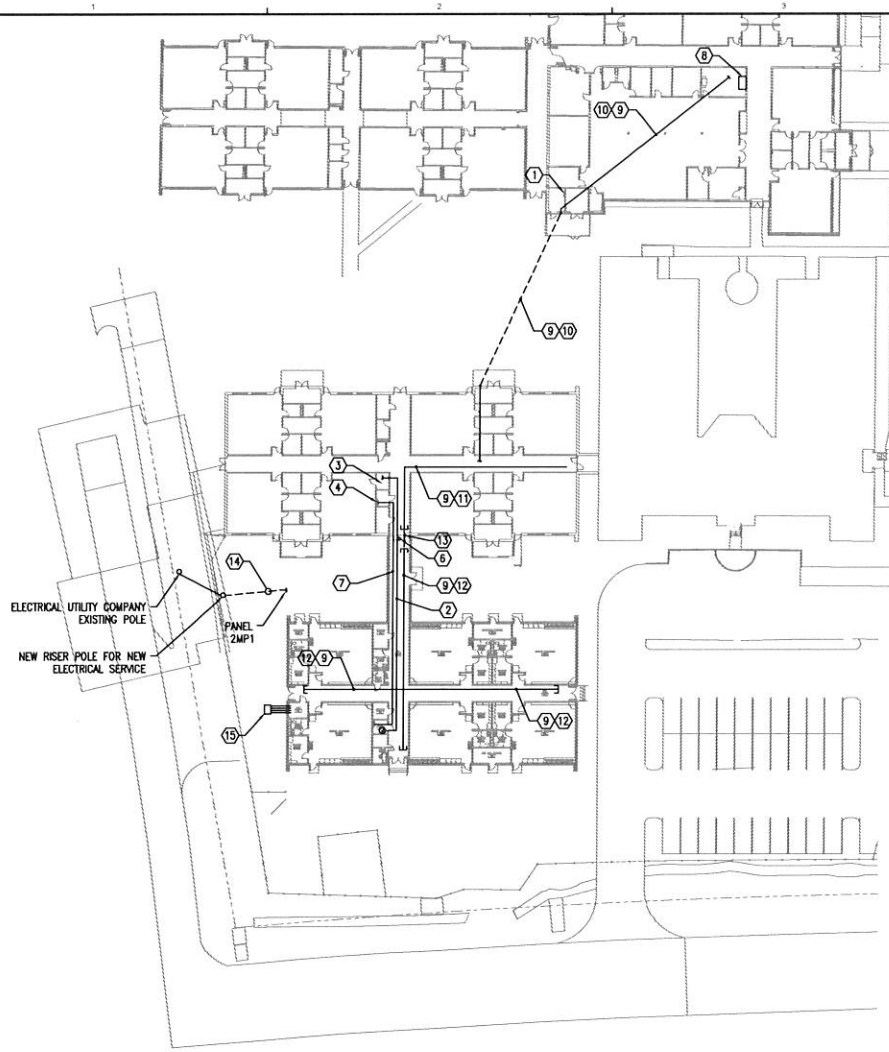
Drawn By: MCD
Checked By: TAN

Date: 8-2-2018

Project No.: 17052

Drawing Title:
ELECTRICAL NOTES, LEGEND, AND ABBREVIATIONS

Drawing No.: E001



SHEET NOTES

1. EXISTING FIRE ALARM SYSTEM CONTROL PANEL, EDWARDS. SEE FIRE ALARM SYSTEM RISER DIAGRAM FOR REQUIREMENTS.
2. PROVIDE ONE (1) NEW 1-1/4" CONDUIT FOR FIRE ALARM DEVICES INTERCONNECTION TO EXISTING FIRE ALARM SYSTEM.
3. EXISTING COMMUNICATIONS ROOM AND LOCATION FOR EXISTING FIRE ALARM SYSTEM EQUIPMENT.
4. EXISTING ELECTRICAL PANEL 2MP, CUTLER-HAMMER. SEE ELECTRICAL SINGLE LINE DIAGRAM FOR NEW WORK REQUIREMENTS.
5. EXISTING BUILDING 4 IS SCHEDULED TO BE DEMOLISHED AS PART OF ADDITIVE ALTERNATE. DISCONNECT EXISTING MAIN FEEDER TO BUILDING 4 AND REMOVE BACK TO THE SOURCE. CONCEALED CONDUIT MAY REMAIN. FIELD VERIFY EXISTING ELECTRICAL ROOM AND SOURCE LOCATIONS. SHUT-DOWN SHALL BE PERFORMED DURING OFF HOURS. COORDINATE SHUT-DOWN REQUIREMENTS WITH THE OWNER.
6. EXISTING LUMINAIRE MOUNTED IN EXTERIOR SOFFIT SHALL BE DEMOLISHED. MAINTAIN CONTINUITY OF EXISTING EXTERIOR LIGHTING CIRCUIT.
7. SEE PANELBOARD INFORMATION SCHEDULE FOR FEEDER REQUIREMENTS. ROUTE CONDUIT ABOVE CEILING.
8. EXISTING MAIN INTERCOM CONSOLE, TELECOR. FIELD VERIFY EXACT LOCATION. CONNECT NEW INTERCOM CIRCUITS. SEE INTERCOM SYSTEM RISER DIAGRAM FOR ADDITIONAL REQUIREMENTS.
9. NEW INTERCOM CIRCUITS HOMERUNS. ROUTE NEW HOMERUNS INSIDE NEW 2" CONDUIT FROM EXISTING CONSOLE TO EXISTING CABLE TRAY, THEN INSIDE EXISTING CABLE TRAY THROUGH EXISTING BUILDING, THEN INSIDE NEW CABLE TRAY THROUGH NEW BUILDING. SEE INTERCOM RISER FOR ADDITIONAL REQUIREMENTS.
10. PROVIDE ONE (1) NEW 2"C FOR NEW INTERCOM CIRCUITS CONNECTIONS. ROUTE CONDUIT ABOVE CEILING FROM INTERCOM CONSOLE TO EXTERIOR OF BUILDING, THEN UNDERGROUND TO EXISTING 8-CLASSROOM ADDITION. TURN CONDUIT UP TO ABOVE CEILING LEVEL, THEN ABOVE CEILING TO EXISTING CABLE TRAY.
11. EXISTING CABLE TRAY SHALL REMAIN.
12. NEW CABLE TRAY.
13. PROVIDE 2" SLEEVE BETWEEN EXISTING CABLE TRAY AND NEW CABLE TRAY.
14. NEW ELECTRICAL SERVICE FOR CHILLER PLANT. SEE ELECTRICAL SINGLE LINE DIAGRAM FOR NEW WORK REQUIREMENTS. SEE PANELBOARD INFORMATION SCHEDULE FOR FEEDER REQUIREMENTS. ROUTE CONDUIT DOWN NEW RISER POLE, THEN UNDERGROUND TO NEW PANEL 2MP1. COORDINATE ADDITIONAL REQUIREMENTS WITH LOCAL UTILITY COMPANY.
15. PROVIDE HANDHOLE, QUAZITE PG13248A24 WITH HEAVY DUTY COVER. PROVIDE FOUR (4) 2" CONDUITS FROM HAND HOLE INTO TELECOM ROOM. STUB UP 6" AND CAP ON BOTH ENDS.

