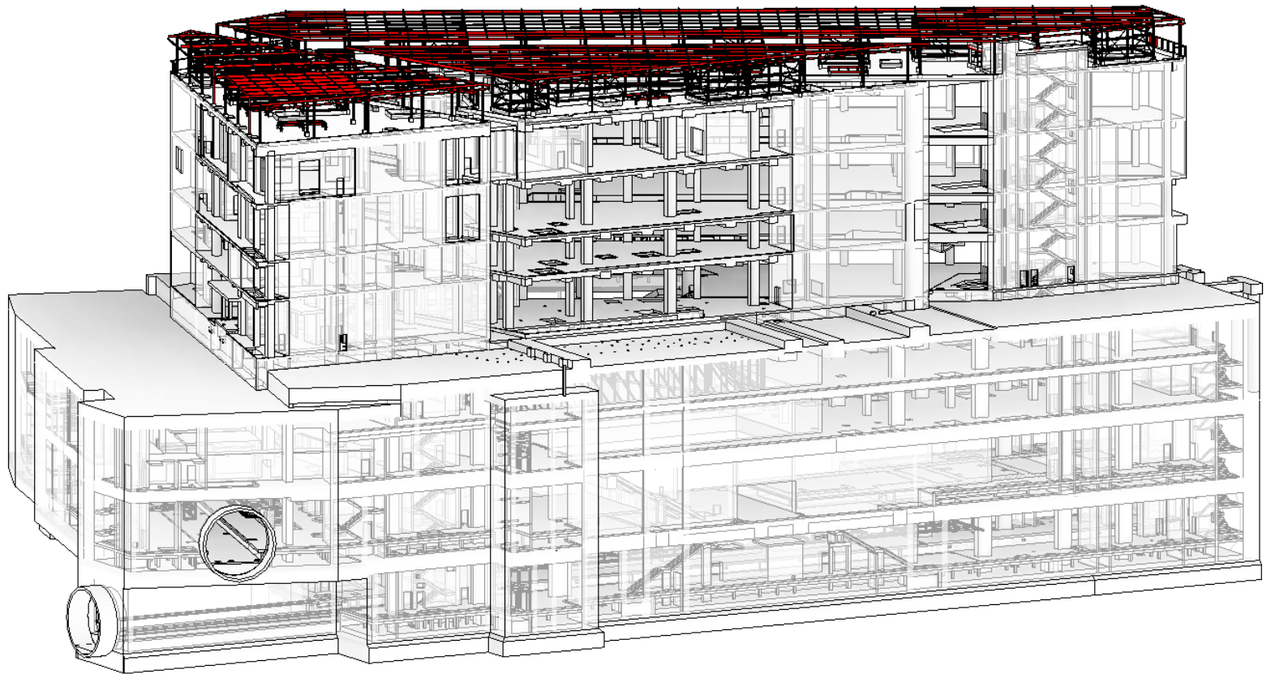
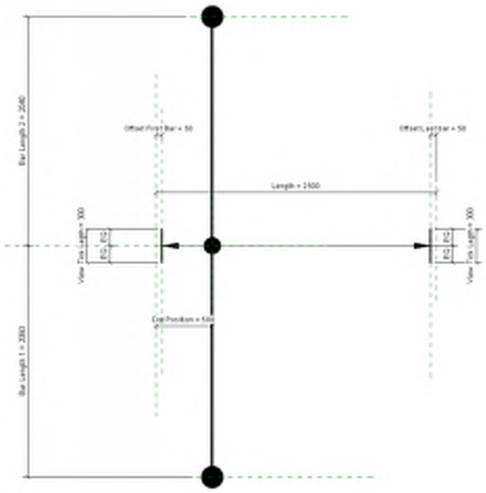
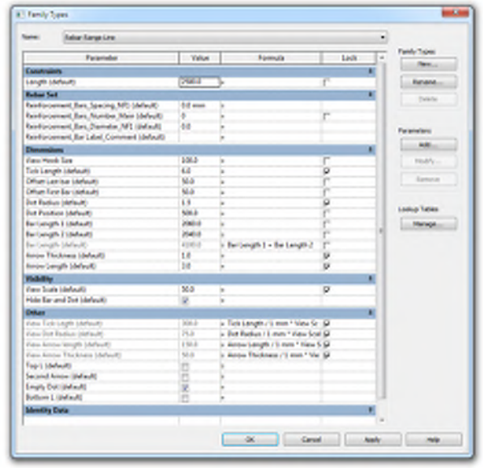
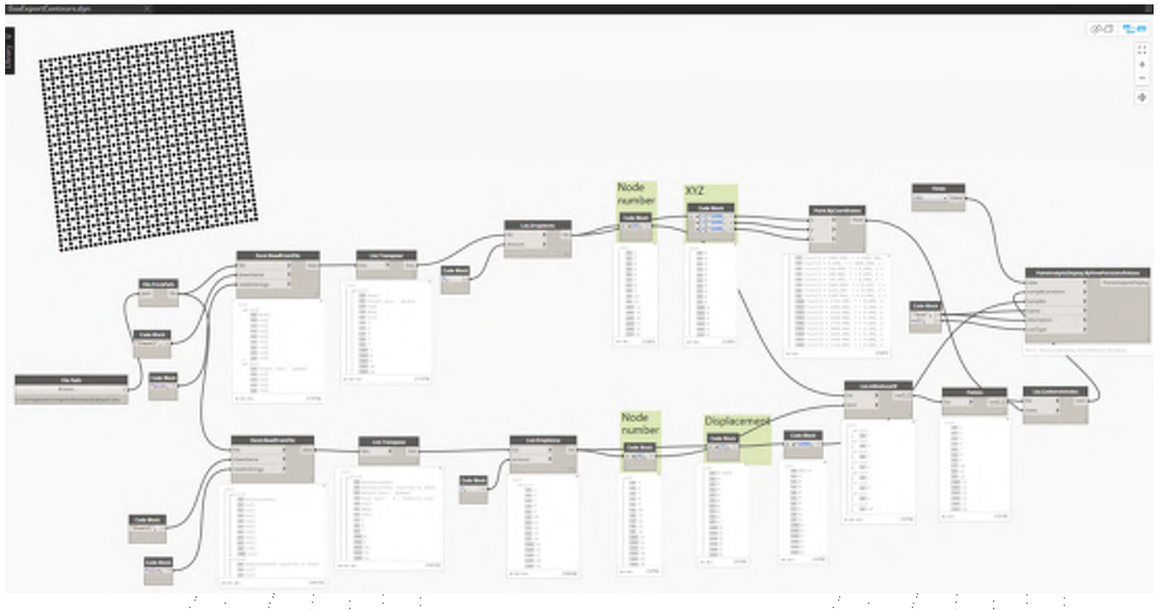
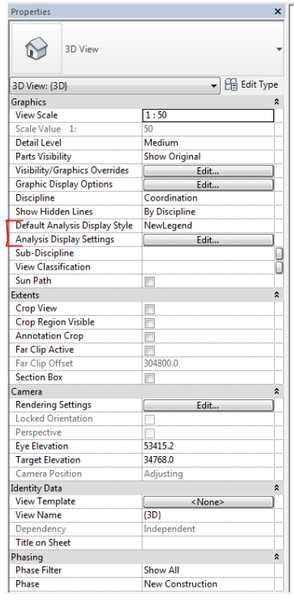
Portfolio Giovanni Brogiolo
Structural BIM Modeller

