RICS Data Standard (RDS)

Release Notes

Version: 3.2.1
Date: 16 April 2021

The RICS Data Standard (RDS) is a schema, available in both xml and json, that allows users to capture, share and exchange data on land, property, real estate, and infrastructure assets. Where appropriate, the RDS references and supports a range of RICS and international standards covering property measurement, valuation, due diligence, life-cycle costing, brokerage, leasing, and building surveying.

RICS recognize that many existing proprietary systems and industry bodies have already produced models and schemas, and thus the RDS is intended to provide a common interface between these many schemas and to support a single reference point to map system-to-system and to provide common APIs for exchanging data. In addition, the scope of the RDS, covering as it does, assets right across the built and natural environment, has been developed to guide market participants as they model and develop data capture, storage systems, and processes. The RDS does not address the granularity of BIM schemas, such as Industry Foundation Classes (IFC), and other detailed industry standards, but rather seeks to provide a high-level schema for a sector where the availability of consistent, structured data still leaves considerable room for improvement in many jurisdictions.

The RDS has been developed from an international perspective recognizing the different levels of data maturity found in different jurisdictions and avoids terminology specific to custom and practice in a particular market or under a particular legal system. For example, the term ‘landlord’ and ‘tenant’ are avoided, with more generic terms such as occupier, property rights holder, property participant etc. used instead. In a similar manner, whilst the concept of a lease is widely employed in many markets worldwide, the RDS implements the concept of a set of terms that relate to property rights, which can then handle freeholds, leases, contracts, licenses, and other ad hoc arrangements, either formal or informal. Legislation, accreditations, standards, and other local jurisdictional terms can be reflected in extensions to the enumerations described below. In addition to the data relating directly to the assets themselves, the RDS allows information to be captured relating to the provenance, lineage, source and shareability of the data itself including the credentials and assurance, if any, provided by the suppliers of data.

The RDS is designed to be extensible with data from other schemas able to be incorporated as a superset, allowing market participants to drive innovation and support specific and more detailed use cases. RICS welcomes market feedback on areas and themes where the RDS can be extended in scope and/or depth for future releases. Recognising that in many instances data will either be unavailable or not relevant for a particular use case, no elements and attributes are mandatory, so that data can be capture and exchanged as available, with the RDS providing a guide to potential missing items as part of an overall due diligence process. Future enhancements are already planned to include portfolio management, disputes and more extensive planning and development data.

RICS can provide technical support on the implementation of the RDS, for further information and support please contact datastandards@rics.org.

Enumerations

In many cases enumerations are used in the RDS to either limit values such as ISO currency codes and units of measurement; to support the implementation of a standard such as ICMS where values are required to be chosen from a predefined list; or are provided as suggestions to encourage consistency. Where appropriate, these enumerations can be extended either directly in the RDS or by applying additional, alternative values during data capture and exchange.

Unstructured Data

RICS recognize that much of the data held across the built and natural environment is unstructured and still held as documents, such as PDFs, Word documents, Excel spreadsheets etc. These files may be scans of historical documents, themselves typewritten and/or annotated with handwritten comments. Whilst technologies such as machine learning and natural language processing are increasingly allowing this kind of unstructured data to be converted into more structured forms, the RDS allows copies or links to such documents to be captured to complement the structured data available. In addition, much of the data associated with assets is represented by images, videos, drawings, plans etc., which need to be captured and either directly embedded or referenced in the dataset. To support these requirements, the RDS allows many of the elements to have multiple documents attached and annotated to support the structured data.

Shared Elements

The RDS makes extensive use of the ability to reuse and extend common schema components when defining the various elements and attributes used. The following types are widely used and are described below.

Generic Content

Used as a base component for many complex components this includes the GUID and annotated document concepts described below in addition to text, keywords and customisable Boolean flags.

Annotated Document

Itself an extension of the generic content component, this allows for embedded or externally linked files to be referenced. These files can be of any type and additional attributes allow information on title, description, type, creation date, encoding, version, and geospatial coordinates to be captured. If the documents represent some form of informal or informal commitment, information on signatories and witnesses can also be captured.

