

## APPENDIX A

### COMMON REQUIREMENTS ACROSS ALL CASES

| S/NO | THEMES                                                             | GRANLUND              | UCSF          | DTU             | NUMBER |
|------|--------------------------------------------------------------------|-----------------------|---------------|-----------------|--------|
| 1    | <b>Sector</b>                                                      | MEP                   | Health        | Education       |        |
| 2    | <b>General Classification</b>                                      |                       |               |                 |        |
| a.   | Attribute or Property Information                                  | •                     | •             |                 | 2      |
| b.   | BIM Authoring Software Information                                 |                       | •             |                 | 1      |
| c.   | CCS                                                                |                       |               | •               | 1      |
| d.   | Classification System (IFC, Uniclass, OmniClass, SFB, CCS, or ISO) | • (IFC and OmniClass) | • (OmniClass) | • (SfB and CCS) | 3      |
| e.   | COBie Information                                                  | •                     | •             |                 | 2      |
| f.   | Data Type                                                          | •                     |               |                 | 1      |
| g.   | Description                                                        |                       | •             | •               | 2      |
| h.   | Detailed Content Description                                       | •                     |               |                 | 1      |
| i.   | Documentation Type                                                 |                       |               | •               | 1      |
| j.   | FM Software Information                                            |                       | •             |                 | 1      |
| k.   | Information Location in IFC                                        | •                     |               |                 | 1      |
| l.   | Object, Product or System                                          | •                     | •             | •               | 3      |
| m.   | OmniClass Name                                                     | •                     | •             |                 | 2      |
| n.   | OmniClass Number                                                   |                       | •             |                 | 1      |
| o.   | Project Facility Tag                                               |                       |               | •               | 1      |
| p.   | Scope                                                              |                       | •             |                 | 1      |
| q.   | SfB Code Level 1                                                   |                       |               | •               | 1      |
| r.   | SfB Code Level 2                                                   |                       |               | •               | 1      |
| s.   | SfB Code Level 3                                                   |                       |               | •               | 1      |
| t.   | Sourcing Directly from Model or Linked Data                        |                       |               | •               | 1      |
| u.   | Subcategory                                                        |                       |               | •               | 1      |
| v.   | Tag Abbreviation                                                   |                       |               | •               | 1      |
| w.   | Trade Model                                                        |                       | •             |                 | 1      |
| x.   | Unit (IFC)                                                         | •                     |               |                 | 1      |
| y.   | Unit Type                                                          | •                     |               |                 | 1      |
| 3    | <b>Standard Description</b>                                        |                       |               |                 |        |
| a.   | Application                                                        | •                     |               |                 | 1      |
| b.   | Building, Object, Product or System Name                           | •                     | •             | •               | 3      |
| c.   | Created By                                                         | •                     |               |                 | 1      |
| d.   | Creation Date                                                      | •                     |               |                 | 1      |
| e.   | Level or Storey                                                    | •                     | •             |                 | 2      |
| f.   | Link or Reference to Model                                         | •                     | •             | •               | 3      |
| g.   | System Code or Number                                              | •                     |               | •               | 2      |
| 4    | <b>General Description</b>                                         |                       |               |                 |        |
| a.   | Attribute Name                                                     |                       | •             |                 | 1      |
| b.   | Attribute Set                                                      |                       | •             |                 | 1      |
| c.   | BIM Authoring Software Data Type                                   |                       | •             |                 | 1      |
| d.   | BIM Authoring Software Parameter Name                              | •                     | •             |                 | 2      |
| e.   | BIM Authoring Software Parameter Type                              | •                     | •             |                 | 2      |
| f.   | CAD Parameter Name                                                 | •                     |               |                 | 1      |
| g.   | CAD Parameter Type                                                 | •                     |               |                 | 1      |

