

Installing Remedial Wall Tie Systems

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There are no specific U.S. Design standards for the use of remedial wall ties in the U.S.

As with any new industry it will be the wild, wild west until legislators' mandate rules.

Building codes that are adopted locally by authorities, having jurisdiction, will need to become law.

Nothing else will truly define the rules.

Solutions



Forensics plays a major part of discovering masonry veneer issues, and is one of the most important tools in a remediation worker's arsenal. Engineers and Architects are on their A game when it comes to identifying what caused any problems and how best to go about fixing them.

An understanding of destructive testing and non-destructive testing will help determine the possible remediation method needed (read my paper link on slide 9)

- Metal detectors can assist in locating the position of existing wall ties and determining the density of ties in the masonry veneer.
- The endoscope is a great tool to observe the wall tie *in situ* and the width of the cavity in the wall.
- Advancements in Ground Penetrating Radar are changing fast, giving us another useful tool to see what's behind the brick wall.
- Handheld scanners are entering the market that can penetrate brick and locate the studs up to a depth of 6 to 7 inches.
- Thermal cameras are also a great tool to assist with non-destructive testing.

With a lack of guidelines in America for remediation we need to be looking at the countries that do have guidelines

The Canadians have been involved in wall tie remediation for years as have the Australians and in New Zealand with the earthquakes

The British are one of the worlds best at cavity wall tie replacement and have great guidelines for specifiers

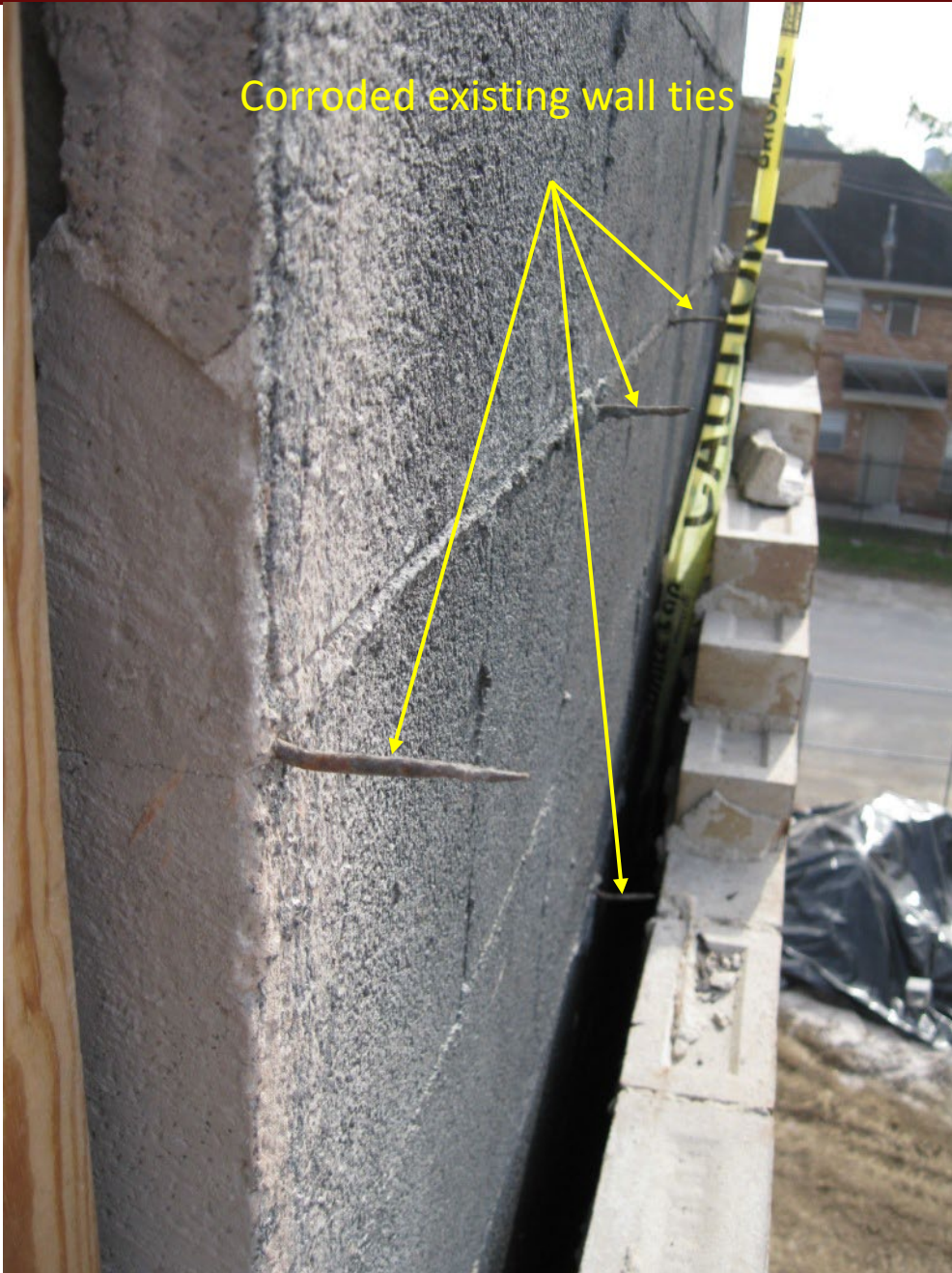
The building research establishment in the UK have a Digest 329 and 401, for installing wall ties in existing construction

These digests cover:

