THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA

NATIONAL INSTITUTE OF BUILDING SCIENCES

agcXML

REQUEST FOR INFORMATION DATA SPECIFICATION AND SCHEMA

VERSION 1.0
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The agcXML Project

The Associated General Contractors of America

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Michael Tardif
agcXML Project Manager

Dr Thomas Liebich, AEC3

Thomas Froese, Ph.D., P.E.

Yimin Zhu, Ph.D.

Francois Grobler, Ph.D.
Technical Adviser

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1. REQUESTFORINFORMATION

This document discusses the overall structure of the Request for Information (RFI) schema, its components and relationships with the aecXML COS (Common Object Schema) and the common definitions of agcXML. The RFI schema is also included. Appendix A shows a comparative analysis of data that are included in the RFI schema. Figure 1 is an illustration of the **RequestForInformation** element.

1.1 The RequstForInformation Schema

The **RequestForInformation** schema models data that are exchanged between designers and contractors regarding design questions typically initiated by contractors and answered by designers. To support electronic exchanges of RFI business data, the types of data that are modeled by the **RequestForInformation** schema include:

- The meta-data of a Request for Information document (who, when, with what application)
- The sender, recipient and other roles that can be included in a distribution list (Notifiee)
- The project information
- Basic RFI information including a title, an RFI number and an RFI issue date
- RFI issues including questions, responses, relevant attachments, a requested reply date, a response date and so on.

1.1.1 Namespace Considerations

The following namespaces are applied to the **RequestForInformation** schema:

- ifcXML – not a part of the agcXML schema, will be handled by XSLT-based mapping, when necessary,
- aecXML COS:
    - xmlns:cos="http://www.aecXML.org/aecXML/cos"
- agcXML Common:
    - xmlns:agcxml="http://www.aecXML.org/agcXML/agcXMLCommon"
- Request for Information:
    - xmlns:agcrfi="http://www.aecXML.org/agcXML/RequestForInformation"

1.2 The RequestForInformation Root Element

The root element of the RFI schema is the **RequestForInformation** element, which is defined in the Request for Information namespace and derived from the **DocumentTransaction** type in the agcXML Common namespace. Thus, the **RequestForInformation** element has all attributes and elements defined by the **DocumentTransaction**, which is discussed in the document "agcXML Common Definitions."

The **RequestForInformation** element contains additional definitions that are specific to an RFI process.

1.2.1 Basic Document Information

An instance of the **RequestForInformation** schema may contain the following types of data:

- RFI title, RFI number and RFI issue date
- Governing form
- Information about involved parties, e.g., sender, recipient, notifiee and owner
- Project information
- Question, relevant attachments, recommended solution, requested reply date, cost and schedule impact, discipline, specification section, and category.
- Response, relevant attachments and response date
- Status of an RFI issue

1.2.2 Governing Forms

The **RequestForInformation** schema is developed based on standard forms, including,

- AIA Document G716
- AGC Document 204

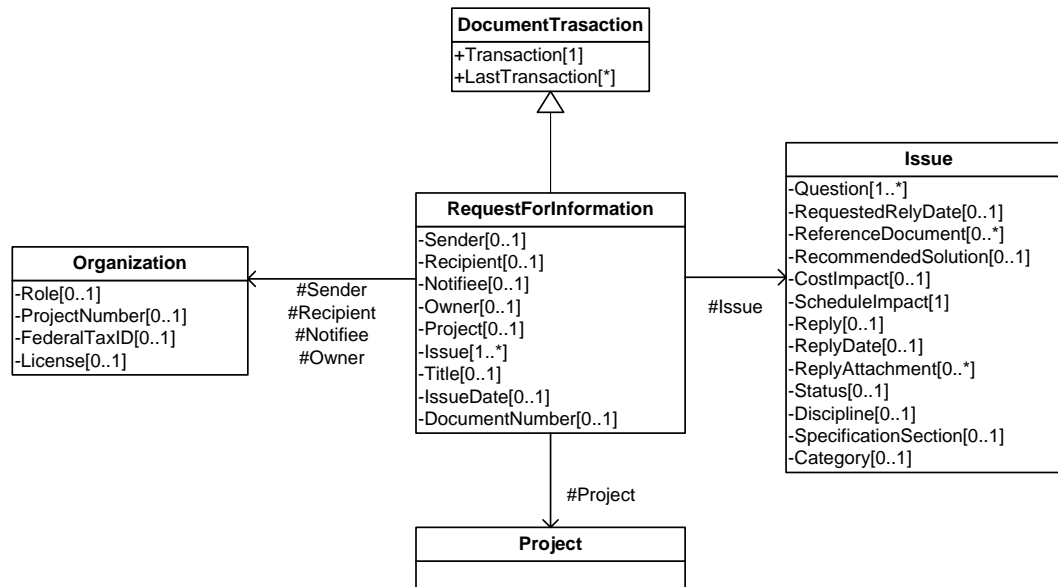In addition, some customized RFI forms are referenced during the process of requirement analysis.