1 ELECTRICAL SITE PLAN

30' 0' 30' 60'

SCALE: 1"=30'-0"

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

Rev	No.	Description
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Drawn By: MCD
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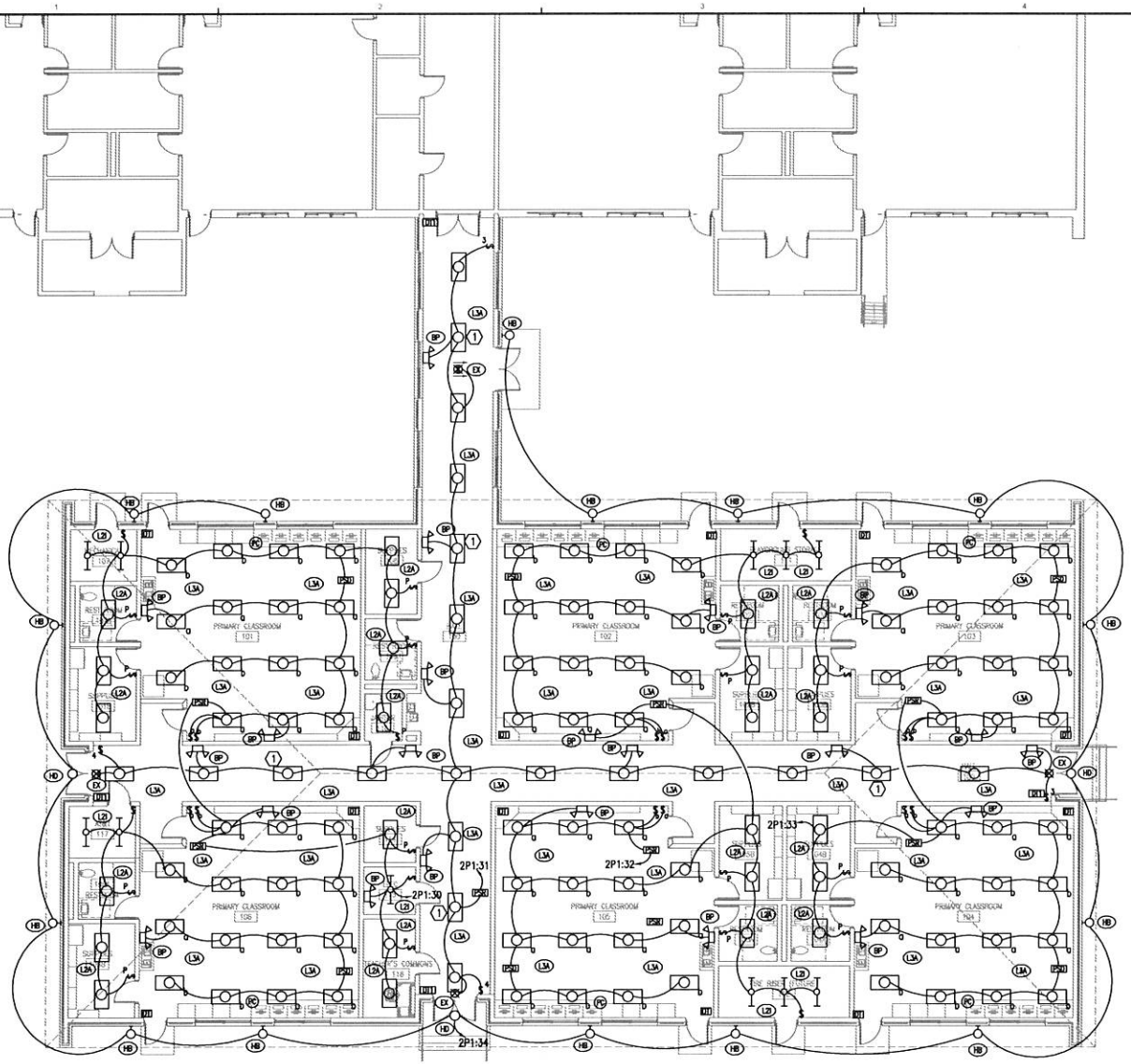
Date: 8-2-2018

Project No.: 17052

Drawing Title:
ELECTRICAL SITE PLAN

Drawing No.: E100



SHEET NOTES

1. FIXTURE SHALL BE PROVIDED WITH UNSWITCHED HOT AND REMAIN ON CONSTANTLY.

1 ELECTRICAL LIGHTING PLAN

SCALE: 1/8"=1'-0"

