

## **Annex A**

### **COBie Mapping Rules**

#### **A.1 Introduction**

COBie is a specification for the exchange of a specific subset of building information. This data model is provided in the main body of the standard using the buildingSMART Information Delivery Manual (see COBie 2.4 Sections 5 and 6) and Model View Definition (see COBie 2.4 Section 7).

The use of that COBie data model specification may be expressed in multiple formats (see COBie 2.4 Section 7.13). Two of these formats, the Industry Foundation Class (IFC) mode and the XML expression of IFC called ifcXML, are fully specified by the buildingSMART international. Two additional formats, an XML spreadsheet implementation (SpreadsheetML) and a United States National Information Exchange Model (NIEM) XML schema are allowed by the buildingSMART alliance®. To be able to talk about these two additional formats the SpreadsheetML implementation of COBie is called “COBie Spreadsheet” and the NIEM-compliant XML Schema is called “COBieLite”. The purpose of this Annex is to document the mapping rules between The COBie IFC data model and the COBie Spreadsheet and the COBie IFC data model and COBieLite.

The decision of what COBie implementation format to use in given contractual settings is based on the preferences of the underlying software being used and the interests and capabilities of the parties entering into the contract. It is precisely this flexibility to implement in multiple, equivalent, formats that has led to the rapid adoption of COBie with the software and user communities. The rapid adoption of the COBie Spreadsheet within the design and construction industry speaks to the importance of having a human-digestible format for an otherwise very complex set of building information. The rapid adoption of COBieLite, even before becoming a standard, in CMMS and Construction systems that support COBie speaks to the importance of this optional format.

While this Annex provides the formal specification of these 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 main COBie website (<http://www.wbdg.org/resources/cobie.php>).

## CONTENTS

A.1 Introduction .....	1
Table of Tables.....	3
A.2 COBie Spreadsheet Schema.....	5
A.3 COBie Spreadsheet Mapping to IFC 4 .....	46
A.4 IFC Coordination View Exclusion Lists for COBie .....	71
A.5 IFC Property Set Mappings for COBie.....	81
A.6 COBie Spreadsheet Mapping to COBieLite.....	84
A.7 COBieLite Schema Definition.....	104
A.7.1 COBieLite Core NameSpace .....	104
A.7.2 COBieLite NameSpace .....	176

**Table of Tables**

Table 1 COBie.Contact Worksheet Schema .....6

Table 2 COBie.Contact Worksheet Notes .....7

Table 3 COBie.Facility Worksheet Schema .....8

Table 4 COBie.Facility Worksheet Notes .....10

Table 5 COBie.Floor Worksheet Schema .....11

Table 6 COBie.Floor Worksheet Notes .....12

Table 7 COBie.Space Worksheet Schema .....13

Table 8 COBie.Space Worksheet Notes .....14

Table 9 COBie.Zone Worksheet Schema .....15

Table 10 COBie.Zone Worksheet Notes.....16

Table 11 COBie.Type Worksheet Schema.....17

Table 12 COBie.Type Worksheet Notes.....19

Table 13 COBie.Component Worksheet Schema .....21

Table 14 COBie.Component Worksheet Notes.....22

Table 15 COBie.System Worksheet Schema .....23

Table 16 COBie.System Worksheet Notes.....24

Table 17 COBie.Assembly Worksheet Schema .....25

Table 18 COBie.Assembly Worksheet Notes .....26

Table 19 COBie.Connection Worksheet Schema .....27

Table 20 COBie.Connection Worksheet Notes .....28

Table 21 COBie.Spare Worksheet Schema .....29

Table 22 COBie.Spare Worksheet Notes .....30

Table 23 COBie.Resource Worksheet Schema.....31

Table 24 COBie.Resource Worksheet Notes.....32

Table 25 COBie.Job Worksheet Schema .....33

Table 26 COBie.Job Worksheet Notes .....34

Table 27 COBie.Impact Worksheet Schema .....35

Table 28 COBie.Impact Worksheet Notes .....36

Table 29 COBie.Document Worksheet Schema.....37

Table 30 COBie.Document Worksheet Notes.....38

Table 31 COBie.Attribute Worksheet Schema.....39

Table 32 COBie.Attribute Worksheet Notes.....40

Table 33 COBie.Coordinate Worksheet Schema .....41

Table 34 COBie.Coordinate Worksheet Notes.....42

Table 35 COBie.Issue Worksheet Schema .....43

Table 36 COBie.Issue Worksheet Notes .....44

Table 37 COBie.PickList Worksheet Schema .....45

Table 38 COBie.Picklist Worksheet Notes .....45

Table 39 COBie.Contact Worksheet to IFC .....47

Table 40 COBie.Facility Worksheet to IFC .....49

Table 41 COBie.Floor Worksheet to IFC .....51

Table 42 COBie.Space Worksheet to IFC .....52

Table 43 COBie.Zone Worksheet to IFC.....53

Table 44 COBie.Type Worksheet to IFC.....54

Table 45 COBie.Component Worksheet to IFC.....58

Table 46 COBie.System Worksheet to IFC .....59

Table 47 COBie.Assembly Worksheet to IFC .....60

Table 48 COBie.Connection Worksheet to IFC .....61

Table 49 COBie.Spare to IFC .....62

Table 50 COBie.Resource Worksheet to IFC.....63

Table 51 COBie.Job Worksheet to IFC .....	64
Table 52 COBie.Impact Worksheet to IFC.....	65
Table 53 COBie.Document Worksheet to IFC.....	66
Table 54 COBie.Attribute Worksheet to IFC.....	67
Table 55 COBie.Coordinate Worksheet to IFC.....	68
Table 56 COBie.Issue Worksheet to IFC.....	69
Table 57 COBie.Picklist Worksheet to IFC.....	69
Table 58 IFC Type Objects Ignored by COBie.....	72
Table 59 IFC Instance Objects Ignored by COBie .....	77
Table 60 COBieLite Contact Mapping .....	85
Table 61 COBieLite Facility Mapping .....	86
Table 62 COBieLite Floor Mapping .....	87
Table 63 COBieLite Space Mapping .....	88
Table 64 COBieLite Zone Mapping.....	89
Table 65 COBieLite Type Mapping.....	90
Table 66 COBieLite Component Mapping.....	92
Table 67 COBieLite System Mapping.....	93
Table 68 COBieLite Assembly Mapping .....	94
Table 69 COBieLite Connection Mapping .....	95
Table 70 COBieLite Spare Mapping .....	96
Table 71 COBieLite Resource Mapping.....	97
Table 72 COBieLite Job Mapping .....	98
Table 73 COBieLite Impact Mapping .....	99
Table 74 COBieLite Document Mapping.....	100
Table 75 COBieLite Attribute Mapping.....	101
Table 76 COBieLite Coordinate Mapping.....	102
Table 77 COBieLite Issue Mapping .....	103

## A.2 COBie Spreadsheet Schema

The COBie Spreadsheet is a series of interrelated worksheets that can be used to visualize or change COBie data for a given facility. Typically the first column of each worksheet provides a unique, or primary, key to the information found in that worksheet. Such usage is also required by the business rules described in the COBie MVD. For example, the name of each Space in a given facility must be uniquely defined. Therefore in the COBie Space worksheet, the first column of the Space worksheet, called “Name”, is the primary key for that worksheet. The worksheets in a COBie Spreadsheet are organized so that information at the starting worksheets can be referenced in later worksheets.

Some worksheets one or more set of information in previous worksheets. For these worksheets a compound key is used to define the unique data on a given worksheet. An example of such a compound key is the COBie Attribute worksheet. Because property sets, i.e. COBie Attributes, can apply to entities such as Spaces, Types, or Components the COBie Attribute compound key requires the identification of the type of entity, the unique name of that entity, and a unique name for that Attribute. In this way the COBie Attribute of “Voltage” may be used for Components called “Pump-Type01-01” and “LightSwitch-C-34” without confusion.

Templates for the COBie Spreadsheet may be found at the bottom of the COBie Means and Methods Page ([http://www.nibs.org/?page=bsa\\_cobiemm](http://www.nibs.org/?page=bsa_cobiemm)). The templates provided contain lookup lists such that information provided to earlier COBie worksheets will be available in the pick lists of later worksheets. While the manual production of COBie data is not recommended, if it is required to be done for specific projects, a front-to-back approach will reduce the time required to properly link, or cross-reference, COBie data.

Examples of the buildingSMART alliance® Common BIM Files in COBie Spreadsheet format may be found on that page ([http://www.nibs.org/?page=bsa\\_commonbimfiles](http://www.nibs.org/?page=bsa_commonbimfiles)).

The tables below provide the specification for the COBie Spreadsheet and also provide notes associated with the implementation of that spreadsheet.

**Table 1 COBie.Contact Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max.Len.
A	Email	X	-	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	-	PickList.Category-Role	X	-	-	AlphaNumeric	255
E	Company	-	-	-	X	-	-	AlphaNumeric	255
F	Phone	-	-	-	X	-	-	AlphaNumeric	255
G	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
H	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
I	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
J	Department	-	-	-	-	-	X	AlphaNumeric	255
K	OrganizationCode	-	-	-	-	-	X	AlphaNumeric	255
L	GivenName	-	-	-	-	-	X	AlphaNumeric	255
M	FamilyName	-	-	-	-	-	X	AlphaNumeric	255
N	Street	-	-	-	-	-	X	AlphaNumeric	255
O	PostalBox	-	-	-	-	-	X	AlphaNumeric	255
P	Town	-	-	-	-	-	X	AlphaNumeric	255
Q	StateRegion	-	-	-	-	-	X	AlphaNumeric	255
R	PostalCode	-	-	-	-	-	X	AlphaNumeric	255
S	Country	-	-	-	-	-	X	AlphaNumeric	255

**Table 2 COBie.Contact Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Email	Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	Company	Value must be provided or 'n/a'
F	Phone	Value must be provided or 'n/a'
G	ExternalSystem	Provided only by automated export from software system
H	ExternalObject	Provided only by automated export from software system
I	ExternalIdentifier	Provided only by automated export from software system
J	Department	Default value must equal 'n/a'
K	OrganizationCode	Default value must equal 'n/a'
L	GivenName	Default value must equal 'n/a'
M	FamilyName	Default value must equal 'n/a'
N	Street	Default value must equal 'n/a'
O	PostalBox	Default value must equal 'n/a'
P	Town	Default value must equal 'n/a'
Q	StateRegion	Default value must equal 'n/a'
R	PostalCode	Default value must equal 'n/a'
S	Country	Default value must equal 'n/a'

**Table 3 COBie.Facility Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max.Len.
A	Name	X	-	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	-	PickList.Category-Facility	X	-	-	PickList.Category-Facility	255
E	ProjectName	-	-	-	X	-	-	AlphaNumeric	255
F	SiteName	-	-	-	X	-	-	AlphaNumeric	255
G	LinearUnits	-	-	PickList.LinearUnits	X	-	-	PickList.LinearUnits	255
H	AreaUnits	-	-	PickList.AreaUnits	X	-	-	PickList.AreaUnits	255
I	VolumeUnits	-	-	PickList.VolumeUnits	X	-	-	PickList.VolumeUnits	255
J	CurrencyUnit	-	-	PickList.CostUnit	X	-	-	PickList.CostUnit	255
K	AreaMeasurement	-	-	-	X	-	-	AlphaNumeric	255
L	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
M	ExternalProjectObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
N	ExternalProjectIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
O	ExternalSiteObject	-	-	Creating System Site	-	X	-	AlphaNumeric	255
P	ExternalSiteIdentifier	-	-	Creating System Site ID	-	X	-	AlphaNumeric	255
Q	ExternalFacilityObject	-	-	Creating System Facility	-	X	-	AlphaNumeric	255



Table 3 COBie.Facility Worksheet Schema (cont.)

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
R	ExternalFacilityIdentifier	-	-	Creating System Facility ID	-	X	-	AlphaNumeric	255
S	Description	-	-	-	-	-	X	AlphaNumeric	255
T	ProjectDescription	-	-	-	-	-	X	AlphaNumeric	255
U	SiteDescription	-	-	-	-	-	X	AlphaNumeric	255
V	Phase	-	-	-	-	-	X	AlphaNumeric	255

**Table 4 COBie.Facility Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	ProjectName	Value must be provided or 'n/a'
F	SiteName	Value must be provided or 'n/a'
G	LinearUnits	Value must be found in referenced Foreign Key List
H	AreaUnits	Value must be found in referenced Foreign Key List
I	VolumeUnits	Value must be found in referenced Foreign Key List
J	CurrencyUnit	Value must be found in referenced Foreign Key List
K	AreaMeasurement	Value must be provided or 'n/a'
L	ExternalSystem	Provided only by automated export from software system
M	ExternalProjectObject	Provided only by automated export from software system
N	ExternalProjectIdentifier	Provided only by automated export from software system
O	ExternalSiteObject	Provided only by automated export from software system
P	ExternalSiteIdentifier	Provided only by automated export from software system
Q	ExternalFacilityObject	Provided only by automated export from software system
R	ExternalFacilityIdentifier	Provided only by automated export from software system
S	Description	Default value must equal 'n/a'
T	ProjectDescription	Default value must equal 'n/a'
U	SiteDescription	Default value must equal 'n/a'
V	Phase	Default value must equal 'n/a'

**Table 5 COBie.Floor Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max.Len.
A	Name	X	-	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	-	PickList.FloorType	X	-	-	PickList.FloorType	255
E	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
F	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
G	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
H	Description	-	-	-	-	-	X	AlphaNumeric	255
I	Elevation	-	-	-	-	-	X	Numeric	Double
J	Height	-	-	-	-	-	X	Numeric	Double

**Table 6 COBie.Floor Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	ExternalSystem	Provided only by automated export from software system
F	ExternalObject	Provided only by automated export from software system
G	ExternalIdentifier	Provided only by automated export from software system
H	Description	Default value must equal 'n/a'
I	Elevation	Default value must equal 'n/a'
J	Height	Default value must equal 'n/a'

**Table 7 COBie.Space Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	X	-	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	-	PickList.Category-Space	X	-	-	PickList.Category-Space	255
E	FloorName	-	-	Floor.Name	X	-	-	Floor.Name	255
F	Description	-	-	-	X	-	-	AlphaNumeric	255
G	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
H	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
I	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
J	RoomTag	-	-	-	-	-	X	AlphaNumeric	255
K	UsableHeight	-	-	-	-	-	X	Numeric	Double
L	GrossArea	-	-	-	-	-	X	Numeric	Double
M	NetArea	-	-	-	-	-	X	Numeric	Double

**Table 8 COBie.Space Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	FloorName	Value must be found in referenced Foreign Key List
F	Description	Value must be provided or 'n/a'
G	ExternalSystem	Provided only by automated export from software system
H	ExternalObject	Provided only by automated export from software system
I	ExternalIdentifier	Provided only by automated export from software system
J	RoomTag	Default value must equal 'n/a'
K	UsableHeight	Default value must equal 'n/a'
L	GrossArea	Default value must equal 'n/a'
M	NetArea	Default value must equal 'n/a'

**Table 9 COBie.Zone Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	-	X	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	X	PickList.ZoneType	X	-	-	PickList.ZoneType	255
E	SpaceNames	-	X	Space.Name	X	-	-	Space.Name	255
F	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
G	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
H	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
I	Description	-	-	-	-	-	X	AlphaNumeric	255

**Table 10 COBie.Zone Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Compound Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	SpaceNames	Value must be found in referenced Foreign Key List
F	ExternalSystem	Provided only by automated export from software system
G	ExternalObject	Provided only by automated export from software system
H	ExternalIdentifier	Provided only by automated export from software system
I	Description	Default value must equal 'n/a'



**Table 11 COBie.Type Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	X	-	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	-	PickList.Category-Product	X	-	-	PickList.Category-Product	255
E	Description	-	-	-	X	-	-	AlphaNumeric	255
F	AssetType	-	-	PickList.AssetType	X	-	-	PickList.AssetType	255
G	Manufacturer	-	-	Contact.Email	X	-	-	Contact.Email	255
H	ModelNumber	-	-	-	X	-	-	AlphaNumeric	255
I	WarrantyGuarantorParts	-	-	Contact.Email	X	-	-	Contact.Email	255
J	WarrantyDurationParts	-	-	-	X	-	-	Numeric	Double
K	WarrantyGuarantorLabor	-	-	Contact.Email	X	-	-	Contact.Email	255
L	WarrantyDurationLabor	-	-	-	X	-	-	Numeric	Double
M	WarrantyDurationUnit	-	-	PickList.DurationUnit	X	-	-	PickList.DurationUnit	255
N	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
O	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
P	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
Q	ReplacementCost	-	-	-	-	-	X	Numeric	Double
R	ExpectedLife	-	-	-	-	-	X	Numeric	Double
S	DurationUnit	-	-	PickList.DurationUnit	-	-	X	PickList.DurationUnit	255
T	WarrantyDescription	-	-	-	-	-	X	AlphaNumeric	255
U	NominalLength	-	-	-	X	-	-	Numeric	Double
V	NominalWidth	-	-	-	X	-	-	Numeric	Double
W	NominalHeight	-	-	-	X	-	-	Numeric	Double
X	ModelReference	-	-	-	-	-	X	AlphaNumeric	255
Y	Shape	-	-	-	-	-	X	AlphaNumeric	255
Z	Size	-	-	-	-	-	X	AlphaNumeric	255
AA	Color	-	-	-	-	-	X	AlphaNumeric	255
AB	Finish	-	-	-	-	-	X	AlphaNumeric	255
AC	Grade	-	-	-	-	-	X	AlphaNumeric	255
AD	Material	-	-	-	-	-	X	AlphaNumeric	255

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
AE	Constituents	-	-	-	-	-	X	AlphaNumeric	255
AF	Features	-	-	-	-	-	X	AlphaNumeric	255
AG	AccessibilityPerformance	-	-	-	-	-	X	AlphaNumeric	255
AH	CodePerformance	-	-	-	-	-	X	AlphaNumeric	255
AI	SustainabilityPerformance	-	-	-	-	-	X	AlphaNumeric	255

**Table 12 COBie.Type Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	Description	Value must be provided or 'n/a'
F	AssetType	Value must be found in referenced Foreign Key List
G	Manufacturer	Value must be found in referenced Foreign Key List
H	ModelNumber	Value must be provided or 'n/a'
I	WarrantyGuarantorParts	Value must be found in referenced Foreign Key List
J	WarrantyDurationParts	Value must be provided or '0'
K	WarrantyGuarantorLabor	Value must be found in referenced Foreign Key List
L	WarrantyDurationLabor	Value must be provided or '0'
M	WarrantyDurationUnit	Value must be found in referenced Foreign Key List
N	ExternalSystem	Provided only by automated export from software system
O	ExternalObject	Provided only by automated export from software system
P	ExternalIdentifier	Provided only by automated export from software system
Q	ReplacementCost	Default value must equal 'n/a'
R	ExpectedLife	Default value must equal 'n/a'
S	DurationUnit	Value must be found in referenced Foreign Key List
T	WarrantyDescription	Default value must equal 'n/a'
U	NominalLength	Value must be provided or '0'
V	NominalWidth	Value must be provided or '0'
W	NominalHeight	Value must be provided or '0'
X	ModelReference	Default value must equal 'n/a'
Y	Shape	Default value must equal 'n/a'
Z	Size	Default value must equal 'n/a'
AA	Color	Default value must equal 'n/a'
AB	Finish	Default value must equal 'n/a'
AC	Grade	Default value must equal 'n/a'
AD	Material	Default value must equal 'n/a'
AE	Constituents	Default value must equal 'n/a'

Column	Column Name	Constraints/Notes
AF	Features	Default value must equal 'n/a'
AG	AccessibilityPerformance	Default value must equal 'n/a'
AH	CodePerformance	Default value must equal 'n/a'
AI	SustainabilityPerformance	Default value must equal 'n/a'

**Table 13 COBie.Component Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	X	-	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	TypeName	-	-	Type.Name	X	-	-	Type.Name	255
E	Space	-	-	Space.Name	X	-	-	Space.Name	255
F	Description	-	-	-	X	-	-	AlphaNumeric	255
G	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
H	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
I	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
J	SerialNumber	-	-	-	X	-	-	AlphaNumeric	255
K	InstallationDate	-	-	-	X	-	-	ISO Date	19
L	WarrantyStartDate	-	-	-	X	-	-	ISO Date	19
M	TagNumber	-	-	-	-	-	X	AlphaNumeric	255
N	BarCode	-	-	-	-	-	X	AlphaNumeric	255
O	AssetIdentifier	-	-	-	-	-	X	AlphaNumeric	255

**Table 14 COBie.Component Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	TypeName	Value must be found in referenced Foreign Key List
E	Space	Value must be found in referenced Foreign Key List
F	Description	Value must be provided or 'n/a'
G	ExternalSystem	Provided only by automated export from software system
H	ExternalObject	Provided only by automated export from software system
I	ExternalIdentifier	Provided only by automated export from software system
J	SerialNumber	Value must be provided or 'n/a'
K	InstallationDate	ISO date/time info added/updated or default "1900-12-31T23:59:59"
L	WarrantyStartDate	ISO date/time info added/updated or default "1900-12-31T23:59:59"
M	TagNumber	Default value must equal 'n/a'
N	BarCode	Default value must equal 'n/a'
O	AssetIdentifier	Default value must equal 'n/a'

**Table 15 COBie.System Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	-	X	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	X	PickList.Category-Element	X	-	-	PickList.Category-Element	255
E	ComponentNames	-	X	Component.Name	X	-	-	Component.Name	255
F	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
G	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
H	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
I	Description	-	-	-	-	-	X	AlphaNumeric	255

**Table 16 COBie.System Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Compound Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	ComponentNames	Value must be found in referenced Foreign Key List
F	ExternalSystem	Provided only by automated export from software system
G	ExternalObject	Provided only by automated export from software system
H	ExternalIdentifier	Provided only by automated export from software system
I	Description	Default value must equal 'n/a'



**Table 17 COBie.Assembly Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	-	X	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	SheetName	-	X	Component.Name	X	-	-	Component.Name	255
E	ParentName	-	X	Component.Name	X	-	-	Component.Name	255
F	ChildNames	-	-	-	X	-	-	AlphaNumeric	255
G	AssemblyType	-	-	Creating System Name		X	-	AlphaNumeric	255
H	ExternalSystem	-	-	Creating System Object	-	X	-	AlphaNumeric	255
I	ExternalObject	-	-	Creating System ID	-	X	-	AlphaNumeric	255
J	ExternalIdentifier	-	-	-	-	-	X	AlphaNumeric	255
K	Description	-	-	-	-	-	X	AlphaNumeric	255

**Table 18 COBie.Assembly Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Compound Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	SheetName	Value must be found in referenced Foreign Key List
E	ParentName	Value must be found in referenced Foreign Key List
F	ChildNames	Value must be provided or 'n/a'
G	AssemblyType	Provided only by automated export from software system
H	ExternalSystem	Provided only by automated export from software system
I	ExternalObject	Provided only by automated export from software system
J	ExternalIdentifier	Default value must equal 'n/a'
K	Description	Default value must equal 'n/a'

**Table 19 COBie.Connection Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	-	X	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	ConnectionType	-	X	PickList.ConnectionType	X	-	-	PickList.ConnectionType	255
E	SheetName								
F	RowName1	-	X	Component.Name	X	-	-	Component.Name	255
G	RowName2	-	X	Component.Name	X	-	-	Component.Name	255
H	RealizingElement								
I	PortName1								
J	PortName2								
K	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
L	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
M	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
N	Description	-	-	-	-	-	X	AlphaNumeric	255

**Table 20 COBie.Connection Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Compound Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	ConnectionType	Value must be found in referenced Foreign Key List
E	SheetName	
F	RowName1	Value must be found in referenced Foreign Key List
G	RowName2	Value must be found in referenced Foreign Key List
H	RealizingElement	
I	PortName1	
J	PortName2	
K	ExternalSystem	Provided only by automated export from software system
L	ExternalObject	Provided only by automated export from software system
M	ExternalIdentifier	Provided only by automated export from software system
N	Description	Default value must equal 'n/a'

**Table 21 COBie.Spare Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	X	-	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	-	Picklist.SpareType	X	-	-	Picklist.SpareType	255
E	TypeName	-	-	Type.Name	X	-	-	Type.Name	255
F	Suppliers	-	-	Contact.Email	X	-	-	Contact.Email	255
G	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
H	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
I	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
J	Description	-	-	-	-	-	X	AlphaNumeric	255
K	SetNumber	-	-	-	-	-	X	AlphaNumeric	255
L	PartNumber	-	-	-	-	-	X	AlphaNumeric	255

**Table 22 COBie.Spare Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	TypeName	Value must be found in referenced Foreign Key List
F	Suppliers	Value must be found in referenced Foreign Key List
G	ExternalSystem	Provided only by automated export from software system
H	ExternalObject	Provided only by automated export from software system
I	ExternalIdentifier	Provided only by automated export from software system
J	Description	Default value must equal 'n/a'
K	SetNumber	Default value must equal 'n/a'
L	PartNumber	Default value must equal 'n/a'

**Table 23 COBie.Resource Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	X	-	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	-	PickList.ResourceType	X	-	-	PickList.ResourceType	255
E	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
F	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
G	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
H	Description	-	-	-	-	-	X	AlphaNumeric	255

**Table 24 COBie.Resource Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	ExternalSystem	Provided only by automated export from software system
F	ExternalObject	Provided only by automated export from software system
G	ExternalIdentifier	Provided only by automated export from software system
H	Description	Default value must equal 'n/a'



**Table 25 COBie.Job Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	-	X	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	-	PickList.JobType	X	-	-	PickList.JobType	255
E	Status	-	-	PickList.JobStatusType	X	-	-	PickList.JobStatusType	255
F	TypeName	-	X	Type.Name	X	-	-	Type.Name	255
G	Description	-	-	-	X	-	-	AlphaNumeric	255
H	Duration	-	-	-	X	-	-	Numeric	Double
I	DurationUnit	-	-	PickList.DurationUnit	X	-	-	PickList.DurationUnit	255
J	Start	-	-	-	X	-	-	Numeric	Double
K	TaskStartUnit	-	-	PickList.DurationUnit	X	-	-	PickList.DurationUnit	255
L	Frequency	-	-	-	X	-	-	Numeric	Double
M	FrequencyUnit	-	-	PickList.DurationUnit	X	-	-	PickList.DurationUnit	255
N	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
O	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
P	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
Q	TaskNumber	-	X	-	-	-	X	AlphaNumeric	255
R	Priors	-	-	Job.TaskNumber	-	-	X	Job.TaskNumber List	255
S	ResourceNames	-	-	Resource.Name	-	-	X	Resource.Name List	255

**Table 26 COBie.Job Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Compound Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	Status	Value must be found in referenced Foreign Key List
F	TypeName	Value must be found in referenced Foreign Key List
G	Description	Value must be provided or 'n/a'
H	Duration	Value must be provided or '0'
I	DurationUnit	Value must be found in referenced Foreign Key List
J	Start	Value must be provided or '0'
K	TaskStartUnit	Value must be found in referenced Foreign Key List
L	Frequency	Value must be provided or '0'
M	FrequencyUnit	Value must be found in referenced Foreign Key List
N	ExternalSystem	Provided only by automated export from software system
O	ExternalObject	Provided only by automated export from software system
P	ExternalIdentifier	Provided only by automated export from software system
Q	TaskNumber	Task Number must be unique for this Name/TypeName
R	Priors	Value must be found in referenced Foreign Key List
S	ResourceNames	Value must be found in referenced Foreign Key List

**Table 27 COBie.Impact Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	-	X	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	-	X	-	-	Contact.Email	255
C	CreatedOn	-	-	Contact.Email	X	-	-	ISO Date	19
D	ImpactType	-	X	PickList.ImpactType	X	-	-	PickList.ImpactType	255
E	ImpactStage	-	X	PickList.ImpactStage	X	-	-	PickList.ImpactStage	255
F	SheetName	-	X	PickList.SheetType	X	-	-	PickList.SheetType	255
G	RowName	-	X	-	X	-	-	AlphaNumeric	255
H	Value	-	-	-	X	-	-	Numeric	255
I	ImpactUnit	-	-	PickList.ImpactUnit	X	-	-	PickList.ImpactUnit	255
J	LeadInTime	-	-	-	-	-	X	Numeric	Double
K	Duration	-	-	-	-	-	X	Numeric	Double
L	LeadOutTime	-	-	-	-	-	X	Numeric	Double
M	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
N	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
O	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
P	Description	-	-	-	-	-	X	AlphaNumeric	255

**Table 28 COBie.Impact Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Compound Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	ImpactType	Value must be found in referenced Foreign Key List
E	ImpactStage	Value must be found in referenced Foreign Key List
F	SheetName	Value must be found in referenced Foreign Key List
G	RowName	Row name must be found in referenced table
H	Value	Default value must equal 'n/a'
I	ImpactUnit	Value must be found in referenced Foreign Key List
J	LeadInTime	Default value must equal 'n/a'
K	Duration	Default value must equal 'n/a'
L	LeadOutTime	Default value must equal 'n/a'
M	ExternalSystem	Provided only by automated export from software system
N	ExternalObject	Provided only by automated export from software system
O	ExternalIdentifier	Provided only by automated export from software system
P	Description	Value must be provided or 'n/a'

**Table 29 COBie.Document Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	-	X	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	-	PickList.DocumentType	X	-	-	PickList.DocumentType	255
E	ApprovalBy	-	-	PickList.ApprovalBy	X	-	-	PickList.ApprovalBy	255
F	Stage	-	X	PickList.StageType	X	-	-	PickList.StageType	255
G	SheetName	-	X	PickList.SheetType	X	-	-	PickList.SheetType	255
H	RowName	-	X	-	X	-	-	AlphaNumeric	255
I	Directory	-	-	-	X	-	-	AlphaNumeric	255
J	File	-	-	-	X	-	-	AlphaNumeric	255
K	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
L	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
M	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
N	Description	-	-	-	-	-	X	AlphaNumeric	255
O	Reference	-	-	-	-	-	X	AlphaNumeric	255

**Table 30 COBie.Document Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Compound Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	ApprovalBy	Value must be found in referenced Foreign Key List
F	Stage	Value must be found in referenced Foreign Key List
G	SheetName	Value must be found in referenced Foreign Key List
H	RowName	Row name must be found in referenced table
I	Directory	Value must be provided or 'n/a'
J	File	Value must be provided or 'n/a'
K	ExternalSystem	Provided only by automated export from software system
L	ExternalObject	Provided only by automated export from software system
M	ExternalIdentifier	Provided only by automated export from software system
N	Description	Default value must equal 'n/a'
O	Reference	Default value must equal 'n/a'

**Table 31 COBie.Attribute Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	-	X	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	-	PickList.StageType	X	-	-	PickList.StageType	255
E	SheetName	-	X	PickList.SheetType	X	-	-	PickList.SheetType	255
F	RowName	-	X	-	X	-	-	AlphaNumeric	255
G	Value	-	-	-	X	-	-	AlphaNumeric	255
H	Unit	-	-	-	X	-	-	AlphaNumeric	255
I	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
J	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
K	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
L	Description	-	-	-	-	-	X	AlphaNumeric	255
M	AllowedValues	-	-	-	-	-	X	AlphaNumeric	255

**Table 32 COBie.Attribute Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Compound Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	SheetName	Value must be found in referenced Foreign Key List
F	RowName	Row name must be found in referenced table
G	Value	Value must be provided or 'n/a'
H	Unit	Value must be provided or 'n/a'
I	ExternalSystem	Provided only by automated export from software system
J	ExternalObject	Provided only by automated export from software system
K	ExternalIdentifier	Provided only by automated export from software system
L	Description	Default value must equal 'n/a'
M	AllowedValues	Default value must equal 'n/a'



**Table 33 COBie.Coordinate Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	-	X	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Category	-	X	PickList.CoordinateType	X	-	-	PickList.CoordinateType	255
E	SheetName	-	X	PickList.CoordinateSheet	X	-	-	PickList.CoordinateSheet	255
F	RowName	-	X	-	X	-	-	AlphaNumeric	255
G	CoordinateXAxis	-	-	-	X	-	-	Numeric	Double
H	CoordinateYAxis	-	-	-	X	-	-	Numeric	Double
I	CoordinateZAxis	-	-	-	X	-	-	Numeric	Double
J	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
K	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
L	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255
M	ClockwiseRotation	-	-	-	-	-	X	Numeric	Double
N	ElevationalRotation	-	-	-	-	-	X	Numeric	Double
O	YawRotation	-	-	-	-	-	X	Numeric	Double

**Table 34 COBie.Coordinate Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Compound Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Category	Value must be found in referenced Foreign Key List
E	SheetName	Value must be found in referenced Foreign Key List
F	RowName	Row name must be found in referenced table
G	CoordinateXAxis	Value must be provided or '0'
H	CoordinateYAxis	Value must be provided or '0'
I	CoordinateZAxis	Value must be provided or '0'
J	ExternalSystem	Provided only by automated export from software system
K	ExternalObject	Provided only by automated export from software system
L	ExternalIdentifier	Provided only by automated export from software system
M	ClockwiseRotation	Default value must equal 'n/a'
N	ElevationalRotation	Default value must equal 'n/a'
O	YawRotation	Default value must equal 'n/a'

**Table 35 COBie.Issue Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
A	Name	-	X	-	X	-	-	AlphaNumeric	255
B	CreatedBy	-	-	Contact.Email	X	-	-	Contact.Email	255
C	CreatedOn	-	-	-	X	-	-	ISO Date	19
D	Type	-	-	PickList.IssueCategory	X	-	-	PickList.IssueCategory	255
E	Risk	-	-	PickList.IssueRisk	X	-	-	PickList.IssueRisk	255
F	Chance	-	-	PickList.IssueChance	X	-	-	PickList.IssueChance	255
G	Impact	-	-	PickList.IssueImpact	X	-	-	PickList.IssueImpact	255
H	SheetName1	-	X	PickList.SheetType	X	-	-	PickList.SheetType	255
I	RowName1	-	X	-	X	-	-	AlphaNumeric	255
J	SheetName2	-	X	PickList.SheetType	X	-	-	PickList.SheetType	255
K	RowName2	-	X	-	X	-	-	AlphaNumeric	255
L	Description	-	-	-	X	-	-	AlphaNumeric	255
M	Owner	-	-	Contact.Email	X	-	-	Contact.Email	255
N	Mitigation	-	-	-	X	-	-	AlphaNumeric	255
O	ExternalSystem	-	-	Creating System Name	-	X	-	AlphaNumeric	255
P	ExternalObject	-	-	Creating System Object	-	X	-	AlphaNumeric	255
Q	ExternalIdentifier	-	-	Creating System ID	-	X	-	AlphaNumeric	255

**Table 36 COBie.Issue Worksheet Notes**

Column	Column Name	Constraints/Notes
A	Name	Compound Value must be unique in this worksheet
B	CreatedBy	Value must be found in referenced Foreign Key List
C	CreatedOn	ISO date/time info added/updated or default "1900-12-31T23:59:59"
D	Type	Value must be found in referenced Foreign Key List
E	Risk	Value must be found in referenced Foreign Key List
F	Chance	Value must be found in referenced Foreign Key List
G	Impact	Value must be found in referenced Foreign Key List
H	SheetName1	Value must be found in referenced Foreign Key List
I	RowName1	Row name must be found in referenced table
J	SheetName2	Value must be found in referenced Foreign Key List
K	RowName2	Row name must be found in referenced table
L	Description	Value must be provided or 'n/a'
M	Owner	Value must be found in referenced Foreign Key List
N	Mitigation	Value must be provided or 'n/a'
O	ExternalSystem	Provided only by automated export from software system
P	ExternalObject	Provided only by automated export from software system
Q	ExternalIdentifier	Provided only by automated export from software system

**Table 37 COBie.PickList Worksheet Schema**

Column	Column Name	Unique Key		Foreign Key	Required Value			Allowed Values	
		Primary	Compound		Reqd.	System	AsSpecified	Type	Max. Len.
D	Category-Facility	X	-	-	X	-	-	AlphaNumeric	255
E	Category-Space	X	-	-	X	-	-	AlphaNumeric	255
F	Category-Element	X	-	-	X	-	-	AlphaNumeric	255
G	Category-Product	X	-	-	X	-	-	AlphaNumeric	255
H	Category-Role	X	-	-	X	-	-	AlphaNumeric	255

**Table 38 COBie.PickList Worksheet Notes**

Column	Column Name	Constraints/Notes
D	Category-Facility	Value must be unique in this worksheet
E	Category-Space	Value must be unique in this worksheet
F	Category-Element	Value must be unique in this worksheet
G	Category-Product	Value must be unique in this worksheet
H	Category-Role	Value must be unique in this worksheet

### A.3 COBie Spreadsheet Mapping to IFC 4

As a basis for future implementations of IFC4 without the need to resubmit the COBie standard, COBie has been developed based on the IFC 4. Software vendors are allowed, per the COBie specification to provide COBie data in either IFC2x3 or IFC4. The use of IFC4 version or the previous version of IFC, IFC 2x3 is at the discretion of the implementing software.