Date Choice

To accommodate the differing quality and availability of date and time data this component allows dates to be captured as either time, date and time; date; year and month; year; or in extremis, as a simple text string. All date and time types follow the W3C XML Schema Definition Language (XSD) date and time data types:

- https://www.w3.org/XML/Schema.

Date Range Choice

Using the underlying concept of the date choice described above, the schema allows time and date ranges to be captured with from and to dates and times using the choices available.

Duration

Once again, the concept of a date choice is used to define a duration or period from a start to an end date and time. The duration can also be defined using the xs:duration data type with the option of defining a base date for the start of the duration. Once again, in extremis, the duration can be expressed as a simple text string.

GUID

Many of the elements in the RDS use a common attribute to allow multiple references to be assigned to an entity such as a property, object, tenure agreement, loan agreement etc. Whilst an asset or other entity would ideally be identified by a single reference that was shared and recognized by all market participants, the reality is more complex with multiple identifiers issued and maintained by multiple public and private organization. In addition to allowing multiple references to be reconciled, the GUID attribute allows links to other data standards such as IFC by capturing and mapping identifiers across data sets.

Many markets have either developed or are working on unique property identifiers, the UPRN and the USRN in the UK for example, and the RDS supports all these initiatives with enumerations describing the nature of the various identifiers being captured and their relationship to the assets and entities they reference.

Percentage Choice

In those instances where percentage values may be recorded as basis points as an alternative to whole or decimal figures this component allows a choice between basis points and simple percentages.

Simple Measurement

Numerous attributes are expressed using this underlying component which captures a decimal value together with the appropriate ISO unit of measurement. In this way, not only can simple linear, area and volume measurements be captured, but the full range of ISO codes including heat, power, data transfer rates etc.

Dimension

This component allows the most common physical dimensions of objects to be captured, length, width, height, area, diameter, volume, perimeter, and cross-sectional area, together with any number of custom dimensions using the complex measurement concept described below.

Complex Measurement

This component allows multiple custom dimensions and metrics to be record against a physical object, for example, fitted and opening dimensions of a window or occupancy of a space. In addition, this component has an extended set of attributes to capture more complex target and measurement indicators for metrics such as waste, energy consumption, green-house gas (GHG) emissions stated as weight per area/volume, and period. Where necessary this component can have a framework of categories, types and subtypes and be linked to a specific physical object such as an IoT sensor and a physical space, floor, room or zone within a building, structure, or site.

Simple Monetary

Many attributes require values expressed in one or more currencies with appropriate exchange rate data to allow conversion for reporting and benchmarking purposes. This component allows decimal and whole number monetary values to be captured with the appropriate ISO currency code defined, or if a primary currency is defined as described in the Currency section below, to default to that currency type.

Address Data

The format of address data varies widely around the world and the RDS allows either the OASIS xAL or the buildingSMART IFC formats to be used. The quality and consistency of address data remains a challenge in many jurisdictions, and in addition to capturing the available descriptive data, the RDS encourages and supports the development of unique property identifiers alongside the many existing references for properties issued by cadastral bodies, land registries, governments, asset owners, occupiers etc. By combing address data with one or more other asset references, data quality can be enhanced and verified with increased confidence.

Overview

The RDS comprises a top-level element Data Transfer, which can be substituted with Building Logbook, Building Passport, Property Passport, Property Logbook or Digital Twin for style purposes, containing a set of elements that support a variety of use cases. Data can be captured and shared for either a single property or for multiple properties. In either case, data that relates to other properties that have some impact or connection can also be included. Each element allows for historical data by using a duration element to capture when the data was active.

The concept of a property within the RDS is a critical element that allows physical entities such as land, buildings, infrastructure, and other structures to be mapped and reconciled with the legal concepts of ownership, tenure, loans, occupation, rights, protections, charges etc. A property is a flexible element that can encompass a piece of land, a complex of buildings, a unit within a building, or a combination of floors and spaces within a building. A property can be part of a hierarchy of properties so data can be correctly attributed to the land, the building, and the separate units within the building to reflect their physical attributes and the legal rights assigned to each. In a similar way a property can reference many properties held in a portfolio like structure.

