# Key Largo School Chiller Replacement

PREPARED FOR

Monroe County School District

241 Trumbo Road Key West, Florida 33040



# SCHOOL BOARD MEMBERS

District 1 - Bobby Highsmith
District 2 - Andy Griffiths
District 3 - Mindy Conn, Chair
District 4 - John Dick, Vice Chair
Distict 5 - Dr. Sue Woltanski

SUPERINTENDENT OF SCHOOLS Mark T. Porter

# PREPARED BY

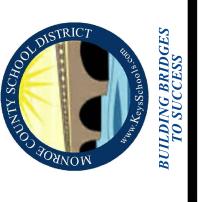


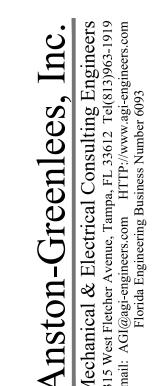
February 19, 2020 CONSTRUCTION DOCUMENTS

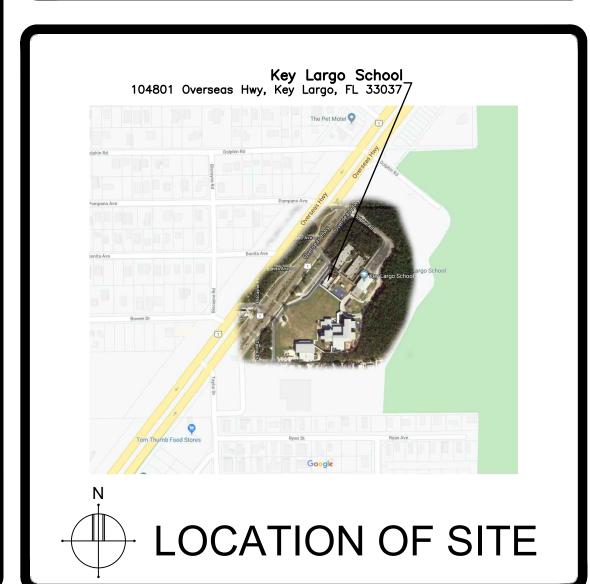
# DRAWING INDEX

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|--|---|
| M0.1<br>M1.1<br>M1.2<br>M1.3<br>M2.1<br>M2.2<br>M3.1 | HVAC GENERAL NOTES, DETAILS, AND LEGEND BLDG 10 1ST FLOOR HVAC PLAN BLDG 10 2ND FLOOR HVAC PLAN BLDG 10 3RD FLOOR HVAC PLAN CHILLER YARD HVAC PLAN AND HVAC SCHEDULES HVAC SCHEDULES HVAC CONTROLS                        |
| E0.1<br>E1.1<br>E1.2<br>E1.3<br>E2.1<br>F2.2         | ELECTRICAL LEGEND, GENERAL NOTES, AND DETAI<br>BLDG 10 1ST FLOOR ELECTRICAL PLAN<br>BLDG 10 2ND FLOOR ELECTRICAL PLAN<br>BLDG 10 3RD FLOOR ELECTRICAL PLAN<br>MECHANICAL EQUIPMENT CONNECTION SCHEDULE<br>PANFI SCHEDULES |

Chiller Replacement







AGI

DATE 02.19.2020 JOB NO.

Plotted by: chris Feb 19, 2020 – 5:59pm

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INSECT SCREEN

KILOWATT KILOWATT HOUR

LEAVING AIR TEMPERATURE LB/HR POUNDS PER HOUR

# GENERAL MECHANICAL NOTES

- 1. ALL MECHANICAL WORK SHALL MEET ALL OF THE REQUIREMENTS OF THE FOLLOWING:
- A. FLORIDA BUILDING CODE (FBC) 6TH EDITION (2017): THIS CODE INCLUDES THE 2017 FBC BUILDING, MECHANICAL, PLUMBING, ENERGY CONSERVATION, FUEL GAS, ACCESSIBILITY, AND TEST PROTOCOLS VOLUMES. FURTHER, SEE "REFERENCED STANDARDS" IN THE FBC BUILDING CHAPTER 35; FBC MECHANICAL CHAPTER 15; FBC PLUMBING CHAPTER 14; FBC ENERGY CONSERVATION CHAPTER 6; AND FBC FUEL GAS CHAPTER 8) (EFFECTIVE DECEMBER 31, 2017).
- B. 6TH EDITION OF THE FLORIDA FIRE PREVENTION CODE (FFPC): (THIS CODE ALSO INCLUDES THE FLORIDA VERSIONS OF NFPA 1 AND NFPA 101.) (EFFECTIVE DECEMBER
- C. 2014 NATIONAL ELECTRIC CODE.
- D. 2014 STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES (SREF): (EFFECTIVE NOVEMBER 4, 2014)
- 2. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE LOCATION OF ALL UTILITIES IN ALL AREAS OF THE SITE BEFORE COMMENCING WORK.
- 3. COORDINATE ALL WORK WITH OTHER AFFECTED TRADES. THE MECHANICAL CONTRACTOR SHALL FORWARD TO THE ELECTRICAL CONTRACTOR AN APPROVED COPY OF ALL EQUIPMENT SHOP
- DRAWINGS FOR ELECTRICAL POWER/CONTROL INTERFACE. 4. COVER ALL ELECTRICAL AND MECHANICAL EQUIPMENT TO PROTECT THEM FROM DUST AND DAMAGE DURING CONSTRUCTION. RESTORE ALL FACTORY PAINTED SURFACES TO NEW CONDITION, REPAIR ALL SCRATCHES, DENTS AND ABRASIONS. THOROUGHLY CLEAN ALL
- SURFACES OF DUST DEBRIS, AND FOREIGN MATTER. THE EQUIPMENT, WHEN TURNED OVER TO THE OWNER, SHALL BE CLEAN AND FREE OF DEFECTS. 5. AT SUBSTANTIAL COMPLETION, A LETTER FROM THE TEST AND BALANCE AGENCY SHALL BE PROVIDED INDICATING THAT THE SYSTEM IS OPERATING AS THE DESIGN INTENDS. THE

COMPLETE DEFICEINT-FREE TEST AND BALANCE REPORT SHALL BE SUBMITTED TO THE

ENGINEER FOR REVIEW WITHIN TWO WEEKS OF SUBSTANTIAL, AND THEN TURNED INTO THE

- DISTRICT'S COORDINATOR WITH 30 DAYS OF SUBSTANTIAL. REFER TO THE SPECIFICATIONS FOR REQUIREMENTS. 6. CHILLERS SHALL BE PLACED ON 1/4" NEOPRENE PADS ON CONCRETE HOUSEKEEPONG PAD.
- 7. IN GENERAL, PLANS ARE SCHEMATIC ONLY AND SHOULD NOT BE SCALED. 8. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED TO INSTALL MECHANICAL EQUIPMENT AND
- MATERIALS. 9. RUST COAT ALL CHILLED WATER PIPING AND FITTINGS PER SPECIFICATION (TWO COATS MINIMUM AND SPECIFICALLY SMALL FITTINGS). INSTALL AIR BLEED IN APPROPRIATE LOCATIONS.
- 10. CONTROLS CONDUITS SHALL CONFORM TO ALL REQUIREMENTS FOR DIVISION 26 CONDUITS. 11. CONCRETE SLAB/PAD IS TO HAVE NO CONTACT WITH ANY METAL PORTION OF THE EQUIPMENT
- OR THAT EQUIPMENT'S SUPPORT. PROVIDE 1/4" THICK RED, OR BLACK, RUBBER PAD UNDER THE ENTIRE METAL SURFACE INTENDED TO REST ON THE CONCRETE PAD.
- 12. THE TEMPERATURE CONTROLS (INCLUDING GRAPHICS) SHALL BE IN OPERATION AT TIME OF SUBSTANTIAL COMPLETION. THIS SHALL OCCUR PRIOR TO OWNER TRAINING.
- 13. PROVIDE DIELECTRIC UNIONS/PROTECTION AT ALL POINTS OF CONNECTION BETWEEN DISSIMILAR METALS; PIPE, PIPE HANGERS, CONNECTIONS TO STRUCTURAL STEEL, ETC.
- 14. NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY SHOULD ANY MATTER ARISE THAT WILL NEGATIVELY AFFECT THE TESTING AND BALANCING DURING THE COURSE OF CONSTRUCTION.
- 15. ALL SENSORS SHALL BE LABELED WITH THE ID MARK SHOWN IN THE CONTROLS CONSOLE.
- 16. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

### HVAC LEGEND

BOTTOM OF PIPE ELEVATION (WITHOUT INSULATION) EXISTING - FIELD VERIFY EXACT SIZE AND LOCATION (D) OR -X-X-EXISTING TO BE DEMOLISHED

EXISTING ITEM TO BE RELOCATED

NEW LOCATION OF EXISTING ITEM CONNECT NEW TO EXISTING

ELEVATION

REMOVE ALL HATCHED OR DASHED MECHANICAL ITEMS SHOWN IN THE DEMOLITION DRAWINGS.

### **HVAC DRAWING INDEX**

HVAC GENERAL NOTES, DETAILS, AND LEGEND BLDG 10 1ST FLOOR HVAC PLAN BLDG 10 2ND FLOOR HVAC PLAN M1.3 BLDG 10 3RD FLOOR HVAC PLAN CHILLER YARD HVAC PLAN AND HVAC SCHEDULES M2.2 HVAC SCHEDULES

HVAC CONTROLS

CWR CHECKED SRF 02.19.2020 SCALE AS NOTED JOB NO. 19070 DRAWING NO.

