ICMS RICS data standard

Version 1.1 [September 2019]
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1 Introduction

1.1 Application

The *International Construction Measurement Standards RICS Data Standard* (ICMS RICS Data Standard) is an XML schema allowing users to capture, denote and share data on construction cost measurements. It is compatible with:

- *RICS property measurement* (2nd edition), RICS professional statement and

This document will be updated to comply with the second edition of ICMS when it is released in 2019. This will include whole life costs and additional project types.

The schema is extensible and flexible.

1.2 RICS data standards

All RICS data standards are implemented via XML .xsd files. These reference shared .xsd files containing definitions of common types and enumerations that are used in one or more of the current data standards, namely:

- ICMS
- *International Property Measurement Standards* (IPMS)
- *International Land Measurement Standard: Due Diligence for Land and Real Property Surveying* (ILMS) and

The RICS data standards should always be implemented with reference to the standards themselves and the relevant RICS professional standards and guidance.

Where relevant, ICMS implements the *International Property Measurement Standards RICS data standard* (IPMS RICS data standard), so this document should be implemented with specific reference to that document as well.

Complete documentation of all the elements and enumerations can be found in the ICMS RICS Schema, which is available on the RICS Data Standards page of the RICS website. RICS can provide support on the implementation of the XML schemas and mapping between ICMS and other measurement standards. For further information and technical details, please contact datastandards@rics.org.
## 2 Changes made in this version of the ICMS RICS data standard

The key changes that have been made in this version of the ICMS RICS data standard are shown in the following table.

<table>
<thead>
<tr>
<th>Element</th>
<th>Change made</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/a</td>
<td>Descriptions have been added for proposed component areas for IPMS: Retail Buildings.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>An option has been added to elements throughout the schema to report additional attributes [##any], elements [AnythingType] and additional documents, files, etc [AnnotatedDocumentType].</td>
<td></td>
</tr>
<tr>
<td></td>
<td>An optional AlternativeMeasurement element has been added to all measurements.</td>
<td>This enables functional units to be expressed in addition to areas.</td>
</tr>
<tr>
<td></td>
<td>Enumerations have been added for ISO country codes, along with a full range of units of measurement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Various enumerations have been amended to match ICMS.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All functional unit values in projects are now able to record numeric values as well as the name of the function [function] and the unit of measure [unitOfMeasure].</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KnownCostCodeEnum has been amended and KnownCostSubCodeEnum has been added for levels 3 and 4 respectively.</td>
<td></td>
</tr>
</tbody>
</table>
| BridgeWorksType | BridgeDimensionType has been added. | Compliance  
See section 4.4 for further information. |
|----------------|-----------------------------------|------------------------------------------------|

**Additional optional elements have been added:**
- Disclosures
- Organization
- OrganizationAddress
- OrganizationContactDetails
- OrganizationRegulatoryID
- PreparedBy
- PreparedByQualifications
- PreparedByRegulatoryID
- CertifiedByQualifications
- CertifiedByRegulatoryID

These elements enable the user to add further details about the organisation and contact(s) that have prepared or signed off the measurement.

| CostedProjectContainerType | An additional optional ProfessionalStandard element has been added. | CostedProjectContainerType  
See section 4.5 for further information. |
|----------------------------|---------------------------------------------------------------|-------------------------------|

**An additional optional GUID element has been added to this and all project types.**

This element enables the user to record a unique identifier for an asset.

**An optional Client element has been added.**

This element enables the user to record the client’s name.

The **costBaseDate** attribute has been added.

The **ProjectCode** element has been added as an optional default for all projects.

The **SubProjectsIncluded** element has been added.

This element enables the user to document project types included in the overall project.
<table>
<thead>
<tr>
<th><strong>CostType</strong></th>
<th>The <em>isNotApplicable</em> attribute has been added.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DimensionsType</strong></td>
<td>This has been amended.</td>
</tr>
<tr>
<td></td>
<td>Changes made enable each dimension to have a specific <em>unitOfMeasure</em> attribute with an additional <em>CrossSectionalArea</em> element.</td>
</tr>
<tr>
<td></td>
<td>Changes made also enable multiple sets of <em>DimensionsType</em> elements to be reported.</td>
</tr>
<tr>
<td><strong>InternalFile</strong></td>
<td>The attributes <em>encoding</em> and <em>path</em> have been added.</td>
</tr>
<tr>
<td><strong>IcmsMeta</strong></td>
<td>The sequence in which the <em>Entity</em> element appears has changed.</td>
</tr>
<tr>
<td></td>
<td>Additional optional elements have been added:</td>
</tr>
<tr>
<td></td>
<td>• <em>ReportStatus</em></td>
</tr>
<tr>
<td></td>
<td>• <em>ReportRevisionNumber</em></td>
</tr>
<tr>
<td></td>
<td>These elements enable the user to include drafts and report revisions.</td>
</tr>
<tr>
<td></td>
<td>An option to report volumetric measurements, supported with the corresponding optional <em>VolumeUnitOfMeasure</em> element, has been added.</td>
</tr>
<tr>
<td></td>
<td>The namespace prefix has been corrected to <em>icms</em>, rather than <em>rics</em>.</td>
</tr>
<tr>
<td></td>
<td>Additional optional elements have been added:</td>
</tr>
<tr>
<td></td>
<td>• <em>MaterialAssistance</em></td>
</tr>
<tr>
<td></td>
<td>• <em>PreparedForClients</em></td>
</tr>
<tr>
<td></td>
<td>• <em>OtherIntendedUsers</em></td>
</tr>
<tr>
<td></td>
<td>• <em>MaterialConnection</em></td>
</tr>
<tr>
<td></td>
<td>These elements enable the user to add further details about third-party assistance, who the report was prepared for, the intended users of the report and any material pre-existing connection between the measurer and the asset[s].</td>
</tr>
</tbody>
</table>
### Table 1: Changes made in this version of the ICMS RICS data standard

