



# SWR Institute Trinity Project Awards Program

## Project Information: Entry Form II

*(For online submission, go to [www.swronline.org](http://www.swronline.org))*

Project Title: First National Bank - Facade Repairs & Rehabilitation

Location: Richmond, VA

Entry Classification: (Select One)

Sealant

Waterproofing

Restoration

Project Cost (US \$)(Nearest \$100k): \$2,591,963.00 Duration (Calendar Days): 400

Start/Completion Date: January 2012 - February 2013

Work Scope (500 words max) (Attach if necessary) : \_\_\_\_\_

REFER TO EXHIBIT "A"

Abstract (100 words max) (what makes project worthy): \_\_\_\_\_

REFER TO EXHIBIT "B"

Unforeseen Conditions: \_\_\_\_\_ REFER TO EXHIBIT "C"

Problems/Challenges/Solutions: \_\_\_\_\_ REFER TO EXHIBIT "D"

Safety Considerations (public/property/hours accident free, etc): \_\_\_\_\_ REFER TO EXHIBIT "E"

Community/Environmental Impact: Restoration used only products in "like-kind". Since alternative products were not used, the finished project complimented the building history and city skyline.

Technology/Innovation: Not applicable

Site Constraints: 1) Remote employee parking. 2) Limited staging area as was within confines of the sidewalk fenced area.

Quality Control/Field Testing: Used laboratory testing to assist with up front mortar design determination.

Rigging Approach: Surrounded building with (10) swing stages furnished by a member company.

Micro-lams were used to spread the counterweight load out on the penthouse roof. Mobile hoist used to assist with material handling.

Sustainment: Restoring historic building facade fabric in like kind is the ultimate act of sustainment.

## **Exhibit "A"**

### **Work Scope**

Before outlining the scope, let us first provide you with the set-up. Envision a twenty one story structure in a downtown metropolitan setting bound one side with an adjoining building, another side with an alleyway and the other two sides with major trafficked streets. Now also envision deconstructing major portions of the building façade ensuring zero tolerance against employee accidents, public safety and property damage. What an easy undertaking?

The building facade comprised of granite foundation wall; composite brick masonry walls and metal windows; two projecting balconies with cast iron railing; ornate multi-piece stamped sheet metal panels; limestone sills and belt courses; and decorative terra-cotta horizontal/vertical accents and upper level framing. Elevator penthouses possessed painted direct applied stucco on brick walls.

In many major cities, a focus has been on the monitoring wearing condition of the hi-rise building facade fabric. This structure was subjected to scrutiny due to public safety concerns associated with loose sheet metal panels blown off during a tropical storm event and spalled sections of terra-cotta falling to the ground.

In response, an engineering firm was retained to provide a condition assessment survey in order to determine the magnitude of distress and deterioration. To anyone in the business, results certainly were not alarming; however, to the owner they were only disturbing. The assessment report identified major mortar joint erosion; displaced masonry sections; severely cracked brick window head support lintels; aged primary weather seal joints; severely deteriorated sectional window sills; corroded steel surface elements; fractured stone accents; rust jacking of embedded steel elements leading to significant terra-cotta cracking; terra-cotta cracks and spalls from settlement and differential movement; and loose unstable sheet metal panel framing.

The owner of the building also owned a large general contracting firm. As such, they embarked on a journey unlike any other they have ever experienced. The abandoned building was going to be converted into downtown apartments. In most instances, interior renovations can be designed and reasonably priced. General contractors understand and are competent in building construction, but generally are oblivious to exterior restoration as it pertains to methodology and schedule. Budget pricing for the exterior repairs was offered by the engineer. The project was ultimately bid to a select few specialty contractors in the geographic area. The contract price was not too terribly different than the engineer's budget. Based on a price exceeding expectations, exterior repairs have now become a priority and major project cost line item, one which was originally perceived could be a "slush" account. Our challenge was to maintain focus regardless of the pressured budget influence.

As in any exterior restoration type project, there are items which are quantifiable and then there are items with specified allowances. Due to the uncertainty of actual field conditions, this contract was not any different. Most general contractors do not like allowances as they are line items they cannot control. With the continued involvement of the engineer from a construction oversight standpoint, we had to develop trust with this general contractor as over 60% of the contract value was attributed to allowances. These items were to be identified, repaired and documented all upon discovery.

