

Proposal #7: Envelope Design Details October 25, 2006

1. *Current Oregon Law*

In Oregon, persons that prepare plans for construction – architects, engineers and designers – need not expressly demonstrate how they intend on maintaining the integrity of the elements composing the building envelope. In order to obtain a building permit, plans for a commercial structure must meet fairly definite design details – construction documents “shall provide details of the exterior wall envelope as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, water-resistive membranes and detail around openings.”¹ In contrast, construction documents required to obtain a residential building permit do not include any specific requirements for building details.²

2. *Testimony*

Many individuals testifying before the Task Force in its Phase I proceedings mentioned design details. Participants in the building science panel presentation echoed the same sentiments. In the November 1, 2005 meeting, George Tsongas, Professor Emeritus of Mechanical Engineering at Portland State University, noted that insufficient details contributed to construction defects.³ John Lamb and Eric Hoff of Western Architectural expressed concerns about the quality of residential designs.⁴

In the design community panel, Mark Jacobsen of Ankrom Moisan Associated Architects noted that one of the chief causes of moisture intrusion was design deficiencies.⁵ Tim Rippey, of TM Rippey Consulting engineers, also observed that designers were not drafting designs appropriate for Oregon’s climatic conditions.⁶ During the developer’s panel in January 25, 2006, Robert Gillespie of Oregon Housing and Community Services said that developments financed by his department focus on architectural review of external moisture infiltration and the subsequent likelihood of mold development.⁷

During the contractor’s panel presentation on February 15, 2006, Andrew Beyer of Walsh Construction Company thought that multi-unit projects needed a focus on quality design.⁸ Tim Bogart, of Bogart Construction Enterprises, stated that architects or design professionals need to develop more complete design details.⁹ Glyn Jones, of S.D. Deacon Enterprises, recommended requiring building envelope details for permit review and approval.¹⁰

At least one invited speaker on the crafts and trades panel reaffirmed the contractors’ suggestions. Royal Robinson, of the Plasterers and Cement Masons Local 528, testified that some construction defects are a result of a lack of detail in drawings on flashing, windows, caulking parapet walls, transition of materials and rooflines.¹¹ In the building material supplier panel, Kenneth Nota, of Dryvit

¹ ORE. STRUCT. SPEC. CODE § 106.1.3 (2004).

² See ORE. RES. SPEC. CODE § 106.1 (2005).

³ Minutes, Construction Claims Task Force 4 (November 1, 2005).

⁴ Id.

⁵ Minutes, Construction Claims Task Force 5 (December 2, 2005).

⁶ Id., at 6.

⁷ Id., at 5.

⁸ Minutes, Construction Claims Task Force 3 (February 15, 2006).

⁹ Id., at 4.

¹⁰ Id.

¹¹ Id., at 5.

Systems, Inc. stated that lack of sufficient construction details played a part in the presence of residential construction defects.¹²

3. *Envelope Design Detail Requirements in Other States*

After reviewing the design requirements of the twenty-five states surveyed, two states did address building details. For example, changes made in 2004 to the Ohio residential building code¹³ require building envelope design details to be submitted with other construction documents.¹⁴ Washington state requires plans drawn up for condominium construction include building enclosure design documents.¹⁵ Also, “changes to the building enclosure design documents that alter the manner in which the building or its components is waterproofed, weatherproofed, and otherwise protected from water or moisture intrusion” are stamped by the responsible licensed architect or engineer and submitted to the local building department.¹⁶

4. *Staff Analysis and Recommendations*

Staff recommends that persons preparing plans show how their building designs resist water intrusion during the permit process. The statistics describing construction defect claims in Oregon point to a disproportionate number of residential claims involving the installation of building envelope components. In its presentation to the Task Force, American Actuarial Consulting Services stated that 78% of reported claims involve water intrusion, 75% of those claims involve the building envelope, and 76% of claims affect single-family homes.¹⁷ Given the large share of claims affecting residential construction, staff recommends that plans for structures covered by the residential code – detached single-family homes, duplexes, townhouses, rowhouses, and residential structures three stories or less in height – show envelope detail. Under this recommendation, the person preparing plans or the person obtaining the building permit would submit their selected design methodology for informational purposes. The local building department would not approve or reject the design details. Instead, the building department would require that the plans are made available at the jobsite and also retain them as part of the building activity record. Staff recommends that if plans do not include any envelope design details, that the local building department withhold the building permit.

Recommendation #7. Staff recommends the following changes:

1. *Require persons preparing plans to submit envelope details for “residential” construction.*
2. *Require designer to submit their selected design methodology for informational purposes.*
3. *Disallow issuance of building permit without building envelope design details.*

¹² Minutes, Construction Claims Task Force 6 (February 15, 2006).

¹³ The Ohio residential building code only became enforceable statewide as of 2005. See Am. Sub. H.B. No. 175, 125th Gen. Assem., Reg. Sess. (Oh. 2004).

¹⁴ RES. CODE. OF OHIO § 106.1.1 (2004).

¹⁵ WASH. REV. CODE. § 64.55.020(1).

¹⁶ Id.

¹⁷ See AMERICAN ACTUARIAL CONSULTING GROUP, LLC, OREGON CCTF INSURANCE ANALYSIS: REFORMS, ALTERNATIVES AND PRICING 9-10 (July 26, 2006) (on file with author).