

SECTION 26 00 00

GENERAL REQUIREMENTS FOR ELECTRICAL WORK

PART ONE: GENERAL

1.1 General Requirements

1.1.1 Definition of Work

Conditions of the Contract, Specifications, Change Orders, and Addenda apply to work of this section.

1.1.2 Provisions

As used in this section, "provide" means "furnish and install", "furnish" means "to purchase and deliver to the project site complete with every necessary appurtenance and support and to store in a secure area in accordance with manufacturers instructions", and "install" means "to unload at the delivery point at the site or retrieve from storage, move to point of installation and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project".

1.1.3 Existing Site Conditions – Responsibilities Prior to Bid

Before submitting a bid, the Electrical Subcontractor shall visit and carefully examine site to identify existing conditions and difficulties that may affect the work of this Section. No extra payment will be allowed for additional work caused by unfamiliarity with site conditions.

1.1.4 Existing Site Conditions – Responsibilities Prior to Starting Work

Before starting work in a particular area of the project, the Electrical Subcontractor shall examine the conditions under which work must be performed including preparatory work performed under other Sections of the Contract, or by the Owner and report conditions which might adversely affect the work in writing to the Engineer. Do not proceed with work until defects have been corrected and conditions are satisfactory. Commencement of work shall be construed as complete acceptance of existing conditions and preparatory work.

1.2 Applicable Codes and Standards

1.2.1 Work

All work shall be in accordance with the laws, rules, codes, and regulations set forth by Local, State, and Federal authorities having jurisdiction. All products and materials shall be manufactured, installed and tested as specified, but not limited to the latest accepted edition of the following codes, standards and regulations:

NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Act
NEC	National Electrical Code (NFPA 70)
UL	Underwriters Laboratory
NESC	National Electrical Safety Code
FM	Factory Mutual Association

MBC	Maine State Building Code
IECC	International Energy Conservation Code - 2009
Local AHJ	Local and State building, electrical, fire and health department and public safety codes agencies.

1.2.2 Code Conflicts

When requirements cited in this Paragraph conflict with each other or with Contract Documents, the most stringent requirements shall govern conduct of work. The Engineer may relax this requirement when such relaxation does not violate the ruling of authorities that have jurisdiction. Approval for such relaxation shall be obtained in writing. Should the Electrical Subcontractor perform any work that does not comply with the requirements of the applicable building codes, state laws, and industry standards, he shall bear all costs arising in correcting these deficiencies.

1.3 Contract Documents

1.3.1 Work to be Provided

It is the intent of this Performance Specification to define the equipment and materials for installation at Allagash Brewing Company, 50 Industrial Way, Portland, Maine for the new addition that is being installed at their existing plant. If required by the City of Portland or other Authority having Jurisdiction, this work shall include the design services of an Electrical Engineer Licensed in the State of Maine to provide stamped electrical design documents.

1.3.2 Coordination of Work

The General Contractor shall coordinate the work of all trades including that of the electrical contractor, with all other subcontractors to determine whether there will be any interference with the electrical work. If the Electrical Subcontractor fails to check with the General Contractor and the electrical work is later found to interfere with the work of other subcontractors, then he shall make necessary changes, without additional cost to the Owner, to eliminate such interference.

1.3.3 Intent of Design

This performance specification is not intended to indicate and specify each component required, but does require that the components and materials be provided for a complete and operational installation.

1.3.4 Discrepancies in Documents

Each bidder shall be responsible for examining the specifications carefully before submitting his bid, with particular attention to errors, omissions, conflicts with provisions of laws and codes imposed by authorities having jurisdiction, conflicts between portions of specifications, and ambiguous definition of the extent of coverage in the contract. Any such discrepancy discovered shall be brought to the immediate attention of the Engineer for correction. Should any of the aforementioned errors, omissions, conflicts or ambiguities exist in the specification, the Electrical Subcontractor shall have the same explained and adjusted in writing before signing the contract or proceeding with work. Failure to notify the Engineer in writing of such irregularities prior to signing the Contract will cause the Engineer's interpretation of the Contract Documents to be final. No additional compensation will be approved because of discrepancies thus resolved.

1.3.5 Conflicts with Codes and Regulations

The specifications are intended to comply with all the above mentioned Codes, Rules and Regulations. If discrepancies occur, the Electrical Subcontractor shall immediately notify the Engineer in writing of said discrepancies and apply for an interpretation and, unless an interpretation is offered in writing by the Engineer prior to the execution of the contract, the applicable rules and regulations shall be complied with as a part of the contract.