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IcmsMeta</strong> (continued)</td>
<td>Additional optional elements have been added:</td>
<td>These elements enable the user to include information about any informed consent around conflicts of interest and any services requested as part of the measurement exercise.</td>
</tr>
<tr>
<td>• InformedConsent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• AdditionalServices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>An additional optional TermsOfEngagement element has been added.</td>
<td></td>
<td>This element enables the user to capture an overall summary of the measurement terms and conditions, etc.</td>
</tr>
<tr>
<td><strong>ProjectCode</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This element has been changed to optional in all project types.</td>
<td></td>
</tr>
<tr>
<td><strong>PropertyType</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>An optional GUID element has been added.</td>
<td>This element enables the user to record a unique identifier for a property.</td>
</tr>
<tr>
<td><strong>RefineryDesignFeaturesType</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The PrincipalProcess element has been restricted to one occurrence.</td>
<td></td>
</tr>
<tr>
<td><strong>RoadAndMotorwayDesignFeaturesType</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The spelling of the verticalProfile attribute has been corrected.</td>
<td></td>
</tr>
<tr>
<td><strong>RoadAndMotorwayWorksType</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>RoadAndMotorwayDimensionType</em> has been added and its occurrence in <em>RoadAndMotorwayWorksType</em> has been renamed as <em>Dimensions</em>.</td>
<td>This ensures consistency with other project types.</td>
</tr>
<tr>
<td><strong>TurbineType</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A unitOfMeasurement attribute has been added.</td>
<td></td>
</tr>
</tbody>
</table>
3 Use of enumerations

The data standard provides lists of known values for many attributes and elements where a list or set of data may be chosen from, such as ICMS tunnelling method definitions. In this instance, the enumeration, found in the enumeration schema, is defined by the type: `KnownTunnellingMethodEnum`. The enumeration contains the list of known methods: `cutAndFill`, `tunnelBoringMachine`, `drillAndBlast` and `immersed`. These lists are useful for software developers.

It should be noted that the schema allows for extensions of this data via the use of `TunnellingMethodType`, which is defined as the superset of a string, and `KnownTunnellingMethodEnum`. Therefore, any string value is technically allowed. This pattern is followed throughout the data standard and serves to provide users with indications as to what values should be expected, while also providing them with the freedom to submit any data.

```xml
<xs:simpleType name="KnownTunnellingMethodEnum">
  <xs:restriction base="xs:string">
    <xs:enumeration value="cutAndFill"/>
    <xs:enumeration value="tunnelBoringMachine"/>
    <xs:enumeration value="drillAndBlast"/>
    <xs:enumeration value="immersed"/>
  </xs:restriction>
</xs:simpleType>
```

**Code block 1: The use of enumerations in this data standard**
4 Overview of the ICMS RICS data standard

4.1 The IcmsMeasurement element

The ICMS RICS schema comprises a top-level element, IcmsMeasurement, which contains CostedProject and IcmsMeta elements.

Figure 1: The top-level element of the ICMS RICS schema, IcmsMeasurement
4.2 The lcmsMeta element

The lcmsMeta element contains details of the entity being measured and the process of how it was measured. At its simplest, this entity is an address – which may represent multiple measured properties – a reference identifier and an optional attribute – primaryUse – specifying the entity’s primary use (generally one of either Office, Residential, Industrial, Retail or MixedUse). Addresses are specified using the OASIS xAL address specification and can have a high level of flexibility. See chapter 7 for further information.