In every case, a property needs to be referenced and identified using one or more appropriate GUIDs as describe above. In this way, in addition to any physical address data available, the various references and identifiers from government agencies, tax authorities, cadastral records, land registries, asset managers and other market participants can be recorded. If a unique property identifier such as the UPRN in the UK, or the RESO UPI in the US is available this should be captured alongside other relevant references to contributing and linked data sets.

A primary, or default property can be defined using a Boolean attribute in the Property element where data on multiple properties is being captured. When multiple properties are referenced in one or more parts of the RDS, each element within the Data Transfer element should either have the property attributes populated with the relevant data or should be assumed to relate to the primary property that has been defined in the Property element. The following sections describe each top-level element within the Data Transfer element itself with the html documentation containing diagrams and hyperlinks to the full RDS which includes complete listings of every attribute and element used in both the json or xml versions.

Generated By

This contains information on the individual or legal entity who have supplied the data being exchange or retrieved. The data is presented using the Participants element which is described in more detail below. In many cases this entity may not be responsible for the data itself but is rather acting as a host. Details of data and information sources, assurance etc. are capture in the Meta Data and Information Sources elements described below.

Meta Data

As the name suggests, this element captures data about the data. When the dataset is being provided as a professional report with levels of assurance and indemnity, this element contains information on the scope of work, methodology, services provided, standards used, fees, liability, intended users, default units of measurements for areas etc together with a Compliance element with specific information on the individual professional who has certified the report and a link to their digital certificate where available.

Information Sources

This contains information on the provenance, lineage and sources of information used to assemble the data set. Attributes cover data recency, limitations, assumptions, data ownership, usage rights and restrictions, and the ability to share with other market participants. If data is available for the author of the information, the Compliance element can used in a similar manner to the Meta Data element.

Currency

This contains information on the one or more currencies that are used when monetary amounts are captured in the RDS. If multiple currencies are referenced, a primary, or default currency can be defined using a Boolean attribute and the exchange rate, and date of exchange, captured for each alternative currency. The Currency element uses the ISO 4217 code which is defined in the appropriate enumeration as a reference. If any monetary amount is stated that is not the primary currency, then the relevant ISO 4217 code must be explicitly declared for each value.

Property

As described above, this element allows for a variety of physical assets to be described and mapped to their legal entity equivalents. Various identifiers can be captured using the GUID concept so that land/property title, cadastral, geospatial, asset management, tax authority and other ad hoc identifiers can be recorded. A specific parcel GUID can be used to maintain the relationship between a property and one or more land parcels, and where a land parcel is itself part of a larger parcel. Various attributes allow the use, type purpose etc. to be captured together with information on the jurisdictional location and taxation liability. The postal address can be captured as described above using the xAL or IFC formats and a simple geospatial set of coordinates can be captured using the centroid principle. A property can own child properties on an owner-member type relationship.

Premises

This contains information to define a Property in terms of a combination of area measurements and/or physical elements such as floors, spaces, and rooms with plan documents where available. In many cases this concept is used in tenure agreements to formally define the amount, extent and location of spaces included in the scope of the assigned property rights.

Participants

This contains information on the individuals and/or legal entities connected in some form to a property. Each participant can have their role described, and if they are acting for other participants, who those participants are, and in what capacity they are acting for them. Participants may have material interests in the property or may be acting in a variety of professional roles such as lawyers, notaries, agents, brokers, architects, constructors at various points of the property lifecycle. Where required, anti-money laundering (AML) and know your customer (KYC) information can be captured for transactional purposes.

Tenure

This contains information on the type, class, length, and status of property tenure. Details of those participants who have been granted some form of tenure can be captured together with boundary information, and any rights, restrictions, responsibilities, interests, covenants, charges, disputes and complaints, legal claims etc. that affect the property. Where the tenure has been registered with a registry or cadastral authority this can be recorded together with the date of registration. More detail tenure and loan agreement information can be captured in the Tenure Agreements and Loan Agreements elements described below. The potential for multiple levels of tenure is supported, with for example, information at both at freehold and leasehold level for the same property being captured using this element.