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

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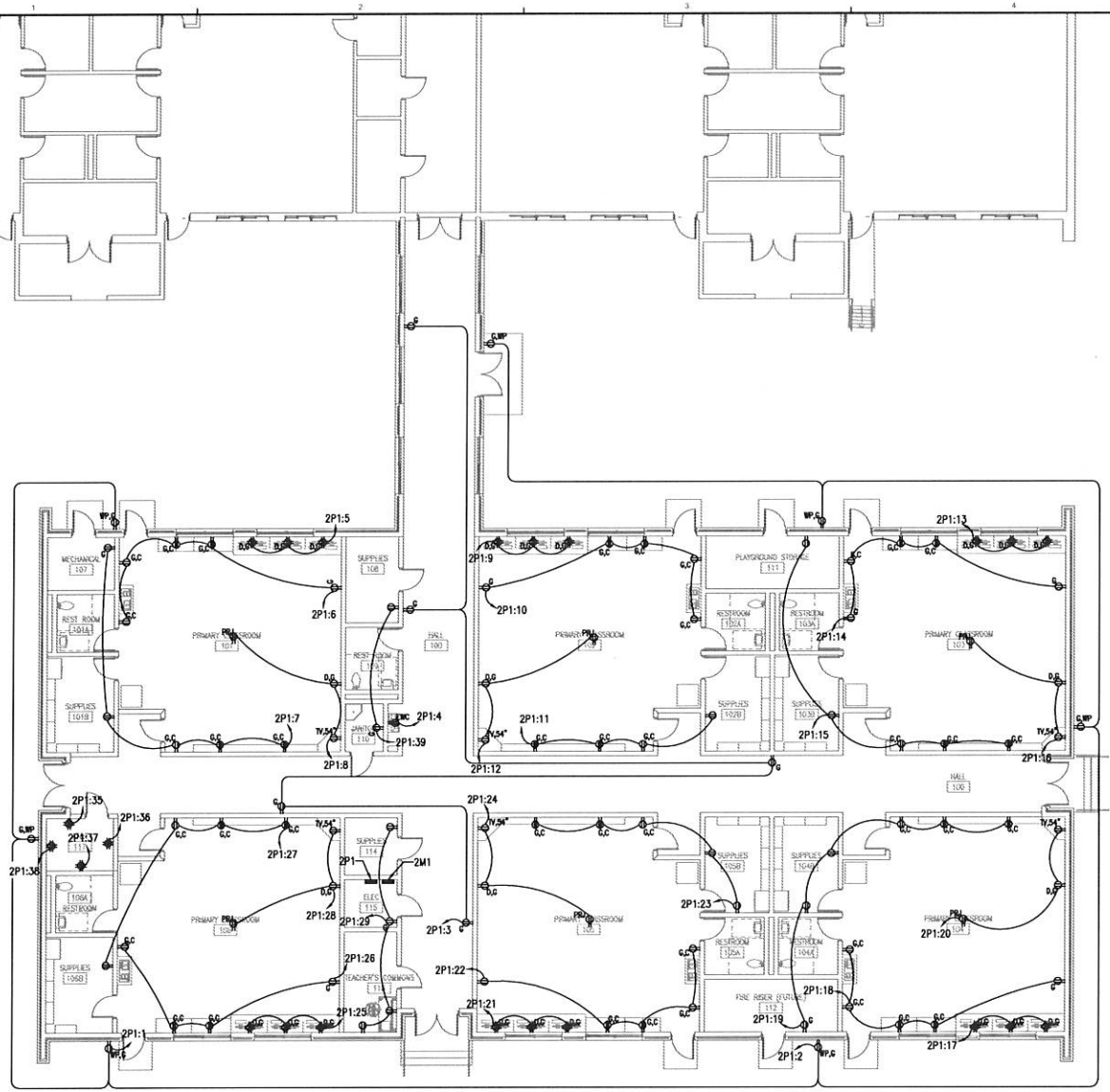
Project No.: 17052

Drawing Title: ELECTRICAL LIGHTING PLAN

Drawing No.: E200



1 ELECTRICAL POWER PLAN

8' 0' 8' 16'

SCALE: 1/8"=1'-0"

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
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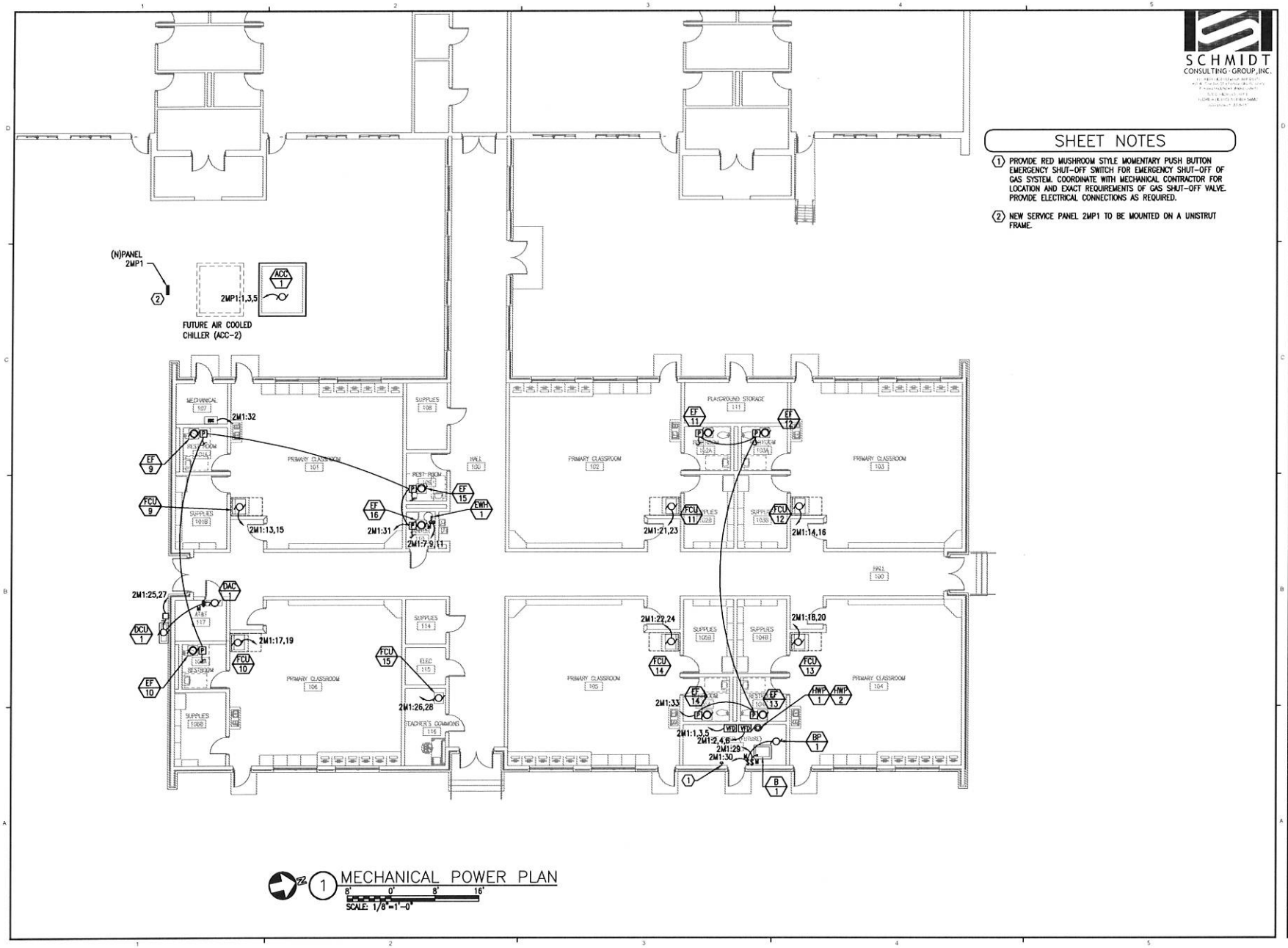
Project No.: 17052

Drawing Title:
ELECTRICAL POWER PLAN

Drawing No.: E210



SHEET NOTES

1. PROVIDE RED MUSHROOM STYLE MOMENTARY PUSH BUTTON EMERGENCY SHUT-OFF SWITCH FOR EMERGENCY SHUT-OFF OF GAS SYSTEM. COORDINATE WITH MECHANICAL CONTRACTOR FOR LOCATION AND EXACT REQUIREMENTS OF GAS SHUT-OFF VALVE. PROVIDE ELECTRICAL CONNECTIONS AS REQUIRED.
2. NEW SERVICE PANEL 2MP1 TO BE MOUNTED ON A UNISTRUT FRAME.