- Appraisal of existing construction
- Choice of repair strategy
- A decision tree for remedial tying systems
- Repair techniques



Corroded existing wall ties

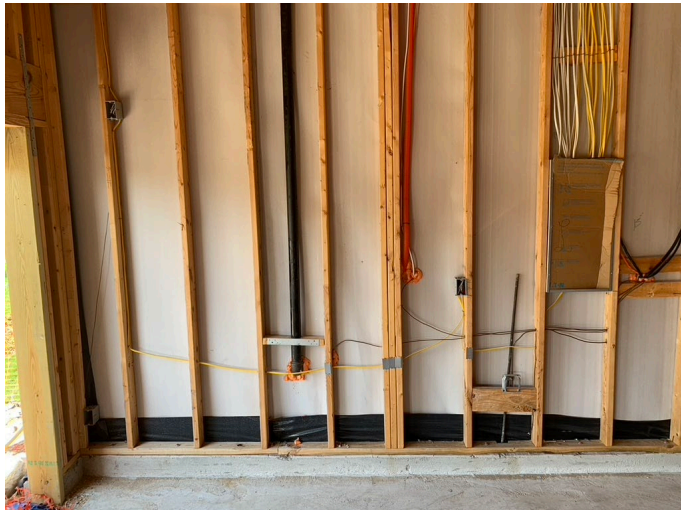
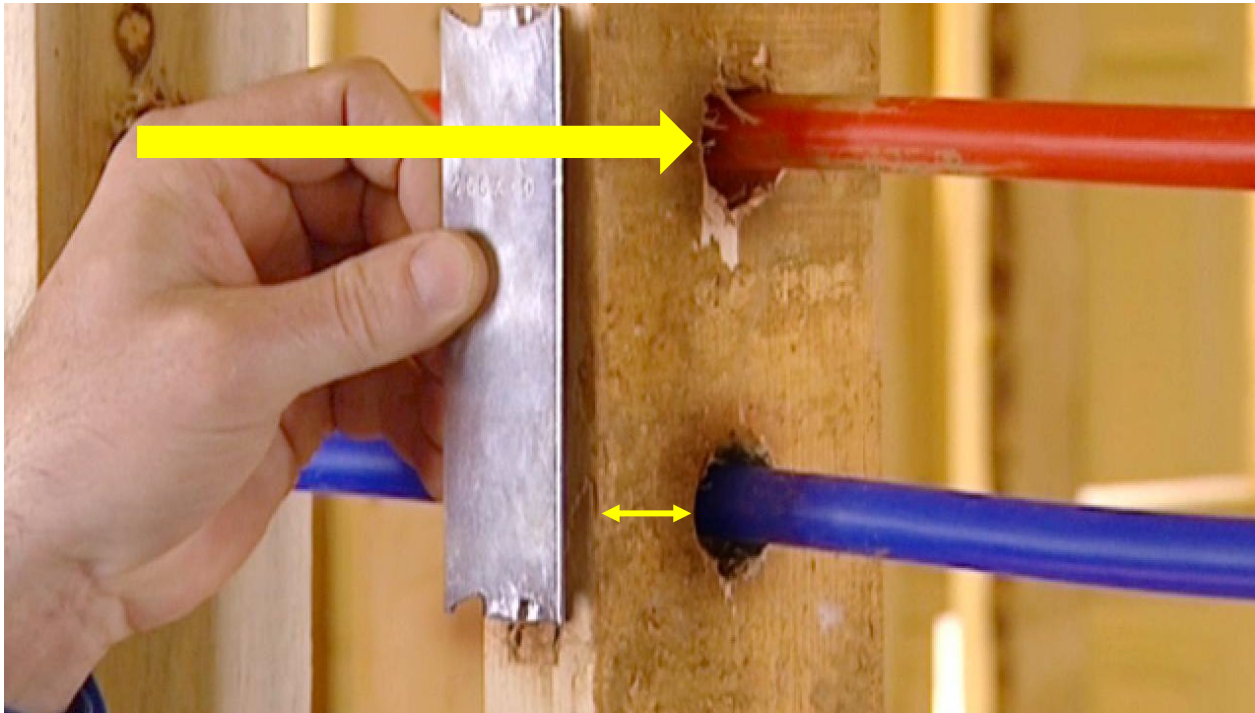


When wall ties are missing or corroded or not installed correctly, the answer is to install remedial wall ties which are normally stainless steel

There are four types of remedial wall ties that will help:

- Hammer action driven ties into a predrilled hole
- Grout filled cementitious sock tie
- Twin pack epoxy resin to hold the tie
- Mechanical expansion ties

All the ties have their merits but must be installed differently



Possible obstructions to installing remedial wall ties:

- Plumbing through the wooden or steel studs
- Electrical wires installed through the wooden stud
- Electric boxes installed next to the stud (usually on the righthand side of the stud)
- Installing wall ties more than 1.1/4 inch into the stud (profile picture)
- Hammering ties into studs can cause damage to internal finishes by pushing out screw or nails in the drywall
- All can have dire consequences for the specifier, contractor and building owner if not installed correctly

TMS Responds would be a great resource for information on cavity wall tie replacement

What's needed is the TMS to work with the countries that have an established course and papers and share knowledge

There is a manufacturer in the UK that offers a specialized four day approved installers course on remedial wall ties and anchors that is amazing for specifiers and contractors

We are going to be teaching the next generation in remediation!

QR Code for paper “Hidden from view:
Investigating Masonry Veneer Anchorage”