The lcmsMeta element can also contain the following information:

- who the measurement was prepared for (PreparedFor)
- who took the measurement (MeasuredBy)
- the instructed measurement date (InstructedMeasurementDate)
- the actual measurement date (MeasurementDate)
- the date the report was written (ReportDate)
- the methodology of the measurement (Methodology)
- the report status (ReportStatus) and
- the area unit of measure (AreaUnitOfMeasure). The AreaUnitOfMeasure element must contain a unit of measure, taken from the standard three-letter UN/CEFACT common codes. There may be multiple AreaUnitOfMeasure elements if a report has a requirement to specify a measurement in multiple units.
4.3 The StatedCurrency element

*StatedCurrency* is an element that occurs multiple times which defines the ISO4217 currency code (e.g. USD). The *isPrimaryCurrency* attribute defines whether the currency is the primary reporting currency. If it is not the primary currency, the *currencyExchangeRateToPrimary* attribute indicates the respective exchange rate of the currency to the primary currency, while *currencyExchangeRateDate* provides the date of the stated exchange rate.

Where a report is given in more than one currency, at least one currency should be stated with the *isPrimaryCurrency* boolean attribute set as ‘true’, with all others set to ‘false’. Each of the non-primary currency elements should have their *currencyExchangeRateToPrimary* attribute set to the value that multiplies the non-primary currency to the primary currency. For example, should the primary stated currency be GBP and the secondary stated currency be USD, then the *currencyExchangeRateToPrimary* attribute should be ‘1’ for the GBP StatedCurrency element and, at the time of writing, ‘1.26’ for the USD StatedCurrency element.

Figure 3: CurrencyType

4.4 The Compliance element

The *Compliance* element within *IcmsMeta* contains details of the individual(s) and organisation who prepared and certified the measurement. Additional elements include *ConflictsOfInterestNotes*, *ConfidentialityNotes*, *DigitalSignature*, *TermsOfUse* and *OtherDocumentation*, which provides the ability to add multiple files.

It should be noted that the *DigitalSignature* component of the standard allows for cryptographic signatures to be embedded within the standard to attest to the document’s authenticity. While there is no defined standard for how this element should be signed, it is considered best practice for the creator of the file to provide details on the signing process should this element be used.

The *StatementOfProfessionalism* element is used to document the firm or surveyor’s stance in respect to the RICS standards and guidance related to professionalism such as *Conflicts of interest* (1st edition), RICS professional statement. The associated *link* attribute supports a URI to direct readers to a statement defining compliance.
Figure 4: ComplianceType
4.5 The CostedProject element

In addition to the IcmsMeta element, each IcmsMeasurement element must contain a CostedProject element. This element contains the top-level project information and the objects that have been constructed (for example, a building, bridge, tunnel, etc.).

The attributes of a CostedProject element are shown in the following table.

<table>
<thead>
<tr>
<th>Name of attribute</th>
<th>Description</th>
<th>Available values</th>
</tr>
</thead>
<tbody>
<tr>
<td>projectType</td>
<td>This is the type of construction project.</td>
<td>The projectType attribute generally matches the primary construction object names defined in the ProjectDescriptionEnum element.</td>
</tr>
<tr>
<td>costReportStatus</td>
<td>This details the status of the cost report.</td>
<td>• preConstructionForecast</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• atTender</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• duringConstruction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• actualCostsOfConstruction-PostCompletion.</td>
</tr>
<tr>
<td>costBaseDate</td>
<td>This is the base date for the costs.</td>
<td>The date is written in a year/month format.</td>
</tr>
<tr>
<td>reportPriceBasis</td>
<td>This details the price basis.</td>
<td>• fixedUnitRates or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• unitRatesSubjectTo-FluctuatingAdjustment.</td>
</tr>
<tr>
<td>projectStatus</td>
<td>This indicates the status of the programme.</td>
<td>• initiationAndConceptPhase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• designPhase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• constructionAnd-Commissioning Phase or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• complete.</td>
</tr>
</tbody>
</table>

Table 2: Attributes of a CostedProject element

Elements within the CostedProject element include Title and Description, which are standard strings. In addition, the project should either have a Location element or a LinearCivilEngineeringWorks element, which details a start and end point in xAL format for projects with no single address location. The SubProjectsIncluded element allows the types of sub-projects within the overall costed project to be listed.

The ConstructionPeriod element features a duration (Duration), which should be expressed in months, and DateFrom and DateTo elements, which also contain attributes to specify how the dates have been defined. The DateFrom element may specify the definedBy attribute to be startOfDemolitionAndSitePreparation (or any other value if required) and the DateTo element has a stateTo attribute, which may be set to completionOfCommissioning or any other value as required.
KeyMilestones elements, which feature a description (Description) and a date (Date), can also be added to the report.
4.5.1 The Site and Procurement elements

The Site element features a set of attributes, as shown below. Each attribute has a set of values, which are listed in the ICMS RICS schema. Further information on enumerations can be found in chapter 3 of this document.

Figure 6: SiteStatusType

All of these attributes are optional, but it should be noted that although the Site element is optional, there may only be one Site entry per CostedProject element.
The *Procurement* element is similar to the *Site* element in that there may only be one entry per *CostedProject* element. It has a number of attributes that define the procurement features of the project. Further information on the acceptable values of the attributes can be found in chapter 3 of this document.

