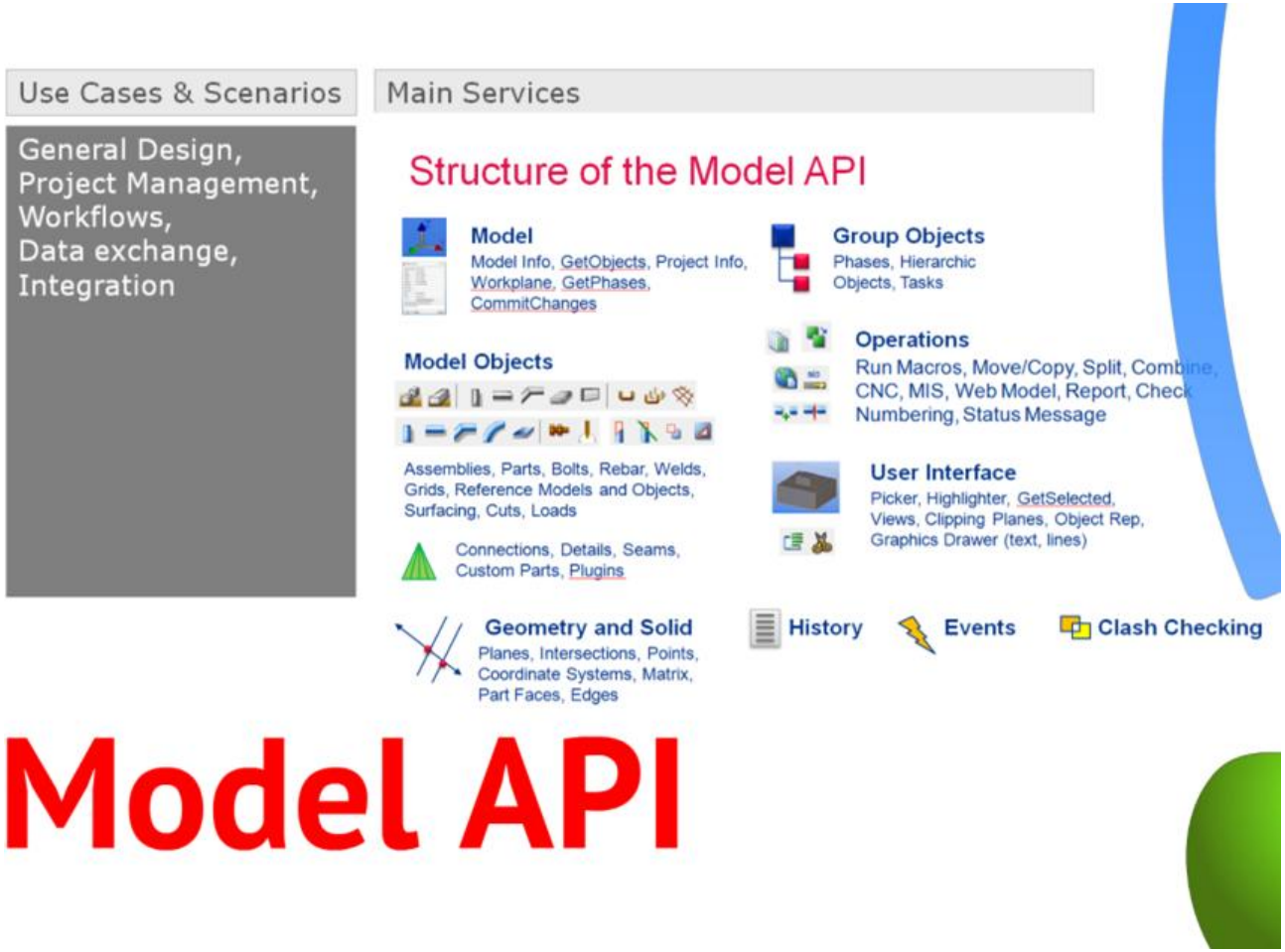
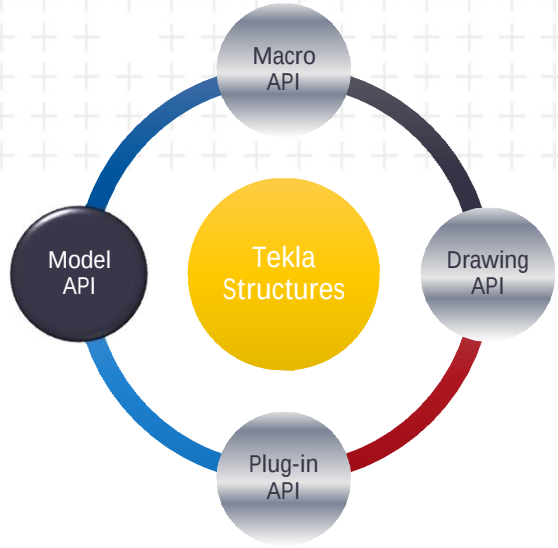
Trimble

