

ELECTRICAL SPECIFICATIONS

26.05.00 – COMMON WORK RESULTS FOR ELECTRICAL

A. SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR AN EXTENSION TO THE EXISTING ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

B. STANDARDS, CODES AND REGULATIONS: COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, INTERNATIONAL BUILDING CODE, AND INTERNATIONAL FIRE CODE INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION.

C. DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE ARCHITECT. CODES, ORDINANCES, REGULATIONS, MANUFACTURER’S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

D. RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.

E. WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER’S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.

F. SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE IN ELECTRONIC .PDF FORMAT, SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

G. OPERATION AND MAINTENANCE MANUALS: PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER’S PERSONNEL. DESCRIBE THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FROM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER’S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR-PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC.

H. WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.

I. PERMITS: SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES.

J. REFERENCE SYMBOLS: THE ELECTRICAL “LEGEND” ON THE DRAWINGS IS A STANDARDIZED VERSION, AND ALL SYMBOLS SHOWN MAY NOT BE USED. USE THE “LEGEND” AS A REFERENCE FOR THE SYMBOLS USED ON THE DRAWINGS.

K. PENETRATION OF FIRE BARRIERS: ALL ELECTRICAL PENETRATIONS THROUGH FIRE RATED BARRIERS SHALL BE SEALED IN ACCORDANCE WITH NEC ARTICLE 300.21 AND THE FOLLOWING:

1. ALL HOLES OR VOIDS CREATED TO EXTEND ELECTRICAL SYSTEMS THROUGH FIRE RATED FLOORS, WALLS OR CEILING SHALL BE SEALED WITH AN ASBESTOS-FREE INTUMESCENT FIRE STOPPING MATERIAL CAPABLE OF EXPANDING 8 TO 10 TIMES WHEN EXPOSED TO TEMPERATURES 250 DEGREES F OR HIGHER.

2. MATERIALS SHALL BE SUITABLE FOR THE FIRE STOPPING OF PENETRATIONS MADE BY STEEL, GLASS, PLASTIC AND SHALL BE CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH THE REQUIREMENTS OF ASTM E814, UL 1479 AND THE UL FIRE RESISTANCE DIRECTORY REQUIREMENTS FOR THROUGH-PENETRATION FIRESTOP DEVICES (XHCR).

3. THE RATING OF THE FIRE STOPS SHALL BE THE SAME AS THE TIME-RATED FLOOR, WALL OR CEILING ASSEMBLY.

4. INSTALL FIRE STOPPING MATERIALS IN ACCORDANCE WITH THE MANUFACTURER’S INSTRUCTIONS.

26.05.05 – SELECTIVE DEMOLITION FOR ELECTRICAL

A. DEMOLITION DRAWINGS ARE BASED ON A NON-DESTRUCTIVE FIELD OBSERVATION AND EXISTING RECORD DRAWINGS. REPORT DISCREPANCIES TO OWNER BEFORE DISTURBING THE EXISTING INSTALLATION. DISCONNECT ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN ALL EXISTING ELECTRICAL SYSTEMS (TELEPHONE, FIRE ALARM, LIGHTING, ELECTRICAL SERVICE, ETC.) IN SERVICE DURING CONSTRUCTION. DISABLE SYSTEMS ONLY TO MAKE SWITCHOVERS AND CONNECTIONS.

B. OBTAIN PERMISSION FROM OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION AND MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

C. REMOVE, RELOCATE AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. WHERE ABANDONED CONDUIT ENTERS EXISTING SURFACES TO REMAIN, CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES. DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED OUTLETS WHICH ARE NOT REMOVED.

D. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED. DISCONNECT AND REMOVE ABANDONED LUMINAIRES. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE.

26.05.19 – WIRE AND CABLE

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIALS:

1. ALL CONDUCTORS SHALL BE COPPER WITH TYPE XHHW, THWN, THW OR THHN INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE 12 AWG. MINIMUM CONTROL CIRCUIT CONDUCTOR SIZE SHALL BE #18 AWG.