Rights Holders

This contains information on the individuals and legal entities who have some form of tenure/property rights over the property. Using an extension of the Property Participant element details of each rights holder's tenure, share etc. is captured along with detailed elements that can be used to record the tenure agreement, loans, and charges recorded against their interest. Rights holders may or may not occupy the property itself and the tenure concept allows for freehold, leasehold, rental, licence, and informal arrangements to be recorded and to allow for alienation over a range of levels from freehold through, head lease, sub-lease, and short-term rental and licence agreements for a single property.

Tenure Agreements

This contains information on the detail of a tenure agreement with details of who has assigned the property right to whom using the concept of assignor and assignee. In this way, the terms landlord and tenant are avoided, and a more generic language used to recognise the differing terms employed in various jurisdictions. If the agreement has been drawn up under a local piece of legislation this can be captured together with details of any registration with the land registry or cadastral authority.

Where the scope of space and its location is part of the agreement the Premises element described above captures the scope of this. Further elements then capture information on the terms around renewal, breaks, deposit, guarantees, rental payments, rent free periods, incentives, premiums, rent reviews, rent changes, alienation rights, service charges, fees, repairs, hand-back conditions, permitted use, initial works, alteration rights, insurance responsibilities, taxes, utilities, legal costs, completion conditions, schedules of payments, arrears, overpayments, forgiveness, payment holidays, financial and non-financial covenants, and additional rights and clauses. Where an agreement is updated and supersedes the previous arrangement, a link can be captured between a series of agreements with the current arrangement flagged as being current.

Loan Agreements

This contains information on loans or mortgages that have been provided by lenders. These may be secured against the property and usually with recourse to the borrower themselves. For commercial real estate, the position of the loan in the overall capital stack can be recorded, and hence the level of security provided. The borrower and lender are captured as either individuals or legal entities together with a set of high-level attributes detailing the nature and status of the loan. Further elements capture information on any applicable jurisdictional legislation, term length, risk weighting for capital requirements, availability period, prepayment penalties, loan-to-value, fees, financial and non-financial covenants, facility, draw downs, interest rates, hedging, payments, arrears, overpayments, forgiveness, rolling over, payment holidays, transfers, securitisation, guarantees, reviews, additional clauses, additional collateral, and syndication fees. Where a loan supersedes a previous arrangement, a link can be captured between a series of agreements with the current arrangement flagged as being current.

Protections

This contains information on the various protections applied to a property that will limit its use, alteration etc. These include the concepts of listed buildings, conservation areas, national parks etc. applied and enforced by various jurisdictions at local, national, and supranational levels and can also include dimension-based limits on development. The protection may be proposed, recognised, or intended.

Planning

This contains a record of planning applications made to alter and develop a property. Details of the type, status, status history, planning authority and jurisdiction, the various participants such as architect, application, agent etc. and if approved, any conditions that were applied. Links to previous planning applications and other linked applications can be recorded. Any number of documents can be attached to capture the plans, application etc. as well as public comments and final decisions.

Notifications

This contains information on notifications from third parties which affect the property. These may include statutory issues on enforcement of repairs and maintenance, proposals for development in neighbouring properties which could include large scale infrastructure projects, applications to apply protection, intention to carry out works that affect a shared part of the building etc. The description, type and scope can be recorded together with any actual documents, plans etc. Where the notice is of a legal nature the relevant jurisdiction and legislation can be recorded.

Parcel

This contains information on the land parcel, or parcels, with GUID identifiers, boundary definitions as pivot point coordinates and/or line arcs, satellite and/or aerial orthoimages, site plans, summary areas/volume measurements, and limitations and restrictions. The coordinates of each boundary corner or pivot point must be defined in a reference system, where a national coordinate reference system (CRS) is in existence it should be used – in countries without a specific national reference system, WGS 84 UTM should be used.

Area

This contains detailed measurement information, in the form of area, volume, perimeter etc., on the land parcel including separate measurements for those parts that have limitations and restrictions on their use. Where the land parcel is restricted in the third dimension, either aerial and/or underground, these restrictions should be recorded and where a national height datum is in existence it should be used. Additional information on the current planning status, key identification features, any overlapping other land parcels and any site sketch plans can also be recorded.

