

**ELECTRICAL LEGEND**

- LIGHTING FIXTURE
- LIGHTING FIXTURE, WALL MOUNTED
- ▽ TRACK LIGHT, TRIANGLES INDICATE TRACK FIXTURES
- FIXTURE, AS ABOVE, ON EMERGENCY CIRCUIT
- ⊕ EMERGENCY BATTERY TYPE LIGHTING FIXTURE, WALL MOUNT AT 7'-6" A.F.F. UNLESS NOTED OTHERWISE
- ⊕ EXIT SIGN, SINGLE FACE: CEILING MOUNTED; WALL MOUNT AT 7'-6" A.F.F. UNLESS NOTED OTHERWISE
- ⊕ EXIT SIGN, DOUBLE FACE: CEILING MOUNTED; WALL MOUNT AT 7'-6" A.F.F. UNLESS NOTED OTHERWISE
- ↔ EXIT SIGN, AS ABOVE, WITH DIRECTIONAL ARROWS
- ⊕ SINGLE POLE SWITCH, MOUNT AT 48" A.F.F. U.N.O.
- ⊕ THREE WAY SWITCH, MOUNT AT 48" A.F.F. U.N.O.
- ⊕ FOUR WAY SWITCH, MOUNT AT 48" A.F.F. U.N.O.
- ⊕ INCANDESCENT DIMMER SWITCH, MOUNT AT 48" A.F.F. U.N.O.
- ⊕ MANUAL MOTOR STARTING SWITCH
- ⊕ MANUAL MOTOR STARTING SWITCH WITH PILOT LIGHT
- ⊕ SWITCH WITH PILOT LAMP
- ⊕ SWITCH, AS ABOVE, WITH WEATHERPROOF COVER PLATE
- ⊕ LOW VOLTAGE CONTROL MOMENTARY CONTACT SWITCH, WITH PRESET LIGHT LEVELS, MOUNT AT 48" A.F.F. UNLESS NOTED OTHERWISE.
- ⊕ LOW VOLTAGE CONTROL TRANSFORMER (12 VOLT), WALL MOUNT
- ⊕ CONTACTOR, AS NOTED
- ⊕ TIME CLOCK, AS NOTED
- ⊕ 125V.-20A. DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R, MOUNT AT 18" A.F.F. UNLESS NOTED OTHERWISE
- ⊕ 125V.-20A. DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R, MOUNT AT 7'-6" A.F.F. UNLESS NOTED OTHERWISE
- ⊕ 125V.-20A. DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R, MOUNT AT 9" ABOVE COUNTER-TOP HEIGHT NOTED ON PLANS. COORDINATE EXACT MOUNTING HEIGHT AND LOCATION WITH ANY CABINETWORK, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR CABINETWORK DETAILS.
- ⊕ RECEPTACLE, MOUNT AS ABOVE, WITH WEATHERPROOF COVERPLATE
- ⊕ RECEPTACLE, MOUNT AS ABOVE, GROUND FAULT CIRCUIT INTERRUPTER TYPE
- ⊕ RECEPTACLE, MOUNT AS ABOVE, ISOLATED GROUND TYPE
- ⊕ 125V.-20A. DOUBLE DUPLEX RECEPTACLE NEMA CONFIGURATION 5-20R, MOUNT AT 18" A.F.F.
- ⊕ SPECIAL PURPOSE OUTLET AS NOTED ON DRAWINGS
- ⊕ PANELBOARD, AS NOTED, MOUNT AT 6'-6" A.F.F. TO TOP
- ⊕ EQUIPMENT CABINET, AS NOTED, MOUNT AT 6'-6" A.F.F. TO TOP
- ⊕ JUNCTION BOX
- ⊕ JUNCTION BOX - WALL MOUNTED
- ⊕ SAFETY DISCONNECT SWITCH
- ⊕ MOTOR STARTER
- ⊕ COMBINATION TYPE MOTOR STARTER
- CONDUIT AND WIRE, CONCEALED IN WALLS OR ABOVE CEILINGS
- CONDUIT AND WIRE, BELOW FLOOR
- UG--- CONDUIT AND WIRE, MINIMUM 36" BELOW GRADE
- EX--- EXISTING CONDUIT AND WIRE TO REMAIN
- RX--- EXISTING CONDUIT AND WIRE TO BE REMOVED
- CONDUIT: TURNING UP; TURNING DOWN
- CONDUIT WITH BUSHED OR CAPPED END
- LOW VOLTAGE AND/OR CONTROL WIRING
- HOMERUN TO PANELBOARD:
- ARROWS INDICATE QUANTITY OF CIRCUITS
- CROSSLINES INDICATE QUANTITY OF CONDUCTORS
- NOTATION INDICATES PANELBOARD AND CIRCUIT NUMBER TO WHICH CIRCUIT IS TO BE EXTENDED
- EXCEPT AS NOTED OTHERWISE, ALL CIRCUITS SHALL CONSIST OF MINIMUM #12 AWG CONDUCTORS. REFER TO THE BRANCH CIRCUIT WIRE SIZING TABLE ON THIS DRAWING FOR FURTHER INFORMATION ON SIZING OF CONDUCTORS FOR LONG CIRCUITS
- NOTE THAT AN EQUIPMENT GROUNDING CONDUCTOR (NOT SHOWN) SHALL BE PROVIDED FOR ALL BRANCH CIRCUITS. THIS EQUIPMENT GROUNDING CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH N.E.C. TABLE 250-95, EXCEPT THAT MINIMUM SIZE SHALL BE #12 AWG