2. CONTROL CIRCUITS SHALL BE COPPER, STRANDED CONDUCTOR, 600V INSULATION, THHN/THWN, MINIMUM SIZE 18 AWG.

3. TYPE MC CABLE: SOLID COPPER CONDUCTOR, 600 VOLT THERMOPLASTIC INSULATION, RATED 90° C, INSULATED GREEN GROUNDING CONDUCTOR, AND GALVANIZED STEEL ARMOR OVER MYLAR. MC CABLE USED FOR FIRE ALARM WIRING SHALL BE COLORED RED AND LISTED FOR FIRE ALARM USE.

C. INSTALLATION:

1. COLOR CODE WIRES BY LINE OR PHASE. COLOR CODE THE 120/208V CONDUCTORS BLACK, RED, BLUE, AND WHITE. COLOR CODE THE 277/480V CONDUCTORS BROWN, ORANGE, YELLOW, AND GRAY.

2. DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL.

3. USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING.

4. INSTALLATION SCHEDULE: BUILDING WIRE IN RACEWAYS AT ALL LOCATIONS UNLESS OTHERWISE NOTED. PROVIDE XHHW-2 FOR FEEDERS AND IN EXTERIOR LOCATIONS. TYPE MC CABLE MAY BE USED FOR BRANCH CIRCUIT WIRING IN DRY, INTERIOR LOCATIONS OTHER THAN HOMERUNS. HOMERUNS SHALL BE BUILDING WIRE IN RACEWAY. METAL CLAD CABLE USED FOR BRANCH CIRCUIT WIRING FROM A LIGHT SWITCH OR LIGHTING CONTROL STATION TO THE LIGHT FIXTURE SHALL INCLUDE A SPARE CONDUCTOR FOR FUTURE USE.

5. AT THE CONTRACTOR’S OPTION, PORTIONS OF THE FIRE ALARM WIRING IN DRY, CONCEALED LOCATIONS MAY BE INSTALLED IN FIRE ALARM METAL CLAD CABLE.

26.05.29 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIAL: SUPPORT CHANNEL SHALL BE GALVANIZED OR PAINTED STEEL. HARDWARE SHALL BE CORROSION RESISTANT.

C. INSTALLATION: EQUIPMENT WEIGHING MORE THAN 50 POUNDS SHALL BE ADEQUATELY ANCHORED TO THE BUILDING STRUCTURE TO RESIST LATERAL EARTHQUAKE FORCES. PROVIDE SAFETY CHAINS FOR LIGHT FIXTURES, SUPPORTED FROM T-BAR OR OTHER CEILING SUSPENSION SYSTEM, CAPABLE OF SUPPORTING A MINIMUM OF 200 POUNDS. ATTACH SAFETY CHAINS AT EACH CORNER OF FIXTURE CONNECTED SUCH THAT FIXTURE WILL NOT DROP BELOW A HEIGHT OF 7’-6” IN THE EVENT OF A CEILING SUSPENSION SYSTEM FAILURE.

26.05.33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR FLOORBOXES FOR APPROVAL.

B. MATERIALS

1. RIGID STEEL CONDUIT: ANSI C80.1. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; THREADED TYPE WITH INSULATED THROAT BUSHINGS, MATERIAL TO MATCH CONDUIT.

2. INTERMEDIATE METAL CONDUIT (IMC): GALVANIZED STEEL. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; USE FITTINGS AND CONDUIT BODIES SPECIFIED ABOVE FOR RIGID STEEL CONDUIT.

