**USask Master Specification Directions:** The master specifications are intended to be incorporated into the Consultant's final, project specific specification package. The project specific specifications are expected to include any and all sections or portions of sections (Part 1, Part 2, Part 3) that are required to create a fully executable project specification. USask Master Specs only provide information that USask **requires** be a part of the final specification package. Components or sections not included in the Master USask Specifications may still be required for a complete, well-designed project. **It is the consultant's responsibility to ensure all specifications match USask requirements. Any deviations or revisions to any section included in the master specifications requires written consent from the USask Engineering department. The consultant is liable for any omissions, errors, or incorrect equipment or components supplied to site.**
The Master Specifications shall be used in conjunction with USask's Design Guidelines. Any conflicts shall be brought to the attention of USask Engineering staff for clarification.

## Part 1 General

## Part 2 Products

### .1 Panelboards

.1 Panelboards shall be a product of one manufacturer.
.2 Integrated equipment ratings shall not be acceptable.
.3 250 V lighting and power panelboards: bus and breakers fully rated for minimum 22 kA, minimum, 200 A mains and 42 circuits. Unused spaces shall be filled with 15 A, single pole breakers. (See also panel schedules on drawings).
.4 250 V central distribution panelboards: bus and breakers fully rated for minimum 22 kA (symmetrical) interrupting capacity. Panels shall provide a minimum of two 200 A spare breakers. Additional spare breakers shall be as indicated. (See also panel schedules on drawings).
.5 600 V lighting and power panelboards: bus and breakers fully rated for minimum 25 kA or as noted on drawings, minimum 225 A mains and 42 circuits. Unused spaces shall be filled with 15 A, single pole breakers. (See also panel schedules on drawings).
.6 600 V central distribution panelboards: bus and breakers fully rated for minimum 42 kA (symmetrical) interrupting capacity or as listed on drawings. Panels shall provide a minimum of two 200 A spare breakers. Additional spare breakers shall be as indicated. (See also panel schedules on drawings).
.7 Central distribution panels shall be a minimum of 44" wide if breakers require current limiters or height is 90". 24 inch wide CDP's shall only be permitted where a maximum of five three pole breakers can be installed per side. Freestanding CDP's rated 1200 amp shall be 18" deep. Lower ampacity CDP's required to be freestanding shall be mounted on strut stand. (See also panel schedules on drawings).
.8 Where incoming feeders are from the top, locate all factory installed breakers at the bottom of the tub with current limiters at the bottom most. This may alleviate the need for a wider tub with breakers with current limiters.
.9 Sequence phase bussing with odd numbered breakers on left and even on right, with each breaker identified by permanent number identification as to circuit number and phase.
.10 Mains: lugs only or as indicated on drawings.
.11 For panels with a hinged door, two keys for each panelboard and key panelboards alike.
.12 Copper bus with neutral of same ampere rating as mains.
.13 Suitable for bolt-on breakers.
.14 It shall not be possible for breakers rated 240 V to be installed in a 600 V panel.

.15 Copper ground bus with one terminal per circuit.
.16 Trim and door finish baked grey enamel.
.17 Panelboards, CDP's mounted in sprinkler areas to be sprinkler proof – See Section 26 03 09 – General Electrical Provisions – Item 24.
.18 Integrate ION 8000 meters where indicated on drawings. Integration shall be factory manufactured. See Cash Allowance.
.19 Acceptable manufacturers are Square D (Schneider), Eaton Cutler-Hammer, Siemens

**.2 Custom Built Panelboard Assemblies**

.1 125 mm relay section on both sides of panels as indicated for installation of low voltage remote control switching components.
.2 Double stack panels as indicated.
.3 Contactors in mains as indicated.
.4 Feed through lugs as indicated.
.5 Isolated ground bus as indicated on drawings.

**.3 Breakers**

.1 Breakers: to Section 26 24 17 - Moulded Case Circuit Breakers.
.2 Breakers with thermal and magnetic tripping except as indicated.
.3 Main breaker: mounted on top or bottom of panel to suit cable entry. When mounted vertically, down position should open breaker.
.4 Breakers with current limiting fuses will only be accepted if the interrupting capacity is required to be 200 kA.
.5 Lock-on devices for breakers for fire alarm and emergency circuits.
.6 Lock-off devices for breakers for transformers not within visual distance and as indicated.
.7 Lock-off devices for breakers feeding remote mounted loose VFD's.

**.4 Equipment Identification**

.1 Provide equipment identification in accordance with Section 26 03 09 - Electrical General Requirements.
.2 Nameplate for each panelboard size 4 engraved with panel designation as indicated, voltage and fault current withstand.
.3 Nameplate for each circuit in distribution panelboards size 2 engraved as indicated.
.4 Complete circuit directory with typewritten legend showing location and load of each circuit. Directory to be provided by manufacturer and sized to fit factory installed clear plastic holder. All circuit legend entries should be visible without removing the legend from holder.

## Part 3 Execution

**.1 Installation**

.1 Locate panelboards as indicated and mount securely, plumb, true and square, to adjoining surfaces.
.2 Install surface mounted panelboards on plywood backboards. Where practical, group

panelboards on common backboard.

.3 Mount panelboards to height specified in Section 26 03 09 - Electrical General Requirements or as indicated.

.4 Install separate circuit(s) for power, lighting, controls and equipment.

.5 Connect neutral conductors to common neutral bus with respective neutral identified. Circuits sharing a neutral shall be consecutive breakers in the panel (i.e. 1-3-5 or 12-14-16).

.6 Neutral conductors shall be of the same ampacity as phase conductors.

.7 For each flush mounted panelboard, run 2 spare conduits of 1 (27) trade size up to ceiling space and 2 spare conduits of 1 (27) trade size down to ceiling space below. In the case of panelboards with more than 42 circuits, four (4) spare conduits shall be run up to ceiling space and four (4) spare conduits down to ceiling space below. Terminate conduits in 304 x 304 x 102 mm junction box in ceiling space or in the case of an exposed concrete slab, terminate each conduit in a surface type box.

END OF SECTION