Upper level access was accomplished utilizing swing stages. It took ten (10) stage units to completely surround the building with the exception of one drop where the buck hoist was located. Each stage and crew was responsible to survey their drop and report their findings, specifically as it pertained to the allowance verification. Project staffing comprised of one Project Manager, one lead Foreman, one assistant Foreman, eighteen producers and two sheet metal specialists. This excessive manpower loading warranted the need to partner this project with a fellow SWRIInstitute contractor member.

There were approximately (90) cost phase codes of which (32) work tasks were classified as allowances. When all said and done, the engineer erred on the conservative side which was a saving grace as there was an 8% credit upon completion.

## **Exhibit "B"**

### **Abstract**

Some say revitalization of historic structures is the ultimate act of sustainment. Buildings built in the early 1900's possessed architectural features and fabric which were iconic but also problematic. Walking through the structure you can begin to imagine what it was like before it was abandoned. It takes a special person and a special vision to not destroy the past but preserve it for an extended use. A vacant twenty one story building with deferred facade maintenance in a large metropolitan setting can be a "diamond in the rough".

## **Exhibit "C"**

### **Unforeseen Conditions**

- 1) Varying building tolerances resulting in multi-length stone sills.
- 2) Needs to stabilization of a structurally unsound northeast building corner.
- 3) Difficulty in maintaining harmony amongst employees from two member companies with mildly different policies.

## **Exhibit “D”**

### **Problems/Challenges/Solutions**

- 1) Terra-cotta replacement pieces: Detrimental material delivery scheduling impact was mitigated via adjusting material needs per stage drop so that visible street side work was completed first.
- 2) Sheet metal panel repairs: Handling this puzzle of ornate pieces was mitigated via hiring a roofing vendor possessing an in house specialized metal shop.
- 3) Brick lintel: Means and methods left up to the specialty contractor who ultimately fabricated at their shop and shipped in single sections.
- 4) General contractor communications: Difficulty in maintaining G/C project manager focus. Mitigated matters via generating minutes used to reflect back on actual dialogue.
- 5) Masonry cleaning: Difficulty in achieving owner expectations with specified water only. Ultimately mitigated matters via use of localized environmentally safe detergent.
- 6) Foreman personality conflicts: Mitigated via use of monthly all day progress meetings with Principal of member company.
- 7) Stage rigging conflicts: Conflicts with re-roofing work task and telecommunications cable tray. Mitigated via periodic relocation of outriggers.
- 8) Buck hoist drop: Detrimental impact with overall project duration. Mitigated by extra man on stage attempting to compress two month duration.
- 9) Upper level recessed windows: five foot recess mitigated by stage company furnishing a “porch” bracket with counter weights thus allowing workers closer access to the façade.

## **Exhibit "E"**

### **Safety Considerations**

- 1) Mobile hoist to assist with manhandling "monster" sized hung terra-cotta units.
- 2) Tethering small tools and PPE's.
- 3) Installation of plywood/EPS protection for the adjoining roof.
- 4) Project resulted in zero lost time.





