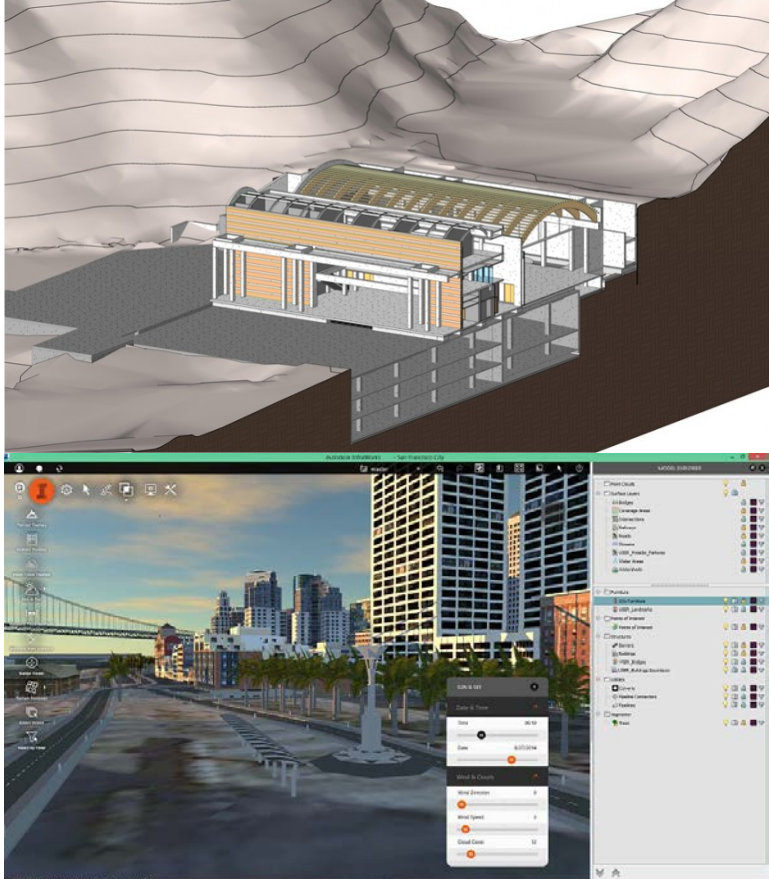
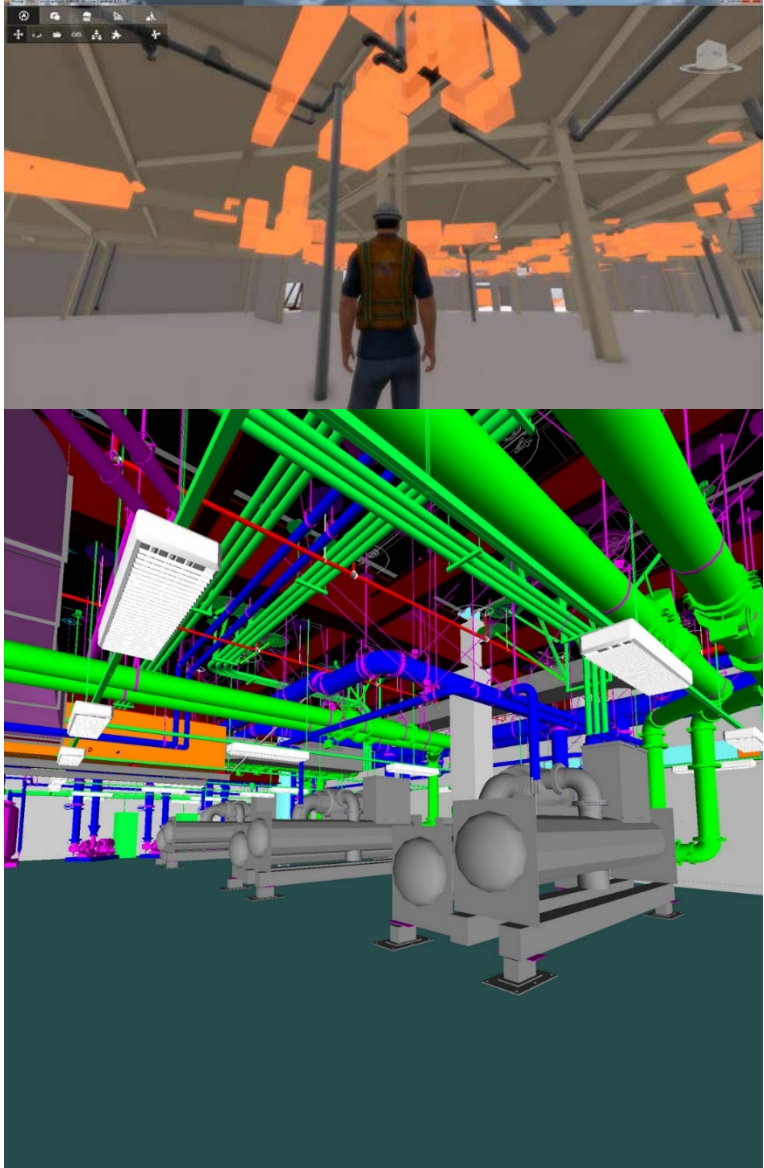


BIM SCOPE OF WORKS MATRIX

Stage	Submit format and content	Information required	Submission purpose	Example	Services
1	Early Planning stage				
1.1	Topography	Contour and coordinates for project area	For sunshade study, landscape study, excavation and back fill, even sub-structure analysis		

1.2	Utilities analysis	Existing drainage and sewage system, electricity, gas and telecom system	Preparation for design of underground services		
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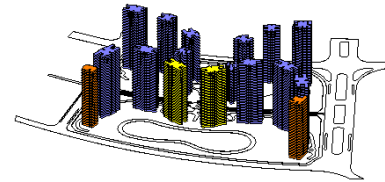
1.3	Traffic analysis	Road map	To locate the main and secondary entrance of the building	 The image is a composite of three parts. The top left shows a 3D rendering of a white ambulance with red and yellow markings, labeled 'AMBULANCE' and 'RECEIVING'. The top right shows a 2D site plan map with a scale bar from 0 to 30 meters. The bottom part is a screenshot of the Autodesk Infrastructure Modeler 2012 software interface, showing a 3D model of a city street with various colored overlays (green, yellow, red) representing different traffic analysis data. The software window title is 'Autodesk Infrastructure Modeler 2012: Build 13009 (64-bit) - Vancouver.spr'. The interface includes a menu bar (File, Edit, View, Window, Help), a toolbar, and a 'Proposals' panel on the left with a 'Themes' list containing 'empty', 'NONE', 'FRL', 'P&P', and 'Prop'.
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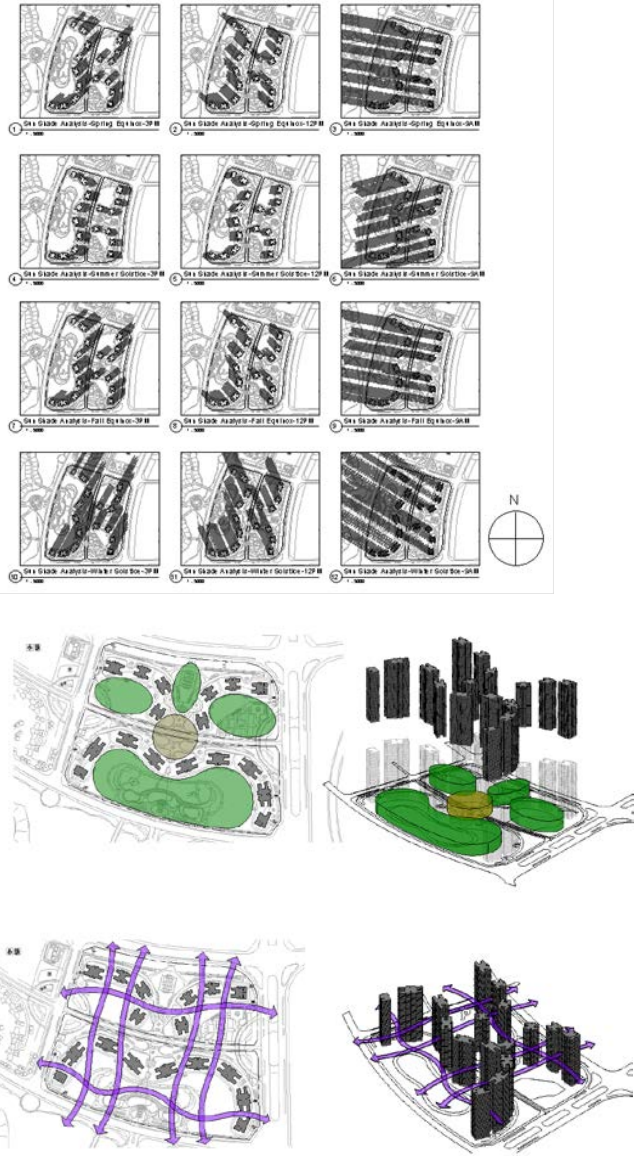
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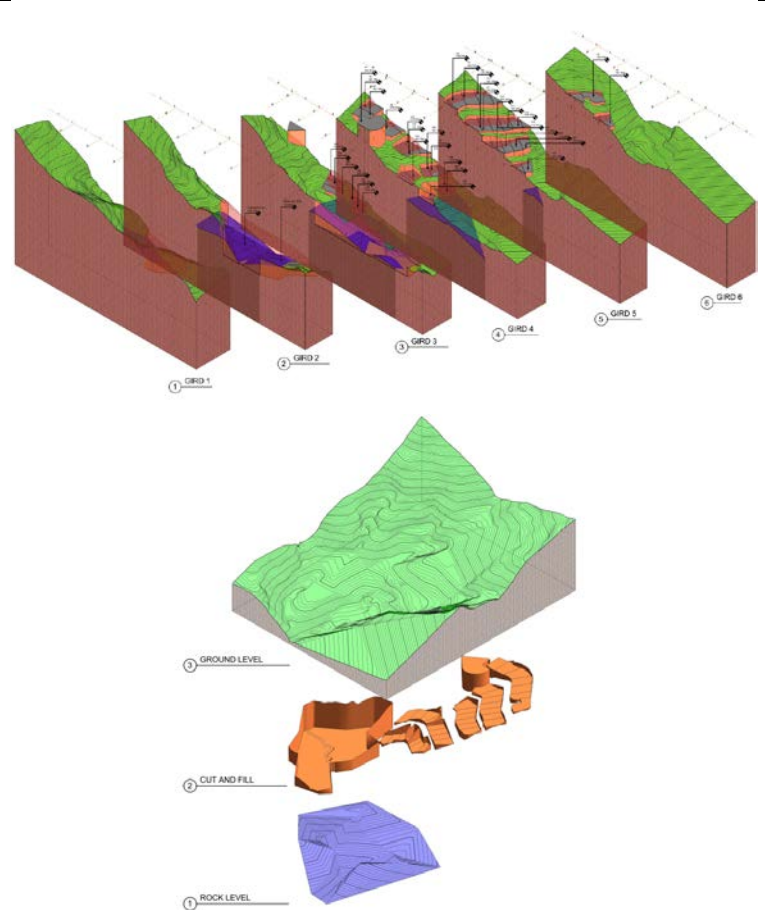
Build mass model to generate the preliminary area schedule
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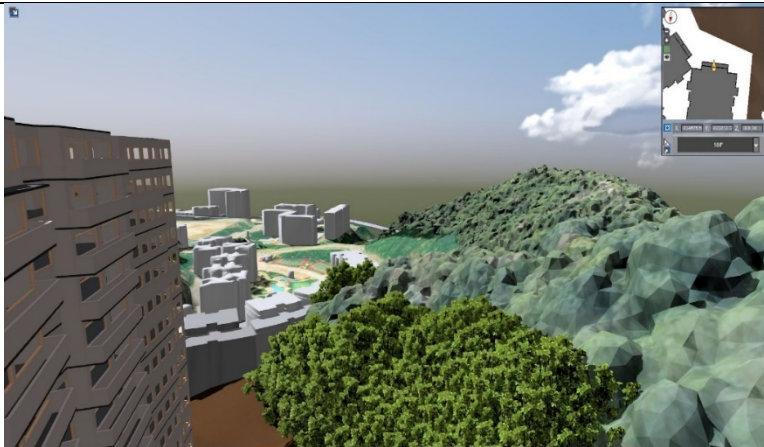
Master plan and floor plans

