

1.0 **GENERAL**

1.1 ***Related Work and UBC Guidelines***

- .1 *Section 01 74 00 Cleaning and Waste Management for final cleaning and waste management procedures.*
- .2 *Section 03 33 00 Architectural Concrete*
- .3 *Section 10 00 10 Special Room Requirements*
- .4 *UBC LEED Implementation Guide*
- .5 *UBC Learning Space Guidelines*

1.2 ***Related External Documents***

1. *Latest edition of the British Columbia Building Code (BCBC) for provision of assistive listening devices in classrooms, auditoria and meeting rooms over 100sqm and where such devices are to be installed under new resilient flooring.*
2. National Floor Covering Association of Canada (NFCA) - Floor Covering Reference Manual.
3. Applicable product standards including CSA, CGSB and ASTM.

1.3 **Description**

1. *Work in this section includes* resilient flooring and bases.

1.4 ***Coordination***

- .1 *The Guidelines apply to all work completed within buildings on both UBC Vancouver and UBC Okanagan campuses unless stated otherwise.*
- .2 *In instances where conflicts are found between these guidelines and provincial regulations or codes, please notify the UBCV Technical Review Team Architect or UBCO Facilities Management.*
- .3 *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.*
- .4 *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 samples for colour selection only if it is a Construction Office project.*
- .3 **O&M Submittals**
 - .1 *Provide list of resilient flooring types and colours used, complete with manufacturer/distributor name for all products used.*
 - .2 *Environmental Product Declaration (EPD)*
 - .3 *Maintenance data for all tile selections.*
 - .4 *Warranties as per 1.6.3.*
 - .5 *Material Data and Safety Sheets (MSDS).*
 - .6 *Maintenance data including source for replacement.*

1.6 Quality Control and Assurance

- .1 Quality Assurance
 - .1 Flooring contractor to be a member in good standing with the National Floor Covering Association of Canada (NFCA).
 - .2 For sheet material, installer to be a certified manufacturer-trained "Master Mechanic" (or similar term), completely familiar with the products, seam welding, and the manufacturer currently recommended methods and conditions of installation. Submit certificate of qualification. *This requirement is for all resilient flooring types used on the project and when available.*
 - .3 Adhesives and *accessories* to be as recommended by each resilient flooring manufacturer.
 - .4 *Flooring contractor to complete* a site inspection prior to installation of flooring material.
- .2 Quality Control
 - .1 Manufacturer preference shall be a registered ISO 9001 quality system.
 - .2 Install resilient flooring only when moisture emission from concrete substrate is at or below the maximum permissible level of 8 lbs. of water per 1000 sq.ft., based on qualitative tests using calcium chloride test kits developed by the Resilient Flooring Institute, and to manufacturer's requirements.
 - .3 The manufacturer's representative shall inspect the work when required during the contract, and at completion prior to submitting the manufacturer's warranty.
- .3 Warranties
 - .1 In addition to a 2-year warranty, submit a 5-year manufacturer limited warranty for sheet flooring work.
- .4 *Handover*
 - .1 *Contractor to* conduct a walkthrough prior to handover to *UBC Facilities* with Facilities Custodial Services. Recommended maintenance procedures and products by manufacturer representative *are to be provided* in the presence of trade contractor.
 - .2 Refer to the CPG-01 located *here* for additional guidance on setting up demonstrations for *UBC Facilities* personnel.
 - .3 Contractor to protect resilient flooring in doorways with undyed card board or treated paper until floor has been handed over to and accepted by *Facilities* Custodial Services. UBC Project Manager must contact the *Facilities* Custodial *Operations* Manager prior to occupancy to allow for burnishing and finishing plus general cleaning unless work will be carried out by the contractor to *Facilities* Custodial Services specifications.

2.0 DESIGN AND PERFORMANCE REQUIREMENTS

2.1 *Design Requirements*

- .1 Select materials with low-VOC content, including adhesives which preferably should be water-based.
- .2 Select products with highest natural material content: Linoleum is the preferred product.
- .3 Products should be recyclable.

