

Diary of a BECxP: *Delegated Design Dilemmas*

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Delegating the design of portions of the building enclosure to specialty contractors has become common practice. How can project participants take full advantage of the benefits of delegated design while minimizing risk and avoiding common pitfalls? This paper draws from both research and professional experience to assist designers, contractors, owners, building enclosure consultants, and building enclosure commissioning (BECx) providers (BECxP). The authors present an overview of the motivations for using delegated design, common problems encountered, contract and specification language examples, and summaries of inconsistent policies and requirements in varying jurisdictions.

Strategies are available to successfully implement delegated design within both traditional and modern project delivery methods. In traditional design-bid-build projects, contract drawings and specifications define project requirements. Meanwhile, newer project delivery methods that include design-assist and integrated project delivery render opportunities to employ specialty contractors early in the design process. With the advent of BECx, early involvement of qualified building enclosure consultants and BECxPs in a project can prove beneficial during both the design and construction phases.

BACKGROUND AND DEFINITIONS

Delegated design is the transfer of design responsibility for some portion of the project to a party other than the designer of record (DOR). The American Institute of Architects (AIA) defines delegated design as “design that is to be completed by the contractor or their subcontractors.” Ultimately, delegated design solutions require specific input from a licensed professional retained by a specialty contractor, supplier, or fabricator.

The transfer of design responsibility to specialty contractors has been standard practice in structural engineering for decades for projects including deep foundations, shoring systems, precast concrete framing, cold-formed steel framing, steel connections, and open-web wood trusses. While delegated design for building enclosure components and systems is not new, it is becoming more widespread. For some recent projects, DORs have written project specifications that attempt to delegate the entire building enclosure design, including transitions and interface conditions. A trend toward the increased use of delegated design results in more project control ceded to the contractor.

DORs may choose to use delegated design when they lack the knowledge needed to design specialized systems, such as curtainwalls, metal panel cladding, insulated precast concrete wall panels, or connections of these components and systems to the building structure. More

recently, delegated design items have included systems such as air barriers. As part of the delegated design process, the DOR is responsible for providing performance and design criteria for the delegated design elements. Design responsibility is typically delegated by means of owner-contractor agreements and subcontractor agreements to a specialty contractor with expertise in a specific discipline. The specialty contractor must employ a design professional licensed in the state or region where the building will be constructed to complete the design such that it conforms to the DOR’s specified criteria.

BENEFITS OF THE DELEGATED DESIGN PROCESS

One typical benefit is that through their involvement in the design process, contractors and their specialty subcontractors gain a better understanding of the systems and components they will eventually install, hopefully limiting requests for information and change orders. Another benefit is that the unique knowledge of the specialty contractors’ licensed design professionals often makes them more qualified to design portions of the project and enables them to complete the design more efficiently than the DOR. Their expertise and efficiency should theoretically improve design quality and reduce overall design fees for the project. Because contractors are responsible for means

