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Information Exchange

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

agcXML

**SUPPLEMENTAL INSTRUCTIONS
DATA SPECIFICATION AND SCHEMA**

**VERSION 1.0
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The agcXML Project

The Associated General Contractors of America

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1 . SUPPLEMENTAL INSTRUCTIONS

The agcXML **SupplementalInstruction** schema is discussed in this document as a class diagram using the Unified Modeling Language notation, UML. The document should present the overall structure of the agcXML schema and discuss its components and agcXML – particularly the interrelationship between the common layer for aecXML definitions, common agcXML definitions and the particular usage and extension for the **SupplementalInstruction** schema. It also shows where components from ifcXML are reused and where IFC based BIM information can be handled and mapped into agcXML.

1.1 The SupplementalInstruction schema

The **SupplementalInstruction** schema is the schema to be used for sending and receiving supplemental instructions between parties involved in electronic exchange of business messages. The schema deals with the variable part of the change directive, not with the layout of the documents. In scope are:

- The meta-data of the schedule of values document (who, when, with what application)
- The sender, recipient and notified role (for owner, contractor, construction manager and architect information)
- The project information
- The supplemental instructions
- The attachments to the supplementaty instruction

1.1.1 Name space considerations

The following name spaces are assigned:

- ifcXML – not part of the XML schema, will be handled by XSLT based mapping, when required
- aecXMLCOS:
 - xmlns:cos="http://www.aecXML.org/aecXML/cos"
- agcXMLCommon:
 - xmlns:agcxml="http://www.aecXML.org/agcXML/agcXMLCommon"
- SupplementalInstruction:
 - xmlns:agcsui="http://www.aecXML.org/agcXML/SupplementalInstruction"

1.2 The SupplementalInstruction root element

The root element of the xml exchange document is the **SupplementalInstruction** element. It is defined in the **SupplementalInstruction** name space, and inherits from the **DocumentTransaction** in the **agcXMLCommon** name space.

All attributes and elements of **DocumentTransaction** are explained in the document “agcXML common definitions”.

The **SupplementalInstruction** element adds the following application for payment specific elements:

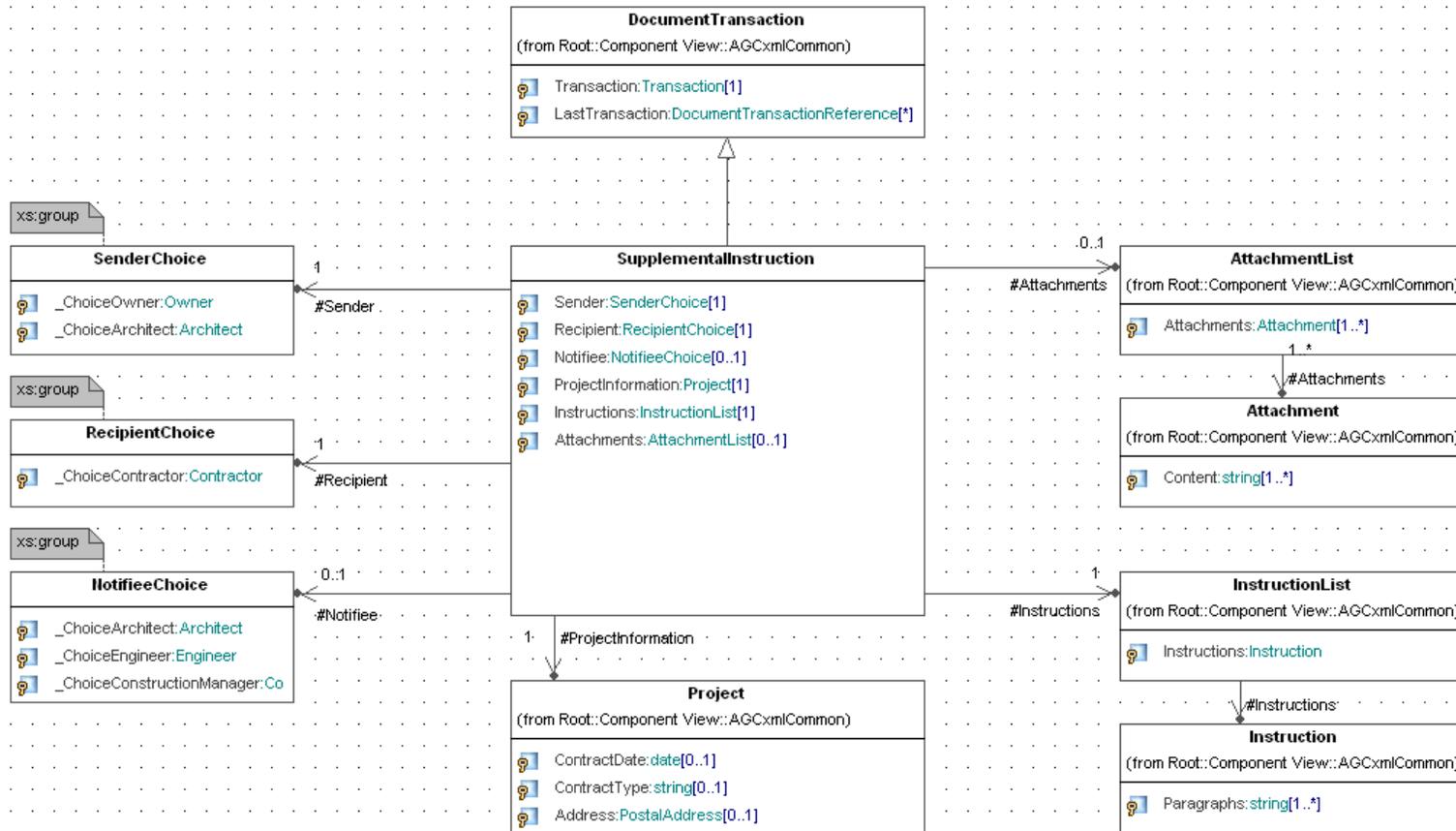


Figure 1: the root element *SupplementalInstruction* in *SupplementalInstruction* name space

1.2.1 Basic document information

The **SupplementalInstruction** carries (if fully instantiated) the following information:

- The governing form (i.e. the template for the schedule of values document)
- The information about the parties of the schedule of value
 - The sender information, being:
 - Owner information
 - Architect information
 - The recipient information, being:
 - Contractor information
 - The notifyee information, being:
 - Architect information
 - Engineer information
 - Construction manager information
- The project information (name and reference number)
- The supplementary instructions
 - description
- The attachments to the supplemental instruction
 - Document references of the attachments

1.2.2 Governing form

The exchange of the supplemental instructions is based on the standard forms published by AGC (or potentially also other standard forms). The first element **GoverningForm** provides the underlying and governing form. The element **GoverningForm** is defined at **Document**.

It identifies the underlying and governing form, which currently may be any one of the following:

- AIA Document G710-1992 (if applicable to overall scope of work for agcXML)

1.3 The parties involved in the supplemental instruction

A supplemental instruction is established between a sender and a recipient.

Information about organization and person information of the parties is provided in the document “agcXML common definitions” section “Person and organization”.

1.3.1 The sender information

The sender of the **SupplementalInstruction** is presented by the **Owner**, or by its consultant, typically the **Architect**. It is accessible as **Sender**.

1.3.2 The recipient information

The recipient for the **SupplementalInstruction** is presented by the **Contractor**. It is accessible as **Recipient**.

1.3.3 The notifyee information

The notifyee for the **SupplementalInstruction** is presented by the **Architect**, **Engineer** or **ConstructionManager**. It is accessible as **Notifyee**. The notifyee information is optional.

1.3.4 Choice of roles for client and/or applicant

Information about **Contractor**, **Owner**, **Architect**, **Engineer**, and **ConstructionManager** is provided in the document “agcXML common definitions”. The information is independent of whether the organization is the sender, recipient or notified in this transaction.

1.4 The Project information

The **ProjectInformation** is provided by **Project** defined in **agcXMLCommon** name space. The minimum information provided within the **Bond** element should be **Project.Name**, **.ProjectId**, **.Description**, **.ContractType** (for the “contract for” field) and **.ContractDate**.

Information about **Project** is provided in the document “agcXML common definitions”, section “Project”.

1.5 The Instruction information

The **SupplementalInstruction** provides additional information to the **Instructions**. The instructions are provided as an **InstructionList** allowing for one or many **Instruction**'s. Each **Instruction** is defined by one to many paragraphs.

Information about **Instruction** and **InstructionList** is provided in the “aecXML common object schema,” section “Instructions.”

1.6 The Attachment information

The additional information is captured in attachments. The list of attachments is handled by **AttachmentList** defined in the **agcXMLCommon** name space. It contains one or more **Attachment** information, each **Attachment** is a document reference (not the actual document itself), it is defined in the **agcXMLCommon** name space.

For each **Attachment** the following information can be provided:

- The **href** attribute providing the URL of the attachment
- The name or title of the attachment as **Name**
- Any additional textual explanation as **Description**
- The attachment id as **documentId**
- The date of the attachment (last edition) as **PreparationDate**

Information about **Attachment** and **AttachmentList** is provided in the document “agcXML common definitions”, section “Document References”.

2 XML SCHEMA

The XML schema definitions are defined in different name spaces following the agcXML technical framework.