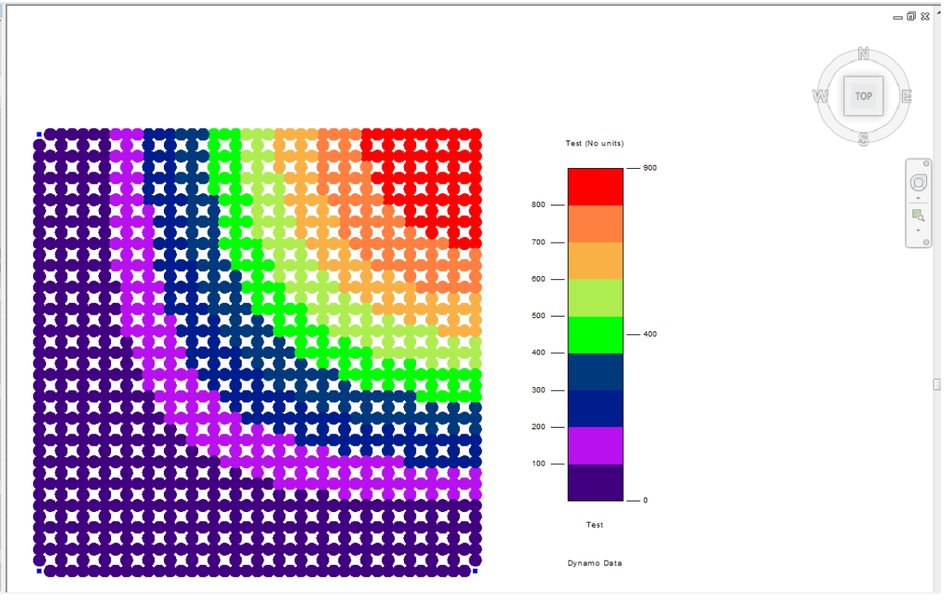






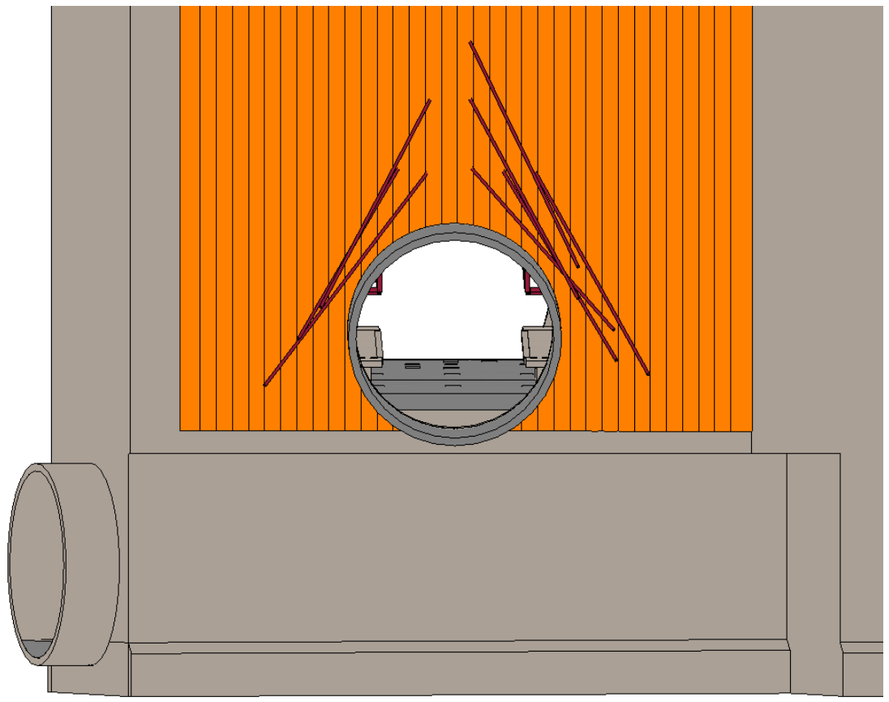


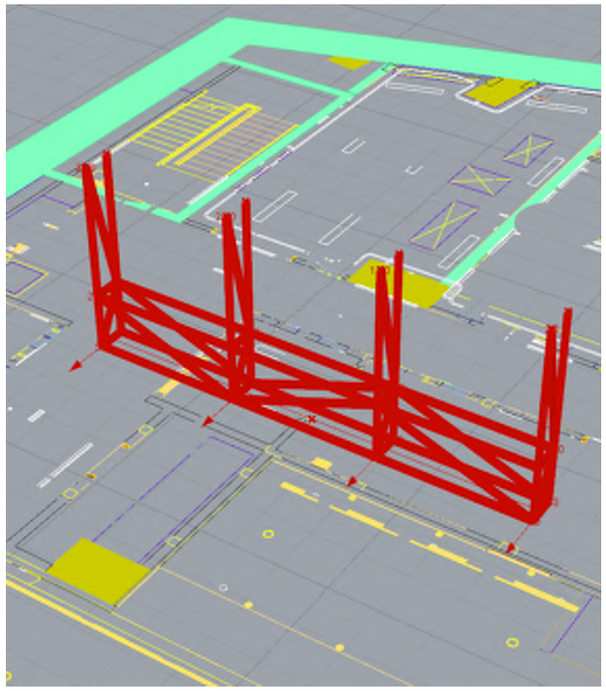


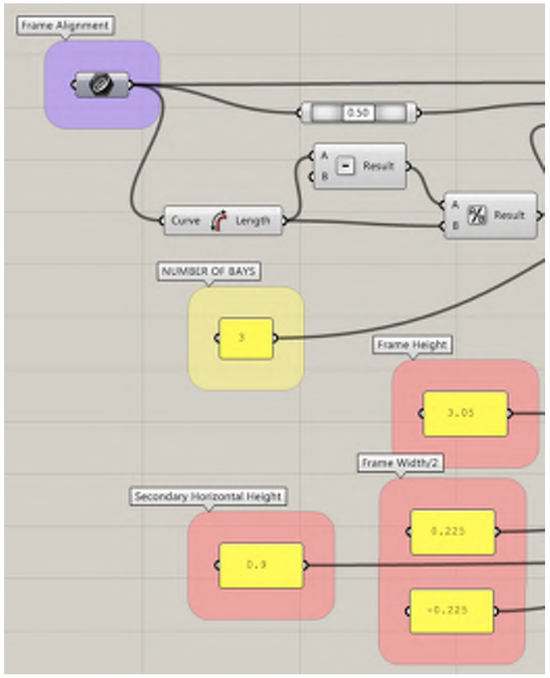


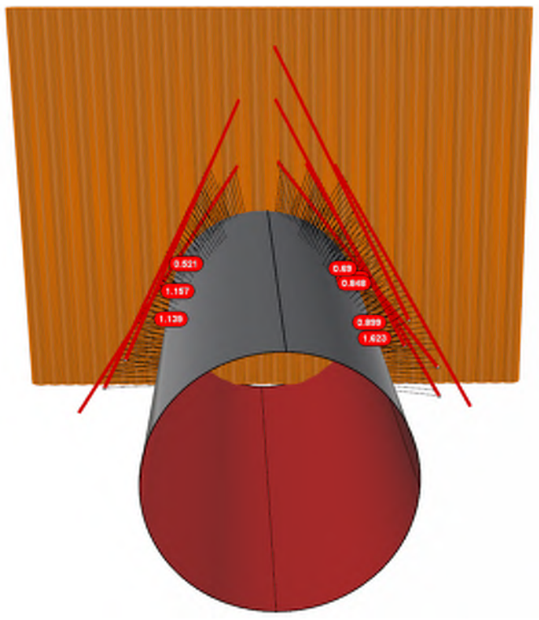
Project: Riyadh Metro - Interchange Station (2016-2017)

Key contributions:
- creation of several dynamo scripts to speed up the documentation process;
- new workflow to create RC drawings directly in Revit using bespoke RC families and tags.

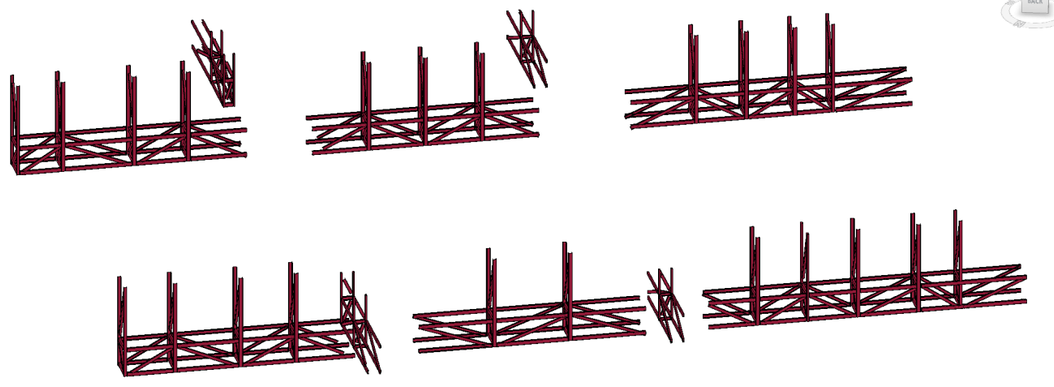






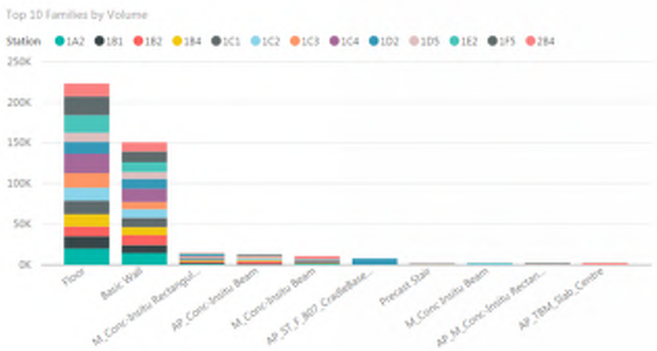



```python
import rhinoscriptsyntax as rs

surface_id = rs.GetObject("select surface", 8, True)

curve_id = rs.GetObject("select curve", 4)

points = rs.DivideCurve(curve_id, 50)

def evaluatedeviation(surface_id, threshold, sample):
    r2point = rs.SurfaceClosestPoint(surface_id, sample)
    r3point = rs.EvaluateSurface(surface_id, r2point[0], r2point[1])
    deviation = rs.Distance(r3point, sample)
    if deviation >= threshold: return
    rs.AddPoint(sample)
    rs.AddLine(sample, r3point)

for point in points: evaluatedeviation(surface_id, 3, point)
```

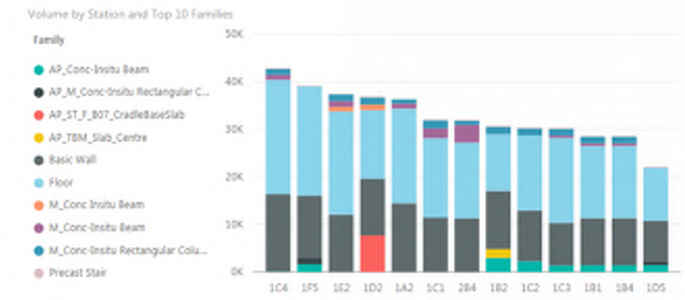


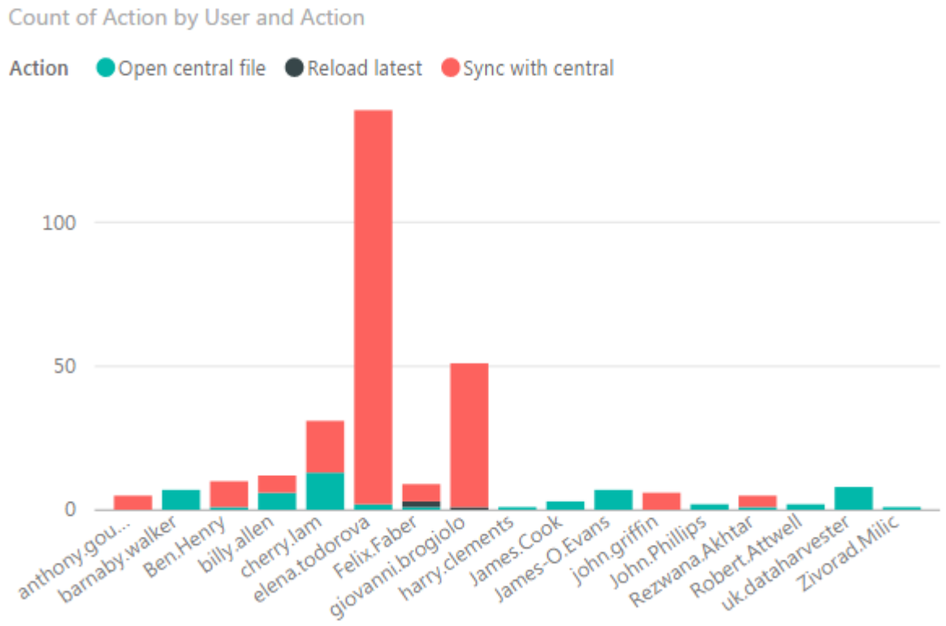
Project: Riyadh Metro - Interchange Station (2016-2017)

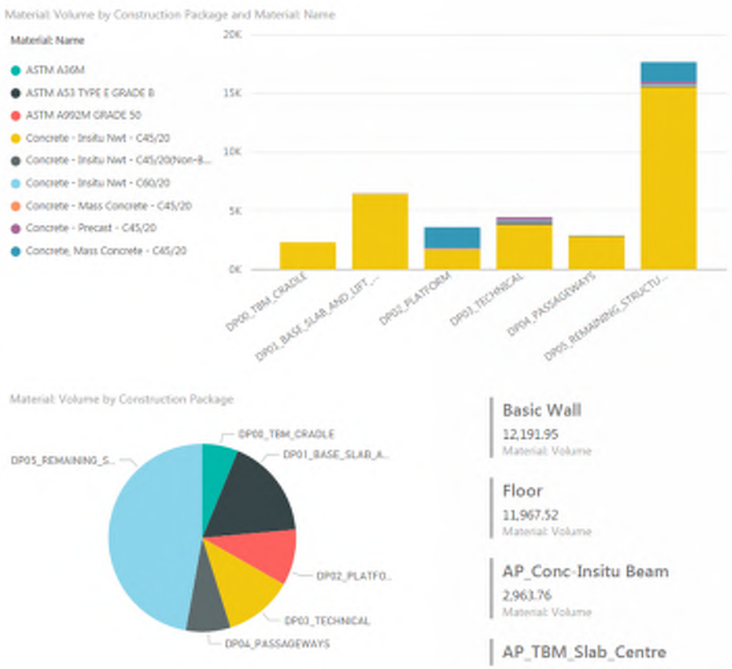
Key contributions:
- 3d modelling of the retaining wall anchors in Revit and export to Rhino to check the minimum distance through a python script.
- Grasshopper script to generate bulkhead framings with different number of bays, width and height to be imported via IFC in Revit using Geometry Gym.

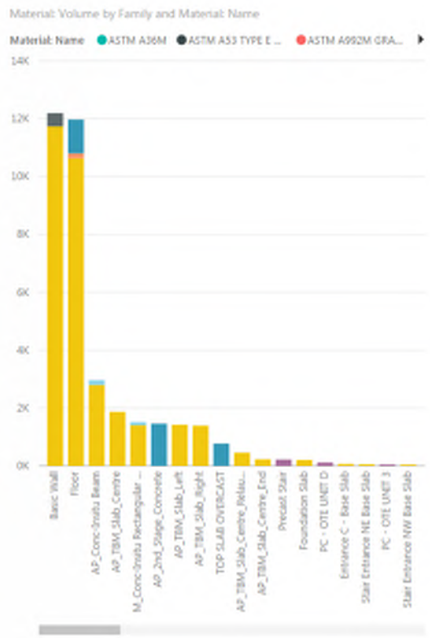


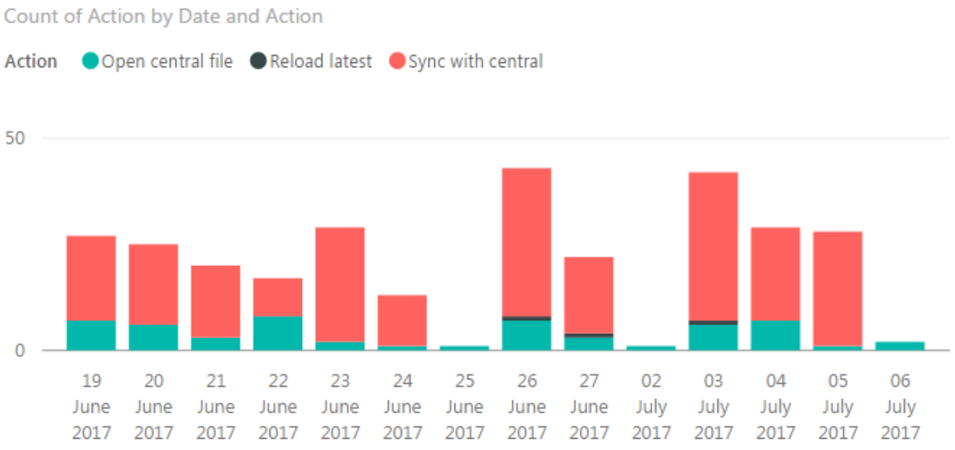
1C4 Station	24,038.05 Material: Volume	Floor Family	222 Count of Family
1F5 Station	23,018.30 Material: Volume	Floor Family	198 Count of Family
1E2 Station	21,705.47 Material: Volume	Floor Family	207 Count of Family
1A2 Station	19,953.20 Material: Volume	Floor Family	241 Count of Family
1C3 Station	17,887.51 Material: Volume	Floor Family	281 Count of Family
1C1 Station	16,729.26 Material: Volume	Floor Family	271 Count of Family

