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CHEO Parking Garage

Site Plan Control Design Brief for Electrical Systems

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1.0 INTRODUCTION

The purpose of this Design Brief for Electrical Systems is to outline the electrical systems concept for Site Plan Control application, based on the design work which has been completed to date, previous reports, studies and drawings provided, and based on meetings/discussions with CHEO, and other design consultant team members.

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2.0 ELECTRICAL SYSTEMS

2.1 Codes, Standards & Guidelines

The electrical systems of the Parking Garage will be designed and built in accordance with the applicable legislation, codes, standards and requirements.
The additional requirements outlined in this section supplement those required by the applicable legislation, codes, standards and requirements and shall not to be used to reduce any such requirements.

2.2 Electric Service

.1 Normal Power

One MV feeder will be supplied from the existing campus MV vault and one MV feeder will be supplied from the ring loop connection from future1Door4Care MV switch. Both MV feeders will terminate at the 13.2kV ring switchgear and transformer (13.2kV-600V).

The secondary 600V service will terminate at the main distribution panel in an electrical room on Level 1. The electrical room will include 600V-120/208V transformers and 120/208V associated distribution panels. 120/208V panels will be provided, as required, in the rest of the Parking Garage for distribution.

Provisions will be included in the 600V main distribution panel for future Parking Garage expansion.

Twenty (20) Level 2 electric vehicle charging spots will be provided in the Parking Garage.

Provisions for future photovoltaic system will be provided.

2.3 Emergency Power

Generators

An emergency natural gas generators are proposed to support all essential loads located in the vicinity of the Parking Garage.

The generator will have a connection point to a load bank for maintenance.
The generator switchboards will have a connection point and a manual transfer switch so that a temporary generator can be connected in the event of generator failure.

2.4 Lighting and Lighting Controls

The lighting design is developed in conjunction with the architectural, interior design & landscape design, in consideration of the space use.

Energy efficient LED lighting technology is utilized throughout the facility.

All interior lighting and controls will be specified to achieve the target energy performance required for LEED certification. The energy savings target shall be finalized by the LEED consultant during design development.

Emergency lighting and exit signs will be provided as required by, and in accordance with, the Ontario Building Code.

Exit signs will be "green running man" pictogram LED type.

Battery powered emergency lighting will be used in main electrical rooms, generator room and automatic transfer switches room as required by CSA C282.

Exterior lighting, roadways and parking areas consist of architectural luminaries with energy efficient, LED sources and shall be dark sky compliant. The exterior lighting is designed to provide a night-time presence to the building to complement the façade. The exterior lighting is controlled by photo-electric cells and the lighting control system. Emergency lighting is provided at exterior exit doors. The lighting design addresses energy efficiency and complies with the general energy conservation practices of local codes. All exterior lighting shall be specified to comply with the light pollution reduction requirements outlined for LEED certification.

Aviation obstruction lighting system will be provided in compliance with CHEO, Transport Canada standards, Canadian Aviation Regulations and Canadian Standards Association.

2.5 Lightning Protection System

A complete lightning protection system conforming to CSA B72 requirements & local authorities having jurisdiction will be provided for the Parking Garage. The lightning protection system will be routed through the interior of the building.