DIVISION 16 - ELECTRICAL

PART 1 - GENERAL

1. WORK INCLUDED

A. Provide all required labor, materials, equipment and Contractor's services necessary for complete installation of Electrical Work shown on the contract documents including but not limited to the following:

- New electric service
- New Panelboards & Distribution
- Lighting fixtures complete with necessary auxiliaries, miscellaneous mounting devices, hardware and lamps. Refer to architectural drawings for exact locations.
- Conduit and conduit fittings, outlet boxes, junction and pull boxes and all appurtenances necessary. Switches, Receptacles and plates as indicated.
- New fire Alarm system (intelligent/addressable).
- Insulated conductors and wiring.
- Temporary Lighting and Power.
- Grounding and bonding.
- Holes and sleeves. Cutting and patching by General Construction Contractor.

2. GENERAL REQUIREMENTS

A. Provide all panels, feeders, branch circuit wiring and all accessories and supports to provide a complete operable electrical system. All wiring and equipment to be sized per Code. Coordinate with all equipment to provide power supply of the proper voltage, ampacity and arrangement.

B. Short circuit interrupting current (I.C.) ratings of all panels, switches, fuses and circuit breakers shall NOT exceed existing building distribution system capability.

3. CODES AND STANDARDS

A. All work shall be performed by skilled licensed electricians under expert supervision and be first-class in every respect.

B. All work and materials shall conform with the requirements of the latest amendments to the National Electric Code (NEC), hereinafter referred to as "the Code", any applicable Energy Conservation Codes, and all authorities having jurisdiction.

C. Provide materials and equipment listed by Underwriter's Laboratories, Inc., except in those cases where such listing is not available. Comply with the latest applicable standards, of ANSI, ASTM, IEEE, and NEMA.

4. SUBMITTALS

A. Submit cuts and data sheets of the following to Engineer for review:

-Distribution equipment & panels
-Lighting fixtures
-F.A. devices.
-Switches
-Receptacles

PART 2 - PRODUCTS AND SYSTEMS

1. GENERAL

A. All materials shall be new and listed by Underwriter's Laboratories, Inc.

B. Defective materials or materials damaged in the course of installation or testing shall be replaced or repaired in a manner acceptable to Owner.

2. RACEWAYS

A. New conduit where required shall be Electric Metallic Tubing (EMT) per the Code unless otherwise noted. Minimum size - 3/4". EMT conduit runs shall employ steel compression type connectors only.

B. Provide sleeves for conduit penetrations through walls and floors. Firestop with fire resistant sealant.

C. Provide flexible connectors at all building expansion joints.

D. Fire stopping of all conduit penetrations to be by General Contractor.

3. HANGERS AND SUPPORTS

A. Contractor shall provide all structural supports for the proper attachment of equipment installed by him.

B. Wall mounted equipment shall be directly secured to wall by means of steel bolts. Maintain at least 1/4" air space between equipment and supporting wall. Prefabricated steel channels providing a high degree of mounting flexibility, such as those manufactured by Kindorf and

C. All fastenings, supports, hangers, anchors, etc., shall be of a type made for the specific purpose. On masonry walls, metallic expansion shields and machine screws shall be used. Screws with wooden plugs or anchors are not acceptable on any part of the work.

D. Secure all equipment to the building structure independently. Do not secure to work of other trades such as ceiling lath, piping racks, conduit, etc., unless specified or noted otherwise.

E. All wiring shall be run in conduit unless otherwise noted, or approved by the Code. Where permitted, use Type AC/shielded ground wire cable unless indicated to the contrary. Conduit runs shall be parallel with or at right angles to walls and ceilings. Conduits shall be supported on approved types of wall brackets, ceiling trapeze, strap hangers or pipe straps, secured by means of toggle bolts on hollow masonry units, rawl plugs in concrete or brick, machine screws on metal surfaces, and wood screws on wood construction. Do not support from ductwork, piping or mechanical equipment. Nails are not permitted. Support horizontal runs of conduit no more than 7 feet apart. Provide firestopped sleeves through walls and floors. Support all cables per the Code.

F. The type of conduit shall be as follows for all feeders and distribution circuits, unless otherwise specified:

APPLICATION	TYPE OF CONDUIT
Exposed & Surface Mounted	EMT
In new partitions or hung ceilings	EMT (Type AC where permitted by Code.)
Exterior	Rigid Aluminum

G. Wireways, minimum 16 gauge steel, baked-enamel finish.

4. WIRE AND CABLE

A. All wire to be THHN or THWN only - Minimum #14 for control devices. Minimum #12 for lighting and power. Wiring larger than #8 shall be stranded. Use #10 wire for each branch circuit home run greater than 80 ft. long.

B. All wires shall be copper with 600 volt insulation and color coded or tagged.

5. WIRING DEVICES AND MATERIALS

A. Pull boxes with covers and concentric or eccentric knockouts shall be fabricated from minimum no. 12USSG galvanized sheet steel with all seams and joints welded and ground smooth. Covers shall be secured to pull boxes with nickel or cadmium-plated, oval head screws provided with stop-bead washers. Dimensions of boxes shall be as required by the arrangement or conduits, equipment or applicable Code requirements. Pull boxes shall be finished inside and outside with a shop-applied coat of ASA No. 61 light grey enamel.

B. Single pole switches shall be 20 amp, specification grade, silent type; Leviton 'Decora'. Receptacles shall be duplex NEMA 5-20R, 125 volt, 20A or as indicated, specification grade, grounding type; 'Decora'. Verify exact locations with drawings before installation. Mount switches and receptacles per Architectural drawings and ADA codes where applicable. AFF Coordinate with furniture and mechanical equipment (fin-tube, etc.) Label all receptacles faceplates with panel source and circuit number. Labels shall be Dymo embossed stick-ons.