PART TWO: SCOPE OF WORK

2.1 General Requirements

2.1.1 General Scope

The work to be accomplished under these specifications includes providing all labor, materials, equipment, consumable items, supervision, administrative tasks, tests and documentation required to install complete and fully operational electrical systems as described.

2.1.2 Administrative Responsibilities

The Electrical Subcontractor shall file plans, obtain permits and licenses, pay fees and obtain necessary inspections and approvals from authorities that have jurisdiction, as required to perform work in accordance with all legal requirements.

2.1.3 Coordination with Local Utility Companies

The Electrical Subcontractor shall coordinate with the local Power, Telephone, and Cable System Utilities, if required. The Electrical Subcontractor shall be responsible for paying any Utility charges and excess costs. The Electrical Subcontractor shall perform all work in accordance with utility company requirements.

2.2 Work to be Provided Under this Division

2.2.1 General Scope

The Work shall be complete from point of service to each outlet or device with all accessory construction and materials required to make each item of equipment or system complete and ready for operation. The work shall include but not be limited to the following. The Electrical Subcontractor shall provide:

- A. **Service Entrance:** The intent is to use the existing service to the building and install new breakers in the existing 3000 Amp service panel.
- B. **Grounding System:** Provide all equipment and wiring to connect new feeders, equipment and other systems as required by the National Electrical Code to the existing building grounding system.
- C. **Temporary Power:** Temporary power shall be obtained from the existing electrical service to the building.
- D. **Power Distribution Systems:** Intent is to provide additional equipment to the existing power distribution systems including panelboards, overcurrent devices, raceway, cable and wire.

- E. **Feeder and Branch Circuit Wiring:** Provide feeder and branch circuits and devices for power to equipment and convenience receptacles. This includes branch wiring to system control panels furnished under other sections.
- F. **Motor Circuit Wiring:** Provide all motor wiring, safety disconnects, and motor starters unless integral with equipment.
- G. **Interior Lighting Systems:** Provide complete interior lighting system including normal and emergency fixtures, exit signs, lamps, controls, trim and accessories.
- H. **Telephone and Data Systems:** Provide complete voice/data system conduits, Cat 5e wiring and patch panel to be installed in the existing data room.
- I. **Security Systems:** Furnish conduits and power for security equipment as shown on the plans.
- J. **Cable Television Systems:** Provide empty conduit for CATV outlets.
- K. **Control Wiring:** Provide control wiring not provided by Division 15000.
- L. **Supports and Fittings:** Provide all support material and hardware for raceway, cable tray and electrical equipment.
- M. **Terminations:** Provide terminations of all cable and wire unless otherwise noted.
- N. **Penetrations:** Provide all building wall, floor and roof penetrations for raceway and cable tray where not provided by the General Contractor.
- O. **Other Items Furnished By Others:** Install the following equipment furnished by others:
 - 1. Motors
 - 2. Control Panels
 - 3. Wiring to magnetic door holders.

2.3 Work not Included Under this Division

2.3.1 Related Work Included in Other Sections

The following work is not included in this Section and shall be performed under other sections:

- A. Excavation and backfill.
- B. Concrete work, including concrete housekeeping pads and other pads and blocks for vibrating and rotating equipment.
- C. Cutting and patching of masonry, concrete, tile, and other parts of structure, with the exception of drilling for hangers and providing holes and openings in metal decks. The Electrical Subcontractor shall identify locations of penetrations, excavations, structural supports, etc. required for the completion of the Work of this Section to the General Contractor in a timely manner.

- D. Installation of access panels in ceilings and wall construction.
- E. Painting, except as specified herein.
- F. Temporary water, heat, gas and sanitary facilities for use during construction and testing.
- G. Outdoor air intake or exhaust louvers.
- H. Cathodic anti-corrosion protection for buried piping and tanks.
- I. Control wiring specifically indicated as part of Division 15.

2.4 General Equipment and Materials Requirements

2.4.1 General Requirements

All equipment and materials shall be new and of the quality specified. All materials shall be free from defects at the time of installation. Materials or equipment damaged in shipment or otherwise damaged during construction shall not be repaired at the jobsite, but shall be replaced with new materials.

