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*Information Exchange*

**THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA  
NATIONAL INSTITUTE OF BUILDING SCIENCES**

**agcXML**

**SUBMITTALS  
USE CASE**

**VERSION 1.0  
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## **The agcXML Project**

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## **agcXML Use Case: Submit/Review Submittals**

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### **1. Name**

Submit and Review Submittal

### **2. About This Use Case**

This use case describes the exchange of a submittal pursuant to an Owner/Contractor Agreement or other contract for construction and related subcontractor agreements. A submittal serves to communicate to the owner or prime design professional that material, equipment, components, or assemblies that the constructor proposes to incorporate into the Work of the contract for construction conform to the design intent and technical requirements expressed in the construction documents.

A submittal is typically prepared by a general contractor or other prime constructor (e.g., a design-builder or construction manager) and submitted to an architect or other prime design professional (e.g., an engineer or landscape architect), who reviews and accepts as submitted, accepts with modifications, or rejects the submittal.

Submittals typically contain information of equal or greater specificity and detail than the construction documents. A submittal transaction is typically accompanied by or refers to documents or physical objects that constitute the actual submittal, such as shop drawings, building product or material samples, physical mock-ups, or written technical specifications. The constructor seeks the approval of the prime design professional to incorporate the content of the submittal into the Work of the contract for construction.

To the extent that the content of a submittal may be transmitted in electronic form, this use case anticipates that the content of the submittal is included in a submittal transaction. Physical objects that are part of the content of the submittal must be transmitted separately, though the submittal transaction can be used to track delivery and possession of physical objects.

The content of particular submittals may lie within the scope of responsibility of subcontractors or vendors to the prime constructor and within the realm of expertise of design consultants to the prime design professional. Contractual agreements among the various parties typically transfer some or all of the responsibility of the prime constructor to prepare and deliver submittals, and the some or all of the responsibility of the prime design professional to review and approve submittals, to the appropriate

parties, without relieving either the prime constructor or the prime design professional of their primary contractual obligations with respect to submittals. For example, a fabricator or product manufacturer may be required to prepare and deliver submittals to a specialty subcontractor, who forwards the submittal to the general contractor, who forwards the submittal to the architect, who forwards the submittal to a specialist design professional. The results of the review process are then communicated in reverse order. Additionally, each party receiving a submittal may exercise its prerogative to review, reject, and return a submittal to the sending party and require resubmission before forwarding the submittal for approval.

Nothing in this use case precludes simultaneous transmission of submittals and review results to all interested parties in lieu of sequential transmission, though any transaction method would have to support and enforce the contractual obligations and relationships among the parties and any agreed-upon business rules or protocols for this type of communication or transaction.

The use case includes all related distribution transactions required to dispose of the submittal, including re-submittal in the event of a rejected submittal.

### **3. Desired Outcomes**

The outcome of this use case is an approved submittal, by which the recipient authorizes the sender to proceed with incorporating the content of the submittal into the Work of a contract for construction.

### **4. Summary Classifications**

#### **4.1. Type of transaction**

Submission, review, and return of review results for any type of submittal.

#### **4.2. Stage of project**

Construction.

#### **4.3. Disciplines**

Submittals are typically prepared and submitted by a general contractor or other prime constructor (e.g., a design-builder or construction manager) to an architect or other prime design professional (e.g., an engineer or landscape architect). Other parties who may be involved in the submittal review process include the owner, subcontractors, design consultants, equipment or material fabricators, and building product or building material manufacturers.

#### **4.4. Data content**

The content set includes:

- ID references to the project, the contract for construction, the parties to the contract, the contract date; and the work element (e.g., specification section number);
- Description of the submittal artifacts (e.g., Shop Drawing meta-information, description of samples, etc.), including any attachments;
- Submittal distribution information (e.g., sender, receiver, date of submittal);
- Submittal status information (party in possession, review status);
- Submittal tracking information (e.g., number of days outstanding, number of days remaining).

## **5. Purpose**

### **5.1. Description of the business processes (context)**

Owner/Contractor Agreements typically require that certain design or material information be prepared by the contractor and submitted to the owner or prime design professional for approval prior to incorporating the material of the submittal into the Work.

Submittals may consist of shop drawings, manufacturers' technical documentation, material samples, physical mock-ups, etc. The formal requirements for submittals (the information required and the business process for handling them) are typically defined in the Owner/Contractor Agreement or in accompanying general conditions.