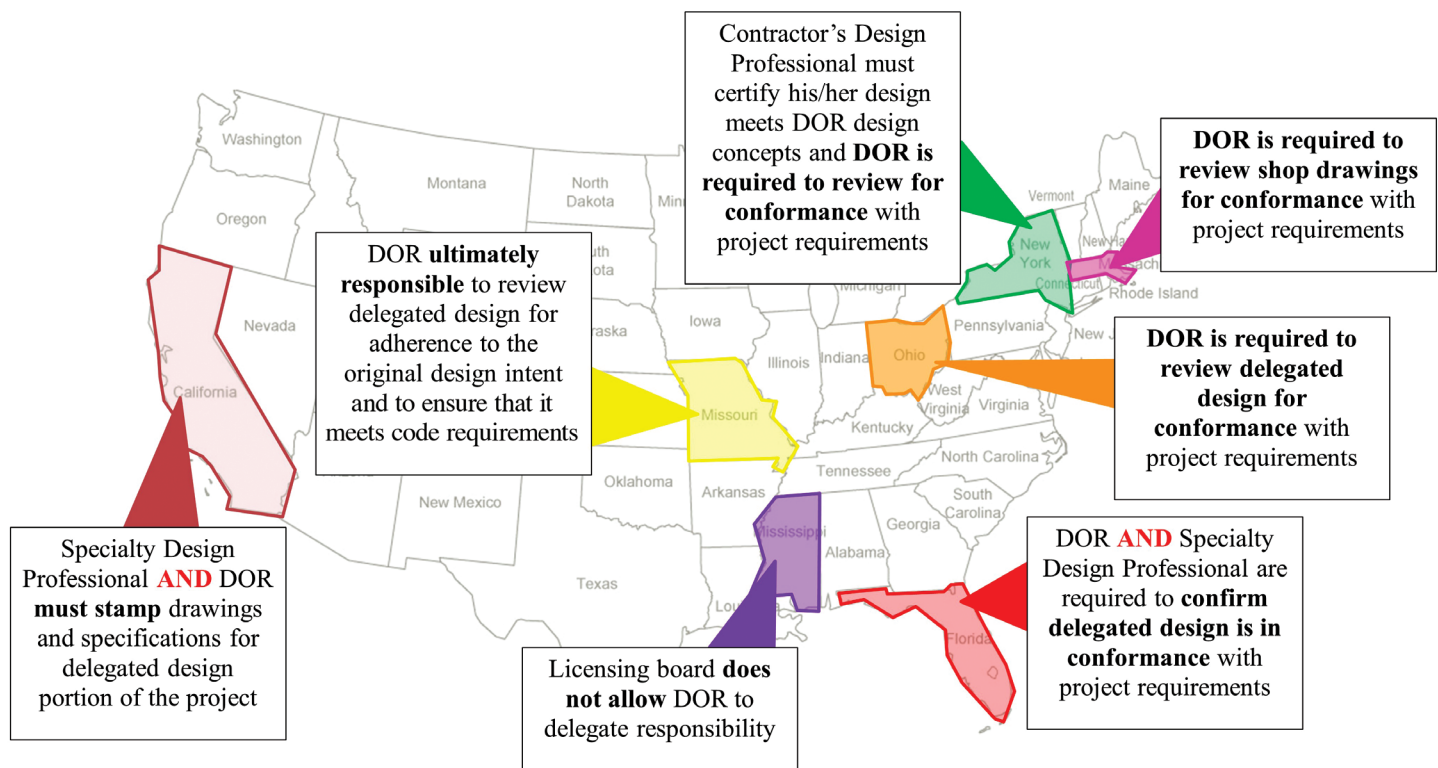


Figure 1. Limited summary of professional licensure regulations regarding delegated design. Note: DOR = designer of record.

and methods, they will be able to select a design solution that works with the tools and resources available to them, hopefully reducing construction costs. Although the use of delegated design alters the traditional process of fully documenting the project before project award, it can accelerate the project schedule, which is a main driver behind many modern and complex construction projects.

PITFALLS OF THE DELEGATED DESIGN PROCESS

Delegated design may represent a growing trend in the building enclosure industry, but the process does not always go smoothly. Before considering delegated design for certain aspects of the project, the DOR should determine whether the professional licensing board in the state or region where the project is located has special regulations regarding delegated design (Fig. 1). Not all states allow the DOR to delegate design responsibility for any portion of a project. States such as Missouri and Mississippi require the DOR to remain in responsible charge of the design, even when shop drawings are prepared by a specialty subcontractor. California goes a step further by requiring both the contractor's licensed professional and the DOR to stamp specifications and drawings for delegated design portions of the project. In states where delegated design is expressly permitted, there may be specific requirements for the contractor's licensed pro-

fessional or the DOR to certify that the delegated design meets performance and design criteria specified by the DOR. Regardless of project location, the DOR should review delegated design documents for conformance with specified performance and design criteria and to uphold the health, safety, and welfare of the public.

Even when it is clear that delegated design is legally permissible, a DOR who intends to specify delegated design for portions of the project should hold early discussions with the owner. Unless delegated design items are explicitly excluded from the DOR's contract, the owner should reasonably expect them to be included as part of a complete design by the DOR. Failure to communicate the DOR's intention to include delegated design requirements for certain building enclosure systems may result in loss of trust and confusion with the owner.

The DOR's intention to use delegated design must also be clearly communicated to the contractor in the contract documents. In cases where delegated design requirements are not clear, the contractor may not appropriately budget or schedule for the associated tasks. The contractor cannot be involved in the delegated design process to the degree necessary without an agreement from the owner to be paid for preconstruction services because funds must be allocated to "buy" delegated design services from specialty subcontractors.

It is often unclear who is responsible for

coordinating and completing the design of interfaces between systems or components designed by the DOR and those designed by specialty subcontractors. Similar ambiguity may surround requirements for record drawings, the roles that the DOR and contractor will play in developing them, and coordination of details at transitions with adjacent assemblies designed by various parties. Inadequately detailed interfaces often become problematic during construction and, if overlooked, after occupancy. These "undetailed details" must be addressed on the fly during construction, often leading to inadequate in situ performance and contention between various parties.

DIFFERING LEGAL STANDARDS

In general, designers and contractors are held to different legal standards. Designers are typically required to prepare documents with a standard of care similar to that of other designers doing similar work in the same geographic area at the same point in time. A certain degree of errors and omissions is expected and acceptable. However, contractors are held to a contract standard, requiring them to complete the project according to the drawings and specifications, and often to guarantee or warrant performance. When the project specifications include delegated design responsibilities, the contractor can inadvertently assume risk beyond what would be typical for a designer. These risks can sometimes be addressed

3.12.10 The Contractor shall **not** be required to provide professional services that constitute the practice of **architecture or engineering** unless such services are **specifically required by the Contract Documents** for a portion of the Work...

3.12.10.1 If professional design services or certifications by a design professional...are specifically required of the Contractor by the Contract Documents, the **Owner and the Architect will specify all performance and design criteria** that such services must satisfy...

Figure 2. Excerpts from AIA A201 Sections 3.12.10 and 3.12.10.1 (emphasis by authors).

through additional insurance or by including contract language to clarify that the contractor will only be held to a professional standard of care for delegated design services.

