|  |  |  |
| --- | --- | --- |
| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | February 19, 2010 | Modified ‘Related Sections’ |
| 3 | July 2, 2013 | Incorporation of new Commissioning Specification cross references. Incorporated several aspects of the NL building specifications. |
| 4 | July 30, 2014 | Changes to reflect renaming of commissioning specification and final review (AV) |
| **5** | **February 4, 2015** | **Finalized Specification – Reference eDOCS #5630512 v7 (AV)** |
|  |  |  |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

**Notice:** This Document hardcopy must be used for reference purpose only.

# GEneral

## Related Sections

### Section 01300 – Submittals

### Section 01425 - Computerized Maintenance Management System Data Requirements

### Section 01810 – Equipment Testing and Facility Commissioning

### Section 16010 – Electrical General Requirements

### Section 16412 – Moulded Case Circuit Breakers

## References

### ANSI/NEMA

#### ANSI/NEMA PB 1 -2011, Panelboards.

#### ANSI/NEMA PB 1.1-2013, General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 V or Less.

### Ontario Electrical Code

### National Fire Protection Association (NFPA)

#### National Electrical Code 70.

### Canadian Standards Association (CSA)

#### CSA C22.2 No.29-11, Panelboards and Enclosed Panelboards.

### Underwriters Laboratories, (UL Canada)

#### UL 67 Panelboards.

## Shop Drawings

### Submit shop drawings in accordance with Section 01300 – Submittals.

### Drawings shall include electrical details of panel, branch breaker type, quantity, ampacity and enclosure dimension.

# PRODUCTS

## Panelboards

### Panelboards: shall be the product of one manufacturer.

#### Install circuit breakers in panelboards before shipment.

#### In addition to CSA requirements (C22.2 No. 29-11), the manufacturer's nameplate must show the fault current that the panel, including breakers, has been built to withstand.

### 600/347 and 208/120 V panelboards: bus and breakers rated for 22,000 A (symmetrical) interrupting capacity based on the Co-ordination Study that is carried out by the Consultant

### All branch breakers shall be bolt-on type.

### Provide barriers for the main breaker.

### Sequence phase bussing with odd numbered breakers on the left and even on the right, with each breaker identified by permanent number identification as to circuit number and phase.

### Panelboards: mains, number of circuits, and number and size of branch circuit breakers as indicated in the Contract Documents.

### Two keys for each panelboard and key panelboards alike.

### Copper bus with neutral of same ampere rating as mains.

### Mains: suitable for bolt-on breakers.

### Trim with concealed front bolts and hinges.

### Trim and door finish: baked grey enamel.

### Each panelboard shall contain a minimum of four spare circuits (unused) as shown on the Contract Drawings.

## Breakers

### Breakers: in accordance with the requirements of Section 16412 - Moulded Case Circuit Breakers.

### Breakers with thermal and magnetic tripping in panelboards except where indicated otherwise in the Contract Documents.

### Main breaker: separately mounted on top or bottom of panel to suit cable entry. When mounted vertically, the down position should open the breaker.

## Equipment Identification

### Provide equipment identification in accordance with Section 16010 - Electrical General Requirements.

### Refer to Section 01425 - Computerized Maintenance Management System Data Requirements.

### Nameplate for each panelboard size 4 engraved as indicated in the Contract Documents.

### Nameplate for each circuit in distribution panelboards size 2 engraved as indicated in the Contract Documents.

### Complete circuit directory with typewritten legend showing the location and load of each circuit.

# EXECUTION

## Installation

### Locate panelboards as indicated on the Contract Drawings and mount securely, plumb, true and square, to adjoining surfaces.

### Install surface mounted panelboards on fire rated backboards (as per Ontario Electrical Code). Where practical, group panelboards on a common backboard.

### Mount panelboards to the height specified in Section 16010 - Electrical General Requirements or as indicated in the Contract Documents.

### Connect loads to circuits.

### Connect neutral conductors to common neutral bus with respective neutral identified.

## Commissioning

### For all commissioning activities on systems where components of this Section are integral to functionality, refer to Section 01810 – Equipment Testing and Facility Commissioning. All inspection and testing activities shall be completed in accordance with the commissioning plan that shall be provided to the Consultant and get approved prior to the commencement of commissioning activities.

**END OF SECTION**