**FIRE ALARM SYSTEM**

- ⊕ HORN/FLASHING LIGHT COMBINATION, MOUNT AT 6'-8" A.F.F.
- ⊕ FLASHING LIGHT, MOUNT AT 6'-8" A.F.F.
- ⊕ MANUAL PULL STATION, MOUNT AT 48" A.F.F.
- ⊕ HEAT DETECTOR, 135F. RATE OF RISE TYPE
- ⊕ SMOKE DETECTOR, CEILING MOUNTED
- ⊕ DUCT TYPE SMOKE DETECTOR
- ⊕ DUCT SMOKE DAMPER
- ⊕ MAGNETIC DOOR RELEASE, WALL MOUNTED
- ⊕ MAGNETIC DOOR RELEASE, FLOOR MOUNTED
- ⊕ SPRINKLER FLOW SWITCH
- ⊕ SPRINKLER VALVE TAMPER SWITCH
- ⊕ BOOSTER PANEL

**SOUND SYSTEM**

- ⊕ INTERCOM SPEAKER MICROPHONE CEILING MOUNTED, UNLESS OTHERWISE NOTED.
- ⊕ INTERCOM SPEAKER MICROPHONE SINGLE WALL MOUNTED AT 7'-6" A.F.F., UNLESS OTHERWISE NOTED.
- ⊕ MICROPHONE OUTLET IN FLUSH FLOOR FITTING

**TELEPHONE SYSTEM NOTES**

1. TELEPHONE SYSTEM WIRING IS NOT IN CONTRACT. FURNISH AND INSTALL EMPTY CONDUITS ONLY. FURNISH AND INSTALL 3/16" NYLON PULL CORD IN EACH CONDUIT.
2. TELEPHONE OUTLETS SHALL CONSIST OF A SINGLE GANG OUTLET BOX WITH A 3/8" DIAMETER BUSHED HOLE COVER PLATE.
3. EXTEND (1) 3/4" EMPTY CONDUIT FROM EACH OUTLET INTO ACCESSIBLE SPACE ABOVE CEILING AND BUSH END, FOR INSULATED OR EXTERIOR WALLS.

