



National BIM Standard - United States® Version 3

Annex B

Life Cycle information exchange (LCie) for Product and Product Type Data Exchanges, a Technical Annex to COBie – Version 2.4

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B.1 Scope – General Criteria

B.1.1 Business Case Description

Please refer to the NBIMS-US™ v03 COBie 2.4 ballot Section 1.1.

B.1.1.1 Life-Cycle Phase List

This ballot is relevant to the following Life-Cycle Phases identified in Section 1.1.1 of the COBie 2.4 NBIMS-US™ v03 ballot:

- Develop Design – Design Schematic
- Develop Design – Design Coordinated
- Finalize Design – Design Final
- Organize Submittal Information
- Execute Construction Activities
- Inspect and Approve Work
- Closeout

B.1.1.2 Business Case Description

Please refer to sections 1.1.1.9, 1.1.1.10, 1.1.1.11, 1.1.1.12, 1.1.1.13, 1.1.1.14, 1.1.1.21, 1.1.1.26, 1.1.1.28 of the COBie 2.4 NBIMS-US™ V3 ballot.

B.1.1.3 Business Case Analysis

Please refer to Section 1.1.2 of the COBie 2.4 NBIMS v03 ballot.

B.1.2 Participants and Stakeholders

Initial Requirements for LCie were gathered during collaborations with Participants and Stakeholders identified in the COBie 2.4 NBIMS v03 ballot (See Sections 1.2.1 – 1.2.3). However, future LCie development will include additional participants and stakeholders that develop Enterprise application software or mobile data collection app.

B.1.2.1 Participants List

The following participants identified in the COBie 2.4 NBIMS v03 ballot participated in early definition of life-cycle information exchange requirements and in capturing these requirements in a data schema.

- AEC 3 Ltd
- Kristine Fallon and Associates
- Organization for the Advancement of Structured Information Standards, Open Building Information Exchange (oBIX) Technical Committee
- National Information Exchange Model (NIEM)
- TC9, Inc
- United States Army, Corps of Engineers, Engineer Research and Development Center

B.1.2.2 Stakeholders List

Though the LCie standard supports information exchanges that are relevant to the full list of Stakeholders identified in the COBie 2.4 NBIMS v03 ballot, the primary benefactors of the LCie schema are software professionals that are engineering software using the COBie Lite XML schema:

- Software Developers
- System Analysts
- Systems Integrators

B.1.2.3. Stakeholders Coverage Analysis

The table below briefly describes how each COBie constituents’ concerns are addressed through the COBie standard.

Table 1 Stakeholder Coverage Analysis

| Constituent | Coverage Analysis |
|---------------------|--|
| Software Developers | Updated XML formats will decrease the cost of XML-based exchanges and use in web-services. COBie Lite XML LCie subschema provide a non-ambiguous specification of create, read, update, and delete requests/responses that may be used to automatically generate data structures in Object-Oriented programming languages such as C# and Java. |
| System Analysts | Updated XML formats will decrease the cost of XML-based exchanges and use in web-services. COBie Lite XML LCie subschema provide a non-ambiguous specification of create, read, update, and delete requests/responses that may be used to automatically generate data structures in Object-Oriented programming languages such as C# and Java. |
| Systems Integrators | Updated XML formats will decrease the cost of XML-based exchanges and use in web-services. COBie Lite XML LCie subschema provide a non-ambiguous specification of create, read, update, and delete requests/responses that may be used to automatically generate data structures in Object-Oriented programming languages such as C# and Java. |

B.2 Normative References

B.2.1 References and Standards

B.2.1.1 Reference Standards List

Please refer to Section 2.1.1 of the COBie 2.4 NBIMS v03 ballot.

B.2.1.2 Referenced Standards, Programs and Projects

Please refer to COBie 2.1.2 and 2.1.3 of the 2.4 NBIMS v03 ballot.

B.3 Terms and Definitions

B.3.1 Normative Terms and Definitions

Please refer to Section 3.1 of the COBie 2.4 NBIMS v03 ballot.

B.3.2. Informative Terms and Definitions

The terms and definitions below list column headings and common terms found in the COBiespreadsheet implementation format.

B.3.2.1 Common COBie Spreadsheet Terms and Definitions

Please refer to Section 3.2.1 of the COBie 2.4 NBIMS v03 ballot.

B.3.2.2. Specific COBie Spreadsheet Terms and Definitions

Please refer to Section 3.2.2 of the COBie 2.4 NBIMS v03 ballot.

B.3.2.3. Specific LCie Terms and Definitions

The following terms and definitions are common to all LCie sub-schema

B.3.2.3.1

create request

a request made by a software client to create a new COBie Lite XML element in a given COBie model. A create request must contain data to uniquely identify an element and may contain optional data that further describe the new element.

B.3.2.3.2

create response

a response made by a software server in response to a Create Request.

B.3.2.3.3

delete request

a request made by a software client to delete an existing COBie Lite XML element in a given COBie model. A delete request must contain data that uniquely identifies an element that exists in the specified COBie model.

B.3.2.3.4

delete response

a response made by a software server in response to a Delete Request.

B.3.2.3.5

read request

a query request made by a software client to read a specific COBie Lite XML element or a whole COBie model. A read request must contain data that uniquely identifies an element that exists in the specified COBie model.

B.3.2.3.6

update request

a request made by a software client to update an existing COBie Lite XML element. An update request must contain data that uniquely identifies an existing COBie Lite XML element and at least one additional element that represents the data to be updated.

B.3.2.3.7

update response

a response made by a software server in response to an Update Request.

B.3.2.4 Symbols and Abbreviated Terms

The following term appends Section 4 of the COBie 2.4 NBIMS v03 ballot:

B.3.2.4.1

CRUD

acronym used to represent the collective management of Create, Read, Update, and Delete actions that occur in a data-oriented software system.

B.4 Business Process Documentation

B.4.1 Process Models Provided

B.4.1.1 Business Process List

The following business processes identified in the COBie 2.4 NBIMS v03 ballot are relevant to LCie:

- Develop Design – Design Schematic
- Develop Design – Design Coordinated
- Finalize Design – Design Final
- Organize Submittal Information
- Execute Construction Activities
- Inspect and Approve Work
- Closeout

B.4.1.2 Business Process Descriptions

B.4.1.2.1 Develop Design – Design Schematic

Please refer to section 5.1.2.9 of the COBie 2.4 NBIMS v03 ballot.

B.4.1.2.2 Develop Design – Product Type Template

Please refer to section 5.1.2.10 of the COBie 2.4 NBIMS v03 ballot.

B.4.1.2.3 Develop Design – Design Coordinated

Please refer to section 5.1.2.11 of the COBie 2.4 NBIMS v03 ballot.

B.4.1.2.4 Develop Design – Product Type Candidate

Please refer to section 5.1.2.12 of the COBie 2.4 NBIMS v03 ballot.

B.4.1.2.5 Finalize Design – Design Final

Please refer to section 5.1.2.13 of the COBie 2.4 NBIMS v03 ballot.

B.4.1.2.6 Finalize Design – Product Type Candidate

Please refer to section 5.1.2.14 of the COBie 2.4 NBIMS v03 ballot.

B.4.1.2.7 Organize Submittal Information

Please refer to section 5.1.2.21 of the COBie 2.4 NBIMS v03 ballot.

B.4.1.2.8 Execute Construction Activities

Please refer to section 5.1.2.24 of the COBie 2.4 NBIMS v03 ballot.

B.4.1.2.9 Inspect and Approve Work

Please refer to section 5.1.2.26 of the COBie 2.4 NBIMS v03 ballot.

B.4.1.2.10 Closeout

Please refer to section 5.1.2.28 of the COBie 2.4 NBIMS v03 ballot.

B.4.1.3 Business Process Model Diagrams

Please refer to the following list of figures specified in the COBie 2.4 NBIMS v03 ballot:

Figure 9 Develop Design - Design Schematic Process Model
Figure 10 Develop Design - Design Coordinated Process Model
Figure 11 Product Type Template Process Model
Figure 12 Develop Design – Product Type Candidate Process Model
Figure 13 Finalize Design - Design Final Process Model
Figure 14 Finalize Design – Product Type Candidate Process Model
Figure 21 Organize Submittal Information Process Model
Figure 24 Execute Construction Activities Process Model
Figure 25 Product Installation Process Model
Figure 27 Inspect and Approve Work Process Model
Figure 29 Closeout Process Model

B.4.2 Representative Process Models

B.4.2.1 Stakeholder Coverage Analysis

Please refer to Figure 30 in the COBie 2.4 NBIMS v03 ballot.

B.4.2.2 Process Coverage Analysis

Please refer to Figure 30 in the COBie 2.4 NBIMS v03 ballot.

B.4.2.3 Contract Documentary Deliverable List

Please refer to Section 5.2.3 in the COBie 2.4 NBIMS v03 ballot.

B.4.2.4 Contract Documentary Deliverable Analysis

Please refer to Section 5.2.4 in the COBie 2.4 NBIMS v03 ballot.

B.4.3 Process Models Formatting

Please see Section 5.3 in the COBie 2.4 NBIMS v03 ballot.

B.5 Exchange Requirement Documentation

B.5.1 Exchange Requirements Legibility

B.5.1.1 Exchange Requirements List

- Product Type Template
- Product Template
- Product Type Selection
- Product Installation

- Product Inspection
- Product Type Parts
- Product Type Warranty
- Product Type Maintenance
- System Operation

B.5.1.2 Exchange Requirement Classification List

Please refer to Tables 31 and 32 in the COBie 2.4 NBIMS v03 ballot.

B.5.1.3 Exchange Requirement Coverage Analysis

Please refer to Table 34 in the COBie 2.4 NBIMS v03 ballot.

B.6.2 Exchange Requirements Detail

B.6.2.1 Exchange Requirements Definition

Please refer to the following Sections in the COBie 2.4 NBIMS v03 ballot:

- 6.2.1.10 Design Stage - Product Type Template
- 6.2.1.11 Design Stage - Product Template
- 6.2.1.13 Construction Stage - Product Type Selection
- 6.2.1.15 Construction Stage - Product Installation
- 6.2.1.16 Construction Stage - Product Inspection
- 6.2.1.18 Construction Stage – Product Type Parts
- 6.2.1.19 Construction Stage – Product Type Warranty
- 6.2.1.20 Construction Stage – Product Type Maintenance
- 6.2.1.21 Construction Stage – System Operation

B.6.2.2 Business Rule List

Please refer to the introductory paragraphs in Section 6.2.2 and Tables 36-37 and Tables 40-43 in the COBie 2.4 NBIMS v03 ballot.

B.6.2.3 Business Rule Definition

Please refer to Section 6.2.3 of the COBie 2.4 NBIMS v03 ballot.

B.6.3 Exchange Requirements Reusability

B.6.3.1 Related Business Process List

Business processes that deliver information about a wide variety of assets can be found in the NBIMS-US™ V3 BPie and LCie ballots. Assets specific to individual systems, represented by other NBIMS-US™ V3 ballots (HVACie, Sparkie, WSie, and BAMie) require the exchange of information about a limited subset of the entire list of building assets. COBie processes serve as the template for the exchange of facility asset information (Spaces and Equipment) in each of these ballots.

The table below identifies the general categories of COBie by phase of project, using OmniClass Table 31, and compares those processes to the processes identified in related NBIMS-US™ V3 information exchange ballots.

Table 2 Related Business Process List

| Phase of Project | Building Programming (BPie) | COBie | Mechanical System Design (HVACie) | Electrical System Design (Sparkie) | Plumbing System Design (WStie) |
|---------------------------------------|-----------------------------|-------|-----------------------------------|------------------------------------|--------------------------------|
| 31-10 00 00 Inception Phase | | X | | | |
| 31-20 00 00 Conceptualization Phase | X | X | | | |
| 31-30 00 00 Criteria Definition Phase | X | X | | X | X |
| 31-40 00 00 Design Phase | | X | X | X | X |
| 31-60 00 00 Implementation Phase | | X | | | |
| 31-80 00 00 Operations Phase | | X | | | |
| 31-90 00 00 Closure Phase | | X | | | |

B.6.3.2 Related Exchange Requirements List

Please refer to Section 6.2.3 in the COBie 2.4 NBIMS v03 ballot.

B.6.3.3 Related Exchange Requirement Reuse Analysis

Please refer to Section 6.3.3 in the COBie 2.4 NBIMS v03 ballot.

B.7 Model View Definition Documentation

B.7.1.Data Definitions List

Please refer to Section 7.1 in the COBie 2.4 NBIMS v03 ballot.

B.7.2 Data Definitions

Please refer to Section 7.2 in the COBie 2.4 NBIMS v03 ballot.

B.7.3 Data Definition Reference Schema List

Please refer to Section 7.3 in the COBie 2.4 NBIMS v03 ballot.

B.7.4 Concept List

Please refer to Section 7.4 in the COBie 2.4 NBIMS v03 ballot.

B.7.5 Concepts Definition

Please refer to Section 7.5 in the COBie 2.4 NBIMS v03 ballot.

B.7.6 Concept Attributes List

Please refer to Section 7.6 in the COBie 2.4 NBIMS v03 ballot, except Sections 7.6.4 and 7.6.12 which do not apply.

B.7.7 Concept Relationship Description

The following Concept Relationship Descriptions identified in the COBie 2.4 NBIMS v03 ballot are applicable to LCie:

- Roots
- Identity
- Definition
- Object Typing
- Property Sets
- Property Sets for Occurrences
- Property Sets for Types
- Association
- Classification
- Classification expected
- Assignment
- Group Assignment
- Composition
- Aggregation
- Spatial Composition
- Spatial Structure
- Spatial Containment
- Sequential Connectivity
- Actor
- Contact
- Process
- Task Scheduling

B.7.8 Concept Requirements Applicability

Please refer to the following tables in the COBie 2.4 NBIMS v03 ballot.

Table 70 IfcSpace - Concept Applicability
Table 71 IfcBuildingStorey - Concept Applicability
Table 75 IfcZone - Concept Applicability
Table 76 IfcSystem - Concept Applicability
Table 77 IfcElement - Concept Applicability
Table 78 IfcElementType - Concept Applicability
Table 79 IfcTask - Concept Applicability
Table 80 IfcActor - Concept Applicability

Table 82 IfcPropertySet - Concept Applicability
Table 85 IfcWorkSchedule - Concept Applicability
Table 86 IfcRelAssociatesDocument - Concept Applicability
Table 88 ifcConstructionProductResource – Concept Applicability
Table 89 ifcConstructionProductResourceType – Concept Applicability

B.7.9 Related Existing Concept List

Please refer to Section 7.9 in the COBie 2.4 NBIMS v03 ballot.

B.7.10 Concept Business Rule List

Please refer to Section 7.10 in the COBie 2.4 NBIMS v03 ballot.

B.7.11 Concept Business Rule Definition

Please refer to the following Sections in the COBie 2.4 NBIMS v03 ballot:

7.11.1 Identity Concept Business Rule
7.11.4 Classification Concept Business Rule
7.11.5 Spatial Composition Concept Business Rule
7.11.7 Conversion Units Concept Business Rule
7.11.9 Group Assignment Concept Business Rule
7.11.10 Object Typing Concept Business Rule
7.11.11 Spatial Containment Concept Business Rule
7.11.12 Property Sets for Occurrences Concept Business Rule
7.11.13 Property Sets for Types Concept Business Rule
7.11.14 Task Scheduling Concept Business Rule
7.11.15 Sequential Connectivity Concept Business Rule
7.11.16 Contact Concept Business Rule

B.7.12 MVD Schema Listing

The base COBie schema is identified in Section 7.12 of the COBie 2.4 NBIMS v03 ballot. The extensions to this schema for the LCie are provided in Appendix A of this document.

B.7.13 MVD Format Description

For the delivery of whole models, filtered by information exchange requirements, the LCie is consistent with what is provided in 7.13 in the COBie 2.4 NBIMS v03 ballot. For the specification of CRUD requests and responses, only the COBie Lite XML format is applicable. The COBie Lite XML sub-schema for these transactions are provided in Appendix A of this document.

B.7.14 MVD Dynamic Schema Analysis

Please refer to Section 7.14 in the COBie 2.4 NBIMS v03 ballot.

B.7.15 Entity Exclusion Set

Please refer to Section 7.15 in the COBie 2.4 NBIMS v03 ballot.

B.8 Conformance Testing Procedures

B.8.1 Format and Content Requirements

B.8.1.1 Quality Control Test Rule List

The rules outlined in Section 8.1.1 of the COBie 2.4 NBIMS v03 ballot are applicable to COBie spreadsheet representations of LCie COBieLite XML documents.

There are additional rules that apply only to LCie CRUD requests and responses. These rules include...(need to list a plain English version of the LCie CRUD rules)

B.8.1.2 Quality Control Test Rule Definition

The definitions provided in Section 8.1.2 of the COBie 2.4 NBIMS v03 ballot are applicable to COBie spreadsheet representations of LCie COBieLite XML documents.

The following additional definitions apply to LCie CRUD requests and responses...

B.8.1.3 Quality Control Test Rule Application

The content provided in Section 8.1.3 of the COBie 2.4 NBIMS v03 ballot is applicable to COBie spreadsheet representations of LCie COBieLite XML documents.

B.8.1.4 Test Rule Formatting

Currently the test rules are represented as data type, cardinality, and identity constraints in the XML schema declarations included in Appendix A. Schematron testing rules may be developed if more robust testing requirements are required. The existing COBie Schematron rules may be applied to LCie COBie deliverables when they are transformed from COBieLite XML to COBie spreadsheet.

B.8.1.5 Deliverable Testing Coverage

The LCie sub-schema included in this ballot support product and product type exchanges: Product Type Template, Product Type Candidate, Product Type Template, Product Type Candidate, Product Type Selection, Product Installation, Product Inspection, Product Type Parts, Product Type Warranty, Product Type Maintenance, and System Operation.

Table 3 provides a decomposition of COBie Lite XML Requirements for each of these data exchanges where a “-” indicates that the corresponding element does not apply, a “C” indicates a required element for Create Requests, an “R” indicates a required element for Read Results, a “U” indicates a required element for Update Requests, and an “O” indicates Optional element for Read Results. These rules are represented in the LCie XML schema declarations provided in Appendix A.