**REVISIONS** 

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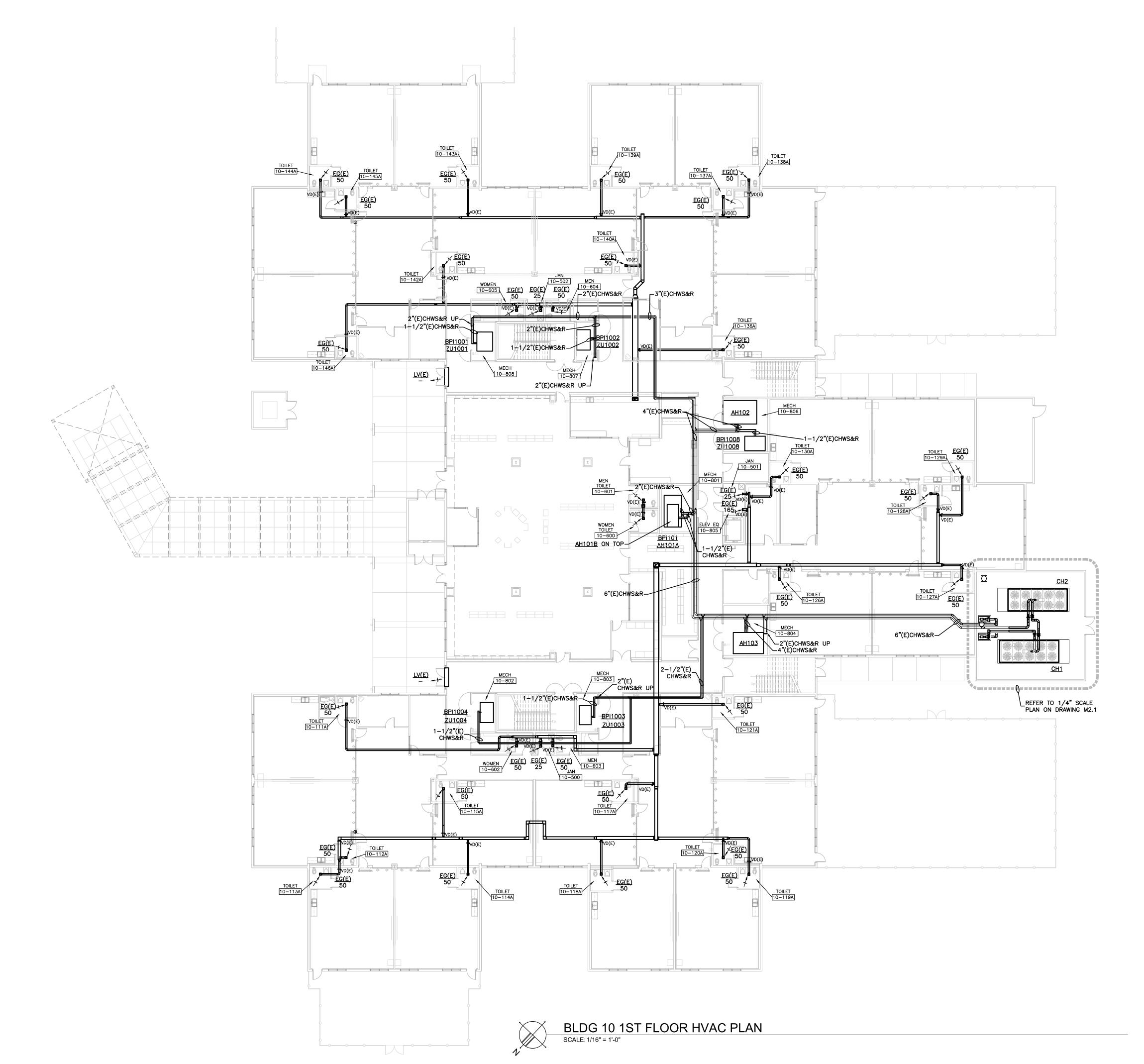
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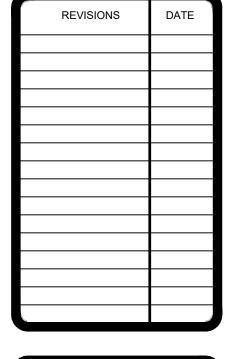
School District **Key Largo School** 



1ST 10 BLDG

CHECKED SRF DATE **02.19.2020** SCALE AS NOTED JOB NO. 19070

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY STEPHEN R. FORKNER, P.E. ON THE DATE/TIME STAMP SHOWN USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES. TO THE BEST OF MY KNOWLEDGE, THESE DRAWINGS AND THE PROJECT MANUAL ARE COMPLETE AND COMPLY WITH THE 2017 FLORIDA BUILDING CODE.



School District

West, Florida 33040 **Key Largo School** 



2ND 10 BLDG

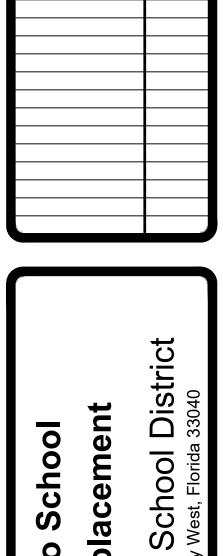
CHECKED SRF DATE **02.19.2020** SCALE AS NOTED JOB NO. 19070

M1.2

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY STEPHEN R. FORKNER, P.E. ON THE DATE/TIME STAMP SHOWN USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES. TO THE BEST OF MY KNOWLEDGE, THESE DRAWINGS AND THE PROJECT MANUAL ARE COMPLETE AND COMPLY WITH THE 2017 FLORIDA BUILDING CODE.

BLDG 10 2ND FLOOR HVAC PLAN

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



**Key Largo School** Monroe County



3RD 10 BLDG

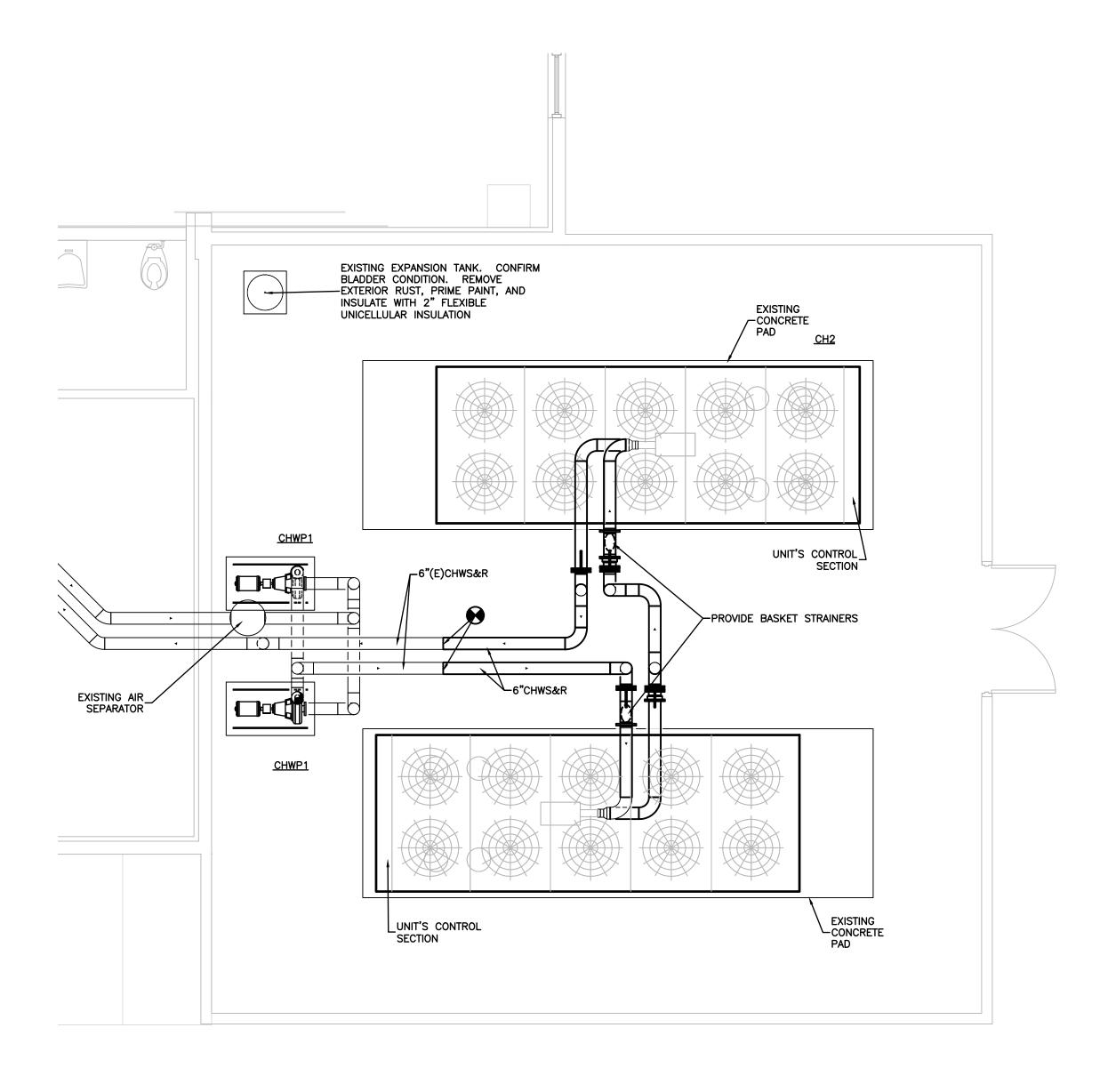
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- 1. PROVIDE SINGLE POINT POWER CONNECTION 480V/3Ø. PROVIDE 120V TRANSFORMER AS REQUIRED FOR HEATER OR OTHER INTERNAL NEEDS.
- 2. PROVIDE FACTORY MOUNTED DOOR INTERLOCKING NON-FUSED DISCONNECT SWITCH.
- 3. CHILLER MANUFACTURER SHALL PROVIDE INTEGRAL STARTERS. 4. PROVIDE SUCTION LINE ISOLATION SHUT-OFF VALVES FOR EACH CIRCUIT.
- 5. PROVIDE BACNET COMMUNICATION HARDWARE, SOFTWARE AND DDC BASED WATER TEMPERATURE CONTROLS. PROVIDE INTERFACE PANEL TO CHILLER.
- CHILLER FAULTS AND ALARMS SHALL BE INDICATED AT THE DDC SYSTEM HEAD END. 6. PROVIDE DUAL CHILLED WATER PUMP RELAY CONTACTS FOR DDC NOTIFICATION FOR CHILLED WATER PUMP(S) OPERATION.
- MAXIMUM ALLOWABLE SOUND POWER AND SOUND PRESSURE DATA IS LISTED ABOVE. SOUND PRESSURE LEVELS RATED IN ACCORDANCE WITH ARI STANDARD 370. ALL SOUND VALUES AT 100% FAN SPEED.
- MAXIMUM WEIGHTED SOUND PRESSURE IS 70.0 DBA AT 30.0 FEET FROM SIDES OF UNIT, MAXIMUM WEIGHTED SOUND POWER IS 99.0 DBA. PROVIDE COMPRESSOR SOUND ENCLOSURES AND QUIET FANS AS REQUIRED TO MEET THESE LEVELS.
- 9. PROVIDE PHASE VOLTAGE MONITOR, UNDER/ OVERVOLTAGE PROTECTION.
- 10. PROVIDE FACTORY MOUNTED AND WIRED THERMAL DISPERSION WATER FLOW PROVING SENSOR.
- 11. CAPACITIES LISTED ARE MINIMUM REQUIRED AT DESIGN CONDITIONS LISTED.
- 12. SHOULD THE CHILLER'S CONTROLLER DETECT LOSS OF EVAPORATOR WATER FLOW, THE CHILLER SHALL BE LATCHED OUT OF OPERATION UNTIL CLEARED AT THE CHILLER'S CONTROL PANEL. LOSS OF POWER AT THE CHILLER SHALL NOT CLEAR ITS CONTROLLER'S OPERATIONAL STATUS OR CONTROL LATCHED-OUT STATES.
- 13. CHILLERS ARE CONFIGURED FOR SERIES FLOW.
- 14. PROVIDE FACTORY COIL COATING. ENTIRE CHILLER FRAME AND CABINET SHALL BE COATED.
- 15. PROVIDE ALTERNATE PRICING FOR THE FOLLOWING (SEE SPECIFICATIONS):
- A. ALTERNATE A 5-YEAR PARTS WARRANTY. B. ALTERNATE B - 10-YEAR PARTS WARRANTY.
- C. ALTERNATE C 5-YEAR PARTS, LABOR, REFRIGERANT WARRANTY, AND PREVENTATIVE MAINTENANCE.
- D. ALTERNATE D 10-YEAR PARTS, LABOR, REFRIGERANT WARRANTY, AND PREVENTATIVE MAINTENANCE.
- 16. REFER TO SPECIFICATIONS.