**GENERAL NOTES - ELECTRICAL WORK**

1. DRAWINGS SHALL NOT BE SCALED
2. THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF ALL OTHER TRADES. THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ALL OTHER DRAWINGS AND SPECIFICATIONS SHALL BE CONSULTED AND COORDINATED WITH PRIOR TO ROUGH-IN.
3. WHEREVER POSSIBLE, THE CONTRACTOR SHALL OBTAIN ACTUAL ROUGH-IN DRAWINGS FOR THE ACTUAL ITEM OF EQUIPMENT TO BE INSTALLED PRIOR TO ROUGH-IN. THIS SHALL APPLY TO ALL EQUIPMENT, WHETHER IT IS TO BE INSTALLED BY THE CONTRACTOR OR BY THE OWNER.
4. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS THAT ALL NEW ELECTRICAL WORK TO BE INSTALLED IN FINISHED AREAS, AS DESCRIBED IN SPECIFICATION DIVISION 16000, BE INSTALLED CONCEALED WITHIN NEW OR EXISTING WALLS, FLOORS OR CEILINGS. ANY AND ALL CUTTING AND PATCHING OF SURFACES SHALL BE INCLUDED BY THE CONTRACTOR IN HIS BID. NO SUBSEQUENT ALLOWANCE WILL BE MADE FOR CUTTING AND PATCHING WORK WHICH MAY BE REQUIRED UNDER THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL DRAWINGS TO DETERMINE WHICH WALLS ARE NEW AND WHICH WALLS ARE TO REMAIN. EXISTING WALLS SHALL BE PATCHED READY TO RECEIVE NEW FINISHES WHERE APPLICABLE, OR SHALL BE PATCHED TO MATCH SURROUNDING SURFACES WHERE NEW FINISHES ARE NOT INDICATED. ALL PATCHING SHALL BE DONE TO THE COMPLETE SATISFACTION AND APPROVAL OF THE ARCHITECT. SURFACE METAL RACEWAYS SHALL BE PERMITTED IN FINISHED AREAS ONLY WHERE SPECIFICALLY APPROVED IN THE FIELD BY THE ARCHITECT.
5. PRIOR TO PURCHASE AND INSTALLATION OF ANY MOTOR CONTROL EQUIPMENT (STARTERS, ETC.), THE CONTRACTOR SHALL VERIFY THE ACTUAL MOTOR ELECTRICAL CHARACTERISTICS. IN PARTICULAR STARTER OVERLOADS SHALL BE SIZED IN ACCORDANCE WITH ACTUAL MOTOR RUNNING LOAD AMPERES.
6. ALL ISOLATED GROUND RECEPTACLE CIRCUITS FROM EXISTING PANELS CP1, CP4 AND CP6 SHALL HAVE AN INDEPENDANT NEUTRAL CONDUCTOR FOR EACH PHASE CONDUCTOR. THE SHARING OF NEUTRAL CONDUCTORS FOR THESE RECEPTACLE CIRCUITS SHALL NOT BE PERMITTED.
7. THE CONTRACTORS MUST SUBMIT COORDINATION DRAWINGS DRAWN TO SCALE OF ALL SYSTEMS AS INDICATED WITHIN THE SPECIFICATIONS. THE DRAWINGS SHALL BE ON MYLAR REPRODUCIBLE MATERIAL. THE MECHANICAL SYSTEMS SHALL BE THE FIRST ITEM ARRANGED THEN THE ELECTRICAL WORK AND THEN THE FIRE PROTECTION SYSTEMS SHALL BE ADDED TO THE COORDINATION DRAWINGS. THE COORDINATION DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER FOR GENERAL REVIEW.