Table 3: COBie Lite XML Requirements for LCie Data Exchanges (C=Create, R=Read, U=Update, O=Optional)

| COBieLite XML Parent Element | COBieLite XML Child Element or Attribute | 090.02 | 100.02 | 100.03 | 110.01 | 180.01 | 210.01 | 230.01 | 250.01 | 250.02 | 250.03 | 250.04 |
|-------------------------------|--|-----------------------|------------------------|-----------------------|------------------------|------------------------|-----------------------------|--------------------|--------------------|-----------------------|--------------------------|------------------|
| | | Product Type Template | Product Type Candidate | Product Type Template | Product Type Candidate | Product Type Selection | Product Installation Report | Product Inspection | Product Type Parts | Product Type Warranty | Product Type Maintenance | System Operation |
| Facility . Contacts . Contact | ContactEmail | - | C | - | C | C | C | C | - | C | - | - |
| | ContactCategory | - | C | - | C | C | C | C | C | C | - | - |
| | ContactCompanyName | - | C | - | C | C | C | C | C | C | - | - |
| | ContactPhoneNumber | - | C | - | C | C | C | C | C | C | - | - |
| | externalSystemName | - | O | - | O | O | O | O | O | O | - | - |
| | externalEntityName | - | O | - | O | O | O | O | O | O | - | - |
| | externalID | - | O | - | O | O | O | O | O | O | - | - |
| | ContactDepartmentName | - | O | - | O | O | O | O | O | O | - | - |
| | ContactGivenName | - | O | - | O | O | O | O | O | O | - | - |
| | ContactFamilyName | - | O | - | O | O | O | O | O | O | - | - |
| | ContactStreet | - | O | - | O | O | O | O | O | O | - | - |
| | ContactPostalBoxNumber | - | O | - | O | O | O | O | O | O | - | - |
| | ContactTownName | - | O | - | O | O | O | O | O | O | - | - |
| | ContactRegionCode | - | O | - | O | O | O | O | O | O | - | - |
| | ContactPostalCode | - | O | - | O | O | O | O | O | O | - | - |
| | ContactCountryName | - | O | - | O | O | O | O | O | O | - | - |
| | ContactURL | - | O | - | O | O | O | O | O | O | - | - |
| | ContactAttributes | - | - | - | - | - | - | - | - | - | - | - |
| | ContactDocuments | - | - | - | - | - | - | - | - | - | - | - |
| | ContactIssues | - | - | - | - | - | - | - | - | - | - | - |
| Facility | FacilityName | - | - | - | - | - | - | - | - | - | - | - |
| | FacilityCategory | - | - | - | - | - | - | - | - | - | - | - |
| | ProjectAssignment.ProjectName | - | - | - | - | - | - | - | - | - | - | - |
| | SiteAssignment.SiteName | - | - | - | - | - | - | - | - | - | - | - |
| | FacilityDefaultLinearUnit | - | - | - | - | - | - | - | - | - | - | - |
| | FacilityDefaultAreaUnit | - | - | - | - | - | - | - | - | - | - | - |
| | FacilityDefaultVolumeUnit | - | - | - | - | - | - | - | - | - | - | - |
| | FacilityDefaultCurrencyUnit | - | - | - | - | - | - | - | - | - | - | - |
| | FacilityDefaultMeasurementStandard | - | - | - | - | - | - | - | - | - | - | - |
| externalSystemName | - | - | - | - | - | - | - | - | - | - | - | |

| COBieLite XML Parent Element | COBieLite XML Child Element or Attribute | 090.02 Product Type Template | 100.02 Product Type Candidate | 100.03 Product Type Template | 110.01 Product Type Candidate | 180.01 Product Type Selection | 210.01 Product Installation Report | 230.01 Product Inspection | 250.01 Product Type Parts | 250.02 Product Type Warranty | 250.03 Product Type Maintenance | 250.04 System Operation |
|--|--|------------------------------|-------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------------|---------------------------|---------------------------|------------------------------|---------------------------------|-------------------------|
| | | | | | | | | | | | | |
| Facility | ProjectAssignment.externalEntityName | - | - | - | - | - | - | - | - | - | - | - |
| | ProjectAssignment.externalID | - | - | - | - | - | - | - | - | - | - | - |
| | SiteAssignment.externalEntityName | - | - | - | - | - | - | - | - | - | - | - |
| | SiteAssignment.externalID | - | - | - | - | - | - | - | - | - | - | - |
| | externalEntityName | - | - | - | - | - | - | - | - | - | - | - |
| | externalID | - | - | - | - | - | - | - | - | - | - | - |
| | FacilityDescription | - | - | - | - | - | - | - | - | - | - | - |
| | ProjectAssignment.ProjectDescription | - | - | - | - | - | - | - | - | - | - | - |
| | SiteAssignment.SiteDescription | - | - | - | - | - | - | - | - | - | - | - |
| | FacilityDeliverablePhaseName | - | - | - | - | - | - | - | - | - | - | - |
| | FacilityAttributes | - | - | - | - | - | - | - | - | - | - | - |
| | FacilityDocuments | - | - | - | - | - | - | - | - | - | - | - |
| FacilityIssues | - | - | - | - | - | - | - | - | - | - | - | |
| Facility . Floors . Floor | FloorName | - | - | - | - | - | - | - | - | - | - | - |
| | FloorCategory | - | - | - | - | - | - | - | - | - | - | - |
| | externalSystemName | - | - | - | - | - | - | - | - | - | - | - |
| | externalEntityName | - | - | - | - | - | - | - | - | - | - | - |
| | externalIdentifier | - | - | - | - | - | - | - | - | - | - | - |
| | FloorDescription | - | - | - | - | - | - | - | - | - | - | - |
| | FloorElevationValue.DecimalValue | - | - | - | - | - | - | - | - | - | - | - |
| | FloorHeightValue.DecimalValue | - | - | - | - | - | - | - | - | - | - | - |
| | FloorAttributes | - | - | - | - | - | - | - | - | - | - | - |
| | FloorDocuments | - | - | - | - | - | - | - | - | - | - | - |
| FloorIssues | - | - | - | - | - | - | - | - | - | - | - | |
| Facility . Floors . Floor . Spaces . Space | SpaceName | - | - | - | - | - | - | - | - | - | - | - |
| | SpaceCategory | - | - | - | - | - | - | - | - | - | - | - |
| | see Parent element Floor.FloorName | - | - | - | - | - | - | - | - | - | - | - |
| | SpaceDescription | - | - | - | - | - | - | - | - | - | - | - |
| | externalSystemName | - | - | - | - | - | - | - | - | - | - | - |
| | externalEntityName | - | - | - | - | - | - | - | - | - | - | - |
| | externalID | - | - | - | - | - | - | - | - | - | - | - |

| COBieLite XML Parent Element | COBieLite XML Child Element or Attribute | 090.02 Product Type Template | 100.02 Product Type Candidate | 100.03 Product Type Template | 110.01 Product Type Candidate | 180.01 Product Type Selection | 210.01 Product Installation Report | 230.01 Product Inspection | 250.01 Product Type Parts | 250.02 Product Type Warranty | 250.03 Product Type Maintenance | 250.04 System Operation |
|-----------------------------------|---|------------------------------|-------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------------|---------------------------|---------------------------|------------------------------|---------------------------------|-------------------------|
| | | | | | | | | | | | | |
| Facility . Spaces . Space | SpaceSignageName | - | - | - | - | - | - | - | - | - | - | - |
| | SpaceUsableHeightValue.DecimalValue | - | - | - | - | - | - | - | - | - | - | - |
| | SpaceGrossAreaValue.DecimalValue | - | - | - | - | - | - | - | - | - | - | - |
| | SpaceNetAreaValue.DecimalValue | - | - | - | - | - | - | - | - | - | - | - |
| | SpaceAttributes | - | - | - | - | - | - | - | - | - | - | - |
| | SpaceDocuments | - | - | - | - | - | - | - | - | - | - | - |
| | SpaceIssues | - | - | - | - | - | - | - | - | - | - | - |
| Facility . Zones . Zone | ZoneName | - | - | - | - | - | - | - | - | - | - | R, U |
| | ZoneCategory | - | - | - | - | - | - | - | - | - | - | R, U |
| Facility . Spaces . Space | ZoneAssignment | - | - | - | - | - | - | - | - | - | - | R, U |
| | | | | | | | | | | | | |
| Facility . Zones . Zone | externalSystemName | - | - | - | - | - | - | - | - | - | - | O |
| | externalEntityName | - | - | - | - | - | - | - | - | - | - | O |
| | externalID | - | - | - | - | - | - | - | - | - | - | O |
| | ZoneDescription | - | - | - | - | - | - | - | - | - | - | R, U |
| | ZoneAttributes | - | - | - | - | - | - | - | - | - | - | C |
| | ZoneDocuments | - | - | - | - | - | - | - | - | - | - | C |
| | ZoneIssues | - | - | - | - | - | - | - | - | - | - | O |
| Facility . AssetTypes . AssetType | AssetTypeName | C, U | R | C, U | R | R | R | R | R | R | R | R |
| | AssetTypeCategory | C | R | C | R | - | - | - | - | - | - | - |
| | AssetTypeDescription | C | R | C | R | R | R | R | R | R | R | R |
| | AssetTypePortabilityText | C | R | C | R | - | - | - | - | - | - | - |
| | AssetTypeManufacturerContactAssignments.ContactAssignment | - | C | - | C | R | R | R | R | R | R | R |
| | AssetTypeModelNumber | - | C | - | C | R | R | R | R | R | R | R |
| | Warranties.Warranty.WarrantyGaurantorContactAssignment.ContactEmail where Warranty.WarrantyCategory = Parts | - | - | - | - | - | - | - | - | C | - | - |
| | Warranties.Warranty.WarrantyDuration.IntegerValue where Warranty.WarrantyCategory = Parts | - | - | - | - | - | - | - | - | C | - | - |
| | Warranties.Warranty.WarrantyGaurantorContactAssignment.ContactEmail where Warranty.WarrantyCategory = Labor | - | - | - | - | - | - | - | - | C | - | - |
| | Warranties.Warranty.WarrantyDuration.IntegerValue where Warranty.WarrantyCategory = Parts | - | - | - | - | - | - | - | - | C | - | - |

| COBieLite XML Parent Element | COBieLite XML Child Element or Attribute | 090.02 Product Type Template | 100.02 Product Type Candidate | 100.03 Product Type Template | 110.01 Product Type Candidate | 180.01 Product Type Selection | 210.01 Product Installation Report | 230.01 Product Inspection | 250.01 Product Type Parts | 250.02 Product Type Warranty | 250.03 Product Type Maintenance | 250.04 System Operation |
|--|--|------------------------------|-------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------------|---------------------------|---------------------------|------------------------------|---------------------------------|-------------------------|
| | | | | | | | | | | | | |
| Warranties.Warranty.WarrantyDuration.UnitName | externalSystemName | - | - | - | - | - | - | - | - | C | - | - |
| | externalEntityName | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | externalID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | AssetTypeReplacementCostValue.DecimalValue | - | - | - | - | - | - | - | - | - | - | - |
| | AssetTypeExpectedLifeValue.IntegerValue | - | - | - | - | - | - | - | - | - | - | - |
| | AssetTypeExpectedLifeValue.UnitName | - | - | - | - | - | - | - | - | C | - | - |
| | Warranties.Warranty.WarrantyDescription | - | - | - | - | - | - | - | - | C | - | - |
| | AssetTypeNominalLength.DecimalValue | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeNominalWidth.DecimalValue | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeNominalHeight.DecimalValue | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeShapeDescription | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeSizeDescription | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeColorCode | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeFinishDescription | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeGradeDescription | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeMaterialDescription | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeConstitutentsDescription | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeFeaturesDescription | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeAccessibilityText | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeCodePerformance | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeSustainabilityPerformance | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - | - |
| | AssetTypeAttributes | C | C | C | C | C | U | U | - | - | - | - |
| | AssetTypeDocuments | - | - | - | - | - | - | - | C | C | C | C |
| AssetTypeIssues | - | - | - | - | - | - | C | - | - | - | - | |
| Facility . AssetTypes . AssetType . Assets . Asset | AssetName | - | - | - | - | R | R | - | - | - | - | |
| | AssetSpaceAssignments.AssetSpaceAssignment.SpaceName | - | - | - | - | R | R | - | - | - | - | |
| | AssetDescription | - | - | - | - | R | R | R | R | R | R | |
| | externalSystemName | - | - | - | - | O | O | O | O | O | O | |
| | externalEntityName | - | - | - | - | O | O | O | O | O | O | |
| | externalID | - | - | - | - | O | O | O | O | O | O | |

| COBieLite XML Parent Element | COBieLite XML Child Element or Attribute | 090.02 Product Type Template | 100.02 Product Type Candidate | 100.03 Product Type Template | 110.01 Product Type Candidate | 180.01 Product Type Selection | 210.01 Product Installation Report | 230.01 Product Inspection | 250.01 Product Type Parts | 250.02 Product Type Warranty | 250.03 Product Type Maintenance | 250.04 System Operation |
|--|--|--|-------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------------|---------------------------|---------------------------|------------------------------|---------------------------------|-------------------------|
| | | COBieLite XML Child Element or Attribute | | | | | | | | | | |
| Facility . AssetTypes . AssetType . Assets . Asset . SystemAssignment . System | AssetSerialNumber | - | - | - | - | - | C | U | - | - | - | - |
| | AssetInstallationDate | - | - | - | - | - | C | U | - | - | - | - |
| | AssetWarrantyStartDate | - | - | - | - | - | - | C | - | - | - | C, C |
| | AssetTagNumber | - | - | - | - | - | O | - | - | - | - | O |
| | AssetBarCode | - | - | - | - | - | O | - | - | - | - | O |
| | AssetIdentifier | - | - | - | - | - | O | - | - | - | - | O |
| | AssetLocationDescription | - | - | - | - | - | C | - | - | - | - | O |
| | AssetInstalledModelNumber | - | - | - | - | - | C | - | - | - | - | - |
| | AssetAttributes | - | - | - | - | - | - | - | - | - | - | - |
| | AssetDocuments | - | - | - | - | - | O | O | - | - | - | - |
| AssetIssues | - | - | - | - | - | - | - | - | - | - | - | |
| Facility . Systems . System | SystemName | - | - | - | - | - | - | - | - | - | - | C |
| | SystemCategory | - | - | - | - | - | - | - | - | - | - | R |
| Facility . AssetTypes . AssetType . Assets . Asset . SystemAssignment . System | SystemName | - | - | - | - | - | - | - | - | - | - | R, U |
| Facility . AssetTypes . AssetType . Assets . Asset | externalSystemName | - | - | - | - | - | - | - | - | - | - | O |
| | externalEntityName | - | - | - | - | - | - | - | - | - | - | O |
| | externalID | - | - | - | - | - | - | - | - | - | - | O |
| | SystemDescription | - | - | - | - | - | - | - | - | - | - | U |
| | SystemAttributes | - | - | - | - | - | - | - | - | - | - | C |
| | SystemDocuments | - | - | - | - | - | - | - | - | - | - | C |
| SystemIssues | - | - | - | - | - | - | - | - | - | - | O | |
| Facility . Assemblies . Assembly | AssemblyName | - | - | - | - | - | - | - | - | - | - | - |
| | AssemblyParentName | - | - | - | - | - | - | - | - | - | - | - |
| | AssemblyCategory | - | - | - | - | - | - | - | - | - | - | - |
| | externalSystemName | - | - | - | - | - | - | - | - | - | - | - |
| | externalEntityName | - | - | - | - | - | - | - | - | - | - | - |
| | externalID | - | - | - | - | - | - | - | - | - | - | - |

| Resource | COBieLite XML Parent Element | COBieLite XML Child Element or Attribute | | | | | | | | | | | |
|------------------|--|--|-------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------------|---------------------------|---------------------------|------------------------------|---------------------------------|-------------------------|--|
| | | 090.02 Product Type Template | 100.02 Product Type Candidate | 100.03 Product Type Template | 110.01 Product Type Candidate | 180.01 Product Type Selection | 210.01 Product Installation Report | 230.01 Product Inspection | 250.01 Product Type Parts | 250.02 Product Type Warranty | 250.03 Product Type Maintenance | 250.04 System Operation | |
| Resource | AssemblyDescription | - | - | - | - | - | - | - | - | - | - | - | |
| | AssemblyAttributes | - | - | - | - | - | - | - | - | - | - | - | |
| | AssemblyDocuments | - | - | - | - | - | - | - | - | - | - | - | |
| | AssemblyIssues | - | - | - | - | - | - | - | - | - | - | - | |
| Resource | Facility . Connections . Connection | | | | | | | | | | | | |
| | ConnectionName | - | - | - | - | - | - | - | - | - | - | - | |
| | ConnectionCategory | - | - | - | - | - | - | - | - | - | - | - | |
| | n/a (restricted to Assets) | - | - | - | - | - | - | - | - | - | - | - | |
| | ConnectionAsset1Name | - | - | - | - | - | - | - | - | - | - | - | |
| | ConnectionAsset2Name | - | - | - | - | - | - | - | - | - | - | - | |
| | ConnectionAsset1PortName | - | - | - | - | - | - | - | - | - | - | - | |
| | ConnectionAsset2PortName | - | - | - | - | - | - | - | - | - | - | - | |
| | externalSystemName | - | - | - | - | - | - | - | - | - | - | - | |
| | externalEntityName | - | - | - | - | - | - | - | - | - | - | - | |
| | externalID | - | - | - | - | - | - | - | - | - | - | - | |
| | ConnectionDescription | - | - | - | - | - | - | - | - | - | - | - | |
| | ConnectionAttribute | - | - | - | - | - | - | - | - | - | - | - | |
| | ConnectionDocuments | - | - | - | - | - | - | - | - | - | - | - | |
| ConnectionIssues | - | - | - | - | - | - | - | - | - | - | - | | |
| Resource | Facility . AssetTypes . AssetType . Spares . Spare | | | | | | | | | | | | |
| | SpareName | - | - | - | - | - | - | - | C | - | - | - | |
| | SpareCategory | - | - | - | - | - | - | - | C | - | - | - | |
| | SpareSupplierContactAssignments.ContactAssignment | - | - | - | - | - | - | - | C | - | - | - | |
| | externalSystemName | - | - | - | - | - | - | - | O | - | - | - | |
| | externalEntityName | - | - | - | - | - | - | - | O | - | - | - | |
| | externalID | - | - | - | - | - | - | - | O | - | - | - | |
| | SpareDescription | - | - | - | - | - | - | - | C | - | - | - | |
| | SpareSetNumber | - | - | - | - | - | - | - | C | - | - | - | |
| | SparePartNumber | - | - | - | - | - | - | - | C | - | - | - | |
| | SpareAttributes | - | - | - | - | - | - | - | O | - | - | - | |
| | SpareDocuments | - | - | - | - | - | - | - | O | - | - | - | |
| SpareIssues | - | - | - | - | - | - | - | - | - | - | - | | |
| Resource | ResourceName | - | - | - | - | - | - | - | - | C | - | | |

| COBieLite XML Parent Element | COBieLite XML Child Element or Attribute | 090.02 Product Type Template | 100.02 Product Type Candidate | 100.03 Product Type Template | 110.01 Product Type Candidate | 180.01 Product Type Selection | 210.01 Product Installation Report | 230.01 Product Inspection | 250.01 Product Type Parts | 250.02 Product Type Warranty | 250.03 Product Type Maintenance | 250.04 System Operation |
|--|--|------------------------------|-------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------------|---------------------------|---------------------------|------------------------------|---------------------------------|-------------------------|
| | | ResourceCategory | - | - | - | - | - | - | - | - | - | - |
| externalSystemName | - | - | - | - | - | - | - | - | - | - | O | - |
| externalEntityName | - | - | - | - | - | - | - | - | - | - | O | - |
| externalID | - | - | - | - | - | - | - | - | - | - | O | - |
| ResourceDescription | - | - | - | - | - | - | - | - | - | - | C | - |
| ResourceAttributes | - | - | - | - | - | - | - | - | - | - | O | - |
| ResourceDocuments | - | - | - | - | - | - | - | - | - | - | O | - |
| ResourceIssues | - | - | - | - | - | - | - | - | - | - | - | - |
| Facility . AssetTypes . AssetType . Jobs . Job | JobName | - | - | - | - | - | - | - | - | - | C | - |
| | JobCategory | - | - | - | - | - | - | - | - | - | C | - |
| | JobStatus | - | - | - | - | - | - | - | - | - | C | - |
| | JobDescription | - | - | - | - | - | - | - | - | - | C | - |
| | JobDuration.IntegerValue | - | - | - | - | - | - | - | - | - | C | - |
| | JobDuration.UnitName | - | - | - | - | - | - | - | - | - | C | - |
| | JobStartDate | - | - | - | - | - | - | - | - | - | C | - |
| | JobStartConditionDescription | - | - | - | - | - | - | - | - | - | C | - |
| | JobFrequencyValue.IntegerValue | - | - | - | - | - | - | - | - | - | C | - |
| | JobFrequencyValue.UnitName | - | - | - | - | - | - | - | - | - | C | - |
| | externalSystemName | - | - | - | - | - | - | - | - | - | O | - |
| | externalEntityName | - | - | - | - | - | - | - | - | - | O | - |
| | externalID | - | - | - | - | - | - | - | - | - | O | - |
| | JobTaskID | - | - | - | - | - | - | - | - | - | O | - |
| | JobPriorTaskID | - | - | - | - | - | - | - | - | - | O | - |
| | Resources.Resource.ResourceName | - | - | - | - | - | - | - | - | - | O | - |
| | JobAttributes | - | - | - | - | - | - | - | - | - | O | - |
| | JobDocuments | - | - | - | - | - | - | - | - | - | O | - |
| JobIssues | - | - | - | - | - | - | - | - | - | - | - | |

B.8.2 Examples & Mappings

B.8.2.1 Example File List

In addition to the example files listed in Section 8.2.1 of the COBie 2.4 NBIMS v03 ballot, the following files are provided at the buildingSMART alliance Common BIM File repository (East 2012a) to demonstrate LCie concepts. Because there are potentially hundreds of different requests and response examples given the 11 LCie product exchanges, a limited number of examples are provided.