3. ELECTRICAL METALLIC TUBING CONDUIT (EMT): ANSI C80.3. GALVANIZED TUBING. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON, COMPRESSION TYPE OR SET SCREW FITTINGS WITH INSULATED THROAT BUSHINGS. DIE-CAST FITTINGS ARE NOT ACCEPTABLE. MAXIMUM SIZE SHALL BE 2”. PROVIDE FACTORY ELBOWS ON SIZES 1-1/2” AND LARGER.

4. FLEXIBLE METAL CONDUIT: FS WW-C-566; STEEL, FULL WALL THICKNESS. REDUCED WALL FLEXIBLE METAL CONDUIT IS NOT ACCEPTABLE. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON WITH

INSULATED THROAT BUSHINGS. DIE CAST FITTINGS ARE NOT ACCEPTABLE.

5. SURFACE RACEWAY (CLASSROOM 103): PROVIDE WIREMOLD #4000 SERIES OR EQUAL, DUAL-CHANNEL, STAINLESS STEEL FINISH. RACEWAY SHALL BE SIZED FOR CABLEING INDICATED ON PLANS. PROVIDE DEVICE PLATES FOR TELECOM OUTLETS, RECEPTACLES, AND MICROPHONE JACKS AS SHOWN. PROVIDE COVERS, BASE PLATE, CORNER ADAPTERS, AND ALL OTHER COMPONENTS REQUIRED FOR A COMPLETE INSTALLATION.

6. PROVIDE GALVANIZED OR CADMIUM PLATED, ONE PIECE PRESSED STEEL OUTLET BOXES 4 INCH SQUARE OR OCTAGONAL, 1 1/2 INCHES DEEP MINIMUM SIZE FOR USE IN INTERIOR AREAS.

7. FOR TELECOMMUNICATIONS SYSTEMS, OUTLET BOXES SHALL BE 4-11/16 INCHES SQUARE, 2-1/4 INCHES DEEP MINIMUM.

8. FLOORBOXES: PROVIDE FLOORBOX SUITABLE FOR CONCRETE OR WOOD FLOOR INSTALLATION AS NOTED ON THE DRAWINGS. PROVIDE FLUSH COVER FOR TILE FLOORS AND SURFACE COVER FOR CARPET FLOORS. PROVIDE INTERNAL BRACKETS AS REQUIRED.

C. INSTALLATION:

1. INSTALL CONDUIT FOR ALL SYSTEMS UNLESS OTHERWISE NOTED, 1/2 INCH MINIMUM SIZE, EXCEPT CONDUIT FOR SPECIAL SYSTEMS SHALL BE 1” MINIMUM. FEEDERS SHALL BE RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT.

2. EXPOSED DRY INTERIOR LOCATIONS SHALL BE RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT. ELECTRICAL METALLIC TUBING MAY BE USED EXPOSED WHEN INSTALLED ON THE CEILING, A MINIMUM OF TEN FEET ABOVE THE FLOOR OR WHERE NOT SUBJECT TO PHYSICAL DAMAGE. EMT MAY ALSO BE USED FOR CONCEALED, DRY, INTERIOR LOCATIONS.

3. ALL CONDUIT FOR THE TELECOMMUNICATIONS DISTRIBUTION SYSTEM SHALL BE INSTALLED WITH NO MORE THAN THREE 90-DEGREE BENDS BETWEEN PULLBOXES. PULL BOXES SHALL NOT BE USED IN LIEU OF CONDUIT BENDS. CONDULETS (LB FITTINGS) SHALL NOT BE INSTALLED IN ANY TELECOMMUNICATIONS RACEWAY.

4. PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE.

5. DO NOT INSTALL BOXES BACK-TO-BACK IN WALLS. PROVIDE A MINIMUM 6 INCH SEPARATION FOR MINIMUM SOUND TRANSMISSION.

6. USE MULTIPLE-GANG BOXES WHERE MORE THAN ONE DEVICE ARE MOUNTED TOGETHER; DO NOT USE SECTIONAL BOXES.

7. SUPPORT BOXES INDEPENDENTLY OF CONDUIT.

8. COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS MOUNTED ABOVE COUNTERS, BENCHES AND BACKSPLASHES.

26.05.53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIALS

1. NAMEPLATES: ENGRAVED THREE-LAYER LAMINATED PLASTIC, WHITE LETTERS ON A BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND LOADS SERVED.