The COBie MVD specification (Section 7.6.1 External Data Mappings) defines the mappings between IFC4 and the COBie Spreadsheet implementation format. The tables below provide the inverse of that mapping showing the relationship between the worksheets in a COBie spreadsheet and the IFC model.

The table column “Alternative Processing” documents any necessary implementers’ agreements documented as of the date of this document submission. An electronic version of this information is available through the COBie Responsibility Matrix.

**Table 39 COBie.Contact Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Email	IfcTelecomAddress.ElectronicMailAddresses	Gets Email from IfcOwnerHistory.OwningUser.ThePerson first, and if the person has no email then it comes from IfcOwnerHistory.OwningUser.TheOrganization. If there are no email addresses found in the Addresses attribute for IfcPerson or IfcOrganization then an email address is created as [givenname][familyname]@[organization.name] and "unknown" is used in place of those tokens when they are empty
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	If there are no email addresses found in the Addresses attribute then an email address is created as [givenname][familyname]@[organization.name] and "unknown" is used in place of those tokens when they are empty
C	CreatedOn	IfcOwnerHistory.CreationDate	Current date may be used if CreationDate is empty
D	Category	IfcActorRole.UserDefinedRole	Constructs a comma delimited list of the unique strings found in IfcPersonAndOrganization.Roles, IfcPersonAndOrganization.ThePerson.Roles, and IfcPersonAndOrganization.TheOrganization.Roles
E	Company	IfcOrganization.Name	
F	Phone	IfcTelecomAddress.TelephoneNumbers	First source for this is IfcOwnerHistory.OwningUser.IfPerson, if IfcPerson has no phone numbers then it is obtained from IfcOwnerHistory.OwningUser.IfcOrganization
G	ExternalSystem	IfcApplication.ApplicationFullName	
H	ExternalObject	PickList.objType = IfcPersonAndOrganization	
I	ExternalIdentifier	IfcPerson.Identification	
J	Department	IfcPostalAddress.InternalLocation	If there are no IfcPostalAddresses with InternalLocation populated then the Organization.Relates collection is parsed and the last organization name is used. If neither of those paths yield a result then the Company Name is repeated
K	OrganizationCode	IfcOrganization.Identification (Id in 2x3)	
L	GivenName	IfcPerson.GivenName	
M	FamilyName	IfcPerson.FamilyName	
N	Street	IfcPostalAddress.AddressLines	First source for this is IfcOwnerHistory.OwningUser.ThePerson, if IfcPerson has no IfcPostalAddresses in the Addresses attribute then IfcOwnerHistory.OwningUser.TheOrganization is the source

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
O	PostalBox	IfcPostalAddress.PostalBox	First source for this is IfcOwnerHistory.OwningUser.ThePerson, if IfcPerson has no IfcPostalAddresses in the Addresses attribute then IfcOwnerHistory.OwningUser.TheOrganization is the source
P	Town	IfcPostalAddress.Town	First source for this is IfcOwnerHistory.OwningUser.ThePerson, if IfcPerson has no IfcPostalAddresses in the Addresses attribute then IfcOwnerHistory.OwningUser.TheOrganization is the source
Q	StateRegion	IfcPostalAddress.Region	First source for this is IfcOwnerHistory.OwningUser.ThePerson, if IfcPerson has no IfcPostalAddresses in the Addresses attribute then IfcOwnerHistory.OwningUser.TheOrganization is the source
R	PostalCode	IfcPostalAddress.PostalCode	First source for this is IfcOwnerHistory.OwningUser.ThePerson, if IfcPerson has no IfcPostalAddresses in the Addresses attribute then IfcOwnerHistory.OwningUser.TheOrganization is the source
S	Country	IfcPostalAddress.Country	First source for this is IfcOwnerHistory.OwningUser.ThePerson, if IfcPerson has no IfcPostalAddresses in the Addresses attribute then IfcOwnerHistory.OwningUser.TheOrganization is the source



**Table 40 COBie.Facility Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcBuilding.Name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcClassificationReference.Identification + ":" + IfcClassificationReference.Name (IfcClassificationReference.ItemReference + ":" + IfcClassificationReference.Name in 2x3)	If no value is found via IfcClassificationReference or IfcClassification then a list of comma delimited values is populated from attached properties from the following list: Assembly_Code,Assembly_Description,OmniClass_Number,OmniClass_Title, Uniclass_Code,Uniclass_Description,Category_Code,Category_Description, Classification_Code,Classification_Description
E	ProjectName	IfcProject.Name	
F	SiteName	IfcSite.Name	
G	LinearUnits	IfcUnitAssignment.Units	
H	AreaUnits	IfcUnitAssignment.Units	
I	VolumeUnits	IfcUnitAssignment.Units	
J	CurrencyUnit	IfcMonetaryUnit.Currency	
K	AreaMeasurement	IfcElementQuantity.MethodOfMeasurement	
L	ExternalSystem	IfcApplication.ApplicationFullName	
M	ExternalProjectObject	PickList.objType = IfcProject	
N	ExternalProjectIdentifier	IfcProject.GlobalId	
O	ExternalSiteObject	PickList.objType = IfcSite	
P	ExternalSiteIdentifier	IfcSite.GlobalId	
Q	ExternalFacilityObject	PickList.objType = IfcBuilding	
R	ExternalFacilityIdentifier	IfcBuilding.GlobalId	

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
S	Description	IfcBuilding.Description	If IfcBuilding.Description is empty then populates from IfcBuilding.LongName, otherwise is set to IfcBuilding.Name
T	ProjectDescription	IfcProject.Description	If IfcProject.Description is empty then populates from IfcProject.LongName, otherwise is set to IfcProject.Name
U	SiteDescription	IfcSite.Description	If IfcSite.Description is empty then populates from IfcSite.LongName, otherwise is set to IfcSite.Name
V	Phase	IfcProject.Phase	

**Table 41 COBie.Floor Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcBuildingStorey.Name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcClassificationReference.Identification + ":" + IfcClassificationReference.Name (IfcClassificationReference.ItemReference + ":" + IfcClassificationReference.Name in 2x3)	If no value is found via IfcClassificationReference or IfcClassification then a list of comma delimited values is populated from attached properties from the following list: Assembly_Code,Assembly_Description,OmniClass_Number,OmniClass_Title, Uniclass_Code,Uniclass_Description,Category_Code,Category_Description, Classification_Code,Classification_Description
E	ExternalSystem	IfcApplication.ApplicationFullName	
F	ExternalObject	IfcBuildingStorey	
G	ExternalIdentifier	IfcBuildigStorey.GlobalId	
H	Description	IfcBuildingStorey.Description	If IfcBuildingStorey.Description is empty then populates from IfcBuildingStorey.LongName, otherwise is set to IfcBuildingStorey.Name
I	Elevation	IfcBuildingStorey.Elevation	
J	Height	IfcQuantityLength.LengthValue	Looks for values of attached property set attributes with names containing "StoreyHeight" or "FloorHeight"

**Table 42 COBie.Space Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcSpace.Name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcClassificationReference.Identification + ":" + IfcClassificationReference.Name (IfcClassificationReference.ItemReference + ":" + IfcClassificationReference.Name in 2x3)	If no value is found via IfcClassificationReference or IfcClassification then a list of comma delimited values is populated from attached properties from the following list: Assembly_Code,Assembly_Description,OmniClass_Number,OmniClass_Title,Uniclass_Code,Uniclass_Description,Category_Code,Category_Description,Classification_Code,Classification_Description
E	FloorName	IfcBuildingStorey.Name	
F	Description	IfcSpace.Description	If IfcSpace.Description is empty then populates from IfcSpace.LongName, otherwise is set to IfcSpace.Name
G	ExternalSystem	IfcApplication.ApplicationFullName	
H	ExternalObject	PickList.objType = IfcSpace	
I	ExternalIdentifier	IfcSpace.GlobalId	
J	RoomTag	IfcPropertySingleValue.NominalValue (from "RoomTag" property of property set named "COBie_Space" )	Looks for values of attached property set attributes with names containing "RoomTag" or "Tag"
K	UsableHeight	IfcQuantityLength.LengthValue (from "FinishCeilingHeight" of qto_SpaceBaseQuantities)	Looks for values of attached property set attributes with names containing "FinishCeilingHeight" or "Height"
L	GrossArea	IfcQuantityArea.AreaValue (from "GrossFloorArea" of Qto_SpaceBaseQuantities)	Looks for values of attached property set attributes with names containing "GrossFloorArea" or "GSA"
M	NetArea	IfcQuantityArea.AreaValue (from "NetFloorArea" of Qto_SpaceBaseQuantities)	Looks for values of attached property set attributes with names containing "NetFloorArea" or "GSA"

**Table 43 COBie.Zone Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcZone.Name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcClassificationReference.Identification + ":" + IfcClassificationReference.Name (IfcClassificationReference.ItemReference + ":" + IfcClassificationReference.Name in 2x3)	If parsing on an IfcPropertySingleValue will contain the property's name If no value is found via IfcClassificationReference or IfcClassification then a list of comma delimited values is populated from attached properties from the following list: Assembly_Code, Assembly_Description, OmniClass_Number, OmniClass_Title, Uniclass_Code, Uniclass_Description, Category_Code, Category_Description, Classification_Code, Classification_Description
E	SpaceNames	IfcSpace.Name	Also parses through relatedObjects and outputs their Ifc:name
F	ExternalSystem	IfcApplication.ApplicationFullName	
G	ExternalObject	PickList.objType = IfcZone	Will be IfcPropertySingleValue if getting zone from a propertysinglevalue
H	ExternalIdentifier	IfcZone.GlobalId	n/a when populated from IfcPropertySingleValue
I	Description	IfcZone.Description	If processing on a IfcPropertySingleValue representation of zone then is assigned Ifc:NominalValue. When processing on an IfcZone representation and description.length==0 then outputs Ifc:name

**Table 44 COBie.Type Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcTypeObject.Name	Also parses IfcMaterial and IfcMaterialLayerSet
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcClassificationReference.Identification + ":" + IfcClassificationReference.Name (IfcClassificationReference.ItemReference + ":" + IfcClassificationReference.Name in 2x3)	If no value is found via IfcClassificationReference or IfcClassification then a list of comma delimited values is populated from attached properties from the following list: Assembly_Code, Assembly_Description, OmniClass_Number, OmniClass_Title, Uniclass_Code, Uniclass_Description, Category_Code, Category_Description, Classification_Code, Classification_Description
E	Description	IfcTypeObject.Description	If Description is blank populates with Name. If it is a predefined type or an ElementType then its PredefinedType/ElementType name is provided
F	AssetType	IfcTypeObject IfcPropertySet with name "COBie_Asset", IfcProperty with Name "AssetType" or Pset_Asset.AssetAccountingType of IfcAsset if the corresponding IfcTypeObject is assigned to an IfcAsset through IfcRelAssignsToGroup	If it is an IfcFurnitureType then is set to "Moveable"
G	Manufacturer	IfcTypeObject IfcPropertySet with name "Pset_ManufacturerTypeInfoInformation," IfcProperty with Name "Manufacturer"	
H	ModelNumber	IfcTypeObject IfcPropertySet with name "Pset_ManufacturerTypeInfoInformation," IfcProperty with Name "ModelLabel"	
I	WarrantyGuarantorParts	IfcTypeObject IfcPropertySet with Name "COBie_Warranty," IfcProperty with name "WarrantyGuarantorParts"	If there are property set(s) named "Pset_Warranty" that do not violate the corresponding Ifc2x3tc1 property set definitions then the Pset_Warranty.WarrantyIdentifier field should be assigned "Parts" for parts warranties and "Labor" for labor warranties. Type Warranty durations are set from the Pset_Warranty.WarrantyPeriod property, Type.WarrantyDurationUnit is set from the relevant unit of Pset_Warranty.WarrantyPeriod, Type WarrantyGuarantor fields are set
J	WarrantyDurationParts	IfcTypeObject IfcPropertySet with Name "COBie_Warranty," IfcProperty with name "WarrantyDurationParts"	

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
K	WarrantyGuarantorLabor	IfcTypeObject IfcPropertySet with Name "COBie_Warranty," IfcProperty with name "WarrantyGaurantorLabor"	from the Pset_Warranty.PointOfContact property, and Type.WarrantyDescription is set from the Pset_Warranty.WarrantyContent property. If neither of these values are present in a Pset_Warranty.WarrantyIdentifier field, then the parts and labor warranty information are assumed to be the same, and all warranty fields are populated by the first non empty Pset_Warranty fields attached to the IfcTypeObject. If the Pset_Warranty occurrences have empty or null values for PointOfContact, WarrantyContent, or WarrantyPeriod then other attached property sets are searched for properties that have name as specified in column M, or that have names matching the Pset_Warranty field names.
L	WarrantyDurationLabor	IfcTypeObject IfcPropertySet with Name "COBie_Warranty," IfcProperty with name "WarrantyDurationLabor"	
M	WarrantyDurationUnit	IfcConversionBasedUnit.Name - based on SIUnit 'SECONDS'	
N	ExternalSystem	IfcApplication.ApplicationFullName	
O	ExternalObject	Subclasses of IfcTypeObject (PickList.objType)	
P	ExternalIdentifier	IfcTypeObject.GlobalId	
Q	ReplacementCost	IfcTypeObject IfcPropertySet with Name "COBie_EconomicImpactValues," IfcProperty with name "ReplacementCost"	
R	ExpectedLife	For Ifc2x3tc1, IfcTypeObject IfcPropertySet with Name "COBie_ServiceLife," IfcProperty with name "ServiceLifeDuration" or Pset_ServiceLife.ServiceLifeDuration in Ifc2x4 if corresponding type is a subclass of IfcElementType	
S	DurationUnit	IfcConversionBasedUnit.Name - based on SIUnit 'SECONDS'	
T	WarrantyDescription	IfcTypeObject IfcPropertySet with Name "COBie_Warranty," IfcProperty with name "WarrantyDescription"	Information about warranty above.
U	NominalLength	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "NominalLength"	

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
V	NominalWidth	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "NominalWidth"	
W	NominalHeight	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "NominalHeight"	
X	ModelReference	IfcTypeObject IfcPropertySet with Name "Pset_ManufacturerTypeInfoInformation," IfcProperty with name "ModelReference"	
Y	Shape	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Shape"	
Z	Size	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Size"	
AA	Color	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Color" and/or "Colour"	
AB	Finish	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Finish"	
AC	Grade	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Grade"	
AD	Material	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Material"	
AE	Constituents	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Constituents"	
AF	Features	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Features"	



Column	Column Name	IFC Mapping	
		Object	Alternative Processing
AG	AccessibilityPerformance	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "AccessibilityPerformance"	
AH	CodePerformance	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "CodePerformance"	
AI	SustainabilityPerformance	IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "SustainabilityPerformance"	

**Table 45 COBie.Component Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcProduct.name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	TypeName	IfcTypeObject.Name	
E	Space	IfcSpace.Name	
F	Description	IfcProduct.Description	
G	ExternalSystem	IfcApplication.ApplicationFullName	
H	ExternalObject	Subclasses of IfcProduct (PickList.objType)	
I	ExternalIdentifier	IfcProduct.GlobalId	
J	SerialNumber	IfcPropertySet with Name "Pset_ManufacturerOccurence," IfcProperty with name "SerialNumber"	
K	InstallationDate	IfcPropertySet with Name "COBie_Component," IfcProperty with name "InstallationDate"	
L	WarrantyStartDate	IfcPropertySet with Name "COBie_Component," IfcProperty with name "WarrantyStartDate"	
M	TagNumber	IfcPropertySet with Name "COBie_Component," IfcProperty with name "TagNumber"	
N	BarCode	IfcPropertySet with Name "Pset_ManufacturerOccurence," IfcProperty with name "BarCode"	
O	AssetIdentifier	IfcPropertySet with Name "COBie_Component," IfcProperty with name "AssetIdentifier"	

**Table 46 COBie.System Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcSystem.Name	IfcGroup.Name, IfcElectricalCircuit.Name or IfcPropertySingleValue.NominalValue
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcClassificationReference.Identification + ":" + IfcClassificationReference.Name (IfcClassificationReference.ItemReference + ":" + IfcClassificationReference.Name in 2x3)	If Name="Circuit Number" then category is "circuit." If parsing an IfcPropertySingleValue then returns NominalValue of property with name="System Type"
E	ComponentNames	IfcProduct.Name	
F	ExternalSystem	IfcApplication.ApplicationFullName	
G	ExternalObject	IfcSystem and subclasses (PickList.objType)	
H	ExternalIdentifier	IfcGloballyUniqueId	
I	Description	IfcSystem.Description	If description is blank selects name. When parsing on IfcPropertySingleValue entities selects NominalValue.

**Table 47 COBie.Assembly Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcRelAggregates.Name	IfcRelNests.Name, or IfcMaterialLayerSet.LayerSetName
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	SheetName	PickList.sheetType	
E	ParentName	IfcProduct.Name or IfcTypeObject.Name	IfcTypeObject.Name
F	ChildNames	IfcProduct.Name or IfcTypeObject.Name	IfcTypeObject.Name
G	AssemblyType	hardcoded as "Fixed" mapping to IFC is n/a	n/a
H	ExternalSystem	IfcApplication.ApplicationFullName	
I	ExternalObject	IfcProduct or IfcTypeObject subclasses (PickList.objType)	
J	ExternalIdentifier	IfcRelAggregates.GlobalId	IfcRelNests.GlobalId, or IfcMaterialLayerSet.GlobalId
K	Description	IfcRelAggregates.Description	IfcRelNests.Description, or IfcMaterialLayerSet.Description

**Table 48 COBie.Connection Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcRelConnectsElements.Name	IfcRelConnectsPorts.Name
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	ConnectionType	IfcRelConnectsElements.Description	IfcRelConnectsElements.Name or IfcRelConnectsPorts.Name when Description is blank.
E	SheetName	PickList.sheetType (Type or Component)	
F	RowName1	IfcProduct.name	IfcTypeObject.Name
G	RowName2	IfcProduct.name	IfcTypeObject.Name
H	RealizingElement	IfcConnectsPorts.RealizingElement.Name	
I	PortName1	IfcRelConnectsPorts.RelatingPort	
J	PortName2	IfcRelConnectsPorts.RelatedPort	
K	ExternalSystem	IfcApplication.ApplicationFullName	
L	ExternalObject	IfcRelConnectsElements.GlobalId	
M	ExternalIdentifier	PickList.objType	
N	Description	IfcRelConnectsElements.Description	

**Table 49 COBie.Spare to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcConstructionProductResource.Name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcClassificationReference.Identification + ":" + IfcClassificationReference.Name (IfcClassificationReference.ItemReference + ":" + IfcClassificationReference.Name in 2x3)	If no value is found via IfcClassificationReference or IfcClassification then a list of comma delimited values is populated from attached properties from the following list: Assembly_Code,Assembly_Description,OmniClass_Number,OmniClass_Title,Uniclass_Code,Uniclass_Description,Category_Code,Category_Description,Classification_Code,Classification_Description
E	TypeName	IfcTypeObject.Name	
F	Suppliers	IfcPropertySet with Name "COBie_Spare," IfcProperty with name "Suppliers"	
G	ExternalSystem	IfcApplication.ApplicationFullName	
H	ExternalObject	PickList.objType	
I	ExternalIdentifier	IfcGloballyUniqueId	
J	Description	IfcConstructionProductResource.Description	
K	SetNumber	IfcPropertySet with Name "COBie_Spare," IfcProperty with name "SetNumber"	
L	PartNumber	IfcPropertySet with Name "COBie_Spare," IfcProperty with name "PartNumber"	

**Table 50 COBie.Resource Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcConstructionEquipmentResource.Name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcConstructionEquipmentResource.ObjectType	
E	ExternalSystem	IfcApplication.ApplicationFullName	
F	ExternalObject	PickList.objType (IfcConstructionEquipmentResource)	
G	ExternalIdentifier	IfcConstructionEquipmentResource.GlobalId	
H	Description	IfcConstructionEquipmentResource.Description	

**Table 51 COBie.Job Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcTask.Name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcTask.ObjectType	
E	Status	IfcTask.Status	
F	TypeName	IfcTypeObject.Name	
G	Description	IfcTask.Description	
H	Duration	IfcTaskTime.ScheduledDuration	Looks for attached IfcPropertySingleValue with name containing "TaskDuration"
I	DurationUnit	IfcConversionBasedUnit.Name	
J	Start	IfcTaskTime.ScheduleStart	Looks for attached IfcPropertySingleValue with name containing "TaskStartDate"
K	TaskStartUnit	IfcConversionBasedUnit.Name (IfcSIUnit.Name.Second for seconds)	
L	Frequency	IfcRecurrencePattern.Occurences	Looks for attached IfcPropertySingleValue occurences with name containing "TaskInterval"
M	FrequencyUnit	IfcConversionBasedUnit.Name (IfcSIUnit.Name.Second for seconds)	
N	ExternalSystem	IfcApplication.ApplicationFullName	
O	ExternalObject	PickList.objType (IfcTask)	
P	ExternalIdentifier	IfcTask.GlobalId	
Q	TaskNumber	IfcTask.Identification	
R	Priors	IfcTask.Name	
S	ResourceNames	IfcConstructionEquipmentResource.Name	



**Table 52 COBie.Impact Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcProperty.Name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	ImpactType	Picklist.ImpactType	
E	ImpactStage	PickList.ImpactStage	
F	SheetName	PickList.sheetType	
G	RowName	n/a	
H	Value	IfcPropertySingleValue.NominalValue	
I	ImpactUnit	IfcPropertySingleValue.Unit (Prefix + Name)	
J	LeadInTime	IfcPropertySingleValue.NominalValue	
K	Duration	IfcPropertySingleValue.NominalValue	
L	LeadOutTime	IfcPropertySingleValue.NominalValue	
M	ExternalSystem	IfcApplication.ApplicationFullName	
N	ExternalObject	PickList.objType	
O	ExternalIdentifier	IfcPropertySet.GlobalId	
P	Description	IfcProperty.Description	

**Table 53 COBie.Document Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcDocumentInformation.Name	IfcTypeObject.Name + " Product Data"
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcClassification.Name	When evaluating IfcTypeObject is always "Product Data"
E	ApprovalBy	IfcDocumentInformation.IntendedUse	Is always "Information Only" in current version of asCOBie
F	Stage	IfcDocumentInformation.Scope	Is always "Requirement" in current version of asCOBie
G	SheetName	n/a	Is n/a for IfcDocumentInformation entities and "Type" for IfcTypeObject entities
H	RowName	n/a	Is n/a for IfcDocumentInformation entities and IfcTypeObject.Name for IfcTypeObject entities
I	Directory	IfcDocumentInformation.Location (IfcDocumentReference.Location in 2x3)	Is not mapped in current version of asCOBie
J	File	IfcDocumentInformation.Identification (IfcDocumentReference.Name in 2x3)	Is not mapped in current version of asCOBie
K	ExternalSystem	IfcApplication.ApplicationFullName	
L	ExternalObject	PickList.objType (type of the attached entity)	
M	ExternalIdentifier	IfcDocumentInformation.DocumentId	Is not mapped for IfcDocumentInformation, but is IfcTypeObject.GlobalId for IfcTypeObject entities
N	Description	IfcDocumentInformation.Description	If the Description slot is blank then populates with the "Name" slot
O	Reference	IfcDocumentInformation.Name	

**Table 54 COBie.Attribute Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcProperty.Name	Includes IfcPropertySingleValue, IfcPropertyBoundedValue, and IfcPropertyEnumeratedValue properties
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	IfcClassificationReference.Identification + ":" + IfcClassificationReference.Name (IfcClassificationReference.ItemReference + ":" + IfcClassificationReference.Name in 2x3)	
E	SheetName	n/a	
F	RowName	n/a	
G	Value	IfcPropertySingleValue.NominalValue	Can also be IfcPropertyEnumeratedValue.EnumerationValues or (IfcPropertyBoundedValue.LowerBoundValue, IfcPropertyBoundedValue.SetPointValue, IfcPropertyBoundedValue.UpperBoundValue)
H	Unit	IfcPropertySingleValue.Unit (Prefix + Name)	IfcPropertyBoundedValue.Unit
I	ExternalSystem	IfcApplication.ApplicationFullName	
J	ExternalObject	PickList.objType	
K	ExternalIdentifier	IfcPropertySet.Name or IfcObject.GlobalId	
L	Description	IfcProperty.Description	
M	AllowedValues	IfcPropertyEnumeration.EnumerationValues	

**Table 55 COBie.Coordinate Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcBuildingStorey.Name, IfcSpace.Name, or IfcProduct.Name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Category	n/a	
E	SheetName	PickList.sheetType	
F	RowName	n/a	
G	CoordinateXAxis	IfcCartesianPoint.Coordinates[0]	
H	CoordinateYAxis	IfcCartesianPoint.Coordinates[1]	
I	CoordinateZAxis	IfcCartesianPoint.Coordinates[2]	
J	ExternalSystem	IfcApplication.ApplicationFullName	
K	ExternalObject	IfcBuildingStorey.GlobalId, IfcSpace.GlobalId, or IfcProduct.GlobalId	
L	ExternalIdentifier	PickList.objType	
M	ClockwiseRotation	not currently mapped	
N	ElevationalRotation	not currently mapped	
O	YawRotation	not currently mapped	

**Table 56 COBie.Issue Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
A	Name	IfcApproval.Name	
B	CreatedBy	IfcTelecomAddress.ElectronicMailAddresses	
C	CreatedOn	IfcOwnerHistory.CreationDate	
D	Type	Pset_Risk.RiskType (IfcPropertyEnumeratedValue, IfcLabel)	
E	Risk	Pset_Risk.RiskRating (IfcPropertyEnumeratedValue, IfcLabel)	
F	Chance	Pset_Risk.AssessmentOfRisk (IfcPropertyEnumeratedValue, IfcLabel)	
G	Impact	Pset_Risk.RiskConsequence (IfcPropertyEnumeratedValue, IfcLabel)	
H	SheetName1	PickList.sheetType	
I	RowName1	n/a	
J	SheetName2	PickList.sheetType	
K	RowName2	n/a	
L	Description	IfcApproval.Description	
M	Owner	IfcTelecomAddress.ElectronicMailAddresses	
N	Mitigation	Pset_Risk.PreventiveMeasures	
O	ExternalSystem	IfcApplication.ApplicationFullName	
P	ExternalObject	PickList.objType	
Q	ExternalIdentifier	IfcApproval.GlobalId	

**Table 57 COBie.Picklist Worksheet to IFC**

Column	Column Name	IFC Mapping	
		Object	Alternative Processing
D	Category-Facility	IfcClassificationReference.Location	
E	Category-Space	IfcClassificationReference.Location	
F	Category-Element	IfcClassificationReference.Location	

G	Category-Product	IfcClassificationReference.Location	
H	Category-Role	IfcClassificationReference.Location	

#### A.4 IFC Coordination View Exclusion Lists for COBie

Rapid implementation of COBie has resulted from the explicit nature of the deliverable requirements and the flexibility of the approach taken with respect to the delivery of COBie data, regardless of implementation format. While the implementation of COBie in IFC is authorized vendors producing COBie IFC files have, as of the date of the publication of this standard, have provided and extended IFC 2x3 Coordination MVD file. While this file contains information needed for COBie, namely the list of managed assets in a given facility, the Coordination MVD also contains many additional objects and associated geometric information that is not with COBie’s scope.

As a result, the COBie ToolKit assist vendors to filter their IFC Coordination MVD file to extract only that information needed to support the use of COBie within the United States. The algorithm for selecting COBie-related objects is to Iterate over all `IfcObjectTypes` then over `IfcMaterial` and `IfcMaterialLayerSet`. In all cases property values may also be inherited from the `IfcRelDefinesByProperties` of the first related object instance. Some `IfcTypeObject` subclasses are not included in the export.

The entity exclusion lists for type and instance objects, presented as a list in COBie 2.4 (section 7.15 Entity Exclusion Set) are more precisely defined in the two tables below. These tables are organized based on the IFC4 inheritance tree. Entities not included in COBie are shown with the “strikeout” text decoration.

Note:

1. COBie implementations in IFC 2x3 use the exclusion lists the associated IFC 2x3 objects as identified in the COBie Responsibility Matrix.
2. This exclusion list represents the application of COBie in the United States. Regional or contract-based exclusion lists may also be implemented at the discretion of those regions or owners.

**Table 58 IFC Coordination View Types Excluded in COBie**

<u>-IfcTypeObject</u>	NOTE: base abstract type instances not allowed
→ <u>-IfcTypeProcess</u>	
→ <u>-IfcEventType</u>	
→ <u>-IfcProcedureType</u>	
→ <u>-IfcTaskType</u>	
- » <u>-IfcTypeProduct</u>	NOTE: base abstract type instances not allowed
→ <u>IfcDoorStyle</u>	
→ <u>-IfcElementType</u>	NOTE: base abstract type instances not allowed
-» <u>IfcBuildingElementType</u>	
→ <u>-IfcBeamType</u>	
→ <u>IfcBuildingElementProxyType</u>	
→ <u>IfcChimneyType</u>	
→ <u>-IfcColumnType</u>	
→ <u>IfcCoveringType</u>	
→ <u>-IfcCurtainWallType</u>	
→ <u>IfcDoorType</u>	
→ <u>IfcFootingType</u>	
→ <u>-IfcMemberType</u>	
→ <u>IfcPileType</u>	
→ <u>-IfcPlateType</u>	
→ <u>-IfcRailingType</u>	
→ <u>-IfcRampFlightType</u>	
→ <u>-IfcRampType</u>	
→ <u>IfcRoofType</u>	
→ <u>IfcShadingDeviceType</u>	
→ <u>-IfcSlabType</u>	
→ <u>-IfcStairFlightType</u>	
→ <u>-IfcStairType</u>	
→ <u>-IfcWallType</u>	
→ <u>IfcWindowType</u>	
- » <u>IfcDistributionElementType</u>	
→ <u>IfcDistributionControlElementType</u>	
→ <u>IfcActuatorType</u>	
→ <u>IfcAlarmType</u>	
→ <u>IfcControllerType</u>	
→ <u>IfcFlowInstrumentType</u>	
→ <u>IfcProtectiveDeviceTrippingUnitType</u>	
→ <u>IfcSensorType</u>	
→ <u>IfcUnitaryControlElementType</u>	



- > IfcDistributionFlowElementType
  - > IfcDistributionChamberElementType
  - > IfcEnergyConversionDeviceType
    - > IfcAirToAirHeatRecoveryType
    - > IfcBoilerType
    - > IfcBurnerType
    - > IfcChillerType
    - > IfcCoilType
    - > IfcCondenserType
    - > IfcCooledBeamType
    - > IfcCoolingTowerType
    - > IfcElectricGeneratorType
    - > IfcElectricMotorType
    - > IfcEngineType
    - > IfcEvaporativeCoolerType
    - > IfcEvaporatorType
    - > IfcHeatExchangerType
    - > IfcHumidifierType
    - > IfcMotorConnectionType
    - > IfcSolarDeviceType
    - > IfcTransformerType
    - > IfcTubeBundleType
    - > IfcUnitaryEquipmentType
  - > IfcFlowControllerType
    - > IfcAirTerminalBoxType
    - > IfcDamperType
    - > IfcElectricDistributionBoardType
    - > IfcElectricTimeControlType
    - > IfcFlowMeterType
    - > IfcProtectiveDeviceType
    - > IfcSwitchingDeviceType
    - > IfcValveType
  - > IfcFlowFittingType
    - > IfcCableCarrierFittingType
    - > IfcCableFittingType
    - > IfcDuctFittingType
    - > IfcJunctionBoxType
    - > IfcPipeFittingType
  - > IfcFlowMovingDeviceType
    - > IfcCompressorType
    - > IfcFanType
    - > IfcPumpType

- > IfcFlowSegmentType
  - > IfcCableCarrierSegmentType
  - > IfcCableSegmentType
  - > IfcDuctSegmentType
  - > IfcPipeSegmentType
- > IfcFlowStorageDeviceType
  - > IfcElectricFlowStorageDeviceType
  - > IfcTankType
- > IfcFlowTerminalType
  - > IfcAirTerminalType
  - > IfcAudioVisualApplianceType
  - > IfcCommunicationsApplianceType
  - > IfcElectricApplianceType
  - > IfcFireSuppressionTerminalType
  - > IfcLampType
  - > IfcLightFixtureType
  - > IfcMedicalDeviceType
  - > IfcOutletType
  - > IfcSanitaryTerminalType
  - > IfcSpaceHeaterType
  - > IfcStackTerminalType
  - > IfcWasteTerminalType
- > IfcFlowTreatmentDeviceType
  - > IfcDuctSilencerType
  - > IfcFilterType
  - > IfcInterceptorType
- > IfcElementAssemblyType
- > IfcElementComponentType
  - > IfcBuildingElementPartType
  - > IfcDiscreteAccessoryType
  - > IfcFastenerType
  - > IfcMechanicalFastenerType
  - > IfcReinforcingElementType
    - > IfcReinforcingBarType
    - > IfcReinforcingMeshType
    - > IfcTendonAnchorType
    - > IfcTendonType
  - > IfcVibrationIsolatorType
- > IfcFurnishingElementType
  - > IfcFurnitureType
  - > IfcSystemFurnitureElementType
- > IfcGeographicElementType
- > IfcTransportElementType

- IfcSpatialElementType
- IfcSpatialStructureElementType
  - IfcSpaceType
- IfcSpatialZoneType
- IfcWindowStyle



**Table 59 IFC Coordinate View Instances Excluded in COBie**

<u>IfcProduct</u>
-> <u>IfcAnnotation</u>
-> <u>IfcElement</u>
-> <u>IfcBuildingElement</u>
-> <u>IfcBeam</u>
-> <u>IfcBeamStandardCase</u>
-> <u>IfcBuildingElementProxy</u>
-> <u>IfcChimney</u>
-> <u>IfcColumn</u>
-> <u>IfcColumnStandardCase</u>
-> <u>IfcCovering</u>
-> <u>IfcCurtainWall</u>
-> <u>IfcDoor</u>
-> <u>IfcDoorStandardCase</u>
-> <u>IfcFooting</u>
-> <u>IfcMember</u>
-> <u>IfcMemberStandardCase</u>
-> <u>IfcPile</u>
-> <u>IfcPlate</u>
-> <u>IfcPlateStandardCase</u>
-> <u>IfcRailing</u>
-> <u>IfcRamp</u>
-> <u>IfcRampFlight</u>
-> <u>IfcRoof</u>
-> <u>IfcShadingDevice</u>
-> <u>IfcSlab</u>
-> <u>IfcSlabElementedCase</u>
-> <u>IfcSlabStandardCase</u>
-> <u>IfcStair</u>
-> <u>IfcStairFlight</u>
-> <u>IfcWall</u>
-> <u>IfcWallElementedCase</u>
-> <u>IfcWallStandardCase</u>
-> <u>IfcWindow</u>
-> <u>IfcWindowStandardCase</u>
-> <u>IfcDistributionElement</u>
-> <u>IfcDistributionControlElement</u>
-> <u>IfcActuator</u>
-> <u>IfcAlarm</u>
-> <u>IfcController</u>
-> <u>IfcFlowInstrument</u>
-> <u>IfcProtectiveDeviceTrippingUnit</u>
-> <u>IfcSensor</u>
-> <u>IfcUnitaryControlElement</u>

- > IfcDistributionFlowElement
  - > IfcDistributionChamberElement
  - > IfcEnergyConversionDevice
    - > IfcAirToAirHeatRecovery
    - > IfcBoiler
    - > IfcBurner
    - > IfcChiller
    - > IfcCoil
    - > IfcCondenser
    - > IfcCooledBeam
    - > IfcCoolingTower
    - > IfcElectricGenerator
    - > IfcElectricMotor
    - > IfcEngine
    - > IfcEvaporativeCooler
    - > IfcEvaporator
    - > IfcHeatExchanger
    - > IfcHumidifier
    - > IfcMotorConnection
    - > IfcSolarDevice
    - > IfcTransformer
    - > IfcTubeBundle
    - > IfcUnitaryEquipment
  - > IfcFlowController
    - > IfcAirTerminalBox
    - > IfcDamper
    - > IfcElectricDistributionBoard
    - > IfcElectricTimeControl
    - > IfcFlowMeter
    - > IfcProtectiveDevice
    - > IfcSwitchingDevice
    - > IfcValve
  - > IfcFlowFitting
    - > IfcCableCarrierFitting
    - > IfcCableFitting
    - > IfcDuctFitting
    - > IfcJunctionBox
    - > IfcPipeFitting
  - > IfcFlowMovingDevice
    - > IfcCompressor
    - > IfcFan
    - > IfcPump
  - > IfcFlowSegment
    - > IfcCableCarrierSegment
    - > IfcCableSegment
    - > IfcDuctSegment
    - > IfcPipeSegment
  - > IfcFlowStorageDevice
    - > IfcElectricFlowStorageDevice

- » IfcTank
  - » IfcFlowTerminal
    - » IfcAirTerminal
    - » IfcAudioVisualAppliance
    - » IfcCommunicationsAppliance
    - » IfcElectricAppliance
    - » IfcFireSuppressionTerminal
    - » IfcLamp
    - » IfcLightFixture
    - » IfcMedicalDevice
    - » IfcOutlet
    - » IfcSanitaryTerminal
    - » IfcSpaceHeater
    - » IfcStackTerminal
    - » IfcWasteTerminal
  - » IfcFlowTreatmentDevice
    - » IfcDuctSilencer
    - » IfcFilter
    - » IfcInterceptor
- » IfcElementAssembly
- » IfcElementComponent
  - » IfcBuildingElementPart
  - » IfcDiscreteAccessory
  - » IfcFastener
  - » IfcMechanicalFastener
  - » IfcReinforcingElement
    - » IfcReinforcingBar
    - » IfcReinforcingMesh
    - » IfcTendon
    - » IfcTendonAnchor
  - » IfcVibrationIsolator
- » IfcFeatureElement
  - » IfcFeatureElementAddition
  - » IfcProjectionElement
  - » IfcFeatureElementSubtraction
    - » IfcOpeningElement
      - » IfcOpeningStandardCase
    - » IfcVoidingFeature
  - » IfcSurfaceFeature
- » IfcFurnishingElement
  - » IfcFurniture
  - » IfcSystemFurnitureElement
- » IfcGeographicElement
- » IfcTransportElement
- » IfcVirtualElement

- > IfcGrid
- > IfcPort
- > IfcDistributionPort
- > IfcProxy
- > IfcSpatialElement
  - > IfcExternalSpatialStructureElement
    - > IfcExternalSpatialElement
  - > IfcSpatialStructureElement
    - > IfcBuilding
    - > IfcBuildingStorey
    - > IfcSite
    - > IfcSpace
  - > IfcSpatialZone
- > IfcStructuralActivity
  - > IfcStructuralAction
    - > IfcStructuralCurveAction
    - > IfcStructuralLinearAction
    - > IfcStructuralPointAction
    - > IfcStructuralSurfaceAction
    - > IfcStructuralPlanarAction
  - > IfcStructuralReaction
    - > IfcStructuralCurveReaction
    - > IfcStructuralPointReaction
    - > IfcStructuralSurfaceReaction
- > IfcStructuralItem
  - > IfcStructuralConnection
    - > IfcStructuralCurveConnection
    - > IfcStructuralPointConnection
    - > IfcStructuralSurfaceConnection
  - > IfcStructuralMember
    - > IfcStructuralCurveMember
      - > IfcStructuralCurveMemberVarying
    - > IfcStructuralSurfaceMember
      - > IfcStructuralSurfaceMemberVarying



## A.5 IFC Property Set Mappings for COBie

The development process of the IFC model attempts to capture relevant property sets, however, not all property sets necessary for the COBie exchange requirements are implemented in IFC. In other cases expression of entity properties found on COBie worksheets does not directly correspond to existing IFC property sets. This section describes how IFC property sets must be handled to meet the business rules and exchange requirements of COBie.