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|----------|--------------------------------------------|----------|------|-----|--------|
| h.       | COBie Field                                |          | •    |     | 1      |
| i.       | COBie Parameter Name                       |          | •    |     | 1      |
| j.       | COBie Parameter Name                       |          | •    |     | 1      |
| k.       | COBie Sheet                                |          | •    |     | 1      |
| l.       | Discipline                                 | •        |      |     | 1      |
| m.       | FM Software Attribute                      |          | •    |     | 1      |
| n.       | FM Software Data Type                      |          | •    |     | 1      |
| o.       | FM Software Table                          |          | •    |     | 1      |
| p.       | Permanent Construction ID                  | •        |      |     | 1      |
| q.       | Project Phase                              | •        |      |     | 1      |
| r.       | Property ID                                | •        |      |     | 1      |
| s.       | Shared Parameter Name                      |          | •    |     | 1      |
| t.       | VTJ-PRT                                    | •        |      |     | 1      |
| u.       | YTV Use Case                               | •        |      |     | 1      |
| <b>5</b> | <b><u>Location Description</u></b>         |          |      |     |        |
| a.       | Room Name                                  | •        |      |     | 1      |
| b.       | Room Number                                | •        |      |     | 1      |
| c.       | Room Type                                  | •        |      |     | 1      |
| d.       | Service Area                               | •        |      |     | 1      |
| e.       | Service Area Code                          | •        |      |     | 1      |
| f.       | Service Area Type                          | •        |      |     | 1      |
| <b>6</b> | <b><u>Installation Description</u></b>     |          |      |     |        |
| a.       | Existing Installation                      | •        |      |     | 1      |
| b.       | Installation Date                          |          |      | •   | 1      |
| c.       | Installation Height from Floor             | •        |      |     | 1      |
| d.       | Installation Height, Abs.                  | •        |      |     | 1      |
| e.       | Installer                                  | •        |      |     | 1      |
| f.       | Method of Installation                     | •        |      |     | 1      |
| g.       | Procurement Package                        | •        |      |     | 1      |
| h.       | Special Installation                       | •        |      |     | 1      |
| i.       | Supplier                                   | •        |      | •   | 2      |
| <b>7</b> | <b><u>Product Description</u></b>          |          |      |     |        |
| a.       | Asset ID, Object ID or System ID           | •        | •    |     | 2      |
| b.       | ETIM-Class                                 | •        |      |     | 1      |
| c.       | Group Code                                 | •        |      |     | 1      |
| d.       | GTIN Code                                  | •        |      |     | 1      |
| e.       | GUID                                       | •        |      |     | 1      |
| f.       | Life Expectancy                            |          |      | •   | 1      |
| g.       | LOD                                        | •        | •    |     | 2      |
| h.       | LOG                                        | •        |      |     | 1      |
| i.       | LOI                                        | •        |      |     | 1      |
| j.       | Manufacturer or Producer                   | •        | •    | •   | 3      |
| k.       | Manufacturer URL                           | •        |      |     | 1      |
| l.       | Model Number, Model Type or Product Series | •        | •    | •   | 3      |
| m.       | Note or Comments                           | •        | •    | •   | 3      |
| n.       | Object Group ID                            | •        |      |     | 1      |
| o.       | Object Type                                | •        |      |     | 1      |
| p.       | Position                                   | •        |      |     | 1      |
| q.       | Product Description                        | •        |      |     | 1      |
| r.       | Product Name                               | •        |      |     | 1      |
| s.       | Product Number                             | •        | •    |     | 2      |