**Construction progress**



**Construction progress**  
**(Award Plaque)**



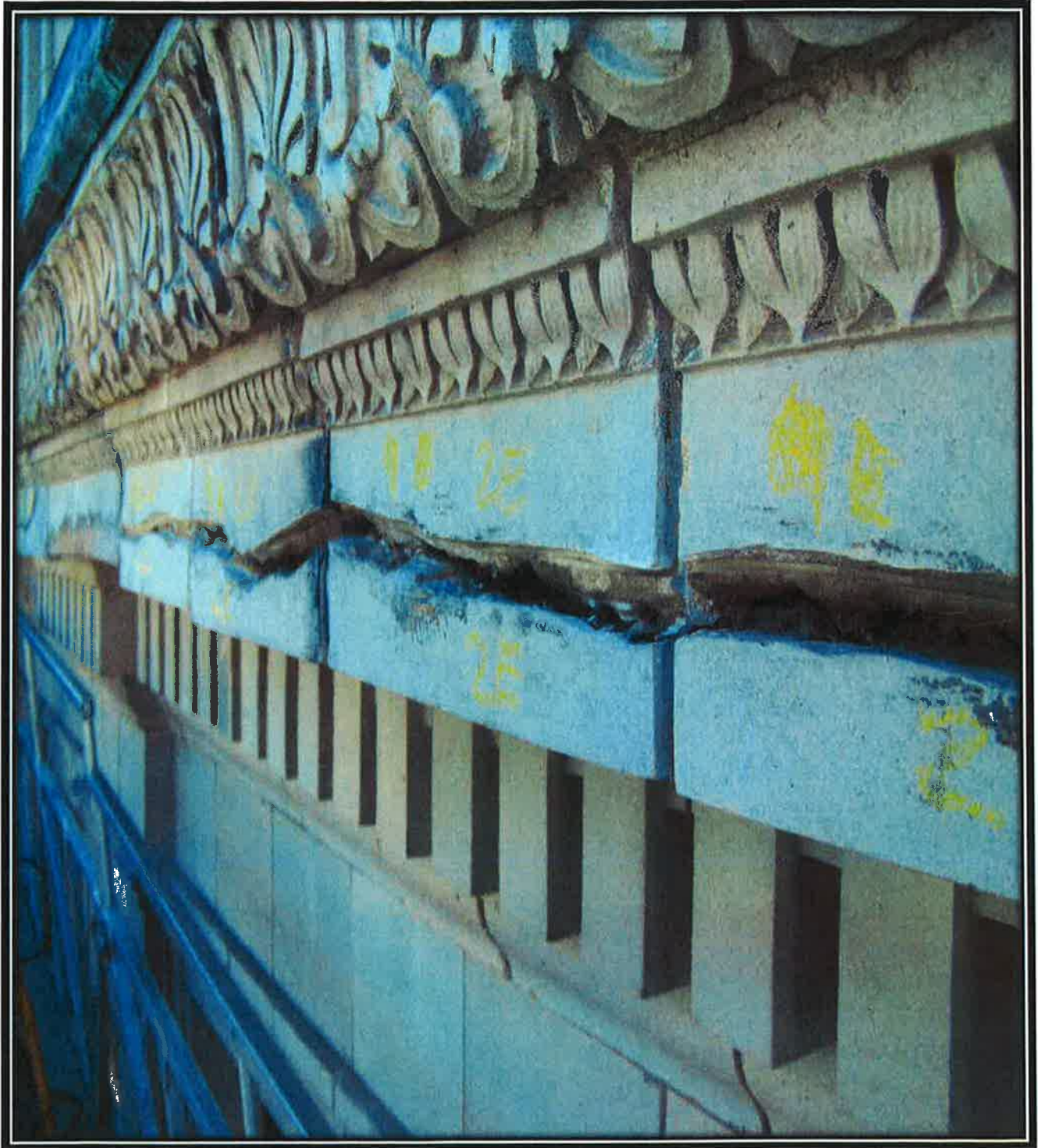


**Completed project picture