Use

This contains information on the land use including details of the land cover (such as forest, meadow, swamp, bog, savanna, desert, etc., and whether partial or whole), comparative land use (agricultural, urban, unproductive, etc.), the source of land use classification, quality of soil and gradation, any legally binding land use plans, other characteristics (whether recognised, proposed or intended (such as national park, UNESCO World Heritage, monument protection, historical sites, archaeological sites), date of land use (approval and implementation), change of land use/land cover and its date, any development plans, the type, purpose and use of buildings if any (e.g. agricultural, residential, commercial) and whether these are ancillary to the main use of the land by use of the Buildings element described below.

Services

This contains information on the available and quality of services available to the property either in the context of a completed building or development, or as an undeveloped parcel of land. Elements capture information on road access, potable water supply, wastewater and sewerage disposal, storm water drainage, electricity, gas, liquefied petroleum gas (LPG), oil, solar, wind, telephone, mobile, internet, cable/satellite TV, garbage/rubbish disposal, post, transport, parking, other municipal services, and other user defined services. Each service has information around availability, provisioning, costs, sharing with other properties, shared costs, third party interests, installations, upgrades, replacements, servicing, removal, external connections etc.

Sustainability

This contains information on sustainability factors that affect the property with elements covering environmental issues and climate change, natural disasters (probability of earthquakes, volcanic eruption, hurricanes, drought, flooding etc.), political climate (stability of government, changes of policy, war, and conflict), economic climate, social value and common law rights (including tribal land) and situational environment (proximity to other activities impacting land use such as mining, power stations etc.). Each component can be divided into sub-categories with each level capturing the type, score, probability, and a risk matrix of frequency, severity, and detailed time series to capture the trend over time.

Amenities

This contains information on the amenities available to a property (such as public transport, parks and other open spaces, schools, gyms, cafes, restaurants, shops, places of worship etc.) either within the property itself or within the locality and region. Details of the type, name, accessibility, location, distance from the property, and travel time can be recorded, and if the amenity is within the property itself, the floor, room, space, zone, and area measurements captured.

Sites

This contains information on a property from the perspective of a construction or redevelopment project. Attributes capture summaries on the state and type of current usage, legal status, topography, ground conditions, access problems, extreme climatic conditions, environmental constraints, and statutory planning constraints. In addition, various dimensions such as area, volume, perimeter etc. can be recorded.

Building Complexes

This contains information on a property where two or more separate buildings form an overall complex from a property perspective such as an industrial park, university campus, factory outlet etc. Details of each building is contained in a separate Buildings element as described below.

Buildings

This contains information on a property when represented as a physical building or structure. A building can be part of an overall building complex as defined above and may also be divided into building sections such as units within a shopping centre or flats/condominiums within a residential block as described below.

Attributes summarise the primary use, number of units, lifts, floors, sections, spaces, rooms, zones, type, quality, condition, occupation, ownership, furnished status, fit out status, and main compass point orientation. Detailed elements include information on current and previous usage, owners and occupiers, dates of construction, conversion and alteration, dimensions, storey information, zones, floors, plans, spaces, rooms, construction type and materials, heating and HVAC, and various types of certificates as defined below. Life cycle costs and income are capture using the acquisition, construction, renewal, operations, maintenance, and end-of-life (ACROME) hierarchy as used in ICMS. Details of individual objects as part of the structure and operational components within the building itself are captured using the Object element describe below.

Building Sections

This contains information on properties that are part of a larger structure such as a residential block or shopping centre. This component is an extension of the Building element itself with a link to the building of which it is a part. This element should be used for properties such as shopping centre units and residential flats to allow attributes of property rights and physical structures to be correctly attributed.

Zones

This contains information about zones within a property with attributes capturing fire safety and hazard data, primary usage, and elements that record the spaces, rooms, floors that included in the zone, together with dimensions, area measurements, secondary usage, objects, costs and income, rights holders, HVAC data and plans.

Floors

This contains information about floors within a property with attributes capturing number lifts, units, spaces, primary usage, and elements that record the spaces and rooms included within the floor, together with dimensions, area measurements, secondary usage, objects, costs and income, HVAC data and plans.

Spaces

This contains information about spaces within a property with attributes capturing name, type, style, primary usage, and elements that record the zones, floors and room included within the space, together with dimensions, area measurements, secondary usage, objects, costs and income, rights holders, HVAC data and plans.