![Diagram of Procurement element](image1)

**Figure 7: The Procurement element**

### 4.5.2 The *CommonCosts* element

Each *CostedProject* element may have assigned to it a set of common costs, as defined in note b in the General notes section of ICMS, to capture costs that are common to all or most sub-projects and which are better shown separately to permit reallocation in the appropriate way when the specific need arises.

The *CommonCosts* element is of *CostCategoryType*, which is also used within each project and sub-project, and contains three top-level elements: *CapitalConstructionCosts*, *AssociatedCapitalCosts* and *SiteAcquisitionAndClientsOtherCosts*.

![Diagram of CostCategoryType](image2)

**Figure 8: CostCategoryType**
Each of these three elements contain a number of cost groups, each of which may have multiple costs within them. For example, the `CapitalConstructionCosts` element contains the following groups:

![Diagram of CapitalConstructionCostGroupType]

**Figure 9: CapitalConstructionCostGroupType**

Each of these cost groups may contain many `Cost` elements, which enable detailed cost declarations to be made within each group.
4.6 The Cost element

The Cost element structure is shown below:

![Cost element structure diagram]

**Figure 10: CostType**

ICMS defines a four-level cost hierarchy:

- **Level 1**: Project or Sub-Project
- **Level 2**: Cost Categories
- **Level 3**: Cost Groups
- **Level 4**: Cost Sub-Groups

The costCode attribute is used to capture the top three levels of this hierarchy, while the optional costSubCode attribute can be used to define a further level of granularity at Level 4. The KnownCostCodeEnum and KnownCostSubCodeEnum enumerations provide a set of recommended value attributes.

The costCode and subCostCode attributes will support mapping between various other industry and market coding structures, but if other alternative coding structures are used, the schema will still enforce the correct reporting architecture through the hierarchical element structure described above.
Given the potential for duplicate cost codes across building and civil engineering project types, an additional attribute is provided to differentiate between the two. By default, `isCivilEngineeringWorks` is 'false', but should be set to ‘true’ to denote a cost code that is applicable to civil engineering works.

The `isExcluded` attribute should be defined as ‘true’ if the cost exists but is not being reported, as per note i in the General notes section of ICMS.

The `isNotApplicable` attribute should be defined as ‘true’ if the cost does not exist.

Additional attributes, elements and documents can be added to the Cost element, using the `##any` attribute, the `OtherData` element or the `OtherDocumentation` element respectively. These can support other data that are not mandated by ICMS.

Each Cost element has an optional Description element and a Value element. The Value element contains the actual cost value. For example, if the cost of ‘Evacuation and Disposal’ was $25,000, the Value element should contain the value ‘25000’. Costs should be suitably rounded off, as indicated in note h in the General notes section of ICMS.

### 4.7 Project and Sub-project elements

Each CostedProject contains one or more objects that are defined as being part of the overall project being measured. These objects form the core components of the measurement and may contain sub-projects. The full list of projects and/or sub-projects are shown in Figure 4 and contain an OtherProjectType element to allow for custom projects to be included using the GenericProjectType element.

This list of building/infrastructure objects corresponds to the list of projects and sub-projects within the ICMS Framework shown in part 2.1 of ICMS. Although each element is structured slightly differently, with attributes and elements that are specific to the type of project, each has a similar overall architecture, as shown in RoadAndMotorwayType.
Figure 11: RoadAndMotorwayType

Each element contains a title (Title) and a description (Description), together with a ProjectCode element, which allows for the definition of an entity to be recorded via an additional standard. The two suggested standards are:

- **ISICRev4**: International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4.

The SubProject element allows for full nesting of CostedProject elements. Although there is, in theory, no limit to the amount of nesting that can take place, ICMS suggests that only two levels are used. As an example, using this structure, it is possible to define a costed project containing two railways, one of which has a road, a bridge and a tunnel, as two sub-projects.

The Costs element is identical to the CommonCosts element described at the CostedProject level, and supports the documentation of costs at the level of the project and sub-project objects.
4.8 The Works and Quantities elements

The Works and Quantities elements allow for further definition of the project or sub-project and contain attributes that describe the object which may be used for benchmarking and other analytical tasks. For buildings, in addition to summary measurements for IPMS 1 and IPMS 2, a more detailed set of IPMS measurements can be included using the IpmsMeasurement element, as defined in the IPMS RICS data standard.

As an example, the Building type project has the following element structure:

Figures 12–13: The element structure of the Building type project
5 File references

The data standard has the ability to refer to files. These files may be text files, PDF files or other proprietary binary files. Files may be referenced as either internal files or external files. The InternalFile element should be encoded with attributes detailing its encoding (encoding), file extension (format) and a description (description). Files may be referenced by a URL in the href attribute to indicate their location, for external files, or their original location, when stored as an internal file.