### A.5.1 Excluded ifcPropertySet Names

The following property exclusion rule is required for ifcPropertySet property names that map to COBie.Attribute worksheet rows. This set of rules is required since providers of COBie data in IFC format provide that information as extended Coordination MVD files. In addition there appears in COBie IFC implementations to provide all property data regardless of the value of such information to the end-user. Exclude any properties where the following assertions are true:

- equals("Assembly Code")
- equals("Assembly Description")
- contains("AssetAccountingType")
- equals("Base Offset")
- equals("Category Code")
- equals("Category Description")
- equals("Classification Code")
- equals("Classification Description")
- equals("Description")
- contains("GSA BIM Area")
- starts-with("Half Oval")
- contains("Height")
- equals("Host")
- equals("Hot Water Radius")
- contains("Length")
- starts-with("Level")
- contains("Lighting Calculation Workplan")
- equals("Limit Offset")
- equals("Line Pattern")
- equals("Mark")
- equals("MethodOfMeasurement")
- equals("Name")
- contains("Offset")
- contains("Omniclass")
- equals("Omniclass Number")
- starts-with("Omniclass Title")
- starts-with("Outside Diameter")
- starts-with("Outside Radius")
- equals("Phase")
- equals("Phase Created")
- contains("Radius")
- equals("Receptacles")
- equals("Roomtag")
- contains("Size")
- equals("Symbol")
- equals("Uniclass Code")

- equals("Uniclass Description")
- equals("Upper Limit")
- equals("Window Inset")
- starts-with("Width")
- contains("Zone")

#### **A.5.2 Excluded Attributes for Component Properties**

The following properties that may be found in ifcPropertySets are explicitly present in specific COBie worksheets and have direct mappings there. As a result, the following properties are ignored when mapping IFC properties to COBie Attributes worksheet rows:

- AssetIdentifier
- BarCode
- Circuit Number
- InstallationDate
- SerialNumber
- System Name
- System Type
- TagNumber
- WarrantyStartDate

#### **A.5.3 Excluded Attributes for Specific Entity Properties**

The following Type properties are excluded from the Attributes worksheet since they appear as part of Type object properties.

- AssetType
- AccessibilityPerformance
- CodePerformance
- Constituents
- Color
- Cost
- DurationUnit
- ExpectedLife
- Features
- Finish
- Grade
- IsFixed
- Manufacturer
- Material
- ModelLabel
- ModelNumber
- ModelReference
- NominalHeight
- NominalWidth
- NominalLength
- ServiceLifeType
- ServiceLifeDuration
- Shape
- Size

- SustainabilityPerformance,
- LifeCyclePhase,
- ReplacementCost,
- WarrantyDescription
- WarrantyDurationLabor
- WarrantyDurationParts
- WarrantyDurationUnit
- WarrantyGuarantorLabor
- WarrantyGuarantorParts
- WarrantyName

**Restrictions on Space Attributes:** Exclude any property with name equal to Area,Number,or ZoneName.Exclude PropertySets named BaseQuantities

**Restrictions on Floor Attributes:** Exclude any property named Elevation

**Restrictions on Facility Attributes:** Exclude any property named Phase

The following rules filter COBie Attributes that do not provide any value to the end-user. Thousands of such properties are typically encountered.

**Exclude** Any property with value as "default"

**Exclude** Any property with name and value as equal

The following rules describe the mapping of COBie Worksheet entity values to their associated ifcPropertySets.

**Floor.Height** – Include Property with name containing StoreyHeight, Storey Height, FloorHeight, or Floor Height

**Space.UsableHeight** – Include Property name containing UsableHeight,FinishCeilingHeight,Height

**Space.RoomTag** – Include Property name containingRoomTag,Tag,Room\_Tag

**Space.GrossArea** – Include Property Name containing GrossFloorArea, or GSA

**Space.NetArea** – Include Property name containing NetFloorArea, or GSA

## A.6 COBie Spreadsheet Mapping to COBieLite

The National Information Exchange Model (NIEM) is a United States standard schema development project that currently links together government organizations at the national, state, and local levels. COBieLite is the first submission to the NIEM schema repository which pertains to information about facilities that are located at a specific physical address. In addition to moving the traditional COBie community away from a semi-proprietary spreadsheet schema for COBie deliverable, transformation of design and construction information into NIEM is expected to allow many other non-traditional users of building information models to access information about their facilities.

The tables in this section provide the mapping from each COBie worksheet to the National Information Exchange Model (NIEM) compliant COBieLite XML Schema. The most important change about this the COBieLite schema is that it is a “nested” XML specification, rather than the “flat” COBie SpreadsheetML. It is expected that this nesting will allow COBieLite files to be less prone to errors and smaller. As a result some software vendors have already begun implementing COBieLite in advance of its acknowledgement as an official part of NBIMS-US™.

**Table 60 COBie.Contact Worksheet to COBieLite Mapping**

COBie.Contact Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Email	Facility.Contacts.Contact	ContactEmail
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		ContactCategory
E	Company		ContactCompanyName
F	Phone		ContactPhoneNumber
G	ExternalSystem		externalSystemName
H	ExternalObject		externalEntityName
I	ExternalIdentifier		externalID
J	Department		ContactDepartmentName
K	OrganizationCode		n/a
L	GivenName		ContactGivenName
M	FamilyName		ContactFamilyName
N	Street		ContactStreet
O	PostalBox		ContactPostalBoxNumber
P	Town		ContactTownName
Q	StateRegion		ContactRegionCode
R	PostalCode		ContactPostalCode
S	Country		ContactCountryName
n/a	n/a		ContactURL
n/a	See Attribute Worksheet	ContactAttributes	
n/a	See Document Worksheet	ContactDocuments	
n/a	See Issue Worksheet	ContactIssues	

**Table 61 COBie.Facility Worksheet to COBieLite**

COBie.Contact Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility	FacilityName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		FacilityCategory
E	ProjectName		ProjectAssignment.ProjectName
F	SiteName		SiteAssignment.SiteName
G	LinearUnits		FacilityDefaultLinearUnit
H	AreaUnits		FacilityDefaultAreaUnit
I	VolumeUnits		FacilityDefaultVolumeUnit
J	CurrencyUnit		FacilityDefaultCurrencyUnit
K	AreaMeasurement		FacilityDefaultMeasurementStandard
L	ExternalSystem		externalSystemName
M	ExternalProjectObject		ProjectAssignment.externalEntityName
N	ExternalProjectIdentifier		ProjectAssignment.externalID
O	ExternalSiteObject		SiteAssignment.externalEntityName
P	ExternalSiteIdentifier		SiteAssignment.externalID
Q	ExternalFacilityObject		externalEntityName
R	ExternalFacilityIdentifier		externalID
S	Description		FacilityDescription
T	ProjectDescription		ProjectAssignment.ProjectDescription
U	SiteDescription		SiteAssignment.SiteDescription
V	Phase	FacilityDeliverablePhaseName	
n/a	See Attribute Worksheet	FacilityAttributes	
n/a	See Document Worksheet	FacilityDocuments	
n/a	See Issue Worksheet	FacilityIssues	

**Table 62 COBie.Floor Worksheet to COBieLite**

COBie.Floor Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility.Floors.Floor	FloorName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		FloorCategory
E	ExternalSystem		externalSystemName
F	ExternalObject		externalEntityName
G	ExternalIdentifier		externalIdentifier
H	Description		FloorDescription
I	Elevation		FloorElevationValue.DecimalValue
J	Height		FloorHeightValue.DecimalValue
n/a	See Attribute Worksheet		FloorAttributes
n/a	See Document Worksheet		FloorDocuments
n/a	See Issue Worksheet		FloorIssues

**Table 63 COBie.Space Worksheet to COBieLite**

COBie.Space Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility.Floors.Floor.Spaces.Space	SpaceName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		SpaceCategory
E	FloorName		see Parent element Floor.FloorName
F	Description		SpaceDescription
G	ExternalSystem		externalSystemName
H	ExternalObject		externalEntityName
I	ExternalIdentifier		externalID
J	RoomTag		SpaceSignageName
K	UsableHeight		SpaceUsableHeightValue.DecimalValue
L	GrossArea		SpaceGrossAreaValue.DecimalValue
M	NetArea		SpaceNetAreaValue.DecimalValue
n/a	See Attribute Worksheet		SpaceAttributes
n/a	See Document Worksheet		SpaceDocuments
n/a	See Issue Worksheet		SpaceIssues



**Table 64 COBie.Zone Worksheet to COBieLite**

COBie.Zone Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility.Zones. Zone	ZoneName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		ZoneCategory
E	SpaceNames	Facility.Spaces. Space	ZoneAssignment
F	ExternalSystem	Facility.Zones.Zone	externalSystemName
G	ExternalObject		externalEntityName
H	ExternalIdentifier		externalID
I	Description		ZoneDescription
n/a	See Attribute Worksheet		ZoneAttributes
n/a	See Document Worksheet		ZoneDocuments
n/a	See Issue Worksheet		ZoneIssues

**Table 65 COBie.Type Worksheet to COBieLite**

COBie.Type Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility.AssetType.AssetType	AssetTypeName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		AssetTypeCategory
E	Description		AssetTypeDescription
F	AssetType		AssetTypePortabilityText
G	Manufacturer		AssetTypeContactAssignments.ContactAssignment.ContactEmail
H	ModelNumber		AssetTypeModelNumber
I	WarrantyGuarantorParts		Warranties.Warranty.WarrantyContactAssignment.ContactEmail where Warranty.WarrantyCategory = Parts
J	WarrantyDurationParts		Warranties.Warranty.WarrantyDuration.IntegerValue where Warranty.WarrantyCategory = Parts
K	WarrantyGuarantorLabor		Warranties.Warranty.WarrantyContactAssignment.ContactEmail where Warranty.WarrantyCategory = Labor
L	WarrantyDurationLabor		Warranties.Warranty.WarrantyDuration.IntegerValue where Warranty.WarrantyCategory = Parts
M	WarrantyDurationUnit		Warranties.Warranty.WarrantyDuration.UnitName
N	ExternalSystem		externalSystemName
O	ExternalObject		externalEntityName
P	ExternalIdentifier		externalID
Q	ReplacementCost		AssetTypeReplacementCostValue.DecimalValue
R	ExpectedLife		AssetTypeExpectedLifeValue.IntegerValue
S	DurationUnit		AssetTypeExpectedLifeValue.UnitName
T	WarrantyDescription		Warranties.Warranty.WarrantyDescription
U	NominalLength		AssetTypeNominalLength.DecimalValue
V	NominalWidth		AssetTypeNominalWidth.DecimalValue
W	NominalHeight		AssetTypeNominalHeight.DecimalValue
X	ModelReference		n/a
Y	Shape		AssetTypeShapeDescription
Z	Size		AssetTypeSizeDescription
AA	Color	AssetTypeColorCode	
AB	Finish	AssetTypeFinishDescription	
AC	Grade	AssetTypeGradeDescription	
AD	Material	AssetTypeMaterialDescription	
AE	Constituents	AssetTypeConstituentsDescription	
AF	Features	AssetTypeFeaturesDescription	
AG	AccessibilityPerformance	AssetTypeAccessibilityText	
AH	CodePerformance	AssetTypeCodePerformance	

COBie.Type Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
AI	SustainabilityPerformance		AssetTypeSustainabilityPerformance
n/a	See Attribute Worksheet		AssetTypeAttributes
n/a	See Document Worksheet		AssetTypeDocuments
n/a	See Issue Worksheet		AssetTypeIssues

**Table 66 COBie.Component Worksheet to COBieLite**

COBie.Component Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility.AssetType.Assets.Asset	AssetName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	TypeName		see Parent element AssetType.AssetName
E	Space		AssetSpaceAssignments.AssetSpaceAssignment.SpaceName
F	Description		AssetDescription
G	ExternalSystem		externalSystemName
H	ExternalObject		externalEntityName
I	ExternalIdentifier		externalID
J	SerialNumber		AssetSerialNumber
K	InstallationDate		AssetInstallationDate
L	WarrantyStartDate		AssetWarrantyStartDate
M	TagNumber		AssetTagNumber
N	BarCode		AssetBarCode
O	AssetIdentifier		AssetIdentifier
n/a	n/a		AssetLocationDescription
n/a	n/a		AssetInstalledModelNumber
n/a	See Attribute Worksheet	AssetAttributes	
n/a	See Document Worksheet	AssetDocuments	
n/a	See Issue Worksheet	AssetIssues	

**Table 67 COBie.System Worksheet to COBieLite**

COBie.System Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
E	ComponentNames	Facility.AssetTypes.Asset.Type.Asset. SystemAssignments.SystemAssignment	SystemName
F	ExternalSystem	Facility.AssetTypes.AssetType. AssetType.Assets.Assets	externalSystemName
G	ExternalObject		externalEntityName
H	ExternalIdentifier		externalID
I	Description		SystemDescription
n/a	See Attribute Worksheet		SystemAttributes
n/a	See Document Worksheet		SystemDocuments
n/a	See Issue Worksheet		SystemIssues

**Table 68 COBie.Assembly Worksheet to COBieLite**

COBie.Assembly Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility.Assemblies.Assembly	AssemblyName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	SheetName		n/a (Implied by AssetType.AssemblyAssignments or Asset.AssemblyAssignments)
E	ParentName		AssemblyParentName
F	ChildNames		n/a (Implied by AssetType.AssemblyAssignments or Asset.AssemblyAssignments)
G	AssemblyType		AssemblyCategory
H	ExternalSystem		externalSystemName
I	ExternalObject		externalEntityName
J	ExternalIdentifier		externalID
K	Description		AssemblyDescription
n/a	See Attribute Worksheet		AssemblyAttributes
n/a	See Document Worksheet		AssemblyDocuments
n/a	See Issue Worksheet		AssemblyIssues

**Table 69 COBie.Connection Worksheet to COBieLite**

COBie.Connection Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility.Connections.Connection	ConnectionName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	ConnectionType		ConnectionCategory
E	SheetName		n/a (restricted to Assets)
F	RowName1		ConnectionAsset1Name
G	RowName2		ConnectionAsset2Name
H	RealizingElement		n/a
I	PortName1		ConnectionAsset1PortName
J	PortName2		ConnectionAsset2PortName
K	ExternalSystem		externalSystemName
L	ExternalObject		externalEntityName
M	ExternalIdentifier		externalID
N	Description		ConnectionDescription
n/a	See Attribute Worksheet		ConnectionAttribute
n/a	See Document Worksheet		ConnectionDocuments
n/a	See Issue Worksheet		ConnectionIssues

**Table 70 COBie.Spare Worksheet to COBieLite**

COBie.Spare Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility.AssetType.Spare	SpareName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		SpareCategory
E	TypeName		n/a (implied by AssetType.AssetName parent)
F	Suppliers		SpareContactAssignments.ContactAssignment.ContactEmail
G	ExternalSystem		externalSystemName
H	ExternalObject		externalEntityName
I	ExternalIdentifier		externalID
J	Description		SpareDescription
K	SetNumber		SpareSetNumber
L	PartNumber		SparePartNumber
n/a	See Attribute Worksheet		SpareAttributes
n/a	See Document Worksheet		SpareDocuments
n/a	See Issue Worksheet	SpareIssues	



**Table 71 COBie.Resource Worksheet to COBieLite**

COBie.Resource Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility.AssetTypes.AssetType.Jobs.Job.Resources.Resource	ResourceName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		ResourceCategory
E	ExternalSystem		externalSystemName
F	ExternalObject		externalEntityName
G	ExternalIdentifier		externalID
H	Description		ResourceDescription
n/a	See Attribute Worksheet		ResourceAttributes
n/a	See Document Worksheet		ResourceDocuments
n/a	See Issue Worksheet		ResourceIssues

**Table 72 COBie.Job Worksheet to COBieLite**

COBie.Job Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	Facility.AssetType.AssetType.Jobs.Job	JobName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		JobCategory
E	Status		JobStatus
F	TypeName		n/a (implied by AssetType.AssetName parent)
G	Description		JobDescription
H	Duration		JobDuration.IntegerValue
I	DurationUnit		JobDuration.UnitName
J	Start		JobStartDate
K	TaskStartUnit		JobStartConditionDescription
L	Frequency		JobFrequencyValue.IntegerValue
M	FrequencyUnit		JobFrequencyValue.UnitName
N	ExternalSystem		externalSystemName
O	ExternalObject		externalEntityName
P	ExternalIdentifier		externalID
Q	TaskNumber		JobTaskID
R	Priors		JobPriorTaskID
S	ResourceNames		Resources.Resource.ResourceName
n/a	See Attribute Worksheet		
n/a	See Document Worksheet		JobDocuments
n/a	See Issue Worksheet		JobIssues

**Table 73 COBie.Impact Worksheet to COBieLite**

COBie.Impact Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name		COBie Impact worksheet is not mapped to COBieLite as part of this document.
B	CreatedBy		
C	CreatedOn		
D	ImpactType		
E	ImpactStage		
F	SheetName		
G	RowName		
H	Value		
I	ImpactUnit		
J	LeadInTime		
K	Duration		
L	LeadOutTime		
M	ExternalSystem		
N	ExternalObject		
O	ExternalIdentifier		
P	Description		

**Table 74 COBie.Document Worksheet to COBieLite**

COBie.Document Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	See other COBieLite Elements with Document children	DocumentName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		DocumentCategory
E	ApprovalBy		n/a
F	Stage		n/a
G	SheetName		n/a
H	RowName		n/a
I	Directory		DocumentURI
J	File		
K	ExternalSystem		externalSystemName
L	ExternalObject		externalEntityName
M	ExternalIdentifier		externalID
N	Description		DocumentDescription
O	Reference		DocumentReferenceURI
n/a	See Attribute Worksheet		DocumentAttributes
n/a	See Issue Worksheet		DocumentIssues

**Table 75 COBie.Attribute Worksheet to COBieLite**

COBie.Attribute Worksheet		COBieLite XML Schema	
Column	Sheet.ColumnName	Parent	Child Element or Attribute
A	Name	See other COBieLiteElements with Attribute children	AttributeName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Category		AttributeCategory
E	SheetName		n/a Implied by parent relationship
F	RowName		n/a Implied by parent relationship
G	Value		AttributeValue
H	Unit		AttributeValue.UnitName
I	ExternalSystem		externalSystemName
J	ExternalObject		externalEntityName
K	ExternalIdentifier		externalID
L	Description		AttributeDescription
M	AllowedValues		AttributeValue.AttributeStringValue.AllowedValues
n/a	See Issue Worksheet		AttributeIssues

**Table 76 COBie.Coordinate Worksheet to COBieLite**

COBie.Coordinate Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name		See Facility.Floors.Floor.Spaces.Space.Space2DShape for COBie Geometry
B	CreatedBy		
C	CreatedOn		
D	Category		
E	SheetName		
F	RowName		
G	CoordinateXAxis		
H	CoordinateYAxis		
I	CoordinateZAxis		
J	ExternalSystem		
K	ExternalObject		
L	ExternalIdentifier		
M	ClockwiseRotation		
N	ElevationalRotation		
O	YawRotation		

**Table 77 COBie.Issue Worksheet to COBieLite**

COBie.Issue Worksheet		COBieLite XML Schema	
Column	ColumnName	Parent	Child Element or Attribute
A	Name	See other COBieLite Elements with Issue Child elements	IssueName
B	CreatedBy		n/a
C	CreatedOn		n/a
D	Type		IssueCategory
E	Risk		IssueSeverityText
F	Chance		IssueRiskText
G	Impact		IssueImpactText
H	SheetName1		n/a Implied by parent relationship
I	RowName1		n/a Implied by parent relationship
J	SheetName2		n/a Implied by parent relationship
K	RowName2		n/a Implied by parent relationship
L	Description		IssueDescription
M	Owner		ContactAssignment
N	Mitigation		IssueMitigationDescription
O	ExternalSystem		externalSystemName
P	ExternalObject		externalEntityName
Q	ExternalIdentifier		externalID

## A.7 COBieLite Schema Definition

### A.7.1 COBieLite Core NameSpace

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="http://docs.buildingsmartalliance.org/nbims03/cobie/core"
xmlns:camed="http://jcam.org.uk/editor" targetNamespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core"
elementFormDefault="unqualified" attributeFormDefault="unqualified" version="RC4">
```

```
<xs:annotation>
```

```
<xs:documentation>
```

The Construction-Operations Building information exchange (COBie) is a United States Building Information Model Standard published by the buildingSMART alliance®, a Council of the National Institute of Building Sciences. COBie defines the information exchange requirements needed to capture required information needed to manage facility assets during the planning, design, construction, operations, management, renovation, and recycling of a facility. COBie is a marketing name used by the buildingSMART alliance® for the underlying internationally used format defined by the Facility Management Handover Model View Definition, and internally used and recognized Model View of the STEP-based ISO 16739 standard.

```
</xs:documentation>
```

```
</xs:annotation>
```

```
<!-- Document Root Element-->
```

```
<xs:element name="Facility" type="FacilityType" abstract="true">
```

```
<xs:annotation>
```

```
<xs:documentation>
```

Facility contains information about the facility being exchanged during a given COBie deliverable. Since COBie deliverables may be exchanged during planning, design, construction, handover, or operation phases there may be differences in facility designations. COBie files will typically contain a single facility.

```
</xs:documentation>
```

```
</xs:annotation>
```

```
<!--Key Refs-->
```

```
<!--Zone Key Refs-->
```

```
<!--Space Key Refs-->
```

```
</xs:element>
```

```
<!--Base ComplexType Definitions-->
```

```
<xs:complexType name="CobieBaseType" abstract="true">
```

```
<xs:annotation>
```

```
<xs:documentation>Base type that all major COBie elements extend.</xs:documentation>
```

```
</xs:annotation>
```

```
<xs:complexContent>
```

```
<xs:extension base="CobieComplexObjectType">
```

```
<xs:attribute ref="externalEntityName" use="optional"/>
```

```
<xs:attribute ref="externalID" use="optional"/>
```

```
<xs:attribute ref="externalSystemName" use="optional"/>
```

```
</xs:extension>
```

```
</xs:complexContent>
```

```
</xs:complexType>
```

```
<xs:complexType name="CobieComplexObjectType" abstract="true">
```

```
<xs:annotation>
```

```
<xs:documentation>The complex type that all declared Complex types derive</xs:documentation>
```

```
</xs:annotation>
```

```
</xs:complexType>
```

```
<xs:complexType name="CobieKeyType" abstract="true">
```

```
<xs:annotation>
```

```
<xs:documentation>Abstract type used for all COBie keys</xs:documentation>
```

```
</xs:annotation>
```

```
<xs:complexContent>
```

```
<xs:extension base="CobieComplexObjectType"/>
```

```
</xs:complexContent>
```

```
</xs:complexType>
```

```
<xs:complexType name="CobieRowAssignmentsType" abstract="true">
```

```
<xs:annotation>
```

<xs:documentation>Abstract type used for all complexTypes that represent a collection of assignments from one COBie element to other COBie elements.</xs:documentation>

```
</xs:annotation>
```

```
<xs:complexContent>
```

```
<xs:extension base="CobieComplexObjectType"/>
```

```
</xs:complexContent>
```

```
</xs:complexType>
```



```

<xs:complexType name="CobieWorksheetType" abstract="true">
  <xs:annotation>
    <xs:documentation>Abstract type used for all collection object types that correspond to COBie
worksheets.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieComplexObjectType"/>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="CobieRowType" abstract="true">
  <xs:annotation>
    <xs:documentation>Abstract type used for all elements that correspond to a COBie row</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieBaseType"/>
  </xs:complexContent>
</xs:complexType>
<!--SimpleType and Value Type Definitions-->
<xs:simpleType name="AreaUnitSimpleType">
  <xs:annotation>
    <xs:documentation>Acceptable area units for Facility default units.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="square centimeters"/>
    <xs:enumeration value="square feet"/>
    <xs:enumeration value="square inches"/>
    <xs:enumeration value="square kilometers"/>
    <xs:enumeration value="square meters"/>
    <xs:enumeration value="square miles"/>
    <xs:enumeration value="square millimeters"/>
    <xs:enumeration value="square yards"/>
    <xs:enumeration value=""/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="AssemblyCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for AssetCategory</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="AssemblyExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable assembly external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:simpleType name="AssetCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for AssetTypeCategory</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="AssetExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable Asset external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:simpleType name="AssetTypeExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable AssetType external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:simpleType name="AttributeCategorySimpleType">
  <xs:annotation>

```

```

        <xs:documentation>A simple base type for AttributeCategory</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="AttributeExternalEntityNameSimpleType">
    <xs:annotation>
        <xs:documentation>Enumeration of allowable Attribute external entity names.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:complexType name="AttributeDecimalValueType">
    <xs:annotation>
        <xs:documentation>COBie decimal type extending DecimalValueType to include an optional min and max
value</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="DecimalValueType">
            <xs:sequence>
                <xs:element ref="MinValueDecimal" minOccurs="0"/>
                <xs:element ref="MaxValueDecimal" minOccurs="0"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="AttributeIntegerValueType">
    <xs:annotation>
        <xs:documentation>COBie bounded integer type for Attribute.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="IntegerValueType">
            <xs:sequence>
                <xs:element ref="MinValueInteger" minOccurs="0"/>
                <xs:element ref="MaxValueInteger" minOccurs="0"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="AttributeMonetaryValueType">
    <xs:annotation>
        <xs:documentation>COBie monetary value type for Attributes.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element ref="MonetaryValue"/>
        <xs:element ref="MonetaryUnit"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="AttributeStringValueType">
    <xs:annotation>
        <xs:documentation>COBie string type with AllowedValues for Attribute.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="StringValueType">
            <xs:sequence>
                <xs:element ref="AllowedValues" minOccurs="0"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="BooleanValueType">
    <xs:annotation>
        <xs:documentation>A boolean Attribute Value.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="ValueBaseType">
            <xs:sequence>
                <xs:element ref="BooleanValue" minOccurs="0"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

```

```

        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:simpleType name="CobieCategorySimpleType">
    <xs:annotation>
      <xs:documentation>A simple base type for all Cobie Category fields</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string"/>
  </xs:simpleType>
  <xs:simpleType name="CobieDescriptionSimpleType">
    <xs:annotation>
      <xs:documentation>Simple type for all COBie Description fields</xs:documentation>
    </xs:annotation>
    <xs:restriction base="CobieTextSimpleType"/>
  </xs:simpleType>
  <xs:simpleType name="CobieNameSimpleType">
    <xs:annotation>
      <xs:documentation>A base type for all COBie Name fields</xs:documentation>
    </xs:annotation>
    <xs:restriction base="CobieTextSimpleType"/>
  </xs:simpleType>
  <xs:simpleType name="CobieTextSimpleType">
    <xs:annotation>
      <xs:documentation>Simple type for all text fields.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string"/>
  </xs:simpleType>
  <xs:simpleType name="ConnectionCategorySimpleType">
    <xs:annotation>
      <xs:documentation>A simple base type for ConnectionCategory</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string"/>
  </xs:simpleType>
  <xs:simpleType name="ConnectionExternalEntityNameSimpleType">
    <xs:annotation>
      <xs:documentation>Enumeration of allowable Connection external entity names.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="ExternalEntityNameSimpleType"/>
  </xs:simpleType>
  <xs:simpleType name="CurrencyUnitSimpleType">
    <xs:annotation>
      <xs:documentation>Acceptable currency units for Facility default units.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
      <xs:enumeration value="British Pounds"/>
      <xs:enumeration value="Dollars"/>
      <xs:enumeration value="Euros"/>
      <xs:enumeration value=""/>
    </xs:restriction>
  </xs:simpleType>
  <xs:complexType name="DecimalValueType">
    <xs:annotation>
      <xs:documentation>COBie decimal type extending ValueBaseType.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="ValueBaseType">
        <xs:sequence>
          <xs:element ref="DecimalValue" minOccurs="0"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:simpleType name="DocumentCategorySimpleType">
    <xs:annotation>
      <xs:documentation>A simple base type for DocumentCategory</xs:documentation>

```

```

    </xs:annotation>
    <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="ExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Base type for external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="ExternalIdentifierSimpleType">
  <xs:annotation>
    <xs:documentation>Base type for external entity identifiers.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="FacilityCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for FacilityCategory</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="FacilityExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable Facility external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:simpleType name="FloorCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for AssetCategory</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="FloorExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable Floor external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:complexType name="IntegerValueType">
  <xs:annotation>
    <xs:documentation>COBie integer type extending ValueBaseType</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="ValueBaseType">
      <xs:sequence>
        <xs:element ref="IntegerValue" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="JobCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for JobCategory</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="JobExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable Job external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:simpleType name="IssueCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for IssueCategory</xs:documentation>

```

```

    </xs:annotation>
    <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="IssueExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable Issue external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:simpleType name="LinearUnitSimpleType">
  <xs:annotation>
    <xs:documentation>Picklist of linear units acceptable for Facility default linear units.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="centimeters"/>
    <xs:enumeration value="feet"/>
    <xs:enumeration value="inches"/>
    <xs:enumeration value="kilometers"/>
    <xs:enumeration value="meters"/>
    <xs:enumeration value="miles"/>
    <xs:enumeration value="millimeters"/>
    <xs:enumeration value="yards"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="MonetaryValueSimpleType">
  <xs:annotation>
    <xs:documentation>A decimal type with only 2 decimal places.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:decimal">
    <xs:fractionDigits value="2"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="PropertySetNameSimpleType">
  <xs:annotation>
    <xs:documentation>A simple type for property set names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="ResourceCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for ResourceCategory</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="ResourceExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable Resource external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:simpleType name="SpaceCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for SpaceCategory</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="SpaceExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable Space external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:simpleType name="SpareCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for SpareCategory</xs:documentation>
  </xs:annotation>

```

```

    <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="SpareExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable Spare external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:complexType name="StringValue">
  <xs:annotation>
    <xs:documentation>COBie string type extending ValueBaseType</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="ValueBaseType">
      <xs:sequence>
        <xs:element ref="StringValue" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="SystemCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for SystemCategory</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="SystemExternalEntityNameSimpleType">
  <xs:annotation>
    <xs:documentation>Enumeration of allowable System external entity names.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<xs:complexType name="ValueBaseType" abstract="true">
  <xs:annotation>
    <xs:documentation>ValueBaseType is the abstract superclass of typed values such as DecimalValueType, IntegerValueType. It provides an optional element for UnitName representing the units of measure.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieComplexObjectType">
      <xs:sequence>
        <xs:element ref="UnitName" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="VolumeUnitSimpleType">
  <xs:annotation>
    <xs:documentation>Acceptable volume units for Facility default units.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="cubic centimeters"/>
    <xs:enumeration value="cubic feet"/>
    <xs:enumeration value="cubic inches"/>
    <xs:enumeration value="cubic meters"/>
    <xs:enumeration value="cubic millimeters"/>
    <xs:enumeration value="cubic yards"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="WarrantyCategorySimpleType">
  <xs:annotation>
    <xs:documentation>A simple base type for WarrantyCategory</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="ZoneCategorySimpleType">
  <xs:annotation>

```