1 MECHANICAL POWER PLAN

SCALE: 1/8"=1'-0"

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
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Revision:

Date	No.	Description
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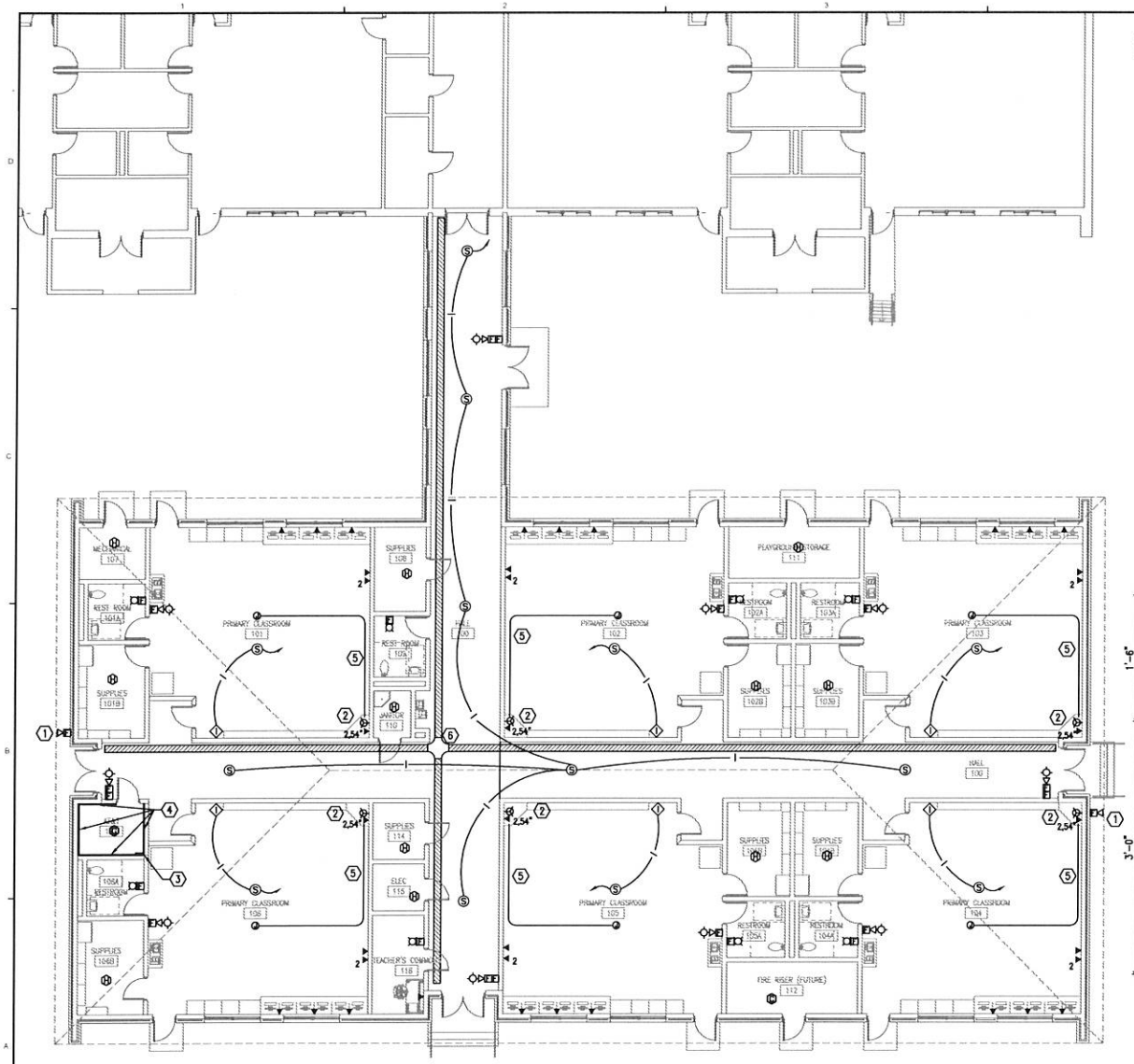
Drawn By: JTH
Checked By: TAN