**GENERAL NOTES - FIRE ALARM SYSTEM**

- A. ALL FIRE ALARM SYSTEM WIRING SHALL BE RUN IN RACEWAY. REFER TO SPECIFICATIONS FOR RACEWAY TYPE.
- B. FIRE ALARM SYSTEM WIRING QUANTITIES, SIZES AND ROUTING SHALL BE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS AND REQUIREMENTS OF THE FIRE ALARM SYSTEM MANUFACTURER, EXCEPT WHERE MINIMUM SIZES ARE INDICATED. NOTHING ON THESE DRAWINGS OR SPECIFICATIONS SHALL BE CONSTRUED SO AS TO CONTRADICT THE FIRE ALARM SYSTEM MANUFACTURER'S INSTRUCTIONS.
- C. THE MINIMUM FIRE ALARM SYSTEM WIRE SIZE SHALL BE #14 AWG FOR INDICATING CIRCUITS AND #18 AWG FOR INITIATING AND ANNUNCIATOR CIRCUITS. THE MINIMUM CONDUIT SIZE SHALL BE 3/4".
- D. NO WIRING OTHER THAN THAT DIRECTLY ASSOCIATED WITH THE FIRE ALARM SYSTEM AND ITS AUXILIARY FUNCTIONS SHALL BE PERMITTED IN FIRE ALARM RACEWAYS.
- E. ALL FIRE ALARM SYSTEM JUNCTION BOXES, ETC. SHALL BE PAINTED RED AND SHALL BE NEATLY STENCILED IN BLACK LETTERS "FIRE ALARM".
- F. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION AND QUANTITY OF SPRINKLER FLOW AND VALVE TAMPER SWITCHES WITH APPROVED SPRINKLER SHOP DRAWINGS.
- G. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATIONS OF DUCT SMOKE DETECTORS AND DUCT SMOKE DAMPERS WITH THE MECHANICAL DRAWINGS AND THE ACTUAL FIELD DUCTWORK INSTALLATION.
- H. THE CONTRACTOR SHALL COORDINATE THE LOCATIONS OF ALL CEILING MOUNTED DEVICES WITH ALL NEW AND EXISTING LIGHTING FIXTURES, AIR DIFFUSERS, REGISTERS, SPRINKLER HEADS AND OTHER CEILING FIXTURES, ETC.
- I. FURNISH AND INSTALL ALL REQUIRED INTERLOCK WIRING BETWEEN FIRE ALARM SYSTEM AND AIR HANDLING EQUIPMENT CONTROLS AND/OR DUCT SMOKE DAMPERS AS REQUIRED TO PERFORM THE AIR HANDLING SYSTEM SHUT-DOWN FUNCTIONS AS DESCRIBED IN THE PROJECT SPECIFICATIONS OR AS REQUIRED BY CODE.
- J. REFER TO 1/8" SCALE FLOOR PLANS FOR 120 VOLT POWER CONNECTIONS TO DUCT SMOKE DETECTORS AND DUCT SMOKE DAMPERS. MAKE ALL FINAL CONNECTIONS AS MAY BE REQUIRED.
- K. THE NEW FIRE ALARM SYSTEM DEVICES SHALL BE INTERFACED TO BOTH THE EXISTING FIRE ALARM SYSTEM AND THE EXISTING SPRINKLER SYSTEM SO THAT AN ALARM ON ANY SYSTEM WILL CAUSE ALL SYSTEMS TO SOUND AN EVACUATION ALARM, AND THAT TROUBLE ON ANY SYSTEM WILL ANNUNCIATE PROPERLY ON THE BUILDING GRAPHIC ANNUNCIATOR PANELS.
- L. THE EXISTING GRAPHIC FIRE ALARM ANNUNCIATOR PANEL, LOCATED AT THE MAIN ENTRANCE OF THE SCHOOL, SHALL BE REPLACED. THE NEW GRAPHIC FIRE ALARM ANNUNCIATOR PANEL SHALL ANNUNCIATE THE ENTIRE SCHOOL INCLUDING NEW ZONES FOR BOTH THE CLASSROOM AND PERFORMING ARTS ADDITIONS.