2.4.2 Representation of Equipment

All equipment installed on this project shall have local representation, local factory authorized service and a local stock of repair parts.

2.4.3 Warranties

No equipment or material shall be installed in such a manner as to void a manufacturer's warranty. The Electrical Subcontractor shall notify the Engineer of any discrepancies between the Contract Documents and manufacturer's recommendations prior to execution of the work. Refer to Division 1, General Requirements for Warranty Requirements.

2.5 Shop Drawings

2.5.1 General Requirements

After the Contract is awarded, but prior to proceeding with the Work, the Electrical Subcontractor shall obtain complete shop drawings, product data and samples from manufacturers, suppliers, vendors, and Subcontractors for all materials and equipment specified herein, and submit data and details of such materials and equipment for review by the Engineer. Submission of such items shall follow the guidelines set in the General Section of the Specification Document. Prior to submission of the shop drawings, product data and samples to the Engineer, the Electrical Subcontractor shall review and certify that the shop drawings, product data and samples are in compliance with the Contract Documents. Further, the Electrical Subcontractor shall check all materials and equipment after their arrival on the jobsite and verify their compliance with the Contract Documents. A minimum period of ten working days, exclusive of transmittal time will be required in the Engineer's office each time shop drawings, product data and/or samples are submitted or resubmitted for review. This time period shall be considered by the Electrical Subcontractor when scheduling his Work.

2.5.2 Information to be included in Submittal

The shop drawing submittal shall include all data necessary for interpretation as well as manufacturer's name and catalog number. Sizes, capacities, colors, etc., specified on the drawings shall be specifically noted or marked on the shop drawings.

2.5.3 Information Not to be included in Submittal

Submittals shall contain only information specific to systems, equipment and materials required by Contract Documents for this Project. Do not submit catalogs that describe products, models, options or accessories, other than those required, unless irrelevant information is marked out or unless relevant information is highlighted clearly. Marks on submittals, whether by Contractor, Subcontractor, manufacturer, etc., shall not be made in red ink. Red is reserved for review process.

2.5.4 Responsibility of Submitted Equipment

The Engineer's review of such drawings shall not relieve the Subcontractor of responsibility for deviations from the Contract Specifications, unless he has in writing called the attention of the Engineer to such deviations at the time of the submission. The Engineer's review shall not relieve the Electrical Subcontractor from responsibility for errors or omissions in such drawings.

2.5.5 Proposal of Other Equipment

If the Electrical Subcontractor proposes an item of equipment other than that specified which requires any redesign of the wiring or any other part of the mechanical, electrical or architectural layout, the required changes shall be made at the expense of the trade furnishing the changed equipment at no cost to the Owner.

2.5.6 Substitution of Equipment of Equal Quality

Manufacturer's names are listed herein and on the drawings to establish a standard for quality and design. Where one manufacturer's name is mentioned, products of other manufacturers will be acceptable if, in the opinion of the Engineer the substitute material is of quality equal to or better than that of the material specified. Where two or more manufacturer's names are specified, material shall be by one of the named manufacturers only.

2.6 Equipment Manuals

2.6.1 General Requirements

The Electrical Subcontractor shall provide three copies of operations and maintenance manuals for all items. These manuals shall be packaged with additional information including equipment cut sheets and as-built wiring diagrams. Manuals shall contain names and addresses of manufacturers and local representatives who stock or furnish repair parts for items or equipment.

2.6.2 Schedule

Deliver manuals no less than 30 days prior to acceptance of equipment to permit Owner's personnel to become familiar with equipment and operation prior to acceptance.

2.6.3 Instruction of Owner's Operating Personnel

Upon completion of installation or when Owner accepts portions of building and equipment for operational use, instruct the Owner's operating personnel in any and all parts of various systems. Such

instructions shall cover period of control such as will take mechanical equipment through complete cycle. Make adjustments under actual operating conditions.

2.7 Record Drawings

2.7.1 General Requirements

As work progresses, and for duration of the Contract, the Electrical Subcontractor shall maintain a complete and separate set of prints of Contract Drawings at job site at all times and record work completed and all changes from original Contract. Drawings shall clearly and accurately include work installed as a modification or added to the original design. At completion of work and prior to final request for payment, the Electrical Subcontractor shall submit a complete set of reproducible record drawings showing all systems as actually installed.

