Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 03/03/15

DIVISION 26 - ELECTRICAL

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. BASIC ELECTRICAL REQUIREMENTS
B. INTENT IS TO PROVIDE AND INSTALL ALL MATERIALS & LABOR TO IMPLEMENT THE DESIGN AS INTENDED AND INDICATED FOR COMPLETE WORKING ELECTRICAL SYSTEMS, AS REQUIRED TO ACCOMMODATE THE ALTERATIONS AND ADDITIONS. WORK SHALL ALSO INCLUDE ALL ELECTRICAL DEMOLITION TO ALLOW FOR THE NEW WORK.

1.2 PERFORMANCE REQUIREMENTS

A. CONFORM TO REQUIREMENTS OF THE LATEST EDITION OF ANSI/NFPA 70 NATIONAL ELECTRICAL CODE (N.E.C.).
B. FURNISH PRODUCTS LISTED AND CLASSIFIED BY UNDERWRITERS' LABORATORIES, INC.(U.L.) AS SUITABLE FOR PURPOSE SPECIFIED AND SHOWN.
C. SECURE AND PAY FOR ALL PERMITS AND CERTIFICATES AS REQUIRED BY LOCAL, STATE AND FEDERAL LAWS.
D. REQUEST INSPECTIONS FROM AUTHORITY HAVING JURISDICTION.
E. CIRCUITS SHALL BE BALANCED AND LOADS AND CAPACITIES SHALL BE IN ACCORDANCE WITH N.E.C. CRITERIA AND NATIONAL BOARD OF FIRE UNDERWRITERS.
F. EXACT LOCATIONS OF ALL EQUIPMENT SHALL BE VERIFIED AT THE SITE, WITH THE OWNER AND ARCHITECT.
G. THE ELECTRICAL SYSTEM SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH CODE REQUIREMENTS.

1.3 SEQUENCING AND SCHEDULING

A. SCHEDULE AND COORDINATE ALL WORK WITH THE OWNER AND THE CONTRACTOR. DEMOLITION AND REMOVAL OF ELECTRICAL ITEMS ARE INCLUDED AS PART OF DIVISION 16.
B. ARRANGE TO EXECUTE THE WORK AT SUCH TIMES AND IN SUCH LOCATIONS AS MAY BE REQUIRED TO PROVIDE UNINTERRUPTED SERVICES FOR THE BUILDING, OR ANY OF ITS SECTIONS.
1. SERVICES INCLUDE BUT NOT LIMITED TO: POWER, LIGHTING, AND LIFE SAFETY SYSTEMS AS REQUIRED TO MAINTAIN SAFE OCCUPANCY.
2. IF NECESSARY, INSTALL TEMPORARY WORK TO PROVIDE FOR THIS CONDITION. AUTHORIZATION FOR INTERRUPTING SERVICES FOR ANY PORTIONS OF THE BUILDING SHALL BE OBTAINED, IN WRITING, FROM THE OWNER.
3. COSTS FOR OVERTIME WORK AND TEMPORARY WORK SHALL BE INCLUDED.

1.4 PROJECT/SITE CONDITIONS

A. THE DRAWINGS INDICATE ONLY DIAGRAMMATICALLY THE EXTENT, LAYOUT AND THE GENERAL LOCATION AND ARRANGEMENT OF EQUIPMENT, CONDUIT AND WIRING. BECOME FAMILIAR WITH ALL DETAILS OF THE WORK AND VERIFY ALL DIMENSIONS IN THE FIELD SO THAT THE OUTLETS AND EQUIPMENT WILL BE PROPERLY LOCATED AND READILY ACCESSIBLE.
B. COORDINATE WITH ALL OTHER TRADES TO ASSURE PROPER ACCESS AND SPACE REQUIREMENTS.