**TELECOMMUNICATIONS SYSTEM**

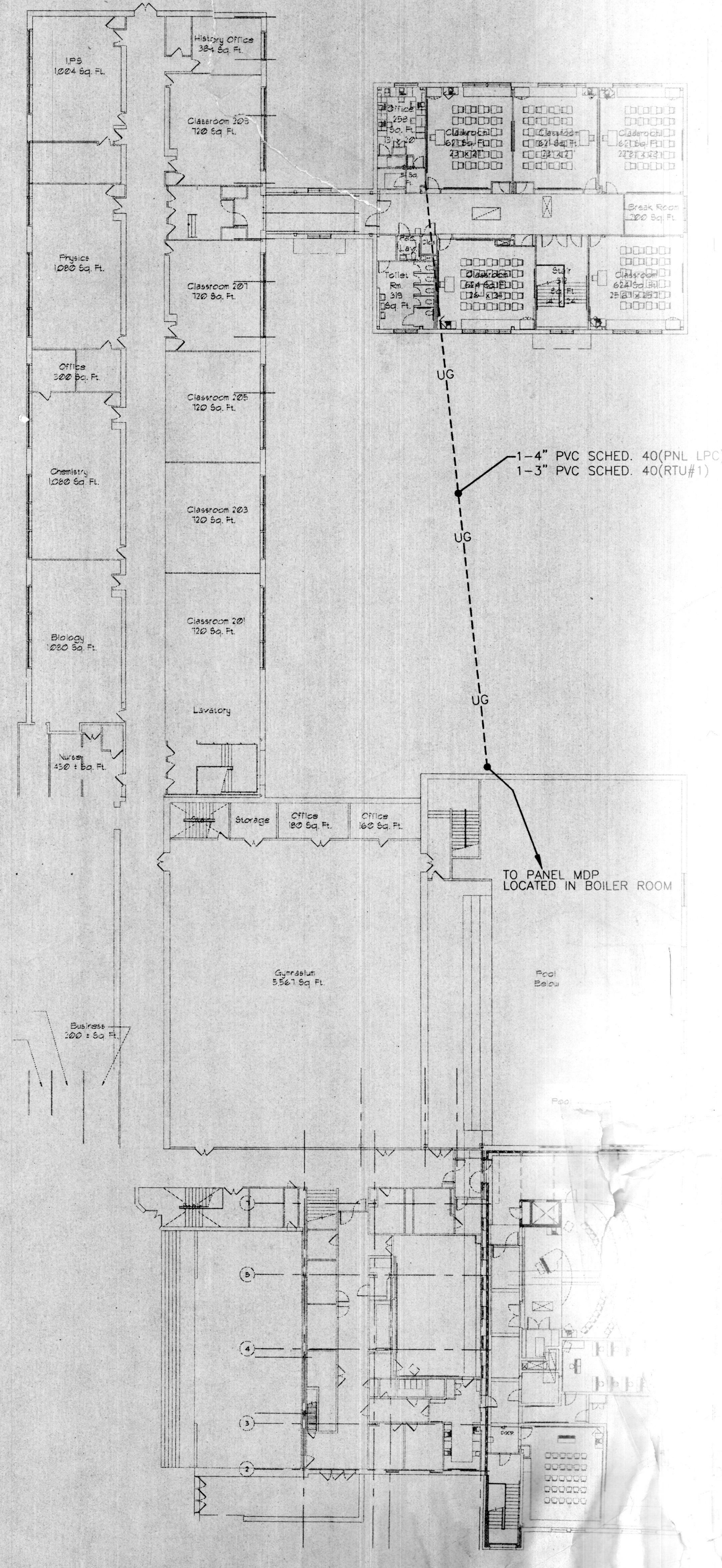
- ▼ TELEPHONE OUTLET, WALL MOUNT AT 18" A.F.F. UNLESS NOTED OTHERWISE
- ▼ TELEPHONE OUTLET, WALL MOUNT AT 48" A.F.F. UNLESS NOTED OTHERWISE
- ▼ DATA OUTLET, WALL MOUNT AT 18" A.F.F. UNLESS NOTED OTHERWISE
- ▼ DATA OUTLET, WALL MOUNT AT 7'-6" A.F.F. UNLESS NOTED OTHERWISE
- ▼ COMBINATION TELEPHONE/DATA OUTLET, WALL MOUNT AT 18" A.F.F. UNLESS NOTED OTHERWISE
- ▼ COMBINATION TELEPHONE/DATA OUTLET, WALL MOUNT AT 48" A.F.F. UNLESS NOTED OTHERWISE
- CATV SYSTEM OUTLET, WALL MOUNT AT 7'-6" A.F.F. UNLESS NOTED OTHERWISE