Figures 14–16: Referring to files using the data standard
6 Self-documenting schema

The schema contains multiple annotations, currently only in English, taken from RICS property measurement (2nd edition), RICS professional statement and IPMS: Residential Buildings, which document the use of various elements that are defined in the schema. For example:

```xml
<xs:complexType name="LimitedUseMeasurementType">
  <xs:annotation>
    <xs:documentation xml:lang="en">In certain markets there may be areas in buildings that are incapable of occupation in the light of government regulation or labour legislation. Such areas and their limitations are to be identified, measured and stated separately within IPMS reported areas. Users and third parties need to be aware that the inclusion of measured areas in IPMS does not mean the areas are available for legal occupation or use.
    </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="MeasurementValue" type="xs:decimal"/>
    <xs:element name="VolumeMeasurement" type="VolumeMeasurementType" minOccurs="0"/>
    <xs:element name="AlternativeMeasurement" type="AlternativeMeasurementType" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:attribute name="limitedUseCategory" type="LimitedUseCategoryType"/>
  <xs:attribute name="description" type="xs:string"/>
</xs:complexType>
```

**Code block 2: Self-documenting schema**

This example shows the IPMS RICS schema, which is referenced by ICMS projects for buildings.

This documentation may be automatically extracted and presented in software applications and online documentation tools that utilise the schema.
7 Address types

With the use of the OASIS XML address specification (xAL), it is possible to define property addresses very precisely. The following examples, taken from the Oasis website, are valid xAL representations:

```
Level 12, 67 Albert Avenue
Chatswood
NSW 2067
Australia

<AddressDetails>
<AddressLines>
<AddressLine>Level 12, 67 Albert Avenue</AddressLine>
<AddressLine>Chatswood</AddressLine>
<AddressLine>NSW 2209</AddressLine>
<AddressLine>Australia</AddressLine>
</AddressLines>
</AddressDetails>
```

Code block 3: Example property address specification (basic)
Level 12, 67 Albert Avenue, Chatswood, NSW 2067
PO Box: 773, Chatswood, NSW 2057
Australia

<AddressDetails AddressType="Primary and Residential">
  <Country>
    <CountryName>Australia</CountryName>
  </Country>
  <AdministrativeArea>
    <AdministrativeAreaName>NSW</AdministrativeAreaName>
  </AdministrativeArea>
  <Locality>
    <LocalityName>Chatswood</LocalityName>
    <Thoroughfare Type="Street">
      <ThoroughfareNumber>67</ThoroughfareNumber>
      <ThoroughfareName>Archer Street</ThoroughfareName>
    </Thoroughfare>
    <Premise Type="Building">
      <BuildingName>Egis</BuildingName>
      <SubPremise Type="LEVEL">
        <SubPremiseNumber>12</SubPremiseNumber>
      </SubPremise>
    </Premise>
  </Locality>
  <PostalCode>
    <PostalCodeNumber>2067</PostalCodeNumber>
  </PostalCode>
</AddressDetails>

Code block 4: Example property address specification (intermediate)
Chatswood Grove, Block A, Level 2, Suite 1A, 12-14 Malvern Avenue, Adjacent to Chatswood Chase, Chatswood, NSW 2067, Australia

<AddressDetails>
  <Country>
    <CountryName>Australia</CountryName>
  </Country>
  <AdministrativeArea>
    <AdministrativeAreaName>NSW</AdministrativeAreaName>
  </AdministrativeArea>
  <Locality>
    <LocalityName>Chatswood</LocalityName>
  </Locality>
  <Thoroughfare>
    <ThoroughfareNumberRange Type="EVEN">
      <ThoroughfareNumberFrom>
        <ThoroughfareNumber>12</ThoroughfareNumber>
      </ThoroughfareNumberFrom>
      <ThoroughfareNumberTo>
        <ThoroughfareNumber>14</ThoroughfareNumber>
      </ThoroughfareNumberTo>
    </ThoroughfareNumberRange>
    <ThoroughfareName>Malvern</ThoroughfareName>
    <ThoroughfareTrailingType>Avenue</ThoroughfareTrailingType>
  </Thoroughfare>
  <Premise Type="Building"> 
    <BuildingName>CHAStWOOD GROVE</BuildingName>
    <SubPremise Type="BLOCK">
      <SubPremiseNumber>A</SubPremiseNumber>
      <SubPremiseType>LEVEL</SubPremiseType>
    </SubPremise>
    <SubPremise Type="SUITE">
      <SubPremiseNumber>1</SubPremiseNumber>
      <SubPremiseNumberSuffix>A</SubPremiseNumberSuffix>
    </SubPremise>
  </Premise>
  <Premise Type="SHOPPING CENTRE" PremiseDependencyType="ADJACENT TO">
    <PremiseName>Chatswood Grove</PremiseName>
  </Premise>
  <PostalCode>
    <PostalCodeNumber>2067</PostalCodeNumber>
  </PostalCode>
</AddressDetails>
8 Sample data file