1.5 ALTERATIONS

A. VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS, AND THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. NO CLAIM WILL BE RECOGNIZED FOR EXTRA COMPENSATION DUE TO FAILURE OF BECOMING FAMILIAR WITH THE CONDITIONS AND EXTENT OF THE PROPOSED WORK.
B. EXECUTE ALL ALTERATIONS, ADDITIONS, REMOVALS, RELOCATIONS, OR NEW WORK, ETC., AS INDICATED OR REQUIRED TO PROVIDE A COMPLETE INSTALLATION IN ACCORDANCE WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.
C. REPAIR OR REPLACE TO THE OWNER'S SATISFACTION, ALL EXISTING WORK DISTURBED OR DAMAGED BY THE ALTERATIONS.
D. RETAIN OWNERSHIP AND REMOVE FROM SITE ALL EXISTING MATERIALS, EQUIPMENT, FIXTURES, WIRING AND DEVICES DISCONNECTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DISPOSAL.
E. ALL EXISTING WIRING THAT IS DISCONNECTED SHALL BE COMPLETELY REMOVED TO SOURCE. ALL EXISTING WIRING THAT IS DISTURBED BUT INTENDED TO REMAIN, SHALL BE REFED AND RECONNECTED AS REQUIRED.
F. DO NOT REUSE EXISTING WIRING EXCEPT AS SPECIFICALLY INDICATED. EXISTING CONDUIT RACEWAYS MAY BE REUSED, PROVIDED THAT THE EXISTING WIRES ARE REMOVED AND NEW WIRES ARE INSTALLED.
G. ASSURE ALL CIRCUITS IN EXISTING BUILDINGS ARE RE-ENERGIZED WHERE EXISTING PANELBOARDS ARE REPLACED, OR EXISTING WIRING IS REROUTED, DISCONNECTED, OR DISTURBED. PROVIDE AND INSTALL NEW WIRING AS REQUIRED TO MEET THIS CONDITION. VERIFY BREAKER/FUSE SIZES ON EXISTING CIRCUITS AND DO NOT LOAD WIRING TO BEYOND 75% OF THEIR AMPACITIES.

1.6 SUBMITTALS

A. SUBMIT SHOP DRAWINGS, OWNER'S MANUALS, AND OPERATING INSTRUCTIONS FOR ALL PRODUCTS AND SYSTEMS INCLUDED WITH DIVISION 16..

PART 2 - PRODUCTS

2.1 DEVICES
A. RECEPTACLES SHALL BE NEMA 5-20R UNLESS NOTED OTHERWISE. SWITCHES SHALL BE 277 VOLT RATED.
B. ALL DEVICES SHALL BE SPECIFICATION GRADE (HUBBELL HBL1221, 5362, GF8300, etc.).
C. EXTERIOR RECEPTACLE COVER PLATES: NEMA 3R CLEAR COVER EXTRA DEEP, LEVITON 5966-DCL SERIES.

2.2 WIRE AND CABLE

A. ALL WIRING SHALL BE COPPER, THWN/THHN, COLOR CODED AS INDICATED BELOW, MINIMUM SIZE #12 AWG . ALL CONDUCTORS SHALL BE IN EMT OR RGS CONDUIT AND SHALL BE PROPERLY SUPPORTED.
1. EXCEPTION: CONCEALED BRANCH CIRCUITS IN ACCESSIBLE LOCATIONS MAY BE TYPE MC CABLE #12 & #10 WITH FULL SIZED INSULATED GROUND.
B. WIRE COLOR CODE SHALL BE AS FOLLOWS:

277/480V	120/208V	
PHASE A	BROWN	BLACK
PHASE B	ORANGE	RED
PHASE C	YELLOW	BLUE
NEUTRAL	GREY	WHITE
GROUND	GREEN	GREEN

VERIFY COLOR CODING WITH OWNER. USE OWNER'S CODING IF NOT AS LISTED ABOVE.
C. DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE, HORSE POWER RATED.

2.3 PANELBOARDS

A. COPPER BUS, BOLT ON BREAKERS, 22,000 AIC FOR 277/480 VOLTS.
B. DESIGNED FOR THREE PHASE FOUR WIRE, SOLID NEUTRAL, 60HZ. 277/480V.
C. ENCLOSURE: NEMA TYPE 1 CODE GAUGE GALVANIZED STEEL TUBS WITH ENAMELED STEEL FRONTS AND DOOR IN DOOR TRIM. FLUSH LOCKS KEYED ALIKE.

2.4 TIMECLOCK

A. TORK #7200L SERIES WITH RESERVE POWER. MOTOR VOLTAGE TO MATCH VOLTAGE INDICATED. DPDT 40 AMPERE CONTACTS.
B. PHOTOELECTRIC CONTROL: TORK # MODEL 2101 FOR 120 VOLTS.
1.ADJUSTABLE ON/OFF: ON RANGE FROM 2 TO 50 F/C.
2.RATED 2000 WATTS TUNGSTEN AT 120, 240 AND 277 VOLTS.
3.ENCLOSURE: DIE CAST ZINC, GASKETED FOR EXTERIOR USE.
4.CELL: CADMIUM SULFIDE, 1" DIAMETER.