except brick hoist drop**



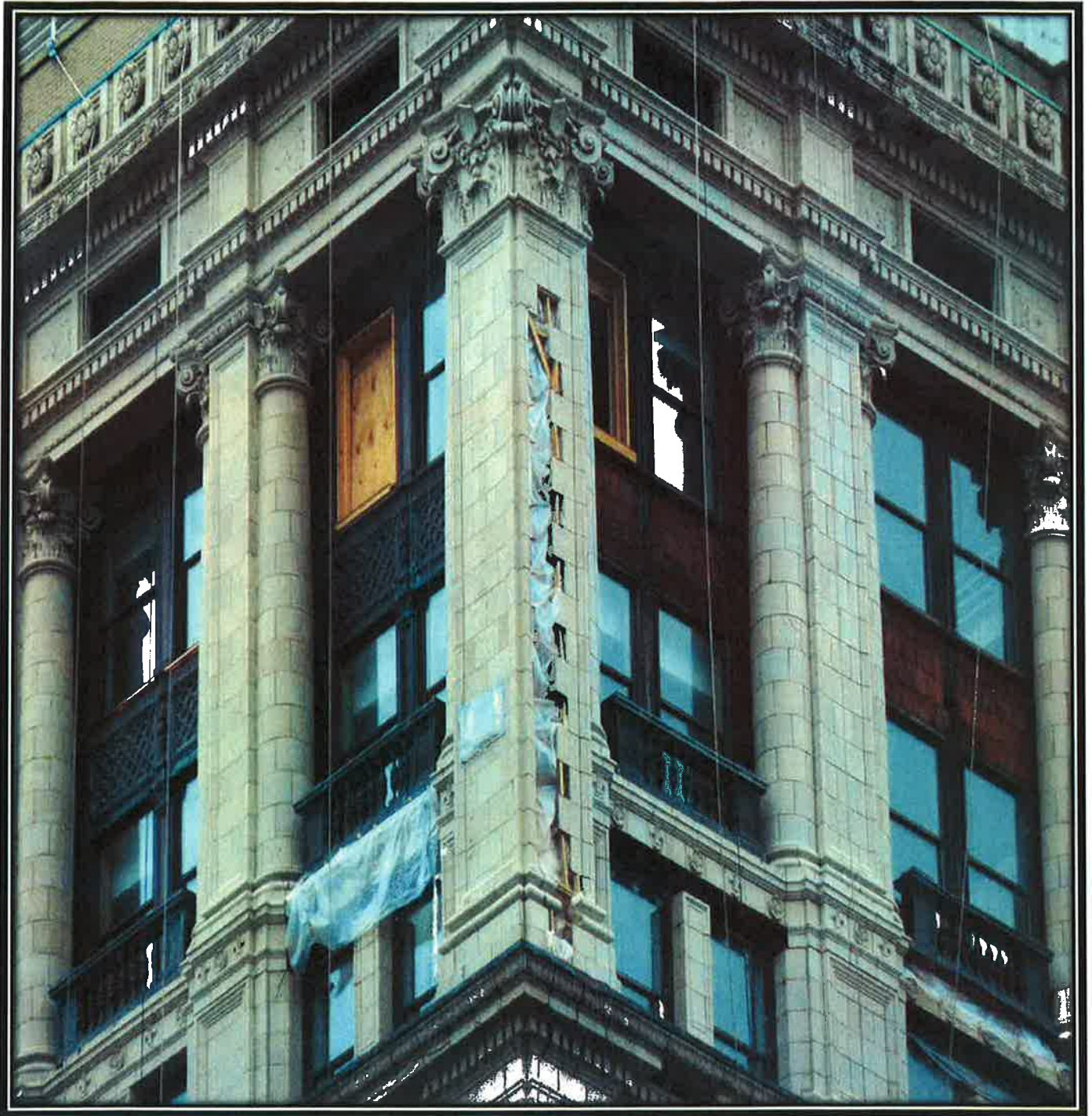
**Porch bracket example depicting extending upper level work access**