2. TAPE LABELS: ADHESIVE TAPE LABELS, WITH 3/16 INCH BOLD BLACK LETTERS ON CLEAR BACKGROUND MADE USING DYMO RHINOPRO 5000 OR EQUAL LABEL PRINTER.

3. WIRE AND CABLE MARKERS: CLOTH MARKERS, SPLIT SLEEVE OR TUBING TYPE.

C. INSTALLATION:

1. GEAR: PROVIDE ENGRAVED THREE-LAYER LAMINATED PLASTIC NAMEPLATES WITH WHITE LETTERS ON A BLACK BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION, AND LOW-VOLTAGE SYSTEM PANELS. PANELBOARD NAMEPLATE SHALL INCLUDE NAME, VOLTAGE, SOURCE AND AIC RATING.

2. CONDUITS: MARK ALL CONDUITS ENTERING OR LEAVING PANELBOARDS WITH INDELIBLE BLACK MAGIC MARKER WITH THE CIRCUIT NUMBERS OF THE CIRCUITS CONTAINED INSIDE. LABEL FEEDER CONDUITS AND SPARE CONDUITS AT EACH END WITH SOURCE AND TERMINATION POINT.

3. JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. ON EXPOSED JUNCTION BOXES IN PUBLIC AREAS, MARK ON INSIDE OF COVER. MARK ALL FIRE ALARM SYSTEM JUNCTION BOXES WITH SHEET STEEL COVERS WITH “FA.” MARK WITH INDELIBLE RED MARKER. MARK ALL OTHER SPECIAL SYSTEM JUNCTION BOXES WITH SHEET STEEL COVERS.

4. WIRE IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. MARKERS SHALL BE LOCATED WITHIN ONE INCH OF EACH CABLE END, EXCEPT AT PANELBOARDS, WHERE MARKERS FOR BRANCH CIRCUIT CONDUCTORS SHALL BE VISIBLE WITHOUT REMOVING PANEL DEADFRONT.

5. DEVICE PLATES: LABEL EACH RECEPTACLE DEVICE PLATE OR POINT OF CONNECTION DENOTING THE PANELBOARD NAME AND CIRCUIT NUMBER. INSTALL LABEL ON THE TOP OF EACH PLATE.

26.09.23 – LIGHTING CONTROL DEVICES

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS:

1. MANUFACTURERS: BASIS OF DESIGN IS LUTRON. OTHER ACCEPTABLE MANUFACTURERS INCLUDE SENSOR SWITCH, WATTSTOPPER, AND HUBBELL, OR APPROVED EQUAL.

2. OCCUPANCY SENSOR WALL SWITCH: UL LISTED, DUAL TECHNOLOGY (PIR/ULTRASONIC OR MICROPHONICS), SELF-LEARNING, PROGRAMMABLE TIME SETTINGS, ADJUSTABLE SENSITIVITY, SUITABLE FOR INSTALLATION IN A SINGLE GANG BOX, LINE VOLTAGE OR LOW VOLTAGE, WHITE FINISH, 600W MINIMUM RATING, PROVIDE ONE OR TWO BUTTONS OR INTEGRAL 0-10V DIMMER WHERE NOTED ON PLANS.

3. CEILING MOUNTED OCCUPANCY SENSOR: UL LISTED, 120/277V DUAL TECHNOLOGY (PIR/ULTRASONIC OR MICROPHONICS), SELF-LEARNING, PROGRAMMABLE TIME SETTINGS, ADJUSTABLE SENSITIVITY, LINE VOLTAGE (120/277V) OR LOW VOLTAGE (12-24VDC), WHITE FINISH, PROVIDE MINIMUM

WATTAGE RATING OR ADDITIONAL POWER PACKS AS REQUIRED TO CONTROL THE LOADS INDICATED ON THE PLANS.