2.5 WEATHERPROOF ENCLOSURE

A. ENAMELED NEMA 4 CODE GUAGE GALVANIZED STEEL SINGLE DOOR ENCLOSURE.
B. CONTINUOUS WELDED SEAMS.
C. DOOR SHALL HAVE CONTINUOUS HINGE AND QUARTER TURN LATCHES.
D. HASP AND STAPLE FOR PADLOCK.

2.6 CONTROL TRANSFORMER

A. ACCEPTABLE MANUFACTURERS: GENERAL ELECTRIC, SQUARE D, CUTLER-HAMMER, ITE-SIEMENS, HEVI-DUTY
B. SINGLE PHASE 277V PRIMARY; 120/240V SECONDARY NON-VENTILATED TRANSFORMER.
C. COPPER WINDINGS
D. 115 DEGREE RISE - RATINGS AS INDICATED ON DRAWINGS.
E. SEALED NEMA 3R ENCLOSURE.

PART 3 - EXECUTION

3.1 WORKMANSHIP AND INSTALLATION

A. EXECUTE ALL WORK IN A NEAT MANNER ACCEPTABLE TO THE OWNER, THE LOCAL AND STATE ELECTRICAL INSPECTOR. FOLLOW MANUFACTURER'S INSTALLATION RECOMMENDATIONS.
B. PERFORM ALL ELECTRICAL WORK BY LICENSED ELECTRICIANS WELL SKILLED IN THE TRADE AND SUPERVISED BY A MASTER ELECTRICIAN.
C. COORDINATE ALL SERVICE REQUIREMENTS WITH:
CENTRAL MAINE POWER COMPANY,
DANIEL BEGIN
PHONE: (207) 753-3117

3.2 INSTALLATION

A. UPDATE PANEL SCHEDULES & PANEL LABELS ON NEW PANELS AND PANELS SHOWN MODIFIED REFLECTING CHANGES. CIRCUIT NUMBERS ARE SHOWN TO INDICATE QUANTITIES. ADJUST NUMBERS PER JOB CONDITIONS. AT END OF JOB, EACH PANEL WITH MODIFICATIONS SHALL HAVE NEW ENGRAVED NAMEPLATE AND NEW TYPED DIRECTORY SCHEDULE IDENTIFYING TYPE OF LOAD AND AREA SERVED.
B. PROVIDE AND INSTALL BONDING CONDUCTOR TO EACH ELECTRICAL ITEM AND OTHERS AS INDICATED.
C. ALL OUTLET FACEPLATES SHALL BE IVORY NYLON.
D. ALL WIRING IN FINISHED AREAS SHALL BE CONCEALED. WIRING IN STORAGE AREAS MAY BE EXPOSED AND RUN HORZ AND VERT AGAINST SURFACES AND ALONG BOTTOM OF JOIST.
E. ALL WIRES SHALL BE RUN IN CONDUIT OR DUCT SYSTEM WITH BOTH ENDS TAGGED, MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS INDICATED OTHERWISE.
F. ALL WIRING TO LIGHTING FIXTURES SHALL BE IN CONDUIT EXCEPT DROPS TO FIXTURES. DROPS (WHIPS) TO LIGHT FIXTURES SHALL BE FLEXIBLE MC CABLE, MAXIMUM 6' LONG.
G. ALL PENETRATIONS THROUGH WALLS SHALL BE SEALED. FIRE STOP SEALANTS SHALL BE USED TO MEET RATINGS OF WALLS BEING PENETRATED.
H. OUTLET BOXES FOR ALL CONCEALED WORK SHALL BE MINIMUM 4" SQUARE, WITH RAISED COVERS AS REQUIRED TO EXTEND FLUSH TO FINISHED SURFACE. GANGED WALL BOXES FOR MULTIPLE SWITCHES SHALL BE ACCEPTABLE.

3.3 TESTING AND ADJUSTING

A. THE INSTALLATION SHALL BE FREE FROM SHORT CIRCUITS AND IMPROPER GROUNDS. TEST IN THE PRESENCE OF THE ARCHITECTS OR THEIR REPRESENTATIVES.
B. TEST ALL LIGHTING AND OUTLETS FOR PROPER OPERATION, INCLUDING ADJACENT SPACES TO ASSURE THAT THEY WERE NOT AFFECTED BY THE RENOVATIONS.
C. TEST EACH SYSTEMS FOR PROPER OPERATION AND MAKE ADJUSTMENTS AS REQUIRED TO SATISFY THE CONSTRUCTION MANAGER AND THE OWNER.