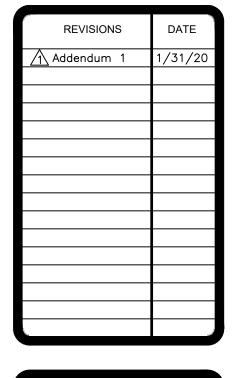
### CONTRACTOR SHALL FIELD INSTALL THE FOLLOWING:

- A. INSTALLING CONTRACTOR SHALL PROVIDE FIELD APPLIED STRAINER WITH PERFORATED (0.0625" HOLES) BASKET AT CHILLER INLET CONNECTION SIZE SHALL BE THE CONNECTING LINE SIZE AND NOT THE CHILLER INLET SIZE.
- B. INSTALLING CONTRACTOR SHALL FIELD APPLY 2" FLEXIBLE UNICELLULAR INSULATION EQUIVALENT TO ARMAFLEX ON ALL COLD SURFACES AND FACTORY INSULATION.



CHILLER YARD HVAC PLAN

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



School Largo

chool



CWR CHECKED SRF 02.19.2020 SCALE AS NOTED JOB NO. 19070 DRAWING NO.

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|   |       |                   |                   |                    |                    | EXIST              | ING AIR H          | HANDLER I          | PERFORMA           | NCE SCHE           | EDULE              |                    |                    |                    |                    |                    |                    |                    | ]  |
|---|-------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----|
| MARK                                    |       | AH101A            | AH101B            | AH102              | AH103              | ZU1001             | ZU1002             | ZU1003             | ZU1004             | ZU1005             | ZU1006             | ZU1007             | ZU1008             | ZU1009             | ZU1010             | ZU1011             | ZU1012             | ZU1013             | 1  |
| TOTAL SUPPLY AIR                        | CFM   | 5,975             | 425               | 3,900              | 4,440              | 5,710              | 5,985              | 6,020              | 6,215              | 6,585              | 6,085              | 6,180              | 6,170              | 5,805              | 8,615              | 8,085              | 6,090              | 5,300              | 1  |
| OUTSIDE / FRESH AIR QUANTITY            | СҒМ   | 425               | 425               | 3,900              | 4,440              | 610                | 610                | 610                | 610                | 710                | 710                | 650                | 610                | 610                | 710                | 710                | 595                | 595                | 1  |
| ASSOCIATED OUTSIDE AIR UNIT             | MARK  | AH101B            | N/A               | N/A                | N/A                | AH102              | AH102              | AH103              | AH103              | AH102              | AH102              | AH102              | AH103              | AH102              | AH103              | AH103              | AH103              | AH103              | 1  |
| RETURN AIR QUANTITY                     | СҒМ   | 5,550             | 0                 | 0                  | 0                  | 5,100              | 5,375              | 5,410              | 5,605              | 5,875              | 5,375              | 5,530              | 5,560              | 5,195              | 7,905              | 7,375              | 5,495              | 4,705              | 1  |
| COOLING COIL ENTERING TEMPERATURE DB/WB | *F/*F | 72.5 / 61.0       | 91.0 / 80.0       | 91.0 / 80.0        | 91.0 / 80.0        | 71.7 / 61.0        | 71.8 / 61.1        | 71.9 / 61.1        | 72.0 / 61.1        | 71.8 / 61.0        | 71.5 / 60.9        | 71.8 / 61.1        | 72.0 / 61.6        | 71.8 / 61.1        | 72.2 / 61.2        | 72.2 / 61.2        | 72.0 / 61.1        | 71.7 / 61.0        | 1  |
| COOLING COIL TOTAL CAPACITY (NET)       | мвн   | 160.4             | 43.0              | 386.4              | 439.9              | 136.5              | 150.1              | 150.2              | 150.7              | 164.8              | 148.6              | 148.5              | 165.8              | 144.3              | 211.9              | 207.1              | 152.7              | 130.7              | 1  |
| COOLING COIL SENSIBLE CAPACITY (NET)    | мвн   | 128.3             | 17.6              | 158.8              | 180.8              | 109.2              | 119.6              | 120.9              | 120.6              | 131.4              | 119.6              | 118.9              | 124.3              | 116.1              | 169.3              | 164.9              | 122.9              | 105.2              | 1  |
| COOLING COIL WATER FLOW                 | GРM   | 25.3              | 6.8               | 60.9               | 69.4               | 21.5               | 23.7               | 23.7               | 23.8               | 26.0               | 23.4               | 23.4               | 26.1               | 22.8               | 33.4               | 32.7               | 24.1               | 20.6               |    |
| CHILLED WATER TEMP., ENT/LVG            | *F/*F | 42/57             | 42/57             | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              | 42/57              |    |
| LEAVING TEMPERATURE COOLING DB/WB       | *F/*F | 52.6 / 51.5       | 52.6 / 51.5       | 53.3 / 52.3        | 53.3 / 52.3        | 54.0 / 52.7        | 53.3 / 52.3        | 53.3 / 52.4        | 54.0 / 52.7        | 53.3 / 52.3        | 53.3 / 52.4        | 54.0 / 52.7        | 53.3 / 52.3        | 53.3 / 52.4        | 54.0 / 52.7        | 53.3 / 52.3        | 53.3 / 52.4        | 53.3 / 52.4        | 1  |
| UNIT LOCATION                           | _     | 10-801            | 10-801            | 10-806             | 10-804             | 10-808             | 10-807             | 10-803             | 10-802             | 10-816             | 10-815             | 10-813             | 10-806             | 10-814             | 10-811             | 10-811             | 10-345B            | 10-810             | 1  |
| MANUFACTURER                            | _     | YORK              | YORK              | YORK               | YORK               | YORK               | YORK               | YORK               | YORK               | YORK               | YORK               | YORK               | YORK               | YORK               | YORK               | YORK               | YORK               | YORK               | 1  |
| MODEL                                   | _     | SOLUTION XTI HOR. | SOLUTION XTI HOR. | SOLUTION XTI VERT. | .1 |
| NOTES                                   | _     | 1,2               | 1                 | 1                  | 1                  | 1,2                | 1,2                | 1,2                | 1,2                | 1,2                | 1,2                | 1,2                | 1,2                | 1,2                | 1,2                | 1,2                | 1,2                | 1,2                | 1  |

- 1. REBALANCE AIR AND WATER FLOW TO VALUES SHOWN HEREIN. PERFORM TRAVERSE NEAR UNIT CONNECTIONS. PROVIDE SHEAVE CHANGE AS REQUIRED.
- 2. UNIT SHALL RECEIVE BIPOLAR IONIZATION UNIT. UNIT TO BE PLACED BETWEEN THE FILTER AND ENTERING SIDE OF THE COOLING COIL. REFER TO BIPOLAR IONIZATION SCHEDULE.

|        | FAN SCHEDULE                |       |        |              |              |            |                             |                                |                      |             |       |       |              |         |        | l                    |                  |                                      |   |  |           |                   |
|--------|-----------------------------|-------|--------|--------------|--------------|------------|-----------------------------|--------------------------------|----------------------|-------------|-------|-------|--------------|---------|--------|----------------------|------------------|--------------------------------------|---|--|-----------|-------------------|
| MARK   | SERVES                      | CFM   | DRIVE  | TIP<br>SPEED | MOTOR<br>RPM | FAN<br>RPM | AIR<br>STREAM<br>TEMP. (*F) | E.S.P.<br>IN. H <sub>2</sub> 0 | ELECTRICAL VOLT/ø/60 | мото<br>внр | R HP  | SONES | MANUFACTURER | MODEL   | WEIGHT | MOUNTING<br>LOCATION | CURB<br>CAP SIZE | FAN TO CURB<br>ADAPTOR<br>ATTACHMENT | EXISTING CURB<br>CAP SIZE<br>(FIELD VERIFY) | FAN CAP TO CURB<br>ADAPTOR<br>ATTACHMENT | INTERLOCK | NOTES             |
| EF-101 | 1ST FLR MEDIA CENTER TOILET | 100   | DIRECT | 2,940        | 1,140        | 1,004      | ` '                         | 0.375                          | 120/1/60             |             | 0.167 | 3.6   | GREENHECK    | G-097-B | 46     | ROOF                 | 17x17            | 1/4" fastener, 2 per side            | 19x19                                       | 1/4" fastener, 2 per side                | AH101A    | 1,2,3,4,5,9,10    |
| EF-102 | 1ST FLR TOILET AREA A       | 625   | DIRECT | 3,981        | 1,725        | 1,359      | 76                          | 0.625                          | 120/1/60             | 0.120       | 0.250 | 8.5   | GREENHECK    | G-099-A | 46     | ROOF                 | 17x17            | 1/4" fastener, 2 per side            | 19×19                                       | 1/4" fastener, 2 per side                | AH102     | 1,2,3,4,5,9,10    |
| EF-103 | 2ND FLR TOILET AREA A       | 425   | DIRECT | 3,892        | 1,550        | 1,367      | 76                          | 0.375                          | 120/1/60             | 0.050       | 0.067 | 6.0   | GREENHECK    | G-090-D | 26     | ROOF                 | 17x17            | 1/4" fastener, 2 per side            | 19x19                                       | 1/4" fastener, 2 per side                | AH102     | 1,2,3,4,5,9,10    |
| EF-104 | 3RD FLR TOILET AREA A       | 425   | DIRECT | 3,892        | 1,550        | 1,367      | 76                          | 0.375                          | 120/1/60             | 0.050       | 0.067 | 6.0   | GREENHECK    | G-090-D | 26     | ROOF                 | 17x17            | 1/4" fastener, 2 per side            | 19x19                                       | 1/4" fastener, 2 per side                | AH102     | 1,2,3,4,5,9,10    |
| EF-105 | 1ST FLR TOILET AREA B       | 1,065 | DIRECT | 4,694        | 1,725        | 1,612      | 76                          | 0.625                          | 120/1/60             | 0.240       | 0.250 | 9.2   | GREENHECK    | G-103-A | 46     | ROOF                 | 19x19            | 1/4" fastener, 2 per side            | 19x19                                       | 1/4" fastener, 2 per side                | AH103     | 1,2,3,4,5,9,10,11 |
| EF-106 | 2ND FLR TOILET AREA B       | 600   | DIRECT | 3,929        | 1,725        | 1,341      | 76                          | 0.625                          | 120/1/60             | 0.120       | 0.250 | 8.3   | GREENHECK    | G-099-A | 46     | ROOF                 | 17x17            | 1/4" fastener, 2 per side            | 22×22                                       | 1/4" fastener, 2 per side                | AH103     | 1,2,3,4,5,9,10    |
| EF-107 | 3RD FLR TOILET AREA B       | 600   | DIRECT | 3,929        | 1,725        | 1,341      | 76                          | 0.625                          | 120/1/60             | 0.120       | 0.250 | 8.3   | GREENHECK    | G-099-A | 46     | ROOF                 | 17x17            | 1/4" fastener, 2 per side            | 22×22                                       | 1/4" fastener, 2 per side                | AH103     | 1,2,3,4,5,9,10    |