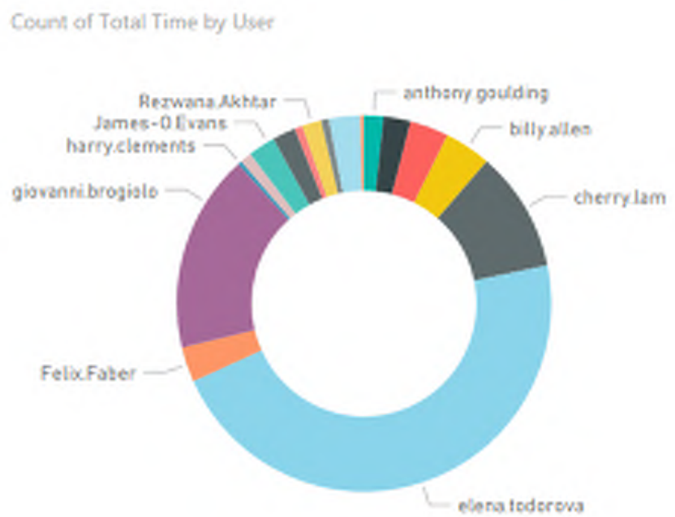






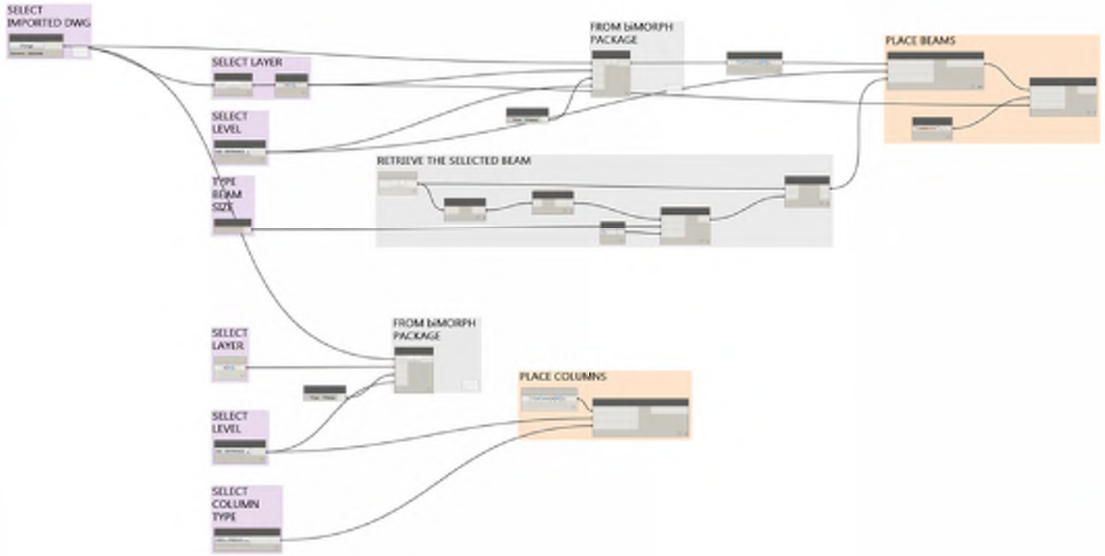


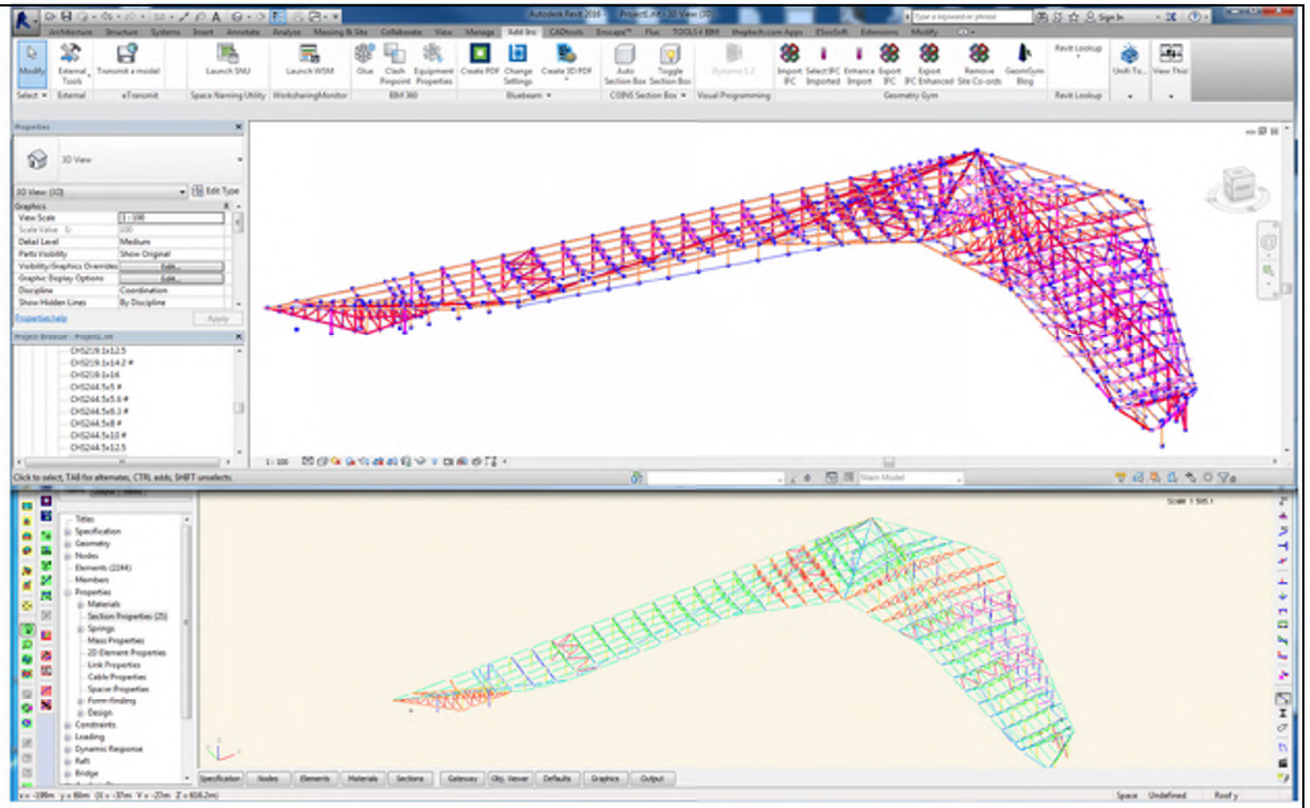


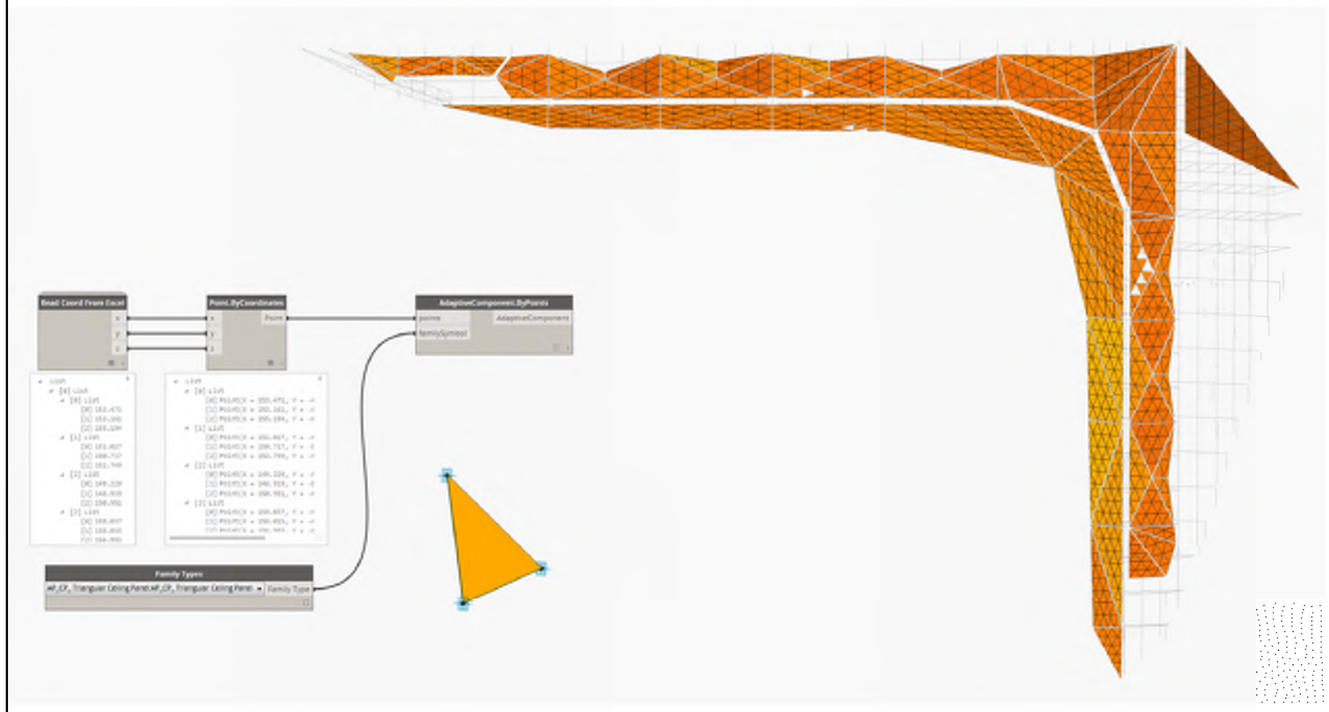


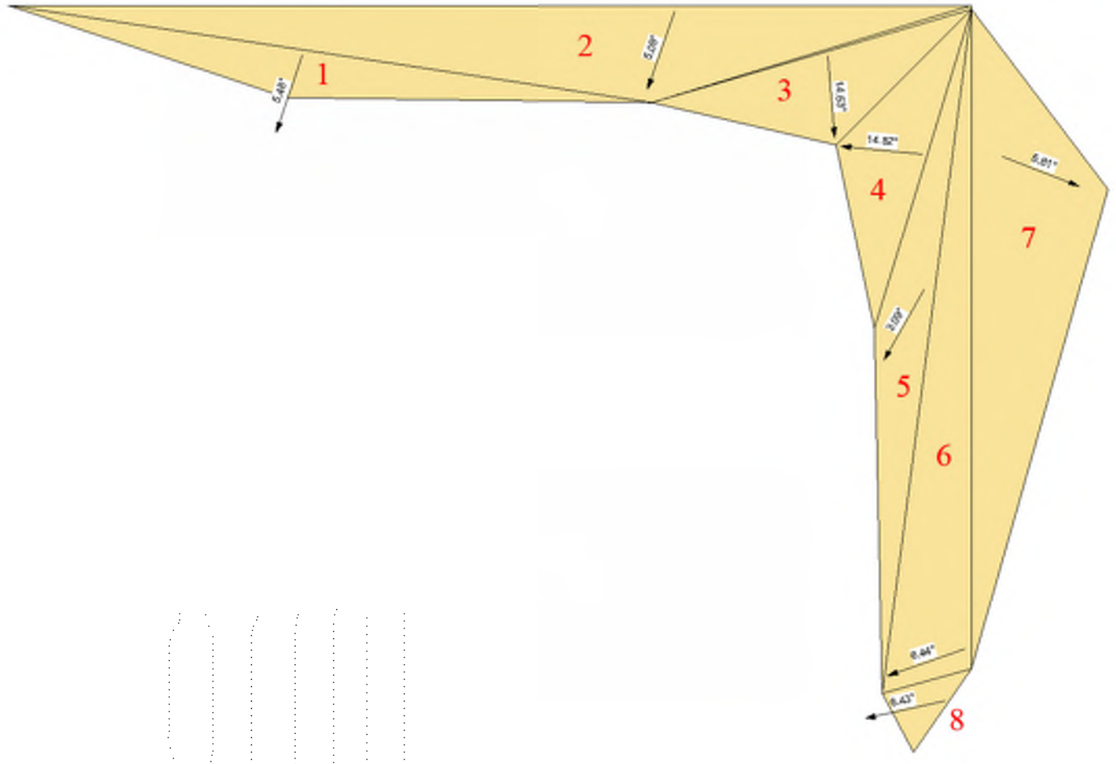
Project: Riyadh Metro - Interchange Station (2016-2017)

Key contributions:
- Dynamic quantities report in PowerBI of the 15 stations from Revit schedules.
- Revit model changes and updates tracker.



