



**MONTGOMERY COUNTY FIRE AND RESCUE SERVICE
MONTGOMERY COUNTY, MD**

INFORMATION BULLETIN

NUMBER: 07- 11

May 16, 2007

SUBJECT: Structural Improvements and Fire Tactics – White Flint Mall Garages

Concerns regarding various structural improvements have recently been investigated at the White Flint Mall parking garages. These improvements were made to address visible sagging of girders, a sign the original post-tensioned cables within the girders may be over-extended or broken.

While no obvious signs of an imminent structural collapse have been identified, these improvements have been carefully reviewed by MCFRS Code Enforcement Section structural engineers, with the assistance of MCFRS Division of Operations field officers who are also familiar with the structure.

In the interim, to ensure firefighter/rescuer safety, please read the information below and consider the recommendations regarding fire suppression activities at these parking garages.

Design Modifications – ALL LEVELS – White Flint Mall Parking Garage

1. **Steel Columns and Beams.** Occasionally found within the affected garages, these structural supports can be easily identified because they are sprayed with fire-resistive materials (SFRM). These materials are generally a composite formed from Portland cement, or gypsum, fibers, and other fillers. *It is critical to note that this coating is actually **fire-resistant**, rather than **fire-proof**.* This *resistance* can be diminished if the coating is damaged.



- 2. Vertical Tie Rods.** These elements are exceptionally prevalent within the affected garages, and are designed to stiffen the affected girders. They do not actually carry load, but rather keep the beam intact, allowing the existing girders to transfer load as designed, despite cracks. At the White Flint Mall, vertical tie rods are passed through drilled steel angle plates and secured at both ends (below and above deck) by nuts. These modifications have not been sprayed with SFRM, and pose the potential for failure if exposed to prolonged, high heat. Failure of these modifications may result in falling pieces of concrete, but are not expected to affect short-term structural stability.



- 3. Exterior Post-Tensioning.** These structural improvements are intended to supplement the post-tensioning cables originally installed in the girders which support the parking decks. The cables are encased in grout, a means of providing fire resistance. Their susceptibility to failure lies with the currently unprotected support saddles at the center of the affected girders. Failure of these improvements may result in visible sagging of the girders, and should be watched closely during operations.



Suggested Safety Fire Suppression Tactics – Inside White Flint Mall Garages

1. First-due units should direct other responding apparatus to stage in their direction of travel (either Rockville Pike or Nicholson Lane) until the exact location of the fire can be determined.
2. Command should develop a tactical plan which, to the highest degree possible, tries to limit fire/rescue personnel from operating directly below, and in the immediate vicinity of the parking deck adjacent to the fire.
3. Personnel operating near the fire must watch for signs of structural failure, including falling chunks of concrete, sagging beams, elongating steel, concrete spall, etc. Immediately report any unusual findings to the Incident Commander.
4. Fire suppression efforts should include deploying at least one attack line with high gallons/minute capacity, combination nozzle functionality, and the ease of being deployed from afar. The *BLITZFIRE* is an ideal tool for this effort, and can easily deliver between 100-500 gallons per minute.
5. Once the bulk of fire is knocked, focus efforts on complete extinguishment and cooling adjacent structural steel members. Depending on access to the affected areas, this effort may be accomplished by multiple, non-opposing attack lines, with streams approximating 30-45 degrees.
6. Personnel must not enter the area of fire origin until Command has cleared it.
7. Among others, the MCFRS Code Enforcement Section should be notified. In addition to our Fire Inspection contingents, our structural engineers will likely be dispatched as well.

For additional information, please contact Division Chief Mike Love, Community Risk Reduction, or Mr. Richard Merck, Code Enforcement Section.

Issued by: Division Chief Phillip Guercio, Division of Operations *Phillip G. Guercio*