STANDARD CONTRACT LANGUAGE

The contract documents, including the owner-contractor agreement, are the vehicle for delegating design responsibility to the contractor. The term “delegate” can be considered a misnomer, however, because the DOR typically has no contractual relationship with the contractor. As such, the DOR cannot explicitly delegate design services to the contractor. What takes place is a form of design allocation and shifting responsibilities by means of separate owner contracts with the DOR and the contractor.

AIA standard agreements are widely used. The standard AIA owner-contractor agreements incorporate AIA A201¹ as the general conditions by reference. The following points summarize the provisions applicable to delegated design (including those shown in Fig. 2) given in AIA A201-2017 Section 3.12.10:

- The contractor cannot be required to provide professional design services unless specifically required by the contract documents for a portion of the work.
- The contractor cannot be required to provide professional design services in violation of applicable law.
- If professional design services are specifically required of the contractor by the contract documents, the owner and DOR are required to specify all performance and design criteria.
- The contractor is entitled to rely on the adequacy and accuracy of the performance and design criteria provided in the contract documents.

- If the contract documents require the contractor’s licensed design professional to certify that the work has been performed in accordance with the design criteria, the contractor shall furnish such certifications to the DOR.

Further, AIA standard general conditions do not consider shop drawings and submittals to be part of the contract documents (Fig. 3). For traditional design-bid-build projects, submittals and shop drawings serve as a quality assurance measure to demonstrate how the contractor proposes to implement the DOR’s design. This traditional treatment of submittals and shop drawings may no longer hold true for projects incorporating the delegated design process, depending on final specification language, which may supersede standard general conditions.

A coalition of organizations in the architecture, engineering, and construction industries, including the Associated General Contractors (AGC), has developed a set of standard contracts referred to as ConsensusDocs.² ConsensusDocs 200 Section 3.15 provides a set of requirements related to delegated design that are similar to those from AIA. AGC requirements include the following:

- If the design of a particular system or component to be incorporated into the project is specifically required of the contractor by the contract documents, the owner is required to specify all required performance and design criteria.

- The contractor shall not be responsible for the adequacy of performance and design criteria provided in the contract documents.
- As required by the law, the contractor shall procure design services and certifications necessary to satisfactorily complete the work from a licensed design professional. The signature and seal of the contractor’s licensed design professional shall appear on all drawings, calculations, specifications, certifications, shop drawings, and other submittals related to the work designed or certified by the contractor’s licensed design professional.

In contrast to AIA A201, the AGC standard contract language typically considers approved submittals (including shop drawings) to be part of the contract documents.³

The Engineers Joint Contract Documents Committee (EJCDC) has issued a less-frequently used family of contract documents. The EJCDC language is somewhat similar to that of the other contract documents regarding signed and sealed documents and performance criteria provided by the owner or DOR. The following points summarize EJCDC C-700⁴ requirements for delegated design:

- If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the contractor by the contract documents, the owner and DOR must specify all performance and design criteria.
- The contractor shall provide required design services or certifications by a properly licensed professional. The signature and seal of the contractor’s licensed design professional shall appear on all drawings, calculations, specifications, certifications, shop drawings, and other submittals related to the work designed or certified by the contractor’s licensed design professional.
- Shop drawings and other submittals related to the work designed or certified by the contractor’s licensed design professional, if prepared by others, shall bear the licensed design professional’s

3.12.4 **Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents.** Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals...

Figure 3. Excerpt from AIA A201 Section 3.12.4 (emphasis by authors).



Mock-up: Phase 1



Mock-up: Phase 2

Figure 4. Preconstruction mock-up constructed in two phases.

written approval when submitted to the engineer.

Similarly to AIA standard contracts, EJCDC standard contracts do not specifically consider shop drawings and submittals to be part of the contract documents. If AIA or EJCDC standard contracts are used, language must be added to the supplementary conditions or project specifications before shop drawings and approved submittals related to delegated design elements are unequivocally considered contract documents.

AIA, AGC, and EJCDC standard contracts all require the DOR to provide the contractor with performance and design criteria for delegated portions of the project. Responsibility for design intent (identifying appropriate performance and design criteria) remains with the DOR. The standard contracts only allocate the responsibility for providing a design solution to the contractor as part of the delegated design process.

DELEGATED DESIGN AND BECx

When portions of the building enclosure design are delegated, a BECxP has the unique opportunity to assist in protecting the owner’s interests by providing an added layer of quality assurance to confirm that delegated designs are coordinated throughout the project.

The following industry documents describe

the BECx process:

- ASTM E2813-18, *Standard Practice for Building Enclosure Commissioning*⁵
- ASTM E2947-16a, *Standard Guide for Building Enclosure Commissioning*⁶
- NIBS Guideline 3-2012, *Building Enclosure Commissioning Process BECx*⁷

According to ASTM E2813, BECx is a process that begins with the establishment of the owner’s project requirements (OPR) and endeavors to confirm that the exterior enclosure and those elements intended to provide environmental separation meet or exceed the expectations of the owner as described in the OPR, and as defined by the contract documents.