- 1. COORDINATE WITH ELECTRICAL DRAWINGS.
- 2. PROVIDE WITH FACTORY DISCONNECT.
- 3. INTERLOCK VIA DDC SYSTEM.
- 4. PROVIDE ALL REQUIRED CONTACTS AND RELAYS FOR INTERLOCKS AND CONTROLS.
- 5. PROVIDE FAN WITH EC "VG" MOTOR IF AVAILABLE AND SPEED CONTROLLER IF NOT.
- 6. PROVIDE LINE VOLTAGE THERMOSTAT.
- 7. INTERLOCK WITH LIGHTS.
- 9. PROVIDE WITH STAINLESS STEEL CURB ADAPTOR. UNDERSIDE OF CAP SHALL BE INSULATED WITH 2" FLEXIBLE UNICELLULAR INSULATION BETWEEN DUCT AND INSIDE OF CURB WALL. PROVIDE GASKETED SEALS BETWEEN EXISTING CURB, CURB
- 10. FAN SHALL COMPLY WITH SSTD 12-99 OR MIAMI-DADE PA 201, USING FLORIDA BUILDING CODE'S TEST PROTOCOL TAS 125-03, SECTION 7.4.2 WHICH REQUIRES MISSILE IMPACT TESTING IN CONFORMANCE WITH FLORIDA BUILDING CODE'S TEST PROTOCOL TAS 201 (IMPACT TEST PROCEDURES).
- 11. EXISTING 480V CIRCUIT SHALL BE REMOVED AND REPLACED WITH 120V CIRCUIT. SEE DIV. 26 DRAWINGS.

|                       | PUMP SCHEDULE |                        |                        |  |  |  |  |  |  |  |  |  |  |
|-----------------------|---------------|------------------------|------------------------|--|--|--|--|--|--|--|--|--|--|
| MARK                  |               | CHWP1                  | CHWP2                  |  |  |  |  |  |  |  |  |  |  |
| SERVICE               | -             | CHILLED WATER          | CHILLED WATER          |  |  |  |  |  |  |  |  |  |  |
| TYPE                  | _             | END-SUCTION            | END-SUCTION            |  |  |  |  |  |  |  |  |  |  |
| FLUID FLOW            | GPM           | 487.5                  | 487.5                  |  |  |  |  |  |  |  |  |  |  |
| TOTAL DYNAMIC HEAD    | FT. WTR.      | 118                    | 118                    |  |  |  |  |  |  |  |  |  |  |
| SHUT-OFF HEAD         | FT. WTR.      | 147                    | 147                    |  |  |  |  |  |  |  |  |  |  |
| MOTOR                 | HP            | 25                     | 25                     |  |  |  |  |  |  |  |  |  |  |
| SPEED                 | RPM           | 1,760                  | 1,760                  |  |  |  |  |  |  |  |  |  |  |
| MINIMUM EFFICIENCY    | %             | 77                     | 77                     |  |  |  |  |  |  |  |  |  |  |
| MOTOR TYPE            | _             | TEFC                   | TEFC                   |  |  |  |  |  |  |  |  |  |  |
| BASE TYPE             | _             | 284T                   | 284T                   |  |  |  |  |  |  |  |  |  |  |
| MAXIMUM IMPELLER DIA. | INCHES        | 12                     | 12                     |  |  |  |  |  |  |  |  |  |  |
| DESIGN IMPELLER DIA.  | INCHES        | 11.875                 | 11.875                 |  |  |  |  |  |  |  |  |  |  |
| SUCTION DIA.          | INCHES        | 4                      | 4                      |  |  |  |  |  |  |  |  |  |  |
| DISCHARGE DIA.        | INCHES        | 3                      | 3                      |  |  |  |  |  |  |  |  |  |  |
| ELECTRICAL            | VOLT/ø/60     | 460/3/60               | 460/3/60               |  |  |  |  |  |  |  |  |  |  |
| MANUFACTURER          | -             | WEINMAN                | WEINMAN                |  |  |  |  |  |  |  |  |  |  |
| MODEL                 | _             | 0575-END SUC FM/3R-181 | 0575-END SUC FM/3R-181 |  |  |  |  |  |  |  |  |  |  |
| NOTES                 | _             | 1,2,3,4                | 1,2,3,4                |  |  |  |  |  |  |  |  |  |  |

- 1. MOTOR SHALL HAVE A 125% SERVICE FACTOR AND SHALL BE NON-OVERLOADING.
- 2. PROVIDE PHASE LOSS PROTECTION.
- 3. PROVIDE STAINLESS STEEL DRAIN PAN WITH TAP FOR DRAIN LINE.
- 4. REFER TO SPECIFICATIONS.

|              |        |                           |                                      | AIR PURIFICAT         | TON DEV      | ICE SCHI      | EDULE |       |                            |       |
|--------------|--------|---------------------------|--------------------------------------|-----------------------|--------------|---------------|-------|-------|----------------------------|-------|
| UNIT<br>MARK | AHU    | SUPPLY<br>AIR FLOW<br>CFM | OUTSIDE / FRESH<br>AIR FLOW<br>(CFM) | MANUFACTURER          | (QTY) MODEL  | PRESSURE DROP | VOLTS | WATTS | MOUNTING LOCATION          | NOTES |
| BPI101       | AH101A | 5,975                     | 425                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1001      | ZU1001 | 5,710                     | 610                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1002      | ZU1002 | 5,985                     | 610                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1003      | ZU1003 | 6,020                     | 610                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1004      | ZU1004 | 6,215                     | 610                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1005      | ZU1005 | 6,585                     | 710                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1006      | ZU1006 | 6,085                     | 710                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1007      | ZU1007 | 6,180                     | 650                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1008      | ZU1008 | 6,170                     | 610                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1009      | ZU1009 | 5,805                     | 610                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1010      | ZU1010 | 8,615                     | 710                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1011      | ZU1011 | 8,085                     | 710                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1012      | ZU1012 | 6,090                     | 595                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| BPI1013      | ZU1013 | 5,300                     | 595                                  | GLOBAL PLASMA SYSTEMS | (1) GPS-iMOD | 0.05" W.C.    | 120   | 15    | AHU BEFORE EVAPORATOR COIL | 1 & 2 |
| NOTES:       |        |                           |                                      |                       |              |               |       |       |                            |       |

- PROVIDE WITH ON/OFF INDICATOR LIGHT AND DDC SYSTEM "STATUS" CONTROL INTERFACE.
- 2. COORDINATE BAR LENGTH AND QUANTITY REQUIRED WITH AIR HANDLER. FIELD VERIFY.