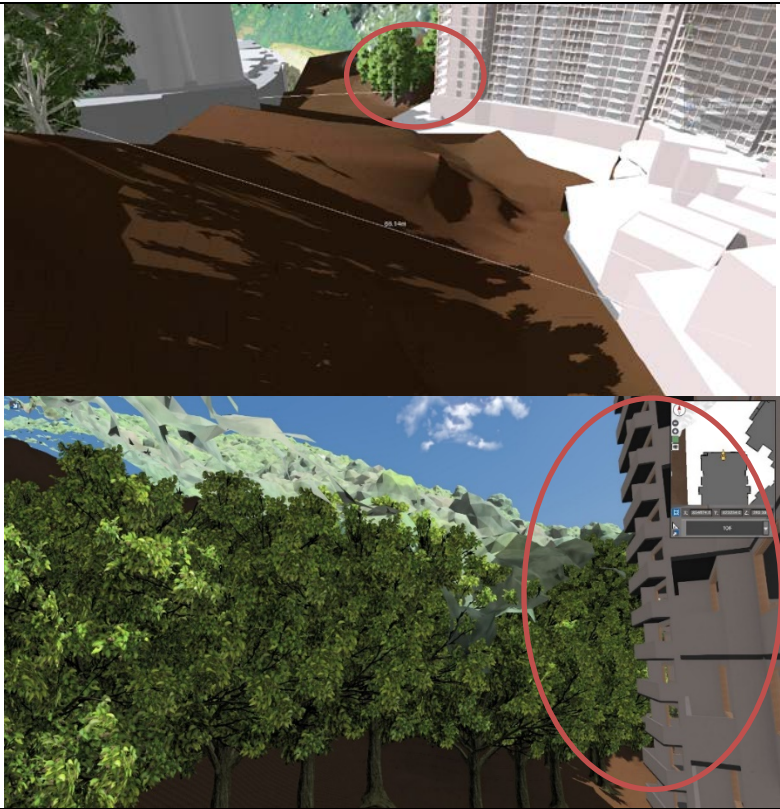
Preliminary area schedule could be use as early financial analysis
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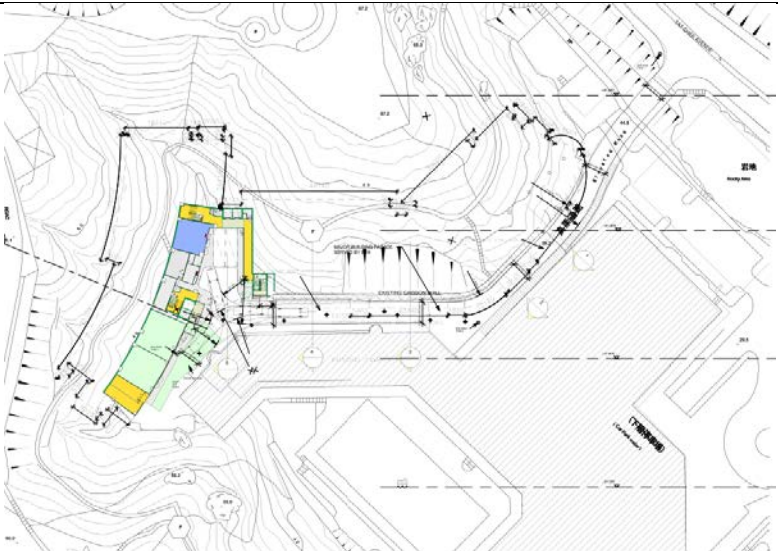
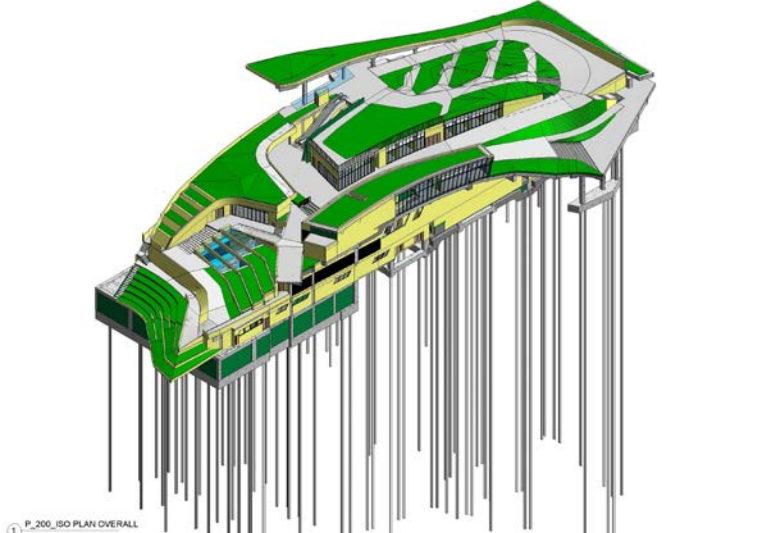
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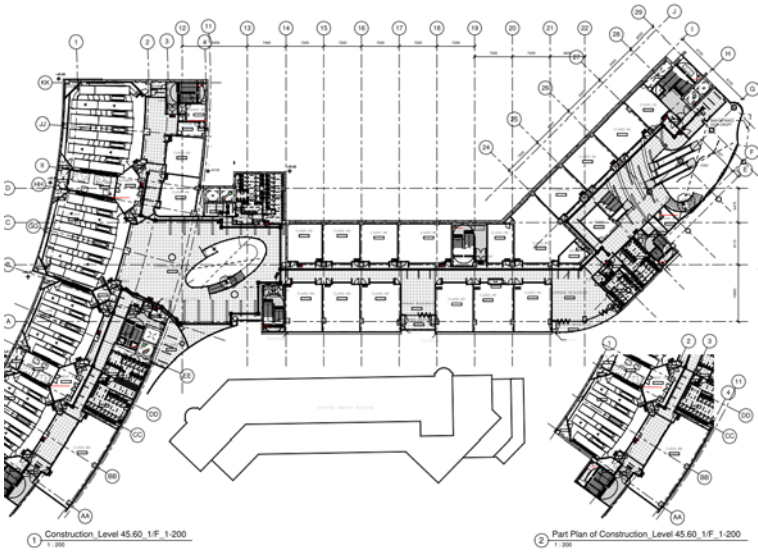
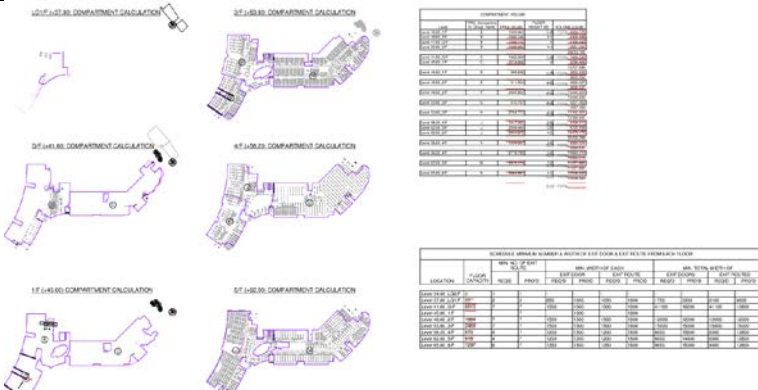
2	Design stage			
2.1	Sunshade, wind, energy consumption analysis for project	Site contour, existing landscape analysis, includes tree location, species and ages	For design reference, building location and building design checking	 The diagrams illustrate various site analysis aspects: 1-12 show building footprints and surrounding context; the bottom row shows site plans and 3D building height models with wind flow analysis (purple arrows) and green spaces (green areas).

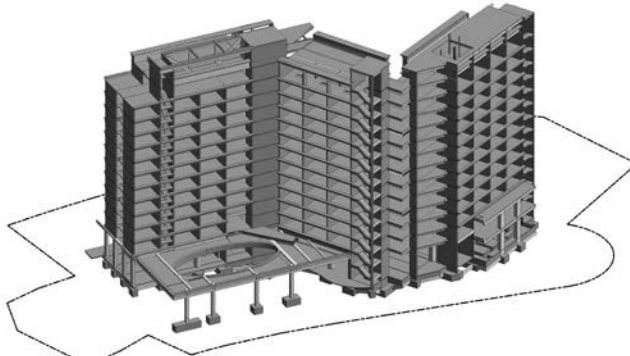
2.2	Excavation analysis	Site topography, master plan and building plans, levels	Excavation analysis could be used as design checking, which could help to revise the design to make sure the excavation keeps at minimum level	 The image contains two 3D diagrams illustrating excavation analysis. The top diagram shows a series of six cross-sections of a terrain, labeled GRID 1 through GRID 6. Each cross-section displays the ground surface (green), the proposed excavation (purple), and the underlying rock level (brown). The bottom diagram shows three surface models: 1. GROUND LEVEL (a green wireframe mesh of the terrain), 2. CUT AND FILL (an orange 3D model showing the volume of material to be removed or added), and 3. ROCK LEVEL (a blue wireframe mesh of the underlying rock surface).
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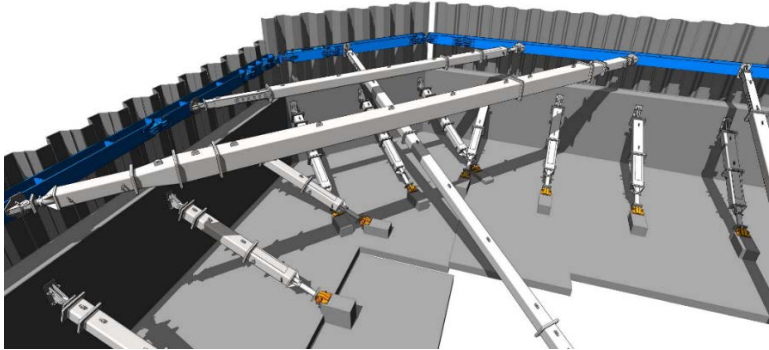
2.3	Landscape model, includes trees within project boundary	Site topography, site landscape report and arborist report	Could be used for landscape design, to relocate the purposed tree on the landscape model, and for visual checking		
2.4	Tree crown, roots and growth analysis	Tree species, age; dimension of tree crown and roots	Tree crown analysis for landscape design visual analysis; Tree root analysis for utilities design		