Tekla Structures Open API

Model API


Use Cases & Scenarios
Main Services
General Design,
Project Management,
Workflows,
Data exchange,
Integration
Structure of the Model API
Model
Model Info, GetObjects, Project Info, Workplane, GetPhases, CommitChanges
Group Objects
Phases, Hierarchic Objects, Tasks
Operations
Run Macros, Move/Copy, Split, Combine, CNC, MIS, Web Model, Report, Check Numbering, Status Message
Model Objects
Assemblies, Parts, Bolts, Rebar, Welds, Grids, Reference Models and Objects, Surfacing, Cuts, Loads
Connections, Details, Seams, Custom Parts, Plugins
User Interface
Picker, Highlighter, GetSelected, Views, Clipping Planes, Object Rep, Graphics Drawer (text, lines)
Geometry and Solid
Planes, Intersections, Points, Coordinate Systems, Matrix, Part Faces, Edges
History
Events
Clash Checking
Model API

Tekla Open API - Model



- Model API
  - Connect to a running Tekla Structures model
  - Create, modify, and delete model objects
    - Read and write object attributes
    - Read and write user defined attributes
    - Get report properties for objects
  - Interact with the user
    - Get currently selected objects
    - Prompt user to pick objects and locations
    - Select and highlight objects for the user
  - Access catalogs (material, bolt, profile, etc.)
  - Create and manipulate model views

Structure of the Model API

Model

Model Info, GetObjects, Project Info, Workplane, GetPhases, CommitChanges

Grouped Objects

Phases, Hierarchic Objects, Tasks

Model Objects

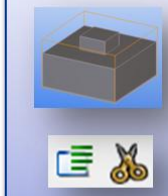
Assemblies, Parts, Bolts, Rebar, Welds, Grids, Reference Models and Objects, Surfacing, Cuts, Loads

Connections, Details, Seams, Custom Parts, Plugins

Operations

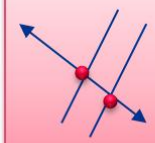
Run Macros, Move/Copy, Split, Combine, CNC, MIS, Web Model, Report, Check Numbering, Status Message

UI (User Interface)



Picker, Highlighter, GetSelected, Views, Clipping Planes, Object Rep, Graphics Drawer (text, lines)

