

**Consulting Engineers - Structural**

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## **Simcoe Manor and Village**

Location: Beeton, Ontario

### **Feasibility Study - Structural**

#### *1.1 Background Information*

We were retained by the County of Simcoe to conduct a conditional structural assessment and structural feasibility study for the above noted premises - Simcoe Manor and Village facility.

The writer visited the development in Beeton on September 5, 2017 to conduct a general walk through the existing buildings and to carry out visual review of structural systems. Our walk through was accompanied by Ryan Stitt from Salter Pilon Architecture Inc. and Jim McGinty from Simcoe Manor and Village. Drawings from the 1991 addition were also available for our review.

The onsite visit consisted of a visual review of the exterior of the buildings from the ground level and a review of the interior structural components from the floor levels. Observations were made of the exposed, accessible components only. In most instances the existing roof and floor structure is enclosed in finishes and therefore the structure could be observed only in small open areas. This office did not conduct any structural analysis of any part of framing or components of the buildings.

#### *1.2 Intent of the Study*

The County of Simcoe requested the Feasibility Study and the Structural Assessment of the existing premises to assist them in a decision how to improve the function of the Facility or provide for a new modern Long Term Care / Retirement Development, a facility that meets current Codes and fulfills the current program requirements.

#### *2. Simcoe Manor and Village History:*

- Original building from 1900
- Addition from 60's
- Additions and renovations from 1991

#### *3. Existing Building Condition Assessment - Structural*

The existing buildings are mainly two/three story structures with or without basement/crawl space. The buildings of Simcoe Manor and Village were constructed in varies times and stages

starting in early 1900. The following is a brief description of the structure components of the development pointing out structural deficiencies where observed. Refer to enclosed key plan for various building location.

### 3.1 *Original Building from 1900+/- (Part A on the key plan)*

The original building from the break of the century is the south west portion of the development. The original building was in 1991 “wrapped around” with a new one and two storey addition. The 1900 building was a two storey structure with crawl space. The floors and roof are framed using wood joists and wood decking supported on masonry exterior and corridor walls. The wood floors are uneven; they sagged and deflected during the time due to various use, loadings and moisture content they were exposed to. At the time of 1991 addition some areas of the existing floors were reinforced and levelled using light weight leveler material. Some floors in this oldest wing are still uneven causing problems navigating the wheelchairs and getting from one area to another. See Photo #1.



Photo #1

The wood framed floors of the original 1900 building and the slab on grade of the 1991 addition settled and moved differently creating imperfections and small steps between some floor areas. The Simcoe Manor informed us that these small steps making movement difficult for residents were fixed at times using small concrete sloped ramps/transitions.

### 3.2 *60's building (Part B on the key plan)*

The 60's addition to the original building is a north elongated wing in east-west direction. It is a one/two storey structure with a finished basement in the east portion and a crawl space in the west half of the building. The floor structure comprises of light open web steel joists, metal pan and concrete; roof is framed using open web steel joists and steel deck. The joists are supported on masonry exterior and corridor walls.

The 60's building appears to have some structural problems related to very high ground water level. Based on the sump pump located in the basement of the building the normal ground water level is only about 1 meter below the basement floor level. Due to the seasonal fluctuation the ground water level is sometimes just below floor level bringing moisture into the premises.

The interior corridor walls show signs of water penetration and dampness. Peeling paint and wall deterioration could be observed throughout the length of the corridor walls.  
See Photo #2



Photo #2

At the north side of the 60's building the paved parking area is sloped in such a manner that water is directed to the face of the building. Water stains can be observed on the inside face of the north basement wall. We understand that during heavy rain when outside soil gets saturated there is lots of water leaking into the building and running on the face of the concrete foundation wall. Structurally there is also a concern that the existing concrete foundation wall is not carried to and laterally supported by the floor structure. With the large soil and water pressure from outside the foundation wall is stressed and could fail. See Photo #3.



Photo #3



The north, south and east exterior walls of this 60's building are deteriorated. The damage is caused by water penetration and freezing/melting cycles. In some instances the top of foundation walls are deteriorated so much that there are holes and large gaps between foundation walls and veneer/wall above grade. See Photo#4, #5, #6



Photo #4



Photo #5





Photo #6

The exterior wall of the Solarium is deteriorated with water penetrating through the wall and the space inside can no longer be used by the residents. See Photo #7 and #8.



Photo #7



Photo #8

### 3.3 1991 Building additions (Part C, D and E on the key plan)

Part C, D and E indicated on the Key Plan are the two or three storey 1991 Additions to the retirement Home. The building floor and roof structure comprises of precast concrete slabs supported on masonry load bearing walls or steel beams where required. The additions were designed in compliance with the Ontario Building Code 1990.

The exterior decks are constructed using precast concrete slabs supported on steel beams in two directions. It appears that the deck waterproofing failed, specifically around the deck perimeter close to the deck upturn parapets. This allows water to penetrate into and through the precast slabs. The water damage causing extensive paint peeling on the underside of concrete slab and steel beam rusting was observed on the soffit of these decks - typical throughout. See Photo #9 and #10.



Photo #9



Photo #10

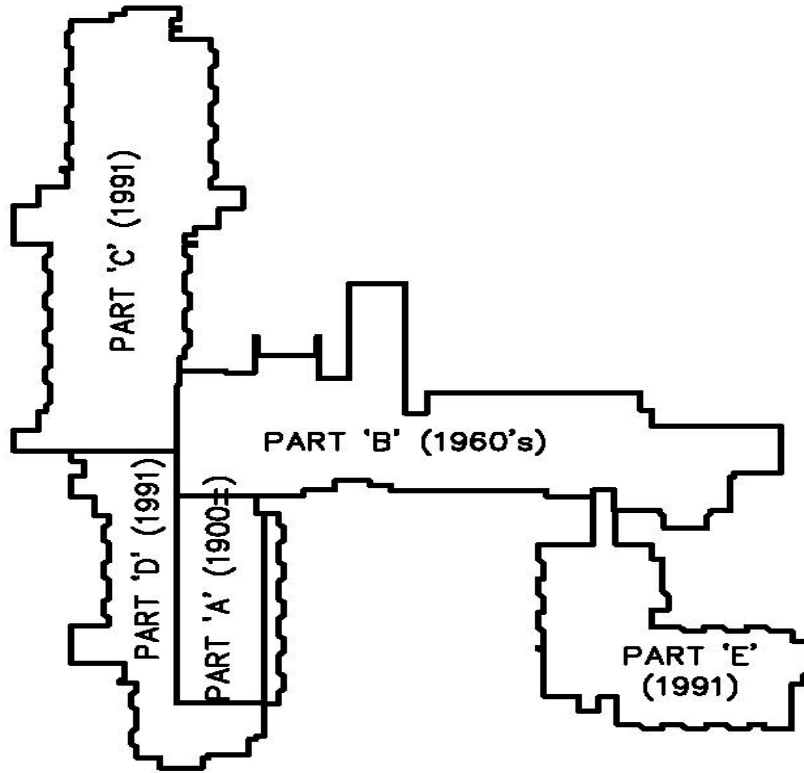
### 3.4 Exterior retaining walls

Existing exterior grade at the north side of the 1960+/- building has various levels, slopes and elevations. Number of pre-fabricated retaining walls was used between different levels. Most of the retaining walls appear to be failing experiencing lean and deflection in the vertical direction, bow and deflection in the horizontal direction.

We trust that the above information is sufficient for your purposes. Should you have any additional questions please do not hesitate to contact our office.



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**Simcoe Manor and Village - KEY PLAN (nts)**