

STANDARDS FOR RETAINING WALLS Form #COM-ENG-108
City of Morgantown- May, 2007

The information on this page is intended to aid the project manager in the construction of retaining walls. Each situation is unique and these standards are intended to be as all-inclusive as possible, but there are other scenarios that may not be directly discussed in these standards. Every permit application will be reviewed. Many factors affect retaining wall design and it is always recommended that a Licensed West Virginia Professional Engineer experienced with Geotechnical construction design retaining walls. Retaining walls to be constructed with a height of not more than 2 feet, may have the requirement for engineering waived at the approval of the city engineer. It is the intent of this information to promote safety and help you to build a long-lasting project. Should you have any questions, please call the Office of the City Engineer at (304) 284-7412.

A. The Use of Retaining Walls:

1. Retaining Walls may be necessary where slopes exceed a 2 (Horizontal) : 1 (Vertical) ratio;
2. Other acceptable Standardized Engineering methods may also be considered such as engineered fill, Geotextile stabilization, etc. (These methods require a Design by a West Virginia Licensed Engineer.)
3. The City of Morgantown has available at no cost some designs that could be suitable for your need. To use the designs provided, your retaining walls must:
 - a. not have surcharge loadings (e.g.- walls constructed for the creation of parking, sloped backfill, etc.);
 - b. have a level area behind the wall (the level area behind the wall must have a horizontal distance from the rear of the wall equal to the height of the wall);
 - c. not exceed 4 feet in height.
 - d. several types of designs are available, (Cast In Place Concrete, Timber, Segmental Block and Reinforced Concrete Block.)
 - e. must have proper drainage structures installed. (see detail)
4. Timbers with creosote are not recommended for retaining walls or other uses due to the requirements for disposal of the timbers. If creosote treated timbers are used, you must contact the WVDEP concerning disposal of the timbers.

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B. Requirements for Engineering Design of Retaining Walls:

1. Should the conditions of Section 9A not be met, it will be necessary to obtain the services of a West Virginia Licensed Engineer.
2. Structural calculations must be submitted with each wall design based upon the Minimum Factors of Safety as follows:
 - a. 1.5 for base sliding;
 - b. 2.0 for overturning;
 - c. 2.0 for bearing capacity. *Reference- ESR-2113, see www.icc-es.org for segmental block walls.
3. An engineering drawing is required with a plan view and section view. The drawing must show dimensions, materials, specifications and reinforcement.
4. Engineering Design is also required for retaining walls:
 - a. with slopes below the toe of the wall;
 - b. for walls on soft foundations;
 - c. for tiered walls;
 - d. or for walls to be used in submerged conditions.