

## 1 ASSEMBLY - GENERAL

- 1.1 The work of this section includes the provision of all design, labour, materials, equipment and services required to fabricate and install slabs on grade as required for a complete project. The work includes, but is not necessarily limited to, the items referenced herein:
  - 1.1.1 Structural slabs on grade
  - 1.1.2 Inclined slabs and ramps on grade
  - 1.1.3 Trenches & pits
  - 1.1.4 Granular bases
  - 1.1.5 Under-slab drainage
- 1.2 Reference Standards: Design and do work in accordance with requirement of following codes and standards, latest edition and to requirements of local authority having jurisdiction:
  - 1.2.1 Ontario Building Code, latest edition, errata, revisions and supplements
  - 1.2.2 Local authorities having jurisdiction
  - 1.2.3 CSA, CGSB, ASTM, ULC, CISC, CPCA and ACI

## 2 ASSEMBLY DESIGN CRITERIA

- 2.1 Slabs on grade to be designed and constructed for varied building uses and occupancies.
- 2.2 Interior slabs on grade may be designed and constructed to accommodate future relocation of non load-bearing masonry partitions. Avoid slab thickenings under masonry partitions in favour of a uniform slab thickness.
- 2.3 Accommodate floor grates, depressed slabs for special floor finishes, slope floors to drains, provide any housekeeping pads for mechanical/electrical systems and to accommodate under-floor services.
- 2.4 Slab/foundation wall interface at door openings to inhibit thermal bridging and provide concealed, architecturally pleasing, joint.
- 2.5 Slab on grade construction to resist uncontrolled shrinkage cracking. Sawcut control joints or patterned concrete placement is to be provided. Accommodate changes in floor finishes and finish types.
- 2.6 Design slabs on grade for live loads to suit use and occupancy of the building.
- 2.7 Design floors for specific mechanical and/or other equipment weights and suitable uniform dead loads. Design and construction to mitigate vibration caused by mechanical equipment.
- 2.8 Provide housekeeping pads under floor-mounted equipment. Provide sleeves, raceways and integrate mechanical and electrical requirements.

- 2.9 Examine sub-surface investigation reports to review site conditions. Provide foundation and under-slab drainage, complete with proper slopes, stable areas and proper compaction.

### 3 ASSEMBLY COMPONENTS

#### 3.1 Cast in-place concrete

##### 3.1.1 **General:**

3.1.1.1 Submittals: Submit shop drawings to Owner for record purposes only. Each shop drawing submitted to bear the stamp and signature of Qualified Professional Engineer licensed to practice in the Province of Ontario as required by local authorities.

3.1.1.2 Quality Assurance: Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test sample taken.

##### 3.1.2 **Design:**

3.1.2.1 Design cast-in-place concrete in accordance with [CAN/CSA-A23.3].

3.1.2.2 Design and detail reinforcing to 'Reinforcing Steel Manual of Standard Practice', current edition, by Reinforcing Steel Institute of Ontario and as required.

3.1.2.3 Do reinforcing work in accordance with [CAN/CSA A23.1-M90] and welding of reinforcing with [CSA W186-M1981], or where required otherwise.

##### 3.1.3 **Materials / Finishes:**

3.1.3.1 Reinforcing steel deformed bars to [CAN/CSA-G30.18] unless required otherwise.

3.1.3.2 Cold-drawn annealed steel wire ties: to [CSA G30.3].

3.1.3.3 Deformed steel wire reinforcing: to [CSA G30.14].

3.1.3.4 Welded steel wire fabric: to [CSA-G30.5]. Provide in flat sheets only.

3.1.3.5 Welded deformed steel wire fabric: to [CSA G30.15M]. Provide in flat sheets only.

3.1.3.6 Portland cement: to [CAN/CSA-A5].

3.1.3.7 Water: to [CAN/CSA-A23.1], [CAN3-A23.1 S2].

3.1.3.8 Aggregates: to [CAN/CSA-A23.1]. Course aggregates to be normal density.

3.1.3.9 Air entraining mixture: to [CAN3-A266.1].

3.1.3.10 Chemical admixtures: to [CAN3-A266.2].

3.1.3.11 Curing compound: to [CAN/CSA-A23.1].

- 3.1.3.12 Pre-moulded joint fillers: Bituminous impregnated fibreboard: to [ASTM-D1751].
- 3.1.3.13 Granular base and sub-base materials to meet requirements of O.P.P.S..
- 3.1.3.14 Polyethylene film: to [CGSB 51-GP-5 1]. Minimum thickness 0.152 mm (6 mil).
- 3.1.3.15 Non-metallic floor hardener: premixed, quartz aggregate abrasion resistant hardener.
- 3.1.3.16 Chemical hardener: magnesium fluosilicate and zinc fluosilicate blend.
- 3.1.3.17 Wax: Concrete floor buffing, compound.
- 3.1.4 **Fabrication / Installation**
- 3.1.4.1 Do concrete floor finishing in accordance with [CAN/CSA-A23.1-M90] or where otherwise required.
- 3.1.4.2 Do cast-in-place concrete work in accordance with [CAN/CSA-A23.1] and testing in accordance with [CAN/CSA-A23.2], except where required otherwise. Observe all hot and cold weather requirements of [CAN/CSA-A23.1].
- 3.1.4.3 Finish concrete in accordance with [CAN/CSA-A23.1] and [CSA 0121].  
Finish concrete as follows:
  - 3.1.4.3.1 Floated finish: concrete surface to receive waterproof membranes, ceramic, and quarry tile where applicable.
  - 3.1.4.3.2 Trowelled finish: concrete surfaces to receive resilient tile, other floor coverings, finishes, exposed interior floor areas.
  - 3.1.4.3.3 Brushed/Broom finish: exterior concrete slabs, ramps, sidewalks, paving, aprons, steps.
- 3.1.4.4 All floor slabs to be finished to: [CAN/CSA-A23.1], flat, or to suit application.
- 3.1.4.5 Use compatible additives, admixtures and hardeners.
- 3.1.4.6 Cure concrete in accordance with [CAN/CSA-A23.1] except where required otherwise.
- 3.1.4.7 Saw cut crack-control joints to [Section 20.2, CAN/CSA-A23.1].
- 3.1.4.8 Apply concrete sealing in accordance with manufacturers instructions and as approved by Owner. Sealing specifications to be provided by Owner.
- 3.1.4.9 Concrete floor waxing to be provided by the Owner. Coordinate activities with the Owner.

**End of Section**