

CASE HISTORY

ESSEX COUNTY NEW COURTS BUILDING AND JAIL - Newark, USA



Limestone cladding of Essex County New Courts Building and Jail was one accident away from catastrophic failure. Cintec installed more than 20,000 anchors to prevent masonry's collapse.

The 1966 building's limestone curtain wall panels had separated from the structure. This caused damage so pervasive and severe that the building was, in architect Michael Zemsky's words, "one accident away from catastrophic failure."

Several new technologies were considered for the repair of the Essex County Courts. Some of the new repair techniques proposed introducing modern materials into historic fabrics, but experts shied away from chemical based fixes, such as epoxies or resins and high strength mortars, as both can damage buildings more than the forces they are trying to correct.

"Compatibility is the key when fixing old masonry," explains

Michael Schuller of Atkinson- Noland Associates, a masonry evaluation and repair consultant in Boulder, Colorado.

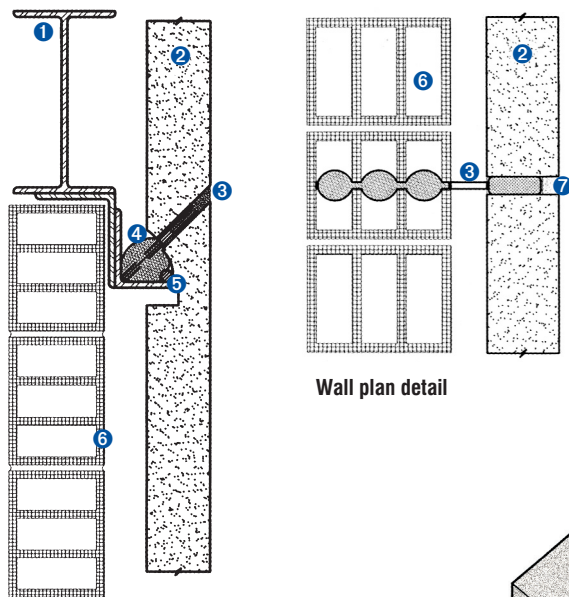
"If you place a really stiff material, such as mortar, next to a softer material, you'll likely get cracking and spalling in the masonry. If there's an epoxy barrier, you'll have water-vapour transmission problems." The most dramatic recent advancements in masonry preservation technology focus on strengthening and connectivity. In the face of seismic forces, wind loads, vibration from vehicles and machinery, inadequate original design, new adaptations, and ageing, stabilising masonry is becoming a more critical element of rehabilitation and historic preservation efforts. Cintec designed anchor systems offered the best alternative to invasive or unsightly structural systems.

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"One of the best things about this system is that the material is cementitious, not epoxy-based," explains Westfield, New Jersey, architect Michael Zemsky. "The most interesting part is that the nylon sock expands to fill the cavity until it is completely wedged in, the exterior is then patched. The wall is then better able to withstand vertical forces and is generally strong".

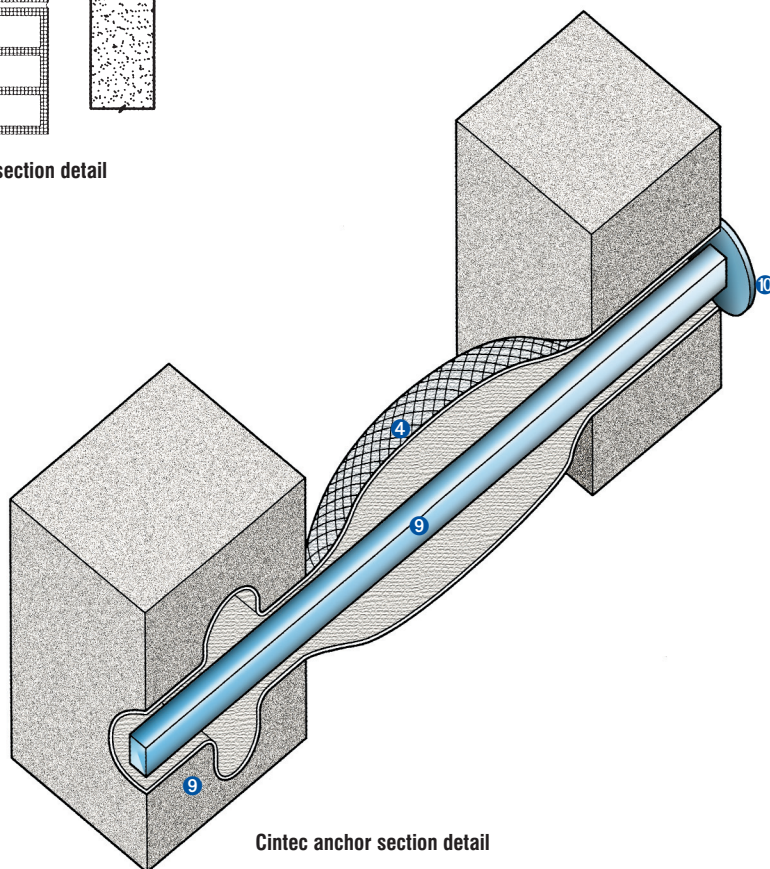
Zemsky's general contractor for the courthouse project, Jim Papandrea, says

that before they inserted more than 20,000 Cintec anchors into the building, they had an independent lab test the system by measuring the strength of the anchors' hold on the masonry. "The pullout tests exceeded 4,000 pounds," Papandrea says of the procedure, in which steadily increasing force is applied until the anchor fails. "The block broke before the anchor did."



Wall plan detail

Wall section detail



Cintec anchor section detail

- 1 structural steel beam
- 2 limestone panels
- 3 Cintec anchor
- 4 expandable nylon sock
- 5 steel relieving angle
- 6 masonry backup
- 7 patching compound
- 8 grout flood hole
- 9 stainless steel member
- 10 end plate