Delegated design affects building enclosure performance because, as stated in NIBS Guideline 3, “due to the integration and connectivity of building enclosure systems, a performance deficiency in one system can result in less than optimal performance in other systems.” Therefore, if a delegated portion of the building enclosure or its interfaces with adjacent components and systems are poorly designed or detailed, or are otherwise not coordinated with one another, the performance of the entire building enclosure will likely suffer.

NIBS Guideline 3 also asserts that “the most reliable means to achieve performance targets during construction is to assure that an

expert with technical knowledge of the design and installation of the systems being proposed for the building is integrated into the design process and to visually observe the installation of a statistical sampling of the work,” and that “the most effective commissioning process ideally begins at project inception.” A qualified BECxP, in conjunction with the owner and DOR, can identify delegated design items and potential associated problem areas early during the design process.

TYPICAL BECx ACTIVITIES

ASTM E2813 and ASTM E2947 describe requirements for two levels of BECx: fundamental and enhanced. For both levels, BECxPs provide architecture- and/or engineering-related services on behalf of the owner. Their services typically include independent design reviews of enclosure-related drawings and specifications during the design phase, and direct and substantive participation during the bidding and negotiation, preconstruction, construction administration, and occupancy and operations phases of the project. The differences between the fundamental and enhanced BECx levels include the latest point in the project delivery process when the BECxP may be engaged (design development versus schematic design), the minimum number of independent design reviews during the design phase (1 versus 3), and minimum testing requirements

during the preconstruction and construction phases.

The BECx process described in ASTM E2813, ASTM E2947, and NIBS Guideline 3 assumes project delivery by means of a design-bid-build arrangement. However, NIBS Guideline 3 acknowledges that the BECx process will vary based on the project delivery method, and that many of the activities described can be applied to any project delivery method. As such, there is some latitude for the BECxP to adapt to projects that include significant delegated design.

All three documents reference the BECxP as performing an independent design review of the drawings and specifications, and state that the BECxP should pay close attention to interface details and review the design documents for constructability, performance requirements, and continuity of the building enclosure. This task is particularly important when many portions of the building enclosure design are delegated and the building enclosure design is complex. During the design review(s), the BECxP should note locations where adjacent or interconnected systems and components are delegated to different design professionals and identify areas where clarifications regarding design and detailing of interface conditions are recommended. During specification review, the BECxP should verify that delegated design elements are clearly identified and that complete performance and design criteria are provided. Best practice is to include delegated design requirements in Division 01, such that technical specification sections can reference and expand on those general requirements.

The three referenced BECx documents also include similar language requiring the BECxP to provide technical assistance during the review of building enclosure-related submittals and shop drawings for conformance with the contract documents, as well as aspects such as constructability, coordination of interface conditions, installation tolerances, sequence of installation, and material compatibility. BECxP involvement during submittal review can provide significant benefits because it provides an extra layer of assurance that interface conditions are detailed and that delegated designs are in general accordance with the DOR's specified performance and design criteria. Clearly, DOR drawings for a project employing delegated design will generally not include all final interface details because so much of the design is yet to be completed by the contractor and the specialty designers.

BECx also typically involves mock-ups during the construction phase. Both fundamen-

tal and enhanced forms of BECx require first installation mock-ups, but standalone mock-ups covering interface conditions between various components and systems are also highly beneficial because they provide an opportunity to identify and resolve issues before they are constructed on the building. The authors have had significant success with projects employing the following strategies associated with preconstruction mock-ups:

- Identifying delegated design components and systems early in the project, well in advance of the mock-up design and construction
- Holding a meeting with the project team, including building enclosure subcontractors, to review delegated design project requirements and interface and coordination issues that will be addressed during the mock-up
- Requiring building enclosure coordination and interface details be developed and approved by the DOR and contractor in advance

- Constructing the mock-up in two phases, with phase 1 including the structure, exterior sheathing, air and water barriers, cladding attachments, fenestration, barrier walls, roofing system, and primary sealant joints (Fig. 4)
- Reviewing in-progress construction, including interface details, and performing limited field quality-control testing of the phase 1 mock-up before completing the mock-up during phase 2

Establishing requirements for a two-phase mock-up is suited for inclusion in a dedicated Division 01 specification section. The BECxP, who is often tasked with developing the project-specific BECx specification, can develop and review such requirements with the project team early during the design phase.

SPECIFICATIONS FOR DELEGATED DESIGN REQUIREMENTS

Specifications should define the scope and clarify expectations for delegated design

1.7 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to DOR.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

C. Adjacent or Interconnected Products and Systems: Where delegated design services are required for multiple adjacent or interconnected products and systems, the Contractor will coordinate and assign responsibility for the detailing of interface conditions by the responsible design professionals and provide fully coordinated shop drawings.

Figure 5. Example of Division 01 article with requirements for delegated design services. Note: DOR = designer of record.

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design glazed aluminum curtain walls.
- B. General Performance: Comply with performance requirements specified, as determined by testing of glazed aluminum curtain walls representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
1. Glazed aluminum curtain walls shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
 2. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Noise or vibration created by wind and thermal and structural movements.
 - d. Loosening or weakening of fasteners, attachments, and other components.
 - e. Failure of operating units.
- C. Structural Loads:
1. Wind Loads: As indicated on Drawings.
 2. Other Design Loads: As indicated on Drawings.