4. WALL DEVICE: PROVIDE WALL DEVICES WITH FUNCTIONS AS INDICATED ON THE PLANS.

5. CLASSROOM LIGHTING CONTROL STATIONS: DEVICES AS INDICATED ON PLANS OR EQUAL. PROVIDE ALL COMPONENTS REQUIRED FOR CONNECTION OF SYSTEM DEVICES.

C. INSTALLATION:

1. INSTALL WALL OCCUPANCY SENSOR SWITCHES 48 INCHES ABOVE FLOOR.

2. FIELD ADJUST OCCUPANCY SENSORS FOR PROPER OPERATION IN THE SPACE. PROVIDE MASKING ON INFRARED LENS TO RESTRICT FIELD OF VIEW IF NECESSARY TO PREVENT UNWANTED SWITCHING FROM ADJACENT SPACES SUCH AS HALLWAYS.

3. PROVIDE ALL PROGRAMMING AS REQUIRED TO CONNECT AND OPERATE ALL CONNECTED FIXTURES.

4. COORDINATE WITH OWNER FOR FINAL LIGHTING CONTROL SEQUENCES AND TIMER SETTINGS.

5. EQUIPMENT SUPPLIER OR REPRESENTATIVE SHALL BE ON-SITE FOR START-UP OF SYSTEM AND FINAL PROGRAMMING.

6. PROVIDE (2) HOURS OF TRAINING FOR UAA PERSONNEL INCLUDING END USER ADJUSTMENTS, CONFIGURATION CHANGES, AND BASIC TROUBLESHOOTING.

26.24.16 – PANELBOARDS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIAL:

1. MANUFACTURERS: SQUARE D, GE, EATON, OR EQUAL.

2. PROVIDE DEAD-FRONT CIRCUIT BREAKER PANELBOARDS WITH BUS SIZE, SHORT CIRCUIT RATING, NUMBER AND SIZE OF BRANCH CIRCUITS AS SHOWN ON THE DRAWINGS. BUSSING SHALL BE COPPER. CABINETS SHALL BE 6 INCHES DEEP BY 20 INCHES WIDE MINIMUM. PROVIDE WITH FLUSH OR SURFACE FRONTS, AS NOTED ON THE DRAWINGS, WITH CONCEALED TRIM CLAMPS, CONCEALED HINGE AND FLUSHLOCK. FINISH IN MANUFACTURER’S STANDARD GRAY ENAMEL. MOLDED CASE CIRCUIT BREAKERS SHALL BE BOLT-ON THERMAL MAGNETIC TRIP TYPE WITH COMMON TRIP HANDLE FOR ALL POLES.

C. INSTALLATION:

1. INSTALL PANELBOARDS PLUMB WITH TOP OF CABINET 6’-6” ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED ON THE DRAWINGS.

2. PROVIDE TYPED CIRCUIT DIRECTORIES FOR EACH PANELBOARD

3. ALL PANELBOARDS SHALL HAVE SIGNAGE FOR ARC HAZARD INSTALLED. THE MARKING SHALL BE LOCATED TO BE CLEARLY VISIBLE TO QUALIFIED PERSONNEL BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF THE EQUIPMENT. AT A MINIMUM THE 3-LINE SIGNAGE SHALL STATE THE FOLLOWING: WARNING – ARC FLASH AND SHOCK HAZARD – APPROPRIATE PPE REQUIRED.

26.27.26 – WIRING DEVICES

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS:

1. WALL SWITCHES: SWITCHES FOR LIGHTING CIRCUITS SHALL BE NEMA WD1 AND FEDERAL SPECIFICATION FS W-S-896 AC GENERAL USE SNAP SWITCH WITH TOGGLE HANDLE, RATED 20 AMPERES AND 120-277 VOLTS AC. HANDLE: WHITE NYLON.

