

### **Overall Themes – Design Community**

- Greater plan review is needed either by an outside party (e.g., technical peer review, building-envelope specialist) or through the use of detailed checklist.
- Greater oversight is needed on the job-site. Developers/owners need to budget for oversight, which could be provided by a certified expert on staff or by an outside party (e.g., building-envelope specialist).
- Maintenance is often overlooked. Designers, developers, and contractors should jointly develop a maintenance manual and verify maintenance is conducted.

Mark Jacobsen, J.D., Risk Manager - Ankrom Moisan Associated Architects

Mr. Jacobsen provided an overview of the steps Ankrom Moisan has taken to reduce its exposure to risks in condominium projects, which represent about 50% of the firm's work. Ankrom Moisan is working to develop condominium/multi-family best practices. Most designers, contractors, developers, and other stakeholders are looking at the issues surrounding construction claims either individually or as an association. A new attitude seems to be emerging that recognizes it is important to get all the players in the room and approach these issues in a comprehensive and proactive way.

Mr. Jacobsen indicated that water intrusion through the building envelope is the number one issue, which he attributed to deficiencies in three fundamental elements - design, construction practices, and maintenance. Any solution needs to address all three elements. Ankrom Moisan has addressed these elements by retaining a building envelope specialist to:

- Assist in the selection and detailing of envelope systems
- Review construction documents
- Help develop the maintenance manual
- Conduct onsite inspections of critical envelope assemblies

#### Recommendations:

- Develop minimum design standards to include the use of a drainage-cavity system (e.g., rainscreen).
- Third-party review of design, construction, and maintenance. Washington and British Columbia offer two different implementation models to consider. No matter what model is adopted, Mr. Jacobsen believes that some form of building-envelope certification is needed.
- Specify minimum design assumptions especially related to the building envelope.
- Maintenance manual. Design simple and effective maintenance into the building design. Crafting maintenance manual as the job is going on. Contract language to provide right for designer and/or contractor to review maintenance procedures being undertaken.

Mr. Jacobsen submitted Exhibit J, a working draft of voluntary best practices.

In response to questioning, Mr. Jacobsen raised concerns that the condominium act unnecessarily restricts the ability of designers/contractors/developers to put conditions into the homeowner association declarations (e.g., maintenance requirements).

Raymond T. Miller, S.E., President - Miller Consulting Engineers

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Mr. Miller provided a list of jobsite-related problems and possible solutions (Exhibit K) compiled from his professional experience and in consultation with the American Council of Engineering Companies. He indicated that many plans are not reviewed sufficiently prior to filing with the building department. He cautioned that some contractors use the jurisdiction as their quality control. Similarly, Mr. Miller indicated that oversight on the jobsite is insufficient, especially on residential and small commercial jobs. A solution to these issues is some form of quality review process whether it be an in-house review utilizing a variety of checklists from national organizations, technical peer review, or greater oversight by requiring a knowledgeable supervisor on the job site at all times.

Recommendations:

- Improve technical plan review process either in-house, peer review, checklists and require a signed statement from the design firm that the plans have been reviewed in house prior to submittal for permit.
- Require inspection and sign-off by knowledgeable supervisor, special inspection, manufacturer/supplier or trained/certified installer for critical construction elements
- Require increased training for proper use and installation of new products.
- Design team and contractor collaborate to produce a maintenance manual.
- Require moisture content of lumber less than 19%. Follow up question discussed the details of how this could be implemented.

Timothy M. Rippey, P.E., S.E., Principal - T M Rippey Consulting Engineers

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Mr. Rippey began his testimony by indicating that from a structural perspective the buildings that have been built in the last ten years are the best they have ever been. In his professional opinion, the codes are better, enforcement is better, and buildings are safer. He echoed previous presenters that design professionals, developers, contractors, and owners share the blame.

From a design perspective, the architectural styles, building materials, and increased insulation are less forgiving than in the past and do not take into account local climate, which has led to an increase in water intrusion issues. Because of the use of single-purpose entities and short-time horizons, Mr. Rippey believes some multi-family developers are not investing in the long-term quality. Furthermore, designers, developers, contractors, and owners are not budgeting for proper oversight and maintenance. A final issue was the lack of skilled labor among sub-contractors, which has resulted in lower-quality workmanship.

Mr. Rippey echoed the solutions of previous speakers, including using building-envelope specialist to review design and construction.