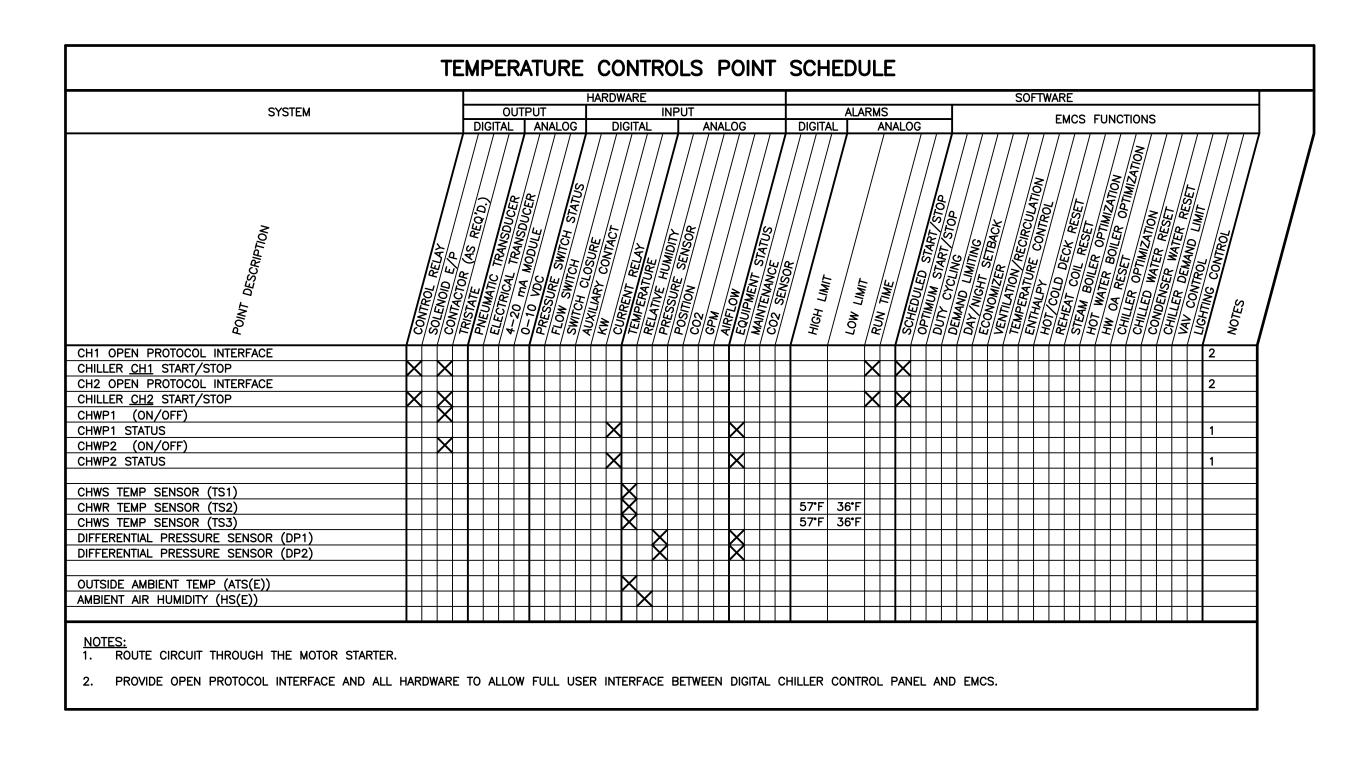
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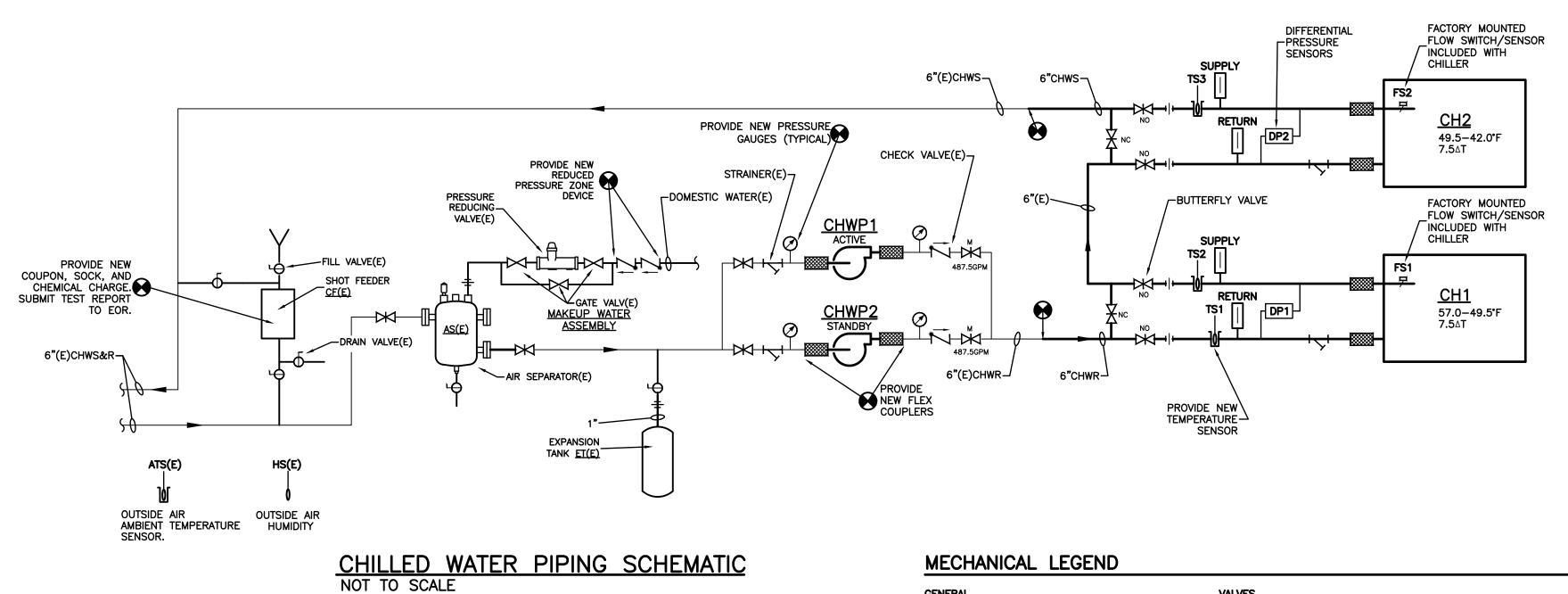
School District
West, Florida 33040

School Key Largo



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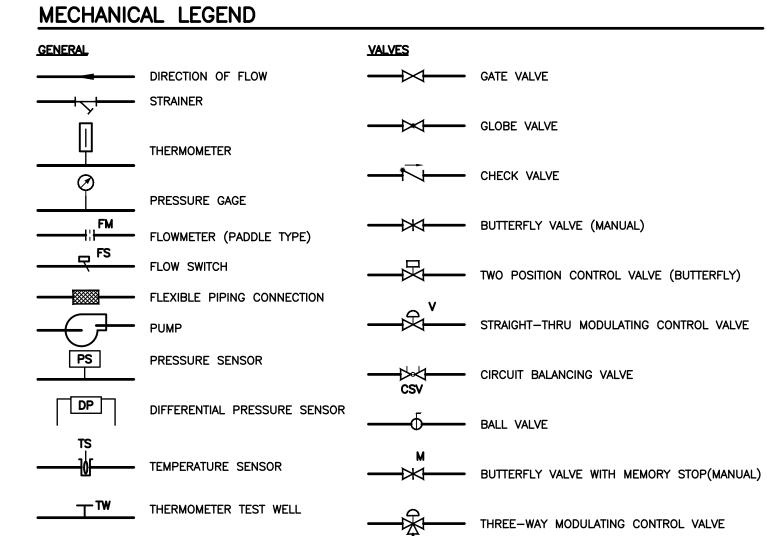


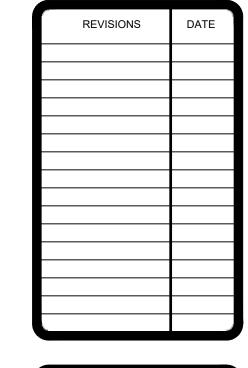


WATERSIDE TEMPERATURE CONTROL SEQUENCES

Chillers and Pumps:

- A. The chillers and chilled water pumps shall be enabled when any of the air handlers are enabled. The chillers shall not start until water flow has been proven through the evaporator by both the differential pressure sensor and the flow switch and the auxiliary "pump run" contact in each the chiller. The chilled water will be maintained at a constant 42°F by the internal controllers on the chillers. Should either the DDC system or the chiller's controller detect loss of evaporator water flow, the chiller shall be latched out of operation until cleared at the chiller's control panel. Loss of power at the chiller shall not clear its controller's operational status or control latched—out
- B. The primary chilled water pump (CHWP1) and the lead chiller (CH1) shall start and run continuously any time the chilled water system has been activated. When return water temperature rises above 49.5°F, the lag chiller (CH2) shall start and run. The lead and lag chiller shall be selectable through the EMS and may be programmed to alternate on a regular basis. The primary and standby chilled water pumps shall be selectable through the EMS and may be programmed to alternate on a regular basis.
- C. The chillers and chilled water pumps shall be disabled when all of the air handlers are disabled. On shut down, allow the primary chilled water pump to run an additional five minutes. Five minutes after the chiller has stopped; the chilled water pump shall be disabled.
- D. The lead chiller and primary pump shall alternate on startup.





School District

Key Largo Sc Chiller Replace

ounty

Monroe



Anston-Greenlees, Inc.
Mechanical & Electrical Consulting Engineers
315 West Fletcher Avenue, Tampa, FL 33612 Tel(813)963-1919
mail: AGI@agi-engineers.com HTTP://www.agi-engineers.com

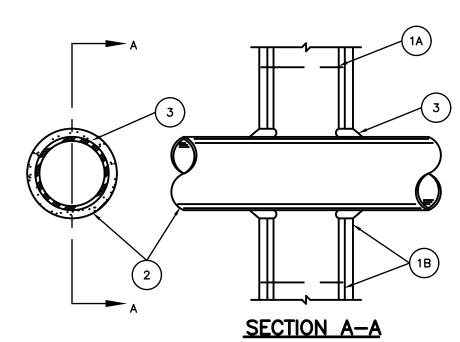
CONTROL

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AS NOTED
JOB NO.
19070
DRAWING NO.

M3.1

System No. W-L-1001 June 15, 2005

F Ratings -1, 2, 3 and 4 Hr (See Items 2 and 3) T Ratings -0, 1, 2, 3, and 4 Hr (See Item 3) L Rating At Ambient — less than 1 CFM/sq ft L Rating At 400 F — less than 1 CFM/sq ft