A simple ICMS measurement would look as follows. This XML file is available as part of the released schema.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<icms:IcmsMeasurement xmlns:icms="urn:rics:xsdschema:icms:1.1"
    xmlns:ipms="urn:rics:xsdschema:ipms:2.1"
    xmlns:rics="urn:rics:xsdschema:commontypes:2.1"
    xmlns:xal="urn:oasis:names:tc:ciq:xsdschema:xAL:2.0"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="urn:rics:xsdschema:icms:1.1 rics-icms-1.1.xsd">
    <icms:IcmsMeta>
        <rics:ReportDate>2014-05-31</rics:ReportDate>
        <rics:ReportStatus>Final</rics:ReportStatus>
        <rics:ReportRevisionNumber>3</rics:ReportRevisionNumber>
        <rics:Entity primaryUse="MixedUse" reference="1001">
            <rics:Description>New 2 storey office block, warehouse, soft landscaping and paving. Removal of existing buildings in completion</rics:Description>
            <xal:AddressDetails>
                <xal:AddressLines>
                    <xal:AddressLine>Canberra</xal:AddressLine>
                    <xal:AddressLine>Australian Capital Territory</xal:AddressLine>
                    <xal:AddressLine>Australia</xal:AddressLine>
                </xal:AddressLines>
            </xal:AddressDetails>
        </rics:Entity>
    </icms:IcmsMeta>
    <icms:CostedProject projectType="building"
        costReportStatus="preConstructionForecast"
        reportPriceBasis="fixedUnitRates"
        projectStatus="initiationAndConceptPhase">
        <rics:Title>New Offices and Warehouse</rics:Title>
        <rics:Description>New 2 storey office block, warehouse, soft landscaping and paving. Removal of existing buildings in completion</rics:Description>
        <rics:Location>
            <xal:AddressLines>
                <xal:AddressLine>Canberra</xal:AddressLine>
                <xal:AddressLine>Australian Capital Territory</xal:AddressLine>
                <xal:AddressLine>Australia</xal:AddressLine>
            </xal:AddressLines>
        </rics:Location>
    </icms:CostedProject>
</icms:IcmsMeasurement>
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  <rics:Duration>15</rics:Duration>
  <rics:DateFrom
    definedBy="startOfDemolitionAndSitePreparation"/>
  <rics:DateTo stateTo="completionOfCommissioning"/>
</rics:ConstructionPeriod>
<rics:Site
  stateOfUse="brownfield" typeOfUse="urban"
  legalStatus="freehold" siteTopography="principallyFlat"
  groundConditions="soft" accessProblems="average"
  extremeClimaticConditions="easy" environmentalConstraints="easy"/>
<rics:Procurement
  funding="private"
  pricingMethod="lumpSumStipulatedPrice"
  modeOfProcurement="designBidBuild"
  jointVentureForeignConstructor="false"
  predominantSourceOfConstructors="local"/>
<rics:Building>
  <rics:Title>Office and Warehouse</rics:Title>
  <rics:ProjectCode>
    <rics:ClassificationStandard>
      <rics:StandardName>Building Code of Australia</rics:StandardName>
      <rics:Code>01.04.02 (Commercial offices - Suburban/Regional B Grade)</rics:Code>
    </rics:ClassificationStandard>
  </rics:ProjectCode>
  <rics:Costs>
    <rics:CapitalConstructionCosts>
      <rics:DemolitionSitePreparationAndFormation>
        <rics:Cost
          costCode="1.01"
          costSubCode="050"
          isCivilEngineeringWorks="false"
          isExcluded="false">
          <rics:Description>Demolition of existing buildings</rics:Description>
          <rics:Value>600000</rics:Value>
        </rics:Cost>
        <rics:Cost
          costCode="1.01"
          costSubCode="060"
          isCivilEngineeringWorks="false"
          isExcluded="false">
          <rics:Description>Site surface clearance</rics:Description>
          <rics:Value>300000</rics:Value>
        </rics:Cost>
        <rics:Cost
          costCode="1.01"
          costSubCode="080"
          isCivilEngineeringWorks="false"
          isExcluded="false">
          <rics:Description>Site formation</rics:Description>
          <rics:Value>320000</rics:Value>
        </rics:Cost>
      </rics:DemolitionSitePreparationAndFormation>
    </rics:CapitalConstructionCosts>
  </rics:Costs>
</rics:Building>
<rics:Cost costCode="1.02" costSubCode="020" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Foundations up to top of lowest floor slab</rics:Description>
    <rics:Value>1086000</rics:Value>
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<rics:Cost costCode="1.03" costSubCode="030.010" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Structural wall and columns</rics:Description>
    <rics:Value>285000</rics:Value>
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<rics:Cost costCode="1.03" costSubCode="030.020" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Upper floors and beams</rics:Description>
    <rics:Value>951000</rics:Value>
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<rics:Cost costCode="1.03" costSubCode="030.030" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Roof beams and slabs</rics:Description>
    <rics:Value>1056000</rics:Value>
