

## BOONE COUNTY BUILDING DEPARTMENT

### PERMITS FOR RETAINING WALLS AND ROCK WALLS

This informational bulletin clarifies building permit requirements for the installation of retaining walls under the 2006 International Building Code §105.2 and the 2006 International Residential Code §105.2

A *retaining wall* is a wall designed to resist lateral earth and/or fluid pressures, including any surcharge, in accordance with accepted engineering practice.

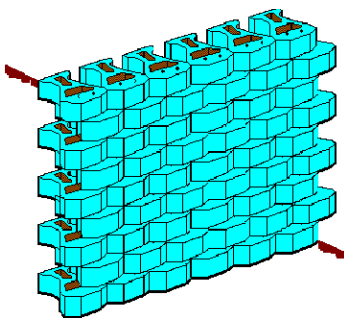
The Boone County Building Department adopts, by reference, Kentucky Building Code, Section 105.2(3) which states.....

“A building permit shall not be required for ... retaining walls that are not over four feet in height (1219mm) measured from the grade at the bottom of the wall to the top of the wall.”

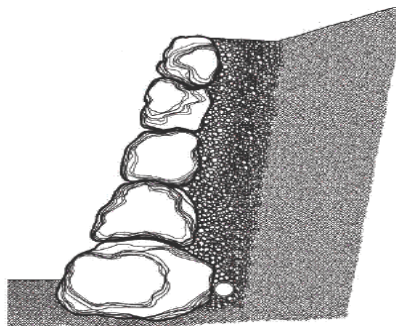
**Cantilever Retaining Wall** is typically constructed of reinforced concrete masonry units or reinforced concrete stem wall supported on a reinforced concrete footing.

**Segmental Gravity Wall** is typically constructed of manufactured (i.e. Allan Block, Earthstone, Keystone, etc.) modular concrete units stacked in a running bond pattern without mortar or reinforcement.

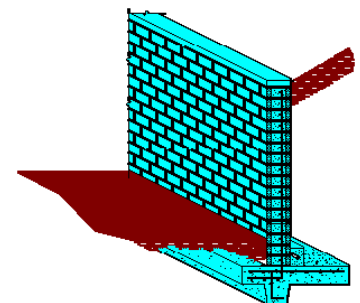
**Rock Wall (Rockery)** is typically constructed of un-cemented, interlocking rows of large rocks that are not tied together. Rock walls are gravity walls and have a low tolerance for movement. The rocks are naturally shaped quarry stone or boulders. Typically, they are only constructed on slopes that are relatively stable. They are not structural walls and are usually employed for slope stability or erosion control.



Cantilever Wall



Rock Wall



Segmental Gravity Wall

#### **Segmental Gravity Walls**

Segmental gravity retaining walls such as Keystone, Allan Block, etc. are frequently available from local building supply warehouse stores. Regardless of the permit requirements, it is important to follow the manufacturer's recommendations for

each block type, since the allowable wall heights vary significantly for each block type. For example, Keystone limits their *Garden Wall* (4" high x 12" wide x 9" deep) product to two feet in height, or six blocks in height total. The Keystone *Legacy Block* (6" high x 16" wide x 10½" deep) product is recommended when the retaining wall is supporting a sloping backfill, any other surcharge, or a solid fence.

### **Tiered Retaining Walls**

Use of tiered walls is a special condition where two or more short walls, horizontally offset from one another, are used in lieu of a single tall retaining wall. When tiered walls are not properly offset from each other, the upper wall may impose a surcharge condition on the lower wall. In order for the walls to be treated as separate retaining walls, a general rule of thumb is that the tiered walls be horizontally offset by a minimum distance of two times the exposed wall height of the lower wall.

For example, two tiered retaining walls, each with an exposed wall height of three feet and level backfill, which are horizontally offset by a distance of two feet, would be treated as a single 6-foot-tall wall. As a result, a building permit would be required.

### **Rock Walls (Rockery)**

Rock walls are to be built according to the ARC rock wall construction guidelines.

Retaining walls and rock walls require thought and planning just like any other building project. Soil properties, wall height, wall type or function, drainage surcharge loads, adjacent grading, etc. must be taken into consideration. An experienced geotechnical engineer is required to design any retaining wall or rock wall that exceeds three feet of exposed height. A contractor with extensive experience should be considered to avoid possible failures and/or costly repairs.

## **BUILDING PLANS REQUIRED**

1. Site plan showing the location, extent, and height of the retaining wall in relation to any building structure, pool, property lines, and public utility easements.
2. Complete construction details of the retaining wall, stamped and signed by a Kentucky design professional. For segmental gravity retaining walls, the details must clearly identify the block manufacturer, block type, drainage requirements, and maximum wall height.
3. Structural calculations stamped and signed by a Kentucky design professional engineer .
4. Rock Walls (Rockeries) are required to be designed by a Kentucky design professional and monitored during construction by the designer for stone placement, size of stone the quality of the stone, compaction, proper keying of base stones, drainage, fill reinforcement such as geo-grid, impacts to surface drainage and proper inclination of face stones.

## **REQUIRED INSPECTIONS**

1. **FOOTER INSPECTION:** *an soil inspection is required before the concrete footer is poured.*
2. **FINAL INSPECTION:** *an inspection is required when the wall construction is complete*

Please contact the Boone County Building Department at 859-334-2218 for your inspections.