Terra-Cotta distress



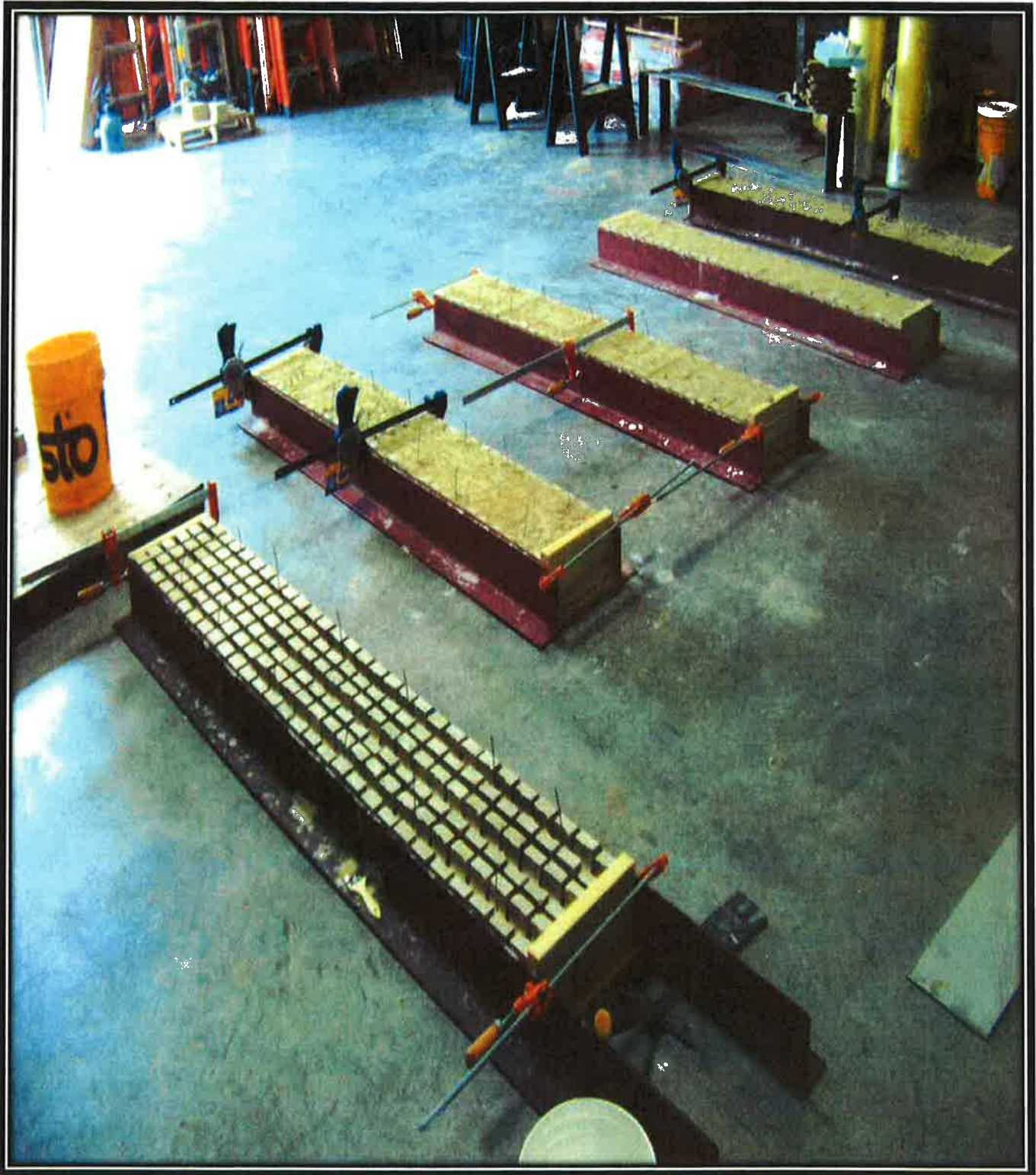


Terra-Cotta replacement



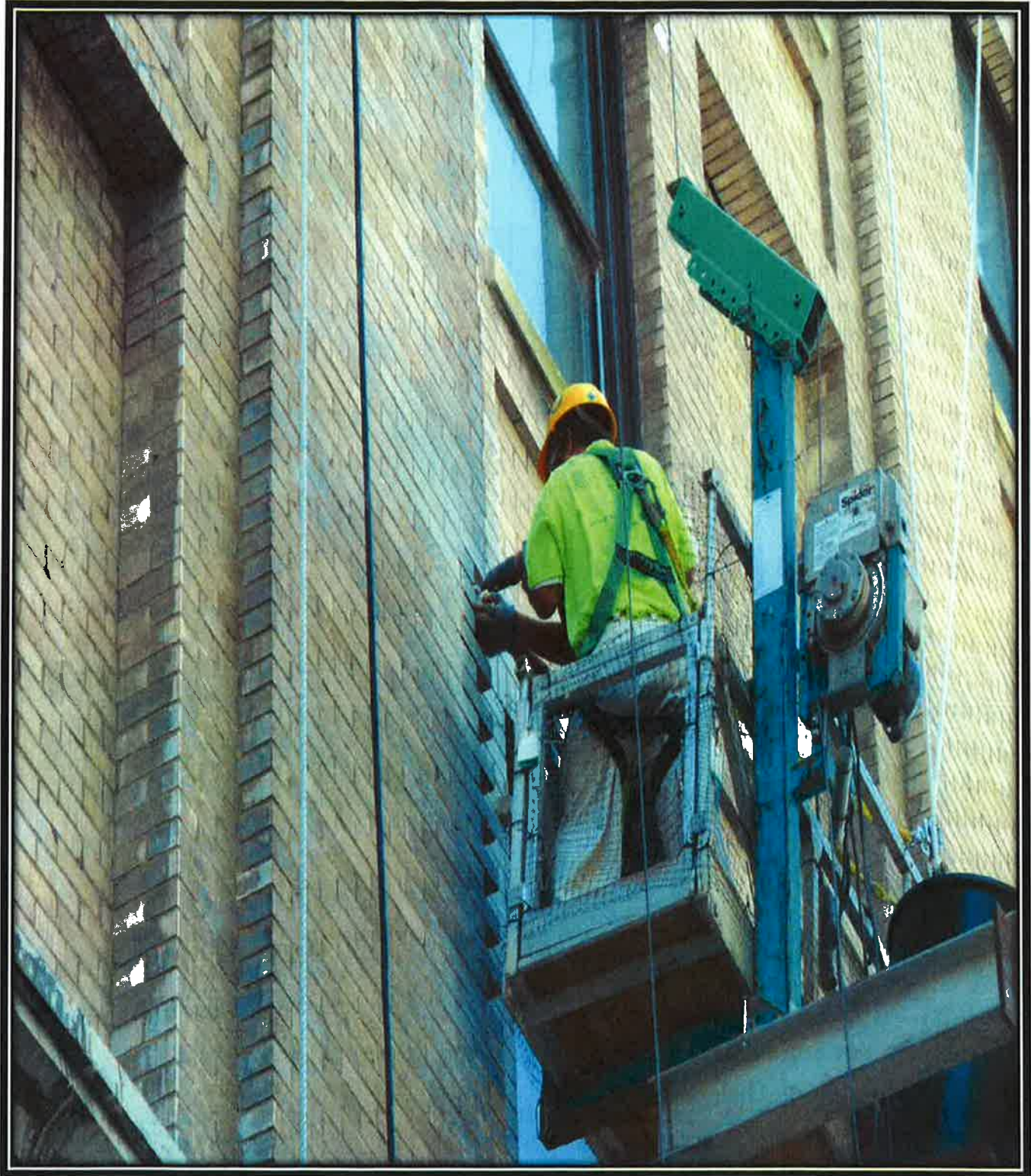
**Example of brick lintel to replace**





Shop fabrication of brick lintels



