TECHNICAL BULLETIN

Community Development & Planning, Building Inspections
TOPIC: Minimal Submittal & Inspection Criteria for Retaining Walls
June 8, 2009

A permit is required for any retaining wall that is required to be engineered. The following retaining walls shall be designed and sealed by a Professional Engineer licensed to practice in the State of Texas:

1. Any retaining wall(s) that support a building, driveway or other permanent construction or imposed load that is located closer to the wall than one and one-half (1½) times the exposed height of the wall,

2. Any wall with a developed height (height above and below grade, including any foundation and/or piers) that exceeds four feet, or

3. A series of two or more walls built in tiers shall be considered a single wall in height when the base of the upper tier is set back from the base of the lower tier less than one and one-half (1½) times the height of the exposed wall height below.

As a minimum, submit the following plan(s) with the permit application submittal:

1. Design drawings and requirements for the wall(s) sealed by the engineer of record,

2. Design drawings must be project location specific, must be dated and must contain a reference number,

3. Design drawings shall include a note that states that the wall(s) are designed with a minimum safety factor of 1.5,

4. Attach a signed and sealed letter (sample attached) from the engineer of record addressed to:

   City of Arlington Building Official
   PO Box 90231, MS 01-0241
   Arlington, TX 76004-3231

   a. The letter shall reference the design drawings and requirements,

   b. The letter shall reference the address and legal description of the design drawings and requirements,

   c. The letter shall state that the said plan has been designed to the soil conditions based on the soil analysis prepared by Engineer, P.E., {list name of engineer} dated {list the date of the soils report}, and

   d. The letter shall identify the soil data characteristics from the soils report.

SAMPLE LETTER

Date

City of Arlington Building Official
PO Box 90231, MS 01-0241
Arlington, TX 76004-3231

Dear Building Official:

This letter is to inform you that retaining wall plan #xxxxx dated XX/XX/XXXX, was prepared for:

Street address of project
Block X, Lot X (*optional*)
Subdivision Name (*optional*)

Said plan has been designed to the soil conditions based on the soils analysis prepared by {list the name of the engineer who prepared the soils analysis}, dated {list the date the soils analysis was prepared}. The analysis is in accordance with {list any applicable standard or code} and recognized building and Engineering practices.

The soil data for the project:

Soil bearing index PI = XX
Soil bearing pressure (max) Qu = XXX

Signed and sealed by Professional Engineer licensed to practice in the State of Texas

Additional minimal requirements for the general preparation of the plans and the construction of retaining wall(s) may include, but are not necessarily limited to:

1. Plans must specify materials used. (For example, if wall is to be constructed using CMU block, weight and/or dimension of CMU must be specified).
2. Plans for masonry walls must specify mortar requirements.
3. Plans must provide specifics for any reinforcement material(s).
4. When plans indicate compacted soil, specify compaction standard.
5. When plans provide drainage provisions (pipe/weep holes) through the wall, then drainage openings must be within 1" of the foundation or base.
6. When gravel or crushed rock is used behind the wall as part of the drainage system, specify the gradient of gravel or crushed rock.
7. When gravel or crushed rock is used behind the wall as part of the drainage system, the plans must specify a filter fabric to be installed between the gravel or crushed rock and the soil.
8. When drainage system does not drain through the wall, the plans must indicate the point of discharge of the drainage system.

GENERAL Minimum Inspections and inspection criteria based on different types of walls
Always check with your building inspector regarding what inspections are required and when!

INSPECTION (stage of construction)	**MINIMUM CRITERIA - General**		
	CMU Wall	**Poured in place wall**	**Pave Stone wall (interlocking dry laid block)**
PrePour/SubBase/Footing (As or when piers are drilled)	Diameter, depth, reinforcement – quantity & size, correct number piers, correct location of piers if req'd	Diameter, depth, reinforcement – quantity & size, correct number piers, correct location of piers if req'd	Piers as spec'd by an engineer. If req'd will inspect diameter, depth, reinforcement – quantity & size, correct number piers, correct location of piers
PrePour/SubBase/Footing (Forming of footing, beam, placement of reinforcement)	Forms placed & supported, depth, width, correct location, reinforcement – quantity/ size/laps, reinforcement tie for wall section	Depending on the design may be a monolithic pour with wall section. If separate then the following applies; Forms placed & supported, depth, width, correct location, reinforcement – quantity/size/laps, reinforcement tie for wall section	The wall site is excavated & the leveling pad is placed & compacted. Will check proper lay out, width, level grading of pad, material, & depth of material
Drainage/Wall Construction (Partial construction of wall up to about 4 feet)	Wall per plans, for CMU wall: reinforcement - quantity/ size/laps, cells to be filled, drain system per plans, gravel or rock in place, filter fabric installed	Form & reinforcement set per plans with thru wall drainage features installed. Partial inspection will be after forms are removed & the drainage system is installed to the top of the perforated piping.	Base course laid & backfilled front & rear, core cells are filled. Partial inspection the drainage pipe installed if applicable with filter fabric installed. Next partial inspection is the first layer of any geo-synthetic reinforcement (if req'd by engineer).
Drainage/Wall Construction (Partial construction of wall over about 4 feet)	Wall per plans, for CMU wall: reinforcement - quantity/ size/laps, cells to be filled, drain system per plans, back fill for 1st section	Form & reinforcement set per plan design with thru wall drainage features installed. Next partial inspection is with the filter fabric installed before backfill of finish grade.	Base course laid & backfilled front & rear, core cells are filled. Partial inspection the drainage pipe installed if applicable with filter fabric installed. Next partial inspection is the first layer of geo-synthetic reinforcement (if req'd by engineer).
Building Final (at completion of wall)	Overall completion, drainage system to daylight as applicable	Overall completion, drainage system to daylight as applicable	Overall completion, drainage system to daylight as applicable

Notes:
[1] Pier inspections may be performed by the engineer of record or designee. An inspection report, sealed by the engineer of record must be provided to the inspector at the time of the "**PrePour/SubBase/Footing**" inspection.
[2] When compaction is part of the engineer of record's design, then compaction report is required at appropriate inspection stage