Date: 8-2-2018

Project No.: 17052

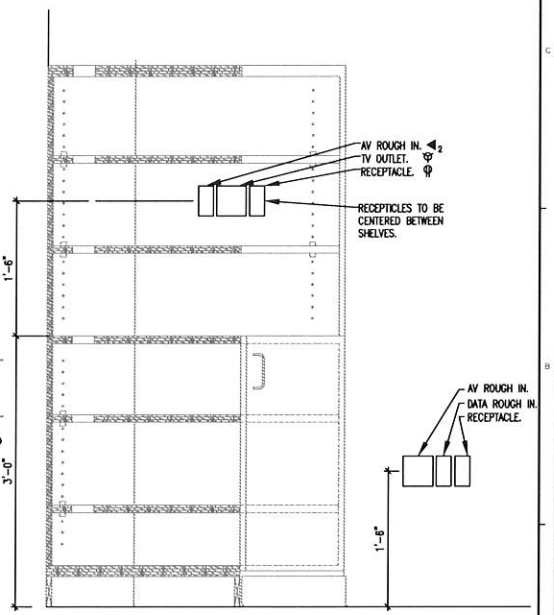
Drawing Title:
MECHANICAL POWER PLAN

Drawing No.: E220



SHEET NOTES

1. MOUNT EXTERIOR HORN BELOW SOFFIT.
2. REFER TO CABINET DETAIL, THIS SHEET.
3. COPPER GROUND BUS. PROVIDE #6 GROUND TO BUILDING GROUND.
4. PLYWOOD BACKBOARD. ROUGH ALL ELECTRICAL OUTLETS IN BACKBOARD FOR FLUSH MOUNT INSTALLATION OF FACEPLATES. BACKBOARDS SHALL BE 3/4" THICK AB GRADE PLYWOOD. COUNTERSINK ALL SCREWS. PAINT ALL SURFACES WITH TWO COATS OF FIRE-RETARDANT PAINT, LIGHT GRAY IN COLOR. FINAL SURFACE SHALL BE UNIFORMLY SMOOTH AND EVEN. TOUCH UP AT END OF PROJECT. COORDINATE WORK WITH ELECTRICAL CONTRACTOR TO ENSURE THAT POWER RECEPTACLES ARE PROPERLY LOCATED AND WITH FACEPLATES FLUSH ON FACE OF BACKBOARD. TOP OF BACKBOARD SHALL BE MOUNTED AT 7'6" AFF AND BOTTOM OF BACKBOARD SHALL BE 6" AFF.
5. PROVIDE 1-1/2"C WITH LONG RADIUS ELBOWS FROM 8"X8"X4" J-BOX LOCATED ABOVE TV CABINET TO WITHIN 1" OF PROJECTION PLATE.
6. 12"W X 4"D BASKET TRAY. (WALKER OR APPROVED EQUAL). SUPPORT AT 8' ON CENTER.



SECTION

2 CABINET DETAIL
NOT TO SCALE

1 ELECTRICAL SYSTEMS PLAN
8' 0' 8' 16'
SCALE: 1/8"=1'-0"

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
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Revision

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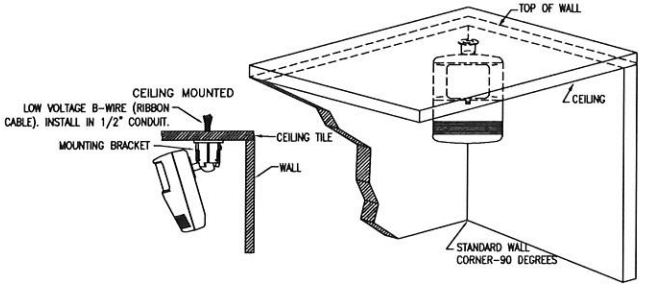
Checked By: TAN

Date: 8-2-2018

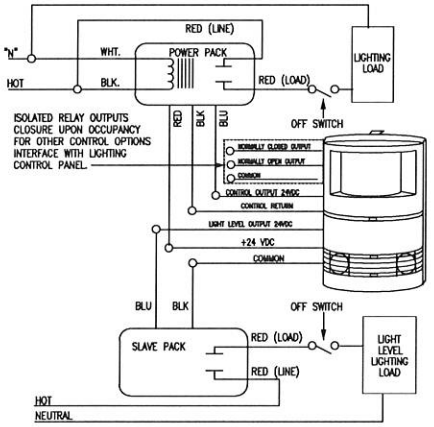
Project No.: 17052

Drawing Title:
ELECTRICAL SYSTEMS PLAN

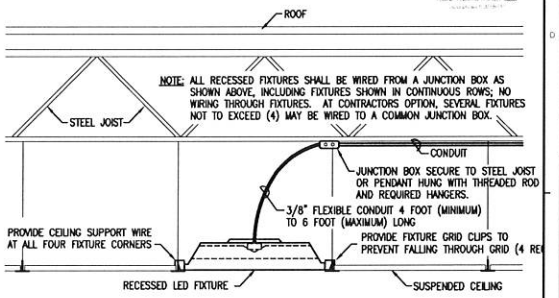
Drawing No.: E230



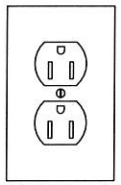
1 DUAL TECHNOLOGY MOUNTING DETAIL
NOT TO SCALE



2 DUAL TECHNOLOGY SENSOR SCHEMATIC
NOT TO SCALE

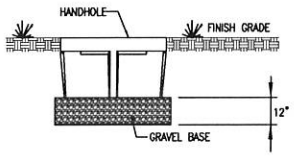


3 TYPICAL FIXTURE INSTALLATION DETAIL
NOT TO SCALE

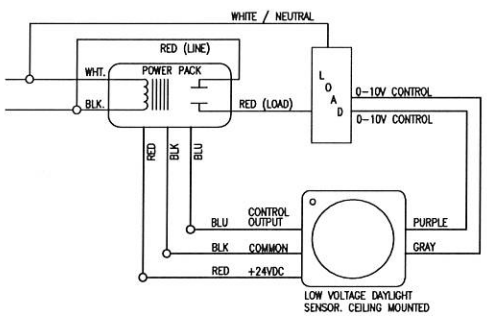


RECEPTACLES SHALL BE INSTALLED WITH GROUND PIN UP. (TYPICAL FOR DUPLEX, QUADRAPLEX, AND GFI)

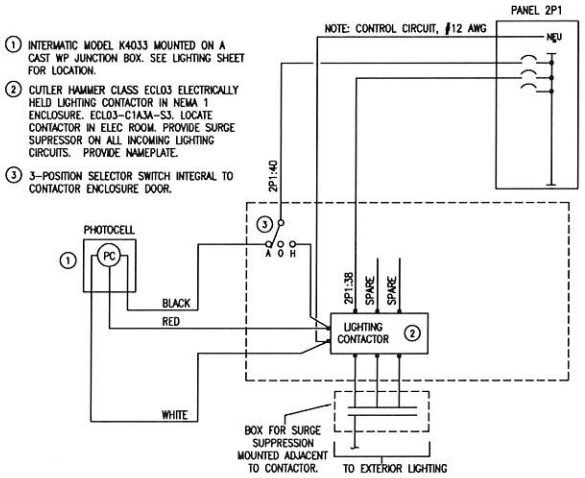
4 TYPICAL RECEPTACLE MOUNTING DETAIL
NOT TO SCALE