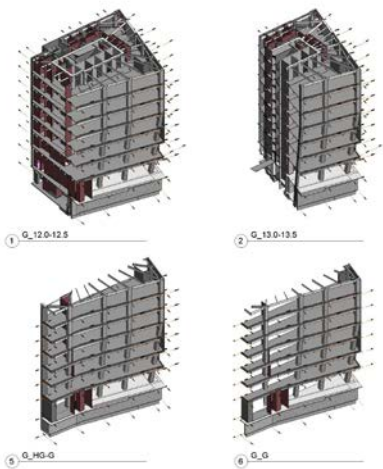
2.5	Clash detection between building and tree crown	Masterplan, building design; tree species, age and dimension of crown and roots	The clash detection will be used for landscape design		
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2.6	Design options	Masterplan, preliminary architectural and landscape design	Analyze design options to achieve quality design for architecture, master planning and landscape		
2.7	Architectural BIM model: room names, function, numbers and area	Masterplan and general arrangement plan, elevations and roof design	For drawing production, material schedule and area schedule		

2.8	Architectural drawings: Masterplan, general arrangement plans, elevations and sections (up to 1:100)	Masterplan and floor plans, elevations and roof design	For tender drawings and construction drawings		
2.9	Area schedule	Masterplan, floor plan and levels	Area schedule from BIM model could provide accurate area instantly, not over or a lot less than the limitation		

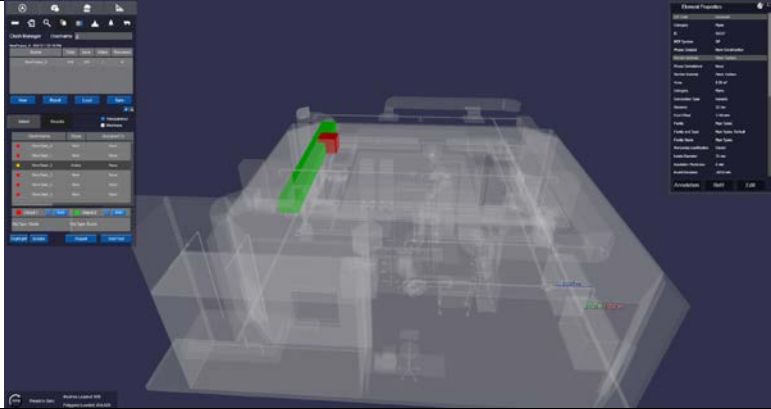
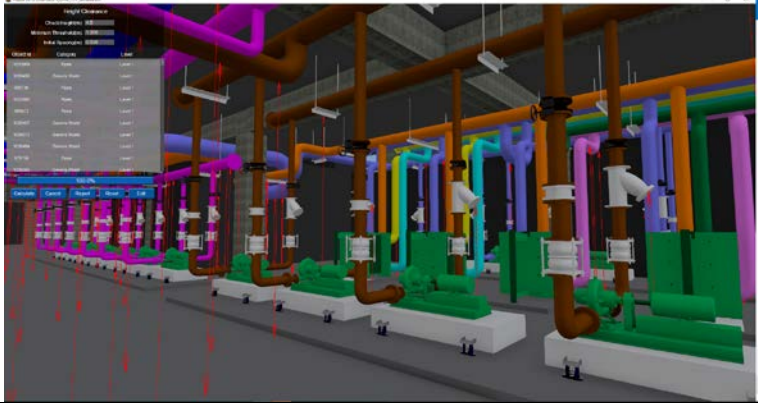
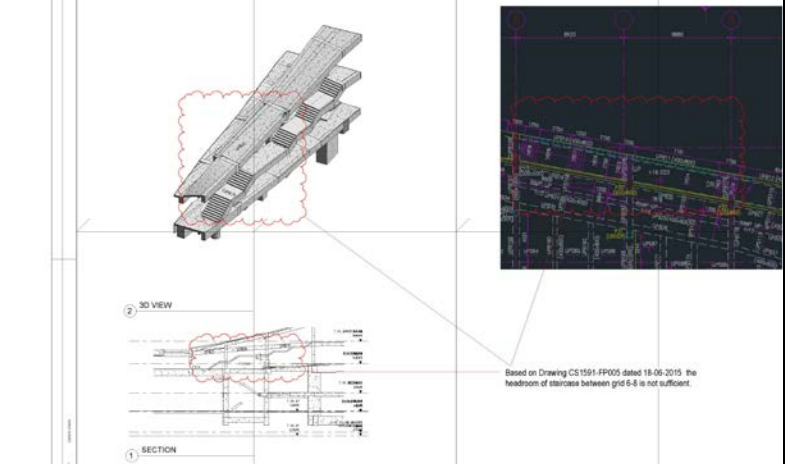
2.10	Schedule of quantities	Architectural design and materials	Schedule of windows, doors or louvres, help QS to start with preliminary quantity take-off	<table><thead><tr><th colspan="4">WINDOW SCHEDULE</th></tr><tr><th>Type Mark</th><th>Total Width</th><th>Total Height</th><th>Total Area</th></tr></thead><tbody><tr><td>A</td><td>2250</td><td>2250</td><td>5.063 m²</td></tr><tr><td></td><td></td><td></td><td>5.063 m²</td></tr><tr><td>B</td><td>1675</td><td>2250</td><td>3.769 m²</td></tr><tr><td>B</td><td>2100</td><td>2250</td><td>4.726 m²</td></tr><tr><td></td><td></td><td></td><td>8.494 m²</td></tr><tr><td>C</td><td>2025</td><td>2250</td><td>4.556 m²</td></tr><tr><td>C</td><td>2625</td><td>2250</td><td>5.906 m²</td></tr><tr><td></td><td></td><td></td><td>10.463 m²</td></tr><tr><td>D</td><td>2700</td><td>2250</td><td>6.075 m²</td></tr><tr><td>D</td><td>1850</td><td>2250</td><td>4.163 m²</td></tr><tr><td></td><td></td><td></td><td>10.238 m²</td></tr><tr><td>TOTAL</td><td></td><td></td><td>34.256 m²</td></tr></tbody></table>	WINDOW SCHEDULE				Type Mark	Total Width	Total Height	Total Area	A	2250	2250	5.063 m²				5.063 m²	B	1675	2250	3.769 m²	B	2100	2250	4.726 m²				8.494 m²	C	2025	2250	4.556 m²	C	2625	2250	5.906 m²				10.463 m²	D	2700	2250	6.075 m²	D	1850	2250	4.163 m²				10.238 m²	TOTAL			34.256 m²	
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2.11	Structural BIM model: piling, pile cap, substructure and superstructure	Structural design for piling, pile cap, ELS, demolition plan, substructure and superstructure	For structural drawing production, export model for structural calculation	 Appendix U  Remark: - Beam is showed on Green. - Column is showed on Red. - Pile Cap is showed on Yellow. - Structural Wall is showed on Blue. - Bearing Wall is showed on Gray. - Footing are showed on White. - Drainage system is showed on Light Blue. Please clarify the followings as marked on Blue Circle 1. Thickness of the Footing is 1.5m. 2. TB003a cannot from the beam detail as to the plan this beam size is 400(w) x 800(h)mm Foundation plan 1 : 250																																																									

