

Homeowner's Guide to Lot Grading and Drainage for Infill Lots

When a new home is constructed, it is essential that the lot be graded properly to ensure that surface drainage is directed away from the building and so that it does not cause problems or damage to neighbouring properties. It is also important that the house be elevated so that the top of the foundation wall is at least 6 inches above the adjacent ground level, to avoid water entering any masonry weep-holes and to prevent rotting at the bottom plate of the framing.

The Ontario Building Code sets out the requirements for lot grading and drainage etc. during construction, in part as follows:

- **9.14.6.1**

The building shall be located and the building site graded so that water will not accumulate at or near the building and will not adversely affect adjacent properties.

- **9.15.4.6**

Exterior foundation walls shall be extended not less than 150 mm (6") above finished ground level.

Improper lot grading can result in poor surface drainage, ponding, flooding, foundation settlement or damage, basement dampness and other similar undesirable effects, and is one of the major factors resulting in customer complaints, callbacks, warranty repairs and legal proceedings following completion and occupancy of a dwelling.

The above adverse consequences are particularly regrettable as they can be largely eliminated by careful planning and the application of a few basic principles. The main factors to be considered in the grading of a lot after construction are that the lot should be sloped away from the house, no additional surface drainage should be directed onto adjacent properties and existing overall surface drainage patterns should be changed as little as possible.

The above information in the form of a Lot Grading Plan is required to be filed with the building permit application.

The two most common types of lot grading as shown on the attached plans are:

- **Back to front**

In this type the rear lot line is the high point, an elevated apron is created around the house and surface drainage flows forward to the street.

- **Split**

In this type, the house is the high point and the lot is graded so that surface drainage flows forward to the street and backward towards the rear lot line. The rear lot line is then generally drained by way of a swale and catchbasin system.

The location where most of the surface drainage problems occur is along the side lot lines between two houses, especially where the houses are in close proximity. In these locations a well-defined swale between the houses should be formed which allows surface drainage to flow away from the house and directed forward or backward depending on which type of lot grading system is used.

In current Plans of Subdivision, lot grading is subject to the Lot Grading Policy for Subdivisions and the Master Grading Plan for the particular subdivision in which the lot is situated. Details of the Plan and Policy are available at the Engineering Department.

For infill lots, the lot must be graded so that surface drainage is directed away from the building and so that adjacent properties are not adversely affected by the surface drainage or additional runoff. Downspouts from roofs should discharge at grade onto a splash pad at least one metre away from the building and should not be directed towards adjacent properties. A well defined swale along the side lot line should be established. In addition, the following guidelines should be followed:

- Minimum height of top of foundation wall above grade - 6" (150 mm)
- Minimum slope away from house 3% min to 8% max
- Minimum slope on lot except as above - 1.5% (approx. 1/4" per foot)
- Minimum depth of swales - 6" (150 mm)
- Maximum side slope of swales - 3 to 1
- Swales to be located entirely within the limits of the lot unless approval is given from adjacent property owner
- Surface drainage to be directed away from window wells and exterior stairwells etc.
- The elevations around the lot perimeter should remain unchanged
- Location of downspouts, sump pit discharge and other drainage discharge points should be shown on the lot grading plan
- Proposed floor elevation of the house, garage and the basement should be shown on the lot grading plan
- The location of all municipal services shall be shown including, water service, storm and sanitary sewer, well location and septic tank, bed and reserve bed
- Existing elevations on the road, ditch, boulevards, curbs, subject lot and adjoining lands. On normal size lots they shall be at 5.0m intervals in a grid pattern including boundaries and on adjoining lands. Sufficient existing grades on adjacent properties must be shown to indicate the drainage pattern
- If any retaining wall or other similar structure is proposed it shall be shown complete with top and bottom of wall elevations. All retaining walls to be precast concrete or equivalent (timber retaining walls will not be permitted). If any retaining wall meets or exceeds 1.0m in height, a 1.2m high safety fence will be required on top of the wall. Proof of engineering may also be required on retaining walls over 1.0m in height. A design detail for retaining wall must be provided.

The result of a well planned and properly executed grading and surface drainage system is a lot free of ponding, with no adverse effects to the adjacent properties to the ultimate enjoyment and benefit of all.

The following can prepare the grading plan Professional Engineer, Ontario Land Surveyor, Architect or any designer with lot grading experience

If the lot is located in a rural area, a grading plan is not required providing that the grades within 6m of the property lines are not changed and the following note is on your site plan drawing;

Finished Site Grading O.B.C. – Articles 9.14.6.1 & 9.15.4.6.

The building shall be located and the building site graded so that water will not accumulate at or near the building and will not adversely affect adjacent properties.

Exterior foundation walls shall be extended not less than 150mm (6") above finished ground level.

The Municipality of Clarington requires a \$2000 grading / occupancy deposit / damage deposit. This deposit will be refunded once the Engineering Department receives a grading certificate from the grading designer (a grading plan is required) and temporary occupancy is granted by the Building Division and no damage has been done to the boulevard as a result of the construction.