5 HANDHOLE DETAIL
NOT TO SCALE



6 DAYLIGHT CONTROL SCHEMATIC
NOT TO SCALE



7 EXTERIOR LIGHTING CONTROL DIAGRAM
NOT TO SCALE

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St.
Jay, FL 32565

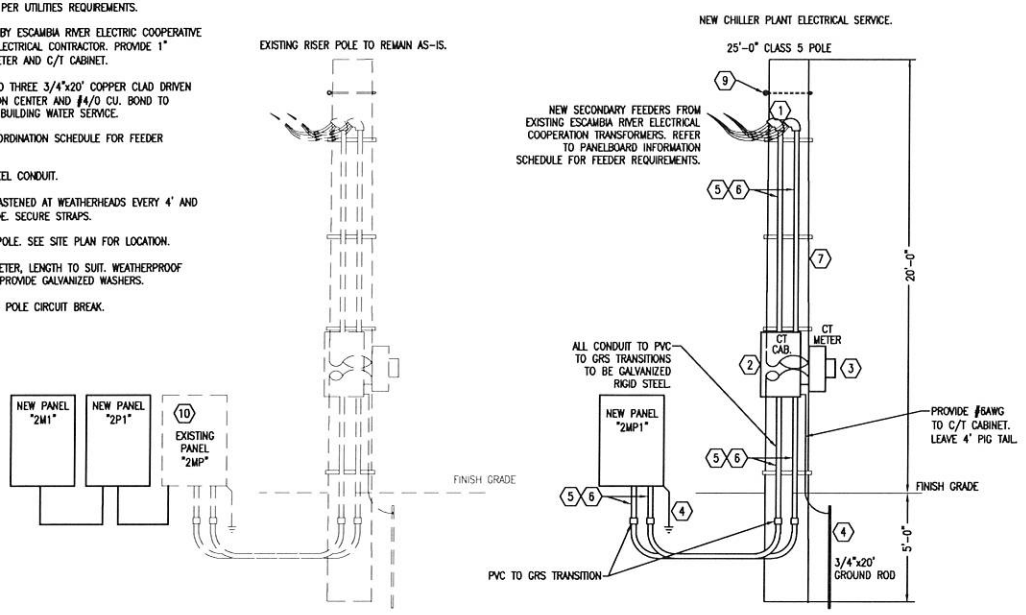
Revision

Sym	No.	Description

Drawn By: JTH
Checked By: TAN
Date: 8-2-2018
Project No.: 17052
Drawing Title: ELECTRICAL DETAILS
Drawing No.: E301

SINGLE LINE DIAGRAM NOTES

1. 3-1/2" SERVICE ENTRANCE WEATHER HEAD.
2. PROVIDE CT CABINET PER UTILITIES REQUIREMENTS.
3. CT METER PROVIDED BY ESCAMBIA RIVER ELECTRIC COOPERATIVE AND INSTALLED BY ELECTRICAL CONTRACTOR. PROVIDE 1" CONDUIT BETWEEN METER AND C/T CABINET.
4. #3/0 CU. GROUND TO THREE 3/4"x20' COPPER CLAD DRIVEN GROUND RODS, 20' ON CENTER AND #4/0 CU. BOND TO BUILDING STEEL AND BUILDING WATER SERVICE.
5. SEE PANELBOARD COORDINATION SCHEDULE FOR FEEDER REQUIREMENTS.
6. GALVANIZED RIGID STEEL CONDUIT.
7. CONDUIT SHALL BE FASTENED AT WEATHERHEADS EVERY 4' AND 6" ABOVE FINAL GRADE. SECURE STRAPS.
8. NEW SERVICE RISER POLE. SEE SITE PLAN FOR LOCATION.
9. EYE BOLT, 5/8" DIAMETER, LENGTH TO SUIT. WEATHERPROOF HOLD WITH SEALANT. PROVIDE GALVANIZED WASHERS.
10. PROVIDE NEW 225A/3 POLE CIRCUIT BREAK.



1 ELECTRICAL SINGLE LINE DIAGRAM
SCHEMATIC

PANELBOARD INFORMATION SCHEDULE

MARK	TYPE	MOUNTING	VOLTAGE	ø	WIRE	MAIN	SERVICE RATED	KAIC RATING*	ø BUS RATING	N BUS RATING	C/B TYPE	FEEDER CONDUCTORS	FEEDER GROUND	FEEDER CONDUIT	INTEGRAL TVSS
2MP1	NEMA 3R	SURFACE	208/120	3	4	800	YES		800	800	BOLT-ON	3 RUNS 4#300	NONE	3"C EA	NO
2P1	NEMA 1	SURFACE	208/120	3	4	225	NO		225	225	BOLT-ON	4#4/0	#4	2 1/2"C	YES
2M1	NEMA 1	SURFACE	208/120	3	4	MLO	NO		100	100	BOLT-ON	4#4	#8	1 1/4"C	NO

NOTES
- ALL BUSSING COPPER, INCLUDING NEUTRAL AND GROUND.
- ALL PANEL LUGS 100 AMPS AND GREATER SHALL BE COPPER.
- ALL LUGS ON CIRCUIT BREAKERS GREATER THAN 400 AMPS SHALL BE COPPER.
- ALL PANELBOARD CABINETS SHALL BE DOOR IN DOOR CONSTRUCTION.
- * MINIMUM EQUIPMENT RATING. ALL EQUIPMENT SHALL BE FULLY RATED. SERIES RATINGS SHALL NOT BE ALLOWED.

MECHANICAL EQUIPMENT ELECTRICAL SCHEDULE

MARK	ITEM	VOLTAGE/ø	MCA	LOAD	MEANS OF DISCONNECT*	C/B TRIP (AMPS)	FEEDER ø	FEEDER GND	FEEDER CONDUIT	SERVING PANEL	NOTES
ACC-1	AIR COOLED CHILLER	208/3	291	84kW	NOTE 4	300	3#350	#4	3"C	2MP1	
B-1	BOILER	120/1	3	0.4kW	NOTE 2	20	2#12	#12	1/2"C	2M1	
HWP-1	HOT WATER PUMP	208/3	9	2HP	NOTE 4	20	3#12	#12	1/2"C	2M1	
HWP-2	HOT WATER PUMP	208/3	9	2HP	NOTE 4	20	3#12	#12	1/2"C	2M1	
BP-1	BOILER PUMP	120/1	20	1HP	NOTE 3	30	2#12	#10	1/2"C	2M1	
DAC/DCU-1	DUCTLESS MINI-SPLIT	208/1	8.6	1.4kW	30/2 N3RSS	15	2#12	#12	1/2"C	2M1	
FCU-X	FAN COIL UNIT	208/1	16	2.7kW	NOTE 1	20	2#12	#12	1/2"C	2M1	
EF-X	EXHAUST FAN	120/1	1.5	.14kW	NOTE 1	20	2#12	#12	1/2"C	2M1	3
EWH-1	WATER HEATER	208/3	10	1.5kW	NOTE 2	20	3#12	#12	1/2"C	2M1	

NOTES
* N1SS=NEMA 1 SAFETY SWITCH, N3RSS=NEMA 3R SAFETY SWITCH, C/B=SERVING C/B IS DISCONNECT.
1. DISCONNECT INTEGRAL TO EQUIPMENT BY DIVISION 23.
2. PROVIDE MOTOR RATED MANUAL TOGGLE CONTROLLER WITH OVERLOAD ELEMENT FOR CONTROL OF EQUIPMENT.
3. PROVIDE MOTOR RATED POWER RELAY IN NEMA 1 ENCLOSURE FOR CONTROL OF EQUIPMENT.
4. VFD W/INTEGRAL DISCONNECT PROVIDED BY DIVISION 23, CONNECTED BY DIVISION 26.