```

        <xs:documentation>A simple base type for ZoneCategory</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string"/>
</xs:simpleType>
<xs:simpleType name="ZoneExternalEntityNameSimpleType">
    <xs:annotation>
        <xs:documentation>Enumeration of allowable Zone external entity names.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="ExternalEntityNameSimpleType"/>
</xs:simpleType>
<!--ComplexType Extension Definitions-->
<xs:complexType name="AssemblyType">
    <xs:annotation>
        <xs:documentation>The Assembly to which this Asset belongs</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="CobieRowType">
            <xs:sequence>
                <xs:element ref="AssemblyName"/>
                <xs:element ref="AssemblyParentName"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="AssetInfoType">
    <xs:annotation>
        <xs:documentation>A minimum of one COBie.Asset record is required for all COBie deliverables related to equipment Asset
information.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="CobieRowType">
            <xs:sequence>
                <xs:element ref="AssetName"/>
                <xs:element ref="AssetSpaceAssignments"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:simpleType name="AssetPortabilitySimpleType">
    <xs:annotation>
        <xs:documentation>AssetPortability type represents an enumeration representing the portability of an asset: fixed or
moveable.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
        <xs:enumeration value="Fixed"/>
        <xs:enumeration value="Moveable"/>
        <xs:enumeration value=""/>
    </xs:restriction>
</xs:simpleType>
<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="CobieRowType">
            <xs:sequence>
                <xs:element ref="AssetTypeName"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="AttributeType">
    <xs:annotation>
        <xs:documentation>Information about a specific Attribute.</xs:documentation>
    </xs:annotation>

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    <xs:complexContent>
      <xs:extension base="CobieRowType">
        <xs:sequence>
          <xs:element ref="AttributeName"/>
          <xs:element ref="AttributeCategory"/>
        </xs:sequence>
        <xs:attribute ref="propertySetName" use="optional"/>
        <xs:attribute ref="propertySetExternalIdentifier" use="optional"/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="AttributeValueType">
    <xs:annotation>
      <xs:documentation>A choice of boolean, date, datetime, decimal, integer, string, or time values.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieComplexObjectType">
        <xs:choice minOccurs="0" maxOccurs="1">
          <xs:element ref="AttributeBooleanValue"/>
          <xs:element ref="AttributeDateValue"/>
          <xs:element ref="AttributeDateTimeValue"/>
          <xs:element ref="AttributeDecimalValue"/>
          <xs:element ref="AttributeIntegerValue"/>
          <xs:element ref="AttributeMonetaryValue"/>
          <xs:element ref="AttributeStringValue"/>
          <xs:element ref="AttributeTimeValue"/>
        </xs:choice>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ConnectionType">
    <xs:annotation>
      <xs:documentation>A type for representing Connection Information.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieRowType">
        <xs:sequence>
          <xs:element ref="ConnectionName"/>
          <xs:element ref="ConnectionCategory"/>
        </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="CobieRowType">
        <xs:sequence>
          <xs:element ref="ContactEmail"/>
        </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="CobieRowType">
        <xs:sequence>
          <xs:element ref="DocumentName"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>

```



```

</xs:complexType>
<xs:complexType name="FacilityType">
  <xs:annotation>
    <xs:documentation>A type for the Facility element that is the root of a COBie document</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieRowType">
      <xs:sequence>
        <xs:element ref="FacilityName"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="FloorType">
  <xs:annotation>
    <xs:documentation>A minimum of one COBie.Floor record is required for all COBie deliverables containing spatial
information.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieRowType">
      <xs:sequence>
        <xs:element ref="FloorName"/>
      </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="CobieRowType">
      <xs:sequence>
        <xs:element ref="IssueName"/>
        <xs:element ref="IssueCategory"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</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="CobieRowType">
      <xs:sequence>
        <xs:element ref="JobName"/>
        <xs:element ref="JobTaskID"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ProjectType">
  <xs:annotation>
    <xs:documentation>The elements describing a project that is assigned to a facility.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieBaseType">
      <xs:sequence>
        <xs:element ref="ProjectName"/>
        <xs:element ref="ProjectDescription" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

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```

<xs:complexType name="ResourceType">
  <xs:annotation>
    <xs:documentation>Information about a specific resource.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieRowType">
      <xs:sequence>
        <xs:element ref="ResourceName"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="SiteType">
  <xs:annotation>
    <xs:documentation>The elements describing a project that is assigned to a facility.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieBaseType">
      <xs:sequence>
        <xs:element ref="SiteName"/>
        <xs:element ref="SiteDescription" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="SpaceType">
  <xs:annotation>
    <xs:documentation>A minimum of one COBie.Space record is required for all COBie deliverables related to Space
information.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieBaseType">
      <xs:sequence>
        <xs:element ref="SpaceName"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="SpareType">
  <xs:annotation>
    <xs:documentation>Information about a specific Spare.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieRowType">
      <xs:sequence>
        <xs:element ref="SpareName"/>
        <xs:element ref="SpareCategory"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="SystemType">
  <xs:annotation>
    <xs:documentation>COBie.System information is considered to be required only as-specified. Please refer to the COBie Guide
for more information on specific system requirements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieRowType">
      <xs:sequence>
        <xs:element ref="SystemName"/>
        <xs:element ref="SystemCategory"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="WarrantyType">

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```

<xs:annotation>
  <xs:documentation>Information about a specific warranty.</xs:documentation>
</xs:annotation>
<xs:complexContent>
  <xs:extension base="CobieBaseType">
    <xs:sequence>
      <xs:element ref="WarrantyName"/>
      <xs:element ref="WarrantyCategory"/>
      <xs:element ref="WarrantyDuration" minOccurs="0"/>
      <xs:element ref="WarrantyGaurantorContactAssignments" minOccurs="0"/>
      <xs:element ref="WarrantyAttributes" minOccurs="0"/>
      <xs:element ref="WarrantyDocuments" minOccurs="0"/>
      <xs:element ref="WarrantyIssues" minOccurs="0"/>
    </xs:sequence>
  </xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="ZoneType">
  <xs:annotation>
    <xs:documentation>COBie.Zone information is considered to be required only as-specified. Please refer to the COBie Guide for
more information on specific zoning requirements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieRowType">
      <xs:sequence>
        <xs:element ref="ZoneName"/>
        <xs:element ref="ZoneCategory"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<!--Collection Type Definitions-->
<xs:complexType name="AllowedValueCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of AllowedValue elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieComplexObjectType">
      <xs:sequence>
        <xs:element ref="AttributeAllowedValue" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="AssemblyAssignmentCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of AssemblyAssignment elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieRowAssignmentsType">
      <xs:sequence>
        <xs:element ref="AssemblyAssignment" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="AssetCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of Asset elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieWorksheetType">
      <xs:sequence>
        <xs:element ref="Asset" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

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```

</xs:complexContent>
</xs:complexType>
<xs:complexType name="AssetTypeCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of AssetType elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieWorksheetType">
      <xs:sequence>
        <xs:element ref="AssetType" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="AttributeCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of Attribute elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieWorksheetType">
      <xs:sequence>
        <xs:element ref="Attribute" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ConnectionCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of Connection elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieWorksheetType">
      <xs:sequence>
        <xs:element ref="Connection" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ContactAssignmentCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of ContactAssignment elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieRowAssignmentsType">
      <xs:sequence>
        <xs:element ref="ContactAssignment" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ContactCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of Contact elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieWorksheetType">
      <xs:sequence>
        <xs:element ref="Contact" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="DocumentCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of Document elements.</xs:documentation>
  </xs:annotation>

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    <xs:complexContent>
      <xs:extension base="CobieWorksheetType">
        <xs:sequence>
          <xs:element ref="Document" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="FloorCollectionType">
    <xs:annotation>
      <xs:documentation>A collection of Floor elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieWorksheetType">
        <xs:sequence>
          <xs:element ref="Floor" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="IssueCollectionType">
    <xs:annotation>
      <xs:documentation>A collection of Issue elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieWorksheetType">
        <xs:sequence>
          <xs:element ref="Issue" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="JobCollectionType">
    <xs:annotation>
      <xs:documentation>A collection of Job elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieWorksheetType">
        <xs:sequence>
          <xs:element ref="Job" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ResourceCollectionType">
    <xs:annotation>
      <xs:documentation>A collection of Resource elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieWorksheetType">
        <xs:sequence>
          <xs:element ref="Resource" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="SpaceAssignmentCollectionType">
    <xs:annotation>
      <xs:documentation>A collection of SpaceAssignment elements</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieComplexObjectType">
        <xs:sequence>
          <xs:element ref="SpaceAssignment" maxOccurs="unbounded"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>

```

```

</xs:complexContent>
</xs:complexType>
<xs:complexType name="SpaceCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of Space elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieWorksheetType">
      <xs:sequence>
        <xs:element ref="Space" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="SpareCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of Spare elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieWorksheetType">
      <xs:sequence>
        <xs:element ref="Spare" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="SystemAssignmentCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of SystemAssignment elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieRowAssignmentsType">
      <xs:sequence>
        <xs:element ref="SystemAssignment" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="SystemCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of System elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieWorksheetType">
      <xs:sequence>
        <xs:element ref="System" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="WarrantyCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of Warranty elements.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="CobieComplexObjectType">
      <xs:sequence>
        <xs:element ref="Warranty" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="ZoneAssignmentCollectionType">
  <xs:annotation>
    <xs:documentation>A collection of ZoneAssignment elements.</xs:documentation>
  </xs:annotation>

```

```

    <xs:complexContent>
      <xs:extension base="CobieRowAssignmentsType">
        <xs:sequence>
          <xs:element ref="ZoneAssignment" minOccurs="0"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ZoneCollectionType">
    <xs:annotation>
      <xs:documentation>A collection of Zone elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieWorksheetType">
        <xs:sequence>
          <xs:element ref="Zone" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <!--Key Ref Definitions-->
  <xs:complexType name="AssemblyKeyType">
    <xs:annotation>
      <xs:documentation>The elements required to form a primary key for Assembly elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieKeyType">
        <xs:sequence>
          <xs:element ref="AssemblyName"/>
          <xs:element ref="AssemblyCategory"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="AssetKeyType">
    <xs:annotation>
      <xs:documentation>The elements required to form a primary key for Asset elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieKeyType">
        <xs:sequence>
          <xs:element ref="AssetName"/>
          <xs:element ref="AssetTypeAssignment"/>
          <xs:element ref="AssetSpaceAssignments"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="AssetTypeKeyType">
    <xs:annotation>
      <xs:documentation>The elements required to form a primary key for AssetType elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieKeyType">
        <xs:sequence>
          <xs:element ref="AssetTypeName"/>
          <!-- <xs:element ref="AssetTypeCategory"/>-->
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="AttributeKeyType">
    <xs:annotation>
      <xs:documentation>The elements required to form a primary key for AssetType elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>

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```

        <xs:extension base="CobieKeyType">
            <xs:sequence>
                <xs:element ref="AttributeName"/>
                <xs:element ref="AttributeCategory"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ContactKeyType">
    <xs:annotation>
        <xs:documentation>The elements required to form a primary key for Contact elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="CobieKeyType">
            <xs:sequence>
                <xs:element ref="ContactEmailReference" minOccurs="0"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="DocumentKeyType">
    <xs:annotation>
        <xs:documentation>The elements required to form a primary key for Document elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="CobieKeyType">
            <xs:sequence>
                <xs:element ref="DocumentName"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="FloorKeyType">
    <xs:annotation>
        <xs:documentation>The elements required to form a primary key for Facility elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="CobieKeyType">
            <xs:sequence>
                <xs:element ref="FloorName"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="FacilityKeyType">
    <xs:annotation>
        <xs:documentation>The elements required to form a primary key for Facility elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="CobieKeyType">
            <xs:sequence>
                <xs:element ref="FacilityName"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="IssueKeyType">
    <xs:annotation>
        <xs:documentation>The elements required to form a primary key for Issue elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="CobieKeyType">
            <xs:sequence>
                <xs:element ref="IssueName"/>
                <xs:element ref="IssueCategory"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

```



```

        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="JobKeyType">
    <xs:annotation>
        <xs:documentation>The elements required to form a primary key for Job elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="AssetTypeKeyType">
            <xs:sequence>
                <xs:element ref="JobName"/>
                <xs:element ref="JobTaskID"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="SpaceKeyType">
    <xs:annotation>
        <xs:documentation>The elements required to form a primary key for Space elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FloorKeyType">
            <xs:sequence>
                <xs:element ref="SpaceName"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="ResourceKeyType">
    <xs:annotation>
        <xs:documentation>The elements required to form a primary key for Resource elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="JobKeyType">
            <xs:sequence>
                <xs:element ref="ResourceName"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="SpareKeyType">
    <xs:annotation>
        <xs:documentation>The elements required to form a primary key for Spare elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="AssetTypeKeyType">
            <xs:sequence>
                <xs:element ref="SpareName"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:complexType name="SystemKeyType">
    <xs:annotation>
        <xs:documentation>The elements required to form a primary key for System elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="CobieKeyType">
            <xs:sequence minOccurs="0">
                <xs:annotation>
                    <xs:documentation>If externalIDReference is not provided then SystemName and SystemCategory MUST be
provided.</xs:documentation>
                </xs:annotation>
                <xs:element ref="SystemName"/>
                <xs:element ref="SystemCategory"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

```

```

        <xs:attribute ref="externalIDReference" use="optional">
          <xs:annotation>
            <xs:documentation>If SystemName and SystemCategory are not provided then externalIDReference MUST be
provided.</xs:documentation>
          </xs:annotation>
        </xs:attribute>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="WarrantyKeyType">
    <xs:annotation>
      <xs:documentation>The elements required to form a primary key for an AssetType Warranty element</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="AssetTypeKeyType">
        <xs:sequence>
          <xs:element ref="WarrantyName"/>
          <xs:element ref="WarrantyCategory"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="ZoneKeyType">
    <xs:annotation>
      <xs:documentation>The elements required to form a primary key for Zone elements.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="CobieKeyType">
        <xs:sequence minOccurs="0">
          <xs:annotation>
            <xs:documentation>If externalIDReference is not provided then ZoneName and ZoneCategory MUST be
provided.</xs:documentation>
          </xs:annotation>
          <xs:element ref="ZoneName"/>
          <xs:element ref="ZoneCategory"/>
        </xs:sequence>
        <xs:attribute ref="externalIDReference" use="optional">
          <xs:annotation>
            <xs:documentation>If ZoneName and ZoneCategory are not provided then externalIDReference MUST be
provided.</xs:documentation>
          </xs:annotation>
        </xs:attribute>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <!-- attribute definitions -->
  <xs:attribute name="externalEntityName" type="ExternalEntityNameSimpleType">
    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">The name of an entity from an external data type.
In practice, ExternalEntityName is most commonly used to represent the name of the Industry Foundation Class entity corresponding to the
specified COBie element.</xs:appinfo>
      <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">IfcFurnishingElement|IfcDoor|IfcWindow</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">n/a</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">ExternalObject</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">Varies</xs:appinfo>
      <xs:documentation>
        Definition: The name of an entity from an external data type. In practice, ExternalEntityName is most commonly used to
represent the name of the Industry Foundation Class entity corresponding to the specified COBie element.
        Value: IfcFurnishingElement|IfcDoor|IfcWindow
        ISO16739Mapping: n/a
        COBie2.4Header: ExternalObject
        COBie2.4Column: Varies
      </xs:documentation>
    </xs:annotation>
  </xs:attribute>

```

```

<xs:attribute name="externalID" type="ExternalIdentifierSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">A unique id used in an external representation of
the specified COBie element. Most commonly ExternalID is used to represent the value of IfcGloballyUniqueId entity.</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">1hypqXnMHDlwKZc9bkVjNR|3QYFkhRmzECBGi_FDC88Pu|30b56ZPunCX9x5gIL$U
Tx9</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcRoot.GloballyUniqueId</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">ExternalIdentifier</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">Varies</xs:appinfo>
    <xs:documentation>
      Definition: A unique id used in an external representation of the specified COBie element. Most commonly ExternalID is used
to represent the value of IfcGloballyUniqueId entity.
      Value: 1hypqXnMHDlwKZc9bkVjNR|3QYFkhRmzECBGi_FDC88Pu|30b56ZPunCX9x5gIL$UTx9
      ISO16739Mapping: IfcRoot.GloballyUniqueId
      COBie2.4Header: ExternalIdentifier
      COBie2.4Column: Varies
    </xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute name="externalIDReference" type="ExternalIdentifierSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">A unique id used in an external representation of
the specified COBie element. Most commonly ExternalID is used to represent the value of IfcGloballyUniqueId entity. The externalIDReference
is used as an alternate foreign key reference in System and Zone assignments.</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">1hypqXnMHDlwKZc9bkVjNR|3QYFkhRmzECBGi_FDC88Pu|30b56ZPunCX9x5gIL$U
Tx9</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcRoot.GloballyUniqueId</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">ExternalIdentifier</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">Varies</xs:appinfo>
    <xs:documentation>
      Definition: A unique id used in an external representation of the specified COBie element. Most commonly ExternalID is used
to represent the value of IfcGloballyUniqueId entity.
      Value: 1hypqXnMHDlwKZc9bkVjNR|3QYFkhRmzECBGi_FDC88Pu|30b56ZPunCX9x5gIL$UTx9
      ISO16739Mapping: IfcRoot.GloballyUniqueId
      COBie2.4Header: ExternalIdentifier
      COBie2.4Column: Varies
    </xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute name="externalSystemName" type="CobieTextSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">The name of the software application that
authored the value of the corresponding COBie element.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Revit
MEP|Excel|Constructivity|ProjectWise</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">
IfcApplication.ApplicationFullName</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">ExternalSystem</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">Varies</xs:appinfo>
    <xs:documentation>
      Definition: The name of the software application that authored the value of the corresponding COBie element.
      Value: Revit MEP|Excel|Constructivity|ProjectWise
      ISO16739Mapping: IfcApplication.ApplicationFullName
      COBie2.4Header: ExternalSystem
      COBie2.4Column: Varies
    </xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute name="propertySetName" type="PropertySetNameSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">The name of a logically grouped set of
properties</xs:appinfo>

```

```

        <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">Pset_SpaceCommon|Pset_ElectricalDeviceCommon|Pset_BaseQuantities</xs:app
info>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Attribute.ExternalObject (When originating
from an IFC file)</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">J</xs:appinfo>
        <xs:documentation>
        Definition: The name of a logically grouped set of properties
        Value: IfcPropertySet
        ISO16739Mapping: Pset_SpaceCommon|Pset_ElectricalDeviceCommon|Pset_BaseQuantities
        COBie2.4Header: Attribute.ExternalObject (When originating from an IFC file)
        COBie2.4Column: J
        </xs:documentation>
    </xs:annotation>
</xs:attribute>
<xs:attribute name="propertySetExternalIdentifier" type="ExternalIdentifierSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">The unique identifier of the data structure Object
that contains the specified property. Most commonly PropertySetName corresponds to the GlobalId attribute of an IfcPropertySet
Object.</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">1hypqXnMHDlwKZc9bkVjNR|3QYFkhRmzECBGi_FDC88Pu|30b56ZPunCX9x5gIL$U
Tx9</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet.GloballyUniqueId</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Attribute.ExternalIdentifier (If originating
from an IFC file)</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">K</xs:appinfo>
        <xs:documentation>
        Definition: The unique identifier of the data structure Object that contains the specified property. Most commonly
PropertySetName corresponds to the GlobalId attribute of an IfcPropertySet Object.
        Value: 1hypqXnMHDlwKZc9bkVjNR|3QYFkhRmzECBGi_FDC88Pu|30b56ZPunCX9x5gIL$UTx9
        ISO16739Mapping: IfcPropertySet.GloballyUniqueId
        COBie2.4Header: Attribute.ExternalIdentifier (If originating from an IFC file)
        COBie2.4Column: K
        </xs:documentation>
    </xs:annotation>
</xs:attribute>
<!--Element Definitions-->
<!--Element Definitions: Elements of Complex Types-->
<xs:element name="AllowedValues" type="AllowedValueCollectionType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AttributeAllowedValues allows documentation of
the original source of the information identified in this row. If there is a specific list of allowed values, each child element contains one list
item.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1|True|75, 100|Red, Yellow, Green|75 - 100|Alpha
Beta Value</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertyEnumeration.EnumerationValues</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Attribute.AllowedValues</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">M</xs:appinfo>
        <xs:documentation>Definition: AttributeAllowedValues allows documentation of the original source of the information
identified in this row. If there is a specific list of allowed values, each child element contains one list item.
        Example Values: 1|True|75, 100|Red, Yellow, Green|75 - 100|Alpha Beta Value
        ISO16739Mapping: IfcPropertyEnumeration.EnumerationValues
        COBie2.4Header: Attribute.AllowedValues
        COBie2.4Column: M</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssemblyAssignment" type="AssemblyType" abstract="true">
    <xs:annotation>
        <xs:documentation>The assignment of an Asset or AssetType to an assembly</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssemblyAssignments" type="AssemblyAssignmentCollectionType">

```

```

    <xs:annotation>
      <xs:documentation>Assignment of Assemblies to an Asset or AssetType.</xs:documentation>
    </xs:annotation>
    <xs:key name="AssemblyAssetKey">
      <xs:selector xpath="AssemblyAssignment"/>
      <xs:field xpath="AssemblyName"/>
      <xs:field xpath="AssemblyParentName"/>
    </xs:key>
  </xs:element>
  <xs:element name="Asset" type="AssetInfoType" abstract="true">
    <xs:annotation>
      <xs:documentation>A minimum of one COBie.Component record is required for all COBie deliverables related to equipment
Component information.</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="Assets" type="AssetCollectionType">
    <xs:annotation>
      <xs:documentation>A set of managed assets found in a specific Facility. These are typically manufactured and purchased
products in a space that are marked with serial number and barcode identification.</xs:documentation>
    </xs:annotation>
    <!-- This key breaks the "fuzzy" rule that allows for duplicate asset names for spaces
    <xs:key name="AssetKey">
      <xs:selector xpath="Asset"/>
      <xs:field xpath="AssetName"/>
    </xs:key> -->
  </xs:element>
  <xs:element name="AssetType" type="AssetTypeInfoType" abstract="true">
    <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="AssetTypeReplacementCostValue" type="DecimalValueType" id="d2e2215">
    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Type.ReplacementCost contains the
manufacturer's suggested retail price, at the time that the equipment was purchased by the contractor or subcontractor. Facility.CurrencyUnit
defines the unit for this value.</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Value">75 | 1500.00 | 10,000.00 | 25000</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
"COBie_EconomicImpactValues," IfcProperty with name "ReplacementCost"</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.ReplacementCost</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">Q</xs:appinfo>
      <xs:documentation>
        Definition: Type.ReplacementCost contains the manufacturer's suggested retail price, at the time that the equipment was
purchased by the contractor or subcontractor. Facility.CurrencyUnit defines the unit for this value.
        Value: 75 | 1500.00 | 10,000.00 | 25000
        ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_EconomicImpactValues," IfcProperty with name
"ReplacementCost"
        COBie2.4Header: Type.ReplacementCost
        COBie2.4Column: Q
      </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="AssetTypeAssignment" type="AssetTypeKeyType">
    <xs:annotation>
      <xs:documentation>The primary key information for a referenced AssetType</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="AssetTypes" type="AssetTypeCollectionType" id="d2e2033">
    <xs:annotation>
      <xs:documentation>A set of Types found in a specific Facility.</xs:documentation>
    </xs:annotation>
    <xs:key name="AssetTypeKey">
      <xs:selector xpath="AssetType"/>
      <xs:field xpath="AssetTypeName"/>
    </xs:key>

```

```

</xs:element>
<xs:element name="Attribute" type="AttributeType" abstract="true">
  <xs:annotation>
    <xs:documentation>Information about a specific Attribute.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AttributeBooleanValue" type="BooleanValueType">
  <xs:annotation>
    <xs:documentation>Boolean Attribute Value</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="Attributes" type="AttributeCollectionType">
  <xs:annotation>
    <xs:documentation>A set of attributes associated with a given COBie element. Attributes provide an extended description of
elements using properties that are not included in the built-in COBie elements.</xs:documentation>
  </xs:annotation>
  <xs:key name="AttributesKey">
    <xs:selector xpath="Attribute"/>
    <xs:field xpath="AttributeName"/>
    <xs:field xpath="AttributeCategory"/>
  </xs:key>
</xs:element>
<xs:element name="AttributeDecimalValue" type="AttributeDecimalValueType">
  <xs:annotation>
    <xs:documentation>Decimal number Attribute Value</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AttributeIntegerValue" type="AttributeIntegerValueType">
  <xs:annotation>
    <xs:documentation>Integer Attribute Value</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AttributeMonetaryValue" type="AttributeMonetaryValueType">
  <xs:annotation>
    <xs:documentation>Attribute with a monetary value</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AttributeStringValue" type="AttributeStringValueType">
  <xs:annotation>
    <xs:documentation>String Attribute Value</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AttributeValue" type="AttributeValueType" id="d2e7685">
  <xs:annotation>
    <xs:documentation>
                    AttributeValue identifies the quantity of the impact that can be expected
                    0|12.685|ANSI/ASHRAE Standard15, ANSI/NFPA Standard 70, Division 1, ARI Standard
                    550/590|end grain balsa wood|True|YCAS0150EC46Y
                    IfcPropertySingleValue.NominalValue
                    COBie.Attribute.Value
                    G
                </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="Connection" type="ConnectionType" abstract="true" id="d2e6917">
  <xs:annotation>
    <xs:documentation>Connection information is considered to be required only as-specified. Please refer to the COBie Guide for
more information on specific requirements.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="Connections" type="ConnectionCollectionType" id="d2e6904">
  <xs:annotation>
    <xs:documentation>A set of Connections associated with a specific Asset.</xs:documentation>
  </xs:annotation>
  <xs:key name="ConnectionKey">
    <xs:selector xpath="Connection"/>

```

```

        <xs:field xpath="ConnectionName"/>
        <xs:field xpath="ConnectionCategory"/>
    </xs:key>
</xs:element>
<xs:element name="Contact" type="ContactType" abstract="true">
    <xs:annotation>
        <xs:documentation>Information about a specific manufacturer or supplier associated with an AssetType.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ContactAssignment" type="ContactKeyType" id="d2e2642">
    <xs:annotation>
        <xs:documentation>The assignment of a Contact to a COBie element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="Contacts" type="ContactCollectionType">
    <xs:annotation>
        <xs:documentation>Points of contact associated with a COBie element.</xs:documentation>
    </xs:annotation>
    <xs:key name="ContactKey">
        <xs:selector xpath="Contact"/>
        <xs:field xpath="ContactEmail"/>
    </xs:key>
</xs:element>
<xs:element name="Document" type="DocumentType" abstract="true">
    <xs:annotation>
        <xs:documentation>
            Information about a specific Document.
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="Documents" type="DocumentCollectionType">
    <xs:annotation>
        <xs:documentation>A set of documents associated with a given COBie element.</xs:documentation>
    </xs:annotation>
    <xs:key name="DocumentsKey">
        <xs:selector xpath="Document"/>
        <xs:field xpath="DocumentName"/>
    </xs:key>
</xs:element>
<xs:element name="Floor" type="FloorType" abstract="true" id="d2e427">
    <xs:annotation>
        <xs:documentation>A minimum of one COBie.Floor record is required for all COBie deliverables containing spatial
information.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="Floors" type="FloorCollectionType" id="d2e414">
    <xs:annotation>
        <xs:documentation>COBie.Floor contains information about the vertical levels within the facility being exchanged during a
given COBie deliverable. These levels include floors and roof in vertical construction. These levels also include also regions outside the facility
or across a site.</xs:documentation>
    </xs:annotation>
    <xs:key name="FloorKey">
        <xs:selector xpath="Floor"/>
        <xs:field xpath="FloorName"/>
    </xs:key>
</xs:element>
<xs:element name="Issue" type="IssueType" abstract="true" id="d2e1495">
    <xs:annotation>
        <xs:documentation>A specific Issue within this set of Issues.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="Issues" type="IssueCollectionType" id="d2e1482">
    <xs:annotation>
        <xs:documentation>A set of Issues associated with a specific COBie document element.</xs:documentation>
    </xs:annotation>
    <xs:key name="IssueKey">

```

```

        <xs:selector xpath="Issue"/>
        <xs:field xpath="IssueName"/>
    </xs:key>
</xs:element>
<xs:element name="Job" type="JobType" abstract="true" id="d2e4137">
    <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:element>
<xs:element name="Jobs" type="JobCollectionType" id="d2e4124">
    <xs:annotation>

```

<xs:documentation>COBie.Job provides a mechanism through which information about preventative maintenance, safety, testing, operational and emergency procedures may be communicated. COBie.Job may contain a general description of a series of operations or tasks. COBie.Job may also be used to create small Critical Path Method projects where project teams want to explicitly link resources to specific operations within a job.</xs:documentation>

```

    </xs:annotation>
    <xs:key name="JobKey">
        <xs:selector xpath="Job"/>
        <xs:field xpath="JobName"/>
        <xs:field xpath="JobTaskID"/>
    </xs:key>
</xs:element>
<xs:element name="ProjectAssignment" type="ProjectType">
    <xs:annotation>
        <xs:documentation>

```

ProjectAssignment contains a reference to an IfcProject object that may exist in an external IFC file.

```

            </xs:documentation>
        </xs:annotation>
</xs:element>
<xs:element name="Resource" type="ResourceType" abstract="true" id="d2e4451">
    <xs:annotation>
        <xs:documentation>Information about a specific resource.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="Resources" type="ResourceCollectionType" id="d2e4438">
    <xs:annotation>
        <xs:documentation>A set of resources required for a specific Job.</xs:documentation>
    </xs:annotation>
    <xs:key name="ResourceKey">
        <xs:selector xpath="Resource"/>
        <xs:field xpath="ResourceName"/>
    </xs:key>
</xs:element>
<xs:element name="SiteAssignment" type="SiteType">
    <xs:annotation>
        <xs:documentation>

```

SiteAssignment contains a reference to an IfcSite object that may exist in an external IFC file.

```

            </xs:documentation>
        </xs:annotation>
</xs:element>
<xs:element name="Spare" type="SpareType" abstract="true" id="d2e4614">
    <xs:annotation>
        <xs:documentation>Information about a specific Spare.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="SpareSupplierContactAssignments" type="ContactAssignmentCollectionType" id="e2e2629">
    <xs:annotation>

```

<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">SpareSupplierContactAssignments is a list of Contact elements that represent the suppliers of the Spare part.</xs:appinfo>

<xs:appinfo source="urn:camed:annotation:documentation:type:Value">mariangelica.carrasquillo@usace.army.mil|sales@panelfold.com|info@modernfold.com|info@hufcor.com|karpensteel@karpensteel.com|contact@securalldoors.com|sales@marvin.com</xs:appinfo>



```

    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
"COBie_Spare," IfcProperty with name"Suppliers"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Spare.Suppliers</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">F</xs:appinfo>
    <xs:documentation>
    Definition: AssetTypeManufacturerContactAssignments is a list of Contact elements that represent the manufactrer of the
AssetType.
    Value:
    mariangelica.carrasquillo@usace.army.mil|sales@panelfold.com|info@modernfold.com|info@hufcor.com|karpensteel@karpensteel.com|co
ntact@securalldoors.com|sales@marvin.com
    ISO16739Mapping: IfcPropertySet with Name "COBie_Spare," IfcProperty with name"Suppliers"
    COBie2.4Header: Type.Manufacturer
    COBie2.4Column: G
    </xs:documentation>
</xs:annotation>
<xs:key name="SpareContactAssignmentKey">
    <xs:selector xpath="ContactAssignment"/>
    <xs:field xpath="ContactEmailReference"/>
</xs:key>
</xs:element>
<xs:element name="Spares" type="SpareCollectionType" id="d2e4601">
    <xs:annotation>
    <xs:documentation>The set of Spares, replacement parts, and consumables needed for this specific Type.</xs:documentation>
</xs:annotation>
    <xs:key name="SpareKey">
    <xs:selector xpath="Spare"/>
    <xs:field xpath="SpareName"/>
</xs:key>
</xs:element>
<xs:element name="Space" type="SpaceType" abstract="true" id="d2e572">
    <xs:annotation>
    <xs:documentation>A minimum of one COBie.Space record is required for all COBie deliverables related to Space
information.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="Spaces" type="SpaceCollectionType" id="d2e559">
    <xs:annotation>
    <xs:documentation>COBie.Space contains information about the horizontal organization of space within a given vertical, or
Floor, level.</xs:documentation>
</xs:annotation>
    <xs:key name="SpaceKey">
    <xs:selector xpath="Space"/>
    <xs:field xpath="SpaceName"/>
</xs:key>
</xs:element>
<xs:element name="SpaceGrossAreaValue" type="DecimalValueType" id="d2e716">
    <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Space.GrossAreaValue is generally defined by the
area within the perimeter of the walls bounding the space. Facility.AreaMeasure defines the measurement precise definition of space
measurement methodology. Facility.AreaUnit defines the units for this value.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">100|9.29|200|18.58|1000|92.90</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcQuantityArea.AreaValue (from
"GrossFloorArea" of Qto_SpaceBaseQuantities)</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Space.GrossArea</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">L</xs:appinfo>
    <xs:documentation>
    Definition: Space.GrossAreaValue is generally defined by the area within the perimeter of the walls bounding the space.
Facility.AreaMeasure defines the measurement precise definition of space measurement methodology. Facility.AreaUnit defines the units for
this value.
    Value: 100|9.29|200|18.58|1000|92.90
    ISO16739Mapping: IfcQuantityArea.AreaValue (from "GrossFloorArea" of Qto_SpaceBaseQuantities)
    COBie2.4Header: Space.GrossArea
    COBie2.4Column: L
    </xs:documentation>
</xs:annotation>
</xs:element>

```

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<xs:element name="SpaceNetAreaValue" type="DecimalValueType" id="d2e742">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Space.NetAreaValue is generally defined by the
    Space.GrossAreaValue less the area of fixed building Assets that impinge upon the human scale use of that space. Facility.AreaMeasure defines
    the measurement precise definition of space measurement methodology. Facility.AreaUnit defines the units for this value.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">100|9.29|200|18.58|1000|92.90</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcQuantityArea.AreaValue (from
    "NetFloorArea" of Qto_SpaceBaseQuantities)</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Space.NetArea</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">M</xs:appinfo>
    <xs:documentation>
      Definition: Space.NetAreaValue is generally defined by the Space.GrossAreaValue less the area of fixed building Assets that
      impinge upon the human scale use of that space. Facility.AreaMeasure defines the measurement precise definition of space measurement
      methodology. Facility.AreaUnit defines the units for this value.
      Value: 100|9.29|200|18.58|1000|92.90
      ISO16739Mapping: IfcQuantityArea.AreaValue (from "NetFloorArea" of Qto_SpaceBaseQuantities)
      COBie2.4Header: Space.NetArea
      COBie2.4Column: M
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="SpaceUsableHeightValue" type="DecimalValueType" id="d2e690">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Space.UsableHeight is the height from the top of
    the floor below to the bottom of the ceiling above. If there is no ceiling then the UsableHeight would equal that of the Floor. The area
    between the Space.UsableHeight and the bottom of the floor above is called interstitial space.</xs:appinfo>
    <xs:appinfo
    source="urn:camed:annotation:documentation:type:Value">10.00|3050.00|12|3660.00|8.00|2438.40</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcQuantityLength.LengthValue (from
    "FinishDescriptionCeilingHeight" of qto_SpaceBaseQuantities)</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Space.UsableHeight</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">K</xs:appinfo>
    <xs:documentation>
      Definition: Space.UsableHeight is the height from the top of the floor below to the bottom of the ceiling above. If there is no
      ceiling then the UsableHeight would equal that of the Floor. The area between the Space.UsableHeight and the bottom of the floor above is
      called interstitial space.
      Value: 10.00|3050.00|12|3660.00|8.00|2438.40
      ISO16739Mapping: IfcQuantityLength.LengthValue (from "FinishDescriptionCeilingHeight" of qto_SpaceBaseQuantities)
      COBie2.4Header: Space.UsableHeight
      COBie2.4Column: K
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="System" type="SystemType" abstract="true" id="d2e5973">
  <xs:annotation>
    <xs:documentation>Definition
    COBie.System information is considered to be required only as-specified. Please refer to the COBie Guide for more information on specific
    system requirements.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="SystemAssignment" type="SystemKeyType">
  <xs:annotation>
    <xs:documentation>The assignment of a System to an Asset or AssetType.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AssetSystemAssignments" type="SystemAssignmentCollectionType">
  <xs:annotation>
    <xs:documentation>The assignment of a COBie element to Systems.</xs:documentation>
  </xs:annotation>
  <xs:key name="SystemAssignmentKey">
    <xs:annotation>
      <xs:documentation>The Key used when Name and Category are used as the SystemKey</xs:documentation>
    </xs:annotation>
    <xs:selector xpath="SystemAssignment"/>
    <xs:field xpath="SystemName"/>
    <xs:field xpath="SystemCategory"/>
  </xs:key>

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</xs:key>
</xs:element>
<xs:element name="Systems" type="SystemCollectionType" id="d2e5960">
  <xs:annotation>
    <xs:documentation>COBie.System provides a mechanism through which groups of Assets may be organized into relevant
categories that deliver specific building services to the facility</xs:documentation>
  </xs:annotation>
  <xs:key name="SystemKey">
    <xs:selector xpath="System"/>
    <xs:field xpath="SystemName"/>
    <xs:field xpath="SystemCategory"/>
  </xs:key>
</xs:element>
<xs:element name="Warranties" type="WarrantyCollectionType" abstract="false" id="d2e3310">
  <xs:annotation>
    <xs:documentation>One or more warranties associated with this type of product.</xs:documentation>
  </xs:annotation>
  <xs:key name="WarrantyKey">
    <xs:selector xpath="Warranty"/>
    <xs:field xpath="WarrantyName"/>
    <xs:field xpath="WarrantyCategory"/>
  </xs:key>
</xs:element>
<xs:element name="Warranty" type="WarrantyType" id="d2e3323">
  <xs:annotation>
    <xs:documentation>Information about a specific warranty.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="WarrantyGaurantorContactAssignments" type="ContactAssignmentCollectionType" id="d2e2329">
  <xs:annotation>
    <xs:documentation>Assignment of Contacts to a Warranty element.</xs:documentation>
  </xs:annotation>
  <xs:key name="WarrantyContactAssignmentKey">
    <xs:selector xpath="ContactAssignment"/>
    <xs:field xpath="ContactEmailReference"/>
  </xs:key>
</xs:element>
<xs:element name="ZoneAssignment" type="ZoneKeyType">
  <xs:annotation>
    <xs:documentation>The assignment of a COBie element to a Zone.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="SpaceZoneAssignments" type="ZoneAssignmentCollectionType">
  <xs:annotation>
    <xs:documentation>The assignment of zones to a COBie Space element.</xs:documentation>
  </xs:annotation>
  <xs:key name="ZoneAssignmentKey">
    <xs:selector xpath="ZoneAssignment"/>
    <xs:field xpath="ZoneName"/>
    <xs:field xpath="ZoneCategory"/>
  </xs:key>
</xs:element>
<xs:element name="Zone" type="ZoneType" abstract="true" id="d2e781">
  <xs:annotation>
    <xs:documentation>COBie.Zone information is considered to be required only as-specified. Please refer to the COBie Guide for
more information on specific zoning requirements.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="Zones" type="ZoneCollectionType" id="d2e768">
  <xs:annotation>
    <xs:documentation>COBie.Zone provides a mechanism through which groups of spaces may be organized into relevant
categories that support various design or operational functions of the facility.</xs:documentation>
  </xs:annotation>
  <xs:key name="ZoneKey">
    <xs:selector xpath="Zone"/>
    <xs:field xpath="ZoneName"/>
  </xs:key>

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        <xs:field xpath="ZoneCategory"/>
    </xs:key>
</xs:element>
<!--Element Definitions: COBie Fields (Elements of SimpleTypes)-->
<!--COBie Fields: Assembly Fields-->
<xs:element name="AssemblyAttributes" type="AttributeCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Attribute elements associated with an Assembly element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssemblyCategory" type="AssemblyCategorySimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssemblyCategory identifies the way in which the
current component is combined into the Assembly.</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">Fixed|Optional|Included|Excluded|Layer|Patch|Mix</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcClassification.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Assembly.AssemblyType</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">G</xs:appinfo>
        <xs:documentation>Definition: AssemblyCategory identifies the way in which the current component is combined into the
Assembly.
        Value: Fixed|Optional|Included|Excluded|Layer|Patch|Mix
        ISO16739Mapping: IfcClassification.Name
        COBie2.4Header: Assembly.AssemblyType
        COBie2.4Column: G</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssemblyDescription" type="CobieDescriptionSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssemblyDescription provides descriptive
information about how this component is connected to, or the function of the component within the Assembly.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Circuit-PB1-01|Primary Circulating Pump|Exterior
Facing Brick Pattern</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcRelAggregates.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Assembly.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">K</xs:appinfo>
        <xs:documentation>
        Definition: AssemblyDescription provides descriptive information about how this component is connected to, or the function
of the component within the Assembly.
        Value: Circuit-PB1-01|Primary Circulating Pump|Exterior Facing Brick Pattern
        ISO16739Mapping: IfcRelAggregates.Description
        COBie2.4Header: Assembly.Description
        COBie2.4Column: K
    </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssemblyDocuments" type="DocumentCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Document elements associated with an Assembly element. </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssemblyIssues" type="IssueCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Issue elements associated with an Assembly element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssemblyName" type="CobieNameSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssemblyName identifies the name of the
Assembly.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Panel Board 1|Chiller-01|Wall Type 3</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcRelAggreagtes.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Assembly.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
        <xs:documentation>