Medical Clinic

- **Create**
 - 210.01 Product Installation Create Document Request
 - 210.01 Product Installation Create Document Response
- **Read**
 - 090.02 Product Type Template Read All Request
 - 090.02 Product Type Template Read All Response
 - 090.02 Product Type Template Read One Request
 - 090.02 Product Type Template Read One Response
 - 090.02 Product Installation Read One Request
 - 090.02 Product Installation Read One Response
- **Update**
 - 210.01 Product Installation Update Asset Request
 - 210.01 Product Installation Update Asset Response
- **Delete**
 - 210.01 Product Installation Delete Document Request
 - 210.01 Product Installation Delete Document Response

B.8.2.2 Example File Description

Please refer to Section 8.2.2 in the COBie 2.4 NBIMS v03 ballot for a description of the Clinic model used for the LCie example files.

B.8.2.3 Common BIM File Reuse

Please refer to Section 8.2.3 in the COBie 2.4 NBIMS v03 ballot.

B.8.2.4 Implementers' Agreements

Implementers' agreements are not been required for submissions for COBieLite formats (and by proxy, LCie formats) since such formats are specified so that they do not allow multiple valid alternative implementations. However, the LCie core schema is designed so that it may be extended and adopters may define their own information exchange sub-schema.

B.8.2.5 SpreadsheetML Transform

Please refer to Section 8.2.5 in the COBie 2.4 NBIMS v03 ballot.

B.8.2.6 COBieLite Transform

The COBieLite XML core schema specification is re-used and extended by the LCie schema and as such, a COBieLite transformation is not necessary.

B.8.3 Testing Tools and Procedures

B.8.3.1 Testing Tool List

COBie data submitted in COBieLite format, including LCie sub-schema, may be validated by any number of free and commercial XML schema checking programs. The fact that COBieLite and LCie data may be validated by a wide range of programmer-oriented tools reflects the overall goal of COBieLite and LCie to open use of COBie data outside the traditional buildingSMART alliance community. These XML checking programs include, but are not limited to, the following:

- Component Assembly Mechanism (CAM) Checker
- XMLSpy
- Saxson XML Parser
- Apache XML Beans JDOM API
- MS Visual Studio

B.8.3.2 Testing Algorithm

LCie XML files are validated against the XML schema provided in Appendix A of this document. Individual tools validate XML schema instances based on the W3.org Xml Schema Declaration specification (2001), <http://www.w3.org/XML/Schema>.

B.8.3.3 Test Files

Please refer to Section 8.3.3 in the COBie 2.4 NBIMS v03 ballot

B.8.3.4 Testing Tool Software Availability

The tool list identified in 8.3.1 is expanded here to include vendor/developer name and URL:

| Tool Name | Vendor | License | URL |
|--|------------------|---|---|
| Component Assembly Mechanism (CAM) Checker | Oracle (Sponsor) | Open Source, OSL V3 | http://sourceforge.net/apps/mediawiki/camprocessor/index.php?title=Main_Page |
| XMLSpy | Altova | Commercial (30-day free trial available) | http://www.altova.com/xmlspy.html |
| Saxson XML Parser | Saxonica | Open Source and Commercial versions available | http://saxon.sourceforge.net/ |
| Apache XML Beans | Apache | Open Source, MPL | http://xmlbeans.apache.org/ |
| Visual Studio | Microsoft | Commercial | http://www.microsoft.com/visualstudio/eng |

B.9 Implementation Resources

B.9.2 Business Process Coverage Analysis

See Section 9.2 in the COBie 2.4 NBIMS v03 ballot.

B.9.3 Related Workflow Coverage Analysis

See Section 9.3 in the COBie 2.4 NBIMS v03 ballot.

B.10 Revision Plans

B.10.1 Revision Plans List

B.10.1.1 Revision Management Process

See Section 10.1.1 in the COBie 2.4 NBIMS v03 ballot.

B.10.1.2 Revision Management Notification

See Section 10.1.2 in the COBie 2.4 NBIMS v03 ballot.

B.10.2 Proposed Revision Deployment Methods

B.10.2.1 Revision Deployment Process

See Section 10.2.1 in the COBie 2.4 NBIMS v03 ballot.

B.10.2.2 Revision Deployment Notification

See Section 10.2.2 in the COBie 2.4 NBIMS v03 ballot.

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ISO 639-1, *Codes for the representation of names of languages — Part 1: Alpha-2 code*

ISO 639-2, *Codes for the representation of names of languages — Part 2: Alpha-3 code*

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ISO 10303-41, *Product data representation and exchange — Integrated generic resource — Fundamentals of product description and support*

ISO 10303-42, *Product data representation and exchange — Integrated generic resource — Geometric and topological representation*

ISO 10303-43, *Product data representation and exchange — Integrated generic resource — Representation structures*

ISO 10303-46, *Product data representation and exchange — Integrated generic resource — Visual presentation*

ISO 10303-514, *Product data representation and exchange — Application interpreted construct — Advanced boundary representation*

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ISO/IEC 19757-3:2006 *Information technology -- Document Schema Definition Language (DSDL) -- Part 3: Rule-based validation -- Schematron*

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Anne A LCie XML Schema

A.1 Introduction

Though this Annex provides the formal specification of the LCie exchanges for purposes of documentation, web-based documentation and example files for all these specifications may also be found on the world wide web on pages linked to the COBie Lite website (http://www.nibs.org/?page=bsa_cobielite).

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1 LCie Schema Definition

1.1 LCie Core NameSpace Definition

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core"
  xmlns:lcie="http://docs.buildingsmartalliance.org/nbims03/lcie/core"
  xmlns:cobielite="http://docs.buildingsmartalliance.org/nbims03/cobie/core"
  targetNamespace="http://docs.buildingsmartalliance.org/nbims03/lcie/core" elementFormDefault="unqualified"
  attributeFormDefault="unqualified" version="RC4">
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../../cobie/core.xsd"/>
  <!-- LCie Types -->
  <xs:complexType name="AttributeClientRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:ClientRequestExchangeType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="AttributeReadResultType">
    <xs:sequence>
      <xs:element ref="Attribute"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ClientRequestExchangeType" abstract="true">
    <xs:complexContent>
      <xs:extension base="Icie:RequestType">
        <xs:sequence>
          <xs:choice>
            <xs:element ref="Icie:CreateRequest"/>
            <xs:element ref="Icie:ReadRequest"/>
            <xs:element ref="Icie:ReadAllRequest"/>
            <xs:element ref="Icie:UpdateRequest"/>
            <xs:element ref="Icie>DeleteRequest"/>
          </xs:choice>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ContactClientRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:ClientRequestExchangeType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ContactDeleteRequestType">
    <xs:complexContent>
      <xs:extension base="Icie>DeleteRequestType">
        <xs:sequence>
          <xs:element ref="Icie:ContactKey"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ContactReadResultType">
    <xs:complexContent>
      <xs:extension base="Icie:ReadResultType">
        <xs:sequence>
          <xs:element ref="Contact"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ContactUpdateRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:UpdateRequestType">
        <xs:sequence>
          <xs:element ref="ContactEmail"/>
          <xs:element ref="ContactCategory"/>
          <xs:annotation>
            <xs:appinfo source="urn:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:schema>
```

```

        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactCompanyName">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactPhoneNumber">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactDepartmentName" minOccurs="0">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactGivenName" minOccurs="0">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactFamilyName" minOccurs="0">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactStreet" minOccurs="0">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactPostalBoxNumber" minOccurs="0">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactTownName" minOccurs="0">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactRegionCode" minOccurs="0">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactCountryName" minOccurs="0">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactPostalCode" minOccurs="0">
        <xs:annotation>
            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="ContactURL" minOccurs="0">
        <xs:annotation>

```

```

source="urn:lciepi:ReadOnly">false</xs:appinfo>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="CreateAttributeRequestType">
  <xs:sequence>
    <xs:element ref="Attribute"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CreateContactRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:CreateRequestType">
      <xs:sequence>
        <xs:element ref="Contact"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CreateDocumentRequestType">
  <xs:sequence>
    <xs:element ref="Document"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CreateIssueRequestType">
  <xs:sequence>
    <xs:element ref="Issue"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CreateRequestType" abstract="true">
  <xs:sequence>
    <xs:element ref="Icie:ProjectID"/>
    <xs:element ref="Icie:CreateHandlerID"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CreateResultType">
  <xs:complexContent>
    <xs:extension base="Icie:ResultType">
      <xs:sequence>
        <xs:element ref="Icie:RevisionID">
          <xs:annotation>
            <xs:documentation>The new revision ID generated as a
result of the successful create action.</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element ref="Icie:CreateSuccess"/>
        <xs:element ref="Icie:CreateResultMessage" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="DeleteAttributeRequestType">
  <xs:sequence>
    <xs:element ref="Icie:AttributeKey"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DeleteDocumentRequestType">
  <xs:sequence>
    <xs:element ref="Icie:DocumentKey"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DeleteIssueRequestType">
  <xs:sequence>
    <xs:element ref="Icie:IssueKey"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DeleteRequestType" abstract="true">

```

```

        <xs:sequence>
            <xs:element ref="Icie:RevisionID"/>
            <xs:element ref="Icie>DeleteHandlerID"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="DeleteResultType">
        <xs:complexContent>
            <xs:extension base="Icie:ResultType">
                <xs:sequence>
                    <xs:element ref="Icie:RevisionID">
                        <xs:annotation>
                            <xs:documentation>The new revision ID generated as a
result of the successful delete action.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element ref="Icie>DeleteSuccess"/>
                    <xs:element ref="Icie>DeleteResultMessage" minOccurs="0"/>
                </xs:sequence>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="DocumentClientRequestType">
        <xs:complexContent>
            <xs:extension base="Icie:ClientRequestExchangeType"/>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="DocumentReadResultType">
        <xs:sequence>
            <xs:element ref="Document"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="InformationExchangeComplexType" abstract="true">
        <xs:sequence>
            <xs:element ref="Icie:InformationExchangeID"/>
        </xs:sequence>
    </xs:complexType>
    <xs:simpleType name="InformationExchangeSimpleType">
        <xs:restriction base="xs:string">
            <xs:enumeration value="090.02_ProductTypeTemplate"/>
            <xs:enumeration value="100.02_ProductTypeCandidate"/>
            <xs:enumeration value="100.03_ProductTypeTemplate"/>
            <xs:enumeration value="110.01_ProductTypeCandidate"/>
            <xs:enumeration value="180.01_ProductTypeSelection"/>
            <xs:enumeration value="210.01_ProductInstallationReport"/>
            <xs:enumeration value="230.01_ProductInspection"/>
            <xs:enumeration value="250.01_ProductTypeParts"/>
            <xs:enumeration value="250.02_ProductTypeWarranty"/>
            <xs:enumeration value="250.03_ProductTypeMaintenance"/>
            <xs:enumeration value="250.04_SystemOperation"/>
            <xs:enumeration value="Other"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:complexType name="IssueClientRequestType">
        <xs:complexContent>
            <xs:extension base="Icie:ClientRequestExchangeType"/>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="IssueReadResultType">
        <xs:sequence>
            <xs:element ref="Issue"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ReadAllRequestType">
        <xs:sequence>
            <xs:element ref="Icie:RevisionID"/>
            <xs:element ref="Icie:ReadHandlerID"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ReadAllResultType">
        <xs:sequence>

```



```

        <xs:element ref="Icie:InformationExchange"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="ReadRequestType">
    <xs:sequence>
        <xs:element ref="Icie:RevisionID"/>
        <xs:element ref="Icie:ReadHandlerID"/>
        <xs:element ref="Icie:Key"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="ReadResultType" abstract="true">
    <xs:complexContent>
        <xs:extension base="Icie:ResultType"/>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="RequestType" abstract="true">
    <xs:sequence>
        <xs:element ref="Icie:InformationExchangeID"/>
        <xs:element ref="Icie:SessionToken"/>
        <xs:element ref="Icie:UserID"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="ResultType" abstract="true">
    <xs:sequence>
        <xs:element ref="Icie:InformationExchangeID"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="ServerResponseExchangeType" abstract="true">
    <xs:choice>
        <xs:element ref="Icie:CreateResult"/>
        <xs:element ref="Icie:ReadResult"/>
        <xs:element ref="Icie:ReadAllResult"/>
        <xs:element ref="Icie:UpdateResult"/>
        <xs:element ref="Icie>DeleteResult"/>
    </xs:choice>
</xs:complexType>
<xs:complexType name="UpdateRequestType" abstract="true">
    <xs:sequence>
        <xs:element ref="Icie:RevisionID"/>
        <xs:element ref="Icie:UpdateHandlerID"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="UpdateResultType">
    <xs:complexContent>
        <xs:extension base="Icie:ResultType">
            <xs:sequence>
                <xs:element ref="Icie:RevisionID">
                    <xs:annotation>
                        <xs:documentation>The new revision ID generated as a
result of the successful update action.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element ref="Icie:UpdateSuccess"/>
                <xs:element ref="Icie:UpdateResultMessage" minOccurs="0"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="UpdateDocumentRequestType">
    <xs:sequence>
        <xs:element ref="Icie:DocumentKey"/>
        <xs:element ref="Document"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="UpdateAttributeRequestType">
    <xs:sequence>
        <xs:element ref="Icie:AttributeKey"/>
        <xs:element ref="Attribute"/>
    </xs:sequence>
</xs:complexType>

```

```

<xs:complexType name="UpdateIssueRequestType">
  <xs:sequence>
    <xs:element ref="Icie:IssueKey"/>
    <xs:element ref="Issue"/>
  </xs:sequence>
</xs:complexType>
<!-- Extended COBieLite Types -->
<xs:complexType name="AttributeType">
  <xs:annotation>
    <xs:documentation>Information about a specific Attribute.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="AttributeType">
      <xs:sequence>
        <xs:element ref="AttributeDescription" minOccurs="0">
          <xs:annotation>
            <xs:appinfo
source="urn:Iciepi:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="AttributeValue">
          <xs:annotation>
            <xs:appinfo
source="urn:Iciepi:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ContactType">
  <xs:annotation>
    <xs:documentation>Information about a specific company who can provide the type of
equipment.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="ContactType">
      <xs:sequence>
        <xs:element ref="ContactCategory">
          <xs:annotation>
            <xs:appinfo source="urn:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="ContactCompanyName">
          <xs:annotation>
            <xs:appinfo
source="urn:Iciepi:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="ContactPhoneNumber">
          <xs:annotation>
            <xs:appinfo
source="urn:Iciepi:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="ContactDepartmentName" minOccurs="0">
          <xs:annotation>
            <xs:appinfo
source="urn:Iciepi:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="ContactGivenName" minOccurs="0">
          <xs:annotation>
            <xs:appinfo
source="urn:Iciepi:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="ContactFamilyName" minOccurs="0">
          <xs:annotation>

```

```

                <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
                </xs:annotation>
            </xs:element>
            <xs:element ref="ContactStreet" minOccurs="0">
                <xs:annotation>
                    <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
                    </xs:annotation>
                </xs:element>
                <xs:element ref="ContactPostalBoxNumber" minOccurs="0">
                    <xs:annotation>
                        <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
                        </xs:annotation>
                    </xs:element>
                    <xs:element ref="ContactTownName" minOccurs="0">
                        <xs:annotation>
                            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
                            </xs:annotation>
                        </xs:element>
                        <xs:element ref="ContactRegionCode" minOccurs="0">
                            <xs:annotation>
                                <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
                                </xs:annotation>
                            </xs:element>
                            <xs:element ref="ContactCountryName" minOccurs="0">
                                <xs:annotation>
                                    <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
                                    </xs:annotation>
                                </xs:element>
                                <xs:element ref="ContactPostalCode" minOccurs="0">
                                    <xs:annotation>
                                        <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
                                        </xs:annotation>
                                    </xs:element>
                                    <xs:element ref="ContactURL" minOccurs="0">
                                        <xs:annotation>
                                            <xs:appinfo
source="urn:lciepi:ReadOnly">false</xs:appinfo>
                                            </xs:annotation>
                                        </xs:element>
                                        </xs:annotation>
                                    </xs:sequence>
                                </xs:extension>
                            </xs:complexContent>
                        </xs:complexType>
                    <xs:complexType name="DocumentType">
                        <xs:annotation>
                            <xs:documentation>Information about a specific Document.</xs:documentation>
                        </xs:annotation>
                        <xs:complexContent>
                            <xs:extension base="DocumentType">
                                <xs:sequence>
                                    <xs:element ref="DocumentCategory"/>
                                    <xs:element ref="DocumentDescription" minOccurs="0"/>
                                    <xs:element ref="DocumentURI"/>
                                    <xs:element ref="DocumentReferenceURI" minOccurs="0"/>
                                </xs:sequence>
                            </xs:extension>
                        </xs:complexContent>
                    </xs:complexType>
                <xs:complexType name="IssueType">
                    <xs:annotation>
                        <xs:documentation>A specific Issue within this set of Issues.</xs:documentation>
                    </xs:annotation>
                    <xs:complexContent>

```

```

        <xs:extension base="IssueType">
          <xs:sequence>
            <xs:element ref="IssueRiskText"/>
            <xs:element ref="IssueSeverityText"/>
            <xs:element ref="IssueImpactText"/>
            <xs:element ref="IssueDescription"/>
            <xs:element ref="ContactAssignment"/>
            <xs:element ref="IssueMitigationDescription"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <!--LCie Elements-->
    <xs:element name="AttributeKey" type="AttributeKeyType"/>
    <xs:element name="ContactKey" type="ContactKeyType"/>
    <xs:element name="CreateContactRequest" type="Icie:CreateContactRequestType"/>
    <xs:element name="CreateHandlerID" type="xs:long">

```

An ID associated with a server-side handler that handles a create request. For example, this element corresponds to the Deserializer object id in BIMSie.