2. RECEPTACLES: CONVENIENCE AND STRAIGHT BLADE RECEPTACLES SHALL BE NEMA AND FEDERAL SPECIFICATION FS W-C-596, TYPE 5-20R, WHITE NYLON FACE. WHERE SHOWN ON THE PLANS, PROVIDE 20A DUPLEX RECEPTACLES WITH (2) 3A, 5V USB CHARGING PORTS INTEGRAL. SPECIFIC USE RECEPTACLES SHALL BE NEMA WD1 OR WD5; AS REQUIRED TO MATCH LOAD SERVED, BLACK PHENOLIC FACE. GFCI RECEPTACLES SHALL BE 20A, DUPLEX CONVENIENCE RECEPTACLE WITH INTEGRAL CLASS ‘A’ GROUND FAULT CURRENT INTERRUPTER AND LOCKOUT FEATURE.

3. WALL DIMMERS FOR 0-10V LED CIRCUITS: UL 1472; NEMA WD 1; DECORA-STYLE, COMMERCIAL GRADE PRESET WALL DIMMER SWITCH, 0-10V CONTROL FOR LED DRIVERS WITH NO POWER PACK REQUIRED TO SWITCH LINE VOLTAGE LOAD (8 A, 120-277 V); ADJUSTABLE HIGH-END AND LOW-END TRIM. COLOR: WHITE. HANDLE: PADDLE SWITCH FOR ON/OFF OPERATION WITH SMALL, DISCRETE, CAPTIVE LINEAR SLIDE FOR DIMMER ADJUSTMENT. PROVIDE SINGLE POLE UNLESS OTHERWISE INDICATED ON PLANS. DIMMER SHALL BE FULLY COMPATIBLE WITH ALL LOADS CONNECTED FOR SMOOTH, FLICKER-FREE DIMMING OPERATION.

4. WALL PLATES: DECORATIVE COVER PLATES IN FINISHED AREAS SHALL BE 430 OR 302 STAINLESS STEEL. WEATHERPROOF COVER PLATES SHALL BE GASKETED STAINLESS STEEL WITH HINGED GASKETED DEVICE COVERS. DEVICE PLATES FOR WET LOCATION RECEPTACLES SHALL BE “IN USE” TYPE. PROVIDE 1/2 INCH RAISED, SQUARE, GALVANIZED OR CADMIUM PLATED, PRESSED STEEL COVER PLATE SUPPORTING DEVICES INDEPENDENT OF THE OUTLET BOX FOR ALL EXPOSED WORK.

5. CORD REELS: REELCRAFT #LD2030 OR EQUAL, YELLOW, TRIPLE RECEPTACLE CEILING-MOUNTED CORD REEL.

C. INSTALLATION:

1. UNLESS OTHERWISE NOTED ON THE DRAWINGS, INSTALL RECEPTACLES 18 INCHES ABOVE FINISH FLOOR, 4 INCHES ABOVE COUNTERS AND BACKSPLASHES WITH GROUNDING POLE ON BOTTOM. UNLESS OTHERWISE NOTED DIMENSIONS ARE TO CENTERLINE OF OUTLET.

2. INSTALL WALL SWITCHES AND DIMMERS 48 INCHES ABOVE FLOOR, OFF POSITION DOWN.

3. INSTALL GALVANIZED STEEL PLATES ON OUTLET BOXES AND JUNCTION BOXES IN UNFINISHED AREAS, ABOVE ACCESSIBLE CEILINGS, AND ON SURFACE-MOUNTED OUTLETS.

4. SUPPORT CORD REEL FROM STRUCTURE ABOVE CEILING. REEL MAY BE HUNG FROM INCLUDED RING, OR ATTACHED DIRECTLY TO A CEILING-MOUNTED JUNCTION BOX.