Geometry



Planes, Intersections, Points, Coordinate Systems, Matrix

Solid

Part Faces, Edges

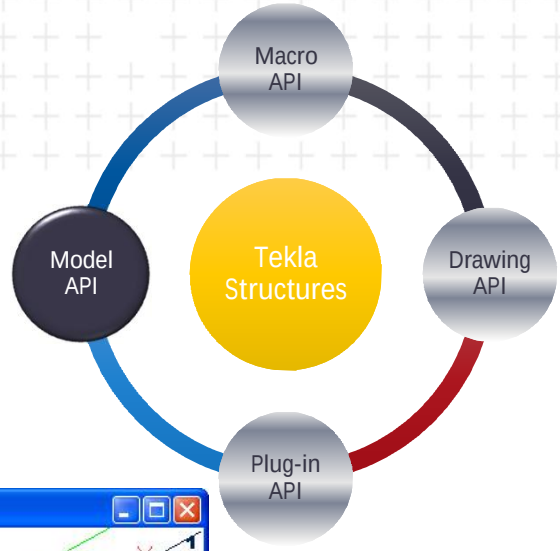
History

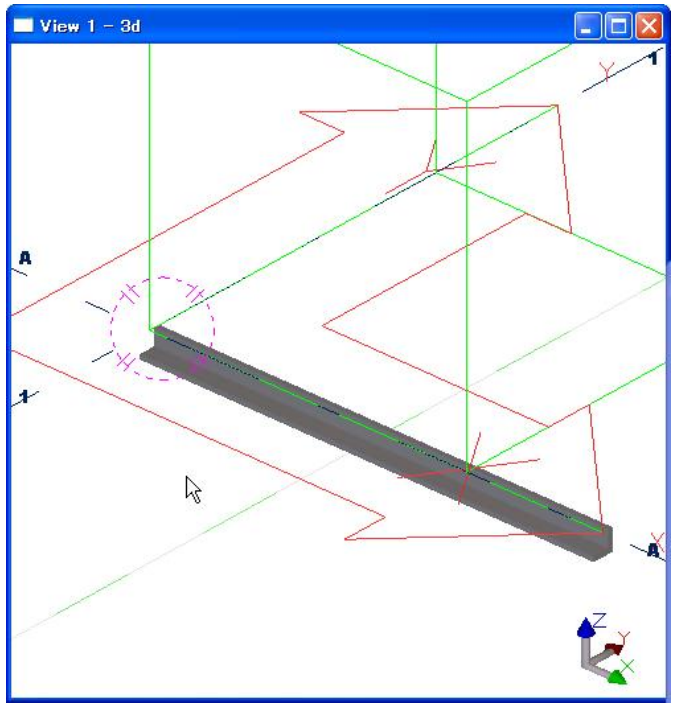
Events

Clash Checking

Model API – Sample program

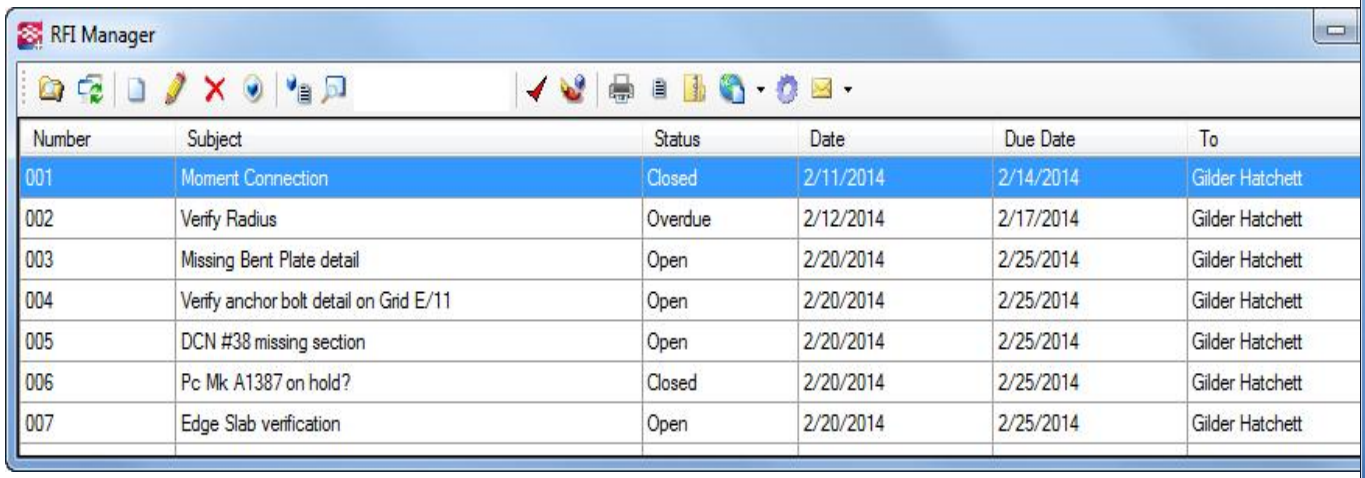
```
using System;
using Tekla.Structures.Model;
using Tekla.Structures.Geometry3d;
namespace ConsoleApplication1
{
 class Program
 {
  static void Main(string[] args)
  {
   Model myModel = new Model();
   Beam  myBeam = new Beam();
   myBeam.StartPoint = new Point( 0.0, 0.0, 0.0);
   myBeam.EndPoint   = new Point( 1000.0, 0.0, 0.0);
   myBeam.Profile.ProfileString = "L45*45*9";
   myBeam.Insert();
   myModel.CommitChanges();
  }
 }
}
```