Figure 1: The RequestForInformation Element

1.3 The Parties Involved in the RequestForInformation

A typical RFI process involves a sender, a receiver and others that are notified. Usually, the **Sender** is a contractor. Information of the contractor as a company and its representative who prepares the RFI should be captured. The **Recipient** is typically a designer. Information of the designer as a company and its representative who responds to the RFI needs to be captured. In addition, the signature of the sender and recipient representatives should be modeled.

Besides the sender and the recipient, an RFI may also include a list of receivers who are copied for information. The list of receivers is defined as the **Notifiee** in the RFI schema.

Common definitions used by the **Sender**, the **Recipient** and the **Notifiee** are mainly the **Organization** and **Person** schemas that are discussed in the document "agcXML Common Definitions" section "Person and Organization."

1.3.1 The Sender Information

In the **RequestForInformation** schema, the **Sender** is defined as any **Organization**. Any specialization of the **Organization**, such as the **Contractor** or the **Subcontractor**, which is defined in the agcXML Common namespace, is accessible through the **Sender**.

1.3.2 The Recipient Information

In the **RequestForInformation** schema, the **Recipient** is defined as any **Organization**. Any specialization of the **Organization**, such as the **Architect** or the **Engineer**, which is defined in the agcXML Common namespace, is accessible through the **Recipient**.

1.3.3 The Notifiee Information

In the **RequestForInformation** schema, the **Notifiee** is defined as any **Organization**. Any specialization of the **Organization**, such as the **Owner**, the **Architect**, the **Contractor** or the **Subcontractor**, which is defined in the agcXML Common namespace, is accessible through the **Notifiee**.

1.4 The Project Information of the RequestForInformation

The **RequestForInformation** schema has two major types of information related to a project, i.e., the **Owner** of the project and basic project information.

1.4.1 The Owner of a Project

The **Owner** of a project is defined by the **Organization**, which provides definitions such as the company name and address.

1.4.2 Basic Project Information

The **RequestForInformation** schema uses the **Project** definition in agcXML Common namespace for basic project information such as project name, project description and project address. For details, please refer to the "acgXML Common Definitions."

1.5 RFI Information

The RFI information includes two types, the basic information and the issue of an RFI. The basic information includes,

- RFI title
- RFI number
- RFI issue date

The issue of an RFI includes:

- Question
- Requested reply date
- Attachments related to the question
- Cost impact
- Schedule impact
- Recommended solution
- Response
- Response date
- Attachments related to the response
- Status
- Discipline
- Specification section
- Category

All definitions of the RFI information are defined in the agcXML Request for Information namespace.

The **RequestForInformation** schema allows one or more issues in one exchange. For each issue, there must be at least one question.

2   XML SCHEMA OF RFI

This section contains the agcXML **RequestForInformation** schema. The schema is developed based on the aecXM COS and the agcXML Common namespaces. For details about the two namespaces, please refer to the corresponding documents.

2.1 agcXML RequestForInformation Namespace

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Created by using XMLSpy v2008 sp2 (http://www.altova.com) by Yimin Zhu -->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
        xmlns:cos=http://www.aecXML.org/aecXML/cos xmlns:agcxml="http://www.aecXML.org/agcXML/agcXMLCommon"
        xmlns:agcrfi="http://www.aecXML.org/agcXML/RequestForInformation"
        targetNamespace="http://www.aecXML.org/agcXML/RequestForInformation" elementFormDefault="qualified"
        attributeFormDefault="unqualified"
        version="1.0">
   <xs:import namespace="http://www.aecXML.org/aecXML/cos" schemaLocation="aecXMLCOS.xsd"/>
   <xs:import namespace=http://www.aecXML.org/agcXML/agcXMLCommon        schemaLocation="agcXMLCommon.xsd"/>
   <!--request for Information diagram-->
   <xs:element name="RequestForInformation" type="agcrfi:RequestForInformation" nillable="false">
      <xs:annotation>
         <xs:documentation>Root element for the XML exchange document for AGC Request for        Information</xs:documentation>
      </xs:annotation>
   </xs:element>
      <xs:complexType name="RequestForInformation">
         <xs:complexContent>
            <xs:extension base="agcxml:DocumentTransaction">
               <xs:sequence>
                  <xs:element name="Sender">
                     <xs:complexType>
                        <xs:choice minOccurs="0" maxOccurs="unbounded">
                           <xs:element ref="agcxml:Organization"/>
                        </xs:choice>
                     </xs:complexType>
                  </xs:element>
                  <xs:element name="Recipient">
                     <xs:complexType>
                        <xs:choice minOccurs="0" maxOccurs="unbounded">
                           <xs:element ref="agcxml:Organization"/>
                        </xs:choice>
                     </xs:complexType>
                  </xs:element>
                  <xs:element name="Notifiee" minOccurs="0">
                     <xs:complexType>
                        <xs:sequence>
                           <xs:element name="ListName" type="xs:string" minOccurs="0"/>
                           <xs:choice minOccurs="0" maxOccurs="unbounded">
                              <xs:element ref="agcxml:Organization"/>
                           </xs:choice>
                        </xs:sequence>
                     </xs:complexType>
                  </xs:element>
                  <xs:element name="Owner" minOccurs="0">
                     <xs:complexType>
                        <xs:choice maxOccurs="unbounded">
                           <xs:element ref="agcxml:Organization"/>
                        </xs:choice>
                     </xs:complexType>
                  </xs:element>
                  <xs:element name="Project" type="agcxml:Project" minOccurs="0"/>
                  <xs:element name="Title" type="xs:string" minOccurs="0"/>
                  <xs:element name="IssueDate" type="xs:date"/>
                  <xs:element name="DocumentNumber" type="xs:string"/>

