

6. Masonry

- Fire Damage Evidence:
 - Cracking
 - Spalling
 - Mortar joint softening
- Inspection and Testing Techniques:
 - Probe mortar joints with metal tool
 - Sounding CMU
- Repair:
 - Tuckpointing
 - Cleaning
 - Remove damage material
 - Patch repairs
 - Total replace
 - Shoring / Bracing



6. Concrete Masonry

NCMA TEK

National Concrete Masonry Association
an information series from the national authority on concrete masonry technology

EVALUATING FIRE-EXPOSED CONCRETE MASONRY WALLS

TEK 7-5A
Fire Resistance (2006)

Keywords: column, fire, fire damage, fire exposure, fire resistance, fire walls, inspection, prestressed masonry, reinforcement

<https://ncma.org/resource/evaluating-fire-exposed-concrete-masonry-walls/>



6. Concrete Masonry Summary

- In conventionally-reinforced concrete masonry, if reinforcing steel is not exposed, there is little likelihood of structural damage.
- Lintels and beams free from excessive deflections are unlikely to be structurally impaired.
- Softening of the top surface of mortar results in little loss of load-carrying capacity and can be easily repaired by tuckpointing.
- Walls subjected to fire one time without structural damage can be expected to perform just as well in a second fire.
- Field tests are typically not conducted to assess fire-damaged concrete masonry walls. Post-fire investigation typically consists only of visual inspection.
- If no severe distortion, cracking or displacement of concrete masonry walls is present, complete reinstatement of the wall can usually be accomplished by patching cracks and tuckpointing mortar joints.

<https://ncma.org/resource/evaluating-fire-exposed-concrete-masonry-walls/>



6. Concrete Masonry Structure



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6. Masonry Structure

- If the Bar is not rebuilt, previous property wall becomes an outside wall.
- Is this ok?
- Is the foundation depth adequate?
- Are there water proofing issues?
- Are there insulation issues?
- What about the roof detailing?

6: Masonry Foundation



<https://www.gobrick.com/read-research/technical-notes>

- Little to no damage up to 1800 F
- The process of making brick includes firing the brick in a kiln up to 1800 F
- Mortar is more like concrete so there may be damage at joints at 700 F
- Mortar damage is usually shallow due to relatively short exposure times – tuck pointing
- Cleaning is required
- Thermal movement – wall bow toward the fire
- Cooling – cracks and movements