2.8 Equipment Specifications

2.8.1 Panelboards

Panelboards, including lighting and appliance panelboards and power distribution panelboards, shall be of the sizes, rating and arrangement shown on the attached sketch. Panelboards shall be provided complete with all overcurrent devices, accessories and trim. All panelboards shall be provided with safety barriers for dead front construction. The required short circuit ratings of assembled panelboards are shown on the Drawings. The short circuit rating of every overcurrent device in the panel shall meet or exceed the panel rating. Unless otherwise noted on the Drawings, series rated combinations will not be permitted.

A. Enclosures

Boxes shall be code gauge galvanized sheet steel. Trim shall be code gauge steel, ANSI-61 gray finish with stainless steel flush type lock/latch handle. All locks shall be keyed alike. Trim for surface mounted panels shall be door-in-door construction such that the gutter space may be exposed by a hinged door. Directory frames shall be metal frame with plastic covers.

B. Bus Work

All bus work shall be 1000 amp/sq. in. copper or 750 amp/sq. in. aluminum. Unless otherwise noted on the drawings, neutral busses shall be 100% rated with adequate connections for all outgoing neutral conductors. Panelboards shall be provided with copper or aluminum ground busses.

C. Circuit Breakers

Overcurrent devices shall be trip-free molded case, bolt-on, thermal magnetic circuit breakers. Main circuit breakers shall be individually mounted and bolted to bus assembly. Back-fed branch mounted circuit breakers are prohibited. Front faces of all circuit breakers shall be flush. Trip indication shall be clearly shown by the handle position between the ON and OFF positions. All connections shall be rated for 75°C copper conductors.

2.8.2 Locations

- A. The new panelboards for the retail space and brewhouse lighting and HVAC shall be located on the new equipment storage mezzanine.
- B. The new panelboards for the new tank bunker spaces shall be in the new tank bunker.

2.8.2 Grounding System:

- A. A green equipment grounding conductor shall be run with each branch circuit. Grounding conductors shall be soft drawn bare copper.
- B. The new addition footing steel shall be connected to the existing Grounding Electrode system at a minimum of one location. This connection shall be by isothermic weld at the footing.

2.8.3 Feeder and Branch Circuit Wiring:

- A. Provide feeder and branch circuits and devices for power to equipment and convenience receptacles. This includes branch wiring to system control panels furnished under other sections.
- B. All circuits feeding panels, circuit feeders and circuit wiring shall be copper, minimum size #12 AWG. Conductors shall be 600V rated with THHN/THWN insulation.
- D. All exposed wiring shall be in PVC conduit. Wiring above acoustic ceiling tiles may be in conduit or as part of an MC cable assembly.
- E. PVC conduits shall be properly supported with hangers or clips at a spacing not to exceed 10 feet. Minimum conduit size is 3/4".
- F. Flexible metal conduit shall be used for connections to vibrating equipment.
- G. Liquid-Tight flexible metal conduit shall be used for connections to vibrating equipment in wet or damp locations. Liquid tight shall not penetrate the roof or exterior walls and shall not be used in lengths exceeding 36".
- H. All conduits or penetrations in fire rated walls shall be furnished with fire stopping material to maintain the integrity of the rating.
- I. All conduits penetrating the roof or exterior walls shall be furnished with watertight seals.

2.8.4 Receptacle Wiring:

- A. Convenience Receptacles: Receptacles shall be commercial specification grade in the retail space and industrial heavy-duty industrial grade in the Brewhouse; grounding type, NEMA5-20R, side wired as manufactured by Leviton, Pass and Seymour, or equal.
- B. Device coverplates shall be brushed stainless steel in all areas.
- C. For the purposes of this design the following receptacles shall be carried in the bid and located as directed by the Owner during construction:

- New Brewhouse: (10) – 120V, double-duplex, GFCI receptacles with while-in use waterproof receptacle covers, these receptacles shall be centered on each 20' wall section and equally distributed among (5) 20A, 1P circuits. Also in the brewhouse shall be provisions for a 60A, 3-phase, 480V (confirm size and location with owner prior to installation) receptacle or disconnect for connection to a pump skid.
- Future Retail Space: Spare circuits in the panelboards shall be dedicated for future build-out of the retail space.
- A GFCI receptacle shall be installed in the Men's and Women's Rooms. Mounted in the vicinity of the sink at 42" Above Finished Floor (AFF).
- A standard convenience receptacle mounted 18" AFF shall be installed in the stairwell.
- A GFCI receptacle with weatherproof while-in-use cover shall be installed outdoors on the wall in the vicinity of all exterior doors.
- A 120V, double-duplex, GFCI receptacle with while-in use waterproof receptacle cover shall be installed in the tank bunker. Also a 208V, three-phase receptacle or switch shall be installed in this space in a location as directed by the Owner.