```

      <xs:documentation>
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="CreateRequest" type="Icie:CreateRequestType" abstract="true">
  <xs:annotation>
    <xs:documentation>

```

A Request to create an LCie element. Typically a Create request should correspond to an element with many children, e.g. the COBieLite Asset.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="CreateResult" type="Icie:CreateResultType">
  <xs:annotation>
    <xs:documentation>

```

Results of the Create Request include the new revision ID, a boolean indicating success, and an optional message.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="CreateResultMessage" type="xs:string">
  <xs:annotation>
    <xs:documentation>

```

A server-provided message generated as confirmation of a handled CreateRequest.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="CreateSuccess" type="xs:boolean">
  <xs:annotation>
    <xs:documentation>

```

Indicating success or failure of a CreateRequest.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="DeleteContactRequest" type="Icie:ContactDeleteRequestType"/>
<xs:element name="DeleteHandlerID" type="xs:long">
  <xs:annotation>
    <xs:documentation>

```

An ID associated with a server-side handler that handles a delete request. For example, this element corresponds to the Deserializer object id in BIMSie.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="DeleteRequest" type="Icie:DeleteRequestType" abstract="true">
  <xs:annotation>
    <xs:documentation>

```

A delete request must contain a RevisionID, a DeleteHandlerID, and a DeleteKey corresponding to one LCie concept.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="DeleteRequest" type="Icie:DeleteRequestType" abstract="true">
  <xs:annotation>
    <xs:documentation>

```

</xs:documentation>

</xs:annotation>

```

</xs:element>
<xs:element name="DeleteResult" type="Icie>DeleteResultType">
  <xs:annotation>
    <xs:documentation>

```

an optional message.

```

      A DeleteResult must contain a new RevisionID, a boolean indicating success or failure, and
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="DeleteResultMessage" type="xs:string">
  <xs:annotation>
    <xs:documentation>

```

A server-provided message generated as confirmation of a handled DeleteRequest.

```

</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="DeleteSuccess" type="xs:boolean">
  <xs:annotation>
    <xs:documentation>

```

Indicates success or failure of a handled DeleteRequest.

```

</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="DocumentKey" type="DocumentKeyType"/>
<xs:element name="InformationExchange" type="Icie:InformationExchangeComplexType" abstract="true">
  <xs:annotation>
    <xs:documentation>

```

An instance of an LCie information exchange.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="IssueKey" type="IssueKeyType"/>
<xs:element name="Key" type="CobieKeyType" abstract="true">
  <xs:annotation>
    <xs:documentation>

```

The key corresponding to one particular LCie element or concept.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ProjectID" type="xs:long">
  <xs:annotation>
    <xs:documentation>

```

written.

The ID associated with the project. A project is the server item to which revisions are

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="RevisionID" type="xs:long">
  <xs:annotation>
    <xs:documentation>

```

An ID associated with a specific Project revision. RevisionIDs are required for all read requests and are returned by all create, update, and delete results.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="SessionToken" type="xs:string">
  <xs:annotation>
    <xs:documentation>

```

Authentication token for the current session.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ReadHandlerID" type="xs:long">
  <xs:annotation>
    <xs:documentation>

```

An ID associated with a server-side handler that produces a transformed result of a project revision. For example, this element corresponds to the Serializer object id in BIMSie.

```

    </xs:documentation>
  </xs:annotation>
</xs:element>

```

```

<xs:element name="ReadAllRequest" type="Icie:ReadAllRequestType">
  <xs:annotation>
    <xs:documentation>
      Requires only credentials, a revisionID, and a ReadHandlerID.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ReadAllResult" type="Icie:ReadAllResultType">
  <xs:annotation>
    <xs:documentation>
      The result of a ReadAllRequest will contain all items relevant to one LCie concept. For
      example, a ProductTypeTemplate view of all AssetType elements in a model revision.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ReadRequest" type="Icie:ReadRequestType">
  <xs:annotation>
    <xs:documentation>
      A ReadRequest must contain a ReadKey element.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ReadResult" type="Icie:ReadResultType" abstract="true">
  <xs:annotation>
    <xs:documentation>
      The result of a ReadRequest will contain information relevant to one LCie concept.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="UpdateHandlerID" type="xs:long">
  <xs:annotation>
    <xs:documentation>
      An ID associated with a server-side handler that handles an update request. For example,
      this element corresponds to the Deserializer object id in BIMSie.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="UpdateRequest" type="Icie:UpdateRequestType" abstract="true">
  <xs:annotation>
    <xs:documentation>
      An UpdateRequest must have a RevisionID, an UpdateHandlerID, UpdateKey
      corresponding to an existing element in the project's latest revision, and a packet of information to update.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="UpdateResult" type="Icie:UpdateResultType">
  <xs:annotation>
    <xs:documentation>
      The result of an UpdateRequest will contain a new RevisionID, a boolean indicating
      success or failure, and an optional message.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="UserID" type="xs:long">
  <xs:annotation>
    <xs:documentation>
      The ID of the user associated with the current session.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="UpdateSuccess" type="xs:boolean">
  <xs:annotation>
    <xs:documentation>
      Indicates success or failure of a handled UpdateRequest.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="UpdateResultMessage" type="xs:string">
  <xs:annotation>
    <xs:documentation>
  </xs:annotation>

```

```

    A server-provided message generated as confirmation of a handled UpdateRequest.
  </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="UpdateContactRequest" type="Icie:ContactUpdateRequestType"/>
<!-- COBieLite Element Substitutions -->
<xs:element name="Attribute" type="Icie:AttributeType" substitutionGroup="Attribute">
  <xs:annotation>
    <xs:documentation>Information about a specific Attribute.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="Contact" type="Icie:ContactType" substitutionGroup="Contact">
  <xs:annotation>
    <xs:documentation>Information about a specific manufacturer or supplier associated with an
AssetType.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="Document" type="Icie:DocumentType" substitutionGroup="Document">
  <xs:annotation>
    <xs:documentation>
      Information about a specific Document.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="Issue" type="Icie:IssueType" substitutionGroup="Issue" id="d2e1495">
  <xs:annotation>
    <xs:documentation>A specific Issue within this set of Issues. </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType" abstract="true">
  <xs:annotation>
    <xs:documentation>Corresponds to an LCie information exchange defined in the
InformationExchangeSimpleType enumeration</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:attribute name="ReadOnly" type="xs:boolean" default="true">
  <xs:annotation>
    <xs:documentation>Used in LCie subschema app-info annotations to indicate whether or not the
element is editable at the modeled stage of the facility life-cycle. Default value is true and if asumed true if this app-info tag is not
present in a subschema element.</xs:documentation>
  </xs:annotation>
</xs:attribute>
</xs:schema>

```

1.2 090.02 Product Type Template Namespace Definition

```

<xs:schema xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:camed="http://jcam.org.uk/editor"
xmlns:lcie="http://docs.buildingsmartalliance.org/nbims03/lcie/core" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:tt="http://docs.buildingsmartalliance.org/nbims03/lcie/09002ProductTypeTemplate"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/lcie/09002ProductTypeTemplate"
elementFormDefault="unqualified" attributeFormDefault="unqualified" version="RC4">
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../../cobie/core.xsd"/>
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/lcie/core" schemaLocation="core.xsd"/>
  <xs:group name="AssetTypeGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeCategory">
        <xs:annotation>
          <xs:appinfo source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeDescription">
        <xs:annotation>
          <xs:appinfo source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeAccountingCategory">
        <xs:annotation>
          <xs:appinfo source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeNominalLength" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeNominalWidth" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeNominalHeight" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:lciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeAccessibilityText" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:lcie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeCodePerformance" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:lcie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeColorCode" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:lcie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeConstituentsDescription" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:lcie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeFeaturesDescription" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:lcie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeFinishDescription" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:lcie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>

```



```

</xs:element>
<xs:element ref="AssetTypeGradeDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeMaterialDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeShapeDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeSizeDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeSustainabilityPerformanceDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeAttributes" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:group>
<xs:group name="AssetTypeUpdateGroup">
  <xs:sequence>
    <xs:element ref="AssetTypeName" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:sequence>
      <xs:element ref="AssetTypeCategory" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeDescription" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeAccountingCategory" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeNominalLength" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeNominalWidth" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeNominalHeight" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:sequence>
</xs:group>

```

```

</xs:element>
<xs:element ref="AssetTypeAccessibilityText" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeCodePerformance" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeColorCode" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeConstituentsDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeFeaturesDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeFinishDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeGradeDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeMaterialDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeShapeDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeSizeDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeSustainabilityPerformanceDescription" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeAttributes" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:sequence>
</xs:group>
<!-- Transactional definitions -->
<xs:complexType name="AssetTypeInfoType">
  <xs:annotation>
    <xs:documentation>A minimum of one COBie.Type record is required for all COBie deliverables
related to equipment Type information.</xs:documentation>
  </xs:annotation>

```

```

    <xs:complexContent>
      <xs:extension base="AssetTypeInfoType">
        <xs:sequence>
          <xs:group ref="tt:AssetTypeGroup"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="CreateAssetTypeRequestType">
    <xs:sequence>
      <xs:element ref="AssetType"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ProductTypeTemplateClientRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:ClientRequestExchangeType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ProductTypeTemplateCreateRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:CreateRequestType">
        <xs:choice>
          <xs:element ref="tt:CreateAssetTypeRequest"/>
          <xs:element ref="tt:CreateAssetTypeAttributeRequest"/>
        </xs:choice>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ProductTypeTemplateDeleteRequestType">
    <xs:complexContent>
      <xs:extension base="Icie>DeleteRequestType">
        <xs:choice>
          <xs:element ref="tt>DeleteAssetTypeAttributeRequest"/>
          <xs:element ref="tt>DeleteAssetTypeRequest"/>
        </xs:choice>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ProductTypeTemplateServerResponseType">
    <xs:complexContent>
      <xs:extension base="Icie:ServerResponseExchangeType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ProductTypeTemplateType">
    <xs:complexContent>
      <xs:extension base="Icie:InformationExchangeComplexType">
        <xs:sequence>
          <xs:element ref="AssetTypes"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ProductTypeTemplateUpdateRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:UpdateRequestType">
        <xs:choice>
          <xs:element ref="tt:UpdateAssetTypeRequest"/>
          <xs:element ref="tt:UpdateAssetTypeAttributeRequest"/>
        </xs:choice>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="TypeTemplateCreateAttributeRequestType">
    <xs:complexContent>
      <xs:extension base="Icie>CreateAttributeRequestType">
        <xs:sequence>
          <xs:element ref="tt:ProductTypeTemplateKey"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>

```

```

</xs:complexType>
<xs:complexType name="TypeTemplateDeleteAttributeRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteAttributeRequestType">
      <xs:sequence>
        <xs:element ref="tt:ProductTypeTemplateKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeTemplateDeleteRequestType">
  <xs:sequence>
    <xs:element ref="tt:ProductTypeTemplateKey"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TypeTemplateReadResultType">
  <xs:complexContent>
    <xs:extension base="Icie:ReadResultType">
      <xs:sequence>
        <xs:element ref="tt:AssetType"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeTemplateUpdateAttributeRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:UpdateAttributeRequestType">
      <xs:sequence>
        <xs:element ref="tt:ProductTypeTemplateKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeTemplateUpdateRequestType">
  <xs:sequence>
    <xs:element ref="tt:ProductTypeTemplateKey"/>
    <xs:group ref="tt:AssetTypeUpdateGroup"/>
  </xs:sequence>
</xs:complexType>
<xs:element name="AssetType" type="tt:AssetTypeInfoType" substitutionGroup="AssetType">
  <xs:annotation>
    <xs:documentation>A minimum of one AssetType record is required for all COBie deliverables
    related to equipment Type information. AssetType is associated with one or more Assets.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="CreateAssetTypeAttributeRequest" type="tt:TypeTemplateCreateAttributeRequestType"/>
<xs:element name="CreateAssetTypeRequest" type="tt:CreateAssetTypeRequestType"/>
<xs:element name="DeleteAssetTypeAttributeRequest" type="tt:TypeTemplateDeleteAttributeRequestType"/>
<xs:element name="DeleteAssetTypeRequest" type="tt:TypeTemplateDeleteRequestType"/>
<xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
substitutionGroup="Icie:InformationExchangeID" fixed="090.02_ProductTypeTemplate"/>
<xs:element name="ProductTypeTemplate" type="tt:ProductTypeTemplateType"
substitutionGroup="Icie:InformationExchange"/>
<xs:element name="ProductTypeTemplateCreateRequest" type="tt:ProductTypeTemplateCreateRequestType"
substitutionGroup="Icie:CreateRequest"/>
<xs:element name="ProductTypeTemplateDeleteRequest" type="tt:ProductTypeTemplateDeleteRequestType"
substitutionGroup="Icie>DeleteRequest"/>
<xs:element name="ProductTypeTemplateKey" type="AssetTypeKeyType" substitutionGroup="Icie:Key"/>
<xs:element name="ProductTypeTemplateReadResult" type="tt:TypeTemplateReadResultType"
substitutionGroup="Icie:ReadResult"/>
<xs:element name="ProductTypeTemplateUpdateRequest" type="tt:ProductTypeTemplateUpdateRequestType"
substitutionGroup="Icie:UpdateRequest"/>
<xs:element name="ProductTypeTemplate_090_Request" type="tt:ProductTypeTemplateClientRequestType"/>
<xs:element name="ProductTypeTemplate_090_ServerResponse"
type="tt:ProductTypeTemplateServerResponseType"/>
<xs:element name="UpdateAssetTypeAttributeRequest" type="tt:TypeTemplateUpdateAttributeRequestType"/>
<xs:element name="UpdateAssetTypeRequest" type="tt:TypeTemplateUpdateRequestType"/>
</xs:schema>

```

1.3 100.02 Product Type Candidate Namespace Definition

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:Icie="http://docs.buildingsmartalliance.org/nbims03/Icie/core"
xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:camed="http://jcam.org.uk/editor"
xmlns:tc="http://docs.buildingsmartalliance.org/nbims03/Icie/10002ProductTypeCandidate"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/Icie/10002ProductTypeCandidate"
elementFormDefault="unqualified" attributeFormDefault="unqualified" version="RC4">
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../../cobie/core.xsd"/>
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/Icie/core" schemaLocation="core.xsd"/>
  <xs:annotation>
    <xs:documentation>
      Product Type Template view of a facility
    </xs:documentation>
  </xs:annotation>
  <xs:group name="AssetTypeReadOnlyGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeCategory"/>
      <xs:element ref="AssetTypeDescription"/>
      <xs:element ref="AssetTypeAccountingCategory"/>
      <xs:element ref="AssetTypeNominalLength" minOccurs="0"/>
      <xs:element ref="AssetTypeNominalWidth" minOccurs="0"/>
      <xs:element ref="AssetTypeNominalHeight" minOccurs="0"/>
      <xs:element ref="AssetTypeAccessibilityText" minOccurs="0"/>
      <xs:element ref="AssetTypeCodePerformance" minOccurs="0"/>
      <xs:element ref="AssetTypeColorCode" minOccurs="0"/>
      <xs:element ref="AssetTypeConstituentsDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeFeaturesDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeFinishDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeGradeDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeMaterialDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeShapeDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeSizeDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeSustainabilityPerformanceDescription" minOccurs="0"/>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetTypeUpdateGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeModelNumber" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeManufacturerContactAssignments" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeAttributes" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeDocuments" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetTypeGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeModelNumber">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeManufacturerContactAssignments">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>

```

```

        </xs:element>
        <xs:element ref="AssetTypeAttributes" minOccurs="0">
          <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="AssetTypeDocuments" minOccurs="0">
          <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:group>
    <xs:complexType name="AssetTypeInfoType">
      <xs:annotation>
        <xs:documentation>A minimum of one COBie.Type record is required for all COBie deliverables
related to equipment Type information.</xs:documentation>
      </xs:annotation>
      <xs:complexContent>
        <xs:extension base="AssetTypeInfoType">
          <xs:sequence>
            <xs:group ref="tc:AssetTypeReadOnlyGroup"/>
            <xs:group ref="tc:AssetTypeGroup"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateClientRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:ClientRequestExchangeType"/>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateCreateAttributeRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:CreateAttributeRequestType">
          <xs:sequence>
            <xs:element ref="tc:ProductTypeCandidateKey"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateCreateDocumentRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:CreateDocumentRequestType">
          <xs:sequence>
            <xs:element ref="tc:ProductTypeCandidateKey"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateCreateRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:CreateRequestType">
          <xs:choice>
            <xs:element ref="tc:CreateAssetTypeAttributeRequest"/>
            <xs:element ref="tc:CreateAssetTypeDocumentRequest"/>
          </xs:choice>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateDeleteAttributeRequestType">
      <xs:complexContent>
        <xs:extension base="Icie>DeleteAttributeRequestType">
          <xs:sequence>
            <xs:element ref="tc:ProductTypeCandidateKey"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateDeleteDocumentRequestType">

```

```

        <xs:complexContent>
          <xs:extension base="Icie>DeleteDocumentRequestType">
            <xs:sequence>
              <xs:element ref="tc:ProductTypeCandidateKey"/>
            </xs:sequence>
          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
    <xs:complexType name="ProductTypeCandidateDeleteRequestType">
      <xs:complexContent>
        <xs:extension base="Icie>DeleteRequestType">
          <xs:choice>
            <xs:element ref="tc>DeleteAssetTypeDocumentRequest"/>
            <xs:element ref="tc>DeleteAssetTypeAttributeRequest"/>
          </xs:choice>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateServerResponseType">
      <xs:complexContent>
        <xs:extension base="Icie:ServerResponseExchangeType"/>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateType">
      <xs:complexContent>
        <xs:extension base="Icie:InformationExchangeComplexType">
          <xs:sequence>
            <xs:element ref="AssetTypes"/>
            <xs:element ref="Contacts"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateUpdateAttributeRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:UpdateAttributeRequestType">
          <xs:sequence>
            <xs:element ref="tc:ProductTypeCandidateKey"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateUpdateDocumentRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:UpdateDocumentRequestType">
          <xs:sequence>
            <xs:element ref="tc:ProductTypeCandidateKey"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateUpdateRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:UpdateRequestType">
          <xs:choice>
            <xs:element ref="tc:UpdateAssetTypeAttributeRequest"/>
            <xs:element ref="tc:UpdateAssetTypeDocumentRequest"/>
            <xs:element ref="tc:UpdateAssetTypeRequest"/>
          </xs:choice>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="TypeCandidateReadResultType">
      <xs:complexContent>
        <xs:extension base="Icie:ReadResultType">
          <xs:sequence>
            <xs:element ref="tc:AssetType"/>
            <xs:element ref="Contacts"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>

```