- The most general definitions are included in the [aecXMLCOS](#) name space; some of those definitions are taken from other standards, such as [ifcXML](#) for general elements and ISO-IEC_82045-5 for document metadata.
- Definitions that are common to AGC document exchanges within the scope of [agcXML](#) are included in the [agcXMLCommon](#) name space.
- Definitions that are specific to the exchange of schedules of values are included in the [SupplementalInstruction](#) name space.

2.1 aecXMLCOS name space

The XML schema definitions of the aecXMLCOS schema are provided in the document “agcXML common definitions”, section “aecXML schema”.

2.2 agcXMLCommon name space

The XML schema definitions of the agcXMLCommon schema are provided in the document “agcXML common definitions”, section “agcXMLCommon schema”.

2.3 agcXMLSul name space

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- XMLSpy v2007 sp2 (http://www.altova.com) Thomas Liebich (AEC3 Deutschland GmbH) -->
<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:agcsui="http://www.aecXML.org/agcXML/SupplementalInstruction"
targetNamespace="http://www.aecXML.org/agcXML/SupplementalInstruction" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:import namespace="http://www.aecXML.org/aecXML/cos" schemaLocation="aecXMLCOS.xsd"/>
  <xs:import namespace="http://www.aecXML.org/agcXML/agcXMLCommon" schemaLocation="agcXMLCommon.xsd"/>
  <!--change directive diagram-->
  <xs:element name="SupplementalInstruction" type="agcsui:SupplementalInstruction"
    substitutionGroup="agcxml:DocumentTransaction" nillable="false">
    <xs:annotation>
      <xs:documentation>Root element for the XML exchange document for AGC Supplemental
        instructions</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:complexType name="SupplementalInstruction">
    <xs:complexContent>
      <xs:extension base="agcxml:DocumentTransaction">
        <xs:sequence>
          <xs:element name="Sender">
            <xs:complexType>
              <xs:group ref="agcsui:SenderChoice"/>
            </xs:complexType>
          </xs:element>
          <xs:element name="Recipient">
            <xs:complexType>
              <xs:group ref="agcsui:RecipientChoice"/>
            </xs:complexType>
          </xs:element>
          <xs:element name="Notifinee">
            <xs:complexType>
              <xs:group ref="agcsui:NotifineeChoice" minOccurs="0" maxOccurs="unbounded"/>
            </xs:complexType>
          </xs:element>
          <xs:element name="ProjectInformation" type="agcxml:Project"/>
          <xs:element name="Instructions" type="agcxml:InstructionList"/>
          <xs:element name="Attachments" type="agcxml:AttachmentList"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:schema>
```