Figure 6. Example of insufficient performance requirements for a curtainwall system.

1.3 ACTION SUBMITTALS

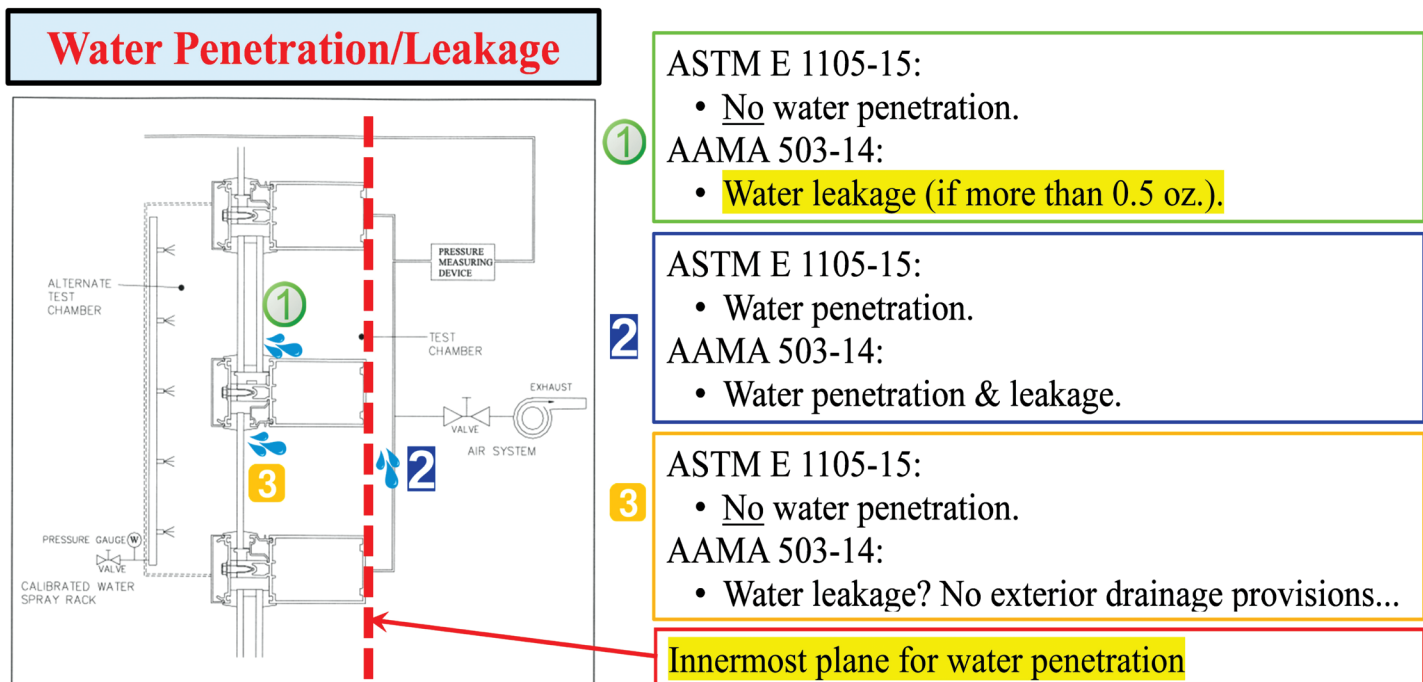
- A. Delegated-Design Submittal: For glazed aluminum curtain walls indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation

Figure 7. Example of submittal requirements for a curtainwall system.

services. Figure 5 shows an example of language that is often included for this purpose in Specification Section 013300, Submittal Procedures; Section 014000, Quality Requirements; or another appropriate Division 01 section. (Currently, there is no dedicated number or title defined by the Construction Specifications Institute for "delegated design." The authors often observe general delegated design requirements tucked within other Division 01 sections.) Regardless of location, it is imperative that the DOR include general delegated design requirements within Division 01, such that those general requirements and definitions need not be reintroduced within each technical specification section that includes delegated design.

Technical specification sections for specific building enclosure systems and components (typically found in Divisions 03 through 09) should explicitly state when delegated designs are required. The specifications should be performance based rather than proprietary or prescriptive so that they specify only the design requirements and not the design solution. Specifications should include all performance and design criteria that the specialty contractor will need to complete the design and list all required submittals.

Figure 6 includes an example of insufficient performance requirements specified for the delegated design of a glazed alumi-



Underlying Drawing From AAMA 503-14

Figure 8. Comparison of ASTM E1105⁹ and AAMA 503⁸ definitions of water penetration and water leakage.

num curtainwall system. The same specification section may also require that a signed and sealed delegated design submittal be provided to indicate compliance with the specified performance requirements (Fig. 7). Although the curtainwall in the example has been specified to be designed to withstand movements of the supporting structure, the specifications fail to provide information as to the magnitude of anticipated movements. Similarly, no requirements related to curtainwall system deflection are provided. The specialty contractor's design professional cannot be expected to reanalyze the entire structure. The DOR should provide anticipated building movements as part of the performance specification requirements or elsewhere within the contract documents.