```

        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="UpdateAssetTypeInfoRequestType">
        <xs:sequence>
            <xs:element ref="tc:ProductTypeCandidateKey"/>
            <xs:group ref="tc:AssetTypeUpdateGroup"/>
        </xs:sequence>
    </xs:complexType>
    <xs:element name="AssetType" type="tc:AssetTypeInfoType" substitutionGroup="AssetType">
        <xs:annotation>
            <xs:documentation>A minimum of one AssetType record is required for all COBie deliverables
related to equipment Type information. AssetType is associated with one or more Assets.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="CreateAssetTypeAttributeRequest" type="tc:ProductTypeCandidateCreateAttributeRequest"/>
    <xs:element name="CreateAssetTypeDocumentRequest"
type="tc:ProductTypeCandidateCreateDocumentRequestType"/>
    <xs:element name="DeleteAssetTypeAttributeRequest" type="tc:ProductTypeCandidateDeleteAttributeRequest"/>
    <xs:element name="DeleteAssetTypeDocumentRequest"
type="tc:ProductTypeCandidateDeleteDocumentRequestType"/>
    <xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
substitutionGroup="Icie:InformationExchangeID" fixed="100.02_ProductTypeCandidate"/>
    <xs:element name="ProductTypeCandidate" type="tc:ProductTypeCandidateType"
substitutionGroup="Icie:InformationExchange"/>
    <xs:element name="ProductTypeCandidateCreateRequest" type="tc:ProductTypeCandidateCreateRequestType"
substitutionGroup="Icie:CreateRequest"/>
    <xs:element name="ProductTypeCandidateDeleteRequest" type="tc:ProductTypeCandidateDeleteRequestType"
substitutionGroup="Icie:DeleteRequest"/>
    <xs:element name="ProductTypeCandidateKey" type="AssetTypeKeyType" substitutionGroup="Icie:Key"/>
    <xs:element name="ProductTypeCandidateReadResult" type="tc:TypeCandidateReadResultType"
substitutionGroup="Icie:ReadResult"/>
    <xs:element name="ProductTypeCandidateUpdateRequest" type="tc:ProductTypeCandidateUpdateRequestType"
substitutionGroup="Icie:UpdateRequest"/>
    <xs:element name="ProductTypeCandidate_100_Request" type="tc:ProductTypeCandidateClientRequestType"/>
    <xs:element name="ProductTypeCandidate_100_ServerResponse"
type="tc:ProductTypeCandidateServerResponseType"/>
    <xs:element name="UpdateAssetTypeAttributeRequest" type="tc:ProductTypeCandidateUpdateAttributeRequest"/>
    <xs:element name="UpdateAssetTypeDocumentRequest"
type="tc:ProductTypeCandidateUpdateDocumentRequestType"/>
    <xs:element name="UpdateAssetTypeRequest" type="tc:UpdateAssetTypeInfoRequestType"/>
</xs:schema>

```


1.4 100.03 Product Type Template Namespace Definition

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:Icie="http://docs.buildingsmartalliance.org/nbims03/Icie/core"
xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:cameo="http://jcam.org.uk/editor"
xmlns:tt="http://docs.buildingsmartalliance.org/nbims03/Icie/10003ProductTypeTemplate"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/Icie/10003ProductTypeTemplate"
elementFormDefault="unqualified" attributeFormDefault="unqualified" version="RC4">
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../cobie/core.xsd"/>
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/Icie/core" schemaLocation="core.xsd"/>
  <xs:group name="AssetTypeGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeCategory">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeDescription">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeAccountingCategory">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeNominalLength" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeNominalWidth" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeNominalHeight" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeAccessibilityText" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeCodePerformance" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeColorCode" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeConstituentsDescription" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeFeaturesDescription" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeFinishDescription" minOccurs="0">
        <xs:annotation>

```

```

        <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
    </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeGradeDescription" minOccurs="0">
    <xs:annotation>
        <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
    </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeMaterialDescription" minOccurs="0">
    <xs:annotation>
        <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
    </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeShapeDescription" minOccurs="0">
    <xs:annotation>
        <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
    </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeSizeDescription" minOccurs="0">
    <xs:annotation>
        <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
    </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeSustainabilityPerformanceDescription" minOccurs="0">
    <xs:annotation>
        <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
    </xs:annotation>
</xs:element>
<xs:element ref="AssetTypeAttributes" minOccurs="0">
    <xs:annotation>
        <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
    </xs:annotation>
</xs:element>
</xs:sequence>
</xs:group>
<xs:group name="AssetTypeUpdateGroup">
    <xs:sequence>
        <xs:element ref="AssetTypeName" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetTypeCategory" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetTypeDescription" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetTypeAccountingCategory" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetTypeNominalLength" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetTypeNominalWidth" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetTypeNominalHeight" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Iciepi:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
    </xs:sequence>
</xs:group>

```

```

        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeAccessibilityText" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeCodePerformance" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeColorCode" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeConstituentsDescription" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeFeaturesDescription" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeFinishDescription" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeGradeDescription" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeMaterialDescription" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeShapeDescription" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeSizeDescription" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeSustainabilityPerformanceDescription" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
    <xs:element ref="AssetTypeAttributes" minOccurs="0">
        <xs:annotation>
            <xs:appinfo source="urn:Icie:pi:ReadOnly">>false</xs:appinfo>
        </xs:annotation>
    </xs:element>
</xs:sequence>
</xs:group>
<xs:complexType name="AssetTypeInfoType">
    <xs:annotation>
        <xs:documentation>A minimum of one COBie.Type record is required for all COBie deliverables
        related to equipment Type information.</xs:documentation>
    </xs:annotation>
</xs:complexType>

```

```

        <xs:extension base="AssetTypeInfoType">
            <xs:sequence>
                <xs:group ref="tt:AssetTypeGroup"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="CreateAssetTypeRequestType">
    <xs:sequence>
        <xs:element ref="AssetType"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="ProductTypeTemplateClientRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:ClientRequestExchangeType"/>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeTemplateCreateRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:CreateRequestType">
            <xs:choice>
                <xs:element ref="tt:CreateAssetTypeRequest"/>
                <xs:element ref="tt:CreateAssetTypeAttributeRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeTemplateDeleteRequestType">
    <xs:complexContent>
        <xs:extension base="Icie>DeleteRequestType">
            <xs:choice>
                <xs:element ref="tt>DeleteAssetTypeAttributeRequest"/>
                <xs:element ref="tt>DeleteAssetTypeRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeTemplateServerResponseType">
    <xs:complexContent>
        <xs:extension base="Icie:ServerResponseExchangeType"/>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeTemplateType">
    <xs:complexContent>
        <xs:extension base="Icie:InformationExchangeComplexType">
            <xs:sequence>
                <xs:element ref="AssetTypes"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeTemplateUpdateRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:UpdateRequestType">
            <xs:choice>
                <xs:element ref="tt:UpdateAssetTypeRequest"/>
                <xs:element ref="tt:UpdateAssetTypeAttributeRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeTemplateCreateAttributeRequestType">
    <xs:complexContent>
        <xs:extension base="Icie>CreateAttributeRequestType">
            <xs:sequence>
                <xs:element ref="tt:ProductTypeTemplateKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

```

```

<xs:complexType name="TypeTemplateDeleteAttributeRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteAttributeRequestType">
      <xs:sequence>
        <xs:element ref="tt:ProductTypeTemplateKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeTemplateDeleteRequestType">
  <xs:sequence>
    <xs:element ref="tt:ProductTypeTemplateKey"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="TypeTemplateReadResultType">
  <xs:complexContent>
    <xs:extension base="Icie:ReadResultType">
      <xs:sequence>
        <xs:element ref="tt:AssetType"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeTemplateUpdateAttributeRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:UpdateAttributeRequestType">
      <xs:sequence>
        <xs:element ref="tt:ProductTypeTemplateKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeTemplateUpdateRequestType">
  <xs:sequence>
    <xs:element ref="tt:ProductTypeTemplateKey"/>
    <xs:group ref="tt:AssetTypeUpdateGroup"/>
  </xs:sequence>
</xs:complexType>
<xs:element name="AssetType" type="tt:AssetTypeInfoType" substitutionGroup="AssetType">
  <xs:annotation>
    <xs:documentation>A minimum of one AssetType record is required for all COBie deliverables
related to equipment Type information. AssetType is associated with one or more Assets.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="CreateAssetTypeAttributeRequest" type="tt:TypeTemplateCreateAttributeRequestType"/>
<xs:element name="CreateAssetTypeRequest" type="tt:CreateAssetTypeRequestType"/>
<xs:element name="DeleteAssetTypeAttributeRequest" type="tt:TypeTemplateDeleteAttributeRequestType"/>
<xs:element name="DeleteAssetTypeRequest" type="tt:TypeTemplateDeleteRequestType"/>
<xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
substitutionGroup="Icie:InformationExchangeID" fixed="100.03_ProductTypeTemplate"/>
<xs:element name="ProductTypeTemplate" type="tt:ProductTypeTemplateType"
substitutionGroup="Icie:InformationExchange"/>
<xs:element name="ProductTypeTemplateCreateRequest" type="tt:ProductTypeTemplateCreateRequestType"
substitutionGroup="Icie:CreateRequest"/>
<xs:element name="ProductTypeTemplateDeleteRequest" type="tt:ProductTypeTemplateDeleteRequestType"
substitutionGroup="Icie:DeleteRequest"/>
<xs:element name="ProductTypeTemplateReadResult" type="tt:TypeTemplateReadResultType"
substitutionGroup="Icie:ReadResult"/>
<xs:element name="ProductTypeTemplateKey" type="AssetTypeKeyType" substitutionGroup="Icie:Key"/>
<xs:element name="ProductTypeTemplateUpdateRequest" type="tt:ProductTypeTemplateUpdateRequestType"
substitutionGroup="Icie:UpdateRequest"/>
<xs:element name="ProductTypeTemplate_100_Request" type="tt:ProductTypeTemplateClientRequestType"/>
<xs:element name="ProductTypeTemplate_100_ServerResponse"
type="tt:ProductTypeTemplateServerResponseType"/>
<xs:element name="UpdateAssetTypeAttributeRequest" type="tt:TypeTemplateUpdateAttributeRequestType"/>
<xs:element name="UpdateAssetTypeRequest" type="tt:TypeTemplateUpdateRequestType"/>
</xs:schema>

```

1.5 110.01 Product Type Candidate Namespace Definition

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:Icie="http://docs.buildingsmartalliance.org/nbims03/Icie/core"
xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:camed="http://jcam.org.uk/editor"
xmlns:tc="http://docs.buildingsmartalliance.org/nbims03/Icie/11001ProductTypeCandidate"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/Icie/11001ProductTypeCandidate"
elementFormDefault="unqualified" attributeFormDefault="unqualified" version="RC4">
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../../cobie/core.xsd"/>
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/Icie/core" schemaLocation="core.xsd"/>
  <xs:group name="AssetTypeGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeModelNumber">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeManufacturerContactAssignments">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeAttributes" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeDocuments" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetTypeReadOnlyGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeCategory"/>
      <xs:element ref="AssetTypeDescription"/>
      <xs:element ref="AssetTypeAccountingCategory"/>
      <xs:element ref="AssetTypeNominalLength" minOccurs="0"/>
      <xs:element ref="AssetTypeNominalWidth" minOccurs="0"/>
      <xs:element ref="AssetTypeNominalHeight" minOccurs="0"/>
      <xs:element ref="AssetTypeAccessibilityText" minOccurs="0"/>
      <xs:element ref="AssetTypeCodePerformance" minOccurs="0"/>
      <xs:element ref="AssetTypeColorCode" minOccurs="0"/>
      <xs:element ref="AssetTypeConstituentsDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeFeaturesDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeFinishDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeGradeDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeMaterialDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeShapeDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeSizeDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeSustainabilityPerformanceDescription" minOccurs="0"/>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetTypeUpdateGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeModelNumber" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeManufacturerContactAssignments" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeAttributes" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>

```

```

        </xs:element>
        <xs:element ref="AssetTypeDocuments" minOccurs="0">
          <xs:annotation>
            <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:group>
    <xs:complexType name="ProductTypeCandidateType">
      <xs:complexContent>
        <xs:extension base="Icie:InformationExchangeComplexType">
          <xs:sequence>
            <xs:element ref="AssetTypes"/>
            <xs:element ref="Contacts"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="AssetTypeInfoType">
      <xs:annotation>
        <xs:documentation>A minimum of one COBie.Type record is required for all COBie deliverables
related to equipment Type information.</xs:documentation>
      </xs:annotation>
      <xs:complexContent>
        <xs:extension base="AssetTypeInfoType">
          <xs:sequence>
            <xs:group ref="tc:AssetTypeReadOnlyGroup"/>
            <xs:group ref="tc:AssetTypeGroup"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateClientRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:ClientRequestExchangeType"/>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateCreateAttributeRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:CreateAttributeRequestType">
          <xs:sequence>
            <xs:element ref="tc:ProductTypeCandidateKey"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateCreateDocumentRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:CreateDocumentRequestType">
          <xs:sequence>
            <xs:element ref="tc:ProductTypeCandidateKey"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateCreateRequestType">
      <xs:complexContent>
        <xs:extension base="Icie:CreateRequestType">
          <xs:choice>
            <xs:element ref="tc:CreateAssetTypeAttributeRequest"/>
            <xs:element ref="tc:CreateAssetTypeDocumentRequest"/>
          </xs:choice>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductTypeCandidateDeleteAttributeRequestType">
      <xs:complexContent>
        <xs:extension base="Icie>DeleteAttributeRequestType">
          <xs:sequence>
            <xs:element ref="tc:ProductTypeCandidateKey"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>

```

```

        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
<xs:complexType name="ProductTypeCandidateDeleteDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteDocumentRequestType">
      <xs:sequence>
        <xs:element ref="tc:ProductTypeCandidateKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeCandidateDeleteRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteRequestType">
      <xs:choice>
        <xs:element ref="tc>DeleteAssetTypeDocumentRequest"/>
        <xs:element ref="tc>DeleteAssetTypeAttributeRequest"/>
      </xs:choice>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeCandidateServerResponseType">
  <xs:complexContent>
    <xs:extension base="Icie:ServerResponseExchangeType"/>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeCandidateUpdateAttributeRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:UpdateAttributeRequestType">
      <xs:sequence>
        <xs:element ref="tc:ProductTypeCandidateKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeCandidateUpdateDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:UpdateDocumentRequestType">
      <xs:sequence>
        <xs:element ref="tc:ProductTypeCandidateKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeCandidateUpdateRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:UpdateRequestType">
      <xs:choice>
        <xs:element ref="tc:UpdateAssetTypeAttributeRequest"/>
        <xs:element ref="tc:UpdateAssetTypeDocumentRequest"/>
        <xs:element ref="tc:UpdateAssetTypeRequest"/>
      </xs:choice>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeCandidateReadResultType">
  <xs:complexContent>
    <xs:extension base="Icie:ReadResultType">
      <xs:sequence>
        <xs:element ref="tc:AssetType"/>
        <xs:element ref="Contacts"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="UpdateAssetTypeInfoRequestType">
  <xs:sequence>
    <xs:element ref="tc:ProductTypeCandidateKey"/>
  </xs:sequence>

```



```

        <xs:group ref="tc:AssetTypeUpdateGroup"/>
      </xs:sequence>
    </xs:complexType>
    <xs:element name="AssetType" type="tc:AssetTypeInfoType" substitutionGroup="AssetType">
      <xs:annotation>
        <xs:documentation>A minimum of one AssetType record is required for all COBie deliverables
related to equipment Type information. AssetType is associated with one or more Assets.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="CreateAssetTypeAttributeRequest" type="tc:ProductTypeCandidateCreateAttributeRequestType"/>
    <xs:element name="CreateAssetTypeDocumentRequest"
type="tc:ProductTypeCandidateCreateDocumentRequestType"/>
    <xs:element name="DeleteAssetTypeAttributeRequest" type="tc:ProductTypeCandidateDeleteAttributeRequestType"/>
    <xs:element name="DeleteAssetTypeDocumentRequest"
type="tc:ProductTypeCandidateDeleteDocumentRequestType"/>
    <xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
substitutionGroup="Icie:InformationExchangeID" fixed="110.01_ProductTypeCandidate"/>
    <xs:element name="ProductTypeCandidate" type="tc:ProductTypeCandidateType"
substitutionGroup="Icie:InformationExchange"/>
    <xs:element name="ProductTypeCandidateCreateRequest" type="tc:ProductTypeCandidateCreateRequestType"
substitutionGroup="Icie:CreateRequest"/>
    <xs:element name="ProductTypeCandidateDeleteRequest" type="tc:ProductTypeCandidateDeleteRequestType"
substitutionGroup="Icie:DeleteRequest"/>
    <xs:element name="ProductTypeCandidateKey" type="AssetTypeKeyType" substitutionGroup="Icie:Key"/>
    <xs:element name="ProductTypeCandidateReadResult" type="tc:TypeCandidateReadResultType"
substitutionGroup="Icie:ReadResult"/>
    <xs:element name="ProductTypeCandidateUpdateRequest" type="tc:ProductTypeCandidateUpdateRequestType"
substitutionGroup="Icie:UpdateRequest"/>
    <xs:element name="ProductTypeCandidate_110_Request" type="tc:ProductTypeCandidateClientRequestType"/>
    <xs:element name="ProductTypeCandidate_110_ServerResponse"
type="tc:ProductTypeCandidateServerResponseType"/>
    <xs:element name="UpdateAssetTypeAttributeRequest" type="tc:ProductTypeCandidateUpdateAttributeRequestType"/>
    <xs:element name="UpdateAssetTypeDocumentRequest"
type="tc:ProductTypeCandidateUpdateDocumentRequestType"/>
    <xs:element name="UpdateAssetTypeRequest" type="tc:UpdateAssetTypeInfoRequestType"/>
  </xs:schema>

```

1.6 180.01 Product Type Selection Namespace Definition

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:Icie="http://docs.buildingsmartalliance.org/nbims03/Icie/core"
xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:camed="http://jcam.org.uk/editor"
xmlns:ts="http://docs.buildingsmartalliance.org/nbims03/Icie/18001ProductTypeSelection"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/Icie/18001ProductTypeSelection"
elementFormDefault="unqualified" attributeFormDefault="unqualified" version="RC4">
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../../cobie/core.xsd"/>
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/Icie/core" schemaLocation="core.xsd"/>
  <xs:group name="AssetTypeGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeAttributes" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeDocuments" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetTypeReadOnlyGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeCategory"/>
      <xs:element ref="AssetTypeDescription"/>
      <xs:element ref="AssetTypeAccountingCategory"/>
      <xs:element ref="AssetTypeModelNumber"/>
      <xs:element ref="AssetTypeManufacturerContactAssignments"/>
      <xs:element ref="AssetTypeNominalLength" minOccurs="0"/>
      <xs:element ref="AssetTypeNominalWidth" minOccurs="0"/>
      <xs:element ref="AssetTypeNominalHeight" minOccurs="0"/>
      <xs:element ref="AssetTypeAccessibilityText" minOccurs="0"/>
      <xs:element ref="AssetTypeCodePerformance" minOccurs="0"/>
      <xs:element ref="AssetTypeColorCode" minOccurs="0"/>
      <xs:element ref="AssetTypeConstituentsDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeFeaturesDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeFinishDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeGradeDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeMaterialDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeShapeDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeSizeDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeSustainabilityPerformanceDescription" minOccurs="0"/>
    </xs:sequence>
  </xs:group>
  <xs:complexType name="AssetTypeInfoType">
    <xs:annotation>
      <xs:documentation>A minimum of one COBie.Type record is required for all COBie deliverables
related to equipment Type information.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="AssetTypeInfoType">
        <xs:sequence>
          <xs:group ref="ts:AssetTypeReadOnlyGroup"/>
          <xs:group ref="ts:AssetTypeGroup"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ProductTypeSelectionClientRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:ClientRequestExchangeType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ProductTypeSelectionCreateRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:CreateRequestType">
        <xs:choice>
          <xs:element ref="ts:CreateAssetTypeAttributeRequest"/>
        </xs:choice>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>