2.12	Hoarding design	Hoarding location and height	Commercial ads on hoarding	 
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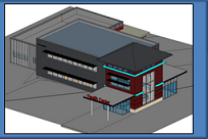
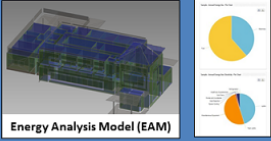
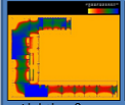
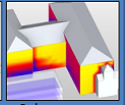
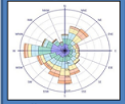
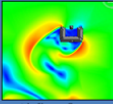
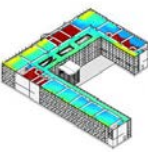
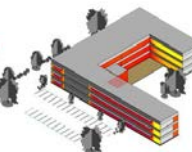
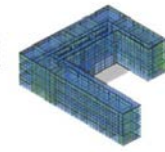
2.13	Export structural model	Structural design for piling, pile cap, substructure and superstructure	For structural calculation	 <table border="1"> <thead> <tr> <th colspan="10">Table 1: Structural Analysis Results</th> </tr> <tr> <th>Node</th> <th>U (mm)</th> <th>V (mm)</th> <th>W (mm)</th> <th>θx (deg)</th> <th>θy (deg)</th> <th>θz (deg)</th> <th>Ex (kN)</th> <th>Ey (kN)</th> <th>Ez (kN)</th> </tr> </thead> <tbody> <tr><td>1</td><td>1.2</td><td>0.5</td><td>0.1</td><td>0.1</td><td>0.2</td><td>0.3</td><td>10.0</td><td>5.0</td><td>1.0</td></tr> <tr><td>2</td><td>1.5</td><td>0.6</td><td>0.2</td><td>0.2</td><td>0.3</td><td>0.4</td><td>12.0</td><td>6.0</td><td>1.2</td></tr> <tr><td>3</td><td>1.8</td><td>0.7</td><td>0.3</td><td>0.3</td><td>0.4</td><td>0.5</td><td>14.0</td><td>7.0</td><td>1.4</td></tr> <tr><td>4</td><td>2.1</td><td>0.8</td><td>0.4</td><td>0.4</td><td>0.5</td><td>0.6</td><td>16.0</td><td>8.0</td><td>1.6</td></tr> 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<tr><td>12</td><td>4.5</td><td>1.6</td><td>1.2</td><td>1.2</td><td>1.3</td><td>1.4</td><td>32.0</td><td>16.0</td><td>3.2</td></tr> <tr><td>13</td><td>4.8</td><td>1.7</td><td>1.3</td><td>1.3</td><td>1.4</td><td>1.5</td><td>34.0</td><td>17.0</td><td>3.4</td></tr> <tr><td>14</td><td>5.1</td><td>1.8</td><td>1.4</td><td>1.4</td><td>1.5</td><td>1.6</td><td>36.0</td><td>18.0</td><td>3.6</td></tr> <tr><td>15</td><td>5.4</td><td>1.9</td><td>1.5</td><td>1.5</td><td>1.6</td><td>1.7</td><td>38.0</td><td>19.0</td><td>3.8</td></tr> <tr><td>16</td><td>5.7</td><td>2.0</td><td>1.6</td><td>1.6</td><td>1.7</td><td>1.8</td><td>40.0</td><td>20.0</td><td>4.0</td></tr> <tr><td>17</td><td>6.0</td><td>2.1</td><td>1.7</td><td>1.7</td><td>1.8</td><td>1.9</td><td>42.0</td><td>21.0</td><td>4.2</td></tr> <tr><td>18</td><td>6.3</td><td>2.2</td><td>1.8</td><td>1.8</td><td>1.9</td><td>2.0</td><td>44.0</td><td>22.0</td><td>4.4</td></tr> 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<tr><td>26</td><td>8.7</td><td>3.0</td><td>2.6</td><td>2.6</td><td>2.7</td><td>2.8</td><td>60.0</td><td>30.0</td><td>6.0</td></tr> <tr><td>27</td><td>9.0</td><td>3.1</td><td>2.7</td><td>2.7</td><td>2.8</td><td>2.9</td><td>62.0</td><td>31.0</td><td>6.2</td></tr> <tr><td>28</td><td>9.3</td><td>3.2</td><td>2.8</td><td>2.8</td><td>2.9</td><td>3.0</td><td>64.0</td><td>32.0</td><td>6.4</td></tr> <tr><td>29</td><td>9.6</td><td>3.3</td><td>2.9</td><td>2.9</td><td>3.0</td><td>3.1</td><td>66.0</td><td>33.0</td><td>6.6</td></tr> <tr><td>30</td><td>9.9</td><td>3.4</td><td>3.0</td><td>3.0</td><td>3.1</td><td>3.2</td><td>68.0</td><td>34.0</td><td>6.8</td></tr> <tr><td>31</td><td>10.2</td><td>3.5</td><td>3.1</td><td>3.1</td><td>3.2</td><td>3.3</td><td>70.0</td><td>35.0</td><td>7.0</td></tr> <tr><td>32</td><td>10.5</td><td>3.6</td><td>3.2</td><td>3.2</td><td>3.3</td><td>3.4</td><td>72.0</td><td>36.0</td><td>7.2</td></tr> <tr><td>33</td><td>10.8</td><td>3.7</td><td>3.3</td><td>3.3</td><td>3.4</td><td>3.5</td><td>74.0</td><td>37.0</td><td>7.4</td></tr> <tr><td>34</td><td>11.1</td><td>3.8</td><td>3.4</td><td>3.4</td><td>3.5</td><td>3.6</td><td>76.0</td><td>38.0</td><td>7.6</td></tr> <tr><td>35</td><td>11.4</td><td>3.9</td><td>3.5</td><td>3.5</td><td>3.6</td><td>3.7</td><td>78.0</td><td>39.0</td><td>7.8</td></tr> <tr><td>36</td><td>11.7</td><td>4.0</td><td>3.6</td><td>3.6</td><td>3.7</td><td>3.8</td><td>80.0</td><td>40.0</td><td>8.0</td></tr> <tr><td>37</td><td>12.0</td><td>4.1</td><td>3.7</td><td>3.7</td><td>3.8</td><td>3.9</td><td>82.0</td><td>41.0</td><td>8.2</td></tr> <tr><td>38</td><td>12.3</td><td>4.2</td><td>3.8</td><td>3.8</td><td>3.9</td><td>4.0</td><td>84.0</td><td>42.0</td><td>8.4</td></tr> <tr><td>39</td><td>12.6</td><td>4.3</td><td>3.9</td><td>3.9</td><td>4.0</td><td>4.1</td><td>86.0</td><td>43.0</td><td>8.6</td></tr> <tr><td>40</td><td>12.9</td><td>4.4</td><td>4.0</td><td>4.0</td><td>4.1</td><td>4.2</td><td>88.0</td><td>44.0</td><td>8.8</td></tr> <tr><td>41</td><td>13.2</td><td>4.5</td><td>4.1</td><td>4.1</td><td>4.2</td><td>4.3</td><td>90.0</td><td>45.0</td><td>9.0</td></tr> <tr><td>42</td><td>13.5</td><td>4.6</td><td>4.2</td><td>4.2</td><td>4.3</td><td>4.4</td><td>92.0</td><td>46.0</td><td>9.2</td></tr> <tr><td>43</td><td>13.8</td><td>4.7</td><td>4.3</td><td>4.3</td><td>4.4</td><td>4.5</td><td>94.0</td><td>47.0</td><td>9.4</td></tr> <tr><td>44</td><td>14.1</td><td>4.8</td><td>4.4</td><td>4.4</td><td>4.5</td><td>4.6</td><td>96.0</td><td>48.0</td><td>9.6</td></tr> <tr><td>45</td><td>14.4</td><td>4.9</td><td>4.5</td><td>4.5</td><td>4.6</td><td>4.7</td><td>98.0</td><td>49.0</td><td>9.8</td></tr> <tr><td>46</td><td>14.7</td><td>5.0</td><td>4.6</td><td>4.6</td><td>4.7</td><td>4.8</td><td>100.0</td><td>50.0</td><td>10.0</td></tr> <tr><td>47</td><td>15.0</td><td>5.1</td><td>4.7</td><td>4.7</td><td>4.8</td><td>4.9</td><td>102.0</td><td>51.0</td><td>10.2</td></tr> <tr><td>48</td><td>15.3</td><td>5.2</td><td>4.8</td><td>4.8</td><td>4.9</td><td>5.0</td><td>104.0</td><td>52.0</td><td>10.4</td></tr> <tr><td>49</td><td>15.6</td><td>5.3</td><td>4.9</td><td>4.9</td><td>5.0</td><td>5.1</td><td>106.0</td><td>53.0</td><td>10.6</td></tr> <tr><td>50</td><td>15.9</td><td>5.4</td><td>5.0</td><td>5.0</td><td>5.1</td><td>5.2</td><td>108.0</td><td>54.0</td><td>10.8</td></tr> <tr><td>51</td><td>16.2</td><td>5.5</td><td>5.1</td><td>5.1</td><td>5.2</td><td>5.3</td><td>110.0</td><td>55.0</td><td>11.0</td></tr> <tr><td>52</td><td>16.5</td><td>5.6</td><td>5.2</td><td>5.2</td><td>5.3</td><td>5.4</td><td>112.0</td><td>56.0</td><td>11.2</td></tr> <tr><td>53</td><td>16.8</td><td>5.7</td><td>5.3</td><td>5.3</td><td>5.4</td><td>5.5</td><td>114.0</td><td>57.0</td><td>11.4</td></tr> <tr><td>54</td><td>17.1</td><td>5.8</td><td>5.4</td><td>5.4</td><td>5.5</td><td>5.6</td><td>116.0</td><td>58.0</td><td>11.6</td></tr> <tr><td>55</td><td>17.4</td><td>5.9</td><td>5.5</td><td>5.5</td><td>5.6</td><td>5.7</td><td>118.0</td><td>59.0</td><td>11.8</td></tr> <tr><td>56</td><td>17.7</td><td>6.0</td><td>5.6</td><td>5.6</td><td>5.7</td><td>5.8</td><td>120.0</td><td>60.0</td><td>12.0</td></tr> <tr><td>57</td><td>18.0</td><td>6.1</td><td>5.7</td><td>5.7</td><td>5.8</td><td>5.9</td><td>122.0</td><td>61.0</td><td>12.2</td></tr> <tr><td>58</td><td>18.3</td><td>6.2</td><td>5.8</td><td>5.8</td><td>5.9</td><td>6.0</td><td>124.0</td><td>62.0</td><td>12.4</td></tr> <tr><td>59</td><td>18.6</td><td>6.3</td><td>5.9</td><td>5.9</td><td>6.0</td><td>6.1</td><td>126.0</td><td>63.0</td><td>12.6</td></tr> <tr><td>60</td><td>18.9</td><td>6.4</td><td>6.0</td><td>6.0</td><td>6.1</td><td>6.2</td><td>128.0</td><td>64.0</td><td>12.8</td></tr> <tr><td>61</td><td>19.2</td><td>6.5</td><td>6.1</td><td>6.1</td><td>6.2</td><td>6.3</td><td>130.0</td><td>65.0</td><td>13.0</td></tr> <tr><td>62</td><td>19.5</td><td>6.6</td><td>6.2</td><td>6.2</td><td>6.3</td><td>6.4</td><td>132.0</td><td>66.0</td><td>13.2</td></tr> <tr><td>63</td><td>19.8</td><td>6.7</td><td>6.3</td><td>6.3</td><td>6.4</td><td>6.5</td><td>134.0</td><td>67.0</td><td>13.4</td></tr> <tr><td>64</td><td>20.1</td><td>6.8</td><td>6.4</td><td>6.4</td><td>6.5</td><td>6.6</td><td>136.0</td><td>68.0</td><td>13.6</td></tr> <tr><td>65</td><td>20.4</td><td>6.9</td><td>6.5</td><td>6.5</td><td>6.6</td><td>6.7</td><td>138.0</td><td>69.0</td><td>13.8</td></tr> <tr><td>66</td><td>20.7</td><td>7.0</td><td>6.6</td><td>6.6</td><td>6.7</td><td>6.8</td><td>140.0</td><td>70.0</td><td>14.0</td></tr> <tr><td>67</td><td>21.0</td><td>7.1</td><td>6.7</td><td>6.7</td><td>6.8</td><td>6.9</td><td>142.0</td><td>71.0</td><td>14.2</td></tr> <tr><td>68</td><td>21.3</td><td>7.2</td><td>6.8</td><td>6.8</td><td>6.9</td><td>7.0</td><td>144.0</td><td>72.0</td><td>14.4</td></tr> <tr><td>69</td><td>21.6</td><td>7.3</td><td>6.9</td><td>6.9</td><td>7.0</td><td>7.1</td><td>146.0</td><td>73.0</td><td>14.6</td></tr> <tr><td>70</td><td>21.9</td><td>7.4</td><td>7.0</td><td>7.0</td><td>7.1</td><td>7.2</td><td>148.0</td><td>74.0</td><td>14.8</td></tr> <tr><td>71</td><td>22.2</td><td>7.5</td><td>7.1</td><td>7.1</td><td>7.2</td><td>7.3</td><td>150.0</td><td>75.0</td><td>15.0</td></tr> <tr><td>72</td><td>22.5</td><td>7.6</td><td>7.2</td><td>7.2</td><td>7.3</td><td>7.4</td><td>152.0</td><td>76.0</td><td>15.2</td></tr> <tr><td>73</td><td>22.8</td><td>7.7</td><td>7.3</td><td>7.3</td><td>7.4</td><td>7.5</td><td>154.0</td><td>77.0</td><td>15.4</td></tr> <tr><td>74</td><td>23.1</td><td>7.8</td><td>7.4</td><td>7.4</td><td>7.5</td><td>7.6</td><td>156.0</td><td>78.0</td><td>15.6</td></tr> <tr><td>75</td><td>23.4</td><td>7.9</td><td>7.5</td><td>7.5</td><td>7.6</td><td>7.7</td><td>158.0</td><td>79.0</td><td>15.8</td></tr> <tr><td>76</td><td>23.7</td><td>8.0</td><td>7.6</td><td>7.6</td><td>7.7</td><td>7.8</td><td>160.0</td><td>80.0</td><td>16.0</td></tr> <tr><td>77</td><td>24.0</td><td>8.1</td><td>7.7</td><td>7.7</td><td>7.8</td><td>7.9</td><td>162.0</td><td>81.0</td><td>16.2</td></tr> <tr><td>78</td><td>24.3</td><td>8.2</td><td>7.8</td><td>7.8</td><td>7.9</td><td>8.0</td><td>164.0</td><td>82.0</td><td>16.4</td></tr> <tr><td>79</td><td>24.6</td><td>8.3</td><td>7.9</td><td>7.9</td><td>8.0</td><td>8.1</td><td>166.0</td><td>83.0</td><td>16.6</td></tr> <tr><td>80</td><td>24.9</td><td>8.4</td><td>8.0</td><td>8.0</td><td>8.1</td><td>8.2</td><td>168.0</td><td>84.0</td><td>16.8</td></tr> <tr><td>81</td><td>25.2</td><td>8.5</td><td>8.1</td><td>8.1</td><td>8.2</td><td>8.3</td><td>170.0</td><td>85.0</td><td>17.0</td></tr> <tr><td>82</td><td>25.5</td><td>8.6</td><td>8.2</td><td>8.2</td><td>8.3</td><td>8.4</td><td>172.0</td><td>86.0</td><td>17.2</td></tr> <tr><td>83</td><td>25.8</td><td>8.7</td><td>8.3</td><td>8.3</td><td>8.4</td><td>8.5</td><td>174.0</td><td>87.0</td><td>17.4</td></tr> <tr><td>84</td><td>26.1</td><td>8.8</td><td>8.4</td><td>8.4</td><td>8.5</td><td>8.6</td><td>176.0</td><td>88.0</td><td>17.6</td></tr> <tr><td>85</td><td>26.4</td><td>8.9</td><td>8.5</td><td>8.5</td><td>8.6</td><td>8.7</td><td>178.0</td><td>89.0</td><td>17.8</td></tr> <tr><td>86</td><td>26.7</td><td>9.0</td><td>8.6</td><td>8.6</td><td>8.7</td><td>8.8</td><td>180.0</td><td>90.0</td><td>18.0</td></tr> <tr><td>87</td><td>27.0</td><td>9.1</td><td>8.7</td><td>8.7</td><td>8.8</td><td>8.9</td><td>182.0</td><td>91.0</td><td>18.2</td></tr> <tr><td>88</td><td>27.3</td><td>9.2</td><td>8.8</td><td>8.8</td><td>8.9</td><td>9.0</td><td>184.0</td><td>92.0</td><td>18.4</td></tr> <tr><td>89</td><td>27.6</td><td>9.3</td><td>8.9</td><td>8.9</td><td>9.0</td><td>9.1</td><td>186.0</td><td>93.0</td><td>18.6</td></tr> <tr><td>90</td><td>27.9</td><td>9.4</td><td>9.0</td><td>9.0</td><td>9.1</td><td>9.2</td><td>188.0</td><td>94.0</td><td>18.8</td></tr> <tr><td>91</td><td>28.2</td><td>9.5</td><td>9.1</td><td>9.1</td><td>9.2</td><td>9.3</td><td>190.0</td><td>95.0</td><td>19.0</td></tr> <tr><td>92</td><td>28.5</td><td>9.6</td><td>9.2</td><td>9.2</td><td>9.3</td><td>9.4</td><td>192.0</td><td>96.0</td><td>19.2</td></tr> <tr><td>93</td><td>28.8</td><td>9.7</td><td>9.3</td><td>9.3</td><td>9.4</td><td>9.5</td><td>194.0</td><td>97.0</td><td>19.4</td></tr> <tr><td>94</td><td>29.1</td><td>9.8</td><td>9.4</td><td>9.4</td><td>9.5</td><td>9.6</td><td>196.0</td><td>98.0</td><td>19.6</td></tr> <tr><td>95</td><td>29.4</td><td>9.9</td><td>9.5</td><td>9.5</td><td>9.6</td><td>9.7</td><td>198.0</td><td>99.0</td><td>19.8</td></tr> <tr><td>96</td><td>29.7</td><td>10.0</td><td>9.6</td