DEMOLITION NOTES:

1. ELECTRICAL INDICATED IS AS GENERALLY FOUND (JANUARY 2015). THE INTENT OF THE EXISTING CONDITIONS PLAN(S) IS TO DOCUMENT EXISTING CONDITIONS. HOWEVER, ALL ELECTRICAL DEVICES MAY NOT NECESSARILY BE INDICATED ON THE DRAWINGS. FIELD VERIFY AND ADJUST WORK TO SUIT ALL FOUND.
2. REFER TO NON-DEMO PLANS TO DETERMINE EXTENT OF WORK IN EACH AREA, INCLUDING WHETHER DEVICES ARE TO REMAIN, BE REMOVED, REPLACED, ETC... EXCEPT AS NOTED, GENERALLY THE INTENT IS THAT IF EXISTING DEVICES ARE SHOWN ON THE EXISTING CONDITIONS PLANS AND NEW DEVICES ARE SHOWN ON THE NON-DEMO PLANS THEN EXISTING DEVICES ARE TO BE REMOVED. IF EXISTING DEVICES ARE SHOWN ON BOTH THEN DEVICES ARE TO REMAIN.
3. ALL EXISTING ITEMS INTENDED FOR REMOVAL SHALL BE REMOVED WITH ALL ASSOCIATED HARDWARE INCLUDING, BUT NOT LIMITED TO: CONDUIT, BOXES, WIRING, CABLES, HANGERS, ETC...
4. COORDINATE WITH MECHANICAL AND PLUMBING DRAWINGS FOR MECHANICAL AND PLUMBING EQUIPMENT TO BE REMOVED. REMOVE ALL ASSOCIATED CONDUIT, BOXES, WIRING, ETC...
5. CONDUIT IN GOOD CONDITION AND PROPERLY LOCATED MAY BE REUSED WHERE APPLICABLE, UNLESS NOTED OTHERWISE.
6. IN AREAS NOT RENOVATED BY THIS CONTRACT VERIFY THAT ELECTRICAL POWER, LIGHTING AND SYSTEMS ARE NOT AFFECTED BY THE ALTERATIONS. PROVIDE ALL WORK AS REQUIRED TO MAINTAIN POWER AND PROPER OPERATION OF SYSTEMS.
7. PROVIDE WORK REQUIRED TO MAINTAIN EXISTING COMMUNICATIONS CABLING SERVING PORTIONS OF THIS BUILDING AND CAMPUS THAT IS NOT PART OF THIS RENOVATION OR PHASE OF WORK.

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF NFPA 70, NATIONAL ELECTRICAL CODE (NEC), OSHA REGULATIONS, AS WELL AS APPLICABLE REGULATIONS OF THE PERTINENT FEDERAL, STATE, COUNTY, AND CITY AGENCIES. PROVIDE MATERIALS AND EQUIPMENT THAT COMPLY WITH ANSI, IEEE, IES, AND NEMA STANDARDS. WHERE APPLICABLE, PROVIDE ONLY MATERIALS THAT ARE U.L. LISTED AND LABELED.
2. THE ELECTRICAL SUBCONTRACTOR SHALL VISIT THE SITE AND INSPECT EXISTING CONDITIONS, SERVICES, CONDUITS, SPATIAL CONSIDERATIONS AND ALL OTHER PERTINENT CONDITIONS TO FULLY FAMILIARIZE THEMSELF WITH CONDITIONS TO BE ENCOUNTERED IN THE PERFORMANCE OF THIS WORK. THE ELECTRICAL SUBCONTRACTOR SHALL COORDINATE THIS WORK WITH THE GENERAL CONTRACTOR DURING CONSTRUCTION. FAILURE TO DO SO WILL NOT RELIEVE THE ELECTRICAL SUBCONTRACTOR OF THE RESPONSIBILITY FOR FULL COMPLETION OF THE WORK IN ACCORDANCE WITH APPLICABLE DRAWINGS AND SPECIFICATIONS. VERIFY EXISTING SYSTEMS THAT WILL BE UTILIZED FOR CONNECTION TO THE NEW SYSTEM. IF DISCREPANCIES EXIST BETWEEN THE CONTRACT DRAWINGS AND THE ACTUAL EXISTING CONDITIONS, THE ELECTRICAL SUBCONTRACTOR SHALL NOTIFY THE ENGINEER/OWNER PRIOR TO PROCEEDING WITH THE INSTALLATION.
3. CONDUIT RUNS ARE SHOWN DIAGRAMATICALLY. INSTALL CONDUIT WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE CONSIDERING THE BUILDINGS CONSTRUCTION AND OBSTRUCTIONS, EXCEPT WHERE OTHERWISE NOTED.
4. ALL MOTOR SAFETY SWITCHES, DISCONNECTS AND MOTOR STARTERS THAT ARE NOT PROVIDED BY OTHER DIVISIONS, SHALL BE PROVIDED BY DIVISION 26, UNLESS SPECIFICALLY NOTED OTHERWISE.
5. ALL PENETRATIONS THROUGH FIRE-RATED FLOORS, WALLS AND PARTITIONS SHALL BE SEALED WITH UL APPROVED FIRE SEALANT MATERIAL TO MAINTAIN THE RATING OF THE SEPARATION.
6. CONTRACTOR SHALL PROVIDE WIREMOLD RACEWAY AND BOXES FOR ALL SURFACE MOUNT WIRING IN RETAIL SPACE .
7. UNLESS OTHERWISE NOTED, WIRING SHALL BE 2#12 AWG CONDUCTORS & #12 GND. HOMERUNS FED FROM 20A, SINGLE POLE CIRCUITS IN EXCESS OF 100 FEET SHALL BE #10 AWG UNLESS INDICATED OTHERWISE. INSULATION TYPE SHALL BE THHN/TWHN, 75 DEG. C, AND 600V CLASS UNLESS SPECIFIED OTHERWISE.
8. FLEXIBLE CONNECTIONS TO MOTORS SHALL BE FLEXIBLE LIQUID TIGHT CONDUIT.