```

```

                <xs:element ref="ts:CreateAssetTypeDocumentRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeSelectionDeleteRequestType">
    <xs:complexContent>
        <xs:extension base="Icie>DeleteRequestType">
            <xs:choice>
                <xs:element ref="ts>DeleteAssetTypeDocumentRequest"/>
                <xs:element ref="ts>DeleteAssetTypeAttributeRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeSelectionServerResponseType">
    <xs:complexContent>
        <xs:extension base="Icie>ServerResponseExchangeType">
        </xs:complexContent>
    </xs:complexType>
<xs:complexType name="ProductTypeSelectionType">
    <xs:complexContent>
        <xs:extension base="Icie>InformationExchangeComplexType">
            <xs:sequence>
                <xs:element ref="AssetTypes"/>
                <xs:element ref="Contacts"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeSelectionUpdateRequestType">
    <xs:complexContent>
        <xs:extension base="Icie>UpdateRequestType">
            <xs:choice>
                <xs:element ref="ts>UpdateAssetTypeAttributeRequest"/>
                <xs:element ref="ts>UpdateAssetTypeDocumentRequest"/>
                <xs:element ref="ts>UpdateAssetTypeRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeSelectClientRequestType">
    <xs:complexContent>
        <xs:extension base="Icie>ClientRequestExchangeType"/>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeSelectCreateAttributeRequestType">
    <xs:complexContent>
        <xs:extension base="Icie>CreateAttributeRequestType">
            <xs:sequence>
                <xs:element ref="ts>ProductTypeSelectionKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeSelectCreateDocumentRequestType">
    <xs:complexContent>
        <xs:extension base="Icie>CreateDocumentRequestType">
            <xs:sequence>
                <xs:element ref="ts>ProductTypeSelectionKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="TypeSelectDeleteAttributeRequestType">
    <xs:complexContent>
        <xs:extension base="Icie>DeleteAttributeRequestType">
            <xs:sequence>
                <xs:element ref="ts>ProductTypeSelectionKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

```

```

        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
  </xs:complexType name="TypeSelectDeleteDocumentRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:DeleteDocumentRequestType">
        <xs:sequence>
          <xs:element ref="ts:ProductTypeSelectionKey"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  </xs:complexType name="TypeSelectReadResultType">
    <xs:complexContent>
      <xs:extension base="Icie:ReadResultType">
        <xs:sequence>
          <xs:element ref="AssetType"/>
          <xs:element ref="Contacts"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  </xs:complexType name="TypeSelectServerResponseType">
    <xs:complexContent>
      <xs:extension base="Icie:ServerResponseExchangeType"/>
    </xs:complexContent>
  </xs:complexType>
  </xs:complexType name="TypeSelectUpdateAttributeRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:UpdateAttributeRequestType">
        <xs:sequence>
          <xs:element ref="ts:ProductTypeSelectionKey"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  </xs:complexType name="TypeSelectUpdateDocumentRequestType">
    <xs:complexContent>
      <xs:extension base="Icie:UpdateDocumentRequestType">
        <xs:sequence>
          <xs:element ref="ts:ProductTypeSelectionKey"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  </xs:complexType name="TypeSelectUpdateRequestType">
    <xs:sequence>
      <xs:element ref="ts:ProductTypeSelectionKey"/>
      <xs:element ref="AssetTypeAttributes" minOccurs="0"/>
      <xs:element ref="AssetTypeDocuments" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="ProductTypeSelection" type="ts:ProductTypeSelectionType"
substitutionGroup="Icie:InformationExchange"/>
  <xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
substitutionGroup="Icie:InformationExchangeID" fixed="180.01_ProductTypeSelection"/>
  <xs:element name="AssetType" type="ts:AssetTypeInfoType" substitutionGroup="AssetType">
    <xs:annotation>
      <xs:documentation>A minimum of one AssetType record is required for all COBie deliverables
related to equipment Type information. AssetType is associated with one or more Assets.</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="ProductTypeSelectionCreateRequest" type="ts:ProductTypeSelectionCreateRequestType"
substitutionGroup="Icie:CreateRequest"/>
  <xs:element name="ProductTypeSelectionUpdateRequest" type="ts:ProductTypeSelectionUpdateRequestType"
substitutionGroup="Icie:UpdateRequest"/>
  <xs:element name="ProductTypeSelectionDeleteRequest" type="ts:ProductTypeSelectionDeleteRequestType"
substitutionGroup="Icie>DeleteRequest"/>
  <xs:element name="ProductTypeSelectionReadResult" type="ts:TypeSelectReadResultType"
substitutionGroup="Icie:ReadResult"/>

```

```

<xs:element name="ProductTypeSelectionKey" type="AssetTypeKeyType" substitutionGroup="Icie:Key"/>
<xs:element name="DeleteAssetTypeAttributeRequest" type="ts:TypeSelectDeleteAttributeRequestType"/>
<xs:element name="CreateAssetTypeAttributeRequest" type="ts:TypeSelectCreateAttributeRequestType"/>
<xs:element name="UpdateAssetTypeAttributeRequest" type="ts:TypeSelectUpdateAttributeRequestType"/>
<xs:element name="DeleteAssetTypeDocumentRequest" type="ts:TypeSelectDeleteDocumentRequestType"/>
<xs:element name="CreateAssetTypeDocumentRequest" type="ts:TypeSelectCreateDocumentRequestType"/>
<xs:element name="UpdateAssetTypeDocumentRequest" type="ts:TypeSelectUpdateDocumentRequestType"/>
<xs:element name="UpdateAssetTypeRequest" type="ts:TypeSelectUpdateRequestType"/>
<xs:element name="ProductTypeSelection_180_Request" type="ts:ProductTypeSelectionClientRequestType"/>
<xs:element name="ProductTypeSelection_180_ServerResponse"
type="ts:ProductTypeSelectionServerResponseType"/>
</xs:schema>

```

1.7 210.01 Product Installation Report Namespace Definition

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:Icie="http://docs.buildingsmartalliance.org/nbims03/Icie/core"
xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:camed="http://jcam.org.uk/editor"
xmlns:pi="http://docs.buildingsmartalliance.org/nbims03/Icie/21001ProductInstallationReport"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/Icie/21001ProductInstallationReport"
elementFormDefault="unqualified" attributeFormDefault="unqualified" version="RC4">
<xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../cobie/core.xsd"/>
<xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/Icie/core" schemaLocation="core.xsd"/>
<xs:group name="AssetCreateGroup">
<xs:sequence>
<xs:element ref="AssetSerialNumber">
<xs:annotation>
<xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
</xs:annotation>
</xs:element>
<xs:element ref="AssetInstallationDate">
<xs:annotation>
<xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
</xs:annotation>
</xs:element>
<xs:element ref="AssetStartDate" minOccurs="0">
<xs:annotation>
<xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
</xs:annotation>
</xs:element>
<xs:element ref="AssetInstalledModelNumber" minOccurs="0">
<xs:annotation>
<xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
</xs:annotation>
</xs:element>
<xs:element ref="AssetTagNumber" minOccurs="0">
<xs:annotation>
<xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
</xs:annotation>
</xs:element>
<xs:element ref="AssetBarCode" minOccurs="0">
<xs:annotation>
<xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
</xs:annotation>
</xs:element>
<xs:element ref="AssetIdentifier" minOccurs="0">
<xs:annotation>
<xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
</xs:annotation>
</xs:element>
<xs:element ref="AssetLocationDescription" minOccurs="0">
<xs:annotation>
<xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
</xs:annotation>
</xs:element>
<xs:element ref="AssetAttributes" minOccurs="0">
<xs:annotation>
<xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
</xs:annotation>
</xs:element>

```

```

        </xs:element>
        <xs:element ref="AssetDocuments" minOccurs="0">
          <xs:annotation>
            <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:group>
    <xs:group name="AssetReadOnlyGroup">
      <xs:sequence>
        <xs:element ref="AssetDescription"/>
      </xs:sequence>
    </xs:group>
    <xs:group name="AssetTypeGroup">
      <xs:sequence>
        <xs:element ref="AssetTypeAttributes" minOccurs="0">
          <xs:annotation>
            <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:group>
    <xs:group name="AssetTypeReadOnlyGroup">
      <xs:sequence>
        <xs:element ref="AssetTypeDescription"/>
        <xs:element ref="AssetTypeModelNumber"/>
        <xs:element ref="AssetTypeReplacementCostValue" minOccurs="0"/>
        <xs:element ref="AssetTypeExpectedLifeValue" minOccurs="0"/>
        <xs:element ref="AssetTypeNominalLength" minOccurs="0"/>
        <xs:element ref="AssetTypeNominalWidth" minOccurs="0"/>
        <xs:element ref="AssetTypeNominalHeight" minOccurs="0"/>
        <xs:element ref="AssetTypeAccessibilityText" minOccurs="0"/>
        <xs:element ref="AssetTypeCodePerformance" minOccurs="0"/>
        <xs:element ref="AssetTypeColorCode" minOccurs="0"/>
        <xs:element ref="AssetTypeConstituentsDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeFeaturesDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeFinishDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeGradeDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeMaterialDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeShapeDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeSizeDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeSustainabilityPerformanceDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeManufacturerContactAssignments"/>
        <xs:element ref="Assets"/>
      </xs:sequence>
    </xs:group>
    <xs:group name="AssetUpdateGroup">
      <xs:sequence>
        <xs:element ref="AssetSerialNumber" minOccurs="0">
          <xs:annotation>
            <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="AssetInstallationDate" minOccurs="0">
          <xs:annotation>
            <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="AssetStartDate" minOccurs="0">
          <xs:annotation>
            <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="AssetInstalledModelNumber" minOccurs="0">
          <xs:annotation>
            <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
          </xs:annotation>
        </xs:element>
        <xs:element ref="AssetTagNumber" minOccurs="0">
          <xs:annotation>

```

```

                <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetBarCode" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetIdentifier" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetLocationDescription" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetDocuments" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
            </xs:annotation>
        </xs:element>
    </xs:sequence>
</xs:group>
<xs:complexType name="InstallReadResultType">
    <xs:complexContent>
        <xs:extension base="Icie:ReadResultType">
            <xs:sequence>
                <xs:element ref="AssetType"/>
                <xs:element ref="Contacts"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInstallationAssetType">
    <xs:complexContent>
        <xs:extension base="AssetInfoType">
            <xs:sequence>
                <xs:group ref="pi:AssetReadOnlyGroup"/>
                <xs:group ref="pi:AssetCreateGroup"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInstallationAssetTypeType">
    <xs:complexContent>
        <xs:extension base="AssetTypeInfoType">
            <xs:sequence>
                <xs:group ref="pi:AssetTypeReadOnlyGroup"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInstallationCreateAttributeRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:CreateAttributeRequestType">
            <xs:sequence>
                <xs:element ref="pi:ProductInstallationKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInstallationCreateDocumentRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:CreateDocumentRequestType">
            <xs:sequence>
                <xs:element ref="pi:ProductInstallationKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

```

```

        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductInstallationClientRequestType">
        <xs:complexContent>
            <xs:extension base="Icie:ClientRequestExchangeType"/>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductInstallationCreateRequestType">
        <xs:complexContent>
            <xs:extension base="Icie:CreateRequestType">
                <xs:choice>
                    <xs:element ref="pi:CreateAssetAttributeRequest"/>
                    <xs:element ref="pi:CreateAssetDocumentRequest"/>
                </xs:choice>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductInstallationDeleteDocumentRequestType">
        <xs:complexContent>
            <xs:extension base="Icie>DeleteDocumentRequestType">
                <xs:sequence>
                    <xs:element ref="pi:ProductInstallationKey"/>
                </xs:sequence>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductInstallationDeleteRequestType">
        <xs:complexContent>
            <xs:extension base="Icie>DeleteRequestType">
                <xs:choice>
                    <xs:element ref="pi>DeleteAssetDocumentRequest"/>
                </xs:choice>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductInstallationReportType">
        <xs:complexContent>
            <xs:extension base="Icie:InformationExchangeComplexType">
                <xs:sequence>
                    <xs:element ref="AssetTypes"/>
                    <xs:element ref="Contacts"/>
                </xs:sequence>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductInstallationUpdateAssetAttributeRequestType">
        <xs:complexContent>
            <xs:extension base="Icie:UpdateAttributeRequestType">
                <xs:sequence>
                    <xs:element ref="pi:ProductInstallationKey"/>
                </xs:sequence>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductInstallationUpdateAssetDocumentRequestType">
        <xs:complexContent>
            <xs:extension base="Icie:UpdateDocumentRequestType">
                <xs:sequence>
                    <xs:element ref="pi:ProductInstallationKey"/>
                </xs:sequence>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="ProductInstallationUpdateAssetInfoType">
        <xs:sequence>
            <xs:element ref="pi:ProductInstallationKey"/>
            <xs:group ref="pi:AssetUpdateGroup"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ProductInstallationUpdateRequestType">

```



```

    <xs:complexContent>
      <xs:extension base="Icie:UpdateRequestType">
        <xs:choice>
          <xs:element ref="pi:UpdateAssetRequest"/>
          <xs:element ref="pi:UpdateAssetDocumentRequest"/>
          <xs:element ref="pi:UpdateAssetAttributeRequest"/>
        </xs:choice>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ProductInstallationServerResponseType">
    <xs:complexContent>
      <xs:extension base="Icie:ServerResponseExchangeType"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="Asset" type="pi:ProductInstallationAssetType" substitutionGroup="Asset"/>
  <xs:element name="AssetType" type="pi:ProductInstallationAssetType Type" substitutionGroup="AssetType"/>
  <xs:element name="AssetTypeKey" type="AssetTypeKeyType"/>
  <xs:element name="CreateAssetDocumentRequest" type="pi:ProductInstallationCreateDocumentRequestType"/>
  <xs:element name="CreateAssetAttributeRequest" type="pi:ProductInstallationCreateAttributeRequestType"/>
  <xs:element name="DeleteAssetDocumentRequest" type="pi:ProductInstallationDeleteDocumentRequestType"/>
  <xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
substitutionGroup="Icie:InformationExchangeID" fixed="210.01_ProductInstallationReport"/>
  <xs:element name="ProductInstallationCreateRequest" type="pi:ProductInstallationCreateRequestType"
substitutionGroup="Icie:CreateRequest"/>
  <xs:element name="ProductInstallationDeleteRequest" type="pi:ProductInstallationDeleteRequestType"
substitutionGroup="Icie:DeleteRequest"/>
  <xs:element name="ProductInstallationKey" type="AssetKeyType" substitutionGroup="Icie:Key"/>
  <xs:element name="ProductInstallationReport" type="pi:ProductInstallationReportType"
substitutionGroup="Icie:InformationExchange"/>
  <xs:element name="ProductInstallationReport_210_Request" type="pi:ProductInstallationClientRequestType"/>
  <xs:element name="ProductInstallationReport_210_ServerResponse"
type="pi:ProductInstallationServerResponseType"/>
  <xs:element name="ProductInstallationReportReadResult" type="pi:InstallReadResultType"
substitutionGroup="Icie:ReadResult"/>
  <xs:element name="ProductInstallationUpdateRequest" type="pi:ProductInstallationUpdateRequestType"
substitutionGroup="Icie:UpdateRequest"/>
  <xs:element name="UpdateAssetAttributeRequest" type="pi:ProductInstallationUpdateAssetAttributeRequestType"/>
  <xs:element name="UpdateAssetDocumentRequest" type="pi:ProductInstallationUpdateAssetDocumentRequestType"/>
  <xs:element name="UpdateAssetRequest" type="pi:ProductInstallationUpdateAssetInfoType"/>
</xs:schema>

```

1.8 230.01 Product Inspection Namespace Definition

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:Icie="http://docs.buildingsmartalliance.org/nbims03/Icie/core"
xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:camed="http://jcam.org.uk/editor"
xmlns:pi="http://docs.buildingsmartalliance.org/nbims03/Icie/23001ProductInspection"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/Icie/23001ProductInspection" elementFormDefault="unqualified"
attributeFormDefault="unqualified" version="RC4">
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="..../cobie/core.xsd"/>
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/Icie/core" schemaLocation="core.xsd"/>
  <xs:group name="AssetCreateGroup">
    <xs:sequence>
      <xs:element ref="AssetSerialNumber" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetInstallationDate" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetWarrantyStartDate">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetDocuments" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetReadOnlyGroup">
    <xs:sequence>
      <xs:element ref="AssetDescription"/>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetTypeGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeAttributes" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetTypeIssues" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetTypeReadOnlyGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeCategory"/>
      <xs:element ref="AssetTypeDescription"/>
      <xs:element ref="AssetTypeAccountingCategory"/>
      <xs:element ref="AssetTypeModelNumber"/>
      <xs:element ref="AssetTypeReplacementCostValue" minOccurs="0"/>
      <xs:element ref="AssetTypeExpectedLifeValue" minOccurs="0"/>
      <xs:element ref="AssetTypeNominalLength" minOccurs="0"/>
      <xs:element ref="AssetTypeNominalWidth" minOccurs="0"/>
      <xs:element ref="AssetTypeNominalHeight" minOccurs="0"/>
      <xs:element ref="AssetTypeAccessibilityText" minOccurs="0"/>
      <xs:element ref="AssetTypeCodePerformance" minOccurs="0"/>
      <xs:element ref="AssetTypeColorCode" minOccurs="0"/>
      <xs:element ref="AssetTypeConstituentsDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeFeaturesDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeFinishDescription" minOccurs="0"/>
      <xs:element ref="AssetTypeGradeDescription" minOccurs="0"/>
    </xs:sequence>
  </xs:group>

