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Approaching Renovation

—With Reasonable Precautions in Mind

Rehabilitation adds a new element of risk to an already uncertain undertaking. On most projects, the architect will be asked to work on the basis of information that may or may not be accurate, that may or may not be complete. One can attempt to verify this information by taking measurements, observing the surface features of buried utilities, and peering through access panels. But, in the end, the architect will have to make his own assumptions. Where actual conditions later prove to be different from the assumptions made, there will be changes and delays. Some will be costly. Therein lies a healthy portion of risk.

The question is, who is going to assume these risks? Rightfully, it ought to be the owner. But, unless this question is raised at the very outset (and come to a clear understanding about its resolution), the owner is likely to assume either that the risks are the architect's or that they can somehow be passed through to the contractor. Owners should understand that they, not the architect or contractor, are the only ones in a position to take those risks.

Coping with the Risks

The actual conditions encountered during construction can vary, perhaps significantly, from the available "as built" drawings, equipment submittals and design data. Unless this is known to the owner and the inherent risks discussed, he or she may not realize that hidden conditions can affect the work in unforeseeable ways and may not be prepared to cope with the changes, increased costs or the time delays that experience indicates can easily be anticipated.

The least uncertain approach would be to commission the architect to conduct a detailed analysis of existing conditions as a preliminary, separate project. This entails such testing, early demolition, and exploratory excavation as may be necessary to verify the location and condition of concealed installations and buried utilities. There will be money involved, but, in choosing instead, to have plans and specifications prepared based on existing information, a known cost is avoided only at the expense of increased uncertainty. There may well be real costs involved in making this choice—costs likely to manifest themselves in the form of substantial changes during the course of the work.

The Contractor's View

It is also important to keep in mind that the architect and owner are not the only parties to the project with an interest in a successful outcome. The contractor wants to complete the work on time and walk away from it with a reasonable profit. This will be difficult, at best, if the owner chooses to operate under the mistaken assumption that the inherent risks can be shifted to the contractor simply by requiring verification of conditions on the site prior to the submission of a bid.

The contractor is in no better position ot verify hidden conditions than is the architect, and contract language seeking to force the issue is little more than an invitation to trouble. It is likely to result in an inflated bid and, should that later prove to be inadequate, in requests for change orders and extensions in time—requests that can be "respectfully denied" only if the architect and owner are willing to fight a costly, time-consuming battle to find out whether the construction contract is enforceable or not.

(continued on page 3)

deferred maintenance

Jamb Corrosion

Problem
Steel double hung windows show signs of corrosion where the jamb section meets the sill.

Cause
Weep holes, put in the steel sections to allow moisture to escape, are plugged by dirt and debris that have blown in through the sash track opening. The moisture, over time, attacks the protective coatings on the steel and corrodes the metal.

Solution
With the sash raised, remove the parting strip and inside jamb cover. Clean dirt and loose scale from the inside of the jamb using a vacuum and scrapers. Open up the weep hole. Treat the corroded area inside the jamb with a rust inhibitive primer and top coating. If the window is not required to be operable, the sash track should be sealed with a neoprene gasket.

Severely corroded window jamb

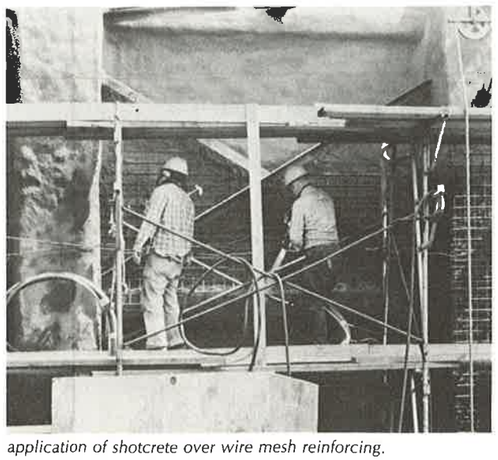
Mechanical Tower Enclosure

Problem
A masonry wall enclosing a cooling tower and mechanical enclosure was found to be severely deteriorated, as evidenced by spalling and cracking of brick.