# FIRE-RATED WALL PENETRATION DETAIL FOR PIPE OR CONDUIT

- WALL ASSEMBLY THE 1, 2, 3 OR 4 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
- A. STUDS WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS (MAX 2 H FIRE RATED ASSEMBLIES) OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. (51 BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC WITH NOM 2 BY 4 IN. (51 BY 102 MM) LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-5/8 IN. (92 MM) WIDE BY 1-3/8 IN. (35 MM) DEEP CHANNELS SPACED MAX 24 IN. (610 MM) OC.
- B. GYPSUM BOARD\* NOM 1/2 OR 5/8 IN. (13 OR 16 MM) THICK. 4 FT. (122 CM) WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAMETER OF OPENING IS 26 IN. (660 MM).
- 2. THROUGH-PENETRANT ONE METALLIC PIPE, CONDUIT OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE MIN OF O IN/ (O MM). (POINT CONTACT) TO MAX 2 IN. (51 MM) PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
- A. STEEL PIPE NOM 24 IN. (610 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
- B. IRON PIPE NOM 24 IN. (610 MM) DIAMETER (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 12 IN (305 MM) DIAMETER (OR SMALLER) OR CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE.
- C. CONDUIT NOM 6 IN. (152 MM) DIAMETER (OR SMALLER) STEEL CONDUIT OR NOM 4 IN (102 MM) DIAMETER (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING
- D. COPPER TUBING NOM 6 IN. (152 MM) DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING
- E. COPPER PIPE NOM 6 IN. (152 MM) DIAMETER (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
- F. THROUGH PENETRATING PRODUCT\* FLEXIBLE METAL PIPING THE FOLLOWING TYPES OF STEEL FLEXIBLE METAL GAS PIPING MAY BE USED:
- 1) NOM 2 IN. (51 MM) DIAMETER (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR
- OR WALL ASSEMBLY. OMEGA FLEX INC 2) NOM 1 IN. (25 MM) DIAMETER (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR
- OR WALL ASSEMBLY. GASTITE, DIV OF TITEFLEX 3) NOM 1 IN. (25 MM) DIAMETER (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. WARD MFG L L C

| 3 | FILL, VOID OR CAVITY MATERIAL* — CAULK OR SEALANT — MIN 5/8., 1—1/4,1—7/8 AND 2—1/2 IN. (16, 32, 48 AND 64 MM) THICKNESS OF CAULK FOR 1, 2, 3 AND 4 HR RATED ASSEMBLIES, RESPECTIVELY, APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. MIN 1/4 IN. (6 MM) DIAMETER BEAD OF CAULK APPLIED TO GYPSUM BOARD/PENETRANT INTERFACE AT POIN CONTACT LOCATION ON BOTH SIDES OF WALL. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS SHOWN IN THE FOLLOWING TABLE. THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE |
|---|--|
|   | RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE  |
|   |  |
|   |  |
|   | OR SIZE OF THE PIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE  |
|   | OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS TABULATED  |
|   | BELOW:   |

| MAX PIPE<br>OR CONDUIT<br>DIAM. IN (MM) | F<br>RATING<br>HR | T<br>RATING<br>HR |
|---|-------------------|-------------------|
| 1 (25)                                  | 1 or 2            | 0+, 1 or 2        |
| 1 (25)                                  | 3 or 4            | 3 or 4            |
| 4 (102)                                 | 1 or 2            | 0                 |
| 6 (152)                                 | 3 or 4            | 0                 |
| 12 (305)                                | 1 or 2            | 0                 |

+WHEN COPPER PIPE IS USED, T RATING IS 0 H.

3M COMPANY - CP 25WB+ OR FB-3000 WT.

INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.

LAST UPDATED ON 2005-06-15

| SYMBOL          | DESCRIPTION  | MOUNTING                                 |
|-----------------|--|--|
|                 | BRANCH CIRCUIT CONDUIT AND WIRE CONCEALED ABOVE CEILING OR BEHIND FINISHED WALL  | N/A                                      |
| <b></b> -       | BRANCH CIRCUIT CONDUIT AND WIRE CONCEALED BELOW FINISHED FLOOR OR UNDERGROUND.   | N/A                                      |
|                 | RACEWAY EXPOSED ON WALL OR CEILING   | N/A                                      |
| EG IG           | HOMERUN TO PANELBOARD — LETTER INDICATES PANEL, NUMBER INDICATES CIRCUIT, MINIMUM 3/4" CONDUIT. NOTE: ANY HOMERUN WITHOUT FURTHER DESIGNATION INDICATES TWO #12 AWG AND #12 AWG EQUIPMENT GROUND. PC OUTLET REQUIRES SEPARATE NEUTRAL, MIN. #10 AWG. DEDICATED CIRCUIT REQUIRES SEPARATE NEUTRAL | N/A                                      |
| OUP DOWN        | RACEWAY RISER, UP OR DOWN AS NOTED   | N/A                                      |
| <del></del> 3   | CONDUIT CAPPED   | N/A                                      |
| ₩A ₩            | COMMUNICATIONS OUTLETS W/REQUIRED CAT 6 CABLING IN 1" CONDUIT. # DESIGNATES QUANTITY OF CABLES & RJ45 JACKS. SEE DETAILS AND SPECIFICATIONS FOR MORE INFO. PROVIDE 4" SQUARE X 2.5" DEEP OUTLET BOX. WA DENOTES WIRELESS ACCESS POINT  | M.H. 16" AFF<br>TO BOTTOM OR<br>AS NOTED |
| <b>•</b>        | COMMUNICATIONS OUTLET BOX WITH BLANK COVER AND 1" CONDUIT WITH BUSHING STUBBED INTO CEILING SPACE.   | M.H. 16" AFF<br>TO BOTTOM                |
| $\Theta$        | SINGLE RECEPTACLE - 120VAC   | M.H. 16" AFF<br>TO BOTTOM                |
| €               | DUPLEX RECEPTACLE — 120VAC   | M.H. 16" AFF<br>TO BOTTOM                |
| ⊖               | DUPLEX RECEPTACLE - 120VAC   | MOUNTED 42" AFF T<br>BOTTOM OR AS NOTI   |
| <b>⊕</b>        | DOUBLE DUPLEX RECEPTACLE - 120VAC  | M.H. 16" AFF<br>TO BOTTOM                |
| <del>•</del>    | DOUBLE DUPLEX RECEPTACLE - 120VAC  | MOUNTED 42" AFF T<br>BOTTOM OR AS NOTE   |
| <b>=</b>        | DUPLEX RECEPTACLE - 120VAC. COMPUTER OUTLET WITH SEPARATE NEUTRAL, MIN. #10 AWG  | M.H. 16" AFF<br>TO BOTTOM                |
| <b>*</b>        | DOUBLE DUPLEX RECEPTACLE — 120VAC. COMPUTER OUTLET WITH SEPARATE NEUTRAL, MIN. #10 AWG   | M.H. 16" AFF<br>TO BOTTOM                |
| WP<br>GFI       | DUPLEX RECEPTACLE — 120VAC. LETTER NEXT TO DEVICE INDICATES THE FOLLOWING:  'WP' = WEATHERPROOF TYPE (IN USE TYPE).  GFI' = GROUND FAULT PROTECTION TYPE.  'DL' = DAMP LOCATION WEATHERPROOF COVER  (NOT IN USE TYPE).  'TP' = TAMPER PROOF.   | M.H. 16" AFF<br>TO BOTTOM                |
|                 | 120/208 VOLT POWER PANELBOARD  | M.H. 6'-0" TO TOP<br>OR AS NOTED         |
|                 | 277/480 VOLT POWER PANELBOARD  | M.H. 6'-0" TO TOP<br>OR AS NOTED         |
| 4               | NON-FUSIBLE SWITCH   | M.H. 6'-0" TO TOP<br>OR AS NOTED         |
| 4               | FUSIBLE SAFETY SWITCH  | M.H. 6'-0" TO TOP<br>OR AS NOTED         |
| Ц⊠              | COMBINATION FUSIBLE DISCONNECT AND MOTOR STARTER   | AS NOTED                                 |
| Ø               | MOTOR CONNECTION   | AS NOTED                                 |
| <b>M</b>        | ELECTRIC HEAT STRIP  | AS NOTED                                 |
| •               | RED "MUSHROOM HEAD" TYPE PUSH-BUTTON SWITCH. "EPO" TYPE REQUIRES KEY RESET WITH CONTACTOR.   | M.H. 48" A.F.F. TO OR AS NOTED           |
|                 | DEVICE AS NOTED  | AS NOTED                                 |
| \$ <sup>M</sup> | MOTOR/HP RATED TOGGLE SWITCH SIZED PER MOTOR MANUFACTURER'S RECOMMENDATION, MINIMUM 20 AMP.  | SURFACE, ADJACENT<br>OR ON MOTOR         |
| <u> </u>        | JUNCTION BOX OR OUTLET BOX, 4" SQUARE BOX UNLESS OTHERWISE NOTED   | AS NOTED                                 |

EXAMPLE 'AH1' 480Y/277V, 3Ø, 4W. FED FROM PANEL 'AC' CIR-1,3,5

PROVIDE NAMEPLATE LABELS ON ALL EQUIPMENT. EACH NAME PLATE SHALL HAVE THE FOLLOWING INFORMATION: EQUIPMENT NAME.

VOLTAGE AND PHASE. 3. LOCATION FROM WHICH EQUIPMENT IS BEING FED FROM. INCLUDE CIRCUIT NUMBERS.

TYPICAL NAMEPLATE DETAIL NOT TO SCALE

## **ELECTRICAL GENERAL NOTES:**

(THESE NOTES APPLY TO ALL SHEETS)

- 1. ALL ELECTRICAL WORK SHALL MEET ALL OF THE REQUIREMENTS OF THE FOLLOWING: A. FLORIDA BUILDING CODE (FBC) 6TH EDITION (2017): THIS CODE INCLUDES THE 2017 FBC BUILDING, MECHANICAL, PLUMBING, ENERGY CONSERVATION, FUEL GAS, ACCESSIBILITY, AND TEST PROTOCOLS VOLUMES. FURTHER, SEE "REFERENCED STANDARDS" IN THE FBC BUILDING CHAPTER 35; FBC MECHANICAL CHAPTER 15; FBC PLUMBING CHAPTER 14; FBC ENERGY CONSERVATION CHAPTER 6; AND FBC FUEL GAS CHAPTER 8) (EFFECTIVE DECEMBER 31, 2017)
- B. 6TH EDITION OF THE FLORIDA FIRE PREVENTION CODE (FFPC): (THIS CODE ALSO INCLUDES THE FLORIDA VERSIONS OF NFPA 1 AND NFPA 101.) (EFFECTIVE DECEMBER 31, 2017)

D. 2014 STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES (SREF): (EFFECTIVE NOVEMBER 4, 2014)

- C. 2014 NATIONAL ELECTRIC CODE
- 2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE AND VERIFY THE EXISTING CONDITIONS TO GAIN KNOWLEDGE OF THE SCOPE OF WORK INVOLVED.
- 3. "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
- 4. IN GENERAL, THESE DRAWINGS ARE SCHEMATIC IN NATURE AND SHOULD NOT BE SCALED. IT SHALL NOT BE THE INTENT OF THESE PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. PROVIDE ALL ITEMS NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM.
- 5. ELECTRICAL INSTALLATION SHALL BE CLOSELY COORDINATED WITH ALL OTHER TRADES. REVIEW THE ENTIRE SET OF DOCUMENTS FOR COORDINATION. NO COST SHALL BE ASSOCIATED WITH ILL—TIMED INSTALLATION INCLUDING ANY REPAIRS OR REPLACEMENTS.
- 6. ALL CONDUITS AND BOXES SHALL BE CONCEALED UNLESS OTHERWISE NOTED. ALL CONDUIT RUNS ARE SCHEMATIC IN NATURE. EXACT ROUTING TO BE DETERMINED IN THE FIELD UNLESS OTHERWISE NOTED.
- 7. APPLY A BITUMASTIC COATING FOR ALL CONDUITS PENETRATING FLOOR SLABS FROM BELOW GRADE.
- 8. PROVIDE ALL REQUIRED PULL BOXES, JUNCTION BOXES, ETC. FOR A COMPLETE INSTALLATION.
- 9. PATCH, REPAIR AND REPAINT ALL WALLS THAT HAVE BEEN DAMAGED DUE TO ELECTRICAL ROUGH-IN. REMOVE ANY UNUSED CONDUIT AND WIRE.
- 10. PROVIDE FIRE—STOPPING AT ALL FIRE WALL PENETRATIONS. USE A U.L. APPROVED SYSTEM LISTED FOR THE ASSOCIATED INSTALLATION.
- 11. ALL CONDUCTORS SHALL BE STRANDED COPPER, THHN/THWN, MINIMUM #12 AWG. ALL CONDUCTORS SHALL
- BE IN CONDUIT. FLEXIBLE CONDUIT SHALL BE LIMITED TO A MAXIMUM OF 6'-0" IN LENGTH. 12. MC CABLE OR OTHER PREMANUFACTURED CABLING SHALL NOT BE USED UNLESS APPROVED BY THE
- 13. ALL CIRCUITS SHALL CONTAIN A SEPARATE, GREEN, COPPER GROUNDING CONDUCTOR.
- 14. ALL RECEPTACLES SHALL HAVE A GROUND TERMINAL.

