
Memo

Date	July 3, 2017
Project	Portland Building LU 17-153413 HRMAD
Project No.	74-16113-00
Subject	Rainscreen System Justification: Additional Clarifications

The Portland Building project design team would like to take this opportunity to respond to concerns and testimony calling into question the decision to cover the existing concrete exterior of the building with a new rainscreen cladding system. While this decision process was documented in the application package in the form of our D3 Decision Making Document (provided in our submission Appendix), it is a decision that is fundamental to the project's ability to meet the full range of project goals established by the City of Portland and as such the applicant would like to offer further explanation and testimony in support of the proposed design solution.

The design proposal for the Portland Building Reconstruction project's exterior treatment was not developed by a single firm. As part of our team's project scoping and design efforts, a number of experienced design and engineering firms have been included as an integral part of our process. On the historic preservation side alone, we have included Venerable Properties, Architectural Resources Group and Peter Meijer Architect. We have done so in an effort to hear multiple voices and perspectives while taking on a very difficult project. While these perspectives weren't always in agreement, they were all important to our process. The Portland Building is a unique building with existing construction and detailing deficiencies that required us to challenge preservation norms relative to preservation of materials.

The project team also had the good fortune of being able to work with Michael Lewis of Façade Forensics. Michael is a forensic specialist focused on building enclosure design and rehabilitation. With over 30 years of experience in diagnosing and resolving enclosure issues, he has worked on multiple historic rehabilitations all over the country, including many significant architectural landmarks. He recently completed assessment and recommendations for the complete reinstallation of the exterior façade at the East Building of the National Gallery of Art by I.M. Pei.

Analysis of the existing building done by Façade Forensics confirmed that the damage to the Portland Building was severe in nature and inherent in the systems initially selected and the detailing used to install them. As noted in Michael's analysis:

"Hundreds of holes and miles of elastomerics prevent this building's exterior walls, as originally built, from ever being permanently weathertight. Routine preservation practice protects historic materials contributing to a landmark's integrity. But when those materials and methods intrinsically diminish the building's durability and function, preservation practice should employ updated technology to protect the landmark."

When asked to review the alternate system proposed by Peter Meijer Architect, which was based on an approach that maintained the existing elastomeric painted concrete material (details provided in submission Appendix), Façade Forensics noted that the details provided posed constructability challenges and would require a great deal of future maintenance and inspection to remain water tight. Per a memo prepared by Michael Lewis, "Façade Forensics could not endorse the alternative idea as a viable option because it did not, and could not, even with further development, meet the City of Portland's fundamental requirements."

As you will see in the following letters from Day CPM (owner's representative) and Howard S. Wright (general contractor), the entire team assessed ALL of the project goals, and developed a recommendation for the building enclosure that maintains the integrity of the historic design while mitigating the risks of future enclosure system failures. The recommended exterior is not the least cost option, but when considering long term durability and maintenance costs, is the most responsible use of public funds and is the appropriate solution for the Portland Building.



We are writing to the Landmarks Commission in support of The Project Team's approach to an incorporating an envelope design that utilizes a pressure-equalized rain screen enclosure, as presented to the Landmarks Commission on Monday, June 26th.

As the Owner's Representative for the Portland Building Project, DAY CPM has been actively engaged from the start of the project in design sessions, detailed reviews, and approach for the exterior envelope design solution that was ultimately agreed upon by the project team.

In our capacity as Owner's Representative, we help facilitate the project's process for reaching decisions; on this project, this is known as a D3 process.

The D3 addresses specific project goals with options for achieving the goal analyzed and evaluated using the Project Charter's Goals and Values criteria. Options are reviewed and scored against each criterion for risk, opportunity, and ability to meet project requirements. The recommendation and ultimate decision follows from these findings.

The project team studied the existing envelope comprehensively to determine the appropriate design solution to prevent water intrusion (a major factor for the City proceeding with the project), and to preserve the building's historic design intent. Design studies included a thorough vetting of potential exterior materials to meet the project requirements. It was ultimately determined that a rainscreen system using unitized curtainwall and terra cotta was the best exterior material for the system to meet design, functionality, and historic design requirements.

The D3 process for the building envelope solution followed these studies earlier this year. It compared a pressure equalized rainscreen system with repairing and maintaining the existing elastomeric painted concrete along with replacing windows and tile assemblies. The decision reached was to provide a fully engineered, pressure-equalized rainscreen enclosure. The visual mock-up now placed on the building validates using sheet aluminum to meet project requirements.

The existing enclosure is highly dependent on paint and sealants as the primary material to prevent water intrusion. The alternate approach analyzed in the D3 process included in the application package added flashings, but still relied on sealants and coatings to maintain a weather-tight enclosure. Day CPM does not support this approach and does not view it as a durable solution worthy of this building.

Regards
Mike Day - President



MEMORANDUM

DATE: July 3, 2017

TO: Historic Landmarks Commission

FROM: Troy Dickson, Senior Vice President – Oregon Manager

RE: The Portland Building | Concrete Enclosure

One of the most important decisions facing Howard S. Wright and DLR Group during the design phase of the Portland Building was how to meet the City's primary objective of solving the ongoing weathering problems associated with the building enclosure.

Much of the enclosure is cast in place concrete which is a category of enclosure technology referred to as a face seal system. This type of enclosure is generally only used on buildings when budget is the primary driver, not quality. Face seal systems are not resilient and require significant maintenance and renewal to perform. To renew the existing system and put new elastomeric paint on the building would not be an improvement of systems, but rather a maintenance activity, which would require continued maintenance to address concrete cracking for the life of the building. There are additional measures that are technical attempts to address the technical issues with face seal systems, however, each has limitations and do not solve the underlying problems.

Howard S. Wright and DLR Group have studied many options to solve the weathering issues associated with the concrete enclosure and have elected to use a rain screen design to ensure the long term weathering performance of the Portland Building.

The rain screen unitized curtainwall is the best overall solution for the project for the following reasons:

- Performance – The Rain Screen design is the highest performing system technology available
- Warranty – The Owner will get a manufacturer's warranty on the overall system. (5 years)
- Warranty – The Owner will get all extended warranties from the component manufacturer. (10 to 20 years)
- Quality – The unitized curtainwall will be built in a factory under controlled environmental conditions with an in-house quality assurance team to inspect and sign off on all components and application of sealants and coatings.
- Cost Certainty – The unitized curtainwall will have fewer variables on the installation thereby providing an installation with less risk and more cost certainty.

The elastomeric paint, sealant and flashings enclosure system is more difficult to install in the field and does not have a secondary line of moisture intrusion engineered into the system. It is an assembly of parts and not an overall engineered system.

- Warranty – The Owner will get a 1 – 2 year material warranty from the installers, including multiple trades.
- Warranty – The Owner will get a manufacturer’s warranty on paint and sealants, 5 – 10 years on materials only.
- Maintenance – The concrete and elastomeric paint requires continual inspection and maintenance.
- Condensation Risk – The painted concrete solution has an inherent risk of condensation occurring inside the walls of the building.
- Constructability Issue – The existing paint would need to be removed to ensure compatibility of new paint.

In weighing the technical advantages and risks associated with the various solutions and options, HSW and DLR Group recommend the rain screen system to meet the Owners stated project objective of preventing leaks in the enclosure.

cc: Erica Ceder
Doug Greenwalt, Senior Project Manager