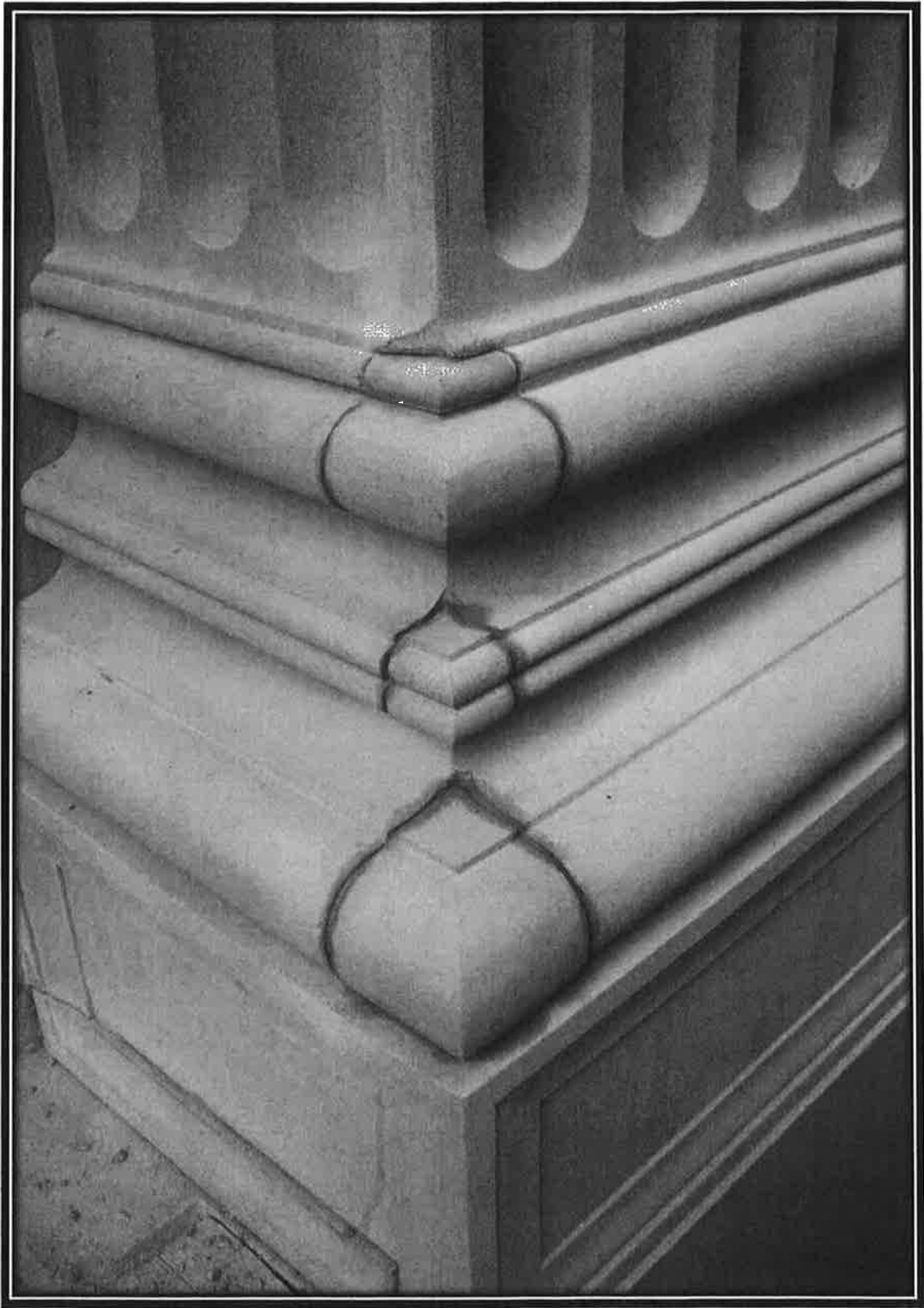


Ongoing brick repairs



**Cracked window sills to replace with limestone**





Limestone Dutchman repairs



