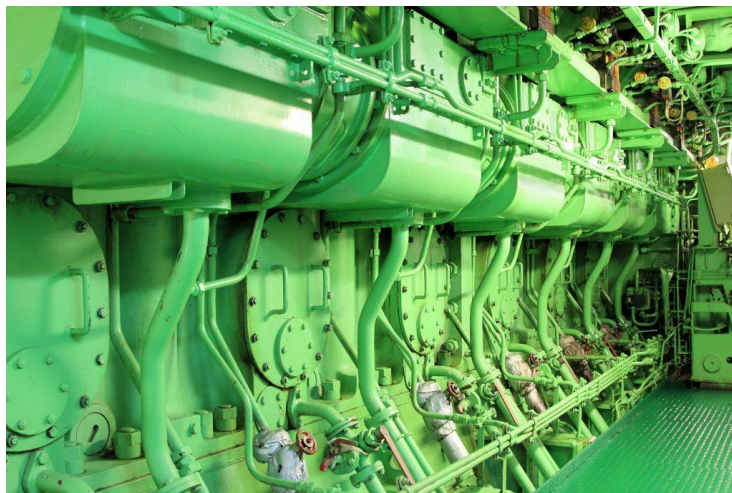


# BIM Requirements for Special Equipment, Ocean Space Centre



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## 1 Introduction

This document is an annex to the document “OSC-SB-O-SD-00012 Action plan for digitisation”. The purpose of this document is to define specifications to the project’s BIM requirements and general requirements defined in Statsbygg’s BIM requirements – SIMBA 2.0.

### 1.1 Validity

Changes to the project’s BIM requirements stipulated in this document is only valid for model deliverables approved by Statsbygg.

All other requirements defined in the project are applicable unless otherwise stated in this document.

## 2 BIM-requirements for Special Equipment

### 2.1 Existing BIM Requirements

The project’s BIM requirements are governed by the following documents:

- OSC-SB-O-SD-00012 Action plan for digitisation
- Statsbygg BIM requirements SIMBA 2.0
  - o Machine interpretable requirements in SIMBA 2.0 (Not applicable to special equipment)
  - o General requirements in SIMBA 2.0 (Excel spreadsheet)

In addition to governing documents guidance to SIMBA 2.0 can be found in English at:

<https://sites.google.com/view/simba-bim-krav/simba-2-0/simba-2-0-veiledning>

### 2.2 Specification of BIM Requirements

This section specifies and supplements some of SIMBA 2.0’s general requirements for the project. These specifications are necessary due to the lack of machine interpretable requirements for the project’s special equipment. If other specifications are agreed upon, this document shall be updated with the agreed specifications.

Each heading contains a reference to SIMBA 2.0’s general requirements number.

#### 2.2.1 Requirement #S8 - Validation

The requirement #S8 states:

*For all models where machine validable requirements are set by Statsbygg, the IFC delivery must, before agreed milestones, be mechanically validated by the supplier against requirements given in mvdXML format (or other agreed open format for requirements) and deviations corrected.*

Because Statsbygg does not provide machine interpretable requirements for BIM models of special equipment governed by this document, the validation of such models is not possible. This does however not exempt suppliers to deliver models that fulfil other requirements stated in this document or elsewhere.

#### 2.2.2 Requirement #S13 – Process Status Coding

Requirement #S13 states:

*All entities that represent physical building parts / components to be built must be marked with process status coding according to an agreed standard. Construction and Real Estate Industry's MMI guide must be used unless otherwise agreed.*

The project is using the process status coding MMI (Model Maturity Index), as described in the action plan for digitisation. The definition of MMI status values and sones will be an ongoing process in the project. The definition of MMI values for special equipment shall be developed for each discipline as a cooperation together with Statsbygg and other contractors. MMI status will be used to follow up model and design maturity.

Definitions of MMI status values may be altered during the project's lifetime. The suppliers of BIM models for special equipment must maintain MMI Process Status Coding on the prevailing definition and format at any given time.

### **2.2.3 Requirement #S27 - Simplified Model**

The requirement #S27 states:

*“ Where discipline models are particularly unidisciplinary in detail, beyond what is necessary for interdisciplinary design or special simulations / analyzes, the client may require delivery of a simplified model that is used for compilation purposes or the specified simulations / analyzes.”*

BIM Models for special equipment are historically produced with a very high degree of geometric detail, often for the creation of detail drawings for production and montage. The high geometric detailing of such models will often cause performance issues when exported to IFC and create a sub optimal work flow for interdisciplinary model collaboration.

Suppliers of BIM models to the project governed by this document **must** therefore, in addition to other specified deliverables, deliver simplified IFC and native models for the special equipment. The simplified models must be delivered with respect to the following requirements:

1. **Geometric detailing:**  
The geometric detailing for simplified IFC models shall exclude detailing unnecessary for the interdisciplinary collaboration and the geometry shall be optimised to secure performance on IFC format. In example, a representative outer shell of the equipment with external connections will in many cases be sufficient geometric detailing for the interdisciplinary collaboration.
2. **Object partition and IFC entities**  
The objects in the simplified BIM models shall be divided into the equipment's main parts. Objects shall as a minimum be divided into parts representing separate TFM tags. In addition, object partitions shall be made so that equipment that affect other disciplines can be isolated, i.e. cast-in piping, cable conduits, etc. Each model object shall be assigned a representative IFC entity and type, i.e. a pipe segment shall be assigned the IFC entity *IfcCableCarrierSegment*. For objects that does not fit into entities in the IFC schema, the IFC entity *IfcBuildingElementProxy* is to be used.
3. **Object attributes and properties**  
Model objects must be assigned attributes and properties according to requirements stipulated in the document “OSC-SB-Å-SD-00001 General Attributes and properties in BIM models” and other governing documents for BIM models in the project.
4. **General requirements**  
All requirements stipulated in the governing documents are valid, unless otherwise specified in this document. This includes i.e. georeferencing, open formats, model file names etc.
5. **Sample models**  
The supplier must in an early phase deliver a sample of a simplified model with some

representative objects for the equipment. This shall form a basis for testing of processes with interdisciplinary collaboration.