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<rics:Cost costCode="1.03" costSubCode="030.040" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Staircases</rics:Description>
    <rics:Value>72000</rics:Value>
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<rics:Cost costCode="1.04" costSubCode="020.010" isCivilEngineeringWorks="false" isExcluded="false">
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    <rics:Value>Non-structural works</rics:Value>
</rics:Cost>
structural external walls</rics:Description>
<rics:Value>1957500</rics:Value/>
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isCivilEngineeringWorks="false"
isExcluded="false">
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<rics:Cost costSubCode="040.010" costCode="1.04"
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isExcluded="false">
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<rics:Cost costSubCode="040.060" costCode="1.04"
isCivilEngineeringWorks="false"
isExcluded="false">
<rics:Description>Internal doors</rics:Description>
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<rics:Cost costSubCode="050" costCode="1.04"
isCivilEngineeringWorks="false"
isExcluded="false">
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<rics:Value>180000</rics:Value/>
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costSubCode="060.010" isCivilEngineeringWorks="false"
isExcluded="false">
  <rics:Description>Floor finishes</rics:Description>
  <rics:Value>501000</rics:Value>
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  <rics:Description>Internal wall finishes</rics:Description>
  <rics:Value>258300</rics:Value>
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<rics:Cost costCode="1.04"
costSubCode="060.030" isCivilEngineeringWorks="false"
isExcluded="false">
  <rics:Description>Ceiling finishes</rics:Description>
  <rics:Value>380700</rics:Value>
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<rics:Cost costCode="1.05"
costSubCode="070" isCivilEngineeringWorks="false" isExcluded="false">
  <rics:Description>Builder’s work in connection with services</rics:Description>
  <rics:Value>181500</rics:Value>
</rics:Cost>
</rics:ArchitecturalWorks-NonStructuralWorks>
<rics:ServicesAndEquipment>
<rics:Cost costCode="1.05"
costSubCode="010.080" isCivilEngineeringWorks="false"
isExcluded="false">
  <rics:Description>Air handling and distribution system</rics:Description>
  <rics:Value>2273500</rics:Value>
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<rics:Cost costCode="1.05"
costSubCode="020" isCivilEngineeringWorks="false" isExcluded="false">
  <rics:Description>Electrical services</rics:Description>
  <rics:Value>1553000</rics:Value>
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costSubCode="040.010" isCivilEngineeringWorks="false"
isExcluded="false">
  <rics:Description>Communications</rics:Description>
  <rics:Value>728000</rics:Value>
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  <rics:Cost costSubCode="050" costCode="1.05" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Water supply and above ground drainage</rics:Description>
    <rics:Value>788700</rics:Value>
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  <rics:Cost costSubCode="080" costCode="1.05" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Fire services</rics:Description>
    <rics:Value>266700</rics:Value>
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  <rics:Cost costSubCode="100" costCode="1.05" isCivilEngineeringWorks="false" isExcluded="false">
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    <rics:Value>247000</rics:Value>
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  <rics:Cost costSubCode="250" costCode="1.05" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Other specialist services</rics:Description>
    <rics:Value>267500</rics:Value>
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</rics:Cost>
<rics:SurfaceAndUndergroundDrainage>
  <rics:Cost costSubCode="060" costCode="1.06" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Surface and underground drainage</rics:Description>
    <rics:Value>165000</rics:Value>
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  <rics:Cost costSubCode="070" costCode="1.07" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>External and ancillary works</rics:Description>
    <rics:Value>1138000</rics:Value>
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</rics:ExternalAndAncillaryWorks>
<rics:Cost costCode="1.08" isCivilEngineeringWorks="false" isExcluded="false">
<rics:Description>Preliminaries, Contractor’s site overheads, general requirements</rics:Description>
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<rics:RiskAllowances>
<rics:Cost costCode="1.09" isCivilEngineeringWorks="false" isExcluded="false">
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<rics:Value>2438000</rics:Value>
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<rics:Description>Taxes and Levies</rics:Description>
<rics:Value>0</rics:Value>
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</rics:CapitalConstructionCosts>