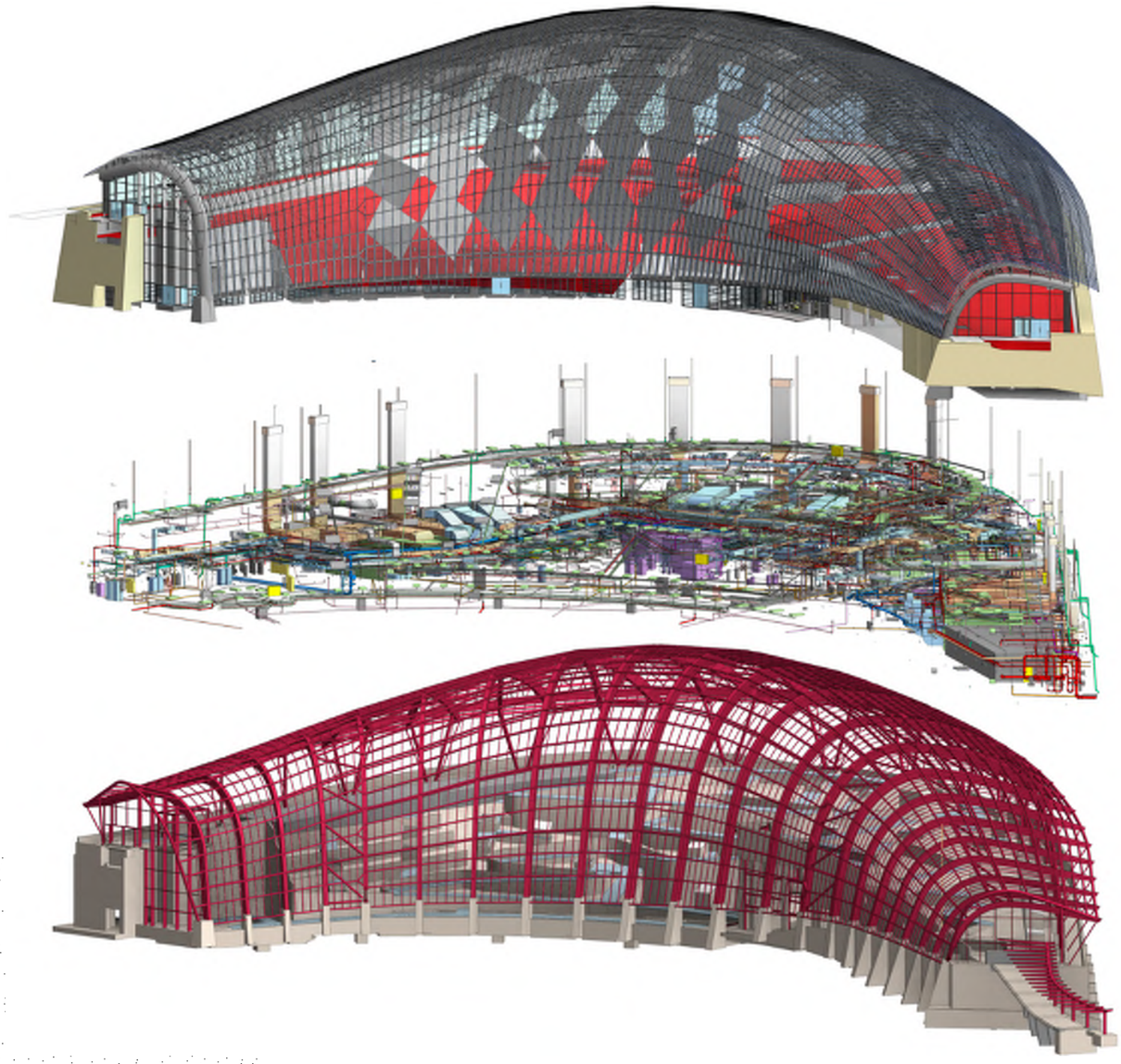


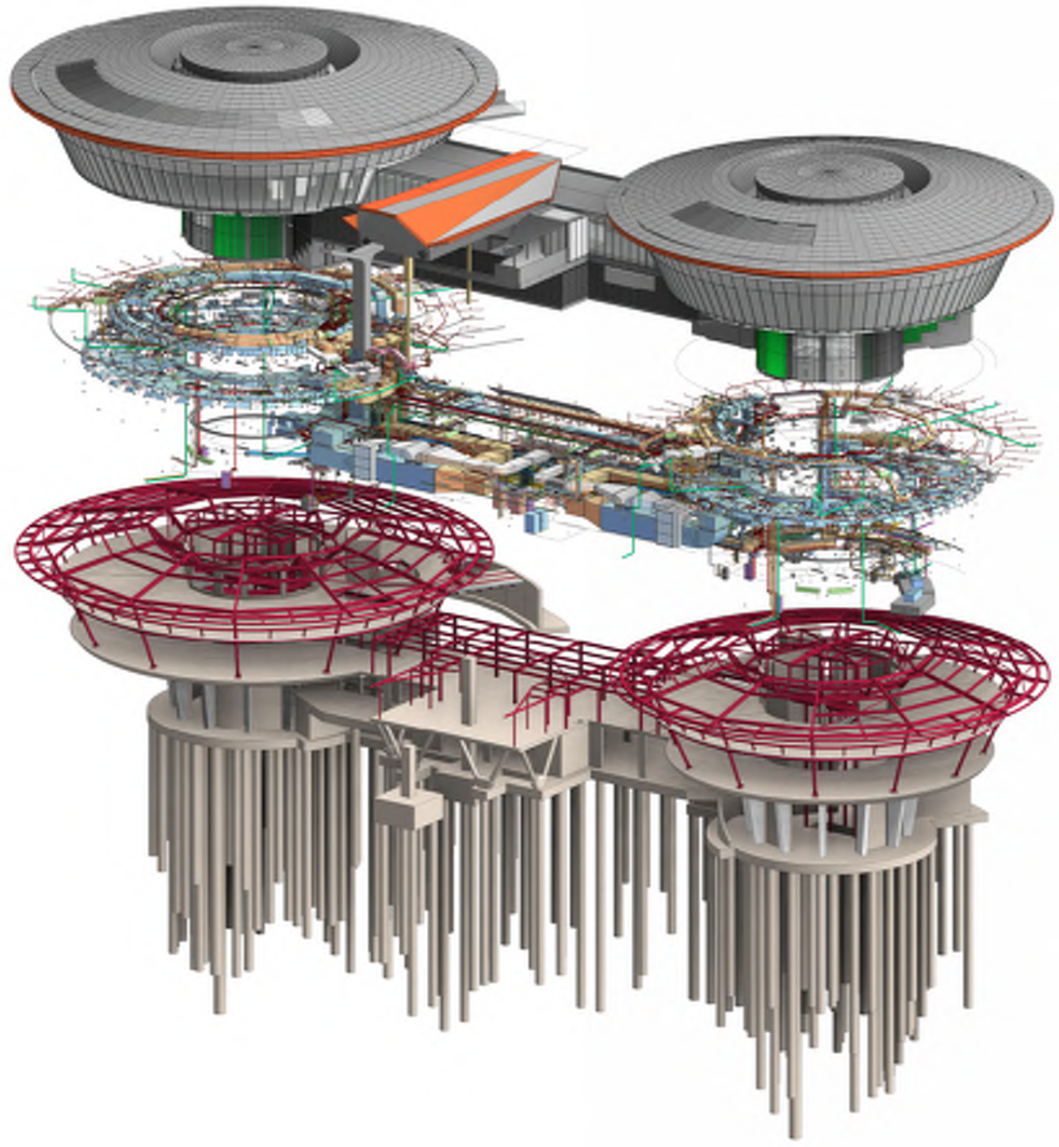




Project: Riyadh Metro - Interchange Station (2016-2017)

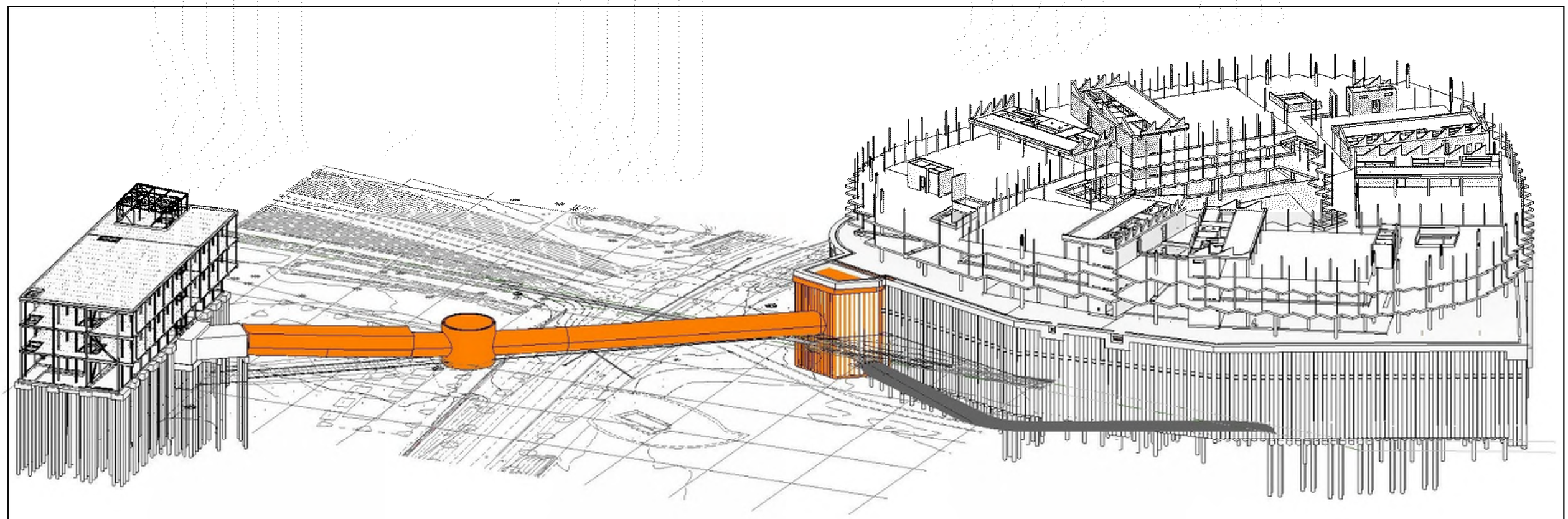
Key contributions:
- generation of the roof structure from the Architects Rhino model and creation of a dynamo script to convert dwg lines into structural framing and columns;
- dynamo script to place ceiling panels (adaptive component family) by points.

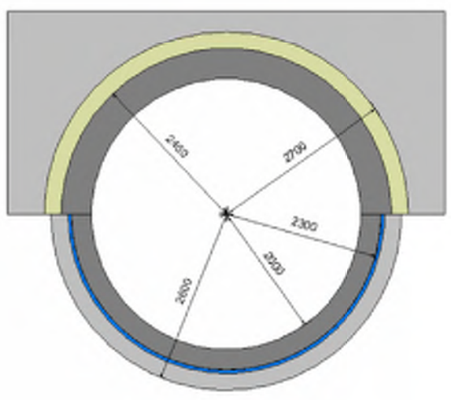




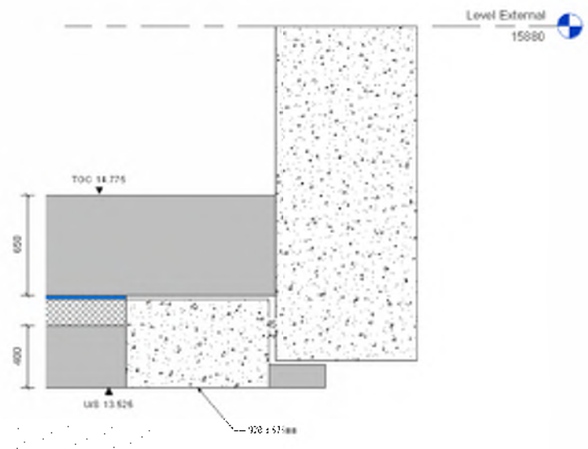
Project: Botanic Garden (2014-2015)

Key contributions:
- generation of the biome structure from the Architects Rhino model;
- creation of a grasshopper script to export the model as IFC to be imported in Revit.