Rooms

This contains information about rooms within a property with attributes capturing name, type, style, primary usage, and elements that record the zones, floor, and space, together with dimensions, area measurements, secondary usage, objects, costs and income, rights holders, HVAC data and plans.

Measurements

This contains information about plans, area, volume, and height measurements for a property which can be captured for the structure as a whole and for various elements based on zones, spaces, floors, and rooms. Measurements can be captured under any recognized standard such as IPMS, COMP6, BOMA, HKIS etc. with details of the standard used and the measurement basis, for example, IPMS1, GEA, IPMS2, GIA etc. Alternative measurements are supported to allow functional capacity to be recorded such number of beds, parking spaces, hotel rooms etc. Areas that are either included or excluded from the measurement basis used can be stated separately, such as roof terraces, offsite parking etc.

Objects

This contains information on objects of any granularity on a property or within a physical structure. This element is used widely across the schema and as a key component of the Inspection element described below. At one extreme an object can be used captured data on the entire roof of a building, and at the other, to record data on a single component of a lift or HVAC system. Attributes include name, description, rating, whether it is not present, whether it is functioning, sensor, connected to the internet (IoT), class, category, group, subgroup, size, type, position, access, location of access, conditions, features, model, and style. Suggested enumerations for attributes such as class, category, group, type etc. allow for appropriate hierarchies to be established, and if required, an object can own multiple Object sub-elements for a more formal bill-of-material type approach. Detailed elements capture information about the object's coordinates, its condition in terms of issues, risks, remedies, legal issues, further actions, and urgency. The object's position from the respect of zones, floors, space, rooms can be captured together with information on construction type and materials, dimensions, supplier, manufacturer, installer, servicing, repairs, maintenance, original, remaining and reduced design life, original, replacement, reinstatement, valuation and transfer costs and prices, ownership, external connectivity, removal, certification documents, costs and income, and target and indicator measurements such as emissions, power usage etc. Annotated documents allow any kind of file, images etc. to be captured. Where a transaction requires a list of fixture and fittings this element allows objects to be included/exclude and priced accordingly as part of a contract of sale.

Inspections

This contains information on inspections of a property covering a variety of purposes such as valuation, condition reports, technical due diligence, hazardous material, fire safety, dilapidations etc. Elements capture data around the purpose, dates of inspection, summaries of the overall opinion, limitations, and recommendations, the location, features, amenities available and other local factors, a summary of the accommodation available together with a breakdown of the zones, floors, spaces, and rooms. Further elements capture energy efficiency, means of escape, security, legal and regulatory issues, guarantees, certification, risks, and any other relevant matters. If the inspection makes recommendations around costs for remedies, these can be captured in summary and detailed form with repair and maintenance elements. Further recommendations can be captured together with a list of outstanding documentation to be requested. Annotated documents allow any kind of file, images etc. to be captured. The Object element is used as described above to capture data on specific items that form part of the inspection and can range from large structural elements such as the roof to small components within the property as is necessary.

Occupation

This contains information on individuals and legal entities who physically occupy part of whole of a property together with data on any voids/empty portions with respect to a property that is configured and occupied on a multi-occupier basis. Detailed elements capture data on the occupiers using the concept of a rights holder, see above, with the occupation able to be define in terms of both measured areas, physical objects such as floors, spaces and rooms, and functional capacity such as number of desks, parking spaces etc. Links are available to tenure and loan agreements if necessary and to a detailed element that captures the current, passing rent. Data on voids allows them to be described in similar terms of area, physical objects, and functional capacity together with the duration of the void and information on previous and future occupiers if the void has been filled in the past and is known to be due to be filled in the future.