Additionally, the specifications do not include requirements related to water penetration, air infiltration, energy performance, or other similar items. During the design phase, a qualified BECxP would identify these issues so that project specifications could be appropriately updated. Ultimately, the project specifications should include information such that the listed performance requirements meet or exceed those established by the OPR. The specialty designer should then provide substantiation of the stated requirements by means of the delegated design submittal process.

COORDINATION WITH FIELD QUALITY-CONTROL TESTING REQUIREMENTS

Field quality-control testing requirements are typically listed in Part 3 of individual specification sections. An example of incomplete field performance requirements related to water penetration of a glazed aluminum curtainwall may include language such as the following: "Test for water penetration in accordance with AAMA 503 and ASTM E1105 requirements. Test at a pressure of 10 psf." Although this language references AAMA and ASTM standards, it fails to specifically indicate failure criteria.

Figure 8 summarizes the failure criteria for AAMA 503⁸ and ASTM E1105.⁹ As indicated, failure criteria differ depending on the chosen standard. AAMA 503 provides criteria for both water leakage and water penetration, whereas ASTM E1105 only addresses water penetration. Ambiguity regarding definitions of water penetration and leakage will persist if the terms are not specifically defined within the project specifications.

At location 1 in Fig. 8, for example, ASTM E1105 would not recognize water accumulation as water penetration, whereas AAMA 503 would consider 0.5 oz of water or more accumulated on the horizontal surface as water leakage.

Therefore, the example specification language is unclear as to whether water entering through the curtainwall and pooling on a horizontal mullion but not crossing the "innermost plane" by spilling over the edge of the mullion would be considered a violation of the performance specification. Similar ambiguity would exist at location 3. The only place where both standards agree is location 2, where water crossing the innermost plane (noted by the dashed red line) would constitute water penetration.

If these issues are not addressed during the design phase, ambiguities and incomplete

specification language can lead to conflict over whether or not the DOR's performance requirements have been met. A BECxP can assist in addressing potential confusion over field quality-control testing requirements by recommending that specifications clearly include the following information:

- Component or system to be tested
- Quantity and timing of tests
- Locations of tests
- Test standard or description of test
- Test method or methodology
- Pass/fail criteria



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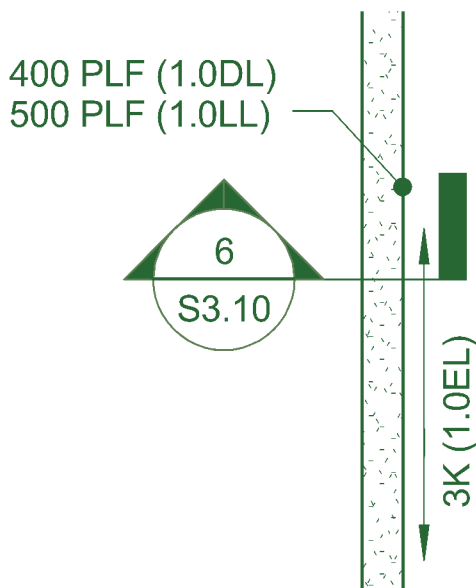


Figure 9. Excerpt of designer of record's drawing depicting loading for a delegated precast concrete wall panel.

- Party responsible for testing and reporting
- Reporting requirements
- Required additional testing in case of failed tests
- Party responsible for costs associated with failed tests

These items can be defined in a Division 01 BECx specification section drafted by the BECxP with approval by the DOR and owner.

DESIGN LOADS AND CONNECTIONS

The DOR's drawings are the most effective means for communicating overall dimensions, quantities, locations, design loads, and other quantitative requirements for delegated design systems or components. The drawings should also clearly indicate attachment locations between the delegated systems and structure so that the DOR's design assumptions are easily understood. To avoid conflicting information, each of these items should be shown in a single location.

For example, the DOR may specify loads applied to a precast concrete wall system on the framing plan (Fig. 9) and required embed spacing for the connection between the wall panel and the elevated slab in a connection detail (Fig. 10). These requirements are properly only included in one location.

INTERFACE CONDITIONS

Interface conditions can be especially problematic when early coordination of separate

