TM-2016-01 **Date: 10/19/16**

Technical Memorandum

Subject: Development of cracks after installation

Technical Information:

This Tech Memo is intended to provide guidance on understanding and evaluating cracked blocks that are discovered in completed walls.

As with any concrete construction, a wall composed of precast concrete modular units will experience some incidental cracking. The occurrence of hairline cracks and even cracks that open up to 0.08 in. (2 mm) is not unusual and should not be cause for alarm. Cracks that evidence significant horizontal or vertical deformation may be an indicator of some other issue and should be investigated.

With precast modular block construction, cracks most frequently occur in the center half of the block, roughly in line with the joints in the courses above and below. This type of crack can occur due to minor yielding of the foundation placing strain within the blocks. This is essentially a stress relief crack, and they sometimes appear during or very shortly after erection of the wall. The lower blocks in taller walls are steel reinforced to control this type of cracking (See TM-2013-01 and TM-2013-02). Since structural reinforcement is not effective until a crack develops in the section, the reinforcement cannot prevent this type of cracking, but rather, the reinforcement is intended to minimize the size the crack and limit horizontal and vertical displacement. These cracks generally do not affect the structural performance of the retaining wall, regardless of whether the block is reinforced.

Cracks near the ends of the blocks, outside of the block webs, are less common. These are often related to handling of the units or point loading of the face. This type of crack might also be a shrinkage crack that does not extend fully through the section. As long as these cracks are relatively tight and there is no significant displacement, the integrity of these blocks and of the wall should not be impacted by this type of crack.

As a general statement, cracks in concrete assemblies are common throughout the built environment. Most cracks do not affect the integrity or performance of the wall, and are primarily aesthetic issues. Repair of a small crack usually will create more aesthetic issues than it solves. Small cracks are typically not visible from a modest distance away from the face, and grinding a crack to permit caulking or grouting will almost certainly be more visible and will not enhance the performance of the wall system.

Submitted By: DT **Approved By:** JG **Approval Date:** 10/19/16
Distribution: All Dealers, wall designers **Total Pages:** 1