```
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <!--ChangeDirective actor diagram - Group definition for choice of client, applicant, and advisor-->
  <xs:group name="SenderChoice">
    <xs:choice>
      <xs:element ref="agcxml:Owner"/>
      <xs:element ref="agcxml:Architect"/>
    </xs:choice>
  </xs:group>
  <xs:group name="RecipientChoice">
    <xs:choice>
      <xs:element ref="agcxml:Contractor"/>
    </xs:choice>
  </xs:group>
  <xs:group name="NotifieeeChoice">
    <xs:choice>
      <xs:element ref="agcxml:Architect"/>
      <xs:element ref="agcxml:Engineer"/>
      <xs:element ref="agcxml:ConstructionManager"/>
    </xs:choice>
  </xs:group>
</xs:schema>
```

A ASSIGNMENT TO COMPARATIVE ANALYSIS

The following table shows each agcXML element reference (defined as a path from root element **SupplementalInstruction** in **SupplementalInstruction** name space) assigned to the corresponding data field obtained from the comparative analysis of the existing transaction media for supplemental instructions 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 path
Agreement Date		
Project Agreement Date (dd/mm/yyyy)	[1]	AgreementDate:date (based on xs:date)
Owner Information		
Owner Company Name	[1]	Sender: Owner.Name
Owner Project Number	[1]	Sender: Owner.ProjectNumber
Owner Address 1	[1]	Sender: Owner.PostalAddress.AddressLine1
Owner Address 2	[1]	Sender: Owner.PostalAddress.AddressLine2
Owner City	[1]	Sender: Owner.PostalAddresses.Town
Owner State	[1]	Sender: Owner.PostalAddress.Region
Owner Country	[1]	Sender: Owner.PostalAddress.Country
Owner Company Phone	[1]	Sender: Owner.TelecomAddress.Telephone
Owner Company Fax	[1]	Sender: Owner.TelecomAddress.Facsimile
Owner Representative Last Name	[1]	Sender: Owner.Representative.FamilyName
Owner Representative First Name	[1]	Sender: Owner.Representative.GivenName
Owner Representative Title	[1]	Sender: Owner.RepresentativeTitle
Owner Representative Phone	[1]	Sender: Owner.Representative.Addresses.Telephone
Owner Representative Fax	[1]	Sender: Owner.Representative.Addresses.Facsimile
Owner Representative e-mail Address	[1]	Sender: Owner.Representative.Addresses.Email
Contractor Information		
Contractor Company Name	[1]	Recipient: Contractor.Name
Contractor Project Number	[1]	Recipient: Contractor.ProjectNumber
Contractor Account Code	[1]	Recipient: Contractor.ProjectAccountCode
Contractor Address 1	[1]	Recipient: Contractor.PostalAddress.AddressLine1
Contractor Address 2	[1]	Recipient: Contractor.PostalAddress.AddressLine2
Contractor City	[1]	Recipient: Contractor.PostalAddress.Town
Contractor State	[1]	Recipient: Contractor.PostalAddress.Region
Contractor Country	[1]	Recipient: Contractor.PostalAddress.Country
Contractor Company Phone	[1]	Recipient: Contractor.TelecomAddress.Telephone

Contractor Company Fax	[1]	Recipient: Contractor.TelecomAddress.Facsimile
Contractor Representative Last Name	[1]	Recipient: Contractor.Representative.FamilyName
Contractor Representative First Name	[1]	Recipient: Contractor.Representative.GivenName
Contractor Representative Title	[1]	Recipient: Contractor.RepresentativeTitle
Contractor Representative Phone	[1]	Recipient: Contractor.Representative.Addresses.Telephone
Contractor Representative Fax	[1]	Recipient: Contractor.Representative.Addresses.Facsimile
Contractor Representative e-mail Address	[1]	Recipient: Contractor.Representative.Addresses.Email
Project Information		
Project Name 1 (e.g., Smith Biophysics Laboratory)	[1]	ProjectInformation.Name
Project Name 2 (e.g., University of Toledo)	[1]	ProjectInformation.LongName
Project Reference Number	[1]	ProjectInformation.ReferenceNumber
Project Street Address 1	[1]	ProjectInformation.PostalAddress.AddressLine1
Project Street Address 2	[1]	ProjectInformation.PostalAddress.AddressLine2
Project City	[1]	ProjectInformation.PostalAddress.Town
Project State/Province	[1]	ProjectInformation.PostalAddress.Region
Project Country	[1]	ProjectInformation.PostalAddress.Country
Project Postal Code	[1]	ProjectInformation.PostalAddress.PostalCode
Type of Project/Contract	[0..1]	ProjectInformation.ContractType
Prime Design Professional Information		
Architect/Engineer Company Name	[0..1]	Notiffee: Designer.Name
Architect/Engineer Project Number	[0..1]	Notiffee: Designer.ProjectNumber
Architect/Engineer Address 1	[0..1]	Notiffee: Designer.PostalAddress.AddressLine1
Architect/Engineer Address 2	[0..1]	Notiffee: Designer.PostalAddress.AddressLine2
Architect/Engineer City	[0..1]	Notiffee: Designer.PostalAddress.Town
Architect/Engineer State	[0..1]	Notiffee: Designer.PostalAddress.Region
Architect/Engineer Country	[0..1]	Notiffee: Designer.PostalAddress.Country
Architect/Engineer Company Phone	[0..1]	Notiffee: Designer.TelecomAddress.Telephone
Architect/Engineer Company Fax	[0..1]	Notiffee: Designer.TelecomAddress.Facsimile
Architect/Engineer Representative Last Name	[0..1]	Notiffee: Designer.Representative.FamilyName
Architect/Engineer Representative First Name	[0..1]	Notiffee: Designer.Representative.GivenName
Architect/Engineer Representative Title	[0..1]	Notiffee: Designer.Representative.RepresentativeTitle
Architect/Engineer Representative Phone	[0..1]	Notiffee: Designer.Representative.Addresses.Telephone
Architect/Engineer Representative Fax	[0..1]	Notiffee: Designer.Representative.Addresses.Facsimile
Architect/Engineer Representative e-mail Address	[0..1]	Notiffee: Designer.Representative.Addresses.Email
Architect/Engineer Representative	[0..1]	<<actual signature not exchanged - see discussion about electronic signature>>
Supplemental Instruction Signature		
Supplemental Instruction Information		
Supplemental Instruction Number	[1]	Name

Supplemental Instruction Date	[1]	PreparationDate
Distribution to (check all that apply)		note: it is only a tick for the document distribution
Owner	[0..1]	as part of Notiffee
Architect	[0..1]	as part of Notiffee
Consultant		as part of Notiffee
Contractor	[0..1]	as part of Notiffee
Field	[0..1]	as part of Notiffee
Other	[0..1]	as part of Notiffee
Supplemental Instruction Description	[1]	Instructions
Supplemental Instruction Attachments	[0..*]	Attachments

Table 1: agcXML path information assigned to the fields of the comparative analysis