2.8.5 Motor Circuit Wiring: Provide all motor wiring, safety disconnects, and motor starters unless integral with equipment.

- A. Safety Switches: Shall be fused or non-fused as required by code. Construction shall be heavy-duty horsepower rated type. Enclosure shall be NEMA 1 where installed indoors and Nema 3R where installed outdoors.
- B. Manual motor starters: Shall be Single phase fractional HP manual motor starters shall be toggle operated, enclosed, one or two pole switches as required by the installation. The enclosure shall be NEMA 1 for indoor locations and NEMA 4 for outdoor, wet and damp locations. A handle guard shall be provided to allow the toggle operator to be padlocked in the OFF position. Starters shall be provided with trip free melting alloy thermal overloads.
- C. Mechanical equipment wiring:
 - In the brewhouse and retail space areas shall be fed from circuits in panel LPA for 480 or 277 Volts and PPA for 208 or 120 Volts. Contractor shall furnish breakers as required by such equipment.
 - In the tank bunker shall be fed from panel LPB for 480 or 277 Volts and PPB for 208 or 120 Volts. Contractor shall furnish breakers as required by such equipment.
 - In all areas, GFCI convenience receptacles shall be provided in proximity to the mechanical equipment as required by the NEC. If located outdoors these shall be provided with weatherproof while-in-use covers.

2.8.6 Lighting Systems:

- A. Light fixtures shall be provided with housings, trims, ballasts, lamps, lamp holders, sockets, reflectors, wiring and other components required, as a factory-assembled unit for a complete installation. Provide electrical wiring within light fixtures suitable for connecting to branch circuit wiring in accordance with N.E.C. Article 410, Paragraph 25. Provide fluorescent fixtures of sizes, types and ratings indicated and specified in the Lighting Fixture Schedule on the Contract Drawings.

- B. Contractor shall communicate with and provide all rebate worksheets and corresponding equipment cut sheets to Efficiency Maine for approval prior to ordering the fixtures to ensure that the Owner can receive the full value of the rebate for providing high efficiency fixtures and approved lamp/ballast combinations.
- C. Occupancy Sensors: Occupancy sensors of the type and model specified on the drawings shall be provided, installed and wired into the local lighting circuit in the area that the sensors are installed. The engineer will consider equipment of another equal manufacturer, where suitable coverage can be documented.
- Passive Infrared Wall-Mount Fixtures: Wall mounted occupancy sensors shall be suitable for dual circuit operation as specified on the contract drawings.
 - Ultrasonic/Infrared Ceiling-Mounted Sensors: Ceiling mounted occupancy sensors shall be self-calibrating type as specified on the contract drawings.
 - Power Packs: Power packs shall be provided as required for each room provided with occupancy sensors as needed.
 - Slave Relay Packs: Slave relay packs shall be provided in rooms with more than one lighting circuit controlled by the occupancy sensor.
 - Installation Requirements: Provide all miscellaneous equipment and wiring for a complete installation.
- D. Fixture Types:
- Brewhouse high bay fixtures: 4 foot long, fluorescent T5HO six-lamp, high bay with (1)-2 lamp ballast and (1)-4-lamp ballast, chain hung at the bottom of the joists. Match lamp color to the adjacent area. Fixture shall be as manufactured by Columbia, Versabay model, LHV4-654-GW, 277V ballasts. Fixtures shall be spaced 20' on center and wired to circuits in panel LPA.
 - Storage Mezzanine fixtures: 4 foot long, fluorescent T5HO four-lamp, high bay with (2)-2 lamp ballasts, chain hung at the bottom of the joists. Match lamp color to the adjacent area. Fixture shall be as manufactured by Columbia, Versabay model, LHV4-454-GW, 277V ballasts. Fixtures shall be spaced 20' on center and wired to circuits in panel LPA.
 - Tank Bunker fixtures: Shall be 4-foot long, fluorescent Super T8 two-lamp, enclosed and gasketed fiberglass fixtures. Fixture shall be as manufactured by Columbia, model LUN4-232E-U, 277V ballasts. Fixtures shall be spaced 12' on center and wired to circuits in panel LPB.
 - Exterior Light Fixtures: Exterior HID Wallpacks to match existing shall be placed (1) each on the south and east walls. Confirm the existing lighting fixture type in field. Fixtures shall be connected to existing lighting control system or furnish with integral photocell for lighting control.
- E. Lighting Control Intent:
- Fixtures shall be switched on by switch, off by switch or occupancy sensor. Fixtures in the Brewhouse area and Storage Mezzanine shall be furnished with three-way switches at each end of the building such that one set of switches control the 4-lamp ballasts and

