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Conspectus's Tech Tips received the national Communications Award from the Construction Specifications Institute September 2011.

ABSTRACT:

When is the scope of work on a restoration project prepared? On what does the contractor base his bid? Too often, the scope of work on a restoration project is poorly defined or incomplete. Learn what an architect can do to prepare construction documents that show the scope of work, accurately, even when much of the necessary work is concealed by other construction.

FILING:

UniFormat™
B2010 - Exterior Wall

MasterFormat®
04 01 00 - Maintenance of Masonry

KEYWORDS:

Masonry, historic, restoration, cleaning, repointing, probes, mock-up, unit prices

REFERENCES:

National Park Service, US
Department of the Interior (GPO)
Preservation Briefs
Brick Industry Association (BIA)
Technical Notes on Brick
Construction

The Envelope, Please...

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Mystery Scope

Whenever I am trying to determine the scope of work on a restoration project for which I am writing the specifications, I often feel like I'm at the Academy Awards, anxiously awaiting the passing of the envelope to the presenter of the award. I can understand the reluctance of an architect to stick his neck out and make a guess, since very often deleterious conditions are hidden by other construction.

A common mystery scope is the methodology and extent to which an exterior masonry wall must be cleaned and repointed. For concealed problems, probes are frequently necessary to determine the extent of necessary work, and they should be done prior to the preparation of documents.

How Clean Is "Clean?"

The level to which a surface must be cleaned is subjective. Since the owner is paying for the work, the owner, with the architect's advice, should be the one to determine the satisfactory level of cleanliness. The only way to do this is by cleaning sample wall areas prior to documentation.

Masonry walls, in particular, can be cleaned in numerous ways. The nature of the soiling is a determining factor. Atmospheric dirt may be removed by a simple detergent wash. However a more aggressive pressure washing or chemical cleaning may be required for satisfactory results. If there is paint on the wall, chemical cleaning with an appropriate solvent may be required.

Depending on the age of the masonry, lighter versus heavier pressure might be required for pressure washing. Sometimes, as in the case of limestone, a slow water drip is required. Limestone is a relatively soft material that can be damaged by chemicals and pressure washing. Whatever the nature of the soiling and masonry materials, a small, out-of-public view sample panel should be cleaned and reviewed by the owner and architect for acceptance.

How Much Is Enough?

Another factor affecting scope is quantifying the necessary work. Prior to preparing a bid form for a restoration project, careful estimates should be made of the quantity of cleaning and repointing to be performed. Usually these items are calculated as a percentage of the whole wall area. In the bid form, the cleaning and repointing work can be stipulated as a unit cost bid with an accompanying estimated quantity of work.

Cleaning is estimated on a unit area basis, and repointing is estimated on a unit length of joint basis. More difficult to estimate is masonry replacement. Sometimes masonry gets damaged or comes loose during cleaning operations, necessitating wholesale replacement of a masonry element. Sometimes it is the anchors of a veneer that have deteriorated and aren't discovered until work begins. Probes can reveal whether veneer anchors need replacement when there is no visible evidence of their corrosion.

Replacement is estimated on a unit area, unit piece, or unit length basis,

depending on the type of replacement needed such as brick replacement, helical anchors, and lintels, respectively.

The Building Isn't Historic, So Who Cares?

Regardless of whether or not a building is historic, the same issue of scope is present. The historic nature of a building has little bearing on how much cleaning or repointing is necessary. Rather, the issue is how do we restore the building to a weather-resistant state? Rain doesn't care whether the building is historic or not. The National Park Service publishes "Preservation Briefs," available for free online. They address every type of masonry found on historic buildings.

Visit <http://www.nps.gov/tps/how-to-preserve/briefs.htm>. If you want printed copies, they are also available for a minimal charge from the Government Printing Office (GPO). Typically, these briefs address restoration of historic structures, but they can be used for all types of restoration projects.

The Brick Industry Association publishes Technical Notes on Brick Construction that are also free online and address everything from admixtures to weep holes. Visit www.gobrick.com to download Tech Notes.

Finally, there are a few restoration experts with whom you can consult. It is worth considering since they work almost exclusively on historic structures, have probably seen all manners of failure, and can better anticipate what will be necessary to make a historic building weather resistant. Building envelope consultants are another source for advice on restoring masonry buildings.

Consequences Mystery Scope

Defining the scope of work accurately is necessary to receive comparable bids. If scope is poorly defined, the determination of the scope of work is left to the contractors bidding on the project.

Not all of the bidders may visit the site to make a determination in this regard. Some will rely on the drawings and specifications as written. Some will visit the site and see what they can determine by looking at the building. Different contractors will see different things based on their level of experience.

Some contractors may bid low especially if selection is based on price alone as is often the case for public bidding. In all cases of a poorly defined scope, the bids will reflect deficiencies in the documents rather than the actual scope of work.

Be a Hero!

On some restoration projects, it may be the first time an owner has ever done any significant work on their building. In other instances, the owner may never have received the proper guidance and is simply ignorant of the requirements to properly restore their building.

In some locales such as New York City, Chicago, and Philadelphia, owners are required to perform regular inspections of their building facades. Failure to do so can result in heavy fines, but the consequences of building elements falling from their buildings can result in even more severe penalties, injury or worse. Be a hero to your client by advising them to mock up the planned restorations before completing the construction document. Perform probes and witness sample cleaning and repointing to firmly define the scope of the work. Spending a little time and money up front will save the

owner greater expenses further along in the project.

Conclusion

Identify the scope of work the best that you can. Photograph the existing building, and inset the photos on the construction drawings. Note the photos or building elevations showing the areas that must be restored and the type of restoration required. Keynotes are a great help for indicating the same work in many locations.

Strongly suggest the owner hire trusted contractors to perform mockups, especially for cleaning, and probes to confirm the project scope before the documents are finished. Use estimated quantities and unit prices on the bid forms so all bidders are relying on the same information. Then scope adjustments can be accommodated easily by applying the unit prices to adjust the cost of the work.

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