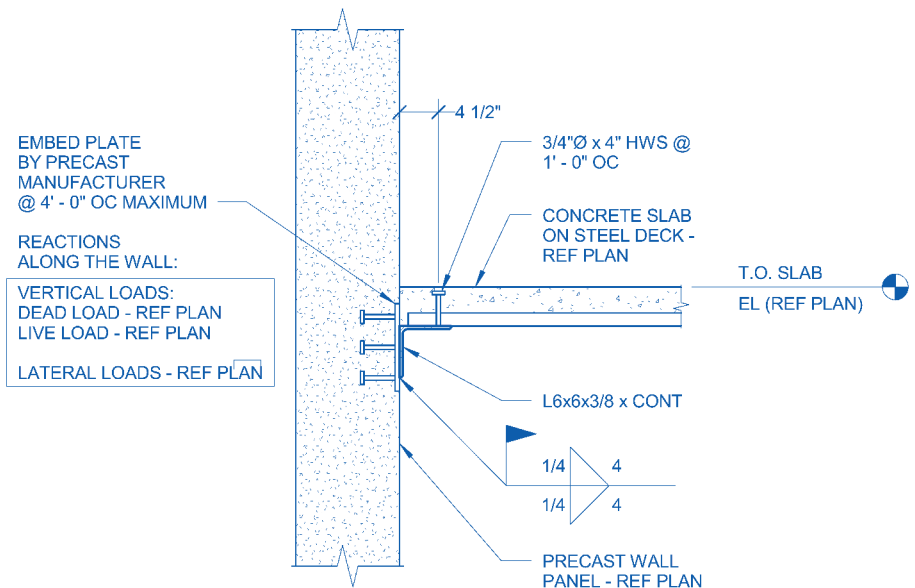


Figure 10. Designer of record's detail depicting delegated precast concrete wall panel.

designs does not occur. There is a lack of consensus as to whether it is the responsibility of the contractor or the DOR to coordinate details where two delegated design systems interface. Qualified BECxPs should use their unique role to assist in identifying interface conditions and suggest that the DOR clarify which entity is responsible for coordinating transition detailing.

Specialty subcontractors do not prepare delegated designs until after their contracts have been awarded. Therefore, coordination of interface details generally occurs during the construction phase. The BECxP should provide technical assistance during submittal reviews regarding conformance with the contract documents and coordination of interface conditions. If several delegated design systems interface, it may be prudent to recommend coordination meetings, preconstruction mock-ups, and field quality-control testing of these conditions.

Figure 11 shows a rudimentary example of a situation where interface conditions can become problematic, especially if details are repeated on a project. If two specialty designers provide flashing details compatible with their delegated design system, but transitions between systems are not addressed, issues associated with the “holes” in the building enclosure may manifest, potentially resulting in the need for repairs after occupancy.

DEFERRED SUBMITTALS

Because delegated designs are typically completed during the construction phase, documentation for these components is often not available when the DOR's drawings and

specifications are first submitted to the building department for permit. The building department will frequently require the delegated design documents be provided as a deferred submittal before either the installation or inspection of delegated design components.

The 2018 edition of the *International Building Code (IBC 2018)*¹⁰ defines deferred submittals as “those portions of the design that are not submitted at the time of the application that are submitted to the building official within a specified period.” Section 107.3.4.1 of IBC 2018 further states that “deferred submittal items shall not be installed until the deferred submittal documents have been approved by the building official.” Informal survey results from building departments throughout the United States reveal that building department requirements regarding deferred submittals vary widely in practice (Fig. 12). Many locales require deferred submittals to be submitted and approved before construction. In these cases, building departments may provide useful guidelines or checklists to assist with the deferred submittal process. In other locales, there may be no clear policy, or the in-place policies may be unclear or incomplete. It therefore becomes important for the project team to become familiar with local requirements before embarking on a project that includes delegated design and deferred submittals.

STRATEGIES FOR MODERN PROJECT DELIVERY METHODS

In the traditional design-bid-build project delivery method, the DOR's drawings and specifications are typically completed before the

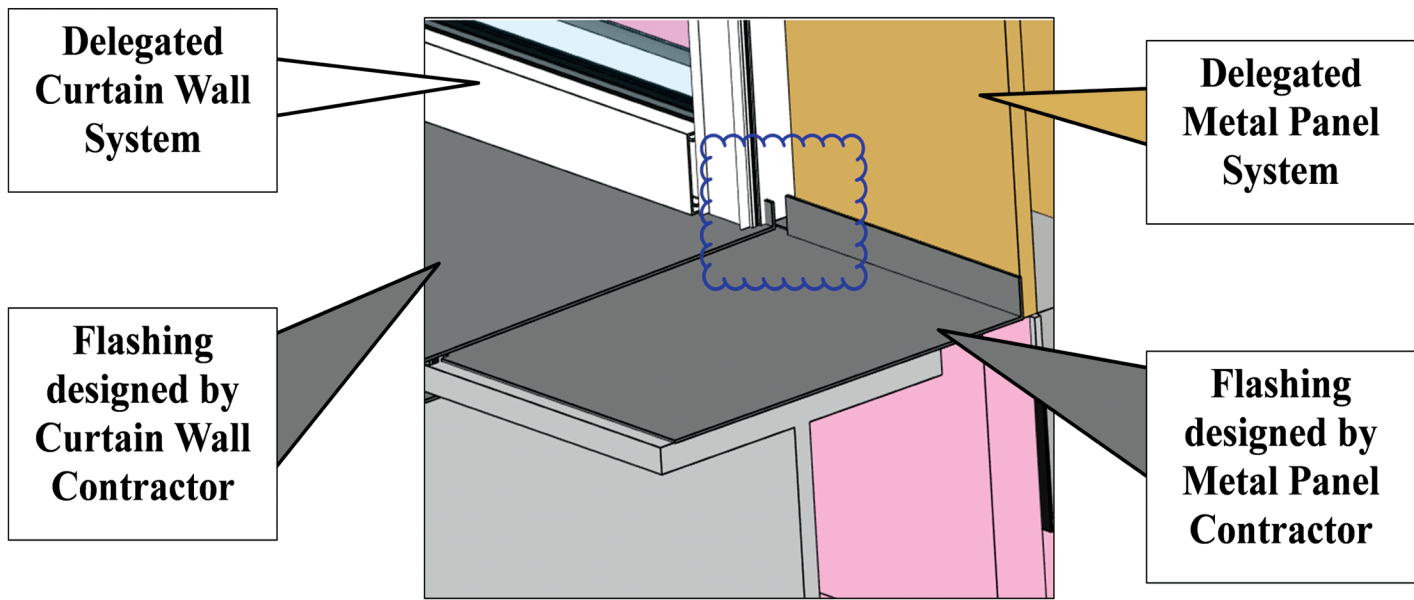


Figure 11. Example of a potentially problematic interface condition between delegated systems.