```

```

        Definition: AssemblyName identifies the name of the Assembly
        Value: Panel Board 1|Chiller-01|Wall Type 3
        ISO16739Mapping: IfcRelAggreagtes.Name
        COBie2.4Header: Assembly.Name
        COBie2.4Column: A
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssemblyParentName" type="CobieNameSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssemblyParentName identifies the name of the
parent Asset or AssetType that decomposes the Assembly.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Panel Board 1|Chiller-01|Wall Type 3</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcRelAggreagtes.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Assembly.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
        <xs:documentation>
            Definition: AssemblyParentName identifies the name of the parent Asset or AssetType that decomposes the Assembly.
            Value: Panel Board 1|Chiller-01|Wall Type 3
            ISO16739Mapping: IfcRelAggreagtes.Name
            COBie2.4Header: Assembly.Name
            COBie2.4Column: A
        </xs:documentation>
    </xs:annotation>
</xs:element>
<!--COBie Fields: Asset Fields-->
<xs:element name="AssetAttributes" type="AttributeCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Attribute elements associated with an Asset element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssetBarcode" type="CobieTextSimpleType" id="d2e5907">
    <xs:annotation>
        <xs:documentation>
            AssetBarcode contains the barcode number for the Asset as found on the individual
            asset nameplate or other associated documentation.
            1234793408|12345-67890
            IfcProdcut IfcPropertySingleValue with name containing "Barcode"
            COBie.Asset.BarCode
            N
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssetDescription" type="CobieDescriptionSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ComponentDescription contains a human
description of the specific component. A default value for this description would be the Type.Description plus any component-specific
annotations.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">AC Unit|Air Handling Unit - Split System|Backflow
Preventer - 15-50 mm|Centrifugal Fan- Roof Mounted|M_Duplex Receptacle:GFCl:GFCl:868750|M_Troffer Light - Parabolic:0600x0600mm(2
Lamp)</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcProduct.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Component.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">F</xs:appinfo>
        <xs:documentation>
            Definition: ComponentDescription contains a human description of the specific component. A default value for this
description would be the Type.Description plus any component-specific annotations.
            Value: AC Unit|Air Handling Unit - Split System|Backflow Preventer - 15-50 mm|Centrifugal Fan- Roof Mounted|M_Duplex
Receptacle:GFCl:GFCl:868750|M_Troffer Light - Parabolic:0600x0600mm(2 Lamp)
            ISO16739Mapping: IfcProduct.Description
            COBie2.4Header: Component.Description
            COBie2.4Column: F
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssetDocuments" type="DocumentCollectionType">

```

```

<xs:annotation>
  <xs:documentation>A set of Document elements associated with an Asset element. </xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="AssetIssues" type="IssueCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Issue elements associated with an Asset element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AssetIdentifier" type="CobieTextSimpleType" id="d2e5934">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetIdentifier contains an identifier for the
asset that can be used by the facility manager to group COBie Assets prior to importing COBie data into computerized maintenance
management systems. </xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1234793408|12345-67890|4106144f-c9d3-49a6-
8c35-e122d1fab8ac</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
"COBie_Component," IfcProperty with name "AssetIdentifier"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Asset.AssetIdentifier</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">O</xs:appinfo>
  </xs:documentation>

```

Definition: AssetIdentifier contains an identifier for the asset that can be used by the facility manager to group COBie Assets prior to importing COBie data into computerized maintenance management systems.  
Value: 1234793408|12345-67890|4106144f-c9d3-49a6-8c35-e122d1fab8ac  
ISO16739Mapping: IfcPropertySet with Name "COBie\_Component," IfcProperty with name "AssetIdentifier"

COBie2.4Header: Asset.AssetIdentifier  
COBie2.4Column: O

```

</xs:annotation>
</xs:element>
<xs:element name="AssetInstallationDate" type="xs:date" id="d2e5829">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetInstallationDate date contains the
installation date of the equipment identified in this row. This is provided during construction or updated during facility
operations.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1066-10-14T22:01:00|1944-12-15T12:49:00|2011-
09-14T16:57:53|2011-09-14T16:57:59|2012-12-14T08:00:00|2012-09-14T10:00:00|2019-06-27T15:37:00</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
"COBie_Component," IfcProperty with name "InstallationDate"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Asset.InstallationDate</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">K</xs:appinfo>
  </xs:documentation>
  Definition: AssetInstallationDate date contains the installation date of the equipment identified in this row. This is provided
during construction or updated during facility operations.
  Value: 1066-10-14T22:01:00|1944-12-15T12:49:00|2011-09-14T16:57:53|2011-09-14T16:57:59|2012-12-14T08:00:00|2012-
09-14T10:00:00|2019-06-27T15:37:00
  ISO16739Mapping: IfcPropertySet with Name "COBie_Component," IfcProperty with name "InstallationDate"
  COBie2.4Header:
  COBie2.4Column:
  </xs:documentation>

```

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</xs:annotation>
</xs:element>
<xs:element name="AssetInstalledModelNumber" type="CobieTextSimpleType" id="f35829">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetInstalledModel number represents the
model number as indicated on the installed piece of equipment - note that this model number can be slightly different than the AssetType
model number even in the same product line, e.g. color identifiers appended to model numbers</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1020 MAS (SUPPLY) B|2VT8 3 32 ADP MVOLT 1/3
GEB10-SIS LP830 EL14R|Axiom Multix M-2|LF8N 2/26TRT F8B4W-L 277|LH1720C-B |Generator Quick Connect Switchboard c|K-4904-ET-
R10|Series 416b</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
"COBie_Component," IfcProperty with name "InstalledModelNumber"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Attribute with
Name=InstalledModelNumber and SheetName=Component</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">n/a</xs:appinfo>

```



```

        <xs:documentation>
            Definition: AssetInstalledModel number represents the model number as indicated on the installed piece of equipment - note
            that this model number can be slightly different than the AssetType model number even in the same product line, e.g. color identifiers
            appended to model numbers
            Value: 1020 MAS (SUPPLY) B|2VT8 3 32 ADP MVOLT 1/3 GEB10-SIS LP830 EL14R|Axiom Multix M-2|LF8N 2/26TRT F8B4W-L
            277|LH1720C-B |Generator Quick Connect Switchboard c|K-4904-ET-R10|Series 416b
            ISO16739Mapping: IfcPropertySet with Name "COBie_Component," IfcProperty with name "InstalledModelNumber"
            COBie2.4Header: Attribute with Name=InstalledModelNumber and SheetName=Component
            COBie2.4Column: n/a
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssetLocationDescription" type="CobieDescriptionSimpleType" id="d2e5750">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetLocationDescription contains the the
        description of where in the space this Asset is located.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Ceiling|Space|Under Floor|Wall Chase</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
        "COBie_Component," IfcProperty with name "LocationDescription"</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Attribute for Asset.Name</xs:appinfo>
        <xs:appinfo
        source="urn:camed:annotation:documentation:type:COBie2.4Column">Attribute.Name=LocationDescription</xs:appinfo>
    </xs:annotation>
    Definition: AssetLocationDescription contains the the description of where in the space this Asset is located.
    Value: Ceiling|Space|Under Floor|Wall Chase
    ISO16739Mapping: IfcPropertySet with Name "COBie_Component," IfcProperty with name "LocationDescription"
    COBie2.4Header: Attribute for Asset.Name
    COBie2.4Column: Attribute.Name=LocationDescription
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="AssetName" type="CobieNameSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetName contains the name of each instance
        of all managed equipment found in the facility. Typically AssetName is identified within equipment and product schedules and related design
        drawing notes. AssetName is the Primary Key for the Component worksheet and it is referenced in subsequent COBie worksheets.
        Component.Name values must be unique. Information about similar Component"s is identified by the referenced
        COBie.Attribute.Type.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">ACCU-5|ADA shower Seat:17" Depth x 18 1/2"|Ball
        Valve 100 mm - Space 201-01|Boiler B-1|Centrifugal Fan- Air Foil- RAF-1|FireSprinkler-131|Light Fixture X1-01</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcProduct.name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Component.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
    </xs:annotation>
    Definition: ComponentName contains the name of each instance of all managed equipment found in the facility. Typically
    Component.Name is identified within equipment and product schedules and related design drawing notes. Component.Name is the Primary
    Key for the Component worksheet and it is referenced in subsequent COBie worksheets. Component.Name values must be unique.
    Information about similar Component"s is identified by the referenced COBie.Attribute.Type.
    Value: ACCU-5|ADA shower Seat:17" Depth x 18 1/2"|Ball Valve 100 mm - Space 201-01|Boiler B-1|Centrifugal Fan- Air Foil-
    RAF-1|FireSprinkler-131|Light Fixture X1-01
    ISO16739Mapping: IfcProduct.name
    COBie2.4Header: Component.Name
    COBie2.4Column: A
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="AssetSerialNumber" type="CobieTextSimpleType" id="d2e5803">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetSerialNumber contains the final serial
        number of the equipment that has been installed in the facility. This is provided during construction or updated during facility
        operations.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">2823873|4985VGJ.J7234|AH 250 PXL 3|AH 250 PXL
        4|KONA-380060|SALM 642680|QPM890</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
        "Pset_ManufacturerOccurrence," IfcProperty with name "SerialNumber"</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Component.SerialNumber</xs:appinfo>
    </xs:annotation>

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<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">J</xs:appinfo>
<xs:documentation>
  Definition: AssetSerialNumber contains the final serial number of the equipment that has been installed in the facility. This is
  provided during construction or updated during facility operations.
  Value: 2823873|4985VGJ.J7234|AH 250 PXL 3|AH 250 PXL 4|KONA-380060|SALM 642680|QPM890
  ISO16739Mapping: IfcPropertySet with Name "Pset_ManufacturerOccurrence," IfcProperty with name "SerialNumber"
  COBie2.4Header: SerialNumber
  COBie2.4Column: J
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="AssetStartDate" type="CobieTextSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetStartDate date contains the Start date of
    the equipment identified in this row. This is provided during construction or updated during facility operations.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1066-10-14T22:01:00|1944-12-15T12:49:00|2011-
    09-14T16:57:53|2011-09-14T16:57:59|2012-12-14T08:00:00|2012-09-14T10:00:00|2019-06-27T15:37:00</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
    "COBie_Component," IfcProperty with name "StartDate"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">n/a</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">n/a</xs:appinfo>
    <xs:documentation>
      Definition: AssetInstallationDate date contains the installation date of the equipment identified in this row. This is provided
      during construction or updated during facility operations.
      Value: 1066-10-14T22:01:00|1944-12-15T12:49:00|2011-09-14T16:57:53|2011-09-14T16:57:59|2012-12-14T08:00:00|2012-
      09-14T10:00:00|2019-06-27T15:37:00
      ISO16739Mapping: IfcPropertySet with Name "COBie_Component," IfcProperty with name "StartDate"
      COBie2.4Header:
      COBie2.4Column:
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AssetTagNumber" type="CobieTextSimpleType" id="d2e5881">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetTagNumber contains the number for the
    Asset from any tags required to be installed during construction.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">101|A305|AHU-2|B2|P-5|XIBHEP</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
    "COBie_Component," IfcProperty with name "TagNumber"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Component.TagNumber</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">M</xs:appinfo>
    <xs:documentation>
      Definition: AssetTagNumber contains the number for the Asset from any tags required to be installed during construction.
      Value: 101|A305|AHU-2|B2|P-5|XIBHEP
      ISO16739Mapping: IfcPropertySet with Name "COBie_Component," IfcProperty with name "TagNumber"
      COBie2.4Header: Component.TagNumber
      COBie2.4Column: M
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AssetWarrantyStartDate" type="xs:date" id="d2e5855">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetWarrantyStartDate contains the date on
    which the manufacturer's warranty period, described in the related Type worksheet, begins.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1066-10-14T22:01:00|1944-12-15T12:49:00|2011-
    09-14T16:57:53|2011-09-14T16:57:59|2012-12-14T08:00:00|2012-09-14T10:00:00|2019-06-27T15:37:00</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
    "COBie_Component," IfcProperty with name "WarrantyStartDate"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Asset.WarrantyStartDate</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">L</xs:appinfo>
    <xs:documentation>
      Definition: AssetWarrantyStartDate contains the date on which the manufacturer's warranty period, described in the related
      Type worksheet, begins.
      Value: 1066-10-14T22:01:00|1944-12-15T12:49:00|2011-09-14T16:57:53|2011-09-14T16:57:59|2012-12-14T08:00:00|2012-
      09-14T10:00:00|2019-06-27T15:37:00
      ISO16739Mapping: IfcPropertySet with Name "COBie_Component," IfcProperty with name "WarrantyStartDate"
  </xs:documentation>
  </xs:annotation>
</xs:element>

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        COBie2.4Header: Asset.WarrantyStartDate
        COBie2.4Column: L
        </xs:documentation>
    </xs:annotation>
</xs:element>
<!--COBie Fields: AssetType Fields-->
<xs:element name="AssetTypeAttributes" type="AttributeCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Attribute elements associated with an AssetType element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssetTypeDocuments" type="DocumentCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Document elements associated with an AssetType element. </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssetTypeIssues" type="IssueCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Issue elements associated with an AssetType element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssetTypeAccessibilityText" type="CobieTextSimpleType" id="d2e2550">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.AccessibilityText contains a description
of the finish of the AccessibilityPerformanceDescription as found on the manufacturer's product data sheet.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
"COBie_Specification," IfcProperty with name "AccessibilityPerformance"</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">14 CFR part 240|2120-AA66 2401|2105-AB73
2255|25.2075|compatible with most of designed billet, etc.|World Usability 2012 User</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.AccessibilityPerformance</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">AG</xs:appinfo>
        <xs:documentation>
            Definition: AssetType.AccessibilityText contains a description of the finish of the AccessibilityPerformanceDescription as found
on the manufacturer's product data sheet.
            Value: 14 CFR part 240|2120-AA66 2401|2105-AB73 2255|25.2075|compatible with most of designed billet, etc.|World
Usability 2012 User
            ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name
"AccessibilityPerformance"
            COBie2.4Header: Type.AccessibilityPerformance
            COBie2.4Column: AG
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssetTypeCategory" type="AssetCategorySimpleType" id="d2e2085">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Category provides the classification of the
information provided in this row of data.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">23.30.10.00: Doors|23.30-20-17-11: Fixed
Windows|23-40 70 11 14 11 17:Patient Care Equipment|23.45.05.21.11.11:Water Operated Water Closets|23.65 35 11 11: Storage Water
Heaters|23.65.55.14.17: Valves for Liquid Services|23.80.50.11.17: Ground Fault Receptacles</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcClassification.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Category</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
        <xs:documentation>
            Definition: Category provides the classification of the information provided in this row of data.
            Value: 23.30.10.00: Doors|23.30-20-17-11: Fixed Windows|23-40 70 11 14 11 17:Patient Care
Equipment|23.45.05.21.11.11:Water Operated Water Closets|23.65 35 11 11: Storage Water Heaters|23.65.55.14.17: Valves for Liquid
Services|23.80.50.11.17: Ground Fault Receptacles
            ISO16739Mapping: IfcClassification.Name
            COBie2.4Header: Type.Category
            COBie2.4Column: D
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="AssetTypeCodePerformance" type="CobieTextSimpleType" id="d2e2576">

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    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.CodePerformance contains a
description of the CodePerformance of an AssetType as found on the manufacturer's product data sheet.</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Value">2006 International Fuel Gas Code|ASTM C645 ;amp
C754|British Standards Institute|ESR-3307|NFPA|NFRC 708.01 - NFRC CMA</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
"COBie_Specification," IfcProperty with name "CodePerformance"</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.CodePerformance</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">AH</xs:appinfo>
      <xs:documentation>
        Definition: AssetType.CodePerformance contains a description of the CodePerformance of an AssetType as found on the
manufacturer's product data sheet.
        Value: 2006 International Fuel Gas Code|ASTM C645 ;amp C754|British Standards Institute|ESR-3307|NFPA|NFRC 708.01 -
NFRC CMA
        ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "CodePerformance"
        COBie2.4Header: Type.CodePerformance
        COBie2.4Column: AH
      </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="AssetTypeColorCode" type="CobieTextSimpleType" id="d2e2393">
    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.ColorCode contains a description of
the ColorDescription of the AssetType as found on the manufacturer's product data sheet.</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Value">#5252C0|222-184-135|Any colors available or
customers colors|deb887|Green|Light Salmon |White, Black, Beige</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
"COBie_Specification," IfcProperty with name "Color" and/or "Colour"</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Color</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">AA</xs:appinfo>
      <xs:documentation>
        Definition: AssetType.ColorCode contains a description of the ColorDescription of the AssetType as found on the
manufacturer's product data sheet.
        Value: #5252C0|222-184-135|Any colors available or customers colors|deb887|Green|Light Salmon |White, Black, Beige
        ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Color" and/or
"Colour"
        COBie2.4Header: Type.Color
        COBie2.4Column: AA
      </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="AssetTypeConstituentsDescription" type="CobieDescriptionSimpleType" id="d2e2498">
    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.ConstituentsDescription contains a
description of the ConstituentsDescription of the Type as found on the manufacturer's product data sheet.</xs:appinfo>
      <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">Aggregate|Cement|Concrete|Benzol|Gypsum</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
"COBie_Specification," IfcProperty with name "Constituents"</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Constituents</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">AE</xs:appinfo>
      <xs:documentation>
        Definition: AssetType.ConstituentsDescription contains a description of the ConstituentsDescription of the Type as found on
the manufacturer's product data sheet.
        Value: Aggregate|Cement|Concrete|Benzol|Gypsum
        ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Constituents"
        COBie2.4Header: Type.Constituents
        COBie2.4Column: AE
      </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="AssetTypeDescription" type="CobieDescriptionSimpleType">
    <xs:annotation>
      <xs:documentation>AssetTypeDescription contains a human description of the specific product type.</xs:documentation>
    </xs:annotation>
  </xs:element>

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<xs:element name="AssetTypeExpectedLifeValue" type="IntegerValueType" id="d2e2240">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Type.ExpectedLifeValue identifies the expected
    service life of the type of equipment identified in this row. Service life information should reflect the intensity of service in which this type of
    equipment is to be used in the specific project. A service life table may be provided under the Attribute worksheet. Type.DurationUnit defines
    the unit for this value.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1|2|5|100|10,000</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">For Ifc2x3tc1, IfcTypeObject
    IfcPropertySet with Name "COBie_ServiceLife," IfcProperty with name "ServiceLifeDuration" or Pset_ServiceLife.ServiceLifeDuration in Ifc2x4 if
    corresponding type is a subclass of IfcElementType</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.ExpectedLife</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">R</xs:appinfo>
    <xs:documentation>
      Definition: Type.ExpectedLifeValue identifies the expected service life of the type of equipment identified in this row. Service
      life information should reflect the intensity of service in which this type of equipment is to be used in the specific project. A service life table
      may be provided under the Attribute worksheet. Type.DurationUnit defines the unit for this value.
      Value: 1|2|5|100|10,000
      ISO16739Mapping: For Ifc2x3tc1, IfcTypeObject IfcPropertySet with Name "COBie_ServiceLife," IfcProperty with name
      "ServiceLifeDuration" or Pset_ServiceLife.ServiceLifeDuration in Ifc2x4 if corresponding type is a subclass of IfcElementType
      COBie2.4Header: Type.ExpectedLife
      COBie2.4Column: R
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AssetTypeFeaturesDescription" type="CobieDescriptionSimpleType" id="d2e2524">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.FeaturesDescription is a description of
    the FeaturesDescription of the Type as found on the manufacturer's product data sheet.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">100% Biodegradable|55 gallon; 12 bags per roll|Attic
    Energy Barrier, etc.|Cornerboards, Skirtboards, etc.|Personalized presidential technicians, etc.|other reef-building invertebrates|Terra-cotta, a
    molded fired clay, etc.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
    "COBie_Specification," IfcProperty with name "Features"
  </xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Features</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">AF</xs:appinfo>
    <xs:documentation>
      Definition: AssetType.FeaturesDescription is a description of the FeaturesDescription of the Type as found on the
      manufacturer's product data sheet.
      Value: 100% Biodegradable|55 gallon; 12 bags per roll|Attic Energy Barrier, etc.|Cornerboards, Skirtboards, etc.|Personalized
      presidential technicians, etc.|other reef-building invertebrates|Terra-cotta, a molded fired clay, etc.
      ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Features"

      COBie2.4Header: Type.Features
      COBie2.4Column: AF
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AssetTypeFinishDescription" type="CobieDescriptionSimpleType" id="d2e2419">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.FinishDescriptioncontains a
    description of the FinishDescription of the Type as found on the manufacturer's product data sheet.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Anodized (Dk. Gray)|GOLD FLASH over Nickel
    Flash|PASSIVATE - MIL-F-14072-C|Paint|QQN290-A Class 1, GradeDescription F (Thickness -.0004-SB)|Titanium zirconium|Zinc
    Plate</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
    "COBie_Specification," IfcProperty with name "Finish"
  </xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Finish</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">AB</xs:appinfo>
    <xs:documentation>
      Definition: AssetType.FinishDescriptioncontains a description of the FinishDescription of the Type as found on the
      manufacturer's product data sheet.
      Value: Anodized (Dk. Gray)|GOLD FLASH over Nickel Flash|PASSIVATE - MIL-F-14072-C|Paint|QQN290-A Class 1,
      GradeDescription F (Thickness -.0004-SB)|Titanium zirconium|Zinc Plate
      ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Finish"
  </xs:documentation>
  </xs:annotation>
</xs:element>

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COBie2.4Header: Type.Finish
COBie2.4Column: AB
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="AssetTypeGradeDescription" type="CobieDescriptionSimpleType" id="d2e2446">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.GradeDescription contains a
description of the GradeDescription of the Type as found on the manufacturer's product data sheet.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">409|Chromium-vanadium steels|Heart
B|LDPE|S40900</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
"COBie_Specification," IfcProperty with name "Grade"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Grade</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">AC</xs:appinfo>
    <xs:documentation>
      Definition: AssetType.GradeDescription contains a description of the GradeDescription of the Type as found on the
manufacturer's product data sheet.
      Value: 409|Chromium-vanadium steels|Heart B|LDPE|S40900
      ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Grade"
      COBie2.4Header: Type.Grade
      COBie2.4Column: AC
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AssetTypeManufacturerContactAssignments" type="ContactAssignmentCollectionType" id="d2e2629">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetTypeManufacturerContactAssignments is a
list of Contact elements that represent the manufactrer of the AssetType.</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">mariangelica.carrasquillo@usace.army.mil|sales@panelfold.com|info@modernfol
d.com|info@hufcor.com|karpenteel@karpenteel.com|contact@securalldoors.com|sales@marvin.com</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with name
"Pset_ManufacturerTypeInformation," IfcProperty with Name "Manufacturer"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Manufacturer</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">G</xs:appinfo>
    <xs:documentation>
      Definition: AssetTypeManufacturerContactAssignments is a list of Contact elements that represent the manufactrer of the
AssetType.
      Value:
      mariangelica.carrasquillo@usace.army.mil|sales@panelfold.com|info@modernfold.com|info@hufcor.com|karpenteel@karpenteel.com|co
ntact@securalldoors.com|sales@marvin.com
      ISO16739Mapping: IfcTypeObject IfcPropertySet with name "Pset_ManufacturerTypeInformation," IfcProperty with Name
"Manufacturer"
      COBie2.4Header: Type.Manufacturer
      COBie2.4Column: G
    </xs:documentation>
  </xs:annotation>
  <xs:key name="AssetTypeContactAssignmentKey">
    <xs:selector xpath="ContactAssignment"/>
    <xs:field xpath="ContactEmailReference"/>
  </xs:key>
</xs:element>
<xs:element name="AssetTypeMaterialDescription" type="CobieDescriptionSimpleType" id="d2e2472">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.MaterialDescription contains a
description of the MaterialDescription of the Type as found on the manufacturer's product data sheet.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">100% Polyester
|Bamboo|Fiberglass|Plywood|Water-Resistant Gypsum Backing Board</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
"COBie_Specification," IfcProperty with name "Material"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Material</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">AD</xs:appinfo>
    <xs:documentation>
      Definition: AssetType.MaterialDescription contains a description of the MaterialDescription of the Type as found on the
manufacturer's product data sheet.

```

Value: 100% Polyester | Bamboo | Fiberglass | Plywood | Water-Resistant Gypsum Backing Board  
 ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie\_Specification," IfcProperty with name "Material"  
 COBie2.4Header: Type.Material  
 COBie2.4Column: AD  
 </xs:documentation>  
 </xs:annotation>  
 </xs:element>  
 <xs:element name="AssetTypeModelNumber" type="CobieTextSimpleType" id="d2e2189">  
 <xs:annotation>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Type.ModelNumber contains the manufacturer's model number for this product type.</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1020 MAS (SUPPLY)|2VT8 3 32 ADP MVOLT 1/3 GEB10IS LP830 EL14|Axiom Multix M|LF8N 2/26TRT F8B4W 277|LH1720C |Generator Quick Connect Switchboard|K-4904-ET|Series 416</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with name "Pset\_ManufacturerTypeInfoInformation," IfcProperty with Name "ModelLabel"</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.ModelNumber</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">H</xs:appinfo>  
 <xs:documentation>  
 Definition: Type.ModelNumber contains the manufacturer's model number for this product type.  
 Value: 1020 MAS (SUPPLY)|2VT8 3 32 ADP MVOLT 1/3 GEB10IS LP830 EL14|Axiom Multix M|LF8N 2/26TRT F8B4W 277|LH1720C |Generator Quick Connect Switchboard|K-4904-ET|Series 416  
 ISO16739Mapping: IfcTypeObject IfcPropertySet with name "Pset\_ManufacturerTypeInfoInformation," IfcProperty with Name "ModelLabel"  
 COBie2.4Header: Type.ModelNumber  
 COBie2.4Column: H  
 </xs:documentation>  
 </xs:annotation>  
 </xs:element>  
 <xs:element name="AssetTypeName" type="CobieNameSimpleType">  
 <xs:annotation>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">TypeName contains the name of each type of managed equipment found in the facility. Typically Type.Name is identified within equipment schedules and related design drawing notes. Type.Name is the Primary Key for the Type worksheet and it is referenced in subsequent COBie worksheets. Type.Name values must be unique. The manufacturer's product data sheet is referenced through the COBie.Document worksheet.</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Air Cooled Condensing Unit- Small|Air Separator|Backflow Preventer|Ball Valve 100 mm|Cabinet Type C|Centrifugal Fan- Air Foil</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject.Name</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Name</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>  
 <xs:documentation>  
 Definition: TypeName contains the name of each type of managed equipment found in the facility. Typically Type.Name is identified within equipment schedules and related design drawing notes. Type.Name is the Primary Key for the Type worksheet and it is referenced in subsequent COBie worksheets. Type.Name values must be unique. The manufacturer's product data sheet is referenced through the COBie.Document worksheet.  
 Value: Air Cooled Condensing Unit- Small|Air Separator|Backflow Preventer|Ball Valve 100 mm|Cabinet Type C|Centrifugal Fan- Air Foil  
 ISO16739Mapping: IfcTypeObject.Name  
 COBie2.4Header: Type.Name  
 COBie2.4Column: A  
 </xs:documentation>  
 </xs:annotation>  
 </xs:element>  
 <xs:element name="AssetTypeNominalHeight" type="DecimalValueType" id="d2e2316">  
 <xs:annotation>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Type.NominalHeight contains the height of the bounding box for the Type. Facility.LinearUnit defines the unit for this value.</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:Value">254|3|914.40|15|4572</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name "COBie\_Specification," IfcProperty with name "NominalHeight"</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.NominalHeight</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">W</xs:appinfo>  
 <xs:documentation>  
 Definition: Type.NominalHeight contains the height of the bounding box for the Type. Facility.LinearUnit defines the unit for this value.  
 Value: 254|3|914.40|15|4572

```

ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "NominalHeight"
COBie2.4Header: Type.NominalHeight
COBie2.4Column: W
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="AssetTypeNominalLength" type="DecimalValueType" id="d2e2265">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Type.NominalLength contains the length of the
    bounding box for the Type. Facility.LinearUnit defines the unit for this value.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">254|3|914.40|15|4572</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
    "COBie_Specification," IfcProperty with name "NominalLength"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.NominalLength</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">U</xs:appinfo>
    <xs:documentation>
      Definition: Type.NominalLength contains the length of the bounding box for the Type. Facility.LinearUnit defines the unit for
      this value.
      Value: 254|3|914.40|15|4572
      ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "NominalLength"
      COBie2.4Header: Type.NominalLength
      COBie2.4Column: U
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AssetTypeNominalWidth" type="DecimalValueType" id="d2e2291">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Type.NominalWidth contains the width of the
    bounding box for the Type. Facility.LinearUnit defines the unit for this value.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">254|3|914.40|15|4572</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
    "COBie_Specification," IfcProperty with name "NominalWidth" </xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.NominalWidth</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">V</xs:appinfo>
    <xs:documentation>
      Definition: Type.NominalWidth contains the width of the bounding box for the Type. Facility.LinearUnit defines the unit for
      this value.
      Value: 254|3|914.40|15|4572
      ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "NominalWidth"
      COBie2.4Header: Type.NominalWidth
      COBie2.4Column: V
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AssetTypeAccountingCategory" type="AssetPortabilitySimpleType" id="d2e2111">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Type.AssetType provides the asset type
    classification of the information provided in this row of data.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Fixed|Moveable</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject Ifc Propertyset with name
    "COBie_Asset", IfcProperty with Name "AssetType" or Pset_Asset.AssetType of IfcAsset if the corresponding IfcTypeObject is
    assigned to an IfcAsset through IfcRelAssignsToGroup</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.AssetType</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">F</xs:appinfo>
    <xs:documentation>
      Definition: Type.AssetType provides the asset type classification of the information provided in this row of data.
      Value: Fixed|Moveable
      ISO16739Mapping: IfcTypeObject Ifc Propertyset with name "COBie_Asset", IfcProperty with Name "AssetType" or
      Pset_Asset.AssetType of IfcAsset if the corresponding IfcTypeObject is assigned to an IfcAsset through IfcRelAssignsToGroup
      COBie2.4Header: Type.AssetType
      COBie2.4Column: F
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AssetTypeShapeDescription" type="CobieDescriptionSimpleType" id="d2e2341">
  <xs:annotation>

```



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        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.ShapeDescription contains a
description of the ShapeDescription of the Type as found on the manufacturer's product data sheet.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Cube|Oblong|Round|Square</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
"COBie_Specification," IfcProperty with name "Shape"</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Shape</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">Y</xs:appinfo>
        <xs:documentation>
        Definition: AssetType.ShapeDescription contains a description of the ShapeDescription of the Type as found on the
manufacturer's product data sheet.
        Value: Cube|Oblong|Round|Square
        ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Shape"
        COBie2.4Header: Type.Shape
        COBie2.4Column: Y
        </xs:documentation>
    </xs:annotation>
</xs:element>
    <xs:element name="AssetTypeSizeDescription" type="CobieDescriptionSimpleType" id="d2e2367">
        <xs:annotation>
            <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.SizeDescription contains a description
of the Size of the Type as found on the manufacturer's product data sheet.</xs:appinfo>
            <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Small|Medium|L|Large</xs:appinfo>
            <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
"COBie_Specification," IfcProperty with name "Size"</xs:appinfo>
            <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.Size</xs:appinfo>
            <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">Z</xs:appinfo>
            <xs:documentation>
            Definition: AssetType.SizeDescription contains a description of the Size of the Type as found on the manufacturer's product
data sheet.
            Value: Small|Medium|L|Large
            ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name "Size"
            COBie2.4Header: Type.Size
            COBie2.4Column: Z
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="AssetTypeSustainabilityPerformanceDescription" type="CobieDescriptionSimpleType" id="d2e2603">
        <xs:annotation>
            <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AssetType.SustainabilityPerformanceDescription
contains a description of the SustainabilityPerformanceDescription of the Type as found on the manufacturer's product data
sheet.</xs:appinfo>
            <xs:appinfo source="urn:camed:annotation:documentation:type:Value">3 GHG emissions in absolute terms|CDPH
Standard|Electronic Product Environmental Assessment Tool |Modified ASTM D 1037 Procedure|National Environmental Policy Act 1969|post-
consumer 53%, pre-consumer 8%</xs:appinfo>
            <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject IfcPropertySet with Name
"COBie_Specification," IfcProperty with name "SustainabilityPerformance"</xs:appinfo>
            <xs:appinfo
source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.SustainabilityPerformance</xs:appinfo>
            <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">AI</xs:appinfo>
            <xs:documentation>
            Definition: AssetType.SustainabilityPerformanceDescription contains a description of the
SustainabilityPerformanceDescription of the Type as found on the manufacturer's product data sheet.
            Value: 3 GHG emissions in absolute terms|CDPH Standard|Electronic Product Environmental Assessment Tool |Modified
ASTM D 1037 Procedure|National Environmental Policy Act 1969|post-consumer 53%, pre-consumer 8%
            ISO16739Mapping: IfcTypeObject IfcPropertySet with Name "COBie_Specification," IfcProperty with name
"SustainabilityPerformance"
            COBie2.4Header: Type.SustainabilityPerformance
            COBie2.4Column: AI
            </xs:documentation>
        </xs:annotation>
    </xs:element>
    <!--COBie Fields: Attribute Fields-->
    <xs:element name="AttributeDocuments" type="DocumentCollectionType">
        <xs:annotation>
            <xs:documentation>A set of Document elements associated with an Attribute element. </xs:documentation>
        </xs:annotation>

