

Excavation and Backfill

- Excavation shall be undertaken in such a manner so as to prevent damage to existing structures, adjacent property and utilities
- The topsoil and vegetable matter in unexcavated areas under a building shall be removed. The bottom of excavations for foundations shall be free of all organic material
- If termites are known to exist, all stumps, roots and wood debris shall be removed to a minimum depth of **300mm** in excavated areas under a building, and the clearance between untreated structural wood elements and the ground shall be no less than **450mm**
- Backfill within **600mm** of the foundation walls shall be free of deleterious debris and boulders over **250mm** in diameter

Dampproofing and Drainage

- In normal soil conditions, the exterior surfaces of foundation walls enclosing basements and crawl spaces shall be dampproofed. Where hydrostatic pressure occurs, a waterproofing system is required
- Masonry foundation walls shall be parged with **6mm** of mortar covered over the footing prior to dampproofing
- **100mm** dia. foundation drains shall be laid on level, undisturbed ground adjacent to the footings at or below the top of the basement slab or crawl space floor, and shall be covered with **150mm** of crushed stone. Foundation drains shall drain to a storm sewer, drainage ditch, dry well or sump
- Window wells shall be drained to the footing level or to a ditch or sump pump.
- Downspouts not directly connected to a storm sewer shall have extensions to carry water away from the building, and provisions shall be made to prevent soil erosion
- Concrete slabs in attached garages shall be sloped to drain to the exterior
- The building site shall be graded so that surface, sump and roof drainage will not accumulate at or near the building and will not adversely affect adjacent properties

Footings

- minimum **15MPa** poured concrete
- minimum **1200mm** below finished grade
- Footings shall be founded on natural undisturbed soil, rock or compacted granular fill with minimum bearing capacity of **75kPa**
100kPa for ICF

Footing Size

Floors Supported	Supporting Ext. Wall	Supporting Int. Wall	Column Area
1	250mm	200mm	0.40m²
2	350mm	350mm	0.75m²
3	450mm	500mm	1.00m²

- Increase exterior footing width by **65mm** for each storey of brick veneer supported, by **130mm** for each storey of masonry and by **150mm** for ICF
- Increase interior footing width by **100mm** for each storey of masonry above footing, and by **100mm** for each **2100mm** of wall height above **5500mm**
- The projection of an unreinforced footing beyond the wall supported shall not be greater than its thickness

Step Footings

- **600mm** max. rise
600mm min. run

Foundation Walls

- To be poured concrete, unit masonry, ICF or preserved wood (see drawings for type and thickness)
- Dampproofing shall be a heavy coat of bituminous material.
- Foundation wall to extend minimum **150mm** above finished grade.
- A drainage layer is required on the outside of a foundation wall where the interior insulation extends more than **900mm** below exterior grade. A drainage layer shall consist of
 - Min. **19mm** mineral fibre insulation with min. Density of **57 kg/m³**
 - Min. **100mm** of free drainage granular material, or
 - An approved system which provides equivalent performance
- Foundation walls shall be braced or have the floor joists installed before backfilling

Concrete Floor Slabs

- Garage, carport and exterior slabs and exterior steps shall be **32MPa** concrete with **5-8%** air entrainment
- Basement slab **25MPa** concrete, minimum **75mm** thick, placed on a minimum **100mm** of coarse, clean, granular material
- All fill other than coarse clean material placed beneath concrete slabs shall be compacted to provide uniform support

Masonry Walls

- Where constructed of **90mm** brick, wall shall be bonded with a header course every **600mm** o/c vertically and horizontally and **900mm** o/c for block or tile.
 - Provide **50mm** solid masonry, concrete filled top course or continuous **38x89** wood plate under all roof and floor framing members
 - Provide **190mm** solid masonry under beams and columns
 - Masonry wall to be tied to each tier of joists with **40mm x 4.76mm** corrosion resistant steel straps, keyed minimum **100mm** into masonry. When joists are parallel to wall, ties are to extend across at least **3** joists @ **2000mm** o.c.
 - Inside of wall to be parged and covered with No. **15** breather-type asphalt paper
 - For reduced foundation walls to allow a brick facing while maintaining lateral support, tie minimum **90mm** brick to minimum **90mm** back-up block with corrosion resistant ties at least **17.8mm²** in cross sectional area, spaced **200mm** vertically and **900mm** horizontally, with joints completely filled with mortar
 - Masonry over openings shall be supported on corrosion resistant or prime painted steel lintels with a minimum of **150mm** end bearing

Masonry Veneer

- Minimum **70mm** thick if joints are not raked and **90mm** thick if joints are raked
- Minimum **25mm** air space to sheathing
- Provide weep holes @ **800mm** o.c. at the bottom of the cavity and over doors and windows
- Direct drainage through weep holes with **0.5mm** poly flashing extending minimum **150mm** up behind the sheathing paper
- Veneer ties minimum **0.76mm** thick x **22mm** wide corrosion resistant straps spaced @ **500mm** vertically and **600mm** horizontally
- Fasten ties with corrosion resistant **3.18mm** diameter screws or spiral nails which penetrate at least **30mm** into studs