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
Jay, FL 32565

Revision

Rev	No	Description
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

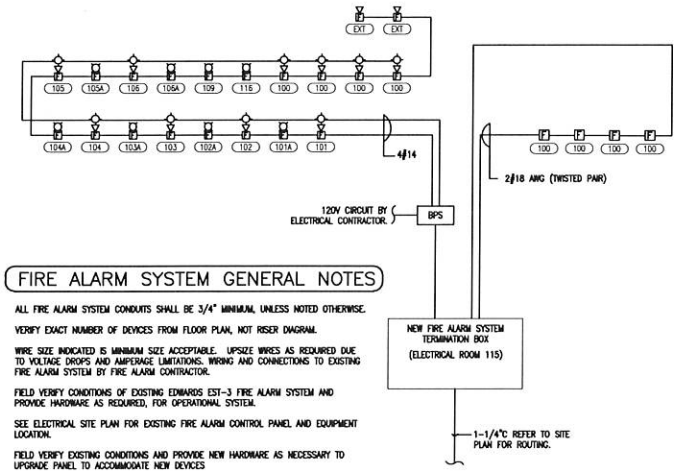
Drawn By: JTH
Checked By: TAN

Date: 8-2-2018

Project No.: 17052

Drawing Title:
ELECTRICAL
SINGLE LINE DIAGRAM

Drawing No.: E401



FIRE ALARM SYSTEM GENERAL NOTES

ALL FIRE ALARM SYSTEM CONDUITS SHALL BE 3/4" MINIMUM, UNLESS NOTED OTHERWISE.

VERIFY EXACT NUMBER OF DEVICES FROM FLOOR PLAN, NOT RISER DIAGRAM.

WIRE SIZE INDICATED IS MINIMUM SIZE ACCEPTABLE. UPSIZE WIRES AS REQUIRED DUE TO VOLTAGE DROPS AND AMPERAGE LIMITATIONS. WIRING AND CONNECTIONS TO EXISTING FIRE ALARM SYSTEM BY FIRE ALARM CONTRACTOR.

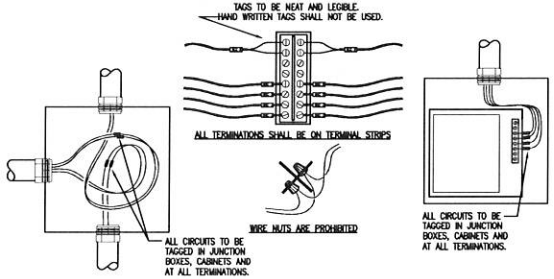
FIELD VERIFY CONDITIONS OF EXISTING EDWARDS EST-3 FIRE ALARM SYSTEM AND PROVIDE HARDWARE AS REQUIRED, FOR OPERATIONAL SYSTEM.

SEE ELECTRICAL SITE PLAN FOR EXISTING FIRE ALARM CONTROL PANEL AND EQUIPMENT LOCATION.

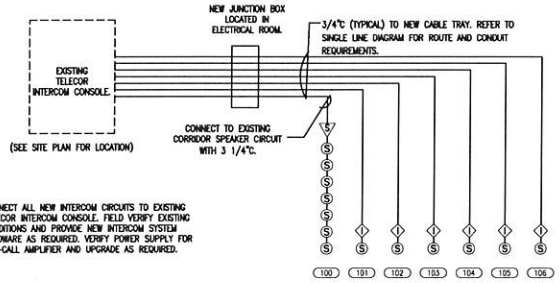
FIELD VERIFY EXISTING CONDITIONS AND PROVIDE NEW HARDWARE AS NECESSARY TO UPGRADE PANEL TO ACCOMMODATE NEW DEVICES

PROVIDE NECESSARY PROGRAMMING TO INCORPORATE NEW DEVICES

1 FIRE ALARM SINGLE LINE DIAGRAM
SCHEMATIC



2 FIRE ALARM SYSTEM LABELING DETAIL
NOT TO SCALE



3 INTERCOMM SINGLE LINE DIAGRAM
SCHEMATIC

INTERCOM SYSTEM GENERAL NOTES

CONNECT ALL NEW INTERCOM CIRCUITS TO EXISTING DUKANE INTERCOM CONSOLE. PROVIDE NEW INTERCOM SYSTEM HARDWARE AS REQUIRED. VERIFY POWER SUPPLY FOR ALL-CALL AMPLIFIER AND UPGRADE AS REQUIRED.

FIELD VERIFY EXISTING CONDITIONS AND PROVIDE NEW HARDWARE AS REQUIRED.

ALL INTERCOM SYSTEM CONDUITS SHALL BE 3/4" MINIMUM UNLESS NOTED OTHERWISE.

ALL INTERCOM CIRCUITS SHALL BE HOMERUN TO EXISTING DUKANE TELECENTER CONSOLE. INTERCOM CIRCUITS SHALL BE SPLICED ONLY AS INDICATED ON RISER DIAGRAM. ALL TERMINATIONS SHALL BE ON TERMINAL STRIPS.

SEE SPECIFICATIONS FOR INTERCOM SYSTEM WIRING REQUIREMENTS.