```

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</xs:element>
<xs:element name="AttributeIssues" type="IssueCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Issue elements associated with an Attribute element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AttributeAllowedValue" type="CobieTextSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AttributeAllowedValue allows documentation of
the original source of the information identified in this row. If there is a specific list of allowed values, this field represents one allowed
value.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1|True|100|Red|100|Alpha</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertyEnumeration.EnumerationValues</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Attribute.AllowedValues</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">M</xs:appinfo>
    <xs:documentation>
      Definition: AttributeAllowedValue allows documentation of the original source of the information identified in this row. If
there is a specific list of allowed values, this field represents one allowed value.
      Value: 1|True|100|Red|100|Alpha
      ISO16739Mapping: IfcPropertyEnumeration.EnumerationValues
      COBie2.4Header: Attribute.AllowedValues
      COBie2.4Column: M
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AttributeCategory" type="AttributeCategorySimpleType" id="d2e7660">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Category provides the classification of the
information provided in this row of data.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">As Built|Submitted|Approved|Exact
Requirement|Maximum Requirement|Minimum Requirement|Requirement</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">"Requirement"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Attribute.Category</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
    <xs:documentation>
      Definition: Category provides the classification of the information provided in this row of data.
      Value: As Built|Submitted|Approved|Exact Requirement|Maximum Requirement|Minimum Requirement|Requirement
      ISO16739Mapping: "Requirement"
      COBie2.4Header: Attribute.Category
      COBie2.4Column: D
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AttributeDateValue" type="xs:date">
  <xs:annotation>
    <xs:documentation>Date Attribute Value</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AttributeDateTimeValue" type="xs:dateTime">
  <xs:annotation>
    <xs:documentation>DateTime Attribute Value</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AttributeDescription" type="CobieDescriptionSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">AttributeDescription allows documentation of
information about the nature and characteristics of the attribute identified in this row</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">area measurement in square meters|degrees
Centigrade|degrees Fahrenheit|linear measure in feet|linear measure in inches|linear measure in millimeters|pounds|percentage|Sound
Transmission Coefficient Rating</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcProperty.Description</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Attribute.Description</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">L</xs:appinfo>
    <xs:documentation>
  </xs:annotation>

```



Definition: AttributeDescription allows documentation of information about the nature and characteristics of the attribute identified in this row

Value: area measurement in square meters|degrees Centigrade|degrees Fahrenheit|linear measure in feet|linear measure in inches|linear measure in millimeters|pounds|percentage|Sound Transmission Coefficient Rating

ISO16739Mapping: IfcProperty.Description

COBie2.4Header: Attribute.Description

COBie2.4Column: L

</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="AttributeName" type="CobieNameSimpleType">

<xs:annotation>

<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Attribute.Name contains the name of the attribute for the related object. Attribute.Name is part of a combination Primary Key comprised of Attribute.Name, Attribute.SheetName, and Attribute.RowName</xs:appinfo>

<xs:appinfo source="urn:camed:annotation:documentation:type:Value">Actual Return Airflow

|CoefficientOfPerformanceCurve

|FullLoadRatioCurve|GrossWeight|NominalCondensingTemperature|NominalEfficiency|NominalEvaporatingTemperature|Perimeter|Room

Cavity Ratio|Wall Reflectance</xs:appinfo>

<xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcProperty.Name</xs:appinfo>

<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Attribute.Name</xs:appinfo>

<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>

<xs:documentation>

Definition: Attribute.Name contains the name of the attribute for the related object. Attribute.Name is part of a combination Primary Key comprised of Attribute.Name, Attribute.SheetName, and Attribute.RowName

Value: Actual Return Airflow |CoefficientOfPerformanceCurve

|FullLoadRatioCurve|GrossWeight|NominalCondensingTemperature|NominalEfficiency|NominalEvaporatingTemperature|Perimeter|Room

Cavity Ratio|Wall Reflectance

ISO16739Mapping: IfcProperty.Name

COBie2.4Header: Attribute.Name

COBie2.4Column: A

</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="AttributeTimeValue" type="xs:time">

<xs:annotation>

<xs:documentation>Time Attribute Value</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="BooleanValue" type="xs:boolean">

<xs:annotation>

<xs:documentation>A Value represented by a Boolean type.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="DecimalValue" type="xs:double">

<xs:annotation>

<xs:documentation>A COBie value represented by a decimal type.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="IntegerValue" type="xs:integer">

<xs:annotation>

<xs:documentation>A COBie value represented by an integer type.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="MinValueDecimal" type="xs:double">

<xs:annotation>

<xs:documentation>Specifies the minimum value of a decimal number in a bounded decimal value range.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="MaxValueDecimal" type="xs:double">

<xs:annotation>

<xs:documentation>Specifies the maximum value of a decimal number in a bounded decimal value range.</xs:documentation>

</xs:annotation>

</xs:element>

<xs:element name="MinValueInteger" type="xs:integer">

<xs:annotation>

```

        <xs:documentation>Specifies the minimum value of an integer in a bounded integer value range.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="MaxValueInteger" type="xs:integer">
    <xs:annotation>
        <xs:documentation>Specifies the maximum value of an integer in a bounded integer value range.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="MonetaryUnit" type="CurrencyUnitSimpleType">
    <xs:annotation>
        <xs:documentation>An occurrence of a currency unit.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="MonetaryValue" type="MonetaryValueSimpleType">
    <xs:annotation>
        <xs:documentation>A COBie value represented by a decimal type constrained to two decimal places.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="StringValue" type="CobieTextSimpleType">
    <xs:annotation>
        <xs:documentation>A COBie value represented by a text or string type.</xs:documentation>
    </xs:annotation>
</xs:element>
<!-- COBie Fields: Connection Fields-->
<xs:element name="ConnectionAttributes" type="AttributeCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Attribute elements associated with an Connection element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ConnectionDocuments" type="DocumentCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Document elements associated with an Connection element. </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ConnectionIssues" type="IssueCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Issue elements associated with an Connection element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ConnectionAsset1Name" type="CobieNameSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ConnectionAsset1Name contains the Type or
Component Name for the upstream element of a connection. In database terms, this field is a Foreign Key.
Value</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Air Cooled Condensing Unit- Small|Air
Separator|Backflow Preventer|Ball Valve 100 mm|Cabinet Type C|Centrifugal Fan- Air Foil |101-A|122|1E02|324|B2|All Purpose
Room|Parking Lot A</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcProduct.name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Connection.RowName1</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">F</xs:appinfo>
        <xs:documentation>
            Definition: ConnectionAssetName contains the Type or Component Name for the upstream element of a connection. In
database terms, this field is a Foreign Key.
Value
            Value: Air Cooled Condensing Unit- Small|Air Separator|Backflow Preventer|Ball Valve 100 mm|Cabinet Type C|Centrifugal
Fan- Air Foil |101-A|122|1E02|324|B2|All Purpose Room|Parking Lot A
            ISO16739Mapping: IfcProduct.name
            COBie2.4Header: Connection.RowName1
            COBie2.4Column: F
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ConnectionAsset1PortName" type="CobieTextSimpleType" id="d2e6955">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ConnectionAsset1PortName allows
documentation of the upstream port on the current Asset that begins this connection.</xs:appinfo>

```

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<xs:appinfo source="urn:camed:annotation:documentation:type:Value">Port 1|Port 2</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcDistributionPort.Name</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Connection.PortName1</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">I</xs:appinfo>
<xs:documentation>

```

Definition: ConnectionAsset1PortName allows documentation of the upstream port on the current Asset that begins this connection.

```

Value: Port 1|Port 2|
ISO16739Mapping: IfcDistributionPort.Name
COBie2.4Header: Connection.PortName1
COBie2.4Column: I
</xs:documentation>

```

```

</xs:annotation>
</xs:element>
<xs:element name="ConnectionAsset2Name" type="CobieNameSimpleType">
  <xs:annotation>

```

<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ConnectionAsset2Name contains the Type or Component Name for the downstream element of a connection. In database terms, this field is a Foreign Key. Value</xs:appinfo>

```

<xs:appinfo source="urn:camed:annotation:documentation:type:Value">Air Cooled Condensing Unit- Small|Air Separator|Backflow Preventer|Ball Valve 100 mm|Cabinet Type C|Centrifugal Fan- Air Foil |101-A|122|1E02|324|B2|All Purpose Room|Parking Lot A</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcProduct.name</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Connection.RowName1</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">G</xs:appinfo>
<xs:documentation>

```

Definition: ConnectionAssetName contains the Type or Component Name for the upstream element of a connection. In database terms, this field is a Foreign Key.

```

Value
Value: Air Cooled Condensing Unit- Small|Air Separator|Backflow Preventer|Ball Valve 100 mm|Cabinet Type C|Centrifugal Fan- Air Foil |101-A|122|1E02|324|B2|All Purpose Room|Parking Lot A
ISO16739Mapping: IfcProduct.name
COBie2.4Header: Connection.RowName2
COBie2.4Column: G
</xs:documentation>

```

```

</xs:annotation>
</xs:element>
<xs:element name="ConnectionAsset2PortName" type="CobieTextSimpleType" id="d2e7008">
  <xs:annotation>

```

```

<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ConnectionAsset2PortName allows documentation of the port on the downstream Asset that terminates this connection.</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:Value">Port 1|Port 2</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcDistributionPort.Name</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Connection.PortName2</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">J</xs:appinfo>
<xs:documentation>

```

Definition: ConnectionAsset2PortName allows documentation of the port on the downstream Asset that bterminates this connection.

```

Value: Port 1|Port 2|
ISO16739Mapping: IfcDistributionPort.Name
COBie2.4Header: Connection.PortName2
COBie2.4Column: J
</xs:documentation>

```

```

</xs:annotation>
</xs:element>
<xs:element name="ConnectionCategory" type="ConnectionCategorySimpleType" id="d2e6930">
  <xs:annotation>

```

<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ConnectionCategory provides the classification of the information provided in this row of data. Connection.CategoryType is part of a combination Primary Key comprised of Connection.Name, Connection.RowName1 and Connection.RowName2.</xs:appinfo>

```

<xs:appinfo source="urn:camed:annotation:documentation:type:Value">Control|Flow|Return|Supply|Structural</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcRelConnectsElements.Description</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Connection.ConnectionType</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
<xs:documentation>

```

Definition: ConnectionCategory provides the classification of the information provided in this row of data. Connection.CategoryType is part of a combination Primary Key comprised of Connection.Name, Connection.RowName1 and Connection.RowName2.

Value: Control|Flow|Return|Supply|Structural  
 ISO16739Mapping: IfcRelConnectsElements.Description  
 COBie2.4Header: Connection.ConnectionType  
 COBie2.4Column: D

```
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="ConnectionDescription" type="CobieDescriptionSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ConnectionDescription allows documentation of
    information about the purpose and design characteristics of that connection.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Controller|Flow Controller|Air Return|Water
    Supply|Junction</xs:appinfo>
    <xs:appinfo
    source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcRelConnectsElements.Description</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Connection.Description</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">N</xs:appinfo>
    <xs:documentation>
    Definition: ConnectionDescription allows documentation of information about the purpose and design characteristics of that
    connection.
```

Value: Controller|Flow Controller|Air Return|Water Supply|Junction  
 ISO16739Mapping: IfcRelConnectsElements.Description  
 COBie2.4Header: Connection.Description  
 COBie2.4Column: N

```
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="ConnectionName" type="CobieNameSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ConnectionName allows for short-hand
    documentation of information about the purpose and design characteristics of that connection.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Controller A to Sensor B|Flow Controller 1 to Flow
    Terminal 2|Air Supply to Air Return|Water Supply to Water Faucet|Junction 1 to Junction 2</xs:appinfo>
    <xs:appinfo
    source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcRelConnectsElements.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Connection.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
    <xs:documentation>
    Definition: ConnectionName allows for short-hand documentation of information about the purpose and design
    characteristics of that connection.
```

Value: Controller A to Sensor B|Flow Controller 1 to Flow Terminal 2|Air Supply to Air Return|Water Supply to Water  
 Faucet|Junction 1 to Junction 2  
 ISO16739Mapping: IfcRelConnectsElements.Name  
 COBie2.4Header: Connection.Name  
 COBie2.4Column: A

```
</xs:documentation>
</xs:annotation>
</xs:element>
<!--COBie Fields: Contact Fields-->
<xs:element name="ContactAttributes" type="AttributeCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Attribute elements associated with an Contact element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ContactDocuments" type="DocumentCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Document elements associated with an Contact element. </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ContactIssues" type="IssueCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Issue elements associated with an Contact element.</xs:documentation>
  </xs:annotation>
</xs:element>
```

```

</xs:element>
<xs:element name="ContactCategory" type="CobieCategorySimpleType" id="d2g2754">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ContactCategory is a classification or category
describing the role of the contact.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">34-55 14 11: Consultant|34-31 11: Manufacturer|34-
11 11 51: Partner|34-41 11: Facility Manager|34-31 21: Distributor</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcActorRole.UserDefinedRole</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.Category</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
    <xs:documentation>
      Definition: ContactCategory is a classification or category describing the role of the contact.
      Value: 34-55 14 11: Consultant|34-31 11: Manufacturer|34-11 11 51: Partner|34-41 11: Facility Manager|34-31 21:
Distributor
      ISO16739Mapping: IfcActorRole.UserDefinedRole
      COBie2.4Header: Contact.Category
      COBie2.4Column: D
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ContactCompanyName" type="CobieTextSimpleType" id="d2e2734">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ContactCompanyName is the name of the
company associated with the Contact.Email.</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">Claush|Domili|Lienaugh|Peen|Swyumtor|Umsay|Vumos</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcOrganization.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.Company</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">E</xs:appinfo>
    <xs:documentation>
      Definition: Contact.Company is the name of the company associated with the Contact.Email.
      Value: Claush|Domili|Lienaugh|Peen|Swyumtor|Umsay|Vumos
      ISO16739Mapping: IfcOrganization.Name
      COBie2.4Header: Contact.Company
      COBie2.4Column: E
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ContactCountryName" type="CobieTextSimpleType" id="d2e2914">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Contact.Country is the country of the
organization or person associated with the Contact.Email.</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">Brundalona|Ferrerena|Marsopur|Manundand|Sibovus|Theonaso|na|n/a</xs:app
info>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPostalAddress.Country</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.Country</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">S</xs:appinfo>
    <xs:documentation>
      Definition: Contact.Country is the country of the organization or person associated with the Contact.Email.
      Value: Brundalona|Ferrerena|Marsopur|Manundand|Sibovus|Theonaso|na|n/a
      ISO16739Mapping: IfcPostalAddress.Country
      COBie2.4Header: Contact.Country
      COBie2.4Column: S
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ContactDepartmentName" type="CobieTextSimpleType" id="d2e2735">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Contact.DepartmentName is the name of the
specific division and/or branch of the office associated with the Contact.Email.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Design|Engineering
DepartmentName|Marketing|Operation Center|Sales</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPostalAddress.InternalLocation</xs:appinfo>

```

```

<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.Department</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">J</xs:appinfo>
<xs:documentation>
  Definition: Contact.DepartmentName is the name of the specific division and/or branch of the office associated with the
Contact.Email.
  Value: Design|Engineering|DepartmentName|Marketing|Operation Center|Sales
  ISO16739Mapping: IfcPostalAddress.InternalLocation
  COBie2.4Header: Contact.Department
  COBie2.4Column: J
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="ContactEmail" type="CobieNameSimpleType" id="d2e2655">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Contact.Email is the email address of the people
and companies whose documentation is required in a COBie file. Contact.Email is the primary key of the Contact worksheet and it is referenced
in all subsequent COBie worksheets.</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">mariangelica.carrasquillo@usace.army.mil|sales@panelfold.com|info@modernfol
d.com|info@hufcor.com|karpensteel@karpensteel.com|contact@securalldoors.com|sales@marvin.com</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTelecomAddress.ElectronicMailAddresses</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.Email</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
    <xs:documentation>
      Definition: Contact.Email is the email address of the people and companies whose documentation is required in a COBie file.
Contact.Email is the primary key of the Contact worksheet and it is referenced in all subsequent COBie worksheets.
      Value:
mariangelica.carrasquillo@usace.army.mil|sales@panelfold.com|info@modernfold.com|info@hufcor.com|karpensteel@karpensteel.com|co
ntact@securalldoors.com|sales@marvin.com
      ISO16739Mapping: IfcTelecomAddress.ElectronicMailAddresses
      COBie2.4Header: Contact.Email
      COBie2.4Column: A
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ContactEmailReference" type="CobieNameSimpleType" id="d2f1783">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Contact.Email is the email address of the people
and companies whose documentation is required in a COBie file. Contact.Email is the primary key of the Contact worksheet and it is referenced
in all subsequent COBie worksheets.</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">mariangelica.carrasquillo@usace.army.mil|sales@panelfold.com|info@modernfol
d.com|info@hufcor.com|karpensteel@karpensteel.com|contact@securalldoors.com|sales@marvin.com</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTelecomAddress.ElectronicMailAddresses</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.Email</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
    <xs:documentation>
      Definition: ContactEmailReference is a reference to an email address (stored in a Contact element) of the people and
companies whose documentation is required in a COBie file. Contact.Email is the primary key of the Contact worksheet and it is referenced in
all subsequent COBie worksheets.
      Value:
mariangelica.carrasquillo@usace.army.mil|sales@panelfold.com|info@modernfold.com|info@hufcor.com|karpensteel@karpensteel.com|co
ntact@securalldoors.com|sales@marvin.com
      ISO16739Mapping: IfcTelecomAddress.ElectronicMailAddresses
      COBie2.4Header: Contact.Email
      COBie2.4Column: A
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ContactFamilyName" type="CobieTextSimpleType" id="d2e2783">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">If the Contact.Email refers to a specific person,
then Contact.FamilyName should be provided.</xs:appinfo>

```

```

        <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">Claush|Domili|Lienaugh|Peen|Swyumtor|Umsay|Vumos</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPerson.FamilyName</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.FamilyName</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">M</xs:appinfo>
        <xs:documentation>
        Definition: If the Contact.Email refers to a specific person, then Contact.FamilyName should be provided.
        Value: Claush|Domili|Lienaugh|Peen|Swyumtor|Umsay|Vumos
        ISO16739Mapping: IfcPerson.FamilyName
        COBie2.4Header: Contact.FamilyName
        COBie2.4Column: M
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ContactGivenName" type="CobieTextSimpleType" id="d2e2757">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">If the Contact.Email refers to a specific person,
then Contact.GivenName should be provided.</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">Ackwor|Erves|Lised|Lyefath|Kisep|Rayeb|Traum</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPerson.GivenName</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.GivenName</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">L</xs:appinfo>
        <xs:documentation>
        Definition: If the Contact.Email refers to a specific person, then Contact.GivenName should be provided.
        Value: Ackwor|Erves|Lised|Lyefath|Kisep|Rayeb|Traum
        ISO16739Mapping: IfcPerson.GivenName
        COBie2.4Header: Contact.GivenName
        COBie2.4Column: L
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ContactPhoneNumber" type="CobieTextSimpleType" id="d2e2707">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Contact.Phone is the telephone number
associated with the Contact.Email.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">888-462-5866|401-942-8000|81-3-3218-2111|714-
921-6000|800-456-4537|704-841-6000|21-352-6511 x6710</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTelecomAddress.TelephoneNumbers</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.Phone</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">F</xs:appinfo>
        <xs:documentation>
        Definition: Contact.Phone is the telephone number associated with the Contact.Email.
        Value: 888-462-5866|401-942-8000|81-3-3218-2111|714-921-6000|800-456-4537|704-841-6000|21-352-6511 x6710
        ISO16739Mapping: IfcTelecomAddress.TelephoneNumbers
        COBie2.4Header: Contact.Phone
        COBie2.4Column: F
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ContactPostalBoxNumber" type="CobieTextSimpleType" id="d2e2835">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Contact.PostalBox is the post office box or
address code of the organization or person associated with the Contact.Email.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Box 433|P.O. Box 51|Post Office Box
651|n/a</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPostalAddress.PostalBox</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.PostalBox</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">O</xs:appinfo>
        <xs:documentation>
        Definition: Contact.PostalBox is the post office box or address code of the organization or person associated with the
Contact.Email.
        Value: Box 433|P.O. Box 51|Post Office Box 651|n/a
        ISO16739Mapping: IfcPostalAddress.PostalBox
        COBie2.4Header: Contact.PostalBox
    </xs:annotation>

```



```

COBie2.4Column: O
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="ContactPostalCode" type="CobieTextSimpleType" id="d2e2940">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Contact.PostalCode is the national postal code of
the organization or person associated with the Contact.Email.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">20832|61826|CEDEX|HOH 0H0|LL57 4ND|PO1
4DJ|RG12 7UP</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPostalAddress.PostalCode</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.PostalCode</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">R</xs:appinfo>
    <xs:documentation>
      Definition: Contact.PostalCode is the national postal code of the organization or person associated with the Contact.Email.
      Value: 20832|61826|CEDEX|HOH 0H0|LL57 4ND|PO1 4DJ|RG12 7UP
      ISO16739Mapping: IfcPostalAddress.PostalCode
      COBie2.4Header: Contact.PostalCode"
      COBie2.4Column: R
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ContactRegionCode" type="CobieTextSimpleType" id="d2e2888">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Contact.StateRegion is the name of the state or
region of the organization or person associated with the Contact.Email.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Chogoku|Elbe-Weser
Triangle|Hordaland|Maryland|Provence-Alpes-Cote d'Azur|Ontario|Sussex</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPostalAddress.Region</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.StateRegion</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">Q</xs:appinfo>
    <xs:documentation>
      Definition: Contact.StateRegion is the name of the state or region of the organization or person associated with the
Contact.Email.
      Value: Chogoku|Elbe-Weser Triangle|Hordaland|Maryland|Provence-Alpes-Cote d'Azur|Ontario|Sussex
      ISO16739Mapping: IfcPostalAddress.Region
      COBie2.4Header: Contact.StateRegion
      COBie2.4Column: Q
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ContactStreet" type="CobieTextSimpleType" id="d2e2809">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Contact.Street is the street address of the
organization or person associated with the Contact.Email.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">51 Auburn Crow Landing|9600 Cozy Mill View|4333
Golden Round|525 Hidden Sky Villa|868 Tender Nest Swale|651 Turning Branch Trail|2548 Quaking Holly Road</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPostalAddress.AddressLines</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.Street</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">N</xs:appinfo>
    <xs:documentation>
      Definition: Contact.Street is the street address of the organization or person associated with the Contact.Email.
      Value: 51 Auburn Crow Landing|9600 Cozy Mill View|4333 Golden Round|525 Hidden Sky Villa|868 Tender Nest Swale|651
Turning Branch Trail|2548 Quaking Holly Road
      ISO16739Mapping: IfcPostalAddress.AddressLines
      COBie2.4Header: Contact.Street
      COBie2.4Column: N
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ContactTownName" type="CobieTextSimpleType" id="d2e2861">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Contact.Town is the name of the town or city of
the organization or person associated with the Contact.Email.</xs:appinfo>

```



```

        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Lewisfield|South Caldland Point|Jackway
Grove|Grantglen|Hilferry</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPostalAddress.Town</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Contact.Town</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">P</xs:appinfo>
        <xs:documentation>
        Definition: Contact.Town is the name of the town or city of the organization or person associated with the Contact.Email.
        Value: Lewisfield|South Caldland Point|Jackway Grove|Grantglen|Hilferry
        ISO16739Mapping: IfcPostalAddress.Town
        COBie2.4Header: Contact.Town
        COBie2.4Column: P
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ContactURL" type="CobieTextSimpleType" id="d2e2966">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">The URL of the Contact's Website.</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">http://www.honeywell.com|http://www.Kohler.com</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTelecomAddress.WWWHomePageURL</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">n/a (new field)</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">n/a (new field)</xs:appinfo>
        <xs:documentation>
        Definition: The URL of the Contact's Website.
        Value: http://www.honeywell.com|http://www.Kohler.com
        ISO16739Mapping: IfcTelecomAddress.WWWHomePageURL
        COBie2.4Header: n/a (new field)
        COBie2.4Column: n/a (new field)
        </xs:documentation>
    </xs:annotation>
</xs:element>
<!--COBie Fields: Document Fields-->
<xs:element name="DocumentAttributes" type="AttributeCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Attribute elements associated with an Document element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="DocumentIssues" type="IssueCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Issue elements associated with an Document element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="DocumentCategory" type="DocumentCategorySimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Category name of the Document.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Product Data|Warranty Information|Closeout
Submittals|Operation and Maintenance</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcClassification.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Document.Category</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
        <xs:documentation>
        Definition: Category name of the Document
        Value: Product Data|Warranty Information|Closeout Submittals|Operation and Maintenance
        ISO16739Mapping: IfcClassification.Name
        COBie2.4Header: Document.Category
        COBie2.4Column: D
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="DocumentDescription" type="CobieDescriptionSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">DocumentDescription allows documentation of
information about the nature and characteristics of the document identified in this row.</xs:appinfo>

```

<xs:appinfo source="urn:camed:annotation:documentation:type:Value">500 x 500 Face 300 x 300 Connection 2|915 mmx915 mm - Public|Aluminum Window Wall with Fixed Glass Panels|Elevator Hydraulic 2000 lbs |Case for Fire Extinguisher|Center Tops - 600mm Depth|M\_Curtain Wall Dbl Chain Link</xs:appinfo>

<xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcDocumentInformation.Description</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Document.Description</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">N</xs:appinfo>  
 <xs:documentation>

Definition: DocumentDescription allows documentation of information about the nature and characteristics of the document identified in this row.

Value: 500 x 500 Face 300 x 300 Connection 2|915 mmx915 mm - Public|Aluminum Window Wall with Fixed Glass Panels|Elevator Hydraulic 2000 lbs |Case for Fire Extinguisher|Center Tops - 600mm Depth|M\_Curtain Wall Dbl Chain Link  
 ISO16739Mapping: IfcDocumentInformation.Description  
 COBie2.4Header: Document.Description  
 COBie2.4Column: N  
 </xs:documentation>

</xs:annotation>  
 </xs:element>  
 <xs:element name="DocumentName" type="CobieNameSimpleType">

<xs:annotation>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">DocumentName contains the name of the referenced document. Documents listed here may either be on the same media that delivers the COBie data file, or may be cloud-served or web-based documents. Document.Name is part of a combination Primary Key comprised of Document.Name, Document.SheetName, and Document.RowName</xs:appinfo>

<xs:appinfo source="urn:camed:annotation:documentation:type:Value">AHU Product Data|Air Cooled Chiller Product Data|Boiler Operations/Maintenance Manuals|Door Type H Warranty|Duplex Receptacle Product Data|Fire Sprinkler Product Data|Water Heater Product Data</xs:appinfo>  
 <xs:appinfo>

source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcDocumentInformation.Name</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Document.Name</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>  
 <xs:documentation>

Definition: DocumentName contains the name of the referenced document. Documents listed here may either be on the same media that delivers the COBie data file, or may be cloud-served or web-based documents. Document.Name is part of a combination Primary Key comprised of Document.Name, Document.SheetName, and Document.RowName

Value: AHU Product Data|Air Cooled Chiller Product Data|Boiler Operations/Maintenance Manuals|Door Type H Warranty|Duplex Receptacle Product Data|Fire Sprinkler Product Data|Water Heater Product Data  
 ISO16739Mapping: IfcDocumentInformation.Name  
 COBie2.4Header: Document.Name  
 COBie2.4Column: A  
 </xs:documentation>

</xs:annotation>  
 </xs:element>  
 <xs:element name="DocumentReferenceURI" type="CobieTextSimpleType" id="d2e7553">  
 <xs:annotation>

<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">DocumentReferenceURI allows documentation of the original source of the information provided for the document identified in this row.</xs:appinfo>

<xs:appinfo source="urn:camed:annotation:documentation:type:Value">Generator Quick Connect Switchboard|http://www.cpmptutor.com/c02/lineofbalance.html|company.uk/~media/708CDAF885D01AA3B4.ashx|ReferenceDescription Book Page 101-23</xs:appinfo>  
 <xs:appinfo>

source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcDocumentInformation.Name</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Document.Reference</xs:appinfo>  
 <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">O</xs:appinfo>  
 <xs:documentation>

Definition: DocumentReferenceURI allows documentation of the original source of the information provided for the document identified in this row.