OWNER AND ENGINEER.

- 15. WHEN REUSING OR EXTENDING EXISTING CIRCUITS, VERIFY ALL CIRCUIT NUMBERS AND VERIFY ANY EXISTING LOAD. CIRCUITS MAY BE PICKED UP AT AN EXISTING JUNCTION BOX IF AVAILABLE RATHER THAN PROVIDING A SEPARATE HOMERUN TO A PANEL.
- 16. RECESSED LIGHTING FIXTURES SHALL BE SUPPORTED FROM THE STRUCTURE AT (4) POINTS. DO NOT SUPPORT FIXTURES FROM THE CEILING GRID, MECHANICAL PIPING, DUCTWORK, CÒNDUIT OR OTHER NON-STRUCTURAL BUILDING MEMBERS. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED FOR INSTALLATION.
- 17. THE COLOR OF ALL RECEPTACLES, TOGGLE SWITCHES AND COVERPLATES SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ORDERING.
- 18. PANELBOARDS SHALL BE ACCURATELY LABELED TO IDENTIFY FINAL CIRCUIT NUMBERS UTILIZED, THEIR LOAD
- 19. ALL HVAC CONTROLS CONDUIT SHALL BE FURNISHED AND INSTALLED BY DIVISION 26 IN ACCORDANCE WITH DIVISION 26 REQUIREMENTS. ALL LOW VOLTAGE (120V AND UNDER) HVAC CONTROL WIRING FOR DIVISION 23 EQUIPMENT AND DEVISES SHALL BE PROVIDED BY DIVISION 26, INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF DIVISION 26. REFER TO SPECIFICATION SECTION HVAC CONTROLS - 23 0900 AND THE HVAC CONTROLS SPECIFIED ON THE DRAWINGS, FOR CONTROLS RACEWAYS, BOXES AND WIRING TO BE PROVIDED BY DIVISION 26.
- 20. ALL EXTERIOR FASTENERS, ANCHORS, SUPPORTS, AND MOUNTING HARDWARE SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL.
- 21. PROVIDE FIRE RETARDANT U.L. APPROVED SEALANT ON ALL PENETRATIONS OF FIRE RATED PARTITIONS. WALLS AND STRUCTURAL SLABS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY, PRIOR TO SUBMITTING BID, LOCATIONS OF ALL SUCH FIRE RATED PARTITIONS, WALL AND STRUCTURAL SLABS.

22. SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

| <u>ABBRE</u> | EVIATIONS:                     |        |                         |
|--------------|--------------------------------|--------|-------------------------|
| AFF          | ABOVE FINISHED FLOOR           | GWB    | GYPSUM WALL BOARD       |
| AFG          | ABOVE FINISHED GRADE           |        |                         |
| E            | EXISTING                       | H.D.   | HAND DRYER              |
| ETR          | EXISTING TO REMAIN             | INT    | INTERCOM/PAGING CABINET |
| EWC          | ELECTRIC WATER COOLER          | MTG    | MOUNTING                |
| EWH          | ELECTRIC WATER HEATER          | MTD    | MOUNTED                 |
| EG           | EQUIPMENT GROUND               | M.H.   | MOUNTING HEIGHT         |
| ESB          | ENERGY SAVING BALLAST          | N/A    | NOT APPLICABLE          |
|              |                                | PROJ   | PROJECTOR LOCATION      |
| EXP          | EXPLOSION PROOF                | U.O.N. | UNLESS OTHERWISE NOTED  |
| FACP         | FIRE ALARM CONTROL PANEL       | R      | REMOVE                  |
| FATC         | FIRE ALARM TERMINAL<br>CABINET | RL     | RELOCATED               |
| GFI          | GROUND FAULT PROTECTION        | WP     | WEATHER PROOF           |
| G, GND       | GROUND                         | •••    |                         |

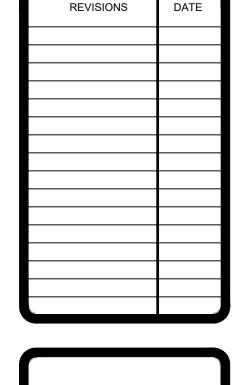
### **ELECTRICAL DRAWING INDEX**

- ELECTRICAL LEGEND, GENERAL NOTES, AND DETAILS
- BLDG 10 1ST FLOOR ELECTRICAL PLAN BLDG 10 2ND FLOOR ELECTRICAL PLAN
- BLDG 10 3RD FLOOR ELECTRICAL PLAN MECHANICAL EQUIPMENT CONNECTION SCHEDULE E2.2

PANEL SCHEDULES

TRG CHECKED RCA 02.19.2020 SCALE AS NOTED JOB NO. 19070 DRAWING NO.

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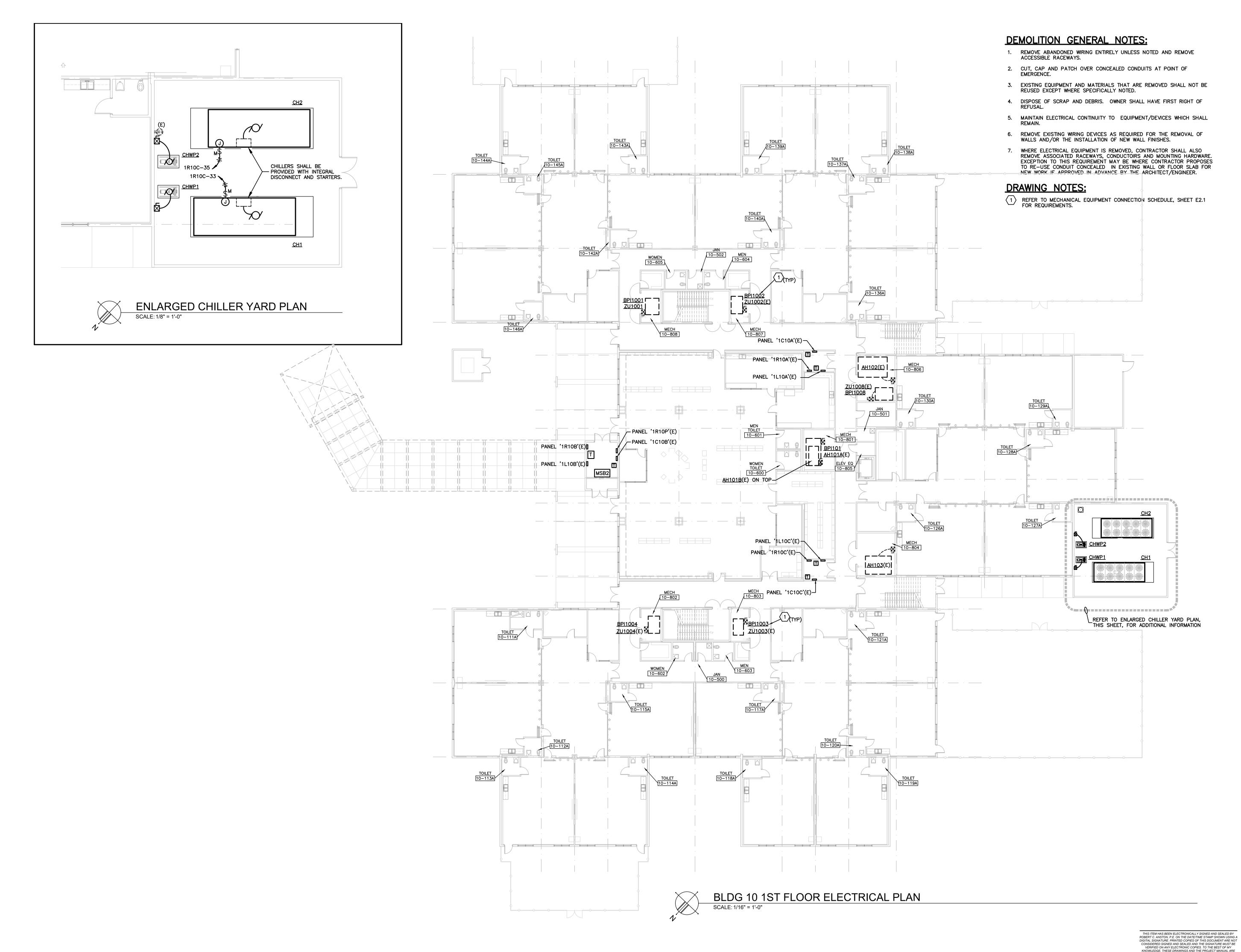
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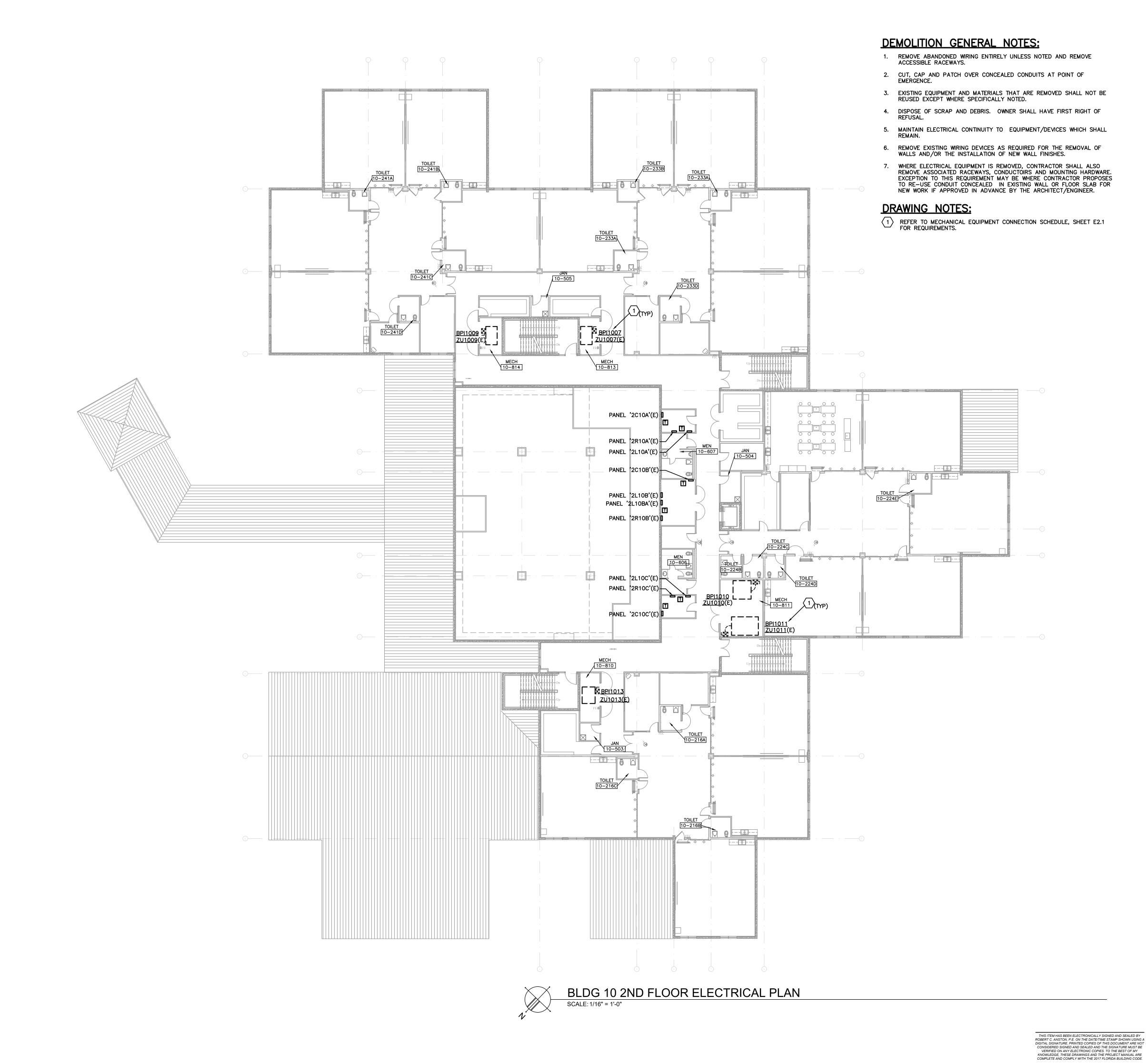
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**DEMOLITION GENERAL NOTES:** REMOVE ABANDONED WIRING ENTIRELY UNLESS NOTED AND REMOVE ACCESSIBLE RACEWAYS.