C. Plates shall be .040 satin finish stainless steel.

6. GROUNDING

A. All outlet boxes, receptacles, devices, fixtures, panelboards, raceways, motors, etc., shall be electrically and mechanically joined via the conduit system, armored cable or ground wire to form a continuous conducting metallic path for the grounding circuit. Provide grounding type bushings as required.

B. Provide a separate "green" ground wire in all circuits indicated. Ground all motors and electrical equipment to bus in panelboard using a separate "green" ground.

7. PANELBOARDS

A. Provide circuit breaker panelboard with circuits as shown on drawings and as preordered.

B. Coordinate all panelboard requirements with actual installation. Contractor shall wire all circuits and balance load.
Circuit numbers on drawings are for guidance only.

C. Panel Directories - New Panels

1) Provide the following information typed on all panel directories: Panel designation, distribution source and feeder size on top on directory card.

Sample: Lighting Panel 2A
208/120V
Feeder Size: 4 - #3/0, 1 #6 Grnd in 2" Cond.
Fed From: Panel Circuit #

2) All panel directories shall accurately indicate all branch circuit load designations.

D. Panelboards shall be listed by Underwriters' Laboratories, Inc., and bear the UL label.

E. Panelboard size shall be as shown on the drawings are provided by others.

8. LIGHTING FIXTURES

A. General Requirements

1) Provide all lighting fixtures as shown & described. All fixtures shall be installed complete with all mounting hardware as required by specific ceiling construction or other mounting methods. Provide lamps in all fixtures.

2) Support each fixture securely. Each fluorescent fixture shall be secured at two points to the building structure. Do not support fixtures from plaster. Provide all steel members and supports required to fasten and suspend fixtures from the structure.

3) Ballasts and fixtures shall comply with all applicable requirements of the State of New York Energy Conservation Construction Code and Con Edison.

PART 3 - EXECUTION

1. INSTALLATION REQUIREMENTS

A. Wire motors and controls in accordance with approved wiring diagrams. Do not use freehand field wiring diagrams or sketches. Coordinate with Division 15 for wiring requirements. Provide a control circuit for all devices.

B. Do not terminate or fasten rigid conduit to motor frame or base. Install flexible liquid tight conduit at all motor connections.

C. Support all enclosures independent of the connecting conduits.

D. Check all wiring for proper connections before energizing.

E. Provide lamacoid incised nameplates on each receptacle disconnect and control device indicating the equipment served, and the source panel and circuit. Provide labels on all receptacles indicating source panel and circuit.

F. Provide disconnects at electric motors where required by the Code.

G. Wire insulation shall be factory color coded (use of tape is unacceptacle) in accordance with the following:

For 208Y/120 - Black, Red, Blue, White Neutral.

2. PROTECTION

A. All work, materials, and equipment, whether incorporated into the building or not, shall be protected from damage, moisture, dirt, plaster, concrete, or carelessness.

B. Material and equipment which is damaged, including installed work, shall be repaired or replaced to Owner's satisfaction.

C. After work is completed, all work, equipment, lighting fixtures, and lamps shall be cleaned of all construction dirt.

3. TESTS

A. Conduct necessary tests of all equipment and cables. Correct all fault conditions. All expenses shall be borne by Contractor. Contractor to attend pre-final and final acceptance tests to demonstrate operation of systems to Owner.

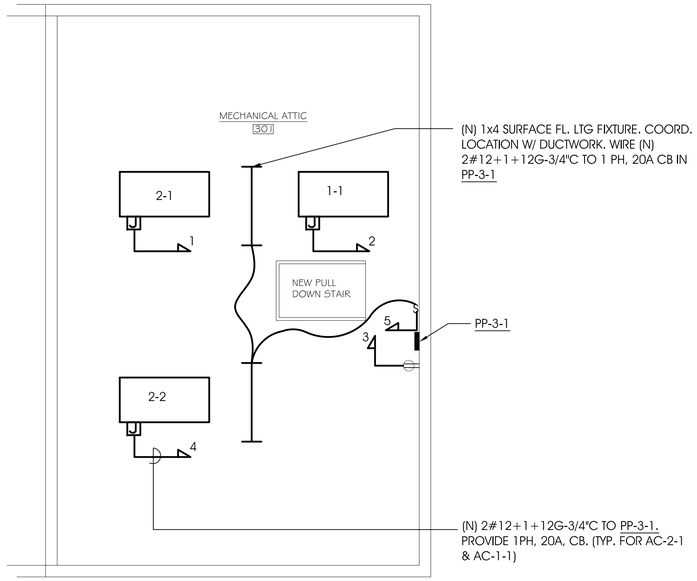
4. AS-BUILT DRAWINGS

A. Provide As-Built drawings of all work.

5. BRANCH CIRCUITS

A. Locate receptacles and switches as shown on architectural and electrical drawings. (and as per the Code).

END OF DIVISION 16



ATTIC FLOOR PLAN - NEW WORK

SCALE: 1/4" = 1'-0"

Phase 1

DARLINGTON SCHOOLHOUSE

For the
New York-New Jersey Trail Conference
156 Ramapo Valley Road, Mahwah, NJ 07430

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DATE	JUNE 14, 2010
DRAWN BY	VP
CHECKED BY	RHB
JOB NO.	ARBPE 3052

ELECTRICAL:
ATTIC FLOOR PLAN - NEW WORK & SPECIFICATION

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