Value: Generator Quick Connect Switchboard|http://www.cpmptutor.com/c02/lineofbalance.html|company.uk/~media/708CDAF885D01AA3B4.ashx|ReferenceDescription Book Page 101-23

ISO16739Mapping: IfcDocumentInformation.Name  
 COBie2.4Header: Document.Reference  
 COBie2.4Column: O  
 </xs:documentation>

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

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<xs:element name="DocumentURI" type="CobieTextSimpleType" id="d2e7528">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">DocumentURI is the path name of the file in
    which the document is located. If the document is located on the same storage media as the COBie file, then this value shall identify relative
    path subdirectories for accessing the physical exchange of files. If the document is located on the Web, then this value shall be the full path
    name of the DirectoryURI in which the file is located.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">../document/ACCU-Small-
    ProductData.PDF|C:/|Document|http://www.cpmtdutor.com/Door Type F_ReplacementParts.pdf|Door Type
    H_InstallationInstructions.pdf|Pump-ProductData.PDF|SupplyDiffuserSidewallStandard-ProductData.PDF|Shower
    Seat_Warranty.pdf|TransformerSwitchboard-ProductData.PDF|Urinal-ProductData.PDF|VAV-ProductData.PDF</xs:appinfo>
    <xs:appinfo
    source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcDocumentInformation.Location</xs:appinfo>
    <xs:appinfo
    source="urn:camed:annotation:documentation:type:COBie2.4Header">Document.Directory,COBie.Document.FileName</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">I,J</xs:appinfo>
    <xs:documentation>
      Definition: DocumentURI is the path name of the file in which the document is located. If the document is located on the
      same storage media as the COBie file, then this value shall identify relative path subdirectories for accessing the physical exchange of files. If
      the document is located on the Web, then this value shall be the full path name of the DirectoryURI in which the file is located.
      Value: ../document/ACCU-Small-ProductData.PDF|C:/|Document|http://www.cpmtdutor.com/Door Type
      F_ReplacementParts.pdf|Door Type H_InstallationInstructions.pdf|Pump-ProductData.PDF|SupplyDiffuserSidewallStandard-
      ProductData.PDF|Shower Seat_Warranty.pdf|TransformerSwitchboard-ProductData.PDF|Urinal-ProductData.PDF|VAV-ProductData.PDF
      ISO16739Mapping: IfcDocumentInformation.Location
      COBie2.4Header: Document.Directory,COBie.Document.FileName
      COBie2.4Column: I,J
    </xs:documentation>
  </xs:annotation>
</xs:element>
<!--COBie Fields: Facility Fields-->
<xs:element name="FacilityAttributes" type="AttributeCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Attribute elements associated with an Facility element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FacilityDocuments" type="DocumentCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Document elements associated with an Facility element. </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FacilityIssues" type="IssueCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Issue elements associated with an Facility element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FacilityCategory" type="FacilityCategorySimpleType" id="d2e105">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Category provides the classification of the
    information provided in this row of data.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">11-11 11 21: Training Center|11-12.11.11: Daycare
    Facility|12 27 21: Computing Research Facility|11-13 11 17: Courthouse|11-13 24 14:Clinic|11-21 11 41: Chemical Manufacturing Facility|11-
    43 21: Waste Processing Facilities|11-51-11-27: Extra-Atmospheric Aerospace Transportation Terminal</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcClassification.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.Category</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
    <xs:documentation>
      Definition: Category provides the classification of the information provided in this row of data.
      Value: 11-11 11 21: Training Center|11-12.11.11: Daycare Facility|12 27 21: Computing Research Facility|11-13 11 17:
      Courthouse|11-13 24 14:Clinic|11-21 11 41: Chemical Manufacturing Facility|11-43 21: Waste Processing Facilities|11-51-11-27: Extra-
      Atmospheric Aerospace Transportation Terminal
      ISO16739Mapping: IfcClassification.Name
      COBie2.4Header: Facility.Category
      COBie2.4Column: D
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FacilityDefaultAreaUnit" type="AreaUnitSimpleType" id="d2e234">

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    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">DefaultAreaUnitName is the name of the basic
unit of measure associated with all information found in the COBie file, with the exception of values in the COBie.Attributes table.
COBie.Attributes requires explicit identification of unit.</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Square Feet|Square Miles|Square Meters|Square
Kilometers</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcUnitAssignment.Units</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.AreaUnits</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">H</xs:appinfo>
      <xs:documentation>
        Definition: DefaultAreaUnitName is the name of the basic unit of measure associated with all information found in the COBie
file, with the exception of values in the COBie.Attributes table. COBie.Attributes requires explicit identification of unit.
        Value: Square Feet|Square Miles|Square Meters|Square Kilometers
        ISO16739Mapping: IfcUnitAssignment.Units
        COBie2.4Header: Facility.AreaUnits
        COBie2.4Column: H
      </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="FacilityDefaultCurrencyUnit" type="CurrencyUnitSimpleType" id="d2e284">
    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">DefaultCurrencyUnitName is the name of the
basic unit of measure associated with all information found in the COBie file, with the exception of values in the COBie.Attributes table.
COBie.Attributes requires explicit identification of unit.</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Dollars|Euros|British Pounds</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcMonetaryUnit.Currency</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.CurrencyUnits</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">J</xs:appinfo>
      <xs:documentation>
        Definition: DefaultCurrencyUnitName is the name of the basic unit of measure associated with all information found in the
COBie file, with the exception of values in the COBie.Attributes table. COBie.Attributes requires explicit identification of unit.
        Value: Dollars|Euros|British Pounds
        ISO16739Mapping: IfcMonetaryUnit.Currency
        COBie2.4Header: Facility.CurrencyUnits
        COBie2.4Column: J
      </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="FacilityDefaultLinearUnit" type="LinearUnitSimpleType" id="d2e209">
    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">DefaultLinearUnitName is the name of the basic
unit of measure associated with all information found in the COBie file, with the exception of values in the COBie.Attributes table.
COBie.Attributes requires explicit identification of unit.</xs:appinfo>
      <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">Inches|Feet|Miles|Millimeters|Meters|Kilometers</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcUnitAssignment.Units</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.LinearUnits</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">G</xs:appinfo>
      <xs:documentation>
        Definition: DefaultLinearUnitName is the name of the basic unit of measure associated with all information found in the COBie
file, with the exception of values in the COBie.Attributes table. COBie.Attributes requires explicit identification of unit.
        Value: Inches|Feet|Miles|Millimeters|Meters|Kilometers
        ISO16739Mapping: IfcUnitAssignment.Units
        COBie2.4Header: Facility.LinearUnits
        COBie2.4Column: G
      </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="FacilityDefaultMeasurementStandard" type="CobieTextSimpleType" id="d2e310">
    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">DefaultMeasurementStandard is the name of the
basic unit of measure associated with all information found in the COBie file, with the exception of values in the COBie.Attributes table.
COBie.Attributes requires explicit identification of unit.</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Value">ANSI/BOMA Z65.1 - 2010|ASTM E1836-08:Building
Floor Area Measurement|BSI</xs:appinfo>

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        <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcElementQuantity.MethodOfMeasurement</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.AreaMeasurement</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">K</xs:appinfo>
        <xs:documentation>
        Definition: DefaultMeasurementStandard is the name of the basic unit of measure associated with all information found in the
COBie file, with the exception of values in the COBie.Attributes table. COBie.Attributes requires explicit identification of unit.
        Value: ANSI/BOMA Z65.1 - 2010|ASTM E1836-08:Building Floor Area Measurement|BSI
        ISO16739Mapping: IfcElementQuantity.MethodOfMeasurement
        COBie2.4Header: Facility.AreaMeasurement
        COBie2.4Column: K
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="FacilityDefaultVolumeUnit" type="VolumeUnitSimpleType" id="d2e259">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">DefaultVolumeUnitName is the name of the basic
unit of measure associated with all information found in the COBie file, with the exception of values in the COBie.Attributes table.
COBie.Attributes requires explicit identification of unit.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Cubic Feet|Cubic Meters</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcUnitAssignment.Units</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.VolumeUnits</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">I</xs:appinfo>
        <xs:documentation>
        Definition: DefaultVolumeUnitName is the name of the basic unit of measure associated with all information found in the
COBie file, with the exception of values in the COBie.Attributes table. COBie.Attributes requires explicit identification of unit.
        Value: Cubic Feet|Cubic Meters
        ISO16739Mapping: IfcUnitAssignment.Units
        COBie2.4Header: Facility.VolumeUnits
        COBie2.4Column: I
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="FacilityDeliverablePhaseName" type="CobieTextSimpleType" id="d2e131">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">DeliverablePhaseName designates the specific
stage in the facility acquisition process described by the current COBie file.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">As-Built|Beneficial Occupancy|Construction
Documents|Planning|Schematic Design</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcProject.PhaseName</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Phase</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">V</xs:appinfo>
        <xs:documentation>
        Definition: DeliverablePhaseName designates the specific stage in the facility acquisition process described by the current
COBie file.
        Value: As-Built|Beneficial Occupancy|Construction Documents|Planning|Schematic Design
        ISO16739Mapping: IfcProject.PhaseName
        COBie2.4Header: Phase
        COBie2.4Column: V
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="FacilityDescription" type="CobieDescriptionSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">FacilityDescription is a general description of the
facility whose data is contained.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">This facility is built predominantly of yellow brick|This
facility is defended by spiked walls|This facility is mainly constructed of adobe|This moderately sized facility is sprawling.|This smallish facility is
sleepy.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcBuilding.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">S</xs:appinfo>
        <xs:documentation>
        Definition: FacilityDescription is a general description of the facility whose data is contained.
        Value: This facility is built predominantly of yellow brick|This facility is defended by spiked walls|This facility is mainly
constructed of adobe|This moderately sized facility is sprawling.|This smallish facility is sleepy.
    </xs:annotation>

```

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ISO16739Mapping: IfcBuilding.Description
COBie2.4Header: Facility.Description
COBie2.4Column: S
</xs:documentation>
<xs:documentation>FacilityDescription is a general description of the facility whose data is contained.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="FacilityName" type="CobieNameSimpleType">
  <xs:annotation>
    <xs:documentation>Definition: FacilityName is the short-hand name of the facility as it relates to a given COBie deliverable
during planning, design, construction, handover, or operation. Due to the differences in numberings required for various business processes it
is recommended that Facility.Name be set to the contract number that specifies the requirement for each specific COBie deliverable.
Value: Anar Tuol Preserved Pavilion|Cam Mang Dynastic Arena|Emperor Eng's Gate|Jel Syan Painted Waterworks|Minar Gol Illustrated
Rotunda|Pael Mal Old Labyrinth|Quang Mael Living Park
ISO16739Mapping: IfcBuilding.Name
COBie2.4Header: Facility.Name
COBie2.4Column: A</xs:documentation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">FacilityName is the short-hand name of the
facility as it relates to a given COBie deliverable during planning, design, construction, handover, or operation. Due to the differences in
numberings required for various business processes it is recommended that Facility.Name be set to the contract number that specifies the
requirement for each specific COBie deliverable.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Anar Tuol Preserved Pavilion|Cam Mang Dynastic
Arena|Emperor Eng's Gate|Jel Syan Painted Waterworks|Minar Gol Illustrated Rotunda|Pael Mal Old Labyrinth|Quang Mael Living
Park</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcBuilding.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
  </xs:annotation>
</xs:element>
<xs:element name="ProjectDescription" type="CobieDescriptionSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ProjectDescription is a general description of the
project whose data is contained.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">nascetur ridiculus mus. |Donec quam felis, ultricies,
pellentesque eu, pretium quis, sem. |Nulla consequat massa |quis enim. Donec pede justo, fringilla vel, aliquet nec, |vulputate eget,
arcu.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcProject.Descriptio</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.ProjectDescription</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">T</xs:appinfo>
  <xs:documentation>
    Definition: ProjectDescription is a general description of the project whose data is contained.
    Value: nascetur ridiculus mus. |Donec quam felis, ultricies, pellentesque eu, pretium quis, sem. |Nulla consequat massa |quis
enim. Donec pede justo, fringilla vel, aliquet nec, |vulputate eget, arcu.
    ISO16739Mapping: IfcProject.Descriptio
    COBie2.4Header: Facility.ProjectDescription
    COBie2.4Column: T
  </xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="ProjectName" type="CobieNameSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ProjectName is the long name of the facility or
project. This name often is associated with the name of a contract.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Chemical Plant|Interstate Highway 95
Renovation|Luetkemeyer Library and Museum|Marcin Space Port|Region A Hospital and Outpatient Clinic|Roof Repair Building
1106</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcProject.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.ProjectName</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">E</xs:appinfo>
  <xs:documentation>
    Definition: ProjectName is the long name of the facility or project. This name often is associated with the name of a contract.
    Value: Chemical Plant|Interstate Highway 95 Renovation|Luetkemeyer Library and Museum|Marcin Space Port|Region A
Hospital and Outpatient Clinic|Roof Repair Building 1106
    ISO16739Mapping: IfcProject.Name
    COBie2.4Header: COBie.Facility.ProjectName
    COBie2.4Column: E
  </xs:documentation>

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        </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="SiteDescription" type="CobieDescriptionSimpleType">
      <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">SiteDescription is a general description of the site
in which the facility and project are taking place.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Duis leo. |Sed fringilla mauris sit amet nibh. |Donec
sodales sagittis magna. Sed consequat, leo eget |bibendum sodales, augue velit| cursus nunc</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcSite.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.SiteDescription</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">U</xs:appinfo>
      </xs:documentation>
      Definition: SiteDescription is a general description of the site in which the facility and project are taking place.
      Value: Duis leo. |Sed fringilla mauris sit amet nibh. |Donec sodales sagittis magna. Sed consequat, leo eget |bibendum
sodales, augue velit| cursus nunc
      ISO16739Mapping: IfcSite.Description
      COBie2.4Header: Facility.SiteDescription
      COBie2.4Column: U
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="SiteName" type="CobieNameSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">FacilitySiteName is the long name of the site at
which the facility or project occurs. This name often is associated with the name of a contract.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Atlantic Division Headquarters|Elder Ossuary|Far
Lodge|Goldmouse Hills|Graywarden Observatory|Mid-State University Campus|Region 11</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcSite.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Facility.SiteName</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column"/>
  </xs:documentation>
  Definition: FacilitySiteName is the long name of the site at which the facility or project occurs. This name often is associated
with the name of a contract.
  Value: Atlantic Division Headquarters|Elder Ossuary|Far Lodge|Goldmouse Hills|Graywarden Observatory|Mid-State
University Campus|Region 11
  ISO16739Mapping: IfcSite.Name
  COBie2.4Header: Facility.SiteName
  COBie2.4Column: F
  </xs:documentation>
</xs:annotation>
</xs:element>
<!--COBie Fields: Floor Fields-->
<xs:element name="FloorAttributes" type="AttributeCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Attribute elements associated with an Floor element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FloorDocuments" type="DocumentCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Document elements associated with an Floor element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FloorIssues" type="IssueCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Issue elements associated with an Floor element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FloorCategory" type="FloorCategorySimpleType" id="d2e466">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">FloorCategory provides the classification of the
information provided in this row of data.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Site|Floor|Roof</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcClassification.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Floor.Category</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
  </xs:documentation>

```

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    <xs:documentation>
    Definition: FloorCategory provides the classification of the information provided in this row of data.
    Value: Site|Floor|Roof
    ISO16739Mapping: IfcClassification.Name
    COBie2.4Header: Floor.Category
    COBie2.4Column: D
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FloorDescription" type="CobieDescriptionSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">FloorDescription provides the opportunity for
    additional description of each vertical level of the facility.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">First Floor|Foundation|Roof Level 1|Second
    Floor|Section 101-105|Site|Underground Parking</xs:appinfo>
    <xs:appinfo
    source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcBuildingStorey.Description</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Floor.Description</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">H</xs:appinfo>
    <xs:documentation>
    Definition: FloorDescription provides the opportunity for additional description of each vertical level of the facility.
    Value: First Floor|Foundation|Roof Level 1|Second Floor|Section 101-105|Site|Underground Parking
    ISO16739Mapping: IfcBuildingStorey.Description
    COBie2.4Header: Floor.Description
    COBie2.4Column: H
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FloorElevationValue" type="DecimalValueType" id="d2e519">
  <xs:annotation>
    <xs:documentation>Floor.ElevationValue defines the elevation from which the facility data contained in the COBie file may be
    located on the site. Facility.LinearUnit defines the units for this value. If specified, Facility attribute data may provide longitude and latitude for
    the corner of each vertical level of the facility.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FloorHeightValue" type="DecimalValueType" id="d2e533">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">FloorHeight defines the distance from the top of
    the structure at the bottom of the referenced Floor to the bottom of the structure above the referenced Floor. Facility.LinearUnit defines the
    units for this value.</xs:appinfo>
    <xs:appinfo
    source="urn:camed:annotation:documentation:type:Value">10.00|3050.00|12|3660.00|8.00|2438.40</xs:appinfo>
    <xs:appinfo
    source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcQuantityLength.LengthValue</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Floor.Height</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">J</xs:appinfo>
    <xs:documentation>
    Definition: FloorHeight defines the distance from the top of the structure at the bottom of the referenced Floor to the bottom
    of the structure above the referenced Floor. Facility.LinearUnit defines the units for this value.
    Value: 10.00|3050.00|12|3660.00|8.00|2438.40
    ISO16739Mapping: IfcQuantityLength.LengthValue
    COBie2.4Header: Floor.Height
    COBie2.4Column: J
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FloorName" type="CobieNameSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">FloorName contains the unique name of each
    vertical level of the facility.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">First Floor|Foundation|Roof Level 1|Second
    Floor|Section 101-105|Site|Underground Parking</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcBuildingStorey.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Floor.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
    <xs:documentation>
  </xs:annotation>

```



Definition: FloorName contains the unique name of each vertical level of the facility.  
 Value: First Floor|Foundation|Roof Level 1|Second Floor|Section 101-105|Site|Underground Parking  
 ISO16739Mapping: IfcBuildingStorey.Name  
 COBie2.4Header: Floor.Name  
 COBie2.4Column: A  
 </xs:documentation>  
 </xs:annotation>  
 </xs:element>  
 <!-- COBie Fields: Issue Fields-->  
 <xs:element name="IssueAttributes" type="AttributeCollectionType">  
   <xs:annotation>  
     <xs:documentation>A set of Attribute elements associated with an Issue element.</xs:documentation>  
   </xs:annotation>  
 </xs:element>  
 <xs:element name="IssueDocuments" type="DocumentCollectionType">  
   <xs:annotation>  
     <xs:documentation>A set of Document elements associated with an Issue element.</xs:documentation>  
   </xs:annotation>  
 </xs:element>  
 <xs:element name="IssueCategory" type="IssueCategorySimpleType" id="d2e5493">  
   <xs:annotation>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">IssueCategory identifies the category of issue contained in this record.</xs:appinfo>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Design Review|Bidder Inquiry|Change|Claim|Coordination|Environmental|Functional|Indoor Air Quality|Installation|Quality Assurance|Quality Control|RFI|Safety|Specification|Deviation</xs:appinfo>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">Pset\_Risk.RiskType (IfcPropertyEnumeratedValue, IfcLabel)</xs:appinfo>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Issue.Type</xs:appinfo>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>  
     <xs:documentation>  
       Definition: IssueCategory identifies the category of issue contained in this record.  
       Value: Design Review|Bidder Inquiry|Change|Claim|Coordination|Environmental|Functional|Indoor Air Quality|Installation|Quality Assurance|Quality Control|RFI|Safety|Specification|Deviation  
       ISO16739Mapping: Pset\_Risk.RiskType (IfcPropertyEnumeratedValue, IfcLabel)  
       COBie2.4Header: Issue.Type  
       COBie2.4Column: D  
     </xs:documentation>  
   </xs:annotation>  
 </xs:element>  
 <xs:element name="IssueDescription" type="CobieTextSimpleType">  
   <xs:annotation>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">IssueDescription holds the details of the issue identified in this record.</xs:appinfo>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Move roof drain more than 2 foot from parapet wall.|two phase equipment submitted in lieu of 3-phased|Move filter door to North side of duct work to allow access.|Pump Schedule shows 5 examples of Pump 1. Only 3 are found on the drawings. Please Clairify.</xs:appinfo>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcApproval.Description</xs:appinfo>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Issue.Description</xs:appinfo>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">L</xs:appinfo>  
     <xs:documentation>  
       Definition: IssueDescription holds the details of the issue identified in this record.  
       Value: Move roof drain more than 2 foot from parapet wall.|two phase equipment submitted in lieu of 3-phased|Move filter door to North side of duct work to allow access.|Pump Schedule shows 5 examples of Pump 1. Only 3 are found on the drawings. Please Clairify.  
     </xs:documentation>  
   </xs:annotation>  
   ISO16739Mapping: IfcApproval.Description  
   COBie2.4Header: Issue.Description  
   COBie2.4Column: L  
   </xs:documentation>  
 </xs:annotation>  
 </xs:element>  
 <xs:element name="IssueImpactText" type="CobieTextSimpleType" id="d2e5572">  
   <xs:annotation>  
     <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ImpactText identifies the extent of the impact felt if this issue is not resolved.</xs:appinfo>

```

        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Certain|Very
High|High|Moderate|Low|Unknown</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">Pset_Risk.RiskConsequence
(IfcPropertyEnumeratedValue, IfcLabel)</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Issue.Impact</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">G</xs:appinfo>
        <xs:documentation>
        Definition: ImpactText identifies the extent of the impact felt if this issue is not resolved.
        Value: Certain|Very High|High|Moderate|Low|Unknown
        ISO16739Mapping: Pset_Risk.RiskConsequence (IfcPropertyEnumeratedValue, IfcLabel)
        COBie2.4Header: Issue.Impact
        COBie2.4Column: G
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="IssueMitigationDescription" type="CobieTextSimpleType" id="d2e5644">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">IssueMitigationDescription provides an
explanation of how the issue will be resolved.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">n/a</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">Pset_Risk.PreventiveMeasures</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Issue.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">L</xs:appinfo>
        <xs:documentation>
        Definition: IssueMitigationDescription provides an explanation of how the issue will be resolved.
        Value: n/a
        ISO16739Mapping: Pset_Risk.PreventiveMeasures
        COBie2.4Header: Issue.Description
        COBie2.4Column: L
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="IssueName" type="CobieNameSimpleType">
    <xs:annotation>
        <xs:documentation>IssueName contains the header information about the specific issue contained in this
record.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="IssueRiskText" type="CobieTextSimpleType" id="d2e5546">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">RiskText identifies the probability that the
specific issue contained in this record will occur.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Certain|Very
High|High|Moderate|Low|Unknown</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">Pset_Risk.AssessmentOfRisk
(IfcPropertyEnumeratedValue, IfcLabel)</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Issue.Chance</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">F</xs:appinfo>
        <xs:documentation>
        Definition: RiskText identifies the probability that the specific issue contained in this record will occur.
        Value: Certain|Very High|High|Moderate|Low|Unknown
        ISO16739Mapping: Pset_Risk.AssessmentOfRisk (IfcPropertyEnumeratedValue, IfcLabel)
        COBie2.4Header: Issue.Chance
        COBie2.4Column: F
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="IssueSeverityText" type="CobieTextSimpleType" id="d2e5519">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">SeverityText identifies the category of Risk about
the specific issue contained in this record.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Certain|Very
High|High|Moderate|Low|Unknown</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">Pset_Risk.RiskRating
(IfcPropertyEnumeratedValue, IfcLabel)</xs:appinfo>

```

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<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Issue.Risk</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">E</xs:appinfo>
<xs:documentation>
Definition: SeverityText identifies the category of Risk about the specific issue contained in this record.
Value: Certain|Very High|High|Moderate|Low|Unknown
ISO16739Mapping: Pset_Risk.RiskRating (IfcPropertyEnumeratedValue, IfcLabel)
COBie2.4Header: Issue.Risk
COBie2.4Column: E
</xs:documentation>
</xs:annotation>
</xs:element>
<!--COBie Fields: Job Fields-->
<xs:element name="JobAttributes" type="AttributeCollectionType">
<xs:annotation>
<xs:documentation>A set of Attribute elements associated with an Assembly element.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="JobDocuments" type="DocumentCollectionType">
<xs:annotation>
<xs:documentation>A set of Document elements associated with an Assembly element. </xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="JobIssues" type="IssueCollectionType">
<xs:annotation>
<xs:documentation>A set of Issue elements associated with an Assembly element.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="JobCategory" type="JobCategorySimpleType" id="d2e4176">
<xs:annotation>
<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Category provides the classification of the
information provided in this row of data.</xs:appinfo>
<xs:appinfo
source="urn:camed:annotation:documentation:type:Value">Adjustment|Calibration|Emergency|Inspection|Operation|PM|Safety|ShutDown
|StartDateTimeUp|Testing|Trouble</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTask.ObjectType</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Job.Category</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
<xs:documentation>
Definition: Category provides the classification of the information provided in this row of data.
Value: Adjustment|Calibration|Emergency|Inspection|Operation|PM|Safety|ShutDown|StartDateTimeUp|Testing|Trouble
ISO16739Mapping: IfcTask.ObjectType
COBie2.4Header: Job.Category
COBie2.4Column: D
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="JobDescription" type="CobieDescriptionSimpleType">
<xs:annotation>
<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">JobDescription allows documentation of
information about the purpose and characteristics of the required job. When a Job record refers to an entire set of operations, these
operations will be listed here and sequentially numbered in the text. When a Job record refers to activities in a schedule, the first
Job.Description, whose TaskNumber will be zero, provides the header description for the tasks and the remaining Job.Description records
provide the activity names.</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:Value">1. Turn off power at the control panel. |Boiler Lock
Out|Check freezestat for proper temperature|Clean up work area. |Lubricate connections of dampers sparingly. |Remove any insect
nests</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTask.Description</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Job.Description</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">G</xs:appinfo>
<xs:documentation>
Definition: JobDescription allows documentation of information about the purpose and characteristics of the required job.
When a Job record refers to an entire set of operations, these operations will be listed here and sequentially numbered in the text. When a Job
record refers to activities in a schedule, the first Job.Description, whose TaskNumber will be zero, provides the header description for the tasks
and the remaining Job.Description records provide the activity names.
Value: 1. Turn off power at the control panel. |Boiler Lock Out|Check freezestat for proper temperature|Clean up work
area. |Lubricate connections of dampers sparingly. |Remove any insect nests

```

```

        ISO16739Mapping: IfcTask.Description
        COBie2.4Header: Job.Description
        COBie2.4Column: G
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="JobDuration" type="IntegerValueType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Job.Duration contains the value for the time
required to complete the job referred to in this row.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1|2|5|100</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcConversionBasedUnit.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Job.Duration</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">H</xs:appinfo>
        <xs:documentation>
            Definition: Job.Duration contains the value for the time required to complete the job referred to in this row.
            Value: 1|2|5|100
            ISO16739Mapping: IfcConversionBasedUnit.Name
            COBie2.4Header: Job.Duration
            COBie2.4Column: H
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="JobFrequencyValue" type="DecimalValueType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">JobFrequency identifies the amount of time
between instances of jobs that should be periodically repeated.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1|6|100|10,000</xs:appinfo>
        <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcRecurrencePattern.Occurrences</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Job.Frequency</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">L</xs:appinfo>
        <xs:documentation>
            Definition: JobFrequency identifies the amount of time between instances of jobs that should be periodically repeated.
            Value: 1|6|100|10,000
            ISO16739Mapping: IfcRecurrencePattern.Occurrences
            COBie2.4Header: Job.Frequency
            COBie2.4Column: L
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="JobName" type="CobieNameSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">JobName is the name of the operation or
sequence of operations used to support a specific operations and maintenance task. Job.Name is part of a combination Primary Key comprised
of Job.Name and Job.TypeName</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Air Handler Lockout|Boiler Lock Out|AHU Annual
Maintenance|Boiler Annual Maintenance|Sprinkler Head Semi-Annual Maintenance</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTask.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Job.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
        <xs:documentation>
            Definition: JobName is the name of the operation or sequence of operations used to support a specific operations and
maintenance task. Job.Name is part of a combination Primary Key comprised of Job.Name and Job.TypeName
            Value: Air Handler Lockout|Boiler Lock Out|AHU Annual Maintenance|Boiler Annual Maintenance|Sprinkler Head Semi-
Annual Maintenance
            ISO16739Mapping: IfcTask.Name
            COBie2.4Header: Job.Name
            COBie2.4Column: A
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="JobPriorTaskID" type="CobieTextSimpleType">
    <xs:annotation>

```

<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">JobPriorTaskID identifies the JobTaskID of the task preceding the current task.</xs:appinfo>

```
<xs:appinfo source="urn:camed:annotation:documentation:type:Value">1|2|5|100|A1</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTask.Identification</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Job.TaskNumber</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">Q</xs:appinfo>
<xs:documentation>
```

Definition: JobTaskID is used to uniquely identify sub tasks within the overall task. If the Job record identifies a series of operations with the Job.Description, then this information is not required. If a set of Job records are used to define a precise sequence of operations, then the first Job.TaskNumber in the series of tasks shall be identified with a Job.TaskNumber of zero (0). This task number shall be overall description of that set of operations.

```
Value: 1|2|5|100|A1
ISO16739Mapping: IfcTask.Identification
COBie2.4Header: Job.TaskNumber
COBie2.4Column: Q
</xs:documentation>
```

```
</xs:annotation>
</xs:element>
<xs:element name="JobStartConditionDescription" type="CobieTextSimpleType">
```

<xs:annotation>  
<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">JobStartConditionDescription identifies the unit for Job.Duration.</xs:appinfo>

<xs:appinfo source="urn:camed:annotation:documentation:type:Value">as  
required|day|minute|month|quarter|week|year|hours of operation|StartDateTimeup|shutdown  
</xs:appinfo>

```
<xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcConversionBasedUnit.Name</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Job.TaskStartUnit</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">K</xs:appinfo>
<xs:documentation>
```

```
Definition: JobStartConditionDescription identifies the unit for Job.Duration.
Value: as required|day|minute|month|quarter|week|year|hours of operation|StartDateTimeup|shutdown
ISO16739Mapping: IfcConversionBasedUnit.Name
COBie2.4Header: Job.TaskStartUnit
COBie2.4Column: K
</xs:documentation>
```

```
</xs:annotation>
</xs:element>
<xs:element name="JobStartDate" type="xs:date" id="d2e4307">
<xs:annotation>
```

<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">JobStartDateTime identifies the time after the exchange of this file that the first instance of this job is to be accomplished.</xs:appinfo>

```
<xs:appinfo source="urn:camed:annotation:documentation:type:Value">1|6|100|10,000</xs:appinfo>
<xs:appinfo
```

```
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTaskTime.ScheduleStartDateTime</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Job.Start</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">J</xs:appinfo>
<xs:documentation>
```

Definition: JobStartDateTime identifies the time after the exchange of this file that the first instance of this job is to be accomplished.

```
Value: 1|6|100|10,000
ISO16739Mapping: IfcTaskTime.ScheduleStartDateTime
COBie2.4Header: Job.Start
COBie2.4Column: J
</xs:documentation>
```

```
</xs:annotation>
</xs:element>
<xs:element name="JobStatus" type="CobieTextSimpleType" id="d2e4202">
<xs:annotation>
```

<xs:appinfo source="urn:camed:annotation:documentation:type:Definition">JobStatusCategory identifies the status of the job at the time of COBie information exchange. This is required since some jobs may have been required prior to Beneficial Occupancy of the facility.</xs:appinfo>

```
<xs:appinfo source="urn:camed:annotation:documentation:type:Value">Not Yet
StartDateTimeed|StartDateTimeed|Completed</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTask.Status</xs:appinfo>
<xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Job.Status</xs:appinfo>
```

```

        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">E</xs:appinfo>
        <xs:documentation>
            Definition: JobStatusCategory identifies the status of the job at the time of COBie information exchange. This is required since
            some jobs may have been required prior to Beneficial Occupancy of the facility.
            Value: Not Yet Started|StartDateTime|Completed
            ISO16739Mapping: IfcTask.Status
            COBie2.4Header: Job.Status
            COBie2.4Column: E
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="JobTaskID" type="CobieTextSimpleType" id="d2e4412">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">JobTaskID is used to uniquely identify sub tasks
        within the overall task. If the Job record identifies a series of operations with the Job.Description, then this information is not required. If a set
        of Job records are used to define a precise sequence of operations, then the first Job.TaskNumber in the series of tasks shall be identified with a
        Job.TaskNumber of zero (0). This task number shall be overall description of that set of operations.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">1|2|5|100|A1</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTask.Identification</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Job.TaskNumber</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">Q</xs:appinfo>
        <xs:documentation>
            Definition: JobTaskID is used to uniquely identify sub tasks within the overall task. If the Job record identifies a series of
            operations with the Job.Description, then this information is not required. If a set of Job records are used to define a precise sequence of
            operations, then the first Job.TaskNumber in the series of tasks shall be identified with a Job.TaskNumber of zero (0). This task number shall be
            overall description of that set of operations.
            Value: 1|2|5|100|A1
            ISO16739Mapping: IfcTask.Identification
            COBie2.4Header: Job.TaskNumber
            COBie2.4Column: Q
        </xs:documentation>
    </xs:annotation>
</xs:element>
<!--COBie Fields: Resource Fields-->
<xs:element name="ResourceAttributes" type="AttributeCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Attribute elements associated with an Resource element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ResourceDocuments" type="DocumentCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Document elements associated with an Resource element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ResourceIssues" type="IssueCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Issue elements associated with an Resource element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ResourceCategory" type="ResourceCategorySimpleType" id="d2e4490">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Category provides the classification of the
        information provided in this row of data.</xs:appinfo>
        <xs:appinfo
        source="urn:camed:annotation:documentation:type:Value">Labor|MaterialDescription|Tools|Training</xs:appinfo>
        <xs:appinfo
        source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcConstructionEquipmentResource.ObjectType</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Resource.Category</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
        <xs:documentation>
            Definition: Category provides the classification of the information provided in this row of data.
            Value: Labor|MaterialDescription|Tools|Training
            ISO16739Mapping: IfcConstructionEquipmentResource.ObjectType
            COBie2.4Header: Resource.Category
            COBie2.4Column: D
        </xs:documentation>
    </xs:annotation>

```

```

    </xs:annotation>
  </xs:element>
  <xs:element name="ResourceDescription" type="CobieDescriptionSimpleType">
    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ResourceDescription is a human interpretable
description of the Resource.</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Value">A ten foot wooden ladder|A pair of welding safety
goggles|A pistol grip dremmel tool</xs:appinfo>
      <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcConstructionEquipmentResource.Description</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Resource.Description</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">H</xs:appinfo>
      <xs:documentation>
        Definition: ResourceDescription is a human interpretable description of the Resource.
        Value: A ten foot wooden ladder|A pair of welding safety goggles|A pistol grip dremmel tool
        ISO16739Mapping: IfcConstructionEquipmentResource.Description
        COBie2.4Header: Resource.Description
        COBie2.4Column: H
      </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="ResourceName" type="CobieNameSimpleType">
    <xs:annotation>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Resource.Name is the name of the resource that
is to be used to support a specific operations and maintenance task. Resource.Name is the primary key of the Resource worksheet and it is
referenced in subsequent COBie worksheets.</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Tachometer|Grease gun and oiler|Pressure
washer|Vacuum|Fin comb|Safety goggles|Gloves|Tool Group C|Scrapers|Wire brush|Cleaning materials</xs:appinfo>
      <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcConstructionEquipmentResource.Name</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Resource.Name</xs:appinfo>
      <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
      <xs:documentation>
        Definition: Resource.Name is the name of the resource that is to be used to support a specific operations and maintenance
task. Resource.Name is the primary key of the Resource worksheet and it is referenced in subsequent COBie worksheets.
        Value: Tachometer|Grease gun and oiler|Pressure washer|Vacuum|Fin comb|Safety goggles|Gloves|Tool Group
C|Scrapers|Wire brush|Cleaning materials
        ISO16739Mapping: IfcConstructionEquipmentResource.Name
        COBie2.4Header: Resource.Name
        COBie2.4Column:A
      </xs:documentation>
    </xs:annotation>
  </xs:element>
  <!--COBie Fields: Space Fields-->
  <xs:element name="SpaceAttributes" type="AttributeCollectionType">
    <xs:annotation>
      <xs:documentation>A set of Attribute elements associated with an Space element.</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="SpaceDocuments" type="DocumentCollectionType">
    <xs:annotation>
      <xs:documentation>A set of Document elements associated with an Space element. </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="SpaceIssues" type="IssueCollectionType">
    <xs:annotation>
      <xs:documentation>A set of Issue elements associated with an Space element.</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="SpaceAssignment" type="SpaceKeyType">
    <xs:annotation>
      <xs:documentation>The assignment of a Space to a COBie element.</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="AssetSpaceAssignments" type="SpaceAssignmentCollectionType">
    <xs:annotation>

```



```

        <xs:documentation>The assignment of a COBie Asset element to Spaces (i.e. rooms).</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="SpaceCategory" type="SpaceCategorySimpleType" id="d2e611">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Category provides the classification of the
information provided in this row of data.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">13-11 11 19: Computer Lab|13-15211127:
MaterialDescription Handling Area|13-15 11 34 17: Open Office Space|13-75 41 14:Soiled Storage Room Space|81-11-21: Service Space|13-
85.31.27: Air Lock|Parking Lot</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcClassification.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Space.Category</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
    </xs:annotation>
    <xs:documentation>
        Definition: Category provides the classification of the information provided in this row of data.
        Value: 13-11 11 19: Computer Lab|13-15211127: MaterialDescription Handling Area|13-15 11 34 17: Open Office Space|13-75
41 14:Soiled Storage Room Space|81-11-21: Service Space|13-85.31.27: Air Lock|Parking Lot
        ISO16739Mapping: IfcClassification.Name
        COBie2.4Header: Space.Category
        COBie2.4Column: D
    </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="SpaceDescription" type="CobieDescriptionSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">SpaceDescription is the human-readable name of
the Space. Typically Space.Description is required to match the name of the space found on design and construction drawings.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">SYS. ANALYST|COMPUTER ROOM|MAIN
MECHANICAL ROOM|COPY / FILE/ Mail Box Area|SUPER|QA / HRD DIRECTOR|ADMIN OFFICE|SEC. WAIT|CMDR OFFICE</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcSpace.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Space.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">F</xs:appinfo>
    </xs:annotation>
    <xs:documentation>
        Definition: SpaceDescription is the human-readable name of the Space. Typically Space.Description is required to match the
name of the space found on design and construction drawings.
        Value: SYS. ANALYST|COMPUTER ROOM|MAIN MECHANICAL ROOM|COPY / FILE/ Mail Box Area|SUPER|QA / HRD
DIRECTOR|ADMIN OFFICE|SEC. WAIT|CMDR OFFICE
        ISO16739Mapping: IfcSpace.Description
        COBie2.4Header: Space.Description
        COBie2.4Column: F
    </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="SpaceName" type="CobieNameSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Space.Name contains the name of each
horizontal area of the facility. Typically Space.Name is required to match the space number found on design and construction drawings. Spaces
are organized by Category, thus within a given physical room there could be several Spaces. Space.Name is the primary key of the Floor
worksheet and it is referenced in subsequent COBie worksheets. Space.Name values must be unique.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">101-A|122|1E02|324|B2|All Purpose Room|Parking
Lot A</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcSpace.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Space.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
    </xs:annotation>
    <xs:documentation>
        Definition: Space.Name contains the name of each horizontal area of the facility. Typically Space.Name is required to match
the space number found on design and construction drawings. Spaces are organized by Category, thus within a given physical room there could
be several Spaces. Space.Name is the primary key of the Floor worksheet and it is referenced in subsequent COBie worksheets. Space.Name
values must be unique.
        Value: 101-A|122|1E02|324|B2|All Purpose Room|Parking Lot A
        ISO16739Mapping: IfcSpace.Name
        COBie2.4Header: Space.Name
        COBie2.4Column: A
    </xs:documentation>
    </xs:annotation>
</xs:element>

```



```

</xs:element>
<xs:element name="SpaceSignageName" type="CobieTextSimpleType" id="d2e664">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">SpaceSignageName is the value of the signage
placed on or outside the space during construction and operation of the facility.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">101-A|101A|1E02|3156|Receiving
Room|A101|Break Room</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySingleValue.NominalValue
(from "RoomTag" property of property set named "COBie_Space" )</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Space.RoomTag</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">J</xs:appinfo>
    <xs:documentation>
      Definition: SpaceSignageName is the value of the signage placed on or outside the space during construction and operation of
the facility.
      Value: 101-A|101A|1E02|3156|Receiving Room|A101|Break Room
      ISO16739Mapping: IfcPropertySingleValue.NominalValue (from "RoomTag" property of property set named "COBie_Space")
      COBie2.4Header: Space.RoomTag
      COBie2.4Column: J
    </xs:documentation>
  </xs:annotation>
</xs:element>
<!--COBie Fields: Spare Fields-->
<xs:element name="SpareAttributes" type="AttributeCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Attribute elements associated with an Spare element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="SpareDocuments" type="DocumentCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Document elements associated with an Spare element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="SpareIssues" type="IssueCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Issue elements associated with an Spare element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="SpareCategory" type="SpareCategorySimpleType" id="d2e4653">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Category provides the classification of the
information provided in this row of data.</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">Filter|Part|PartSet|Lubricant|Other|Spare|SpareSet</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcClassification.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Spare.Category</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
    <xs:documentation>
      Definition: Category provides the classification of the information provided in this row of data.
      Value: Filter|Part|PartSet|Lubricant|Other|Spare|SpareSet
      ISO16739Mapping: IfcClassification.Name
      COBie2.4Header: Spare.Category
      COBie2.4Column: D
    </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="SpareDescription" type="CobieDescriptionSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">SpareDescription allows documentation of
information about the purpose and design characteristics of that spare, replacement or consumable part.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Sprinkler Head|GFCI Duplex Receptacles|Single Pole
Light Switches|400W Metal Halide Lamp|Lamp Type A|Filter Type Chem Bio 2</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcConstructionProductResource.Description</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Spare.Description</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">J</xs:appinfo>
    <xs:documentation>
  </xs:annotation>

```

Definition: SpareDescription allows documentation of information about the purpose and design characteristics of that spare, replacement or consumable part.