                  <xs:element name="Issue" maxOccurs="unbounded">
                     <xs:complexType>
                        <xs:sequence>
                           <xs:element name="Question" type="xs:string"/>
                           <xs:element name="RequestedReplyDate" type="xs:date" minOccurs="0"/>
                           <xs:element name="ReferenceDocument" type="agcxml:AttachmentList" minOccurs="0"/>
                           <xs:element name="RecommendedSolution" type="xs:string" minOccurs="0"/>
                           <xs:element name="CostImpact" type="xs:string" minOccurs="0"/>
                           <xs:element name="ScheduleImpact" type="xs:string" minOccurs="0"/>
                           <xs:element name="Reply" type="xs:string" minOccurs="0"/>
                           <xs:element name="ReplyDate" type="xs:date" minOccurs="0"/>
                           <xs:element name="ReplyAttachment" type="agcxml:AttachmentList" minOccurs="0"/>
```

```
                    <xs:element name="Status" type="xs:string" minOccurs="0"/>
                    <xs:element name="Discipline" type="xs:string" minOccurs="0"/>
                    <xs:element name="SpecificationSection" type="xs:string" minOccurs="0"/>
                    <xs:element name="Category" type="xs:string" minOccurs="0"/>
                  </xs:sequence>
                </xs:complexType>
              </xs:element>
            </xs:sequence>
          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
    </xs:schema>
```

A. ASSIGNMENT TO COMPARATIVE ANALYSIS

The following table shows each agcXML element reference (defined as a path from root element **RequestForInformation** in **RequestForInformation** name space) assigned to the corresponding data field obtained from the comparative analysis of the existing transaction media for request for information transactions (the commonly accepted standard contract forms published by the AIA, AGC, and EJCDC, and others). The table is NOT intended to represent the entire content of the schema or the actual cardinality of each element in the schema. The full comparative analysis is published separately and can be obtained from AGC.

agcXML Comparative Analysis

Data Field Description/Content	Cardinality	agcXML Schema Definition
RFI Recipient Information		
Recipient Company Name	[0..1]	Recipient:{Organization}.Name
Recipient Project Number	[0..1]	Recipient:{Organization}.ProjectNumber
Recipient Address 1	[0..1]	Recipient:{Organization}.PostalAddress.AddressLine1
Recipient Address 2	[0..1]	Recipient:{Organization}.PostalAddress.AddressLine2
Recipient City	[0..1]	Recipient:{Organization}.PostalAddress.Town
Recipient State/Province	[0..1]	Recipient:{Organization}.PostalAddress.Region
Recipient Postal Code	[0..1]	Recipient:{Organization}.PostalAddress.PostalCode
Recipient Country	[0..1]	Recipient:{Organization}.PostalAddress.Country
Recipient Company Phone	[0..1]	Recipient:{Organization}.TelecomAddress.Telephone
Recipient Company Fax	[0..1]	Recipient:{Organization}.TelecomAddress.Facsimile
Recipient Representative Last Name	[0..1]	Recipient:{Organization}.Representative.FamilyName
Recipient Representative First Name	[0..1]	Recipient:{Organization}.Representative.GivenName
Recipient Representative Title	[0..1]	Recipient:{Organization}.Representative.RepresentativeTile
Recipient Representative Phone	[0..1]	Recipient:{Organization}.Representative.TelecomAddress.Phone
Recipient Representative Fax	[0..1]	Recipient:{Organization}.Representative.TelecomAddress.Facsimile
Recipient Representative Email	[0..1]	Recipient:{Organization}.Representative.TelecomAddress.Email
Recipient Representative Signature	[0..1]	Recipient:{Organization}.Representative.Signature.SignatoryName
Recipient Representative Signature Date	[0..1]	Recipient:{Organization}.Representative.Signature.SignatoryDate
RFI Sender Information		
Sender Company Name	[0..1]	Sender:{Organization}.Name
