Process Maps

Santiago Bernabéu Stadium Renovation
CDE

BIM 360 Design software offers BIM managers the flexibility of choosing a collaboration workflow that meets the needs of their organization. Each time a Revit user shares a project file with dedicated sets, the project data appears in a folder as a new release. When a BIM manager shares these sets, the project data is automatically replicated in a shared area. Then, after another BIM manager reviews the sets, the project data can go in a consumed area for general access by team members. BIM 360 Design offers BIM managers the choice of a fully controlled, highly trusted, or moderately trusted workflow. Publications for the construction, permissions, information, visa etc, are shared by Thinkproject.
The CDE workflow allows the creation of traceability of files and the revision of previous versions. The advantage of BIM360 is that it allows all types of extensions and online consultation of documents.

It generates automatic communications to key stakeholders by email and document publication by thinkproject.

The BIM strategy employed to streamline the workflow through the CDE and share lighter models results in a complex but so efficient Model Breakdown.
BIM processes and uses for which it is contemplated to use the BIM model(s) in IFC format as a basis for the development of the project in the design phase. Once the design has been validated, it uses this same model exchange flow via IFC to guarantee the evolution from design to fabrication models by industrial companies and workshops hired for it. This flow includes, on the one hand, the design and analysis of the operation of complex construction systems prior to their installation on site (temporary elements) and, on the other hand, the use of BIM models to facilitate the manufacture of materials from construction and assemblies (structural steel, metal sheets, mockups, etc).
3D Coordination

Thanks to the BCF Managers, with their wide range of plugins allowed greater traceability with the main software used in modeling and coordination. In this way, each agent was able to access the project through the BCF Manager of the program and to visualize the comments and issues of the project allowing a fluid communication with the rest of the team in real time.
An effective collaboration was the only way to successfully develop the project. Therefore, it was decided to use BCF files and manage them through **BIMcollab** collaborative platform, which allowed us to cover a project of this complexity. One of the first points to highlight is the way the control panel display information about the **current status** of the project. This means that all team members work with **up-to-date information** at every time, which facilitates all processes in the different phases of the project. **BIMcollab** allowed us to manage the main challenge of the project, which was the **complex fragmentation of the model's issues**, as well as to **assign responsibilities** to certain parts of the team and to notify those involved in the resolution of an issue, or to **reassign responsibility**. This meant **the involvement** of all team members, as well as the different companies participating in the project. This fact **stimulated the collaboration capacity** of all the agents involved in the project.
4D Schedule

After using IFC2x3 as a way to share information and 3D models, we keep on utilizing IFC2x3 to compose the 4D model with Synchro PRO.

Due to the category of the project (fast track), the IFC files are updated every week, as well as the planning, so that the 4D is updated every week.
4D Schedule

Workflow_Initial Codification

1. Export IFC2X3 with correct file nomenclature
2. Export planning in .XML format from MS Project or Primavera
3. Import IFC model or models into Synchro PRO
4. Import .XML planning into Synchro PRO
5. Creating resources for 3D objects
6. Link 3D elements to planning tasks
7. Creation 4D model in .sp format
8. Viewing (any user) with Synchro OpenViewer
9. Export IFC file

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4D Schedule

Workflow Maintenance codification

1. Export IFC2X3
2. Export planning in .XML format from MS Project or Primavera
3. Import IFC model or models into Bexel and then export the properties in .xls
4. Export .xls from Synchro federated file
5. Contrast information between the two excel files in order to get one complete excel file.
6. Import than excel into bexel and export new IFC file with all information
7. Import new IFC model or models into Synchro PRO
8. Import .XML planning into Synchro PRO
9. Creating resources for 3D objects
10. Link 3D elements to planning tasks
11. Creation 4D model in .sp format
12. Viewing (any user) with Synchro OpenViewer
13. Export IFC file
5D Costs

The main workflow is working with Cost It and Presto to obtain the measurements we want. In addition, we have the possibility of working with Bexel, especially in construction, because we get the Quantities and Costs almost directly from it.

After using IFC2x3 to share information and 3D models, we keep on utilizing IFC2x3 to compose the 5D model with Bexel and we obtain measurements almost directly from it.

These are some routines we follow:

1. Export IFC2X3 with correct file nomenclature.
2. Create new file in Bexel with IFC.
3. Create breakdowns of categories and groups according to families or according to another parameter or select elements directly.
4. Creation of measurements (quantities) of the previous breakdowns. Bexel software has its own measurement calculation engine.
5. Export report of measurements obtained in Excel format.