><td>9.6</td><td>9.7</td><td>9.8</td><td>200.0</td><td>100.0</td><td>20.0</td></tr> <tr><td>97</td><td>30.0</td><td>10.1</td><td>9.7</td><td>9.7</td><td>9.8</td><td>9.9</td><td>202.0</td><td>101.0</td><td>20.2</td></tr> <tr><td>98</td><td>30.3</td><td>10.2</td><td>9.8</td><td>9.8</td><td>9.9</td><td>10.0</td><td>204.0</td><td>102.0</td><td>20.4</td></tr> <tr><td>99</td><td>30.6</td><td>10.3</td><td>9.9</td><td>9.9</td><td>10.0</td><td>10.1</td><td>206.0</td><td>103.0</td><td>20.6</td></tr> <tr><td>100</td><td>30.9</td><td>10.4</td><td>10.0</td><td>10.0</td><td>10.1</td><td>10.2</td><td>208.0</td><td>104.0</td><td>20.8</td></tr> <tr><td>101</td><td>31.2</td><td>10.5</td><td>10.1</td><td>10.1</td><td>10.2</td><td>10.3</td><td>210.0</td><td>105.0</td><td>21.0</td></tr> <tr><td>102</td><td>31.5</td><td>10.6</td><td>10.2</td><td>10.2</td><td>10.3</td><td>10.4</td><td>212.0</td><td>106.0</td><td>21.2</td></tr> <tr><td>103</td><td>31.8</td><td>10.7</td><td>10.3</td><td>10.3</td><td>10.4</td><td>10.5</td><td>214.0</td><td>107.0</td><td>21.4</td></tr> <tr><td>104</td><td>32.1</td><td>10.8</td><td>10.4</td><td>10.4</td><td>10.5</td><td>10.6</td><td>216.0</td><td>108.0</td><td>21.6</td></tr> <tr><td>105</td><td>32.4</td><td>10.9</td><td>10.5</td><td>10.5</td><td>10.6</td><td>10.7</td><td>218.0</td><td>109.0</td><td>21.8</td></tr> <tr><td>106</td><td>32.7</td><td>11.0</td><td>10.6</td><td>10.6</td><td>10.7</td><td>10.8</td><td>220.0</td><td>110.0</td><td>22.0</td></tr> <tr><td>107</td><td>33.0</td><td>11.1</td><td>10.7</td><td>10.7</td><td>10.8</td><td>10.9</td><td>222.0</td><td>111.0</td><td>22.2</td></tr> <tr><td>108</td><td>33.3</td><td>11.2</td><td>10.8</td><td>10.8</td><td>10.9</td><td>11.0</td><td>224.0</td><td>112.0</td><td>22.4</td></tr> <tr><td>109</td><td>33.6</td><td>11.3</td><td>10.9</td><td>10.9</td><td>11.0</td><td>11.1</td><td>226.0</td><td>113.0</td><td>22.6</td></tr> <tr><td>110</td><td>33.9</td><td>11.4</td><td>11.0</td><td>11.0</td><td>11.1</td><td>11.2</td><td>228.0</td><td>114.0</td><td>22.8</td></tr> <tr><td>111</td><td>34.2</td><td>11.5</td><td>11.1</td><td>11.1</td><td>11.2</td><td>11.3</td><td>230.0</td><td>115.0</td><td>23.0</td></tr> <tr><td>112</td><td>34.5</td><td>11.6</td><td>11.2</td><td>11.2</td><td>11.3</td><td>11.4</td><td>232.0</td><td>116.0</td><td>23.2</td></tr> <tr><td>113</td><td>34.8</td><td>11.7</td><td>11.3</td><td>11.3</td><td>11.4</td><td>11.5</td><td>234.0</td><td>117.0</td><td>23.4</td></tr> <tr><td>114</td><td>35.1</td><td>11.8</td><td>11.4</td><td>11.4</td><td>11.5</td><td>11.6</td><td>236.0</td><td>118.0</td><td>23.6</td></tr> <tr><td>115</td><td>35.4</td><td>11.9</td><td>11.5</td><td>11.5</td><td>11.6</td><td>11.7</td><td>238.0</td><td>119.0</td><td>23.8</td></tr> <tr><td>116</td><td>35.7</td><td>12.0</td><td>11.6</td><td>11.6</td><td>11.7</td><td>11.8</td><td>240.0</td><td>120.0</td><td>24.0</td></tr> <tr><td>117</td><td>36.0</td><td>12.1</td><td>11.7</td><td>11.7</td><td>11.8</td><td>11.9</td><td>242.0</td><td>121.0</td><td>24.2</td></tr> <tr><td>118</td><td>36.3</td><td>12.2</td><td>11.8</td><td>11.8</td><td>11.9</td><td>12.0</td><td>244.0</td><td>122.0</td><td>24.4</td></tr> <tr><td>119</td><td>36.6</td><td>12.3</td><td>11.9</td><td>11.9</td><td>12.0</td><td>12.1</td><td>246.0</td><td>123.0</td><td>24.6</td></tr> <tr><td>120</td><td>36.9</td><td>12.4</td><td>12.0</td><td>12.0</td><td>12.1</td><td>12.2</td><td>248.0</td><td>124.0</td><td>24.8</td></tr> <tr><td>121</td><td>37.2</td><td>12.5</td><td>12.1</td><td>12.1</td><td>12.2</td><td>12.3</td><td>250.0</td><td>125.0</td><td>25.0</td></tr> <tr><td>122</td><td>37.5</td><td>12.6</td><td>12.2</td><td>12.2</td><td>12.3</td><td>12.4</td><td>252.0</td><td>126.0</td><td>25.2</td></tr> <tr><td>123</td><td>37.8</td><td>12.7</td><td>12.3</td><td>12.3</td><td>12.4</td><td>12.5</td><td>254.0</td><td>127.0</td><td>25.4</td></tr> <tr><td>124</td><td>38.1</td><td>12.8</td><td>12.4</td><td>12.4</td><td>12.5</td><td>12.6</td><td>256.0</td><td>128.0</td><td>25.6</td></tr> <tr><td>125</td><td>38.4</td><td>12.9</td><td>12.5</td><td>12.5</td><td>12.6</td><td>12.7</td><td>258.0</td><td>129.0</td><td>25.8</td></tr> <tr><td>126</td><td>38.7</td><td>13.0</td><td>12.6</td><td>12.6</td><td>12.7</td><td>12.8</td><td>260.0</td><td>130.0</td><td>26.0</td></tr> <tr><td>127</td><td>39.0</td><td>13.1</td><td>12.7</td><td>12.7</td><td>12.8</td><td>12.9</td><td>262.0</td><td>131.0</td><td>26.2</td></tr> <tr><td>128</td><td>39.3</td><td>13.2</td><td>12.8</td><td>12.8</td><td>12.9</td><td>13.0</td><td>264.0</td><td>132.0</td><td>26.4</td></tr> <tr><td>129</td><td>39.6</td><td>13.3</td><td>12.9</td><td>12.9</td><td>13.0</td><td>13.1</td><td>266.0</td><td>133.0</td><td>26.6</td></tr> <tr><td>130</td><td>39.9</td><td>13.4</td><td>13.0</td><td>13.0</td><td>13.1</td><td>13.2</td><td>268.0</td><td>134.0</td><td>26.8</td></tr> <tr><td>131</td><td>40.2</td><td>13.5</td><td>13.1</td><td>13.1</td><td>13.2</td><td>13.3</td><td>270.0</td><td>135.0</td><td>27.0</td></tr> <tr><td>132</td><td>40.5</td><td>13.6</td><td>13.2</td><td>13.2</td><td>13.3</td><td>13.4</td><td>272.0</td><td>136.0</td><td>27.2</td></tr> <tr><td>133</td><td>40.8</td><td>13.7</td><td>13.3</td><td>13.3</td><td>13.4</td><td>13.5</td><td>274.0</td><td>137.0</td><td>27.4</td></tr> <tr><td>134</td><td>41.1</td><td>13.8</td><td>13.4</td><td>13.4</td><td>13.5</td><td>13.6</td><td>276.0</td><td>138.0</td><td>27.6</td></tr> <tr><td>135</td><td>41.4</td><td></td></tr></tbody></table>	Table 1: Structural Analysis Results										Node	U (mm)	V (mm)	W (mm)	θx (deg)	θy (deg)	θz (deg)	Ex (kN)	Ey (kN)	Ez (kN)	1	1.2	0.5	0.1	0.1	0.2	0.3	10.0	5.0	1.0	2	1.5	0.6	0.2	0.2	0.3	0.4	12.0	6.0	1.2	3	1.8	0.7	0.3	0.3	0.4	0.5	14.0	7.0	1.4	4	2.1	0.8	0.4	0.4	0.5	0.6	16.0	8.0	1.6	5	2.4	0.9	0.5	0.5	0.6	0.7	18.0	9.0	1.8	6	2.7	1.0	0.6	0.6	0.7	0.8	20.0	10.0	2.0	7	3.0	1.1	0.7	0.7	0.8	0.9	22.0	11.0	2.2	8	3.3	1.2	0.8	0.8	0.9	1.0	24.0	12.0	2.4	9	3.6	1.3	0.9	0.9	1.0	1.1	26.0	13.0	2.6	10	3.9	1.4	1.0	1.0	1.1	1.2	28.0	14.0	2.8	11	4.2	1.5	1.1	1.1	1.2	1.3	30.0	15.0	3.0	12	4.5	1.6	1.2	1.2	1.3	1.4	32.0	16.0	3.2	13	4.8	1.7	1.3	1.3	1.4	1.5	34.0	17.0	3.4	14	5.1	1.8	1.4	1.4	1.5	1.6	36.0	18.0	3.6	15	5.4	1.9	1.5	1.5	1.6	1.7	38.0	19.0	3.8	16	5.7	2.0	1.6	1.6	1.7	1.8	40.0	20.0	4.0	17	6.0	2.1	1.7	1.7	1.8	1.9	42.0	21.0	4.2	18	6.3	2.2	1.8	1.8	1.9	2.0	44.0	22.0	4.4	19	6.6	2.3	1.9	1.9	2.0	2.1	46.0	23.0	4.6	20	6.9	2.4	2.0	2.0	2.1	2.2	48.0	24.0	4.8	21	7.2	2.5	2.1	2.1	2.2	2.3	50.0	25.0	5.0	22	7.5	2.6	2.2	2.2	2.3	2.4	52.0	26.0	5.2	23	7.8	2.7	2.3	2.3	2.4	2.5	54.0	27.0	5.4	24	8.1	2.8	2.4	2.4	2.5	2.6	56.0	28.0	5.6	25	8.4	2.9	2.5	2.5	2.6	2.7	58.0	29.0	5.8	26	8.7	3.0	2.6	2.6	2.7	2.8	60.0	30.0	6.0	27	9.0	3.1	2.7	2.7	2.8	2.9	62.0	31.0	6.2	28	9.3	3.2	2.8	2.8	2.9	3.0	64.0	32.0	6.4	29	9.6	3.3	2.9	2.9	3.0	3.1	66.0	33.0	6.6	30	9.9	3.4	3.0	3.0	3.1	3.2	68.0	34.0	6.8	31	10.2	3.5	3.1	3.1	3.2	3.3	70.0	35.0	7.0	32	10.5	3.6	3.2	3.2	3.3	3.4	72.0	36.0	7.2	33	10.8	3.7	3.3	3.3	3.4	3.5	74.0	37.0	7.4	34	11.1	3.8	3.4	3.4	3.5	3.6	76.0	38.0	7.6	35	11.4	3.9	3.5	3.5	3.6	3.7	78.0	39.0	7.8	36	11.7	4.0	3.6	3.6	3.7	3.8	80.0	40.0	8.0	37	12.0	4.1	3.7	3.7	3.8	3.9	82.0	41.0	8.2	38	12.3	4.2	3.8	3.8	3.9	4.0	84.0	42.0	8.4	39	12.6	4.3	3.9	3.9	4.0	4.1	86.0	43.0	8.6	40	12.9	4.4	4.0	4.0	4.1	4.2	88.0	44.0	8.8	41	13.2	4.5	4.1	4.1	4.2	4.3	90.0	45.0	9.0	42	13.5	4.6	4.2	4.2	4.3	4.4	92.0	46.0	9.2	43	13.8	4.7	4.3	4.3	4.4	4.5	94.0	47.0	9.4	44	14.1	4.8	4.4	4.4	4.5	4.6	96.0	48.0	9.6	45	14.4	4.9	4.5	4.5	4.6	4.7	98.0	49.0	9.8	46	14.7	5.0	4.6	4.6	4.7	4.8	100.0	50.0	10.0	47	15.0	5.1	4.7	4.7	4.8	4.9	102.0	51.0	10.2	48	15.3	5.2	4.8	4.8	4.9	5.0	104.0	52.0	10.4	49	15.6	5.3	4.9	4.9	5.0	5.1	106.0	53.0	10.6	50	15.9	5.4	5.0	5.0	5.1	5.2	108.0	54.0	10.8	51	16.2	5.5	5.1	5.1	5.2	5.3	110.0	55.0	11.0	52	16.5	5.6	5.2	5.2	5.3	5.4	112.0	56.0	11.2	53	16.8	5.7	5.3	5.3	5.4	5.5	114.0	57.0	11.4	54	17.1	5.8	5.4	5.4	5.5	5.6	116.0	58.0	11.6	55	17.4	5.9	5.5	5.5	5.6	5.7	118.0	59.0	11.8	56	17.7	6.0	5.6	5.6	5.7	5.8	120.0	60.0	12.0	57	18.0	6.1	5.7	5.7	5.8	5.9	122.0	61.0	12.2	58	18.3	6.2	5.8	5.8	5.9	6.0	124.0	62.0	12.4	59	18.6	6.3	5.9	5.9	6.0	6.1	126.0	63.0	12.6	60	18.9	6.4	6.0	6.0	6.1	6.2	128.0	64.0	12.8	61	19.2	6.5	6.1	6.1	6.2	6.3	130.0	65.0	13.0	62	19.5	6.6	6.2	6.2	6.3	6.4	132.0	66.0	13.2	63	19.8	6.7	6.3	6.3	6.4	6.5	134.0	67.0	13.4	64	20.1	6.8	6.4	6.4	6.5	6.6	136.0	68.0	13.6	65	20.4	6.9	6.5	6.5	6.6	6.7	138.0	69.0	13.8	66	20.7	7.0	6.6	6.6	6.7	6.8	140.0	70.0	14.0	67	21.0	7.1	6.7	6.7	6.8	6.9	142.0	71.0	14.2	68	21.3	7.2	6.8	6.8	6.9	7.0	144.0	72.0	14.4	69	21.6	7.3	6.9	6.9	7.0	7.1	146.0	73.0	14.6	70	21.9	7.4	7.0	7.0	7.1	7.2	148.0	74.0	14.8	71	22.2	7.5	7.1	7.1	7.2	7.3	150.0	75.0	15.0	72	22.5	7.6	7.2	7.2	7.3	7.4	152.0	76.0	15.2	73	22.8	7.7	7.3	7.3	7.4	7.5	154.0	77.0	15.4	74	23.1	7.8	7.4	7.4	7.5	7.6	156.0	78.0	15.6	75	23.4	7.9	7.5	7.5	7.6	7.7	158.0	79.0	15.8	76	23.7	8.0	7.6	7.6	7.7	7.8	160.0	80.0	16.0	77	24.0	8.1	7.7	7.7	7.8	7.9	162.0	81.0	16.2	78	24.3	8.2	7.8	7.8	7.9	8.0	164.0	82.0	16.4	79	24.6	8.3	7.9	7.9	8.0	8.1	166.0	83.0	16.6	80	24.9	8.4	8.0	8.0	8.1	8.2	168.0	84.0	16.8	81	25.2	8.5	8.1	8.1	8.2	8.3	170.0	85.0	17.0	82	25.5	8.6	8.2	8.2	8.3	8.4	172.0	86.0	17.2	83	25.8	8.7	8.3	8.3	8.4	8.5	174.0	87.0	17.4	84	26.1	8.8	8.4	8.4	8.5	8.6	176.0	88.0	17.6	85	26.4	8.9	8.5	8.5	8.6	8.7	178.0	89.0	17.8	86	26.7	9.0	8.6	8.6	8.7	8.8	180.0	90.0	18.0	87	27.0	9.1	8.7	8.7	8.8	8.9	182.0	91.0	18.2	88	27.3	9.2	8.8	8.8	8.9	9.0	184.0	92.0	18.4	89	27.6	9.3	8.9	8.9	9.0	9.1	186.0	93.0	18.6	90	27.9	9.4	9.0	9.0	9.1	9.2	188.0	94.0	18.8	91	28.2	9.5	9.1	9.1	9.2	9.3	190.0	95.0	19.0	92	28.5	9.6	9.2	9.2	9.3	9.4	192.0	96.0	19.2	93	28.8	9.7	9.3	9.3	9.4	9.5	194.0	97.0	19.4	94	29.1	9.8	9.4	9.4	9.5	9.6	196.0	98.0	19.6	95	29.4	9.9	9.5	9.5	9.6	9.7	198.0	99.0	19.8	96	29.7	10.0	9.6	9.6	9.7	9.8	200.0	100.0	20.0	97	30.0	10.1	9.7	9.7	9.8	9.9	202.0	101.0	20.2	98	30.3	10.2	9.8	9.8	9.9	10.0	204.0	102.0	20.4	99	30.6	10.3	9.9	9.9	10.0	10.1	206.0	103.0	20.6	100	30.9	10.4	10.0	10.0	10.1	10.2	208.0	104.0	20.8	101	31.2	10.5	10.1	10.1	10.2	10.3	210.0	105.0	21.0	102	31.5	10.6	10.2	10.2	10.3	10.4	212.0	106.0	21.2	103	31.8	10.7	10.3	10.3	10.4	10.5	214.0	107.0	21.4	104	32.1	10.8	10.4	10.4	10.5	10.6	216.0	108.0	21.6	105	32.4	10.9	10.5	10.5	10.6	10.7	218.0	109.0	21.8	106	32.7	11.0	10.6	10.6	10.7	10.8	220.0	110.0	22.0	107	33.0	11.1	10.7	10.7	10.8	10.9	222.0	111.0	22.2	108	33.3	11.2	10.8	10.8	10.9	11.0	224.0	112.0	22.4	109	33.6	11.3	10.9	10.9	11.0	11.1	226.0	113.0	22.6	110	33.9	11.4	11.0	11.0	11.1	11.2	228.0	114.0	22.8	111	34.2	11.5	11.1	11.1	11.2	11.3	230.0	115.0	23.0	112	34.5	11.6	11.2	11.2	11.3	11.4	232.0	116.0	23.2	113	34.8	11.7	11.3	11.3	11.4	11.5	234.0	117.0	23.4	114	35.1	11.8	11.4	11.4	11.5	11.6	236.0	118.0	23.6	115	35.4	11.9	11.5	11.5	11.6	11.7	238.0	119.0	23.8	116	35.7	12.0	11.6	11.6	11.7	11.8	240.0	120.0	24.0	117	36.0	12.1	11.7	11.7	11.8	11.9	242.0	121.0	24.2	118	36.3	12.2	11.8	11.8	11.9	12.0	244.0	122.0	24.4	119	36.6	12.3	11.9	11.9	12.0	12.1	246.0	123.0	24.6	120	36.9	12.4	12.0	12.0	12.1	12.2	248.0	124.0	24.8	121	37.2	12.5	12.1	12.1	12.2	12.3	250.0	125.0	25.0	122	37.5	12.6	12.2	12.2	12.3	12.4	252.0	126.0	25.2	123	37.8	12.7	12.3	12.3	12.4	12.5	254.0	127.0	25.4	124	38.1	12.8	12.4	12.4	12.5	12.6	256.0	128.0	25.6	125	38.4	12.9	12.5	12.5	12.6	12.7	258.0	129.0	25.8	126	38.7	13.0	12.6	12.6	12.7	12.8	260.0	130.0	26.0	127	39.0	13.1	12.7	12.7	12.8	12.9	262.0	131.0	26.2	128	39.3	13.2	12.8	12.8	12.9	13.0	264.0	132.0	26.4	129	39.6	13.3	12.9	12.9	13.0	13.1	266.0	133.0	26.6	130	39.9	13.4	13.0	13.0	13.1	13.2	268.0	134.0	26.8	131	40.2	13.5	13.1	13.1	13.2	13.3	270.0	135.0	27.0	132	40.5	13.6	13.2	13.2	13.3	13.4	272.0	136.0	27.2	133	40.8	13.7	13.3	13.3	13.4	13.5	274.0	137.0	27.4	134	41.1	13.8	13.4	13.4	13.5	13.6	276.0	138.0	27.6	135	41.4	
Table 1: Structural Analysis Results																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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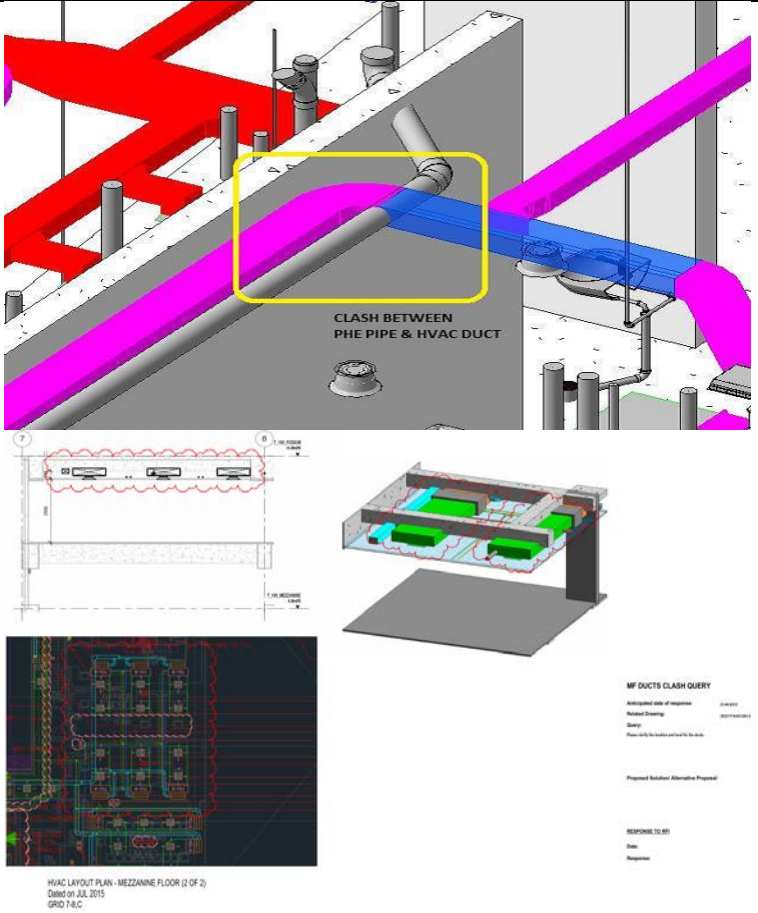
					