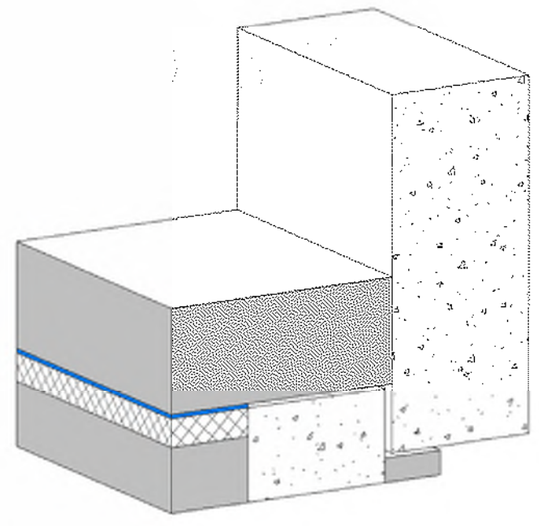




2 Section PCC Rings
1 : 50

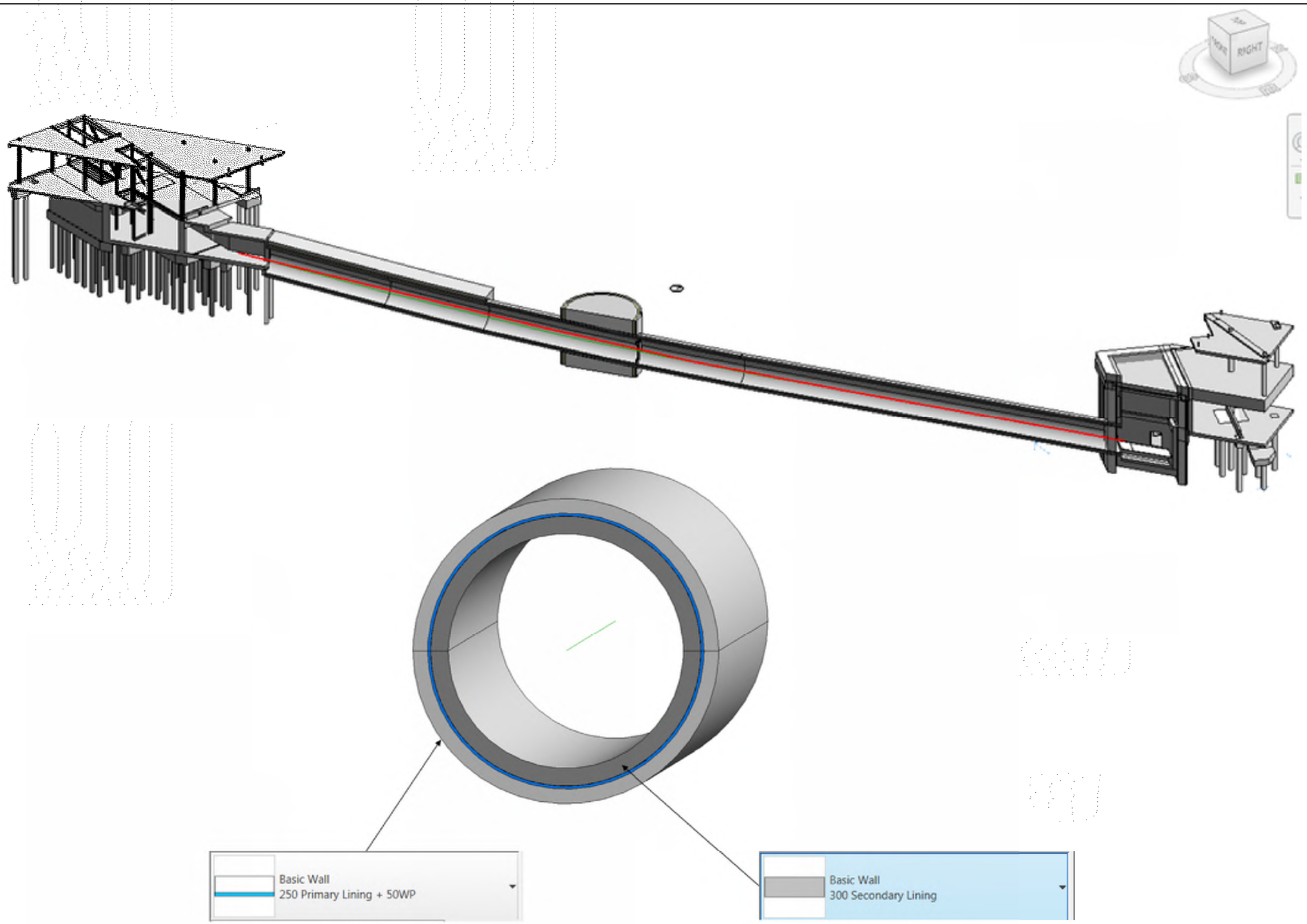


A Section A
1 : 20



Project: Cambridge AZ Tunnel (2015-2016)

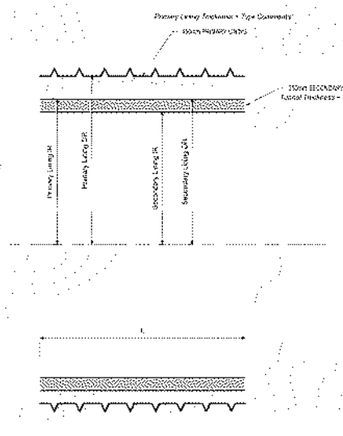
Key contributions:
- tunnel and shaft modelling in Revit with model in place geometry and bespoke families;
- coordination with the Architects model through Navisworks.

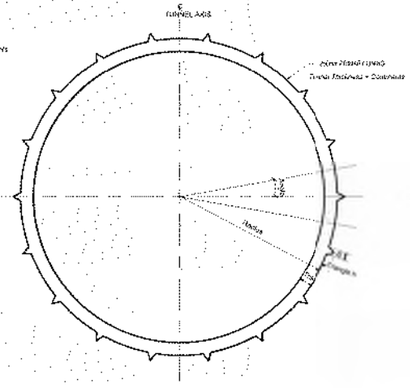


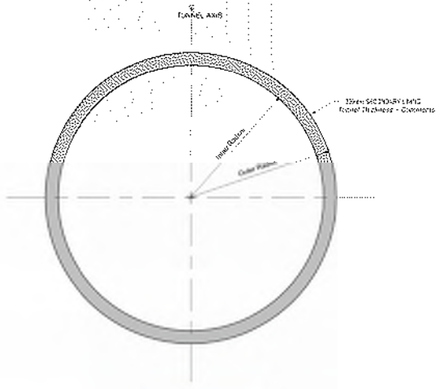
Project: Cambridge AZ Tunnel (2015-2016)

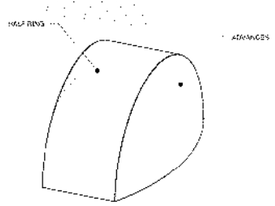
Key contributions:
- creation of standard families and tags;
- link between Autodesk Civil 3D and Revit.