the other set of switches control the 2-lamp ballasts (or separately control each 2-lamp ballast in mezzanine area).

- A daylight sensor shall be located in both the brewhouse and storage mezzanine spaces, such that when the ambient lighting in the space exceeds 60FC, 2-lamps per fixture in that space are switched off. When lighting drops below 30FC in the area the lamps shall switch on.
- Fixtures in the Tank bunker shall be by manual toggle switch at the entry.

F. Emergency Lighting Fixtures and Emergency Exit Signs:

- Shall be located as shown on the architectural plans. Battery operated emergency lights mounted near exterior doors shall also be furnished with remote weatherproof exterior heads to be powered by the exit sign. These sources shall be furnished with enough excess capacity to power all lighting heads including the exterior lighting heads for a minimum of 90 minutes upon loss of power.
- Emergency light shall be as manufactured by Dual-Lite, model LZ20, with 5W Halogen lamps, or equal.
- Exit signs shall be as manufactured by Dual-Lite, model LXURWE, LED type, or equal.
- Remote lighting heads shall be as manufactured by Dual-Lite, model OCR-SZ0605, 5W Halogen lamps, or equal.

2.8.6 Fire Alarm Systems:

- A. Fire Alarm devices shall be placed as shown on the architectural plans. Candela ratings of strobes shall be sized as per NFPA 72 requirements.
- B. Coordinate all fire alarm system devices and wiring with Norris, Inc., (800) 370-3473. All devices shall be compliant for use with the existing Notifier SFP-1024 Fire Alarm Control Panel. Provide all equipment, wiring, conduits, boxes and programming for a complete and operable installation.
- C. The Electrical Contractor shall also be responsible for coordinating all work with the City Of Portland Fire Department and providing all equipment and devices that may be required for City Approval, whether shown on the architectural plans or not.

PART THREE: EXECUTION

3.1 Wiring Methods

3.1.1 Requirements

Unless otherwise noted all wiring shall be installed in raceway as follows:

- A. **Power Distribution Indoors:** Unless otherwise noted, all other power distribution wiring including feeders and branch circuits shall be installed in electrical metallic tubing (EMT) when exposed and MC Cable when concealed.

- B. **Telephone & Data:** Shall be installed in EMT from the device box to an accessible area above the hung ceiling. Cables installed above the hung ceiling shall be properly installed in a neat and orderly manner on j-hooks.
- C. **Cable Television (CATV):** Shall be installed in EMT from the device box to an accessible area above the hung ceiling. Cables installed above the hung ceiling shall be properly installed in a neat and orderly manner on j-hooks.
- D. **Fire Alarm Wiring:** Shall be installed in MC Cable assemblies installed in a neat and orderly manner on j-hooks or cable tray.

3.2 Equipment Arrangement and Access

3.2.1 Location of Equipment

Locate all equipment which must be serviced, operated or maintained in fully accessible positions. Minor deviations from the drawings may be made to allow for better accessibility at no additional cost to the Owner, but changes shall not be made without review by the Engineer. Minimum clearances in front of or around equipment shall conform to the latest applicable code requirements.

3.2.1 Arrangement of Equipment

The size of equipment shown on the drawings is based on the dimensions of a particular manufacturer. Where other manufacturers are acceptable, it is the responsibility of the Electrical Subcontractor to determine if the equipment he proposed to furnish will fit the space available. Layout drawings shall be prepared by the Subcontractor when required by the Engineer or Owner to indicate a suitable arrangement.

3.3 Equipment Labeling

3.3.1 Panelboards

All panelboards, indoor transformers, cabinets and other specified equipment shall be labeled with engraved laminated plastic plates, minimum 3/4" high with 3/8" engraved letters. Punch tapes with mastic backings are not acceptable.