GENERAL NOTES (CON'T)

9. UNLESS OTHERWISE NOTED, ALL WIRING SHALL BE 600V, COPPER WITH THHN-THWN INSULATION.
10. ALL GENERAL NOTES, SYMBOLS, LISTS, ABBREVIATIONS AND DETAILS ARE TO BE CONSIDERED APPLICABLE TO ALL ELECTRICAL DRAWINGS FOR THIS PROJECT.
11. WHERE A DISCREPANCY OCCURS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE SPECIFICATIONS SHALL PREVAIL. CONTACT THE ENGINEER FOR CLARIFICAION WHEN SUCH A SITUATION OCCURS.
12. WHERE MATERIAL IS CALLED OUT IN THE LEGEND BY MANUFACTURER, TYPE OR CATALOG NUMBER, SUCH DESIGNATIONS ARE TO ESTABLISH STANDARDS OR DESIRED QUALITY. ACCEPTANCE OR REJECTION OF THE PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER.
13. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF EQUIPMENT, DEVICES, AND FURNITURE REQUIREMENTS, PRIOR TO ROUGHING IN FOR SAME.
14. IN AREAS AFFECTED BY THIS RENOVATION, THE ELECTRICAL SUBCONTRACTOR SHALL MAINTAIN CONTINUITY OF EXISTING ELECTRICAL SERVICE.
15. PRIOR TO REMOVAL OF EQUIPMENT, THE OWNER WILL INDICATE WHICH EXISTING DEVICES OR MATERIALS SHALL BE SALVAGED AND TURNED OVER FOR STORAGE.
16. WHERE EXISTING EQUIPMENT AND DEVICES ARE TO BE RELOCATED, ALL ASSOCIATED WIRING, CONDUIT AND ACCESSORIES SHALL BE EXTENDED, RELOCATED OR REPLACED WHERE REQUIRED.
17. WHERE IT IS INDICATED THAT EXISTING WIRING IS TO BE REUSED, THE ELECTRICAL SUBCONTRACTOR SHALL VERIFY THAT THE INTEGRITY OF THE INSULATION IS ADEQUATE FOR REUSE. ALL SUSPECT WIRING SHALL BE REPLACED BY THE SUBCONTRACTOR. NM WIRE SHALL NOT BE REUSED, REPLACE ALL NM WITH APPROVED WIRING METHOD.

HARRIMAN

AUBURN PORTLAND MANCHESTER

LEPAGE BAKERIES
COUNTRY KITCHEN
BAKERY OUTLET
DISTRIBUTION
CENTER
276 WARREN AVE.

PORTLAND, MAINE

Harriman Project No.	14558

Key Plan

Proj North

Issues and Revisions

Mark	Date	Description
--	01-23-15	ISSUED FOR 100% REVIEW
--	01-30-15	ISSUED FOR CONSTRUCTION

STATE OF MAINE
JOHN W. TAYLOR
No. 7700
LICENSED
PROFESSIONAL ENGINEER

Drawing Scales

PA / PE: JWT

Drawn By: PCN

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ELECTRICAL
DEMO
PLAN

E05.1