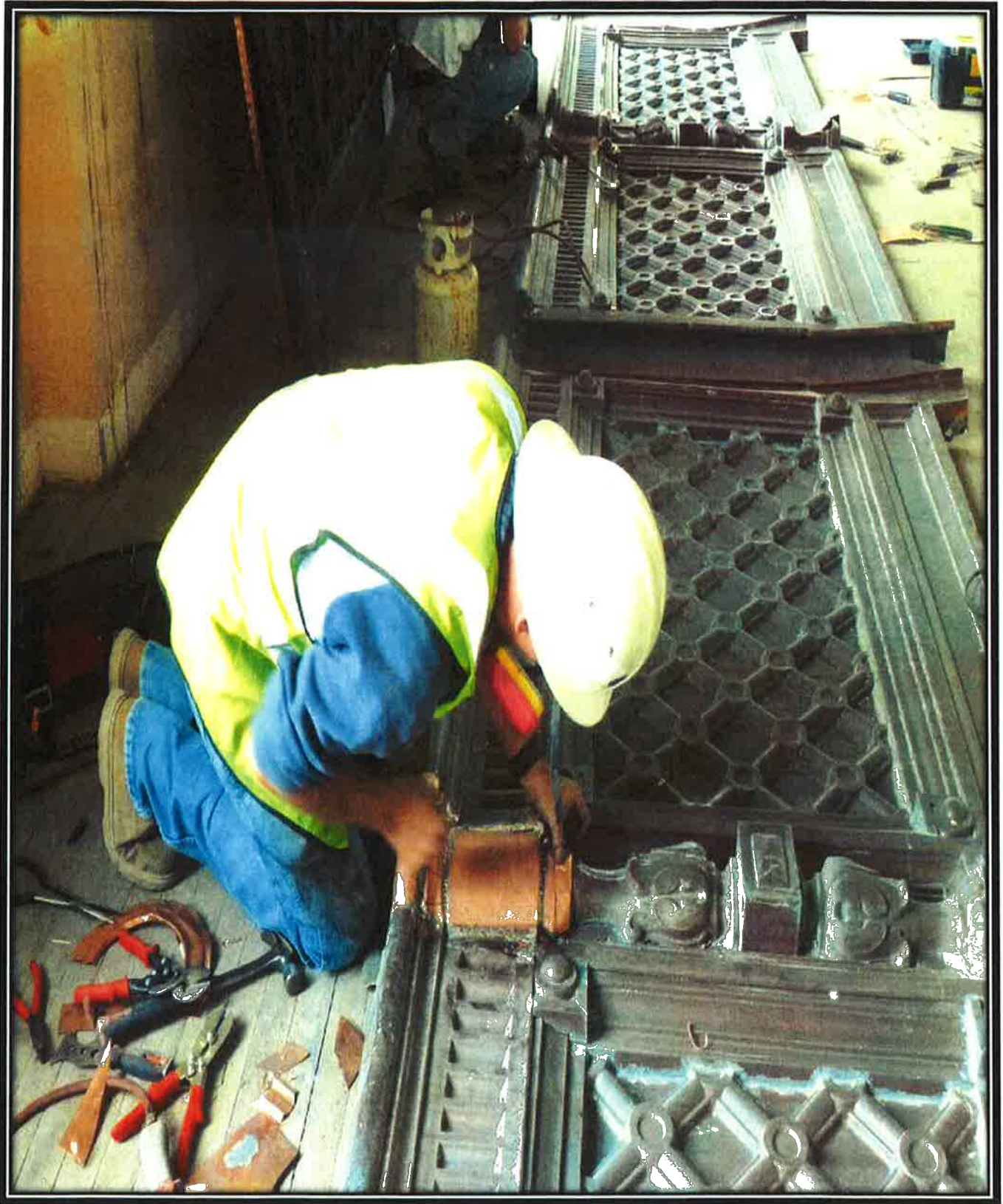
**Upper level balcony reconstruction**



**Northeast corner stabilization needs.**

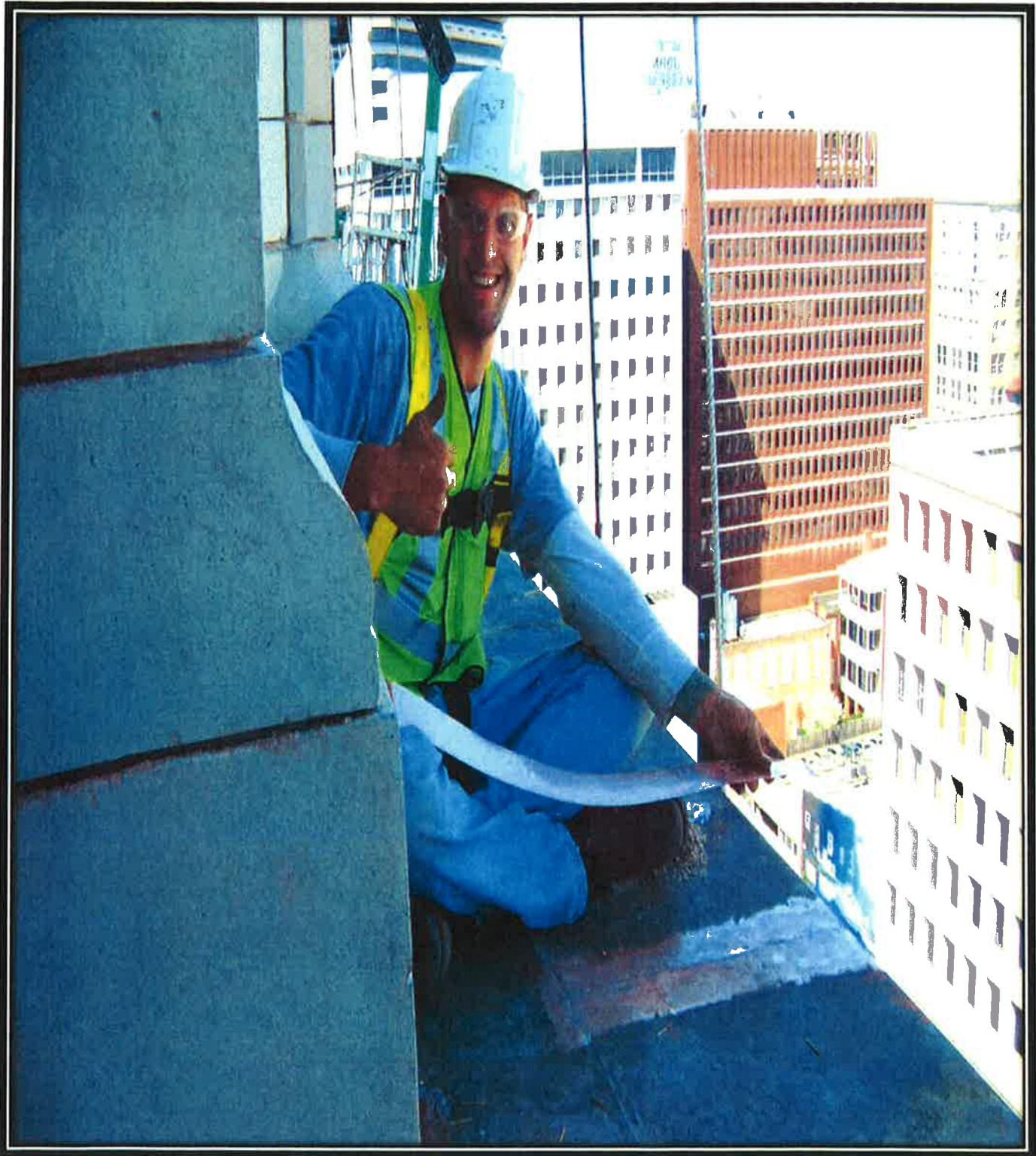
**Picture depicts existing conditions with temporary shoring prior to placement of netting and full height rod stitching.**





**Maintenance repairs to ornate multi-piece stamped metal panels**





**Sheet metal maintenance**