A1

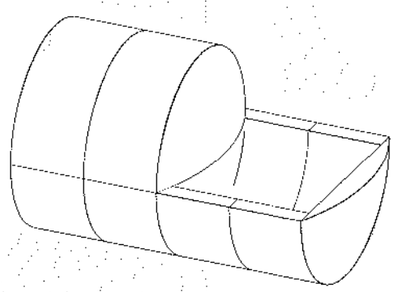




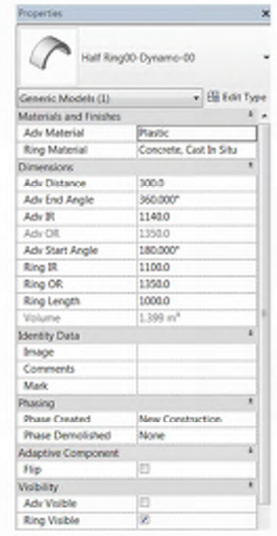




1 RING SEGMENTS



2 RING SEGMENTS REPEATED



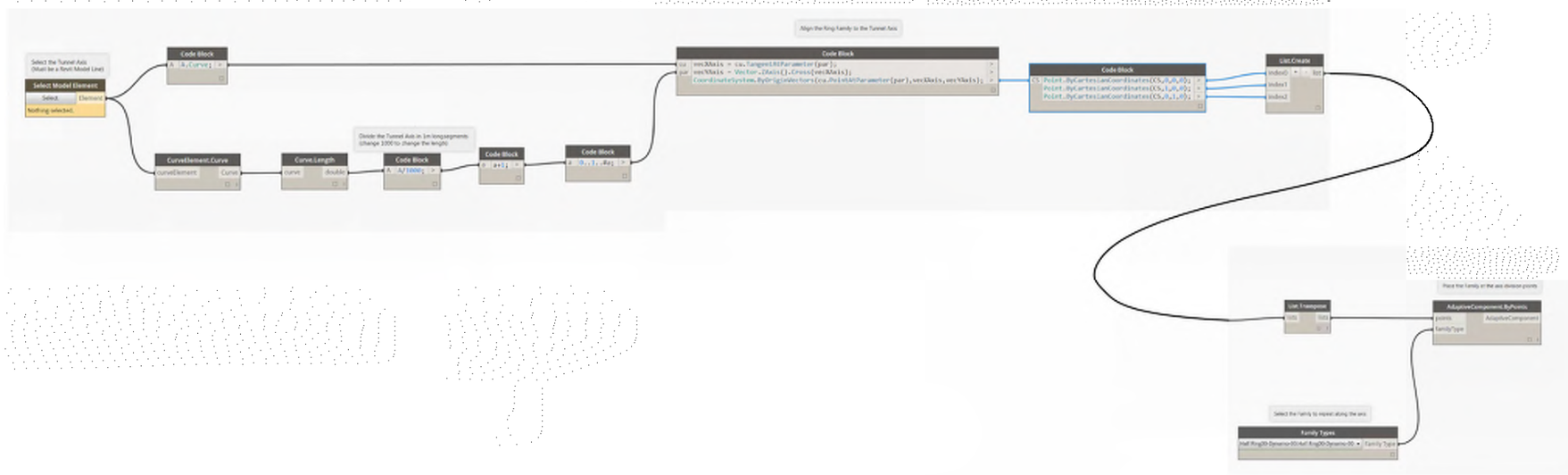
LONGITUSINAL SECTION

PRIMARY LINING - CROSS SECTION

SECONDARY LINING - CROSS SECTION

Place Rings Along Line.dyn

S:\DAL\London\Projects\04 MISC\REVIT\Examples

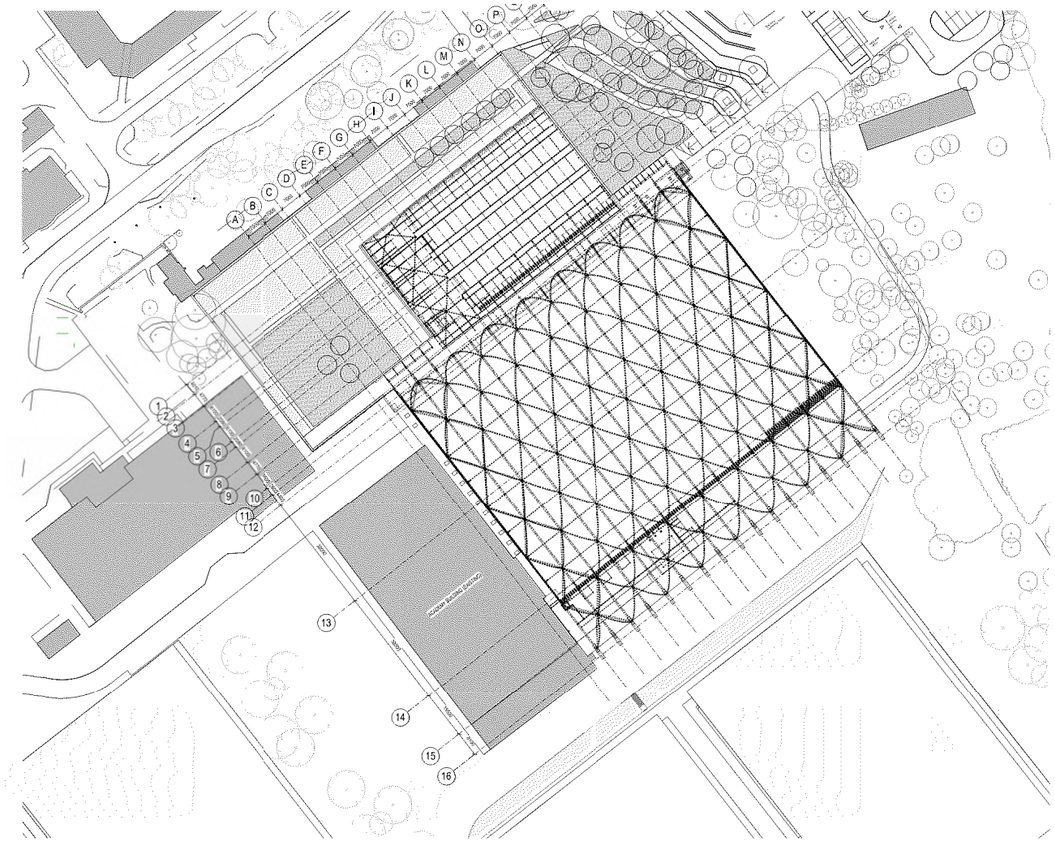


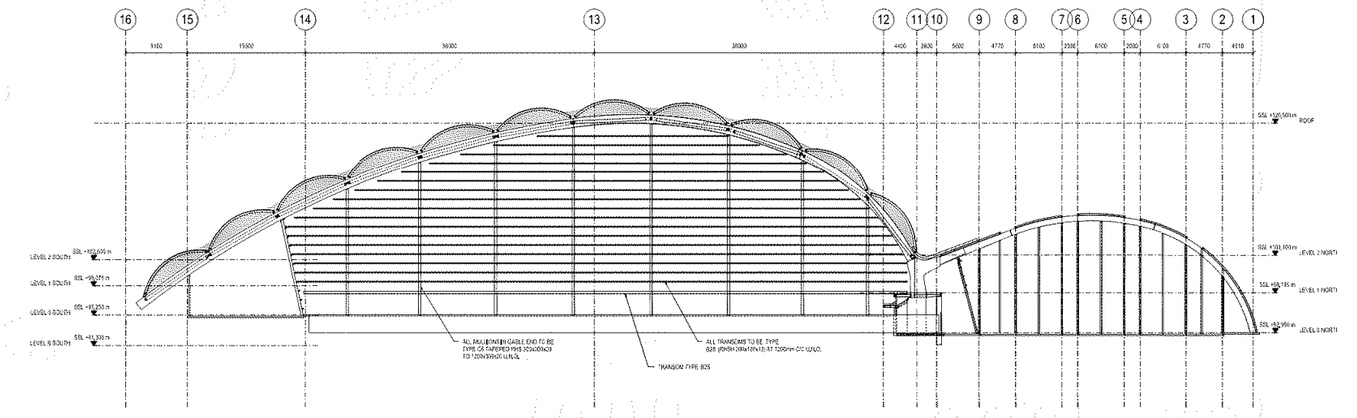
Project: Cambridge AZ Tunnel (2015-2016)

Key contributions:

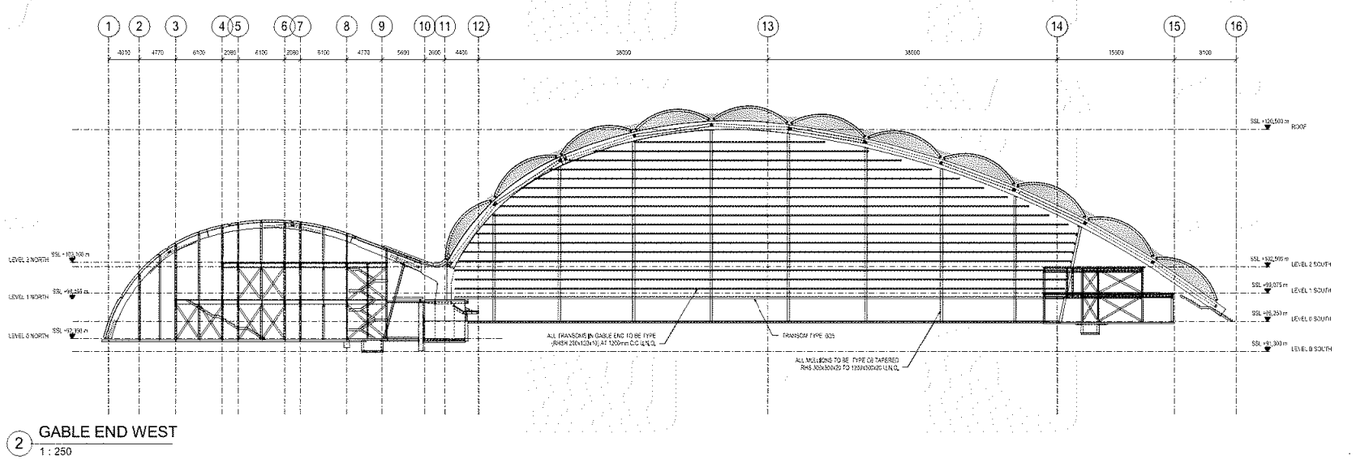
- creation of 2d typical details using Detail Items families and tags to speed up the drawing process;
- conversion of a library of Autocad 2d details into Revit families;
- dynamo script to create rings along tunnel axis;
- shaft model exported to Rhino to unroll the surfaces for RC drawings.

Do not scale

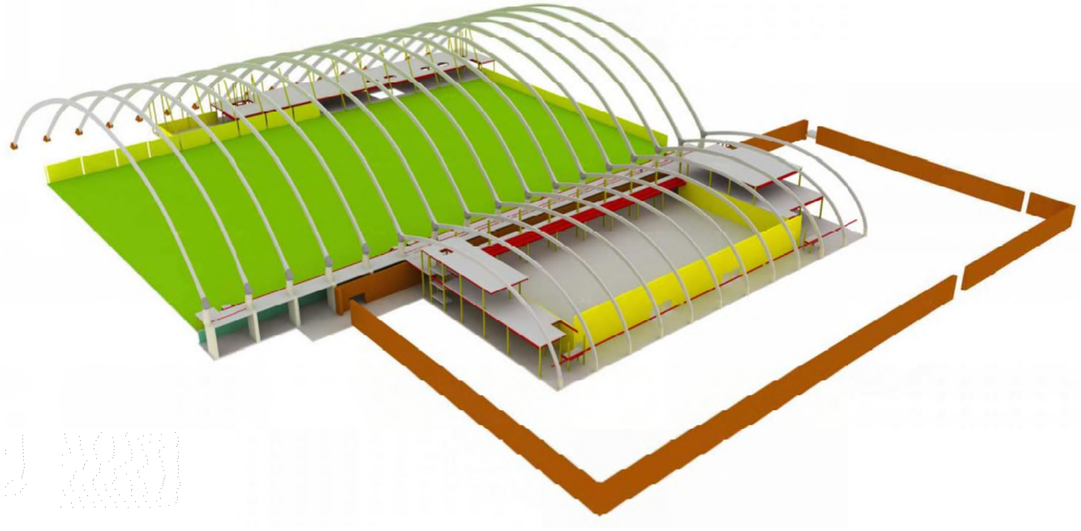


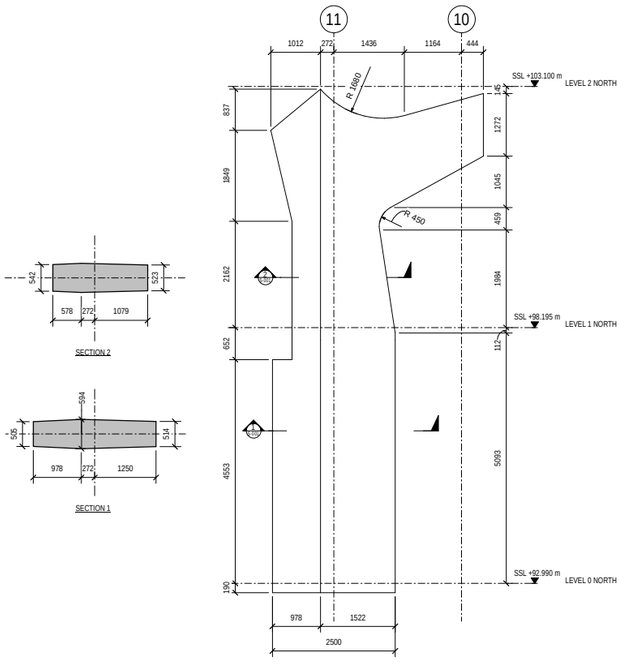


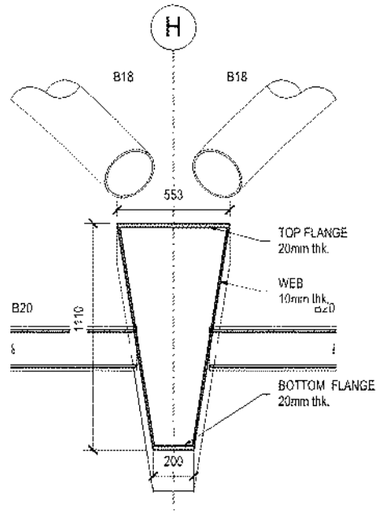
1 GABLE END EAST
1 : 250



2 GABLE END WEST
1 : 250

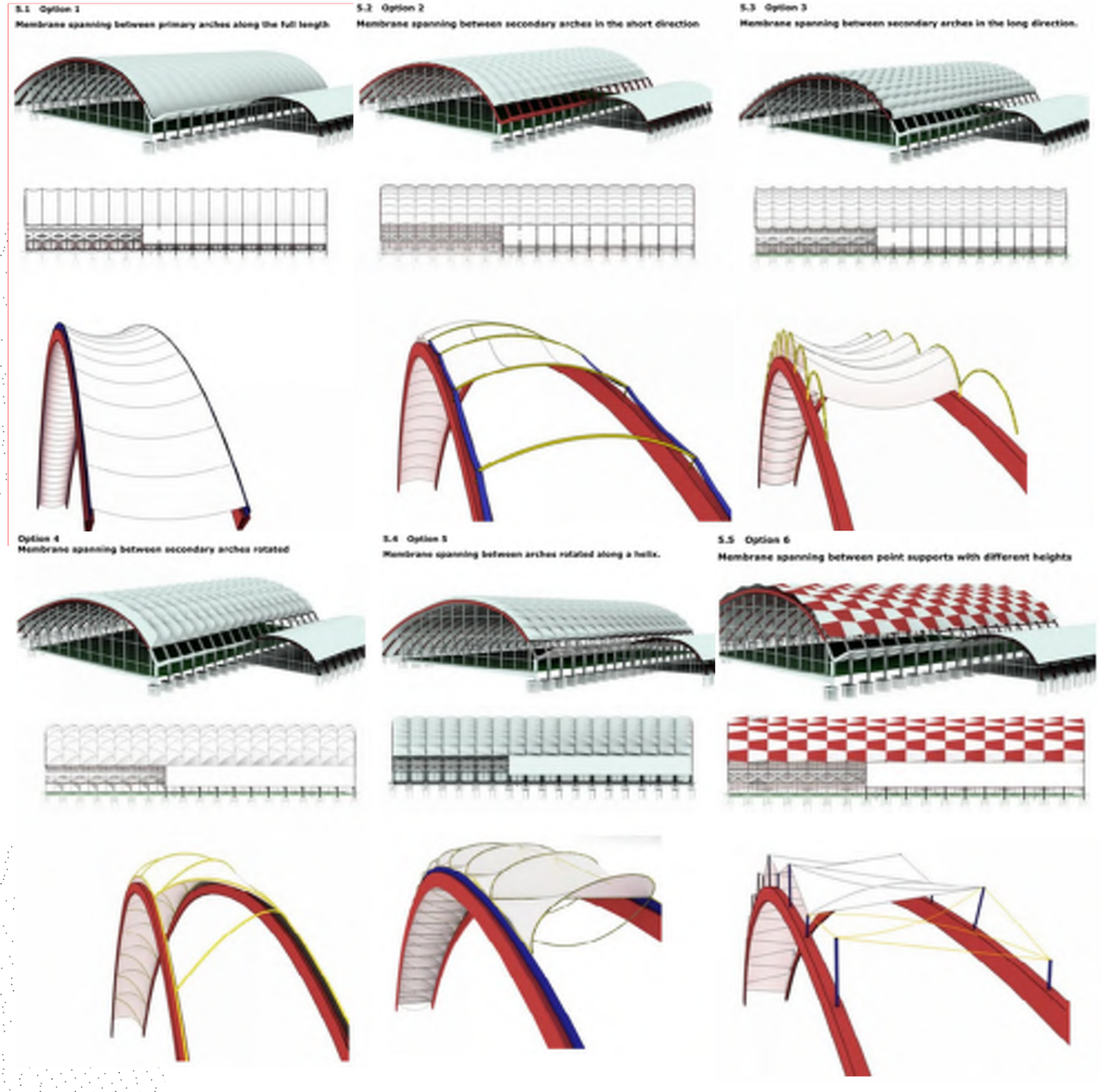






Project: National Performance Centre for Sport - Edinburgh (2014)

Key contributions:
- creation of trapezoidal framing beams family and pier walls;
- visualisation in Rhino and Sketchup;
- desktop study for the roof configuration.