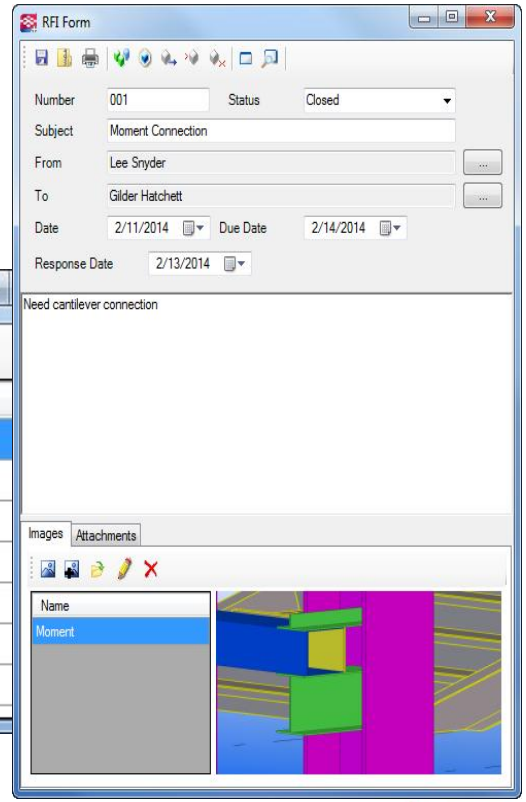




RFI Manager

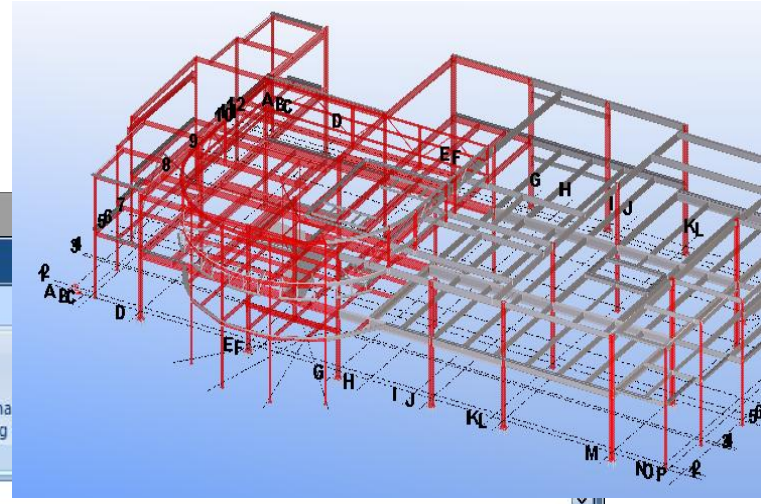
- Manage RFI's and link them with the model.
  - Link to IFC reference model objects as well as native objects
  - Colorize model based of RFI status
  - Automatically check for overdue status
  - Publish to HTML or FTP site or zip up and email