Cause
Interior of 8" wall consists of common brick which is too soft to resist the harsh effects of weather. Water absorbed by the soft brick freezes, causing spalling. Movement of the wall and frame causes minor cracking which allows more water to enter the wall and corrode the steel spandrel beams. The rust expands, causing further cracking.

deteriorated section of common brick wall

Solution
Clean and paint corroded steel spandrel beams. Apply two inches of pneumatically placed concrete with reinforcing mesh to inside of wall. Not only does this provide protection from weathering, but also strengthens the wall. The alternative solution to this problem would have been to completely disassemble and rebuild the masonry wall.



application of shotcrete over wire mesh reinforcing.

services

Plan Review

Hoffmann Architects performs reviews of construction documents for mortgage and construction lenders and equity investors such as Aetna Life and Casualty, The Prudential Insurance Company of America, and Travelers Insurance Companies, and for other architectural and engineering firms.

Plans and specifications ideally should be reviewed prior to going out to bid, but definitely before construction begins. The following case history points this out clearly.

We reviewed plans and specifications for a three story office building complex under construction in Maryland. The drawings were reviewed for such items as code compliance, type and quality of construction and materials, and structural design. In many cases, the items specified conflicted with what appeared on the drawings. Roofing and waterproofing details were unworkable as drawn. However, one deficiency that was uncovered was much more serious — a steel beam supporting the wooden roof trusses was found to be severely overstressed and thus a real hazard. To be the proper size, the depth should have been approximately twice what was shown on the drawing.

It is to the benefit of everyone concerned that the beam was identified before a possible failure! However, the case is strengthened for an early review. Had it been done prior to construction, a minor change in beam depth would have corrected what is now, after erection, a very costly and serious problem.

Approaching *(cont. from page 1)*

What To Do
The odds are not in the owner's favor. Far better that adequate reserves be set aside for contingencies that simply cannot be anticipated in advance. If the reserves must be used, they will be available; if not, so much the better. In either case, if conflict is avoided, everyone involved comes out ahead.

Taken from "The Professional Liability Perspective" March 1983 Copyright 1983 by F.M. Jackson Associates, Hartford, Connecticut.

staff and technical notes

Additive Alert

An additive used to increase the strength of mortar has been the subject of intense scrutiny and lawsuits. This material contains a substance called vinylidine chloride that causes a chemical reaction when put in contact with steel. This reaction releases free chlorides that severely corrode the steel.

In a case where the masonry is on a steel framed building, the corrosion may cause potential structural deficiencies due to loss of cross section in the members. Since the expansion of the rust causes great stresses in the masonry surrounding it, cracking and spalling may occur. Even those buildings with other types of framing systems have at least some steel components, such as clip angles or masonry ties, that are likely to come into contact with the mortar. If these are weakened by corrosion, the wall may delaminate.

Because admixtures of this type have been specified in thousands of buildings since the late 1960's, owners should be aware of the chemical's existence and possible hazardous conditions resulting from its use.

We welcome contributions to Hoffmann Architects/Quarterly from our clients and friends. Please send news and technical information to John J. Hoffmann, AIA, Hoffmann Architects, 3074 Whitney Avenue, Hamden, CT 06518, or call (203) 281-4440.

Roofing Poll

Results of a poll taken by the Midwest Roofing Contractors Association indicate that elastomeric single ply, such as EPDM or neoprene, and glass fiber built-up roofing systems give the best performance in the field. Rated by one hundred ninety one contractors from throughout the country, from zero (worst) to ten (best), the two systems rated 8.9 and 8.8 respectively. Following those were modified bitumens and coal tar built-up at 8.4. Rated lowest for performance in the field were plastomeric single plies, such as PVC and CPE, at 7.7, organic built-up at 7.1, and inorganic (asbestos) built-up at 5.1.

Over forty percent of the roofing contractors polled said they routinely recommended either a glass fiber built-up or elastomeric single ply above other systems available.

If you would like a summary copy of the Roofing Systems Survey *conducted by the Midwest Roofing Contractors Association, please write and let us know.*

Staff News

Walter E. Damuck, AIA, CSI, was one of the instructors at a seminar sponsored by the American Arbitration Association. Walt lectured on effective contract administration as a part of the overall seminar topic "Construction Disputes - How to Avoid Them and How to Solve Them".

Harwood W. Loomis, AIA, has been appointed to the Construction panel of the American Arbitration Association.

John S. Van Jeune, CWI, is one of the lecturers at Hartford State Technical College on structural steel welding inspection in the shop and field.

credits

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