```

```

        <xs:element ref="AssetTypeMaterialDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeShapeDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeSizeDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeSustainabilityPerformanceDescription" minOccurs="0"/>
        <xs:element ref="AssetTypeManufacturerContactAssignments"/>
        <xs:element ref="Assets"/>
    </xs:sequence>
</xs:group>
<xs:group name="AssetUpdateGroup">
    <xs:sequence>
        <xs:element ref="AssetSerialNumber" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetInstallationDate" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetWarrantyStartDate" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
            </xs:annotation>
        </xs:element>
        <xs:element ref="AssetDocuments" minOccurs="0">
            <xs:annotation>
                <xs:appinfo source="urn:Icie:ReadOnly">>false</xs:appinfo>
            </xs:annotation>
        </xs:element>
    </xs:sequence>
</xs:group>
<xs:complexType name="InstallReadResultType">
    <xs:complexContent>
        <xs:extension base="Icie:ReadResultType">
            <xs:sequence>
                <xs:element ref="AssetType"/>
                <xs:element ref="Contacts"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionAssetType">
    <xs:complexContent>
        <xs:extension base="AssetInfoType">
            <xs:sequence>
                <xs:group ref="pi:AssetReadOnlyGroup"/>
                <xs:group ref="pi:AssetCreateGroup"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionAssetTypeType">
    <xs:complexContent>
        <xs:extension base="AssetTypeInfoType">
            <xs:sequence>
                <xs:group ref="pi:AssetTypeReadOnlyGroup"/>
                <xs:group ref="pi:AssetTypeGroup"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionCreateAssetTypeIssueRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:CreateIssueRequestType">
            <xs:sequence>
                <xs:element ref="pi:ProductInspectionKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

```

```

</xs:complexType>
<xs:complexType name="ProductInspectionCreateDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:CreateDocumentRequestType">
      <xs:sequence>
        <xs:element ref="pi:ProductInspectionKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionCreateRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:CreateRequestType">
      <xs:choice>
        <xs:element ref="pi:CreateAssetDocumentRequest"/>
        <xs:element ref="pi:CreateAssetTypeIssueRequest"/>
      </xs:choice>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionClientRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:ClientRequestExchangeType"/>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionDeleteAssetTypeIssueRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteIssueRequestType">
      <xs:sequence>
        <xs:element ref="pi:ProductInspectionKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionDeleteDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteDocumentRequestType">
      <xs:sequence>
        <xs:element ref="pi:ProductInspectionKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionDeleteRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteRequestType">
      <xs:choice>
        <xs:element ref="pi:DeleteAssetDocumentRequest"/>
        <xs:element ref="pi:DeleteAssetTypeIssueRequest"/>
      </xs:choice>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionServerResponseType">
  <xs:complexContent>
    <xs:extension base="Icie:ServerResponseExchangeType"/>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionType">
  <xs:complexContent>
    <xs:extension base="Icie:InformationExchangeComplexType">
      <xs:sequence>
        <xs:element ref="AssetTypes"/>
        <xs:element ref="Contacts"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductInspectionUpdateAssetInfoType">
  <xs:sequence>

```

```

                <xs:element ref="pi:ProductInspectionKey"/>
                <xs:group ref="pi:AssetUpdateGroup"/>
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="ProductInspectionUpdateAssetTypeInfoType">
            <xs:sequence>
                <xs:element ref="pi:AssetTypeKey"/>
                <xs:group ref="pi:AssetTypeGroup"/>
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="ProductInspectionUpdateAssetTypeAttributeRequestType">
            <xs:complexContent>
                <xs:extension base="Icie:UpdateAttributeRequestType">
                    <xs:sequence>
                        <xs:element ref="pi:AssetTypeKey"/>
                    </xs:sequence>
                </xs:extension>
            </xs:complexContent>
        </xs:complexType>
        <xs:complexType name="ProductInspectionUpdateAssetDocumentRequestType">
            <xs:complexContent>
                <xs:extension base="Icie:UpdateDocumentRequestType">
                    <xs:sequence>
                        <xs:element ref="pi:ProductInspectionKey"/>
                    </xs:sequence>
                </xs:extension>
            </xs:complexContent>
        </xs:complexType>
        <xs:complexType name="ProductInspectionUpdateAssetTypeIssueRequestType">
            <xs:complexContent>
                <xs:extension base="Icie:UpdateIssueRequestType">
                    <xs:sequence>
                        <xs:element ref="pi:ProductInspectionKey"/>
                    </xs:sequence>
                </xs:extension>
            </xs:complexContent>
        </xs:complexType>
        <xs:complexType name="ProductInspectionUpdateRequestType">
            <xs:complexContent>
                <xs:extension base="Icie:UpdateRequestType">
                    <xs:choice>
                        <xs:element ref="pi:UpdateAssetRequest"/>
                        <xs:element ref="pi:UpdateAssetTypeRequest"/>
                        <xs:element ref="pi:UpdateAssetDocumentRequest"/>
                        <xs:element ref="pi:UpdateAssetTypeIssueRequest"/>
                        <xs:element ref="pi:UpdateAssetTypeAttributeRequest"/>
                    </xs:choice>
                </xs:extension>
            </xs:complexContent>
        </xs:complexType>
        <xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
            substitutionGroup="Icie:InformationExchangeID" fixed="230.01_ProductInspection"/>
        <xs:element name="Asset" type="pi:ProductInspectionAssetType" substitutionGroup="Asset"/>
        <xs:element name="AssetType" type="pi:ProductInspectionAssetTypeType" substitutionGroup="AssetType"/>
        <xs:element name="AssetTypeKey" type="AssetTypeKeyType"/>
        <xs:element name="CreateAssetDocumentRequest" type="pi:ProductInspectionCreateDocumentRequestType"/>
        <xs:element name="CreateAssetTypeIssueRequest" type="pi:ProductInspectionCreateAssetTypeIssueRequestType"/>
        <xs:element name="DeleteAssetDocumentRequest" type="pi:ProductInspectionDeleteDocumentRequestType"/>
        <xs:element name="DeleteAssetTypeIssueRequest" type="pi:ProductInspectionDeleteAssetTypeIssueRequestType"/>
        <xs:element name="ProductInspectionCreateRequest" type="pi:ProductInspectionCreateRequestType"
            substitutionGroup="Icie:CreateRequest"/>
        <xs:element name="ProductInspectionDeleteRequest" type="pi:ProductInspectionDeleteRequestType"
            substitutionGroup="Icie:DeleteRequest"/>
        <xs:element name="ProductInspection" type="pi:ProductInspectionType" substitutionGroup="Icie:InformationExchange"/>
        <xs:element name="ProductInspectionKey" type="AssetKeyType" substitutionGroup="Icie:Key"/>
        <xs:element name="ProductInspectionReadResult" type="pi:InstallReadResultType"
            substitutionGroup="Icie:ReadResult"/>
        <xs:element name="ProductInspectionUpdateRequest" type="pi:ProductInspectionUpdateRequestType"
            substitutionGroup="Icie:UpdateRequest"/>
        <xs:element name="UpdateAssetDocumentRequest" type="pi:ProductInspectionUpdateAssetDocumentRequestType"/>
    
```

```

    <xs:element name="UpdateAssetRequest" type="pi:ProductInspectionUpdateAssetInfoType"/>
    <xs:element name="UpdateAssetTypeAttributeRequest"
type="pi:ProductInspectionUpdateAssetTypeAttributeRequestType"/>
    <xs:element name="UpdateAssetTypeIssueRequest" type="pi:ProductInspectionUpdateAssetTypeIssueRequestType"/>
    <xs:element name="UpdateAssetTypeRequest" type="pi:ProductInspectionUpdateAssetTypeInfoType"/>
</xs:schema>

```

1.9 250.01 Product Type Parts Namespace Definition

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:lcie="http://docs.buildingsmartalliance.org/nbims03/lcie/core"
xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:came="http://jcam.org.uk/editor"
xmlns:ptp="http://docs.buildingsmartalliance.org/nbims03/lcie/25001ProductTypeParts"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/lcie/25001ProductTypeParts" elementFormDefault="unqualified"
attributeFormDefault="unqualified" version="RC4">
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../cobie/core.xsd"/>
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/lcie/core" schemaLocation="core.xsd"/>
  <xs:group name="AssetTypeGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeDocuments" minOccurs="0">
        <xs:annotation>
          <xs:appinfo source="urn:lcie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="Spares">
        <xs:annotation>
          <xs:appinfo source="urn:lcie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetTypeReadOnlyGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeCategory"/>
      <xs:element ref="AssetTypeDescription"/>
      <xs:element ref="AssetTypeModelNumber"/>
      <xs:element ref="AssetTypeManufacturerContactAssignments"/>
    </xs:sequence>
  </xs:group>
  <xs:group name="SpareCreateGroup">
    <xs:sequence>
      <xs:element ref="SpareDescription" minOccurs="0"/>
      <xs:element ref="SpareSetNumber" minOccurs="0"/>
      <xs:element ref="SparePartNumber" minOccurs="0"/>
      <xs:element ref="SpareSupplierContactAssignments"/>
      <xs:element ref="SpareAttributes" minOccurs="0"/>
      <xs:element ref="SpareDocuments" minOccurs="0"/>
    </xs:sequence>
  </xs:group>
  <xs:group name="SpareUpdateGroup">
    <xs:sequence>
      <xs:element ref="SpareDescription" minOccurs="0"/>
      <xs:element ref="SpareSetNumber" minOccurs="0"/>
      <xs:element ref="SparePartNumber" minOccurs="0"/>
      <xs:element ref="SpareSupplierContactAssignments" minOccurs="0"/>
      <xs:element ref="SpareAttributes" minOccurs="0"/>
      <xs:element ref="SpareDocuments" minOccurs="0"/>
    </xs:sequence>
  </xs:group>
  <xs:complexType name="CreateAttributeRequestType">
    <xs:complexContent>
      <xs:extension base="lcie:CreateAttributeRequestType">
        <xs:sequence>
          <xs:element ref="ptp:ProductTypePartsKey"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>

```

```

</xs:complexType>
<xs:complexType name="CreateDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:CreateDocumentRequestType">
      <xs:sequence>
        <xs:element ref="ptp:ProductTypePartsKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CreateSpareType">
  <xs:sequence>
    <xs:element ref="ptp:ProductTypePartsKey"/>
    <xs:group ref="ptp:SpareCreateGroup"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DeleteAttributeRequestType">
  <xs:complexContent>
    <xs:extension base="Icie>DeleteAttributeRequestType">
      <xs:sequence>
        <xs:element ref="ptp:ProductTypePartsKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="DeleteDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie>DeleteDocumentRequestType">
      <xs:sequence>
        <xs:element ref="ptp:ProductTypePartsKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="DeleteSpareType">
  <xs:sequence>
    <xs:element ref="ptp:ProductTypePartsKey"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="InstallReadResultType">
  <xs:complexContent>
    <xs:extension base="Icie:ReadResultType">
      <xs:sequence>
        <xs:element ref="AssetType"/>
        <xs:element ref="Contacts"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductPartsAssetTypeType">
  <xs:complexContent>
    <xs:extension base="AssetTypeInfoType">
      <xs:sequence>
        <xs:group ref="ptp:AssetTypeReadOnlyGroup"/>
        <xs:group ref="ptp:AssetTypeGroup"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductPartsSpareType">
  <xs:complexContent>
    <xs:extension base="SpareType">
      <xs:sequence>
        <xs:group ref="ptp:SpareCreateGroup"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductPartsType">
  <xs:complexContent>

```

```

        <xs:extension base="Icie:InformationExchangeComplexType">
            <xs:sequence>
                <xs:element ref="AssetTypes"/>
                <xs:element ref="Contacts"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypePartsClientRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:ClientRequestExchangeType"/>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypePartsCreateRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:CreateRequestType">
            <xs:choice>
                <xs:element ref="ptp:CreateSpareDocumentRequest"/>
                <xs:element ref="ptp:CreateSpareRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypePartsDeleteRequestType">
    <xs:complexContent>
        <xs:extension base="Icie>DeleteRequestType">
            <xs:choice>
                <xs:element ref="ptp>DeleteSpareDocumentRequest"/>
                <xs:element ref="ptp>DeleteSpareRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypePartsServerResponseType">
    <xs:complexContent>
        <xs:extension base="Icie:ServerResponseExchangeType"/>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="UpdateAssetTypeInfoType">
    <xs:sequence>
        <xs:element ref="ptp:AssetTypeKey"/>
        <xs:element ref="AssetTypeDocuments"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="UpdateAttributeRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:UpdateAttributeRequestType">
            <xs:sequence>
                <xs:element ref="ptp:ProductTypePartsKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="UpdateDocumentRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:UpdateDocumentRequestType">
            <xs:sequence>
                <xs:element ref="ptp:ProductTypePartsKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="UpdateProductTypePartsRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:UpdateRequestType">
            <xs:choice>
                <xs:element ref="ptp:UpdateSpareRequest"/>
                <xs:element ref="ptp:UpdateAssetTypeRequest"/>
                <xs:element ref="ptp:UpdateSpareDocumentRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

```



```

        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="UpdateSpareType">
    <xs:sequence>
        <xs:element ref="ptp:ProductTypePartsKey"/>
        <xs:group ref="ptp:SpareUpdateGroup"/>
    </xs:sequence>
</xs:complexType>
<xs:element name="AssetType" type="ptp:ProductPartsAssetTypeType" substitutionGroup="AssetType"/>
<xs:element name="AssetTypeKey" type="AssetTypeKeyType"/>
<xs:element name="CreateSpareDocumentRequest" type="ptp:CreateDocumentRequestType"/>
<xs:element name="CreateSpareRequest" type="ptp:CreateSpareType"/>
<xs:element name="DeleteSpareDocumentRequest" type="ptp:DeleteDocumentRequestType"/>
<xs:element name="DeleteSpareRequest" type="ptp:DeleteSpareType"/>
<xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
substitutionGroup="Icie:InformationExchangeID" fixed="250.01_ProductTypeParts"/>
<xs:element name="ProductTypeParts" type="ptp:ProductPartsType" substitutionGroup="Icie:InformationExchange"/>
<xs:element name="ProductTypePartsCreateRequest" type="ptp:ProductTypePartsCreateRequestType"
substitutionGroup="Icie:CreateRequest"/>
<xs:element name="ProductTypePartsDeleteRequest" type="ptp:ProductTypePartsDeleteRequestType"
substitutionGroup="Icie:DeleteRequest"/>
<xs:element name="ProductTypePartsKey" type="SpareKeyType" substitutionGroup="Icie:Key"/>
<xs:element name="ProductTypePartsReadResult" type="ptp:InstallReadResultType"
substitutionGroup="Icie:ReadResult"/>
<xs:element name="ProductTypePartsUpdateRequest" type="ptp:UpdateProductTypePartsRequestType"
substitutionGroup="Icie:UpdateRequest"/>
<xs:element name="Spare" type="ptp:ProductPartsSpareType" substitutionGroup="Spare"/>
<xs:element name="SpareName" substitutionGroup="SpareName">
    <xs:annotation>
        <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
    </xs:annotation>
</xs:element>
<xs:element name="UpdateAssetTypeRequest" type="ptp:UpdateAssetTypeInfoType"/>
<xs:element name="UpdateSpareDocumentRequest" type="ptp:UpdateDocumentRequestType"/>
<xs:element name="UpdateSpareRequest" type="ptp:UpdateSpareType"/>
</xs:schema>

```

1.10 250.02 Product Type Warranty Namespace Definition

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:Icie="http://docs.buildingsmartalliance.org/nbims03/Icie/core"
xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:camed="http://jcam.org.uk/editor"
xmlns:ptw="http://docs.buildingsmartalliance.org/nbims03/Icie/25002ProductTypeWarranty"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/Icie/25002ProductTypeWarranty"
elementFormDefault="unqualified" attributeFormDefault="unqualified" version="RC4">
    <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../cobie/core.xsd"/>
    <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/Icie/core" schemaLocation="core.xsd"/>
    <xs:group name="AssetTypeReadOnlyGroup">
        <xs:sequence>
            <xs:element ref="AssetTypeCategory"/>
            <xs:element ref="AssetTypeDescription"/>
            <xs:element ref="AssetTypeModelNumber"/>
            <xs:element ref="AssetTypeManufacturerContactAssignments"/>
        </xs:sequence>
    </xs:group>
    <xs:group name="AssetTypeGroup">
        <xs:sequence>
            <xs:element ref="Warranties">
                <xs:annotation>
                    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:group>
    <xs:complexType name="CreateWarrantyRequestType">
        <xs:sequence>
            <xs:element ref="ptw:AssetTypeKey"/>
            <xs:element ref="WarrantyName" minOccurs="0"/>
        </xs:sequence>
    </xs:complexType>

```

```

        <xs:element ref="WarrantyCategory" minOccurs="0"/>
        <xs:element ref="WarrantyDuration" minOccurs="0"/>
        <xs:element ref="WarrantyGaurantorContactAssignments" minOccurs="0"/>
        <xs:element ref="WarrantyDocuments" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="DeleteWarrantyRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:DeleteRequestType">
            <xs:sequence>
                <xs:element ref="ptw:ProductTypeWarrantyKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductWarrantyAssetTypeType">
    <xs:complexContent>
        <xs:extension base="AssetTypeInfoType">
            <xs:sequence>
                <xs:group ref="ptw:AssetTypeReadOnlyGroup"/>
                <xs:group ref="ptw:AssetTypeGroup"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeWarrantyClientRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:ClientRequestExchangeType"/>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeWarrantyCreateDocumentRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:CreateDocumentRequestType">
            <xs:sequence>
                <xs:element ref="ptw:ProductTypeWarrantyKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeWarrantyCreateRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:CreateRequestType">
            <xs:choice>
                <xs:element ref="ptw:CreateWarrantyDocumentRequest"/>
                <xs:element ref="ptw:CreateWarrantyRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeWarrantyDeleteDocumentRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:DeleteDocumentRequestType">
            <xs:sequence>
                <xs:element ref="ptw:ProductTypeWarrantyKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeWarrantyDeleteRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:DeleteRequestType">
            <xs:choice>
                <xs:element ref="ptw:DeleteWarrantyDocumentRequest"/>
                <xs:element ref="ptw:DeleteWarrantyRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeWarrantyServerResponseType">
    <xs:complexContent>