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

13833 S Alabama St,
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Revision

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Drawing Title:
ELECTRICAL
SINGLE LINE DIAGRAMS

Drawing No.: E402

PANELBOARD SCHEDULE

MARK: 2M1

CKT #	LOAD DESCRIPTION	BREAKER P	BREAKER TRIP	PHASE (kVA) A	PHASE (kVA) B	PHASE (kVA) C	PHASE (kVA) A	PHASE (kVA) B	PHASE (kVA) C	BREAKER TRIP	BREAKER P	LOAD DESCRIPTION	CKT #
1				1.0			1.0						2
3	HWP-1	3	20		1.0			1.0		20	3	HWP-2	4
5						1.0			1.0				6
7				0.5			–						8
9	EWH-1	3	20		0.5			–		20	3	SPARE	10
11						0.5			–				12
13	FCU-9	2	20	1.4			1.4			20	2	FCU-12	14
15					1.4			1.4					16
17	FCU-10	2	20			1.4			1.4	20	2	FCU-13	18
19				1.4			1.4						20
21	FCU-11	2	20		1.4			1.4		20	2	FCU-14	22
23						1.4			1.4				24
25	DCU/DAC-1	2	15	0.7			1.4			20	2	FCU-15	26
27					0.7			1.4					28
29	B-1	1	20			0.4			1.8	30	1	BP-1	30
31	EF-9,10,15,16	1	20	0.6			1.0			20	1	DDC CONTROL PANEL	32
33	EF-11,12,13,14	1	20		0.6			–		20	1	SPARE	34
35	SPARE	1	20			–			–	20	1	SPARE	36
37	SPARE	1	20	–			–			20	1	SPARE	38
39	SPARE	1	20		–			–		20	1	SPARE	40
41	SPARE	1	20			–			–	20	1	SPARE	42
				5.5	5.5	4.6	6.1	5.1	5.5				

TOTAL (kVA) ØA 11.5 ØB 10.5 ØC 10.1 HIGH PHASE (AMPS) 95.9
TOTAL CONNECTED LOAD (kVA) 32.1 TOTAL LOAD (AMPS) 89.2

PANELBOARD SCHEDULE

MARK: 2P1

CKT #	LOAD DESCRIPTION	BREAKER P	BREAKER TRIP	PHASE (kVA) A	PHASE (kVA) B	PHASE (kVA) C	PHASE (kVA) A	PHASE (kVA) B	PHASE (kVA) C	BREAKER TRIP	BREAKER P	LOAD DESCRIPTION	CKT #
1	SOUTH OUTSIDE RECEPTS	1	20	0.5			0.5			20	1	NORTH OUTSIDE RECEPTS	2
3	CORRIDOR RECEPTS	1	20		0.9			0.2		20	1	WATER FOUNTAIN RECEPT	4
5	COMPUTERS RM. 101	1	20			1.1			0.7	20	1	RECEPTS RM. 101	6
7	RECEPTS RM. 101	1	20	1.1			0.5			20	1	CLASS AV, RM. 101	8
9	COMPUTERS RM. 102	1	20		1.1			0.7		20	1	RECEPTS RM. 102	10
11	RECEPTS RM. 102	1	20			0.9			0.5	20	1	CLASS AV, RM. 102	12
13	COMPUTERS RM. 103	1	20	1.1			0.7			20	1	RECEPTS RM. 103	14
15	RECEPTS RM. 103	1	20		1.1			0.5		20	1	CLASS AV, RM. 103	16
17	COMPUTERS RM. 104	1	20			1.1			0.7	20	1	RECEPTS RM. 104	18
19	RECEPTS RM. 104	1	20	1.1			0.5			20	1	CLASS AV, RM. 104	20
21	COMPUTERS RM. 105	1	20		1.1			0.7		20	1	RECEPTS RM. 105	22
23	RECEPTS RM. 105	1	20			0.9			0.5	20	1	CLASS AV, RM. 105	24
25	COMPUTERS RM. 106	1	20	1.1			0.7			20	1	RECEPTS RM. 106	26
27	RECEPTS RM. 106	1	20		1.1			0.5		20	1	CLASS AV, RM. 108	28
29	RECEPTS RM. 116	1	20			0.4			1.5	20	1	LIGHTS, RM. 101 &106	30
31	CORRIDOR LIGHTS	1	20	0.7			1.4			20	1	LIGHTS, RM. 102 & 105	32
33	LIGHTS, RM. 103 & 104	1	20		1.1			0.7		20	1	EXTERIOR LIGHTS	34
35	COMM RECEPTS, RM. 117	1	20			0.4			0.4	20	1	COMM RECEPTS, RM. 117	36
37	COMM RECEPTS, RM. 117	1	20	0.4			0.4			20	1	COMM RECEPTS, RM. 117	38
39	JANITOR'S CLOSET RECEPT	1	20		0.2			–		–	1	SPACE	40
41	SPARE	1	20			–			–	–	1	SPACE	42
43	SPARE	1	20	–			–			–	1	SPACE	44
45	SPARE	1	20		–			–		–	1	SPACE	46
47	SPARE	1	20			–			–	–	1	SPACE	48
49	SPARE	1	20	–			–			–	1	SPACE	50
51	SPARE	1	20		–			–		–	1	SPACE	52
53	SPARE	1	20			–			–	–	1	SPACE	54
55	SPARE	1	20	–			–			–	1	SPACE	56
57	SPARE	1	20		–			–		–	1	SPACE	58
59	SPARE	1	20			–			–	20	1	SPARE	60
61	SPARE	1	20	–			–			20	1	SPARE	62
63	SPARE	1	20		–			–		20	1	SPARE	64
65	SPARE	1	20			–			–	20	1	SPARE	66
67				–			11.5						68
69	TVSS	3	30		–			10.5		125	3	PANEL 2M1	70
71						–			10.1				72
				6.0	6.6	4.7	16.3	13.8	14.4				

TOTAL (kVA) ØA 22.3 ØB 20.4 ØC 19.1 HIGH PHASE (AMPS) 185.7
TOTAL CONNECTED LOAD (kVA) 61.8 TOTAL LOAD (AMPS) 171.6

PANELBOARD SCHEDULE

MARK: 2MP1

CKT #	LOAD DESCRIPTION	BREAKER P	BREAKER TRIP	PHASE (kVA) A	PHASE (kVA) B	PHASE (kVA) C	PHASE (kVA) A	PHASE (kVA) B	PHASE (kVA) C	BREAKER TRIP	BREAKER P	LOAD DESCRIPTION	CKT #
1				28.0			–						2
3	ACC-1	3	300		28.0			–		300	3	SPARE (FUTURE ACC-2)	4
5						28.0			–				6
7				–			–						8
9	SPACE	3	–		–			–		–	3	SPACE	10
11						–			–				12
				28.0	28.0	28.0							

TOTAL (kVA) ØA 28.0 ØB 28.0 ØC 28.0 HIGH PHASE (AMPS) 233.3
TOTAL CONNECTED LOAD (kVA) 84.0 TOTAL LOAD (AMPS) 233.2

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CONSTRUCTION DOCUMENTS (PHASE III)

Jay Elementary Classroom Addition

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Revision

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Drawing Title:
ELECTRICAL PANEL SCHEDULES

Drawing No.: E403