contractor is selected. Projects incorporating significant delegated design do not lend themselves well to traditional approaches because the specialty delegated designs are completed partially or wholly during the construction phase.

Modern project delivery methods such as design-assist and integrated project delivery sometimes alter contractual relationships and the division of liability. The main shift, however, relates to the time when the contractor and specialty subcontractors become involved in the project. Instead of waiting until the construction phase, the general contractor (GC) and key specialty subcontractors are selected during the design phase of the project. Given the early involvement of specialty subcontractors, these project delivery methods are often referred to as “collaborative design.”

Contractual relationships for design-assist projects vary considerably. Design-assist is typically considered a subset of the construction manager (CM) at risk project delivery method where the CM is contracted with the owner or directly with the DOR to provide input during the design process. The DOR may also contract with specialty subcontractors as subconsultants, though this contractual relationship remains rare.

Contracts for integrated project delivery are developed such that the owner, DOR, and GC or CM share in the success or failure of the overall project. The AIA provides a free guide to integrated project delivery to assist project teams in navigating such projects.¹¹ The guide states that “where assigned work scopes require a constructor to perform design services, it will

need to handle that task consistent with registration requirements. This is no different than in the case under a non-integrated approach.” As such, the unique contractual arrangement required for integrated project delivery should not have a significant impact on delegated design responsibility when compared to more traditional approaches. No matter the delivery method, the DOR is still required to provide performance and design criteria for delegated design systems and components included as part of the project.

Because collaborative project delivery methods involve selection of the contractor early during the design phase, there is the opportunity for specialty contractors to begin developing their delegated design documents before the DOR’s drawings and specifica-

tions are complete. This is becoming the norm for complex buildings and makes it even more important that the BECx process commence early, thus allowing the OPR to guide the DOR and delegated designers alike.

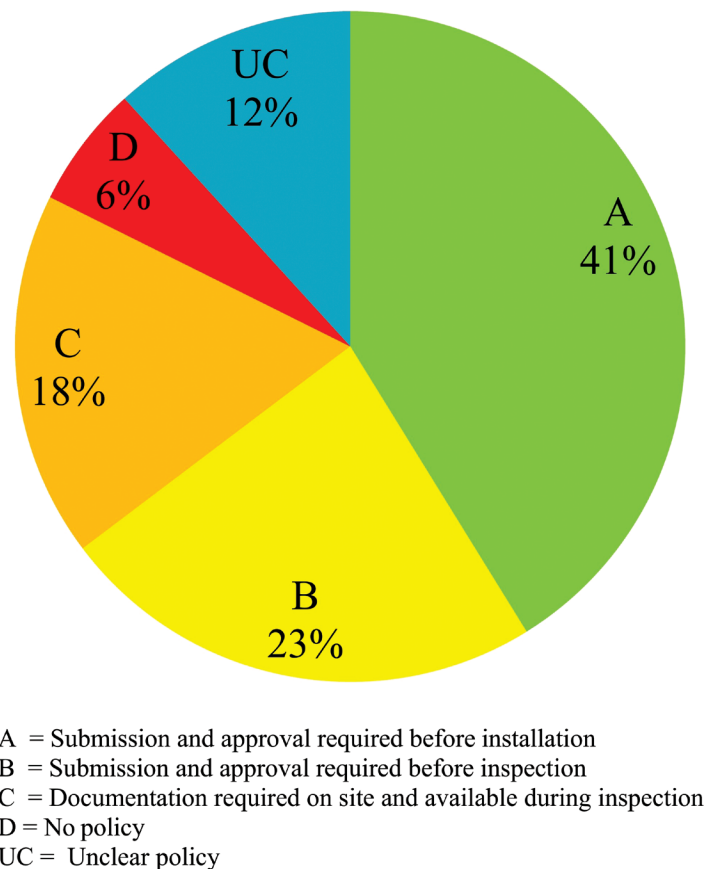



Figure 12. Informal survey results from building departments in the United States regarding deferred submittal policies.

CONCLUSION

While delegating the design of building enclosure systems and components might seem simple in concept, best practices are still evolving and confusion reigns in the industry. Experienced BECxPs can play a valuable role in identifying potential problem areas and providing additional quality assurance during both the design and construction phases. By working together to apply the strategies listed within this paper to both traditional and modern project delivery methods, the project team can minimize risks associated with the delegated design process even as more control of project design is ceded to contractors and their specialty subcontractors. 

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