CONCRETE ALBERTA

SAFETY BULLETIN: RESIDENTIAL EXCAVATION SLOPE STABILIZATION

BEST PRACTICES

As the price of residential property continues to climb, many homeowners are looking to live closer to city centers. As a result, lot sizes are getting smaller and many prospective clients seeking a more modern building for a home are looking more and more to infill options. This leaves contractors to build with zero lot lines and accessing excavations to install the first step in the construction of a new home, the foundation, is often difficult at best. If excavation bank stabilization is not part of the plan, this leaves workers more susceptible to safety issues as bank slopes are often non-existent and usually mirror the vertical profile of foundation walls cast right next to them. Sloughing of material is almost inevitable and if the worker is in the wrong place at the wrong time, the consequences could be fatal.

According to the Alberta Occupational Health and Safety Code Section 450(1), before a worker begins working in an excavation that is more than 1.5 metres deep and closer to the wall or bank than the depth of the excavation, an employer must ensure that the worker is protected from cave-ins or sliding or rolling materials by (a) cutting back the walls of the excavation to reduce the height of the remaining vertical walls, if any, to no more than 1.5 metres for “hard and compact soil” and “likely to crack or crumble soil,” (b) installing temporary protective structures, or (c) using a combination of the methods in clauses (a) and (b). 450(2) Subsection (1) does not apply if a trench is constructed in solid rock throughout the entire trench.

Potential solutions include the application of shotcrete or cutting back the walls to meet OH&S standards as follows:

(a) If the soil is classified as “hard and compact soil”, the walls are sloped to within 1.5 metres of the bottom of the excavation at an angle of not less than 30 degrees measured from the vertical.

(b) If the soil is classified as “likely to crack or crumble soil” the walls are sloped to within 1.5 metres of the bottom of the excavation at an angle of not less than 45 degrees measured from the vertical, and (c) if the soil is classified as “soft, sandy or loose soil” the walls are sloped from the bottom of the excavation at an angle of not less than 45 degrees measured from the vertical.

Excavations greater than 3 metres in depth must be stabilized using engineered solutions like shotcrete, installed to recognized standards such as ACI 506.2-13 Specification for Shotcrete by an ACI Certified Shotcrete Nozzleman.

Yes, all of these practices take time and materials that cost money, but no amount of money is going bring back a fatally buried worker and no one wants to bare the scars of an incident caused because someone wanted to save a prospective home buyer a thousand dollars! What can you do as a stakeholder in these situations? If any aspect of a job is seriously putting a worker at risk of injury, you need to work together to eliminate that risk. Don’t turn a blind eye to a potentially fatal situation. Make the right decision to ensure a safe work environment for all who enter the site.