Construction Sequencer

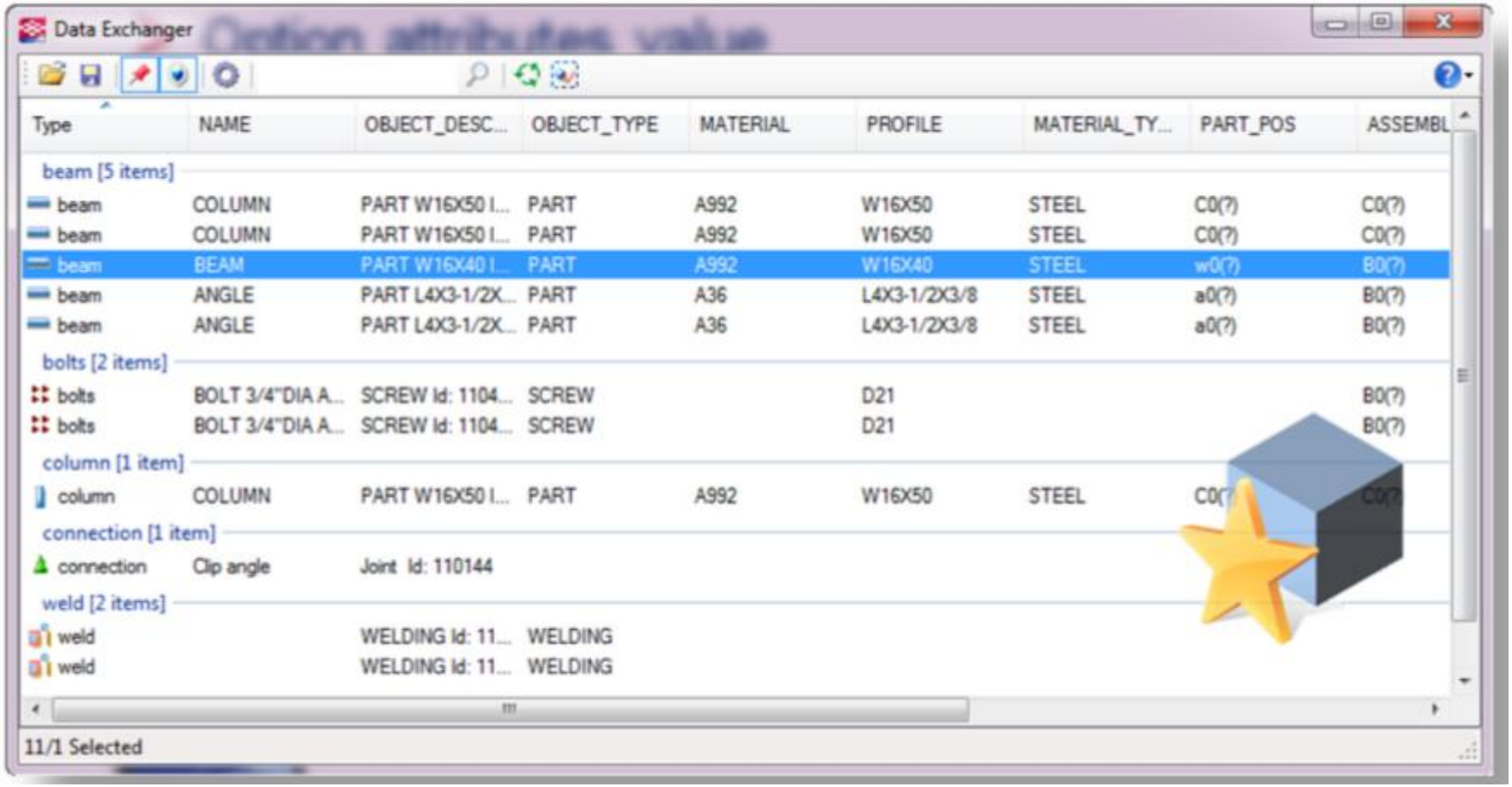
- Define erection order
- Create reports and animations



Excel Report.xlsx - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J
1	Name	Phase	Order	AssemblyMark	Profile	TotalWeight	MaximumOverallL	GlobalCenterOfGravity	ElevationTop	NearestGridLocati
2	COLUMN	41	1	C1	W8X28	936.51	30'5"3/4	(-0"1/4, 30'8"1/16, 13'8"9/16)	29'3"3/4	A/5
3	COLUMN	41	2	C2	W8X28	955.16	31'2"	(-0"1/4, 63'4", 14'0"7/16)	30'0"	A/8
4	COLUMN	41	3	C3	W8X24	767.46	30'2"3/16	(4'0", 16'8", 13'1"1/2)	29'0"3/16	B/-3
5	COLUMN	41	4	C4	W8X24	783.81	30'10"3/8	(4'0", 77'4", 13'5"9/16)	29'8"3/8	B/9
6	COLUMN	41	5	C6	PIPE8STD	874.78	30'6"1/2	(6'0"1/16, 91'11"15/16, 13'7"9/16)	29'4"1/2	C/-
7	COLUMN	41	6	C5	PIPE8STD	856.94	29'10"1/2	(6'0"1/16, 2'0"1/16, 13'3"9/16)	28'8"1/2	C/2
8	COLUMN	41	7	C7	W12X79	2899.31	30'6"	(20'8"1/16, 0', 11'7"3/16)	28'8"	D/1
9	COLUMN	41	8	C8	W12X79	2887.62	30'5"3/4	(20'7"15/16, 30'8", 12'2"13/16)	29'3"3/4	D/5
10	COLUMN	41	9	C9	W12X79	3007.64	31'2"	(20'8", 63'4", 12'9"13/16)	30'0"	D/8
11	COLUMN	41	10	C10	W12X79	2852.67	31'2"	(20'8", 94'0", 11'7"1/2)	29'4"	D/11
12	COLUMN	57	11	C11	HSS8X8X1/4	291.07	9'9"3/8	(31'6"1/2, 10'6"1/4, 33'4"7/16)	38'8"	D-E/2-

Data Exchanger



Compare Objects

- Deep object comparison
- Compare and highlight