

Notes From the Commish Retaining Walls

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You have decided that the slope of the lawn along your driveway is too steep and a set of stairs from the front walk through a nice wall is your fall project, or the lake has reclaimed the stone wall that fronts your beautiful lake front property and a replacement wall is in order. You dash off to the local supply center and look over the myriad of products available to hold the earth back as gravity steadily tries to move it back to a natural sloped state or the glaciers come again and move more of the State of Maine over Massachusetts to increase the size of Long Island.

There are man made products; blocks of various shapes, sizes texture and weights (heavy and heavier and we need a crane), poured in place cement, wood timbers that are treated with preservatives and natural materials (stones) that can be used to retain the earth giving a variety of looks and holding capacities depending on the problem to be overcome.

No matter what the proposed wall is made of consideration of the regulations that govern its construction need to be addressed.

First, if the wall or associated work will be within one hundred (100) feet of a wetland or two hundred (200) feet of a river, the project must be reviewed by the Conservation Commission under the Department of Environmental Protection regulations.

Second, under the Town of Charlton Zoning Bylaws retaining walls are considered structures and must meet the set back requirements found in the [Intensity of Use Schedule § 3.2.4](#), of course as for all zoning requirements there are exceptions.

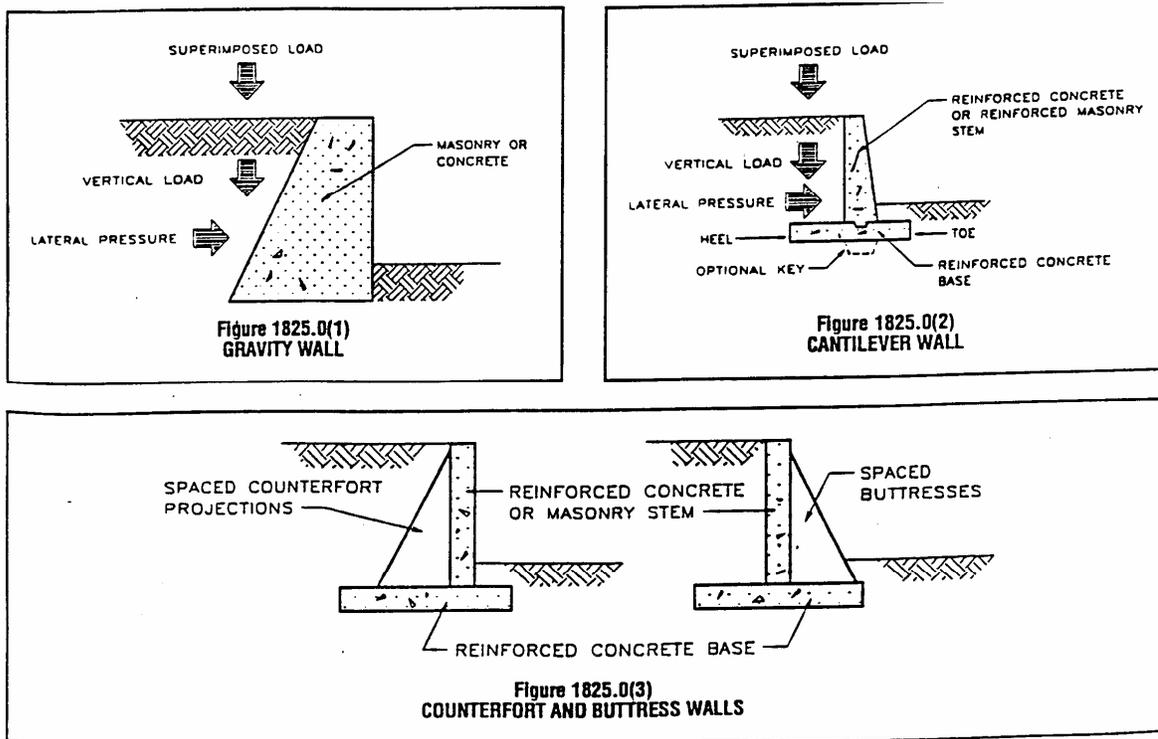
Third, are the requirements of the Massachusetts State Building Code (780 CMR) which requires a building permit and inspections of the retaining wall unless "... in the opinion of the building official, are not a threat to the public safety health or welfare and which retain less than four (4) feet of unbalanced fill." [\(780 CMR § 110.3 \(3\)\)](#) Additionally if the wall is over ten (10) feet in height, including buried portions there is a requirement that the service of a design professional be engaged to design the wall, any required footings and hold backs. [\(780 CMR § 116.1 \(4\)\)](#)

Additional requirements of 780 CMR are the erection of a guard rail or fence along the top of the wall that has four (4) feet or more difference between elevations and is within two (2) feet of walk, path, parking lot or driveway on the high side [\(780 CMR § 1825.5\)](#) and the construction of a retaining wall with fence is required to be constructed by the owner of the property that excavates next to another's property that would cause the adjoining property to fall into the excavated hole. [\(780 CMR § 3311.1\)](#)

Finally retaining walls, whether a building permit is required or not, must be designed to resist the pressure of the retained material including both dead and live load surcharges that the wall may be subject to. [\(780 CMR § 1825.2\)](#) The proceeding is fancy way of saying the wall must stand up to the pressure of the material behind it and the car, pool or other structures constructed on top of the retained material or behind the retaining wall.

Now to discuss the constructing of a retaining wall we must consider that we are building a dam, not for water but for earth, that will behave like a fluid, especially when saturated with water. The wall can be built with sufficient mass as in a gravity wall, as a vertical beam called a cantilever wall or with reinforcing as in buttress wall or wall with geodesic hold back material to prevent the wall from overturning. There are some pictures below.

We need to keep in mind the soil conditions on all sides of the wall, along with the height of the wall and any load behind or on the fill behind the wall will affect the design and type of material that is suitable for wall construction.



Manufactured products will come with supplier support, either in the form of literature and installation guidelines and possibly design services. If you are using a manufactured product following their requirements is a must. If you are constructing a wood or cast concrete retaining wall of more than five (5) feet tall you would be well served to have design professional and reputable contractor install the wall. Any retaining wall is a substantial investment and to have it collapse or degrade before the end of its useful life, will be an even more expensive proposition.

Note:

To make the process of obtaining building permits more convenient, the Commissioner has revised all the residential permit applications and instructions. The applications and instructions are available either from the office located in the Town Hall, at 37 Main Street, or online at Town of Charlton [Building Commissioners](#) web page, part of the Town of Charlton web site www.townofcharlton.net. In addition past *Notes From the Commish* and a section “[Frequently Asked Questions](#)” have been posted on the Commissioner web page.