3.3.2 Starters and Disconnect Switches

All starters, disconnect switches and other specified equipment shall be marked with engraved laminated plastic plates, minimum 1/2" high with 1/4" engraved letters. Where individual switches or circuit breakers in power or distribution panelboards do not have cardholders, they shall be marked with 1/2" high labels.

3.3.3 Empty Conduits

All empty conduits shall have labels tied to the pull string at each end of each empty conduit, marked as to identification of each end. Junction boxes with circuits provided for future use shall be labeled with appropriate circuit designation.

3.4.4 Panelboard Directories

Cardholders for panelboards shall be filled out with typewritten identification of each circuit, except that the word "spare" shall be written in soft pencil to identify all circuit breakers installed that are not used.

3.4 Temporary Light and Power

3.4.1 Requirements

The Electrical Subcontractor shall provide a temporary service to the space in the building as required to provide electric light and power while the space is under construction and until the permanent feeders have been installed, tested and accepted by the Owner. The Electrical Subcontractor shall furnish, install and remove the temporary electrical power and lighting systems and pay for all labor, materials, and equipment required therefore. All such temporary electrical work shall meet the requirements of the National Electrical Code, the local utility company, and OSHA. The Electrical Subcontractor shall furnish all lamps, both initial and replacement, used for the temporary lighting system.

3.4.2 Equipment Provided by Others

The General Contractor and all subcontractors, individually, shall furnish all extension cords, portable lights and lamps therefore, sockets, motors, and accessories as required for their work.

3.4.3 Reimbursable Items

The General Contractor and all subcontractors shall reimburse the Electrical Subcontractor for the following:

- A. Any temporary wiring of a special nature, other than that specified above, required for their work.
- B. Any temporary wiring of construction offices and buildings used by them, other than the office of the General Contractor and the Clerk of the Works.

3.4.4 Removal of Equipment and Wiring

All temporary wiring, service equipment, and accessories thereto shall be removed by the Electrical Subcontractor when directed by the General Contractor.