Sender Project Number	[0..1]	Sender:{Organization}.ProjectNumber
Sender Address 1	[0..1]	Sender:{Organization}.PostalAddress.AddressLine1
Sender Address 2	[0..1]	Sender:{Organization}.PostalAddress.AddressLine2
Sender City	[0..1]	Sender:{Organization}.PostalAddress.Town
Sender State/Province	[0..1]	Sender:{Organization}.PostalAddress.Region
Sender Country	[0..1]	Sender:{Organization}.PostalAddress.PostalCode
Sender Postal Code	[0..1]	Sender:{Organization}.PostalAddress.Country

Sender Company Phone	[0..1]	Sender:{Organization}.TelecomAddress.Telephone
Sender Company Fax	[0..1]	Sender:{Organization}.TelecomAddress.Facsimile
Sender Representative Last Name	[0..1]	Sender:{Organization}.Representative.FamilyName
Sender Representative First Name	[0..1]	Sender:{Organization}.Representative.GivenName
Sender Representative Title	[0..1]	Sender:{Organization}.Representative.RepresentativeTile
Sender Representative Phone	[0..1]	Sender:{Organization}.Representative.TelecomAddress.Phone
Sender Representative Fax	[0..1]	Sender:{Organization}.Representative.TelecomAddress.Facsimile
Sender Representative Email	[0..1]	Sender:{Organization}.Representative.TelecomAddress.Email
Sender Representative Signature	[0..1]	Sender:{Organization}.Representative.Signature.SignatoryName
Sender Representative Signature Date	[0..1]	Sender:{Organization}.Representative.Signature.SignatoryDate

Project Information

Project Name 1 (e.g., Smith Biophysics Laboratory)	[0..1]	Project.Name
Project Name 2 (e.g., University of Toledo)	[0..1]	Project.Description
Project Contract date	[0..1]	Project.ContractDate
Project Street Address 1	[0..1]	Project.Address.AddressiIne1
Project Street Address 2	[0..1]	Project.Address.AddressLine2
Project City	[0..1]	Project.Address.Town
Project State/Province	[0..1]	Project.Address.Region
Project Country	[0..1]	Project.Address.Country
Project Postal Code	[0..1]	Project.Address.PostalCode

Owner Information

Project Owner Contact First Name	[0..1]	Owner:{Organization}.Representative.GivenName
Project Owner Contact Last Name	[0..1]	Owner:{Organization}.Representative.FamilyName
Project Owner Contact Email Address	[0..1]	Owner:{Organization}.Representative.TelecomAddress.Email
Project Owner Company Name	[0..1]	Owner:{Organization}.Name
Project Owner Address 1	[0..1]	Owner:{Organization}.PostalAddress.AddressLine1
Project Owner Address 2	[0..1]	Owner:{Organization}.PostalAddress.AddressLine2
Project Owner City	[0..1]	Owner:{Organization}.PostalAddress.Town
Project Owner State	[0..1]	Owner:{Organization}.PostalAddress.Region
Project Owner Postal Code	[0..1]	Owner:{Organization}.PostalAddress.PostalCode
Project Owner Country	[0..1]	Owner:{Organization}.PostalAddress.Country
Project Owner Project Number	[0..1]	Owner:{Organization}.ProjectNumber

RFI Information

RFI Title	[0..1]	Title
RFI Issue Date	[0..1]	IssueDate
RFI Number	[0..1]	DocumentNumber
RFI Notifiee List Name	[0..1]	Notifiee.ListName

RFI Notifiee List Company Names

Owner	[0..1]	Notifiee.Organization (if included in the list of Notifiees)
Architect	[0..1]	Notifiee.Organization (if included in the list of Notifiees)
Contractor	[0..1]	Notifiee.Organization (if included in the list of Notifiees)
Construction Manager	[0..1]	Notifiee.Organization (if included in the list of Notifiees)
Subcontractor	[0..1]	Notifiee.Organization (if included in the list of Notifiees)
Engineer	[0..1]	Notifiee.Organization (if included in the list of Notifiees)
Manufacturer	[0..1]	Notifiee.Organization (if included in the list of Notifiees)
Other	[0..1]	Notifiee.Organization (if included in the list of Notifiees)
Detailed Question or Information Request	[1]	Issue.Question
Sender's Reference Documents (list)	[0..*]	Issue.ReferenceDocument
Sender's Recommended Solution	[0..1]	Issue.RecommendedSolution
Requested Reply Date	[0..1]	Issue.RequestedReplyDate
Recipient's Detailed Response	[0..1]	Issue.Reply
Response Date	[0..1]	Issue.ReplyDate
Response Attachments (list)	[0..*]	Issue.ReplyAttachment