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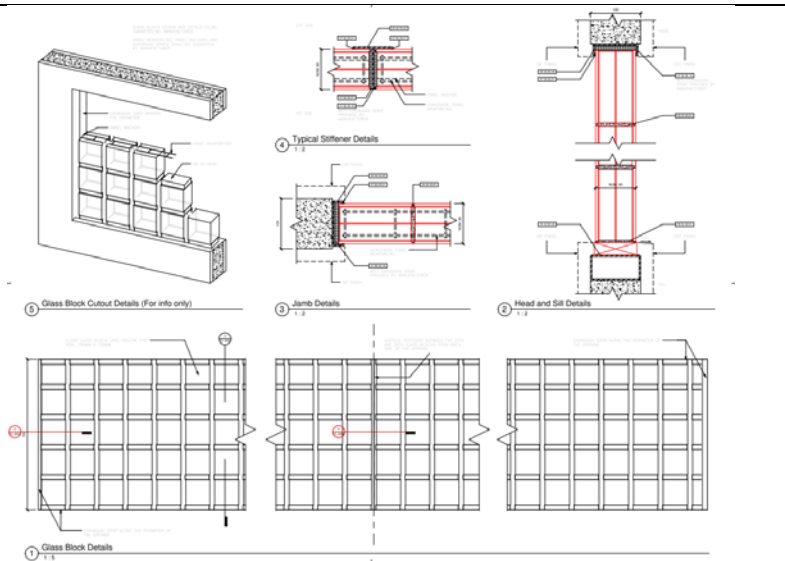
3	Detail design			
3.1	Drawing production for architecture, structure and MEP	Architectural, structural and MEP design	For government submission (GBP)	 The architectural drawing set includes a site plan at the top showing the building's location relative to Aberdeen Praya Road and surrounding areas. Below the site plan are two cross-sections: Section A-A (1:100) and Cross Section B-B (1:100). To the right of the cross-sections are two isometric views, labeled 'ISOMETRIC VIEW 3 (FOR REFERENCE ONLY)' and 'ISOMETRIC VIEW 4 (FOR REFERENCE ONLY)', showing the building's form and structure.