School District
West, Florida 3:3040 School Key Largo County Chiller



Monroe

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BUILDING

RCA 02.19.2020 AS NOTED JOB NO. 19070

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|--------------|---------------|---|------------|-------|-------------|-------|------------|-----------------|--|--------------|-------------|---------|--------|----------------|-------------------|
| MARK         | ROOM NO.      | VOLTAGE/PHASE                                       | KW         | HP    | FLA         | MCA   | BREAKER    | HOMERUN CIRCUIT | CONDUIT & CABLING                                | SIZE<br>AMPS | POLES       | FUSE    | 1      | NEMA<br>RATING | INTERLOCK/ REMARK |
| AIR COOLED   | CHILLER       |   |            | •     |             | •     | •          |                 |  | •            | •           |         | •      |                | •                 |
|              |               | 480/3   | -          | -     | 309.5       | 327.8 | 400        | MSB2-19,21,23   | 3"C.; 3-#400 KCMIL, 1-#3 GND.                    | DIV23        | -           | -       | _      | -              | SEE NOTE 1        |
| CH1          | YARD          | 120/1   | -          | _     | 12.0        | 15.0  | 20         | 1R10C-33        | 3/4°C.; 2-#12, 1-#12 GND.                        | MRS          | -           | -       | _      | 3R             | SEE NOTE 3        |
|              |               | 480/3   | -          | _     | 309.5       | 327.8 | 400        | MSB2-20,22,24   | 3"C.; 3-#400 KCMIL, 1-#3 GND.                    | DIV23        | -           | -       | _      | _              | SEE NOTE 1        |
| CH2          | YARD          | 120/1   | -          | _     | 12.0        | 15.0  | 20         | 1R10C-35        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | -           | -       | _      | 3R             | SEE NOTE 3        |
| CHILLED WAT  | ER PUMPS      | !   |            |       |             |       |            |                 | !  |              |             |         |        |                |                   |
| CHWP1        | YARD          | 480/3   | _          | 25.0  | 34.0        | 42.5  | 70         | 1L10B-26,28,30  | 1"C.; 3-#6, 1-#8 GND.                            | 100          | 3           | MFS     | 2      | 3R             | SEE NOTE 1        |
| CHWP2        | YARD          | 480/3   | _          | 25.0  | 34.0        | 42.5  | 70         | 1L10B-25,27,29  | 1"C.; 3-#6, 1-#8 GND.                            | 100          | 3           | MFS     | 2      | 3R             | SEE NOTE 1        |
| AIR PURIFICA | TION DEVICE   |   |            | !     |             |       | !          |                 |  | !            |             |         | !      |                | ļ.                |
| BPI101       | 10-801        | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 1R10B-37        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | AH101A / SEE NOTE |
| BPI1001      | 10-808        | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 1R10A-35        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1001 / SEE NOTE |
| BPI1002      | 10-807        | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 1R10A-35        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1002 / SEE NOTE |
| BPI1003      | 10-803        | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 1R10C-31        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      |                | ZU1003 / SEE NOTE |
| BPI1004      | 10-802        | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 1R10C-31        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | -           | _       | _      |                | ZU1004 / SEE NOTE |
| BPI1005      | 10-816        | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 3R10A-25        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1005 / SEE NOTE |
| BPI1006      | 10-815        | 120/1   | 15<br>WATT | _     | -           | _     | 20         | 3R10A-25        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1006 / SEE NOTE |
| BPI1007      | 10-813        | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 2R10A-27        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1007 / SEE NOTE |
| BPI1008      | 10-806        | 120/1   | 15<br>WATT | _     | _           | -     | 20         | 1R10A-35        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1008 / SEE NOTE |
| BPI1009      | 10-814        | 120/1   | 15<br>WATT | _     | _           | -     | 20         | 2R10A-27        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1009 / SEE NOTE |
| BPI1010      | 10-811        | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 2R10C-13        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1010 / SEE NOTE |
| BPI1011      | 10-811        | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 2R10C-13        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1011 / SEE NOTE |
| BPI1012      | 10-354B       | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 3R10C-13        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1012 / SEE NOTE |
| BPI1013      | 10-810        | 120/1   | 15<br>WATT | _     | _           | _     | 20         | 2R10C-13        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | _              | ZU1013 / SEE NOTE |
| EXHAUST FAN  | NS            | 1   |            | !     |             |       | •          |                 |  | !            | ļ           |         | !      |                | ļ.                |
| EF-101       | ON ROOF       | 120/1   | -          | 0.167 | 4.4         | 5.5   | 20         | 2R10B-10        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | -           | _       | _      | 3R             | SEE NOTE 1        |
| EF-102       | ON ROOF       | 120/1   | _          | 0.25  | 5.8         | 7.3   | 20         | 2R10B-20        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | 3R             | SEE NOTE 1        |
| EF-103       | ON ROOF       | 120/1   | -          | 0.067 | 1.3         | 1.6   | 20         | 2R10B-22        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | 3R             | SEE NOTE 1        |
| EF-104       | ON ROOF       | 120/1   | _          | 0.067 | 1.3         | 1.6   | 20         | 2R10B-24        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | 3R             | SEE NOTE 1        |
| EF-105       | ON ROOF       | 120/1   | _          | 0.25  | 5.8         | 7.3   | 20         | 2R10B-32        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | _      | 3R             | SEE NOTE 1        |
| EF-106       | ON ROOF       | 120/1   | _          | 0.25  | 5.8         | 7.3   | 20         | 2R10B-26        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | -      | 3R             | SEE NOTE 1        |
| EF-107       | ON ROOF       | 120/1   | _          | 0.25  | 5.8         | 7.3   | 20         | 2R10B-28        | 3/4"C.; 2-#12, 1-#12 GND.                        | MRS          | _           | _       | -      | 3R             | SEE NOTE 2        |
| MRS = MOT    | OR RATED TOGG | ECOMMENDED FUS<br>LE SWITCH BY D<br>Y DRIVE (FURNIS | IVISION 2  |       | DZ) INICTAL |       | DIVISION O |                 | SED<br>INECTING MEANS PROVIDED BY THE MANUFACTUR | ER OR D      | DIVISION 2  | 23 CONT | RACTOR |                | •                 |

# MECHANICAL EQUIPMENT CONNECTION SCHEDULE NOTES:

REUSE EXISTING BREAKER, CONDUIT AND WIRE. PROVIDE ALL REQUIRED EXTENSIONS TO EXISTING CIRCUIT TO MAKE CONNECTION TO NEW EQUIPMENT.

2 PROVIDE NEW BREAKER, CONDUIT AND WIRE IN EXISTING PANEL.

PROVIDE NEW BREAKER, CONDUIT AND WIRE IN EXISTING PANEL.

REUSE EXISTING SPARE BREAKER FROM PANEL AND PROVIDE NEW CONDUIT AND WIRE TO NEW EQUIPMENT.

REVISIONS DATE

Key Largo School

Chiller Replacement

County School District

Trumbo Road, Key West, Florida 33040

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MECHANICAL EQUIPMENT CONNECTION SCHEDULE

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Mechanical &
1315 West Fletcher
Email: AGI@agi-er
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