Submittals may originate with a contractor; a subcontractor; a building material, product, or equipment supplier or manufacturer; or a consultant to the contractor (e.g., design detailer). Submittals typically flow through the general contractor to the prime design professional, both of whom typically have formal contractual obligations with respect to submittals. The prime design professional may forward submittals to an appropriate specialty design consultant for review, and may also distribute submittals to other parties for their information or coordination with related portions of the Work. The results of the review process are then returned to the contractor. If a submittal is not approved, revisions may be required, and the review process repeated.

### **5.2. Purpose of the transaction**

The use case includes the transaction to transmit the submittal from the contractor to the prime design professional or owner's representative and the return of the review results. The use case also includes any secondary transactions required to carry out the approval of the submittals. The information exchanged is in the nature of a "transmittal" that contains meta-information to accompany the actual submittal artifact. As such, a submittal can be regarded as a specialized form of transmittal.

## **6. Actors and Roles**

The sender and receiver for the primary transaction will be the general contractor and the prime design professional, respectively. Secondary approval transactions may involve the prime design professional, the owner, or other design consultants. Other project participants, such as sub-contractors, may also be involved in the overall information distribution process.

## **7. Preconditions and Start point**

A contract for construction and related contractual relationships previously exist between the parties.

## **8. End point**

The transaction is complete once the review results have been returned to the original sender. (If the submittal is rejected, this will typically lead to a revision sent in a subsequent submittal transaction.)

## **9. Measurable Result**

Upon completion of this use case, a submittal will be formally recognized as having been received and approved, and the review results as having been returned.

Additionally, submittal tracking data is generated during the review process (e.g., date of submittal, elapsed time between submittal and response) that can be measured against established contractual performance requirements (e.g., required date of submittal prior to scheduled date for incorporation into the Work, allowable number of days for review and response).

Though it is beyond the end point of this use case, submittal data may be of value in subsequent processes (e.g., to measure the progress of the Work) or as a constituent element of the as-built record of the completed Work.

## **10. Flow of Events/Activity Descriptions**

Primary flow of events:

1. The primary sender (typically the general contractor), sends the submittal to the primary receiver (typically the prime design professional). The receiver acknowledges the receipt of the submittal.
2. The primary receiver reviews the submittal and sends the results of the review to the primary sender, who acknowledges receipt.

## **11. Alternative Flow of Events**

Secondary flows of events:

3. The Primary receiver may forward the submittal to one or more others to complete the review. This is a separate "sub-transaction" in which the

primary receiver becomes a secondary sender and the party that will complete the review becomes a secondary receiver. The flow of events between the two parties of this secondary transaction is the same as the primary flow of events.

4. Prior to the primary flow of events, a similar transaction may take place the primary sender is the recipient of the submittal. For example, the submittal may originate with a sub-contractor who sends the submittal to the general contractor. The flow of events between the two parties of this preliminary transaction is the same as the primary flow of events.
5. The preliminary, primary, and secondary transactions occur in sequence in accordance with the contractual relationships among the parties.
6. If the submittal is not approved, the submittal may be revised and resubmitted. This is considered to be a distinct (although related) transaction.
7. All of the above primary and secondary transactions may be accompanied by additional transactions in which the sender or receiver also send the information to other project participants for their information or coordination.

## **12. Use Case Relationships: Inclusion and Extension**

This use cases references the associated agreements.

This use case extends the Generic Information/Document Distribution use case.

## **13. Controls**

A submittal has legal significance and should have all appropriate transaction controls (security, non-repudiation, etc.).

## **14. Data**

Each of the primary and secondary transactions involves two distinct data sets: the initial submittal information that is sent to the receiver, and the approval information that is returned to the sender. However, it is assumed that all of this information will be treated as information that is incrementally added into sequential versions of a single data set that is used throughout the entire use case.

The submittal data set references the project, the contract, the work element (e.g., the specification section, the part of the building, etc.), and the parties to the transaction.

The submittal data set references and provides metadata of the submittal artifact. For example, if the submittal is a shop drawing, the submittal will provide the drawing name, number, revision, number of copies, etc.

The submittal data set includes the distribution information (for example, the identity of the party to whom the submittal is forwarded for review, copied for information, etc.)

The submittal data set includes the results of the submittal review.

The submittal data set may include certain business-process management data such as the date that the review is expected to be completed, the number of days actually required for review, etc.

## **15. Outstanding Issues**

Submittal artifacts (shop drawings, technical specifications, physical samples and mock-ups) are of a heterogeneous nature that pose obstacles to the automation of the submittal business process. An analytical study of typical submittal artifacts should be undertaken to determine the feasibility of exchanging the content of submittals electronically whenever possible, and for linking physical artifacts to electronic submittals through RFID tags or other means.

The scope of this project is limited to defining the data set to be exchanged in a submittal transaction. The mapping of all possible sequential, nested, or compound, or related distribution transactions is beyond the scope of this project.