3.2	Clash detection	Architectural, structural and MEP design	Design coordination		
3.3	Spatial validation checks for headroom and working space	Architectural, structural and MEP design (all levels shall be clearly mentioned)	For building and services design, building operations and maintenance activities checking		
3.4	Drawing revision	Architectural, structural and MEP design revisions	Make sure all 2D and 3D information update and consistent	 Based on Drawing CS1591-FP001 dated 18-09-2015, the headroom of staircase between grid 6-6 is not sufficient.	

3.6	Animation	Architectural, structural, MEP and landscape design	To visualize the design in virtual reality for design checking	 The image is a composite of three parts. The top-left part is a 3D architectural rendering of a modern interior space, showing a long hallway with a staircase and a large window. The top-right part is a 2D architectural floor plan of the same space, showing rooms like 'Lobby', 'Conference', 'Prep/Dish', and 'Dry Storage'. The bottom part shows a person wearing a VR headset and holding a controller, interacting with a large monitor displaying a 3D architectural model.
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3.7	Update design analysis: sunshade, landscape etc	Architectural, structural, MEP and landscape design	To design improvement	BIM Building Information Modeling  • Visualization • Structural analysis • Cost • Documentation • Fabrication/Construction • Etc... Building Performance Analysis (BPA) Whole Building Energy Analysis • Conceptual Models • Detailed Models  Energy Analysis Model (EAM) Other Performance Studies    Lighting & Daylighting Sun & Shadows Solar Radiation    Climate Analysis Airflow & Ventilation Lifecycle Analysis     Architectural Model Light Solar Energy	
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4	Tender / Construction			
4.1	Clash detection revision	Architectural, structural and MEP design revisions	Constantly clash checking to avoid design fault to minimize unnecessary construction cost	 CLASH BETWEEN PHE PIPE & HVAC DUCT HVAC LAYOUT PLAN- MEZZANINE FLOOR (2 OF 2) DATED ON JUL 2015 SPRINT 14/C WF DUCTS CLASH QUERY Anticipated date of response: 21 Jul 2015 Responsible: [Name] Status: [Status] Remarks: [Remarks] Proposed Solution: Alternative Proposal RESPONSE TO RFQ Date: [Date] Response: [Response]