ATTACHMENT: SKE-1 – Electrical One-Line Drawing

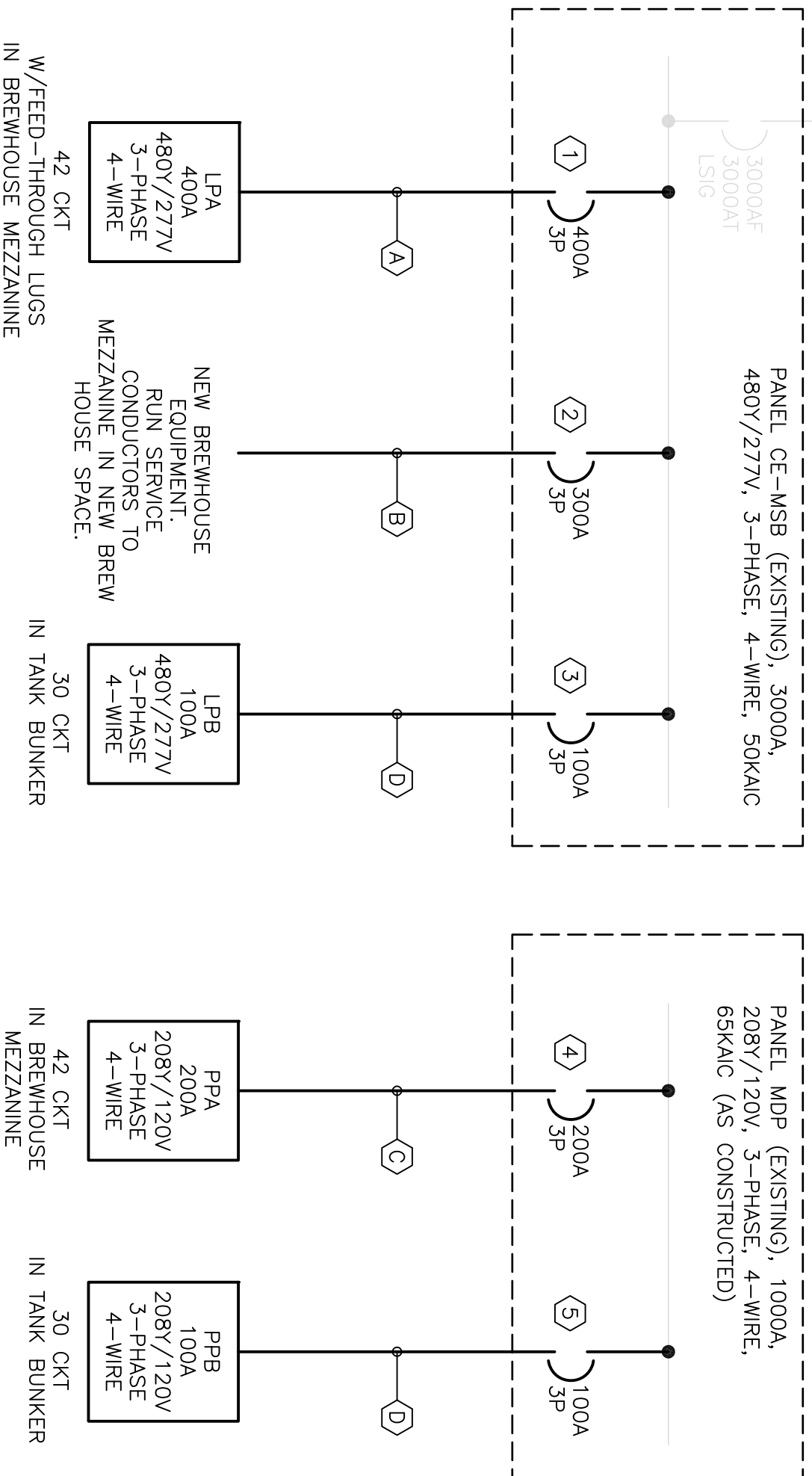
END OF SECTION 26 00 00

KEY NOTES:

- ① NEW SQUARE D TYPE LC BREAKER (400A TRIP)
- ② NEW SQUARE D TYPE LC BREAKER (300A TRIP)
- ③ NEW SQUARE D TYPE HJ BREAKER (100A TRIP)
- ④ NEW SQUARE D TYPE QG BREAKER (200A TRIP)
- ⑤ NEW SQUARE D TYPE QG BREAKER (100A TRIP)

NOTES:

- 1.) REFER TO ARCHITECTURAL PLANS FOR ROOM LAYOUTS. RETAIL SPACE LIGHTING TO BE DESIGNED AND FURNISHED BY OTHERS. PROVIDE 6 SPARE 20A, 1P BREAKERS IN PANEL PPA FOR FUTURE.
- 2.) ALL NEW PANELS TO BE SQUARE D TO MATCH EXISTING EQUIPMENT.
- 3.) ALL FEEDERS TO NEW BREWHOUSE SPACE TO BE TRAINED ALONG THE WEST WALL (INDUSTRIAL AVE SIDE) FOLLOWING EXISTING TRAPEZE TYPE CONDUIT HANGERS. DIAGONAL CONDUIT RUNS SHALL NOT BE PERMITTED.
- 4.) ALL FEEDERS TO NEW TANK BUNKER SHALL FOLLOW THE NORTH WALL CONDUIT HANGERS.



- 5.) LIGHTING IN EXISTING TANK BUNKER SHALL BE WIRED OVER TO NEW PANEL LPB AS PART OF THIS SCOPE. CONFIRM IN FIELD THAT EXISTING BALLASTS ARE UNIVERSAL VOLTAGE TYPE. PROVIDE NEW WIRING AND CONDUIT AS REQUIRED.
- 6.) FURNISH ALL BREAKERS IN NEW PANELS AS REQUIRED BY MECHANICAL CONTRACTOR.

WIRING KEY:

- ① 4#500 KCM CU & #3GND, 4"C.
- ② 4#350 KCM CU & #4GND, 3"C
- ③ 3#4/0 AWG & #4GND, 2-1/2"C.
- ④ 3#2 AWG & #6GND, 1-1/2"C.



1 ELECTRICAL ONE LINE DIAGRAM (PARTIAL)
SCALE: NOT TO SCALE

<p>SWIFTCURRENT Engineering Services</p> <p>10 Forest Falls Dr., Unit 6B Yamouli, ME 04096 Tel: (207) 847-9280</p>	ALLAGASH BREWING CO. PORTLAND, ME
	SCALE: AS NOTED
	DATE: 09-10-2012

SKE1.0