Valuations

This contains information on historical and current valuations of a property. Attributes capture the nature, whether the asset is excluded from the valuation, the valuer status and whether the valuation was produced for a future date. Detailed elements support the capture of data on the building complexes, buildings and building sections included, ownership based on the Rights Holder element, occupation based on the Occupation element, previous valuations, previous capital transactions, previous rental transactions, location, legal interests, interest fraction, degree of control, third party rights, comments and adjustments around grouping/lotting/portfolio issues, inspections, legal issues, extent of investigation, material changes, material uncertainty, any connected transactions, participants, professional standard, accounting standard, jurisdictional standard and legislation, limitations and restrictions, the basis of value applied (either IVS or non IVS), and the valuation date. A detailed valuation sub-element then captures each separate valuation figure based on either multiple basis of value, assumptions, special assumptions, or premise of value. This Valuation element has attributes covering a description and a premise of value with detailed elements capturing the basis of value, assumptions, constraints, capital value, rental value, acquisition cost, rent, income, profit, gross and net yields, explanation, approach, compatible evidence as defined below, and any statistical tools employed. For more detailed information refer to the IVSC and RICS Red Book/IVS documentation.

Comparable Evidence

This contains information on properties used as comparable evidence in a valuation. Detailed elements capture data on justification for selection, and the adjustment and weighting applied. For the property being used as compatible evidence detailed elements capture data on the building complexes, buildings and building sections included, ownership based on the Rights Holder element, occupation based on the Occupation element, previous valuations, previous capital transactions, previous rental transactions and location.

Insurance

This contains information on insurance cover in place, commitments to insure, previous refusals of cover, and current insured status. Detailed elements capture data on previous and current polices with details of dates active, policy holders, provider, premium, no claims discounts, risk insured, total coverage broken down by scope with excess limits, together with histories of claims both paid and refused. Annotated documents provide links to policy and other documentation and the Certificate element, described below, allows policy certificate documents to be captured.

Certificates

This contains information on any form of certification for the property or parts thereof. This element is generic in nature allowing a variety of guarantees, certification programmes, indemnity, and general insurance policies, planning approvals, building regulation approvals etc. to be captured. Attributes capture category, standard, status, grade, level, rating, and score. Detailed elements capture data on the jurisdiction and/or the property participant providing the certificate, start date, end date, revocation date, failed date, last and next inspection date, limitations, the nature of any reliance provided and any monetary value. Annotated documents allow any kind of file, images etc. to be captured that represent the certificate itself.

Works Alterations Changes

This contains summary information on the history of works and alterations carried on a property with attributes capturing the description, type, and scope with information on completion and reasons for any outstanding work. Detailed elements capture the duration of the works and the various consents and approvals obtained under building regulations, tenure agreements etc. with links to the Certificate element for copies of the relevant approvals. Annotated documents allow plans, images etc. and other files to be captured that described the work in greater detail.

Costed Projects

This contains information to support a life-cycle cost report for a development project or existing asset based on the ICMS standard. Attributes capture data on the main project type, scope, report status, price basis and project status. Detailed elements support information on the building standard, client, location, construction period, key milestones, site, seismic zones, procurement, cost base date, and common costs and income. For each project type, such as buildings, bridges, tunnels, railways, power generating plants etc, a specific element contains information on the works, quantities, costs, and income. For each specific project type the works and quantities capture different attributes and values depending on the nature of the structure. Enumerations are widely employed to support the ICMS standard and to ensure consistency when benchmarking. For more detailed information please refer to the ICMS documentation.

Targets

This contains information to set and track a variety of target metrics, such as energy, GHG emissions, waste etc. for a property in either whole or part using an extension of the Complex Measurement element described above. Each target element has attributes to describe the framework, category, type, subtype, purpose, source, status, and item being targeted. Detailed elements support the target in terms of a decimal, ratio, percentage, or monetary value, the date of measurement and reporting, the period as a duration, the validity period as a duration, the accuracy, the measurer, the provider, and information about the scope of the target in respect of sites, building complexes, buildings, building sections, zones, spaces, floors, rooms, and objects.

Indicators

This contains information to capture metrics recorded, either in isolation or against targets defined in the Targets element above, using an extension of the Complex Measurement element described above. Each indicator element has attributes to describe the framework, category, type, subtype, purpose, source, status, and item being recorded. Detailed elements support the indicator in terms of a decimal, ratio, percentage, or monetary value, the date of measurement and reporting, the period as a duration, the validity period as a duration, the accuracy, the measurer, the provider, and information about the scope of the indicator in respect of sites, building complexes, buildings, building sections, zones, spaces, floors, rooms, and objects.