2.2 Performance Requirements – *Not Used*

3.0 **MATERIALS**

3.1 *Product Selection*

- .1 Linoleum with heat-welded seams
 - .1 Linoleum *is preferable for public* corridors, and may be used in lecture theatres and classrooms.
 - .2 Install linoleum in teaching labs, maker spaces wherever undergraduates work, (not carpet).
 - .3 *Do not install on concrete slabs below grade, slabs on grade without a vapor barrier, wet areas such as entrance lobbies, (walk-off mats on troweled concrete is used), in washrooms, and wet laboratory areas (where chemical staining and deterioration under prolonged water saturation will occur).*
 - .4 Large size linoleum tiles *can* be used. Their use allows Facilities to maintain the floors, which sheet goods do not.
 - .5 All linoleum products to be installed using heat-welded seams.
- .2 Sheet Vinyl with heat-welded seams
 - .1 Use typically for wet laboratories and wet areas as discussed above; include flash-coved base where cleanliness is critical (toxic or radiation areas: discuss with UBC Risk Management Services).
 - .2 Large size vinyl tiles. As with linoleum tiles this product allows Facilities to maintain the floor finish, where sheet goods do not.
- .3 Slip-Resistant Sheet Vinyl with Heat-Welded Seams
 - .1 Use (include flash-coved base).
 - .2 Washrooms and wet areas (as option to ceramic or similar tile), food service areas, janitor rooms, and wet laboratories.
- .4 Vinyl Composition Tile (VCT)
 - .1 Can only be installed in less-used, low-traffic areas such as storage rooms, electrical rooms, , vaults etc.
 - .2 Do not install VCT in well-used public areas, such as classrooms, lecture theatres, and corridors. VCT shrinks over time because the fillers dry the product out.
 - .3 VCT does not have the reinforcement strength that the old asbestos filler used to have. This allows water or traffic to release edges causing delamination. In lab areas where hazardous and often heavy materials (gas cylinders) are constantly transported, VC tiles have proved to be potentially dangerous and have caused tipping and tripping hazards. VCT has not proved to be satisfactory under life-cycle analysis.
- .5 Rubber Sheet Flooring with Heat-Welded Seams
 - .1 Should be slip-resistant and include flash-coved base.
 - .2 Acceptable for use in washrooms, exercise rooms and public corridors. In public corridors, ensure the rubber flooring type and colour is suitable for intended use and traffic.
 - .3 Acceptable for use in wet laboratories. If using in wet laboratories, all maintenance and replacement will be customer-funded.
- .6 Rubber Floor Tile
 - .1 Acceptable for use in public corridors and should be slip-resistant. Ensure the rubber floor tile type and colour is suitable for intended use and traffic.
 - .2 Can also be installed in less-used, low-traffic areas such as storage rooms. Do not install in custodial rooms or closets.
 - .3 Do not install rubber floor tiles in wet laboratories.
 - .4 Provide heat-welded seams.

- .7 Rubber Cove Base shall typically be 102 mm (4") or 6" high and to match flooring colour as chosen by the architect.

4.0 LESSONS LEARNED AND COMMON MISSES ON UBC PROJECTS

Items in this section are lessons learned or misses from past projects. These may also include code or industry best practices. If not applicable to a project, a variance is not required.

- .1 *Rubber flooring is acceptable for use in wet labs after the following points have been taken into consideration:*
 - .1 *Due to the nature of a wet lab environment, it should be noted that floor restoration when a chemical burn happens is a fairly intensive process that can take time. Rust stains around the cylinder storage areas or bio-stains have been noted to be easier to clean.*
 - .2 *The installation of rubber flooring means that Custodial Services would need to take on maintenance programs that deviate from the maintenance materials used across the rest of campus already. If proceeding with the use of rubber flooring, any stains requiring cleaning above and beyond our regular maintenance would need to be customer-funded.*
 - .3 *Any repairs resulting from chemical spills or floor cracking (due to liquid nitrogen falling on the floor and freezing the rubber resulting in cracks) will also need to be customer-funded.*
 - .4 *A thicker (5mm) rubber flooring may be used where the use of chemicals such as liquid nitrogen is anticipated*

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