**ELECTRICAL ABBREVIATIONS**

|        |   |       |                           |
|--------|---|-------|---------------------------|
| A      | AMPERE(S)   | KMIL  | THOUSAND CIRCULAR MILLS   |
| A.F.F. | ABOVE FINISHED FLOOR  | MH    | MOUNTING HEIGHT           |
| A.I.C. | AMPERES INTERRUPTING CAPACITY                                 | MISC. | MISCELLANEOUS             |
| ATS    | AUTOMATIC TRANSFER SWITCH                                     | MLO   | MAIN LUGS ONLY            |
| AWG    | AMERICAN WIRE GAUGE   | MT    | MOUNT                     |
| BG&E   | BALTIMORE GAS AND ELECTRIC COMPANY                            | MTD.  | MOUNTED                   |
| C.     | CONDUIT   | MTG.  | MOUNTING                  |
| CAB.   | CABINET   | N.    | NEUTRAL                   |
| CATV   | CABLE TELEVISION  | N.C.  | NORMALLY CLOSED           |
| CB     | CIRCUIT BREAKER   | NEC   | NATIONAL ELECTRICAL CODE  |
| CKT.   | CIRCUIT   | NFSS  | NON-FUSED SAFETY SWITCH   |
| CLG.   | CEILING   | NIC   | NOT IN CONTRACT           |
| CL     | CURRENT LIGHTING  | N.O.  | NORMALLY OPEN             |
| CONT   | CONTINUATION  | No.   | NUMBER                    |
| C.T.   | CURRENT TRANSFORMER   | NTS   | NOT TO SCALE              |
| C.U.H. | CABINET UNIT HEATER   | ∅     | PHASE                     |
| DIA.   | DIAMETER  | P     | POLE                      |
| DISC.  | DISCONNECT  | PB    | PUSH BUTTON               |
| DT     | DOUBLE THROW  | PF    | POWER FACTOR              |
| DWG.   | DRAWING   | PL    | PILOT LIGHT               |
| DPDT   | DOUBLE POLE, DOUBLE THROW                                     | PNL   | PANELBOARD                |
| DPST   | DOUBLE POLE, SINGLE THROW                                     | PVC   | POLYVINYL CHLORIDE        |
| E.C.   | EMPTY CONDUIT   | REQ'D | REQUIRED                  |
| EWC    | ELECTRIC WATER COOLER   | RLA   | RUNNING LOAD AMPERES      |
| EX.    | EXISTING  | RMS   | ROOT MEAN SQUARE          |
| F.A.   | FIRE ALARM  | Rx    | REMOVE EXISTING           |
| FDR    | FEEDER  | SEC   | SECONDARY                 |
| FL     | FLOOR   | S/N   | SOLID NEUTRAL             |
| FLA    | FULL LOAD AMPERES   | SPDT  | SINGLE POLE, DOUBLE THROW |
| FSS    | FUSED SAFETY SWITCH   | SPST  | SINGLE POLE, SINGLE THROW |
| GALV.  | GALVANIZED  | ST    | SINGLE THROW              |
| GEN.   | GENERATOR   | SW    | SWITCH                    |
| GFI    | GROUND FAULT CIRCUIT INTERRUPTER                              | SWBD  | SWITCHBOARD               |
| GRD.   | GROUND  | SYM   | SYMMETRICAL               |
| HP     | HORSEPOWER  | TEL   | TELEPHONE                 |
| HT     | HEIGHT  | TTB   | TELEPHONE TERMINAL BOARD  |
| HZ, ~  | HERTZ   | TV    | TELEVISION                |
| Isc    | SHORT CIRCUIT INTERRUPTING CAPACITY (RMS SYMMETRICAL AMPERES) | TYP   | TYPICAL                   |
| JB     | JUNCTION BOX  | UG    | UNDERGROUND               |
| KMIL   | THOUSAND CIRCULAR MILLS                                       | UH    | UNIT HEATER               |
| KV     | KILOVOLTS   | UNO   | UNLESS NOTED OTHERWISE    |
| KVA    | KILO-VOLT-AMPERES   | V     | VOLTS                     |
| KW     | KILOWATTS   | VA    | VOLT-AMPERE               |
| LRA    | LOCKED ROTOR AMPERES  | W     | WIRE, WATTS               |
| LTG    | LIGHTING  | W/M   | WIREMOLD                  |
| MCB    | MAIN CIRCUIT BREAKER  | WP    | WEATHERPROOF              |
|        |   | XFMR  | TRANSFORMER               |
|        |   | 1P    | SINGLE POLE               |
|        |   | 2P    | DOUBLE POLE               |
|        |   | 3P    | THREE POLE                |
|        |   | 4P    | FOUR POLE                 |

| BRANCH CIRCUIT WIRE SIZING<br>(20 AMPERE SINGLE PHASE CIRCUITS) |              |                   |
|---|--------------|-------------------|
| LENGTH OF RUN   | HOMERUN SIZE | CIRCUIT WIRE SIZE |
| <b>120 VOLT SYSTEM</b>  |              |                   |
| 0' - 100'   | #12          | #12               |
| 100' - 150'   | #10          | #12               |
| 150' - 250'   | #8           | #12               |
| <b>208 OR 240 VOLT SYSTEM</b>                                   |              |                   |
| 0' - 175'   | #12          | #12               |
| 175' - 250'   | #10          | #12               |
| 250' - 400'   | #8           | #12               |
| <b>277 VOLT SYSTEM</b>  |              |                   |
| 0' - 200'   | #12          | #12               |
| 200' - 300'   | #10          | #12               |
| 300' - 500'   | #8           | #12               |

- NOTES**
- ◇ WIRING FOR BRANCH CIRCUITS PROTECTED BY 20 AMPERE OVERCURRENT PROTECTIVE DEVICES SHALL BE SIZED IN ACCORDANCE WITH THE ABOVE TABLE. WIRING FOR OTHER BRANCH CIRCUITS SHALL BE SIZED AS SHOWN ON DRAWINGS.
  - ◇ CIRCUIT LENGTH SHALL BE THE ENTIRE CIRCUIT FROM THE PANELBOARD OVERCURRENT PROTECTIVE DEVICE TO THE FARTHEST OUTLET, DEVICE OR FIXTURE.
  - ◇ HOMERUN LENGTH SHALL BE FROM THE PANELBOARD TO THE CLOSEST OUTLET, DEVICE OR FIXTURE ON THE CIRCUIT.



**FART PLAN**  
NOT TO SCALE

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