```

```

        <xs:extension base="Icie:ServerResponseExchangeType"/>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeWarrantyUpdateDocumentRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:UpdateDocumentRequestType">
            <xs:sequence>
                <xs:element ref="ptw:ProductTypeWarrantyKey"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeWarrantyUpdateRequestType">
    <xs:sequence>
        <xs:element ref="ptw:ProductTypeWarrantyKey"/>
        <xs:element ref="WarrantyName" minOccurs="0"/>
        <xs:element ref="WarrantyCategory" minOccurs="0"/>
        <xs:element ref="WarrantyDuration" minOccurs="0"/>
        <xs:element ref="WarrantyGaurantorContactAssignments" minOccurs="0"/>
        <xs:element ref="WarrantyDocuments" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="ProductWarrantyType">
    <xs:complexContent>
        <xs:extension base="Icie:InformationExchangeComplexType">
            <xs:sequence>
                <xs:element ref="AssetTypes"/>
                <xs:element ref="Contacts"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="UpdateProductTypeWarrantyRequestType">
    <xs:complexContent>
        <xs:extension base="Icie:UpdateRequestType">
            <xs:choice>
                <xs:element ref="ptw:UpdateWarrantyDocumentRequest"/>
                <xs:element ref="ptw:UpdateWarrantyRequest"/>
            </xs:choice>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="WarrantyReadResultType">
    <xs:complexContent>
        <xs:extension base="Icie:ReadResultType">
            <xs:sequence>
                <xs:element ref="AssetType"/>
                <xs:element ref="Contacts"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="AssetType" type="ptw:ProductWarrantyAssetTypeType" substitutionGroup="AssetType"/>
<xs:element name="AssetTypeKey" type="AssetKeyType"/>
<xs:element name="CreateWarrantyDocumentRequest"
type="ptw:ProductTypeWarrantyCreateDocumentRequestType"/>
<xs:element name="CreateWarrantyRequest" type="ptw:CreateWarrantyRequestType"/>
<xs:element name="DeleteWarrantyDocumentRequest"
type="ptw:ProductTypeWarrantyDeleteDocumentRequestType"/>
<xs:element name="DeleteWarrantyRequest" type="ptw:DeleteWarrantyRequestType"/>
<xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
substitutionGroup="Icie:InformationExchangeID" fixed="250.02_ProductTypeWarranty"/>
<xs:element name="ProductTypeWarranty" type="ptw:ProductWarrantyType"
substitutionGroup="Icie:InformationExchange"/>
<xs:element name="ProductTypeWarrantyCreateRequest" type="ptw:ProductTypeWarrantyCreateRequestType"
substitutionGroup="Icie:CreateRequest"/>
<xs:element name="ProductTypeWarrantyDeleteRequest" type="ptw:ProductTypeWarrantyDeleteRequestType"
substitutionGroup="Icie:DeleteRequest"/>
<xs:element name="ProductTypeWarrantyKey" type="WarrantyKeyType" substitutionGroup="Icie:Key"/>

```

```

        <xs:element name="ProductTypeWarrantyReportReadResult" type="ptw:WarrantyReadResultType"
substitutionGroup="Icie:ReadResult"/>
        <xs:element name="ProductTypeWarrantyUpdateRequest" type="ptw:UpdateProductTypeWarrantyRequestType"
substitutionGroup="Icie:UpdateRequest"/>
        <xs:element name="UpdateWarrantyDocumentRequest"
type="ptw:ProductTypeWarrantyUpdateDocumentRequestType"/>
        <xs:element name="UpdateWarrantyRequest" type="ptw:ProductTypeWarrantyUpdateRequestType"/>
</xs:schema>

```

1.11 250.03 Product Type Maintenance Namespace Definition

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:Icie="http://docs.buildingsmartalliance.org/nbims03/Icie/core"
xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:camed="http://jcam.org.uk/editor"
xmlns:ptm="http://docs.buildingsmartalliance.org/nbims03/Icie/25003ProductTypeMaintenance"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/Icie/25003ProductTypeMaintenance"
elementFormDefault="unqualified" attributeFormDefault="unqualified" version="RC4">
    <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../cobie/core.xsd"/>
    <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/Icie/core" schemaLocation="core.xsd"/>
    <xs:group name="AssetTypeGroup">
        <xs:sequence>
            <xs:element ref="AssetTypeDocuments"/>
            <xs:element ref="Jobs"/>
        </xs:sequence>
    </xs:group>
    <xs:group name="AssetTypeReadOnlyGroup">
        <xs:sequence>
            <xs:element ref="AssetTypeCategory"/>
            <xs:element ref="AssetTypeDescription"/>
            <xs:element ref="AssetTypeManufacturerContactAssignments"/>
            <xs:element ref="AssetTypeModelNumber"/>
            <xs:element ref="Assets"/>
        </xs:sequence>
    </xs:group>
    <xs:group name="JobTypeCreateGroup">
        <xs:sequence>
            <xs:element ref="JobCategory">
                <xs:annotation>
                    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
                </xs:annotation>
            </xs:element>
            <xs:element ref="JobStatus">
                <xs:annotation>
                    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
                </xs:annotation>
            </xs:element>
            <xs:element ref="JobDescription">
                <xs:annotation>
                    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
                </xs:annotation>
            </xs:element>
            <xs:element ref="JobDuration">
                <xs:annotation>
                    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
                </xs:annotation>
            </xs:element>
            <xs:element ref="JobStartDate">
                <xs:annotation>
                    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
                </xs:annotation>
            </xs:element>
            <xs:element ref="JobStartConditionDescription">
                <xs:annotation>
                    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
                </xs:annotation>
            </xs:element>
            <xs:element ref="JobFrequencyValue">
                <xs:annotation>
                    <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:group>

```

```

</xs:element>
<xs:element ref="JobPriorTaskID" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="Resources" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="JobAttributes" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="JobDocuments" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:group>
<xs:group name="JobUpdateGroup">
  <xs:sequence>
    <xs:element ref="JobName" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="JobTaskID" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="JobCategory" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="JobStatus" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="JobDescription" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="JobDuration" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="JobStartDate" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="JobStartConditionDescription" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="JobFrequencyValue" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:group>

```

```

<xs:element ref="JobPriorTaskID" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="Resources" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="JobAttributes" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element ref="JobDocuments" minOccurs="0">
  <xs:annotation>
    <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:group>
<xs:group name="ResourceCreateGroup">
  <xs:sequence>
    <xs:element ref="ResourceCategory">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="ResourceDescription" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="ResourceAttributes" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="ResourceDocuments" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:group>
<xs:group name="ResourceUpdateGroup">
  <xs:sequence>
    <xs:element ref="ResourceName" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="ResourceCategory" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="ResourceDescription" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="ResourceAttributes" minOccurs="0">
      <xs:annotation>
        <xs:appinfo source="urn:Icic:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
    <xs:element ref="ResourceDocuments" minOccurs="0">
      <xs:annotation>

```

```

        <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:group>
<xs:complexType name="AssetTypeInfoType">
  <xs:annotation>
    <xs:documentation>A minimum of one COBie.Type record is required for all COBie deliverables
related to equipment Type information.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="AssetTypeInfoType">
      <xs:sequence>
        <xs:group ref="ptm:AssetTypeReadOnlyGroup"/>
        <xs:group ref="ptm:AssetTypeGroup"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CreateAssetTypeDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:CreateDocumentRequestType">
      <xs:sequence>
        <xs:element ref="ptm:AssetTypeKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CreateJobAttributeRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:CreateAttributeRequestType">
      <xs:sequence>
        <xs:element ref="ptm:JobKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CreateJobDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:CreateDocumentRequestType">
      <xs:sequence>
        <xs:element ref="ptm:JobKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CreateJobType">
  <xs:sequence>
    <xs:element ref="ptm:AssetTypeKey"/>
    <xs:element ref="Job"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="CreateResourceAttributeRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:CreateAttributeRequestType">
      <xs:sequence>
        <xs:element ref="ptm:ResourceKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CreateResourceDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:CreateDocumentRequestType">
      <xs:sequence>
        <xs:element ref="ptm:ResourceKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

```

```

<xs:complexType name="CreateResourceType">
  <xs:sequence>
    <xs:element ref="ptm:JobKey"/>
    <xs:element ref="Resource"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DeleteAssetTypeDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteDocumentRequestType">
      <xs:sequence>
        <xs:element ref="ptm:AssetTypeKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="DeleteJobAttributeRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteAttributeRequestType">
      <xs:sequence>
        <xs:element ref="ptm:JobKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="DeleteJobDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteDocumentRequestType">
      <xs:sequence>
        <xs:element ref="ptm:JobKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="DeleteJobType">
  <xs:sequence>
    <xs:element ref="ptm:JobKey"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DeleteResourceAttributeRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteAttributeRequestType">
      <xs:sequence>
        <xs:element ref="ptm:ResourceKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="DeleteResourceDocumentRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:DeleteDocumentRequestType">
      <xs:sequence>
        <xs:element ref="ptm:ResourceKey"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="DeleteResourceType">
  <xs:sequence>
    <xs:element ref="ptm:ResourceKey"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="JobType">
  <xs:annotation>
    <xs:documentation>A minimum of one COBie.Job record is required for all relevant COBie.Type
objects submitted at the beneficial occupancy or facility handover stage.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="JobType">
      <xs:sequence>
        <xs:group ref="ptm:JobTypeCreateGroup"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

```



```

        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
<xs:complexType name="MaintenanceReadResultType">
  <xs:complexContent>
    <xs:extension base="Icie:ReadResultType">
      <xs:sequence>
        <xs:element ref="AssetType"/>
        <xs:element ref="Contacts"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ResourceType">
  <xs:annotation>
    <xs:documentation>Information about a specific resource.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="ResourceType">
      <xs:sequence>
        <xs:group ref="ptm:ResourceCreateGroup"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductMaintenanceType">
  <xs:complexContent>
    <xs:extension base="Icie:InformationExchangeComplexType">
      <xs:sequence>
        <xs:element ref="AssetTypes"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeMaintenanceClientRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:ClientRequestExchangeType"/>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProductTypeMaintenanceCreateRequestType">
  <xs:complexContent>
    <xs:extension base="Icie:CreateRequestType">
      <xs:choice>
        <xs:element ref="ptm:CreateAssetTypeDocumentRequest"/>
        <xs:element ref="ptm:CreateJobDocumentRequest"/>
        <xs:element ref="ptm:CreateResourceDocumentRequest"/>
        <xs:element ref="ptm:CreateJobAttributeRequest"/>
        <xs:element ref="ptm:CreateResourceAttributeRequest"/>
        <xs:element ref="ptm:CreateJobRequest"/>
        <xs:element ref="ptm:CreateResourceRequest"/>
      </xs:choice>
    </xs:extension>
  </xs:complexContent>
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        <xs:element ref="ptm>DeleteJobDocumentRequest"/>
        <xs:element ref="ptm>DeleteResourceDocumentRequest"/>
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        <xs:element ref="ptm>DeleteJobRequest"/>
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</xs:complexType>

```

```

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        <xs:element ref="ptm:AssetTypeKey"/>
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    </xs:extension>
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</xs:complexType>
<xs:complexType name="UpdateJobAttributeType">
  <xs:complexContent>
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    </xs:extension>
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</xs:complexType>
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        <xs:element ref="ptm:ResourceKey"/>
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    </xs:extension>
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  <xs:complexContent>
    <xs:extension base="Icie:UpdateRequestType">
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        <xs:element ref="ptm:UpdateJobDocumentRequest"/>
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      </xs:choice>
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  </xs:complexContent>
</xs:complexType>

```

```

                <xs:element ref="ptm:UpdateResourceAttributeRequest"/>
                <xs:element ref="ptm:UpdateJobRequest"/>
                <xs:element ref="ptm:UpdateResourceRequest"/>
            </xs:choice>
        </xs:extension>
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    <xs:annotation>
        <xs:documentation>A minimum of one AssetType record is required for all COBie deliverables
related to equipment Type information. AssetType is associated with one or more Assets.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssetTypeKey" type="AssetTypeKeyType" substitutionGroup="Icie:Key"/>
<xs:element name="CreateAssetTypeDocumentRequest" type="ptm:CreateAssetTypeDocumentRequestType"/>
<xs:element name="CreateJobDocumentRequest" type="ptm:CreateJobDocumentRequestType"/>
<xs:element name="CreateResourceDocumentRequest" type="ptm:CreateResourceDocumentRequestType"/>
<xs:element name="CreateJobAttributeRequest" type="ptm:CreateJobAttributeRequestType"/>
<xs:element name="CreateResourceAttributeRequest" type="ptm:CreateResourceAttributeRequestType"/>
<xs:element name="CreateJobRequest" type="ptm:CreateJobType"/>
<xs:element name="CreateResourceRequest" type="ptm:CreateResourceType"/>
<xs:element name="DeleteAssetTypeDocumentRequest" type="ptm:DeleteAssetTypeDocumentRequestType"/>
<xs:element name="DeleteJobAttributeRequest" type="ptm:DeleteJobAttributeRequestType"/>
<xs:element name="DeleteJobDocumentRequest" type="ptm:DeleteJobDocumentRequestType"/>
<xs:element name="DeleteJobRequest" type="ptm:DeleteJobType"/>
<xs:element name="DeleteResourceAttributeRequest" type="ptm:DeleteResourceAttributeRequestType"/>
<xs:element name="DeleteResourceDocumentRequest" type="ptm:DeleteResourceDocumentRequestType"/>
<xs:element name="DeleteResourceRequest" type="ptm:DeleteResourceType"/>
<xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
substitutionGroup="Icie:InformationExchangeID" fixed="250.03_ProductTypeMaintenance"/>
<xs:element name="Job" type="ptm:JobType" substitutionGroup="Job"/>
<xs:element name="JobKey" type="JobKeyType"/>
<xs:element name="ProductTypeMaintenance" type="ptm:ProductMaintenanceType"
substitutionGroup="Icie:InformationExchange"/>
<xs:element name="ProductTypeMaintenanceCreateRequest" type="ptm:ProductTypeMaintenanceCreateRequestType"
substitutionGroup="Icie:CreateRequest"/>
<xs:element name="ProductTypeMaintenanceDeleteRequest" type="ptm:ProductTypeMaintenanceDeleteRequestType"
substitutionGroup="Icie:DeleteRequest"/>
<xs:element name="ProductTypeMaintenanceReadResult" type="ptm:MaintenanceReadResultType"
substitutionGroup="Icie:ReadResult"/>
<xs:element name="ProductTypeMaintenanceUpdateRequest" type="ptm:UpdateProductTypeMaintenanceRequestType"
substitutionGroup="Icie:UpdateRequest"/>
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<xs:element name="UpdateJobRequest" type="ptm:UpdateJobType"/>
<xs:element name="UpdateResourceAttributeRequest" type="ptm:UpdateResourceAttributeType"/>
<xs:element name="UpdateResourceDocumentRequest" type="ptm:UpdateResourceDocumentType"/>
<xs:element name="UpdateResourceRequest" type="ptm:UpdateResourceType"/>
</xs:schema>

```

1.12 250.04 System Operation Namespace Definition

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:Icie="http://docs.buildingsmartalliance.org/nbims03/Icie/core"
  xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core" xmlns:camed="http://jcam.org.uk/editor"
  xmlns:so="http://docs.buildingsmartalliance.org/nbims03/Icie/25004SystemOperation"
  targetNamespace="http://docs.buildingsmartalliance.org/nbims03/Icie/25004SystemOperation" elementFormDefault="unqualified"
  attributeFormDefault="unqualified" version="RC4">
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="../../cobie/core.xsd"/>
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/Icie/core" schemaLocation="core.xsd"/>
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    <xs:sequence>
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        </xs:annotation>
      </xs:element>
      <xs:element ref="AssetSystemAssignments"/>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetReadOnlyGroup">
    <xs:sequence>
      <xs:element ref="AssetDescription"/>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetTypeGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeDocuments"/>
    </xs:sequence>
  </xs:group>
  <xs:group name="AssetTypeReadOnlyGroup">
    <xs:sequence>
      <xs:element ref="AssetTypeCategory"/>
      <xs:element ref="AssetTypeDescription"/>
      <xs:element ref="AssetTypeManufacturerContactAssignments"/>
      <xs:element ref="AssetTypeModelNumber"/>
      <xs:element ref="Assets"/>
    </xs:sequence>
  </xs:group>
  <xs:group name="SpaceCreateGroup">
    <xs:sequence>
      <xs:element ref="SpaceZoneAssignments">
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        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>
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      <xs:element ref="SystemAttributes">
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      </xs:element>
      <xs:element ref="SystemDocuments">
        <xs:annotation>
          <xs:appinfo source="urn:Icie:ReadOnly">false</xs:appinfo>
        </xs:annotation>
      </xs:element>
      <xs:element ref="SystemIssues">
        <xs:annotation>
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  </xs:group>

```

```

</xs:group>
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      </xs:annotation>
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    </xs:element>
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    </xs:element>
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    </xs:element>
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```

```

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        </xs:extension>
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    </xs:complexType>
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        <xs:extension base="Icie:CreateAttributeRequestType">
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        </xs:extension>
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    </xs:complexType>
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          </xs:sequence>
        </xs:extension>
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            <xs:element ref="so:ZoneKey"/>
          </xs:sequence>
        </xs:extension>
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    </xs:complexType>

```

```

        </xs:extension>
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        </xs:extension>
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        </xs:extension>
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          </xs:sequence>
        </xs:extension>
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          </xs:sequence>
        </xs:extension>
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    </xs:complexType>

```

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    </xs:extension>
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related to equipment Type information.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="AssetInfoType">
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related to equipment Type information.</xs:documentation>
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    </xs:extension>
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  <xs:complexContent>
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```



```

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  </xs:complexContent>
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  <xs:complexContent>
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      <xs:choice>
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        <xs:element ref="so:CreateZoneIssueRequest"/>
        <xs:element ref="so:CreateZoneAttributeRequest"/>
        <xs:element ref="so:CreateZoneDocumentRequest"/>
        <xs:element ref="so:CreateSystemIssueRequest"/>
        <xs:element ref="so:CreateSystemAttributeRequest"/>
        <xs:element ref="so:CreateSystemDocumentRequest"/>
        <xs:element ref="so:CreateAssetTypeDocumentRequest"/>
      </xs:choice>
    </xs:extension>
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        <xs:element ref="so>DeleteZoneIssueRequest"/>
        <xs:element ref="so>DeleteZoneAttributeRequest"/>
        <xs:element ref="so>DeleteZoneDocumentRequest"/>
        <xs:element ref="so>DeleteSystemIssueRequest"/>
        <xs:element ref="so>DeleteSystemAttributeRequest"/>
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        <xs:element ref="so>DeleteAssetTypeDocumentRequest"/>
      </xs:choice>
    </xs:extension>
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        <xs:element ref="AssetTypes"/>
        <xs:element ref="Floors"/>
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</xs:complexType>

```

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                <xs:element ref="so:UpdateAssetRequest"/>
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                <xs:element ref="so:UpdateZoneAttributeRequest"/>
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                <xs:element ref="so:UpdateSystemIssueRequest"/>
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</xs:complexType>

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    <xs:element name="CreateSystemAttributeRequest" type="so:CreateSystemAttributeRequestType"/>
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    <xs:element name="CreateSystemIssueRequest" type="so:CreateSystemIssueRequestType"/>
    <xs:element name="CreateZoneAttributeRequest" type="so:CreateZoneAttributeRequestType"/>
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    <xs:element name="DeleteSystemIssueRequest" type="so:DeleteSystemIssueRequestType"/>
    <xs:element name="DeleteSystemRequest" type="so:DeleteSystemRequestType"/>
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    <xs:element name="DeleteZoneIssueRequest" type="so:DeleteZoneIssueRequestType"/>
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    <xs:element name="InformationExchangeID" type="Icie:InformationExchangeSimpleType"
substitutionGroup="Icie:InformationExchangeID" fixed="250.04_SystemOperation"/>
    <xs:element name="Space" type="so:OperationSpaceType" substitutionGroup="Space"/>
    <xs:element name="SpaceKey" type="SpaceKeyType"/>
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