<rics:AssociatedCapitalCosts>
<rics:WorkAndUtilitiesOffsite>
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<rics:Description>Work and utilities off-site</rics:Description>
<rics:Value>290000</rics:Value>
</rics:Cost>
</rics:WorkAndUtilitiesOffsite>

<rics:PostCompletionLooseFurnitureFittingsAndEquipment>
<rics:Cost costCode="2.02" isCivilEngineeringWorks="false" isExcluded="false">
<rics:Description>Post-completion loose furniture, fittings and equipment</rics:Description>
<rics:Value>2605600</rics:Value>
</rics:Cost>
</rics:PostCompletionLooseFurnitureFittingsAndEquipment>
<rics:ConstructionRelatedConsultantsAndSupervision>
  <rics:Cost costCode="2.03" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Construction-related consultancies and supervision</rics:Description>
    <rics:Value>1380300</rics:Value>
  </rics:Cost>
</rics:ConstructionRelatedConsultantsAndSupervision>
<rics:RiskAllowances>
  <rics:Cost costCode="2.04" isCivilEngineeringWorks="false" isExcluded="false">
    <rics:Description>Risk Allowances</rics:Description>
    <rics:Value>177000</rics:Value>
  </rics:Cost>
</rics:RiskAllowances>
<rics:AssociatedCapitalCosts>
  <rics:SiteAcquisitionAndClientsOtherCosts>
    <rics:SiteAcquisition>
      <rics:Cost costCode="3.01" isCivilEngineeringWorks="false" isExcluded="true">
        <rics:Description>Site acquisition</rics:Description>
        <rics:Value>0</rics:Value>
      </rics:Cost>
    </rics:SiteAcquisition>
    <rics:AdministrativeFinanceLegalAndMarketingExpenses>
      <rics:Cost costCode="3.02" isCivilEngineeringWorks="false" isExcluded="false">
        <rics:Description>Administrative, finance, legal and marketing expenses</rics:Description>
        <rics:Value>671850</rics:Value>
      </rics:Cost>
    </rics:AdministrativeFinanceLegalAndMarketingExpenses>
  </rics:SiteAcquisitionAndClientsOtherCosts>
</rics:AssociatedCapitalCosts>
<rics:Works function="commercial" nature="newBuild" grade="mediumQuality" designLifeInYears="40">
  <rics:EnvironmentalGrade>
    <rics:StandardName>NABERS (National Australian Built Environment Rating System)</rics:StandardName>
    <rics:Grade>Four Star</rics:Grade>
  </rics:EnvironmentalGrade>
</rics:Works>
<rics:Status>targeted</rics:Status>
</rics:EnvironmentalGrade>
<rics:DesignFeatures
structure="steel" externalWalls="Tilt-up (precast)
concrete panels" environmentalControl="airConditioning"
prefabricationDegree="upTo50%OfCapitalConstructionCosts"/>

<rics:Complexity
shapeOnPlan="squareRectangularOrSimilar" design="simple"
methodOfWorking="Existing buildings on site will remain operational
during the construction. Staff will move to new buildings. Old buildings
demolished on completion of new 40 to 50 years"/>

<rics:AverageHeightToSeaLevel
unitOfMeasurement="MTR" location="above">577</rics:AverageHeightToSeaLevel>

<rics:Dimensions unitOfMeasurement="MTR"
description="Metres">
    <rics:Width>37.640</rics:Width>
    <rics:Length>64.85</rics:Length>
    <rics:Height>6.20</rics:Height>
</RICS:Dimensions>

<rics:StoreyInformation>
    <rics:StoreyHeight unitOfMeasurement="MTR"
floorId="0">3</rics:StoreyHeight>

<rics:TypicalStoreyHeight
unitOfMeasurement="MTR">3</rics:TypicalStoreyHeight>

rics:StoreyCountAboveGround>
    <rics:StoreyCountAboveGround>3</rics:StoreyCountAboveGround>

rics:StoreyCountBelowGround>
    <rics:StoreyCountBelowGround>0</rics:StoreyCountBelowGround>
</rics:StoreyInformation>

<rics:Works>
    <rics:Quantities>
        <rics:SiteArea unitOfMeasurement="MTK">50000</rics:SiteArea>
        <rics:CoveredAreaOnPlan
unitOfMeasurement="MTK">7550</rics:CoveredAreaOnPlan>
        <rics:InternalFloorAreaAsIpms2
unitOfMeasurement="MTK">4770</rics:InternalFloorAreaAsIpms2>
    </rics:Quantities>
</rics:Works>
</icms:CostedProject>
</icms:IcmsMeasurement>

**Code block 6: Sample data file**
Confidence through professional standards

RICS promotes and enforces the highest professional qualifications and standards in the valuation, development and management of land, real estate, construction and infrastructure. Our name promises the consistent delivery of standards – bringing confidence to markets and effecting positive change in the built and natural environments.

Americas

<table>
<thead>
<tr>
<th>Latin America</th>
<th>North America</th>
</tr>
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<tbody>
<tr>
<td><a href="mailto:ricsamericalatina@RICS.org">ricsamericalatina@RICS.org</a></td>
<td><a href="mailto:ricsamericas@RICS.org">ricsamericas@RICS.org</a></td>
</tr>
</tbody>
</table>

Asia Pacific

<table>
<thead>
<tr>
<th>ASEAN</th>
<th>Greater China [Hong Kong]</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="mailto:ricsasean@RICS.org">ricsasean@RICS.org</a></td>
<td><a href="mailto:ricshk@RICS.org">ricshk@RICS.org</a></td>
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<tr>
<th>Greater China [Shanghai]</th>
<th>Japan</th>
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<tr>
<td><a href="mailto:ricschina@RICS.org">ricschina@RICS.org</a></td>
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<tr>
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<tr>
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EMEA

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</tbody>
</table>

| United Kingdom RICS HQ | |
|------------------------| |
| contactrics@RICS.org | |

rics.org/datastandards

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