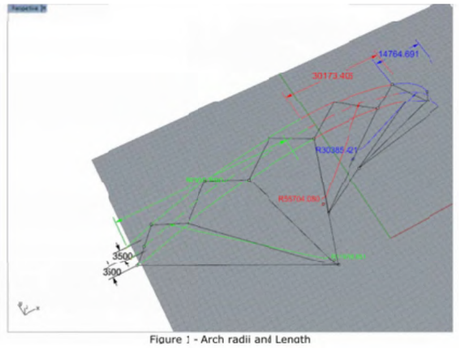


Figure 1 - Arch radii and Length

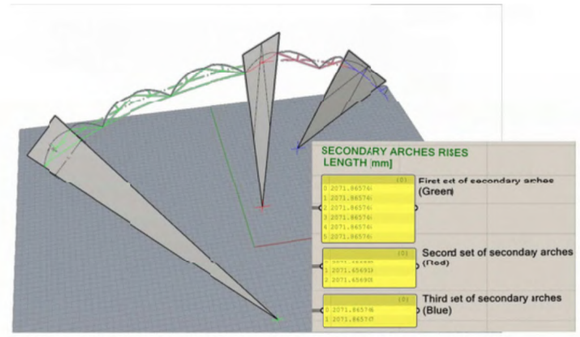


Figure 3 - Secondary arch generation. Rise is 1/6 of the linear distance (L) between start/end nodes. Secondary arches lay in the plane defined by middle arch origin and start/end nodes.

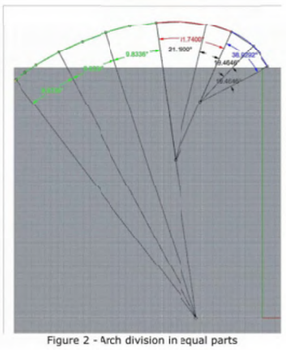
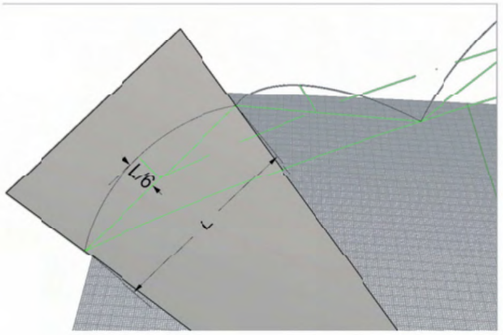
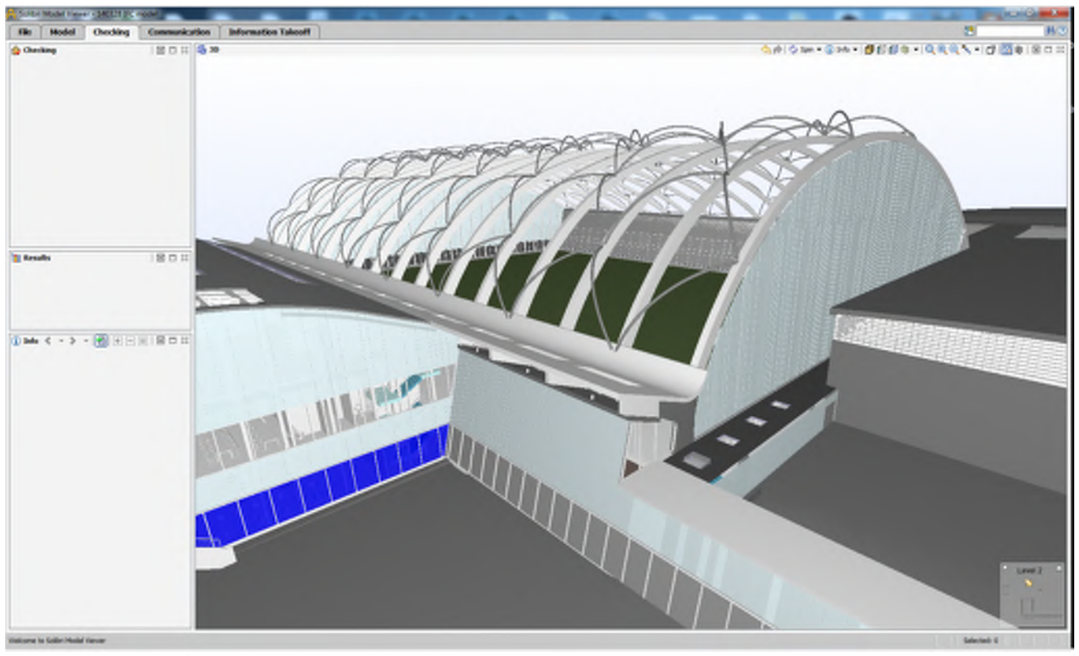


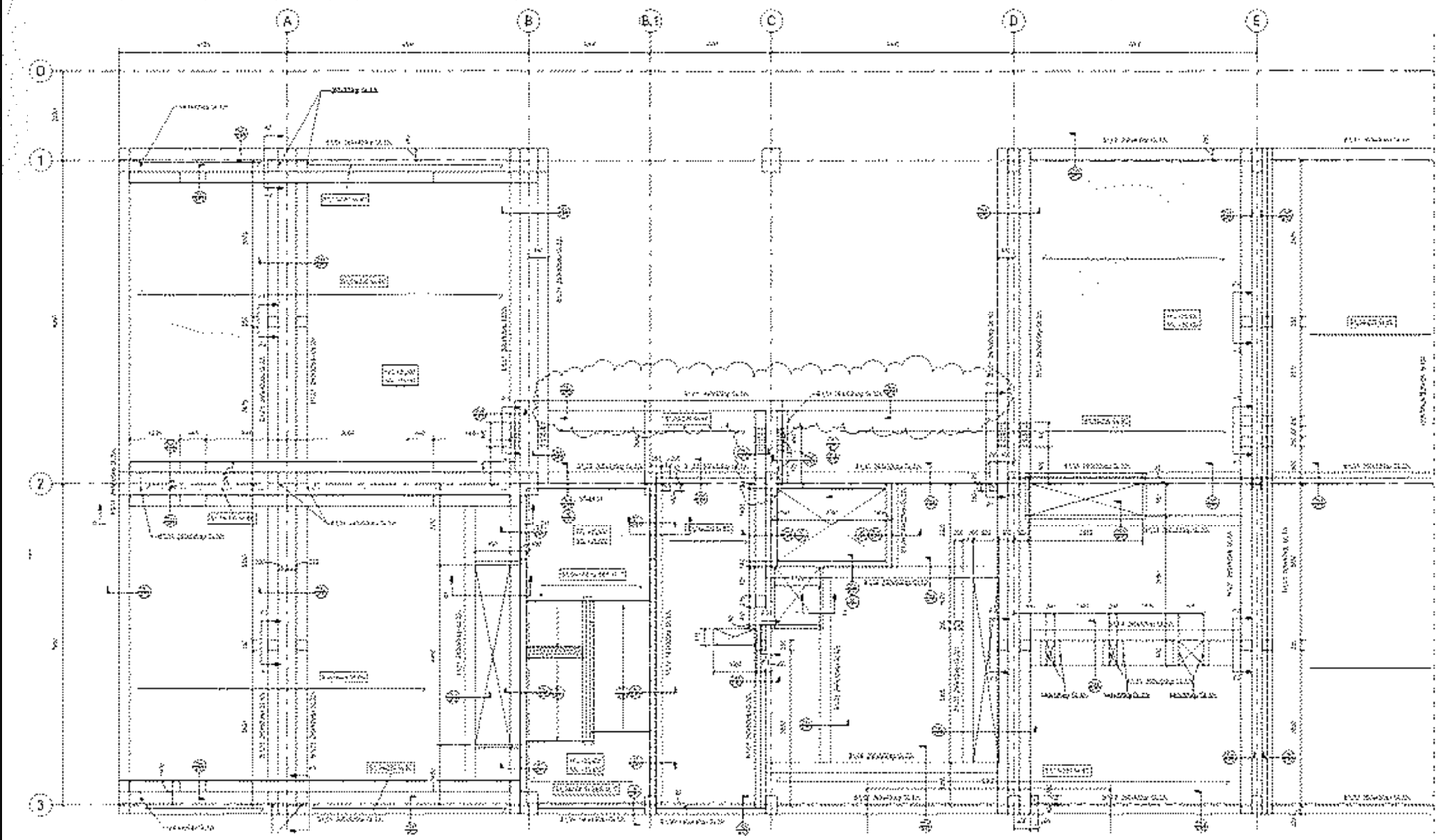
Figure 2 - Arch division in equal parts

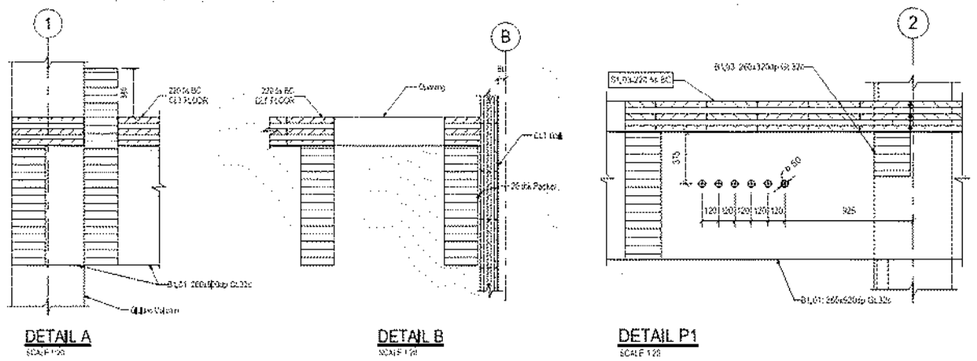


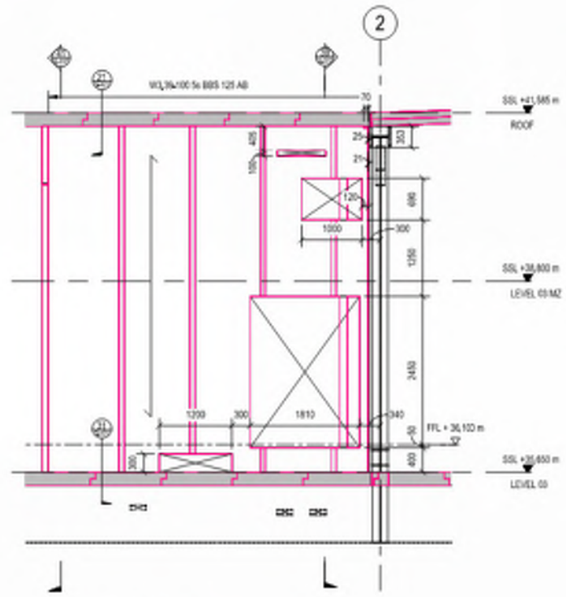


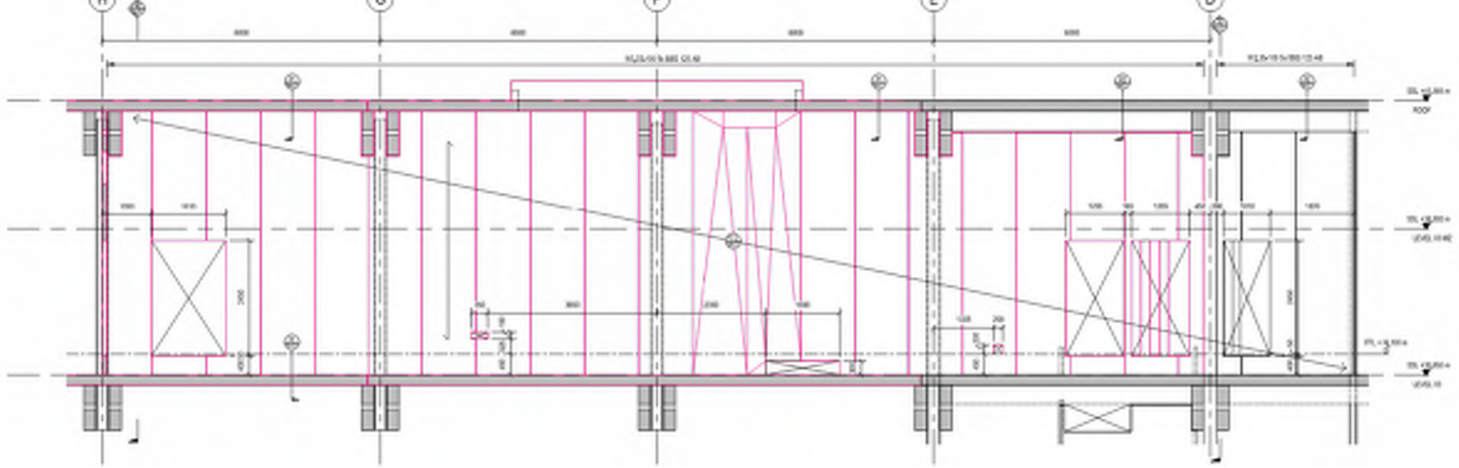
Project: National Performance Centre for Sport - Edinburgh (2014)