Value: Sprinkler Head|GFCI Duplex Receptacles|Single Pole Light Switches|400W Metal Halide Lamp|Lamp Type A|Filter Type Chem Bio 2

```

ISO16739Mapping: IfcConstructionProductResource.Description
COBie2.4Header: Spare.Description
COBie2.4Column: J
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="SpareName" type="CobieNameSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">SpareName is the name of the part whose
information must be provided to the facility manager to support effective operations and maintenance activities. Spare.Name is part of a
combination Primary Key comprised of Spare.Name, Spare.Category, and Spare.TypeName.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Sprinkler Head|GFCI Duplex Receptacles|Single Pole
Light Switches|400W Metal Halide Lamp|Lamp Type A</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcConstructionProductResource.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Spare.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
    <xs:documentation>

```

Definition: SpareName is the name of the part whose information must be provided to the facility manager to support effective operations and maintenance activities. Spare.Name is part of a combination Primary Key comprised of Spare.Name, Spare.Category, and Spare.TypeName.

Value: Sprinkler Head|GFCI Duplex Receptacles|Single Pole Light Switches|400W Metal Halide Lamp|Lamp Type A

```

ISO16739Mapping: IfcConstructionProductResource.Name
COBie2.4Header: Spare.Name
COBie2.4Column: A
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="SparePartNumber" type="CobieTextSimpleType" id="d2e4732">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">SparePartNumber allows documentation of the
information about a specific part with a full set of parts. The information provided should be the manufacturer's Set Number as suppliers will
typically have proprietary tracking numbers.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">2.884-214.0|58001, 58002, 58003|ASIN:
B004UHFRTI|HPLC screw cap GL 45|M73020 - 5 LED Lighting Set |OEM Number 2402v1143-025/ 2402v1143-02|S107G-09 Gear Set Spare
Parts</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
"COBie_Spare," IfcProperty with name "PartNumber"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Spare.PartNumber</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">L</xs:appinfo>
    <xs:documentation>

```

Definition: SparePartNumber allows documentation of the information about a specific part with a full set of parts. The information provided should be the manufacturer's Set Number as suppliers will typically have proprietary tracking numbers.

Value: 2.884-214.0|58001, 58002, 58003|ASIN: B004UHFRTI|HPLC screw cap GL 45|M73020 - 5 LED Lighting Set |OEM Number 2402v1143-025/ 2402v1143-02|S107G-09 Gear Set Spare Parts

```

ISO16739Mapping: IfcPropertySet with Name "COBie_Spare," IfcProperty with name "PartNumber"
COBie2.4Header: Spare.PartNumber
COBie2.4Column: L
</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="SpareSetNumber" type="CobieTextSimpleType" id="d2e4706">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">SpareSetNumber allows documentation of the
information about a set of parts. The information provided should be the manufacturer's Set Number as suppliers will typically have
proprietary tracking numbers.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">2.884-214.0|58001, 58002,58003|ASIN:
B004UHFRTI|HPLC screw cap GL 45|M73020 - 5 LED Lighting Set |OEM Number 2402v1143-025/ 2402v1143-02|S107G-09 Gear Set Spare
Parts</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySet with Name
"COBie_Spare," IfcProperty with name "SetNumber"</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Spare.SetNumber</xs:appinfo>

```

```

        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">K</xs:appinfo>
        <xs:documentation>
            Definition: SpareSetNumber allows documentation of the information about a set of parts. The information provided should
            be the manufacturer's Set Number as suppliers will typically have proprietary tracking numbers.
            Value: 2.884-214.0|58001, 58002,58003|ASIN: B004UHFRTI|HPLC screw cap GL 45|M73020 - 5 LED Lighting Set |OEM
            Number 2402v1143-025/ 2402v1143-02|S107G-09 Gear Set Spare Parts
            ISO16739Mapping: IfcPropertySet with Name "COBie_Spare," IfcProperty with name "SetNumber"
            COBie2.4Header: Spare.SetNumber
            COBie2.4Column: K
        </xs:documentation>
    </xs:annotation>
</xs:element>
<!--COBie Fields: System Fields-->
<xs:element name="SystemAttributes" type="AttributeCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Attribute elements associated with an System element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="SystemDocuments" type="DocumentCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Document elements associated with an System element. </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="SystemIssues" type="IssueCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Issue elements associated with an System element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="SystemCategory" type="SystemCategorySimpleType" id="d2e6012">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Category provides the classification of the
        information provided in this row of data. In a given category of System a Asset should be listed only once. System.Category is part of a
        combination Primary Key comprised of System.Name, System.Category, and System.AssetName.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Access Control Zone|Fire Alarm Zone|Lighting Zone
        |Design Suite |Ventilation Zone</xs:appinfo>
    </xs:annotation>
    source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcClassificationReference.Identification</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">System.Category</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
    <xs:documentation>
        Definition: Category provides the classification of the information provided in this row of data. In a given category of System a
        Asset should be listed only once. System.Category is part of a combination Primary Key comprised of System.Name, System.Category, and
        System.AssetName.
        Value: Access Control Zone|Fire Alarm Zone|Lighting Zone |Design Suite |Ventilation Zone
        ISO16739Mapping: IfcClassificationReference.Identification
        COBie2.4Header: System.Category
        COBie2.4Column: D
    </xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="SystemDescription" type="CobieDescriptionSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">A human interpretable description of the purpose
        of the system.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Air Distribution System 1 services the east wing of the
        first floor|Security system for the doors and windows.</xs:appinfo>
    </xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcSystem.Description</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">System.Description</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">I</xs:appinfo>
    <xs:documentation>
        Definition: A human interpretable description of the purpose of the system.
        Value: Air Distribution System 1 services the east wing of the first floor|Security system for the doors and windows.
        ISO16739Mapping: IfcSystem.Description
        COBie2.4Header: System.Description
        COBie2.4Column: I
    </xs:documentation>

```

```

</xs:annotation>
</xs:element>
<xs:element name="SystemName" type="CobieNameSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">SystemName is the name of the specific system
or sub-system in the facility. Logical nesting of systems is accomplished, in COBie, by systematic naming of systems and sub systems.
System.Name is part of a combination Primary Key comprised of System.Name, System.Category, and System.ComponentNames.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Air Distribution- 01|Electrical Distribution|Fire
Suppression System|HVAC Heating- Waterside|HVAC Heating- Distribution|Plumbing System</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcSystem.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">System.Name</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
    <xs:documentation>
      Definition: SystemName is the name of the specific system or sub-system in the facility. Logical nesting of systems is
accomplished, in COBie, by systematic naming of systems and sub systems. System.Name is part of a combination Primary Key comprised of
System.Name, System.Category, and System.ComponentNames.
      Value: Air Distribution- 01|Electrical Distribution|Fire Suppression System|HVAC Heating- Waterside|HVAC Heating-
Distribution|Plumbing System
      ISO16739Mapping: IfcSystem.Name
      COBie2.4Header: System.Name
      COBie2.4Column: A
    </xs:documentation>
  </xs:annotation>
</xs:element>
<!--COBie Fields: ValueBaseType Fields-->
<xs:element name="UnitName" type="CobieTextSimpleType">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Identifies the unit for a COBie value</xs:appinfo>
    <xs:appinfo
source="urn:camed:annotation:documentation:type:Value">#|%|C|F|Feet|Inches|Kilometers|Meters|Miles|Millimeters|STC
Rating</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcPropertySingleValue.Unit (Prefix +
Name)</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Attribute.Unit</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">H</xs:appinfo>
    <xs:documentation>
      Definition: Identifies the unit for a COBie value
      Value: #|%|C|F|Feet|Inches|Kilometers|Meters|Miles|Millimeters|STC Rating
      ISO16739Mapping: IfcPropertySingleValue.Unit (Prefix + Name)
      COBie2.4Header: Attribute.Unit
      COBie2.4Column: H
    </xs:documentation>
    <xs:documentation>Identifies the name of a unit of measure to be associated with a value.</xs:documentation>
  </xs:annotation>
</xs:element>
<!--COBie Fields: Warranty Fields-->
<xs:element name="WarrantyAttributes" type="AttributeCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Attribute elements associated with an Warranty element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="WarrantyDocuments" type="DocumentCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Document elements associated with an Warranty element. </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="WarrantyIssues" type="IssueCollectionType">
  <xs:annotation>
    <xs:documentation>A set of Issue elements associated with an Warranty element.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="WarrantyCategory" type="WarrantyCategorySimpleType" id="d2e3362">
  <xs:annotation>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Warranty Category identifies specific coverage of this
warranty.</xs:appinfo>
    <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Parts and Labor|Labor|Parts</xs:appinfo>

```

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        <xs:appinfo
source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcClassificationReference.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">if (1), both WarrantyDurationParts and
COBie.Type.WarrantyDurationLabor. if (2), COBie.Type.WarrantyDurationLabor. if (3) WarrantyDurationParts</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">M</xs:appinfo>
        <xs:documentation>
Definition: Warranty Category identifies specific coverage of this warranty.
Value: Parts and Labor|Labor|Parts
ISO16739Mapping: IfcClassificationReference.Name
COBie2.4Header: if (1), both WarrantyDurationParts and COBie.Type.WarrantyDurationLabor. if (2),
COBie.Type.WarrantyDurationLabor. if (3) WarrantyDurationParts
COBie2.4Column: M
        </xs:documentation>
        </xs:annotation>
</xs:element>
<xs:element name="WarrantyDuration" type="IntegerValueType">
        <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Definition
WarrantyDurationValue contains the length of time allowed under the warranty for claims pertaining to labor charges.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">0|1|2|10</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject Property with Name
containing "WarrantyDurationValue"</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.WarrantyDurationParts or
COBie.Type.WarrantyDurationLabor</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">K,L</xs:appinfo>
        <xs:documentation>
Definition: Definition
WarrantyDurationValue contains the length of time allowed under the warranty for claims pertaining to labor charges.
Value: 0|1|2|10
ISO16739Mapping: IfcTypeObject Property with Name containing "WarrantyDurationValue"
COBie2.4Header: Type.WarrantyDurationParts or COBie.Type.WarrantyDurationLabor
COBie2.4Column: K,L
        </xs:documentation>
        </xs:annotation>
</xs:element>
<xs:element name="WarrantyName" type="CobieNameSimpleType">
        <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">WarrantyName contains a description of the
warranty terms and conditions. Specific warranty certificates will be linked to this Type.Name through the COBie.Document
worksheet.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">All Certified Refurbished have a 120-day, etc. |provide
Return to Base Warranty, etc. |Set forth in this manual are warranty standards, etc. |sold with a standard 12 months, etc. |under normal use
conditions, malfunctions due, etc.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcTypeObject Property with Name
containing "WarrantyDescription" and/or "WarrantyIdentifier"</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Type.WarrantyDescription</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">T</xs:appinfo>
        <xs:documentation>
Definition: WarrantyName contains a description of the warranty terms and conditions. Specific warranty certificates will be
linked to this Type.Name through the COBie.Document worksheet.
Value: All Certified Refurbished have a 120-day, etc. |provide Return to Base Warranty, etc. |Set forth in this manual are warranty
standards, etc. |sold with a standard 12 months, etc. |under normal use conditions, malfunctions due, etc.
ISO16739Mapping: IfcTypeObject Property with Name containing "WarrantyDescription" and/or "WarrantyIdentifier"
COBie2.4Header: Type.WarrantyDescription
COBie2.4Column: T
        </xs:documentation>
        </xs:annotation>
</xs:element>
<!--COBie Fields: ZoneT Fields-->
<xs:element name="ZoneAttributes" type="AttributeCollectionType">
        <xs:annotation>
        <xs:documentation>A set of Attribute elements associated with an Zone element.</xs:documentation>
        </xs:annotation>
</xs:element>
<xs:element name="ZoneDocuments" type="DocumentCollectionType">
        <xs:annotation>

```

```

        <xs:documentation>A set of Document elements associated with an Zone element. </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ZoneIssues" type="IssueCollectionType">
    <xs:annotation>
        <xs:documentation>A set of Issue elements associated with an Zone element.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ZoneCategory" type="ZoneCategorySimpleType" id="d2e820">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Category provides the classification of the
information provided in this row of data. In a given category of Zone a space should be listed only once.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Circulation Zone|Lighting Zone|Fire Alarm
Zone|Historical Preservation Zone|Occupancy Zone|Ventilation Zone</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcClassification.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Zone.Category</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">D</xs:appinfo>
        <xs:documentation>
            Definition: Category provides the classification of the information provided in this row of data. In a given category of Zone a space
should be listed only once.
            Value: Circulation Zone|Lighting Zone|Fire Alarm Zone|Historical Preservation Zone|Occupancy Zone|Ventilation Zone
            ISO16739Mapping: IfcClassification.Name
            COBie2.4Header: Zone.Category
            COBie2.4Column: D
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ZoneDescription" type="CobieDescriptionSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">Human interpretable description of the purpose of
the Zone.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">The executive administration offices|Outpatient
examination rooms and labs for adult medical practice|HVAC for the first floor, west wing|Fire protection devices for west wing|Areas
accessible to the public|Areas with privacy features such as bathrooms|Restricted access areas</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcZone.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Zone.Description</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">I</xs:appinfo>
        <xs:documentation>
            Definition: Human interpretable description of the purpose of the Zone.
            Value: The executive administration offices|Outpatient examination rooms and labs for adult medical practice|HVAC for the first
floor, west wing|Fire protection devices for west wing|Areas accessible to the public|Areas with privacy features such as bathrooms|Restricted
access areas
            ISO16739Mapping: IfcZone.Description
            COBie2.4Header: Zone.Description
            COBie2.4Column: I
        </xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ZoneName" type="CobieNameSimpleType">
    <xs:annotation>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Definition">ZoneName is the name of the specific zone or sub-
zone of the facility. Logical nesting of zones is accomplished, in COBie, by systematic naming of zones and sub zones. Zone.Name is part of a
combination Primary Key comprised of Zone.Name, Zone.Category and Zone.SpaceNames.</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:Value">Administration|AdultMedicine|HVAC-FirstFloor-
WestWing|FireZone01West|Public|Private|Restricted</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:ISO16739Mapping">IfcZone.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Header">Zone.Name</xs:appinfo>
        <xs:appinfo source="urn:camed:annotation:documentation:type:COBie2.4Column">A</xs:appinfo>
        <xs:documentation>
            Definition: ZoneName is the name of the specific zone or sub-zone of the facility. Logical nesting of zones is accomplished, in
COBie, by systematic naming of zones and sub zones. Zone.Name is part of a combination Primary Key comprised of Zone.Name,
Zone.Category and Zone.SpaceNames.
            Value: Administration|AdultMedicine|HVAC-FirstFloor-WestWing|FireZone01West|Public|Private|Restricted
            ISO16739Mapping: IfcZone.Name
            COBie2.4Header: Zone.Name
            COBie2.4Column: A
    </xs:annotation>

```

```
</xs:documentation>  
</xs:annotation>  
</xs:element>  
<!--Done-->  
</xs:schema>
```



## A7.2 COBieLite NameSpace

```

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:core="http://docs.buildingsmartalliance.org/nbims03/cobie/core"
xmlns:cobelite="http://docs.buildingsmartalliance.org/nbims03/cobie/cobelite"
targetNamespace="http://docs.buildingsmartalliance.org/nbims03/cobie/cobelite" elementFormDefault="unqualified"
attributeFormDefault="unqualified" version="RC4">
  <xs:import namespace="http://docs.buildingsmartalliance.org/nbims03/cobie/core" schemaLocation="core.xsd"/>
  <!--Begin Assembly related content-->
  <xs:complexType name="AssemblyType">
    <xs:annotation>
      <xs:documentation>The Assembly to which this Asset belongs</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="core:AssemblyType">
        <xs:sequence>
          <xs:element ref="core:AssemblyCategory" minOccurs="0"/>
          <xs:element ref="core:AssemblyDescription" minOccurs="0"/>
          <xs:element ref="core:AssemblyAttributes" minOccurs="0"/>
          <xs:element ref="core:AssemblyDocuments" minOccurs="0"/>
          <xs:element ref="core:AssemblyIssues" minOccurs="0"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="AssemblyAssignment" type="cobelite:AssemblyType" substitutionGroup="core:AssemblyAssignment">
    <xs:annotation>
      <xs:documentation>The assignment of an Asset or AssetType to an assembly</xs:documentation>
    </xs:annotation>
  </xs:element>
  <!--End Assembly related content-->
  <!--Begin Asset related content-->
  <xs:complexType name="AssetInfoType">
    <xs:annotation>
      <xs:documentation>A minimum of one COBie.Asset record is required for all COBie deliverables related to equipment Asset
information.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
      <xs:extension base="core:AssetInfoType">
        <xs:sequence>
          <xs:element ref="core:AssetDescription" minOccurs="0"/>
          <xs:element ref="core:AssetSerialNumber" minOccurs="0"/>
          <xs:element ref="core:AssetInstallationDate" minOccurs="0"/>
          <xs:element ref="core:AssetInstalledModelNumber" minOccurs="0"/>
          <xs:element ref="core:AssetWarrantyStartDate" minOccurs="0"/>
          <xs:element ref="core:AssetStartDate" minOccurs="0"/>
          <xs:element ref="core:AssetTagNumber" minOccurs="0"/>
          <xs:element ref="core:AssetBarCode" minOccurs="0"/>
          <xs:element ref="core:AssetIdentifier" minOccurs="0"/>
          <xs:element ref="core:AssetLocationDescription" minOccurs="0"/>
          <xs:element ref="core:AssetSystemAssignments" minOccurs="0"/>
          <xs:element ref="core:AssemblyAssignments" minOccurs="0"/>
          <xs:element ref="core:AssetAttributes" minOccurs="0"/>
          <xs:element ref="core:AssetDocuments" minOccurs="0"/>
          <xs:element ref="core:AssetIssues" minOccurs="0"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="Asset" type="cobelite:AssetInfoType" substitutionGroup="core:Asset">
    <xs:annotation>
      <xs:documentation>A minimum of one COBie.Component record is required for all COBie deliverables related to equipment
Component information.</xs:documentation>
    </xs:annotation>
  </xs:element>

```



```

<!--End Asset related content-->
<!--Begin AssetType related content-->
<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="core:AssetTypeInfoType">
      <xs:sequence>
        <xs:element ref="core:AssetTypeCategory" minOccurs="0"/>
        <xs:element ref="core:AssetTypeDescription" minOccurs="0"/>
        <xs:element ref="core:AssetTypeAccountingCategory" minOccurs="0"/>
        <xs:element ref="core:AssetTypeModelNumber" minOccurs="0"/>
        <xs:element ref="core:AssetTypeReplacementCostValue" minOccurs="0"/>
        <xs:element ref="core:AssetTypeExpectedLifeValue" minOccurs="0"/>
        <xs:element ref="core:AssetTypeNominalLength" minOccurs="0"/>
        <xs:element ref="core:AssetTypeNominalWidth" minOccurs="0"/>
        <xs:element ref="core:AssetTypeNominalHeight" minOccurs="0"/>
        <xs:element ref="core:AssetTypeAccessibilityText" minOccurs="0"/>
        <xs:element ref="core:AssetTypeCodePerformance" minOccurs="0"/>
        <xs:element ref="core:AssetTypeColorCode" minOccurs="0"/>
        <xs:element ref="core:AssetTypeConstituentsDescription" minOccurs="0"/>
        <xs:element ref="core:AssetTypeFeaturesDescription" minOccurs="0"/>
        <xs:element ref="core:AssetTypeFinishDescription" minOccurs="0"/>
        <xs:element ref="core:AssetTypeGradeDescription" minOccurs="0"/>
        <xs:element ref="core:AssetTypeMaterialDescription" minOccurs="0"/>
        <xs:element ref="core:AssetTypeShapeDescription" minOccurs="0"/>
        <xs:element ref="core:AssetTypeSizeDescription" minOccurs="0"/>
        <xs:element ref="core:AssetTypeSustainabilityPerformanceDescription" minOccurs="0"/>
        <xs:element ref="core:Assets" minOccurs="0"/>
        <xs:element ref="core:AssetTypeManufacturerContactAssignments" minOccurs="0"/>
        <xs:element ref="core:Warranties" minOccurs="0"/>
        <xs:element ref="core:Spares" minOccurs="0"/>
        <xs:element ref="core:Jobs" minOccurs="0"/>
        <xs:element ref="core:AssemblyAssignments" minOccurs="0"/>
        <xs:element ref="core:AssetTypeAttributes" minOccurs="0"/>
        <xs:element ref="core:AssetTypeDocuments" minOccurs="0"/>
        <xs:element ref="core:AssetTypeIssues" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="AssetType" type="cobielite:AssetTypeInfoType" substitutionGroup="core: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>
<!--End AssetType related content-->
<!--Begin Attribute related content-->
<xs:complexType name="AttributeType">
  <xs:annotation>
    <xs:documentation>Information about a specific Attribute.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="core:AttributeType">
      <xs:sequence>
        <xs:element ref="core:AttributeDescription" minOccurs="0"/>
        <xs:element ref="core:AttributeValue" minOccurs="0"/>
        <xs:element ref="core:AttributeIssues" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="Attribute" type="cobielite:AttributeType" substitutionGroup="core:Attribute">

```

```

        <xs:annotation>
          <xs:documentation>Information about a specific Attribute.</xs:documentation>
        </xs:annotation>
      </xs:element>
    <!--End Attribute related content-->
    <!--Begin Connection Related Content-->
    <xs:complexType name="ConnectionType">
      <xs:annotation>
        <xs:documentation>A type for representing Connection Information.</xs:documentation>
      </xs:annotation>
      <xs:complexContent>
        <xs:extension base="core:ConnectionType">
          <xs:sequence>
            <xs:element ref="core:ConnectionAsset1Name" minOccurs="0"/>
            <xs:element ref="core:ConnectionAsset1PortName" minOccurs="0"/>
            <xs:element ref="core:ConnectionAsset2Name" minOccurs="0"/>
            <xs:element ref="core:ConnectionAsset2PortName" minOccurs="0"/>
            <xs:element ref="core:ConnectionDescription" minOccurs="0"/>
            <xs:element ref="core:ConnectionAttributes" minOccurs="0"/>
            <xs:element ref="core:ConnectionDocuments" minOccurs="0"/>
            <xs:element ref="core:ConnectionIssues" minOccurs="0"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:element name="Connection" type="cobielite:ConnectionType" substitutionGroup="core:Connection">
      <xs:annotation>
        <xs:documentation>Connection information is considered to be required only as-specified. Please refer to the COBie Guide for more information on specific requirements. </xs:documentation>
      </xs:annotation>
    </xs:element>
  <!--End Connection Related Content-->
  <!--Begin Contact Related Content-->
  <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="core:ContactType">
        <xs:sequence>
          <xs:element ref="core:ContactCategory" minOccurs="0"/>
          <xs:element ref="core:ContactCompanyName" minOccurs="0"/>
          <xs:element ref="core:ContactPhoneNumber" minOccurs="0"/>
          <xs:element ref="core:ContactDepartmentName" minOccurs="0"/>
          <xs:element ref="core:ContactGivenName" minOccurs="0"/>
          <xs:element ref="core:ContactFamilyName" minOccurs="0"/>
          <xs:element ref="core:ContactStreet" minOccurs="0"/>
          <xs:element ref="core:ContactPostalBoxNumber" minOccurs="0"/>
          <xs:element ref="core:ContactTownName" minOccurs="0"/>
          <xs:element ref="core:ContactRegionCode" minOccurs="0"/>
          <xs:element ref="core:ContactCountryName" minOccurs="0"/>
          <xs:element ref="core:ContactPostalCode" minOccurs="0"/>
          <xs:element ref="core:ContactURL" minOccurs="0"/>
          <xs:element ref="core:ContactAttributes" minOccurs="0"/>
          <xs:element ref="core:ContactDocuments" minOccurs="0"/>
          <xs:element ref="core:ContactIssues" minOccurs="0"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="Contact" type="cobielite:ContactType" substitutionGroup="core:Contact">
    <xs:annotation>
      <xs:documentation>Information about a specific manufacturer or supplier associated with an AssetType.</xs:documentation>
    </xs:annotation>
  </xs:element>
<!--End Contact Related Content-->

```

```

<!--Begin Document Related Content-->
<xs:complexType name="DocumentType">
  <xs:annotation>
    <xs:documentation>Information about a specific Document.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="core:DocumentType">
      <xs:sequence>
        <xs:element ref="core:DocumentCategory" minOccurs="0"/>
        <xs:element ref="core:DocumentDescription" minOccurs="0"/>
        <xs:element ref="core:DocumentURI" minOccurs="0"/>
        <xs:element ref="core:DocumentReferenceURI" minOccurs="0"/>
        <xs:element ref="core:DocumentAttributes" minOccurs="0"/>
        <xs:element ref="core:DocumentIssues" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="Document" type="cobielite:DocumentType" substitutionGroup="core:Document">
  <xs:annotation>
    <xs:documentation>
      Information about a specific Document.
    </xs:documentation>
  </xs:annotation>
</xs:element>
<!--End Document Related Content-->
<!--Begin Facility Related Content-->
<xs:complexType name="FacilityType">
  <xs:annotation>
    <xs:documentation>A type for the Facility element that is the root of a COBie document</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="core:FacilityType">
      <xs:sequence>
        <xs:element ref="core:FacilityCategory" minOccurs="0"/>
        <xs:element ref="core:ProjectAssignment" minOccurs="0"/>
        <xs:element ref="core:SiteAssignment" minOccurs="0"/>
        <xs:element ref="core:FacilityDefaultLinearUnit" minOccurs="0"/>
        <xs:element ref="core:FacilityDefaultAreaUnit" minOccurs="0"/>
        <xs:element ref="core:FacilityDefaultVolumeUnit" minOccurs="0"/>
        <xs:element ref="core:FacilityDefaultCurrencyUnit" minOccurs="0"/>
        <xs:element ref="core:FacilityDefaultMeasurementStandard" minOccurs="0"/>
        <xs:element ref="core:FacilityDescription" minOccurs="0"/>
        <xs:element ref="core:FacilityDeliverablePhaseName" minOccurs="0"/>
        <xs:element ref="core:Floors" minOccurs="0"/>
        <xs:element ref="core:Zones" minOccurs="0"/>
        <xs:element ref="core:AssetTypes" minOccurs="0"/>
        <xs:element ref="core:Systems" minOccurs="0"/>
        <xs:element ref="core:Connections" minOccurs="0"/>
        <xs:element ref="core:Contacts" minOccurs="0"/>
        <xs:element ref="core:FacilityAttributes" minOccurs="0"/>
        <xs:element ref="core:FacilityDocuments" minOccurs="0"/>
        <xs:element ref="core:FacilityIssues" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="Facility" type="cobielite:FacilityType" substitutionGroup="core:Facility">
  <xs:annotation>
    <xs:documentation>
      Facility contains information about the facility being exchanged during a given COBie deliverable. Since COBie deliverables may be
      exchanged during planning, design, construction, handover, or operation phases there may be differences in facility designations. COBie files
      will typically contain a single facility.
    </xs:documentation>
  </xs:annotation>
</xs:element>

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<!--End Facility Related Content-->
<!--Begin Floor Related Content-->
<xs:complexType name="FloorType">
  <xs:annotation>
    <xs:documentation>A minimum of one COBie.Floor record is required for all COBie deliverables containing spatial
information.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="core:FloorType">
      <xs:sequence>
        <xs:element ref="core:FloorCategory" minOccurs="0"/>
        <xs:element ref="core:FloorDescription" minOccurs="0"/>
        <xs:element ref="core:FloorElevationValue" minOccurs="0"/>
        <xs:element ref="core:FloorHeightValue" minOccurs="0"/>
        <xs:element ref="core:Spaces" minOccurs="0"/>
        <xs:element ref="core:FloorAttributes" minOccurs="0"/>
        <xs:element ref="core:FloorDocuments" minOccurs="0"/>
        <xs:element ref="core:FloorIssues" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="Floor" type="cobielite:FloorType" substitutionGroup="core:Floor">
  <xs:annotation>
    <xs:documentation>A minimum of one COBie.Floor record is required for all COBie deliverables containing spatial information.
</xs:documentation>
  </xs:annotation>
</xs:element>
<!--End Floor Related Content-->
<!--Begin Issue Related Content-->
<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="core:IssueType">
      <xs:sequence>
        <xs:element ref="core:IssueRiskText" minOccurs="0"/>
        <xs:element ref="core:IssueSeverityText" minOccurs="0"/>
        <xs:element ref="core:IssueImpactText" minOccurs="0"/>
        <xs:element ref="core:IssueDescription" minOccurs="0"/>
        <xs:element ref="core:ContactAssignment" minOccurs="0"/>
        <xs:element ref="core:IssueMitigationDescription" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:element name="Issue" type="cobielite:IssueType" substitutionGroup="core:Issue">
  <xs:annotation>
    <xs:documentation>A specific Issue within this set of Issues. </xs:documentation>
  </xs:annotation>
</xs:element>
<!--End Issue Related Content-->
<!--Begin Job Related Content-->
<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="core:JobType">
      <xs:sequence>
        <xs:element ref="core:JobCategory" minOccurs="0"/>
        <xs:element ref="core:JobStatus" minOccurs="0"/>
        <xs:element ref="core:JobDescription" minOccurs="0"/>
        <xs:element ref="core:JobDuration" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

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        <xs:element ref="core:JobStartDate" minOccurs="0"/>
        <xs:element ref="core:JobStartConditionDescription" minOccurs="0"/>
        <xs:element ref="core:JobFrequencyValue" minOccurs="0"/>
        <xs:element ref="core:JobPriorTaskID" minOccurs="0"/>
        <xs:element ref="core:Resources" minOccurs="0"/>
        <xs:element ref="core:JobAttributes" minOccurs="0"/>
        <xs:element ref="core:JobDocuments" minOccurs="0"/>
        <xs:element ref="core:JobIssues" minOccurs="0"/>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:element name="Job" type="cobielite:JobType" substitutionGroup="core:Job">
    <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:element>
<!--End Job Related Content-->
<!--Begin Resource Related Content-->
<xs:complexType name="ResourceType">
    <xs:annotation>
        <xs:documentation>Information about a specific resource.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="core:ResourceType">
            <xs:sequence>
                <xs:element ref="core:ResourceCategory" minOccurs="0"/>
                <xs:element ref="core:ResourceDescription" minOccurs="0"/>
                <xs:element ref="core:ResourceAttributes" minOccurs="0"/>
                <xs:element ref="core:ResourceDocuments" minOccurs="0"/>
                <xs:element ref="core:ResourceIssues" minOccurs="0"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="Resource" type="cobielite:ResourceType" substitutionGroup="core:Resource">
    <xs:annotation>
        <xs:documentation>Information about a specific resource.</xs:documentation>
    </xs:annotation>
</xs:element>
<!--End Resource Related Content-->
<!--Begin Space Related Content-->
<xs:complexType name="SpaceType">
    <xs:annotation>
        <xs:documentation>A minimum of one COBie.Space record is required for all COBie deliverables related to Space
information.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="core:SpaceType">
            <xs:sequence>
                <xs:element ref="core:SpaceCategory" minOccurs="0"/>
                <xs:element ref="core:SpaceDescription" minOccurs="0"/>
                <xs:element ref="core:SpaceSignageName" minOccurs="0"/>
                <xs:element ref="core:SpaceUsableHeightValue" minOccurs="0"/>
                <xs:element ref="core:SpaceGrossAreaValue" minOccurs="0"/>
                <xs:element ref="core:SpaceNetAreaValue" minOccurs="0"/>
                <xs:element ref="core:SpaceZoneAssignments" minOccurs="0"/>
                <xs:element ref="core:SpaceAttributes" minOccurs="0"/>
                <xs:element ref="core:SpaceDocuments" minOccurs="0"/>
                <xs:element ref="core:SpaceIssues" minOccurs="0"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="Space" type="cobielite:SpaceType" substitutionGroup="core:Space">

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        <xs:annotation>
          <xs:documentation>A minimum of one COBie.Space record is required for all COBie deliverables related to Space information.
        </xs:documentation>
      </xs:annotation>
    </xs:element>
    <!--End Space Related Content-->
    <!--Begin Spare Related Content-->
    <xs:complexType name="SpareType">
      <xs:annotation>
        <xs:documentation>Information about a specific Spare.</xs:documentation>
      </xs:annotation>
      <xs:complexContent>
        <xs:extension base="core:SpareType">
          <xs:sequence>
            <xs:element ref="core:SpareDescription" minOccurs="0"/>
            <xs:element ref="core:SpareSetNumber" minOccurs="0"/>
            <xs:element ref="core:SparePartNumber" minOccurs="0"/>
            <xs:element ref="core:SpareSupplierContactAssignments" minOccurs="0"/>
            <xs:element ref="core:SpareAttributes" minOccurs="0"/>
            <xs:element ref="core:SpareDocuments" minOccurs="0"/>
            <xs:element ref="core:SpareIssues" minOccurs="0"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:element name="Spare" type="cobielite:SpareType" substitutionGroup="core:Spare">
      <xs:annotation>
        <xs:documentation>Information about a specific Spare.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <!--End Spare Related Content-->
    <!--Begin System Related Content-->
    <xs:complexType name="SystemType">
      <xs:annotation>
        <xs:documentation>COBie.System information is considered to be required only as-specified. Please refer to the COBie Guide for
more information on specific system requirements.</xs:documentation>
      </xs:annotation>
      <xs:complexContent>
        <xs:extension base="core:SystemType">
          <xs:sequence>
            <xs:element ref="core:SystemDescription" minOccurs="0"/>
            <xs:element ref="core:SystemAttributes" minOccurs="0"/>
            <xs:element ref="core:SystemDocuments" minOccurs="0"/>
            <xs:element ref="core:SystemIssues" minOccurs="0"/>
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:element name="System" type="cobielite:SystemType" substitutionGroup="core:System">
      <xs:annotation>
        <xs:documentation>Definition
COBie.System information is considered to be required only as-specified. Please refer to the COBie Guide for more information on specific
system requirements. </xs:documentation>
      </xs:annotation>
    </xs:element>
    <!--End System Related Content-->
    <!--Begin Zone Related Content-->
    <xs:complexType name="ZoneType">
      <xs:annotation>
        <xs:documentation>COBie.Zone information is considered to be required only as-specified. Please refer to the COBie Guide for
more information on specific zoning requirements.</xs:documentation>
      </xs:annotation>
      <xs:complexContent>
        <xs:extension base="core:ZoneType">
          <xs:sequence>
            <xs:element ref="core:ZoneDescription" minOccurs="0"/>

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<xs:element ref="core:ZoneAttributes" minOccurs="0"/>
<xs:element ref="core:ZoneDocuments" minOccurs="0"/>
<xs:element ref="core:ZoneIssues" minOccurs="0"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:element name="Zone" type="cobielite:ZoneType" substitutionGroup="core:Zone">
  <xs:annotation>
    <xs:documentation>COBie.Zone information is considered to be required only as-specified. Please refer to the COBie Guide for
more information on specific zoning requirements.</xs:documentation>
  </xs:annotation>
</xs:element>
<!--End Zone Related Content-->
</xs:schema>
```