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|----------|--------------------------------|----------|------|-----|--------|
| t.       | Running Index                  | •        |      |     | 1      |
| u.       | Sensor GUID                    | •        |      |     | 1      |
| v.       | Sensor ID                      | •        |      |     | 1      |
| w.       | Sensor Measure Origin          | •        |      |     | 1      |
| x.       | Sensor Type                    | •        |      |     | 1      |
| y.       | Status                         | •        |      |     | 1      |
| z.       | Unit Tag                       |          |      | •   | 1      |
| aa.      | URL                            | •        |      |     | 1      |
| ab.      | Warranty Start Date            |          |      | •   | 1      |
| <b>8</b> | <b>Technical Description</b>   |          |      |     |        |
| a.       | Actual Volume Flow Setpoint    | •        |      |     | 1      |
| b.       | Actuator                       | •        |      |     | 1      |
| c.       | Air Tank National Board Number |          | •    |     | 1      |
| d.       | Angle                          | •        |      |     | 1      |
| e.       | Colour                         | •        |      |     | 1      |
| f.       | Colour Code                    | •        |      |     | 1      |
| g.       | Colour Temperature             | •        |      |     | 1      |
| h.       | Connection Size                | •        |      |     | 1      |
| i.       | Control Address                | •        |      |     | 1      |
| j.       | Control Unit                   | •        |      |     | 1      |
| k.       | Degree of Protection (IP)      | •        |      |     | 1      |
| l.       | Delivered Air Capacity         |          | •    |     | 1      |
| m.       | Design Pressure Loss           | •        |      |     | 1      |
| n.       | Design Pressure Static         | •        |      |     | 1      |
| o.       | Design Sound Level             | •        |      |     | 1      |
| p.       | Design Volume Flow             | •        |      |     | 1      |
| q.       | Design Volume Flow Setpoint    | •        |      |     | 1      |
| r.       | Dimensions or Size             |          | •    |     | 1      |
| s.       | Electric Current               | •        | •    |     | 2      |
| t.       | Enclosure Type                 |          | •    |     | 1      |
| u.       | Frame                          |          | •    |     | 1      |
| v.       | Hertz                          |          | •    |     | 1      |
| w.       | Horsepower                     |          | •    |     | 1      |
| x.       | K-factor                       | •        |      |     | 1      |
| y.       | Kv-value                       | •        |      |     | 1      |
| z.       | Lamp Power                     | •        |      |     | 1      |
| aa.      | Lamp Type                      | •        |      |     | 1      |
| ab.      | Luminaire Power                | •        |      |     | 1      |
| ac.      | Luminous Flux                  | •        |      |     | 1      |
| ad.      | Material                       | •        |      |     | 1      |
| ae.      | Maximum Airflow                |          | •    |     | 1      |
| af.      | Measured Pressure              | •        |      |     | 1      |
| ag.      | Measured Pressure Loss         | •        |      |     | 1      |
| ah.      | Measured Sound Level           | •        |      |     | 1      |
| ai.      | Measured Volume Flow           | •        |      |     | 1      |
| aj.      | Minimum Airflow                |          | •    |     | 1      |
| ak.      | Number of Objects or Systems   | •        | •    |     | 2      |
| al.      | Phase                          |          | •    |     | 1      |
| am.      | Power                          | •        |      |     | 1      |
| an.      | Reheat Coil Capacity           |          | •    |     | 1      |
| ao.      | Reheat Coil Waterflow (GPM)    |          | •    |     | 1      |
| ap.      | RPM                            |          | •    |     | 1      |

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|-----------|---------------------------------------------------------|----------|------|-----|--------|
| aq.       | Service Factor                                          |          | •    |     | 1      |
| ar.       | Typical Flow Rate or Airflow                            | •        | •    |     | 2      |
| as.       | Velocity                                                | •        |      |     | 1      |
| at.       | Voltage                                                 | •        | •    |     | 2      |
| <b>9</b>  | <b><u>Physical Description</u></b>                      |          |      |     |        |
| a.        | Gross Floor Area                                        | •        |      |     | 1      |
| b.        | Height                                                  | •        |      |     | 1      |
| c.        | Length                                                  | •        |      |     | 1      |
| d.        | Maintenance Space                                       | •        |      |     | 1      |
| e.        | Net Floor Area                                          | •        |      |     | 1      |
| f.        | Thickness                                               | •        |      |     | 1      |
| g.        | Volume                                                  | •        |      |     | 1      |
| h.        | Weight                                                  | •        |      |     | 1      |
| i.        | Width                                                   | •        |      |     | 1      |
| <b>10</b> | <b><u>Model Reference</u></b>                           |          |      |     |        |
| a.        | Active or Passive Fire System                           |          |      | •   | 1      |
| b.        | Balcony Type                                            |          |      | •   | 1      |
| c.        | Ceiling (removable?)                                    |          |      | •   | 1      |
| d.        | Ceiling Type                                            |          |      | •   | 1      |
| e.        | Colour (RAL / NCS)                                      |          |      | •   | 1      |
| f.        | D-Value                                                 |          |      | •   | 1      |
| g.        | Fire Classification (REI)                               |          |      | •   | 1      |
| h.        | Floor Type                                              |          |      | •   | 1      |
| i.        | FM Software Data Requirement Reference                  |          | •    |     | 1      |
| j.        | Inside or Outside?                                      |          |      | •   | 1      |
| k.        | Located in Project or Facility?                         |          | •    |     | 1      |
| l.        | Location                                                |          |      | •   | 1      |
| m.        | Material                                                |          |      | •   | 1      |
| n.        | Modelled?                                               |          | •    |     | 1      |
| o.        | Movable?                                                |          |      | •   | 1      |
| p.        | Notes on Accessibility                                  |          |      | •   | 1      |
| q.        | Number or Quantity                                      |          |      | •   | 1      |
| r.        | Static System?                                          |          |      | •   | 1      |
| s.        | Surface                                                 |          |      | •   | 1      |
| t.        | System, Object or Product Tagged Individually in Model? |          | •    |     | 1      |
| u.        | Trade Model                                             |          | •    |     | 1      |

**KEY:**

Requirement Common in All 3 Cases

Requirement Common in 2 Cases

Requirement Common in 1 Case Only