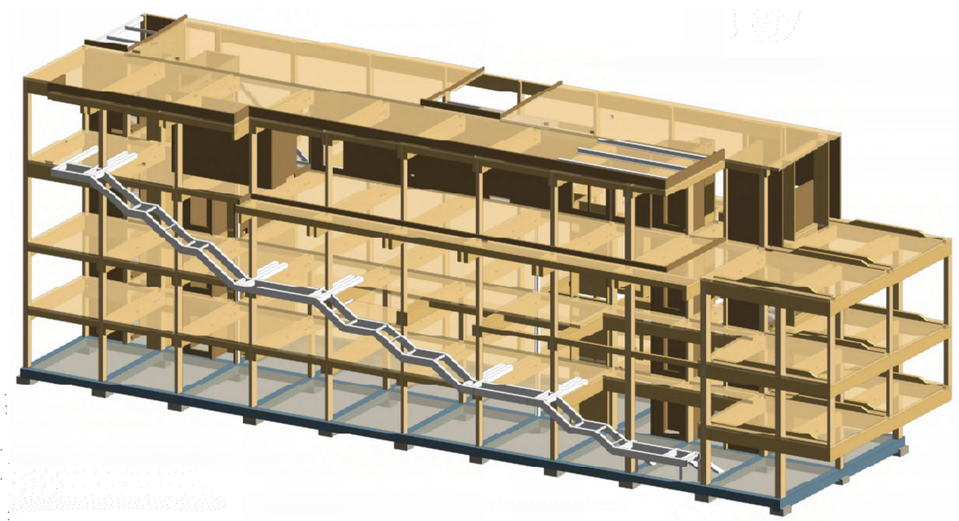
Key contributions:
- parametric model and rationalization of the roof geometry;
- optioneering studies;
- production of IFC models for coordination.





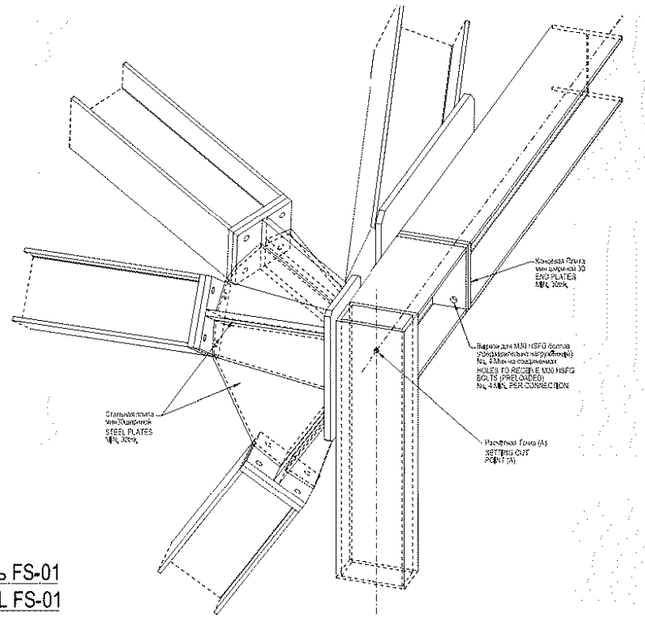




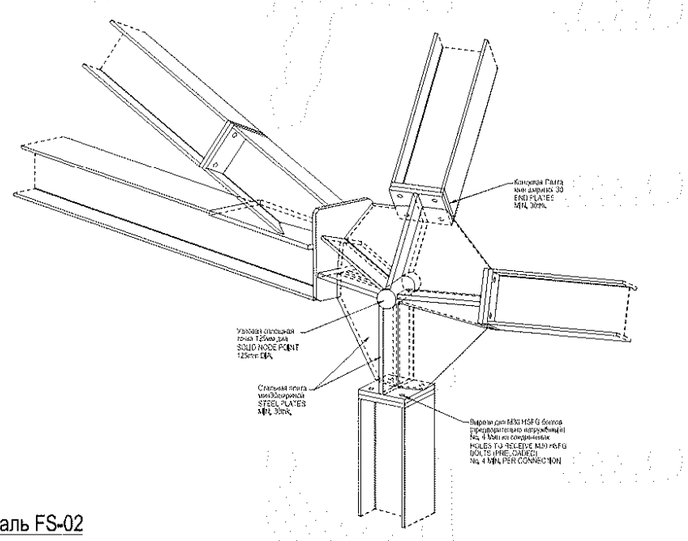


Project: BiBB Sky, London (2013)

Key contributions:
- creation of bespoke Revit families for CLT panels and Glulam beams;
- setup of a workflow to check construction drawings directly in Revit;
- production of IFC models for coordination with the timber manufacturer.



Деталь FS-01
DETAIL FS-01



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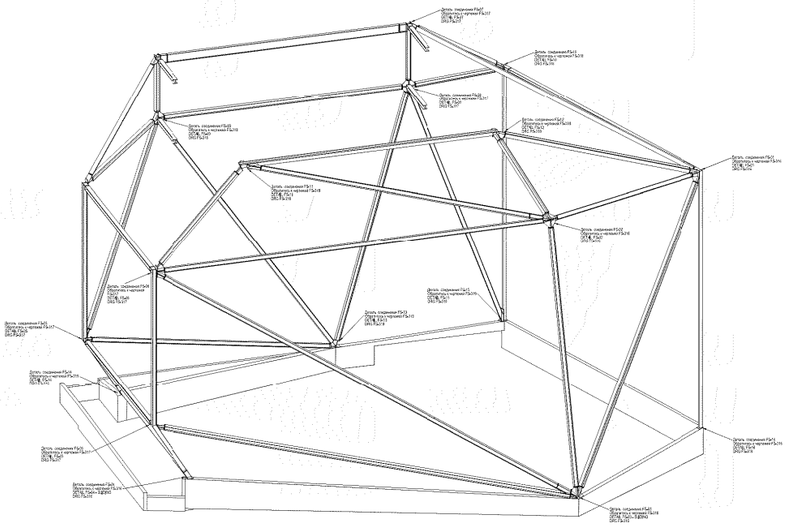

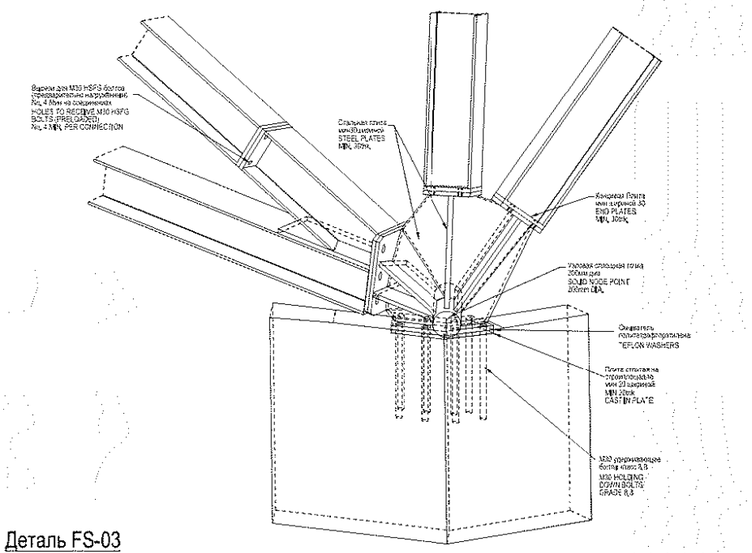

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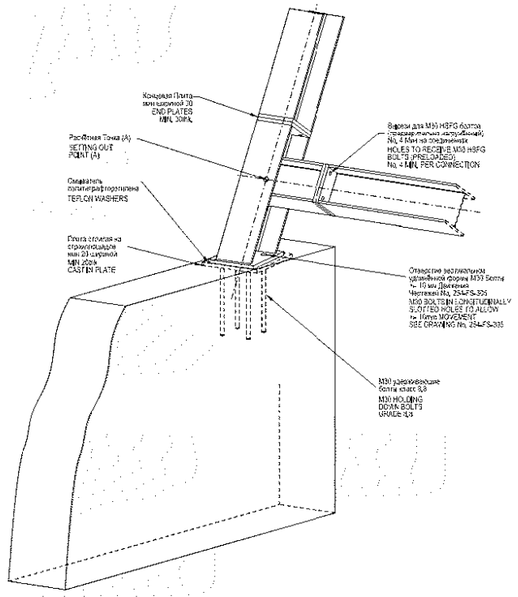
DETAIL FS-03



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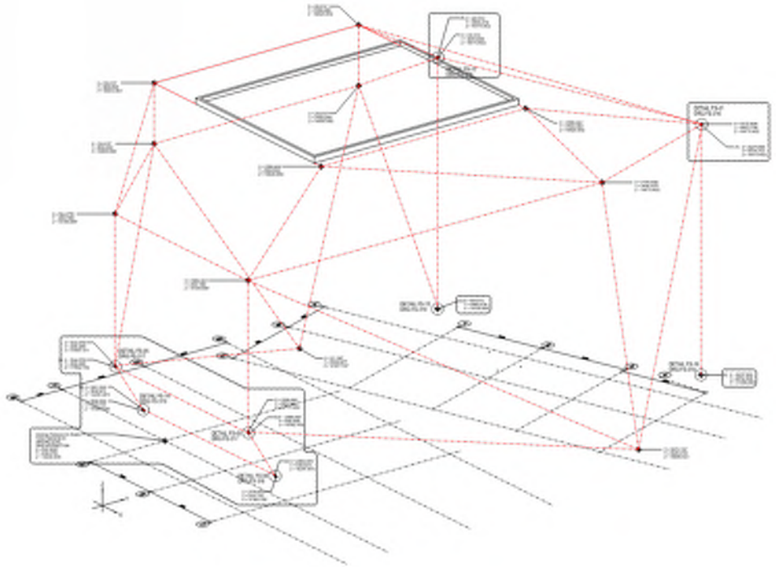
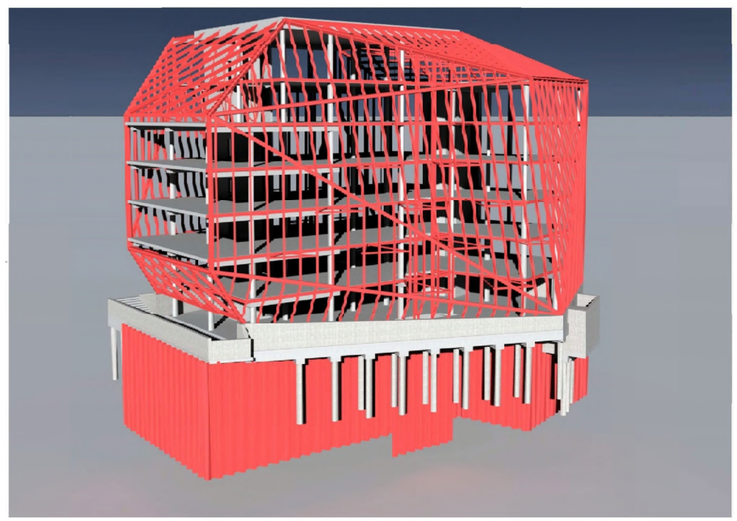
DETAIL FS-04





Project: Smolenskaya, Moscow (2013)

Key contributions:
- creation of the façade structural model from the Architects Rhino model;
- translation of the model in Bentley Structural;
- production of steel connection details in Microstation.