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CHEO Parking Garage

Site Plan Control Design Brief for Structural Systems

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1.0 INTRODUCTION

The purpose of this Design Brief for Structural Systems is to outline the structural 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 STRUCTURAL SYSTEMS

2.1 Codes, Standards & Guidelines

The structural systems of the Parking Garage shall 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 General Design Requirements

The Parking Garage is considered a Normal Importance Building and shall be designed for Importance Factors set in Part 4 OBC for snow, wind and earthquake.

Acceptable structure types include cast-in-place concrete (slabs, beams, columns, etc.), precast concrete systems or structural steel framing with cast-in-place or precast concrete slabs. Concrete on composite steel deck slab systems are prohibited.

Design the building structure, including all primary structural elements and secondary structural elements supporting cladding systems, for a Design Service Life in accordance with recommendations of CSA S478 Guideline on Durability in Buildings.

The structure shall be designed to allow for future horizontal expansion. Foundations along the interface of the future expansion shall be adequately designed and sized to accommodate future column and wall loads.
Include structural provisions to allow for the future construction of a roof plus photovoltaic panels and racking system.

2.3 Substructure

The design of the substructure including column footings, caissons, foundation walls, basement walls, grade beams and slab-on-grade shall be based on the geotechnical, hydrogeological and geophysical reports prepared for this project. Refer to the background information provided.

Dewatering of the site during construction is required. Refer to recommendations in the geotechnical and hydrogeological reports.

2.4 Superstructure

Acceptable structural types include cast-in-place concrete (slabs, beams, columns etc.), or precast concrete systems or a combination of both.

The building and all structural elements shall be designed to safely resist all loads including gravity and lateral loads which may affect the structure in accordance with the Ontario Building Code but not less than the loads listed below

The building shall be designed for the actual live loads anticipated and comply with the minimum live load requirements of the Ontario Building Code, but not less than the minimum live loads listed below:

Use	Minimum Specified Uniform Live Load (kPa)	Minimum Specified Concentrated Load (over any Area 750 mm x750 mm) (kN)
Parking Floor and Ramps	2.4	18
Elevator lobbies, stairs, corridors, exits	4.8	9
Service rooms and Equipment Areas	4.8	18
Exterior areas below grade	12	54