

Use Case 15a: Progress (status) monitoring

Purpose

During construction there is generally a requirement to report progress on site on a regular basis. A BIM model provides a unique and effective way of communicating such information.

This use case is linked to use case 11 (construction sequence modelling). The granularity of the 4D model depends of the needs of the individual projects, but the model will generally be broken down into applicable components. The example below (of an underground cavern) illustrates this.

Limmern Pump Storage Scheme
Transformer Cavern
ILF Zürich 2012



Typically, different colours will be used to distinguish between different construction statuses. In this case, red for completed work, orange for components completed in the past week and green for components to be completed in the upcoming week.

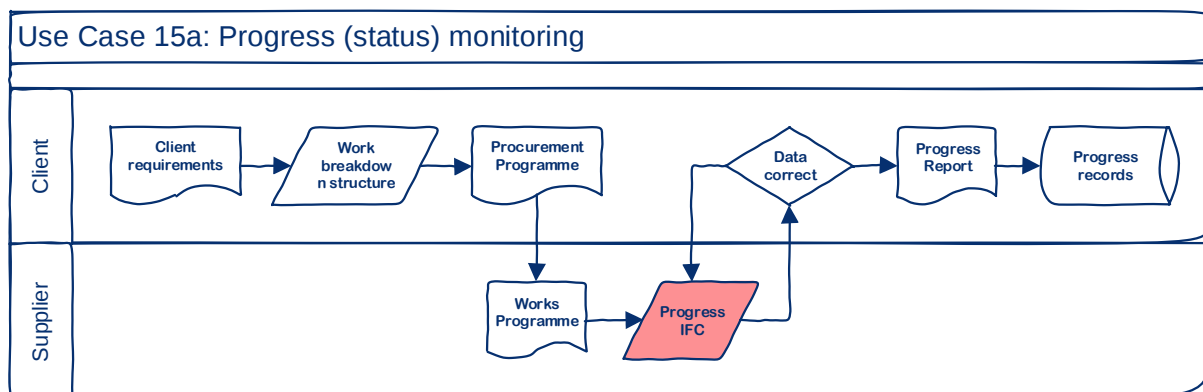
Individual components or elements are associated to a completion status or completion ratio.

Variations can include monitoring of information delivery, design status or comparisons between the planned and the actual status of execution.

Such variations (as-planned vs as-executed) might be recollected in a form of compared tasks within a Gantt charts tasks or a linear referencing planning.

Typically, an application must exist for imputing the information on site or in the design office, this application must in turn exchange information in its most basic form with a viewer or print application or in more advanced forms to management and controlling applications.

There is also a potential link to Use Case 15d for the Quantity Determination for payment / billing.



Requirements for IFC-Tunnel:

The tunnel geometry must be described, broken down in the required structured construction components and functional systems' equipments, and the individual components must include attributes describing programme and status relevant data.

Geometry:

Explicit geometry that allows the components to be visually identified is sufficient. Stationing along the axis (linear reference) must be preserved and related to the components.

Semantics:

IFC provides entities to represent schedules (IfcTask) including predecessor and successor relationships and these can be assigned to construction component and systems' parts, although software implementation is not widespread. In addition, the design / documentation / construction / condition status needs to be provided.