

*All guidelines apply to both UBC Vancouver and UBC Okanagan campuses unless stated otherwise.*

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## 1.0 **GENERAL**

### 1.1 ***Related Scope of Work and UBC Guidelines***

- .1 *Relevant sections within Divisions 3 to 9 of the Technical Guidelines.*
- .2 *UBC LEED Implementation Guide.*

### 1.2 ***Related External Documents***

- .1 *Latest edition of the British Columbia Building Code (BCBC).*

### 1.3 ***Description***

- .1 *General requirements for concrete structures on both UBC Vancouver and UBC Okanagan campuses unless stated otherwise.*

### 1.4 ***Coordination***

1. *In instances where conflicts are found between the UBC Technical Guidelines and provincial regulations or codes, please notify the UBCV Technical Review Team Architect or UBCO Facilities Management.*
2. *These guidelines are intended to be read by design consultants and their content integrated into construction drawings and specifications. Construction documents are not to reference the technical guidelines directly.*
3. *The Coordinating Registered Professional (CRP) is required to coordinate these requirements with other disciplines.*

### 1.5 ***Submittals***

- .1 *Provide low-carbon concrete mix test results to the UBC Sustainability Dept. for review during construction.*

## 2.0 **DESIGN AND PERFORMANCE REQUIREMENTS**

### 2.1 ***Design Requirements***

- .1 *Design building structures and their structural components for a 100-year service life. Refer to the Technical Guidelines Performance Objectives located [here](#).*
- .2 *Structural design shall conform to Part 4 of the latest edition of the BC Building Code (BCBC). Live loads should be determined as per the BCBC for specific occupancies.*
- .3 *Slabs-on-grade are to be 150 mm minimum thickness, reinforced and provided with well-spaced control joints in an approximately square pattern, spacing less than 4000 mm on centre. This requirement is to account for small vehicle loading such as genie lifts that need to be brought into buildings for maintenance and repair work.*

### 2.2 ***Performance Requirements***

- .1 *Ensure that the design and field review of non-structural components is covered in the contract documents (drawings and specifications).*
- .2 *Any drilling or coring into existing concrete slabs shall be reviewed by a professional structural engineer before proceeding with the work.*
- .3 *Existing post-tensioned floor systems are not to be used as an anchor for new equipment or installation of supports (such as unistrut systems) for new equipment without written approval from a structural consultant. Scanning alone of such systems is not acceptable. Any work associated with these systems are to be done by certified workers.*

- .4 *On new projects, the underside of slabs are to be spray-painted as 'DO NOT DRILL' so that contractors who are working on renovation projects can then reach out to the UBC PM for concrete scanning.*
- .5 *Structural information for new-post-tensioned slabs is to be included within the O&M manuals – such as floor plans noting the location of post-tensioned slabs and details.*

### **3.0 MATERIAL REQUIREMENTS**

#### **3.1 *Product Selection***

- .1 *Do not use calcium chloride in concrete mixes.*
- .2 *Low-carbon concrete mixes where specified must be suitable for the intended use. Provide confirmation from structural engineer and concrete mix supplier prior to construction.*
- .3 *Global warming potential recommendation for concrete on major projects and renewals at UBCV: GWP budget based on average of 15% below the BC 2022 industry average baseline.*

#### **4.0 LESSONS LEARNED AND COMMON MISSES ON UBC PROJECTS**

*Items in this section are lessons learned, and may be code or industry best practices which have been missed on past projects. If not applicable to a project, a variance is not required.*

- .1 *Unofficial drilling and coring into slabs continues to happen even after warning signs are installed to the contrary for post-tensioned slabs.*
- .2 *If post-tensioned slabs are to be used, project team to inform the UBC Technical Review Team Architect or UBCO Facilities Management. Project team to ensure the O&M manual clearly highlights locations of these slabs, including provision of relevant structural details within the Record drawings.*

**\*\*\*END OF SECTION\*\*\***

## 1.0 **GENERAL**

### 1.1 **Related *Scope of Work and UBC Guidelines***

- .1 Section 03 00 00 Concrete – *General Requirements*
- .2 Section 07 00 10 Building Envelope – *General Requirements*
- .3 Section 07 40 00 *Cladding*
- .4 Section 07 62 00 Sheet Metal Flashing and Trim
- .5 *UBC LEED Implementation Guide*

### 1.2 **Related External Documents**

- .1 *Latest edition of the British Columbia Building Code (BCBC).*

### 1.3 **Description**

- 1. *Section includes architectural concrete and accessories.*

### 1.4 **Coordination**

- 1. *In instances where conflicts are found between the UBC Technical Guidelines and provincial regulations or codes, please notify the UBCV Technical Review Team Architect or UBCO Facilities Management.*
- 2. *These guidelines are intended to be read by design consultants and their content integrated into construction drawings and specifications. Construction documents are not to reference the technical guidelines directly.*
- 3. *The Coordinating Registered Professional (CRP) is required to coordinate these requirements with other disciplines.*

### 1.5 **Submittals**

- .1 *Submit required documents to consultants in accordance with Section 013300 Submittal Procedures*
- .2 *Provide low-carbon concrete mix test results to the UBC Sustainability Dept. for review during construction.*
- .3 **O&M Submittals**
  - .1 *Concrete mix specifications and type.*
  - .2 *Final reviewed shop drawings for control joint locations signed and sealed by a professional engineer registered in the Province of BC.*

### 1.6 **Quality Control & Assurance**

- .1 *Construction of mock-ups, mix designs and placement procedures to be as per project specifications.*

## 2.0 **DESIGN AND PERFORMANCE REQUIREMENTS**

### 2.1 **Design Requirements**

- .1 *Minimum concrete cover for reinforcing steel to be as per Part 4 of the BCBC for concrete cast against earth, walls or for fire-rating purposes.*
- .2 *Reinforcing and other steel requiring corrosion protection shall be embedded so that the minimum depth of concrete cover is in all cases greater than 40 mm and 50mm for exterior stairs.*
- .3 *Placement and curing procedures for low carbon concrete mixes are to be reviewed by the project team to ensure the desired concrete strength and finish are maintained.*
- .4 *Concrete strengths must be verified by independent concrete testing.*

- .5 *Exposed concrete walls to be provided with cap flashing with proper drip edges extending at least 10mm beyond the face of the wall to avoid drip lines.*

## 2.2 Performance Requirements

- .1 *Finishes should not require regular maintenance and should be durable.*

## 3.0 **MATERIALS**

### 3.1 *Product Selection*

- .1 Components
  - .1 Concrete components to be certified compliant to CSA A23.1 for alkali - aggregate reactivity.
- .2 Finishes
  - .1 *Provide an elastomeric paint finish for exposed concrete walls.*
  - .2 *Where a natural concrete look is desired for exterior walls, a clear water-based and penetrating silane/siloxane type coating can be used after final cleaning.*
  - .3 *Exterior concrete wall surfaces to be treated with a water-based sacrificial anti-graffiti coating to a height of 8' minimum.*

**\*\*\*END OF SECTION\*\*\***