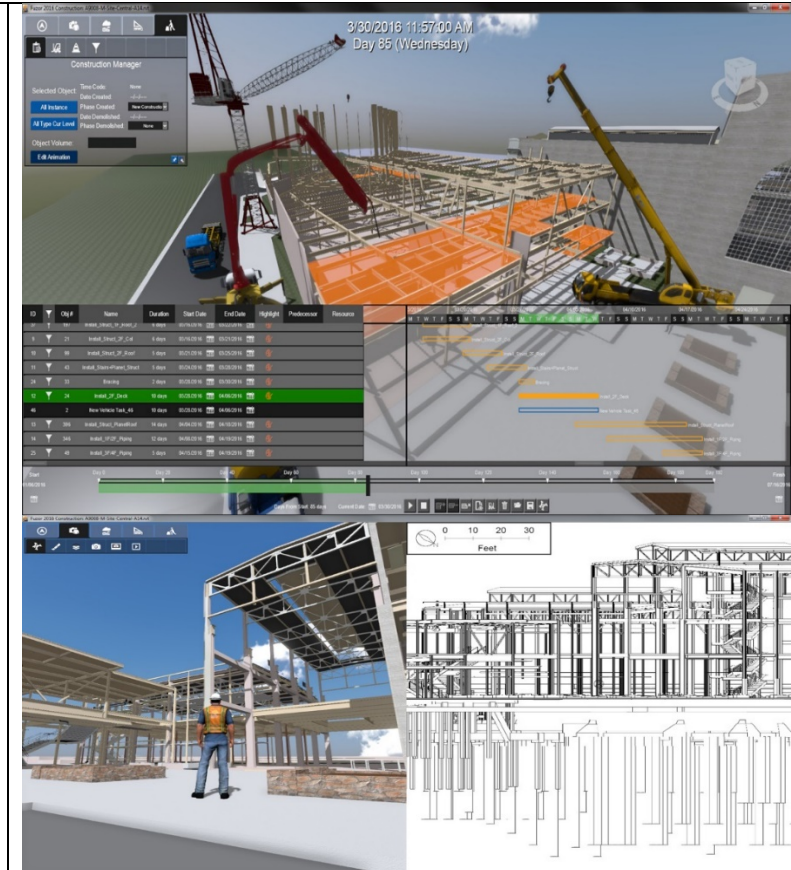
4.2	Drawing production	Architectural, structural and MEP design revisions	Construction drawings																																																							
4.3	Schedule revision	Architectural, structural and MEP design revisions, material revisions	For quantity take off	1120 Owner NTP for Temp Facilities/Installation 1180 Owner NTP for Package #2 Work 1200 Site Survey - Locate Existing Utility 1210 Owner NTP for Package #3 Work 1220 Submit Safety Documentation for Package #1 1240 Owner Review/Approval of Safety Docs for Pkg #1 1180 Owner NTP for Package #1 Work Construction Planning 1024 Setup Job Trailers 1020 Temporary Utilities Construction Planning - Package #1 1110 Training Package #1 1106 Install Safety Fence per S1000P 1110 Remove Fence & Cut Access Ramp @ T4-25 1225 Install 40' Storm Drain 1230 Site Demolition 1236 Layout Building & Shoring Limits 1237 Start Shoring In-Basin Installation 1238 Start Mass Excavation to 1st Tie Back Elevation 1002 Install 1st Level of Tie Backs & Lagging 1002 Begin Transport of Soil to Processing Plant 1110 Remove Fence & Cut Access Ramp @ T4-25 1002 Complete Mass Excavation, Lagging & Prep. Bldg Pad 1003 Complete Shoring Construction Planning - Package #2 1109 Training Package #2 1200 Form Mat Foundation - S. Half Plot #1 1205 Install Reinforcing Steel @ Mat Found. - S. Half 1215 Pour Concrete @ Mat Foundation - S. Half Plot #1 1216 Form Mat Foundation - S. Half Plot #2 1244 Form Mat Foundation - S. Half Plot #1 1245 Install Reinforcing Steel @ Mat Found. - S. Half 1208 Pour Concrete @ Mat Foundation - N. Half Plot #1 1209 Form Mat Foundation - S. Half Plot #2 1210 Pour Concrete @ Mat Foundation - S. Half Plot #2 1120 Owner NTP for Temp Facilities/Installation 1180 Owner NTP for Package #2 Work 1200 Site Survey - Locate Existing Utility 1210 Owner NTP for Package #3 Work 1220 Submit Safety Documentation for Package #1 1240 Owner Review/Approval of Safety Docs for Pkg #1 1180 Owner NTP for Package #1 Work Construction Planning 1024 Setup Job Trailers 1020 Temporary Utilities Construction Planning - Package #1 1110 Training Package #1 1106 Install Safety Fence per S1000P 1110 Remove Fence & Cut Access Ramp @ T4-25 1225 Install 40' Storm Drain 1230 Site Demolition 1236 Layout Building & Shoring Limits 1237 Start Shoring In-Basin Installation 1238 Start Mass Excavation to 1st Tie Back Elevation 1002 Install 1st Level of Tie Backs & Lagging 1002 Begin Transport of Soil to Processing Plant 1110 Remove Fence & Cut Access Ramp @ T4-25 1002 Complete Mass Excavation, Lagging & Prep. 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Half Plot #2 <table><tr><th colspan="5">Sheet List</th></tr><tr><th>Sheet Number</th><th>Sheet Name</th><th>Current Revision</th><th>Current Revision Issued</th><th>Current Revision Description</th></tr><tr><td>A101</td><td>Level 01</td><td>5</td><td>Yes</td><td>Revision 5</td></tr><tr><td>A102</td><td>Level 02</td><td>5</td><td>Yes</td><td>Revision 5</td></tr><tr><td>A103</td><td>Level 03</td><td>5</td><td>Yes</td><td>Revision 5</td></tr><tr><td>A104</td><td>Level 04</td><td>5</td><td>Yes</td><td>Revision 5</td></tr><tr><td>A105</td><td>Level 05</td><td>5</td><td>Yes</td><td>Revision 5</td></tr></table><table><tr><th>No.</th><th>Description</th><th>Date</th></tr><tr><td>1</td><td>Revision 1</td><td>09-01-10</td></tr><tr><td>2</td><td>Revision 2</td><td>09-05-10</td></tr><tr><td>3</td><td>Revision 3</td><td>09-07-10</td></tr><tr><td>4</td><td>Revision 4</td><td>09-15-10</td></tr><tr><td>5</td><td>Revision 5</td><td>09-22-10</td></tr></table> 	Sheet List					Sheet Number	Sheet Name	Current Revision	Current Revision Issued	Current Revision Description	A101	Level 01	5	Yes	Revision 5	A102	Level 02	5	Yes	Revision 5	A103	Level 03	5	Yes	Revision 5	A104	Level 04	5	Yes	Revision 5	A105	Level 05	5	Yes	Revision 5	No.	Description	Date	1	Revision 1	09-01-10	2	Revision 2	09-05-10	3	Revision 3	09-07-10	4	Revision 4	09-15-10	5	Revision 5	09-22-10	
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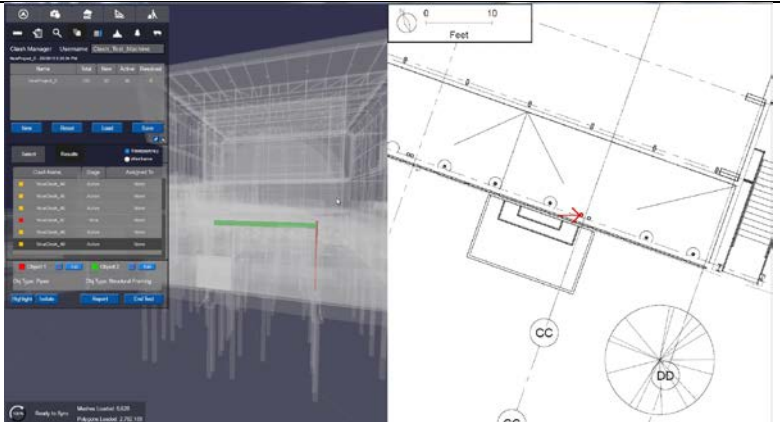
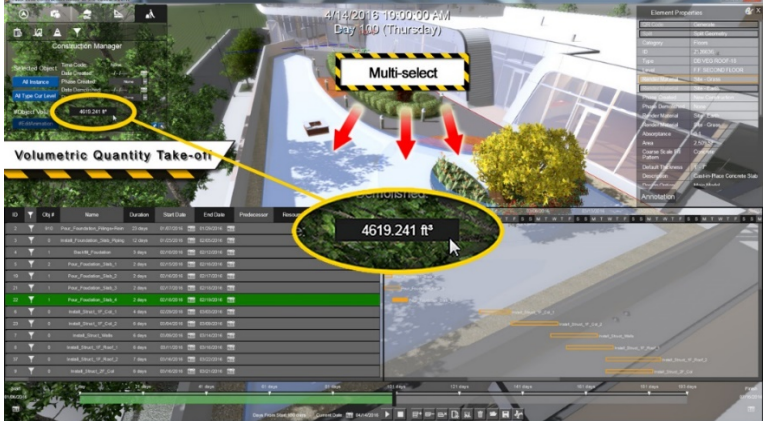
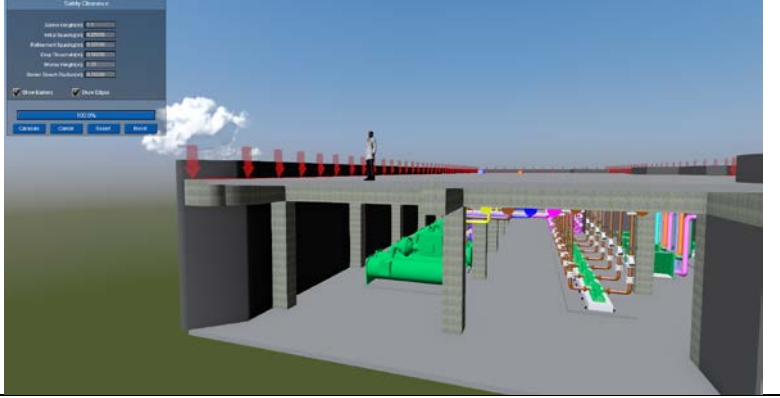
4D animation for construction sequence

Architectural, structural and MEP design revisions; construction programme and method statement

Construction sequence checking, clash between trades could be detected before commencement.



4.5	Shop drawing	Shop drawing and method statement	Shop drawing produced from BIM model to ensure the drawing and model are consistent	The image displays a set of architectural drawings for an acoustic wooden wall panel and a counter at the main entrance. The drawings are organized into two main sections. Top Section: Acoustic Wooden Wall Panel 3D Views: Two 3D perspective views of the wall panel are shown at the top. View 1 (top right) shows the panel from a side angle, and View 2 (top left) shows it from a different side angle. Both views highlight the panel's acoustic properties and its integration with the surrounding structure. Elevations: Three elevation drawings are provided below the 3D views: Acoustic Wooden Wall Panel Left Elevation (3): A detailed side elevation showing the panel's profile and its connection to the wall. Acoustic Wooden Wall Panel Right Elevation (4): A detailed side elevation showing the panel's profile and its connection to the wall. Acoustic Wooden Wall Panel Front Elevation (5): A detailed front elevation showing the panel's profile and its connection to the wall. Bottom Section: Counter 3D Cutaway: A 3D cutaway drawing (6) shows the counter's internal structure, including the acoustic insulation and the wooden paneling. Section: A section drawing (7) shows the counter's profile and its connection to the wall. Elevations: Two elevation drawings are provided below the section: Counter Elevation at Main Entrance (G/F) (8): A detailed elevation showing the counter's profile and its connection to the wall. Counter Plan at Main Entrance (G/F) (9): A detailed plan view showing the counter's footprint and its connection to the wall.
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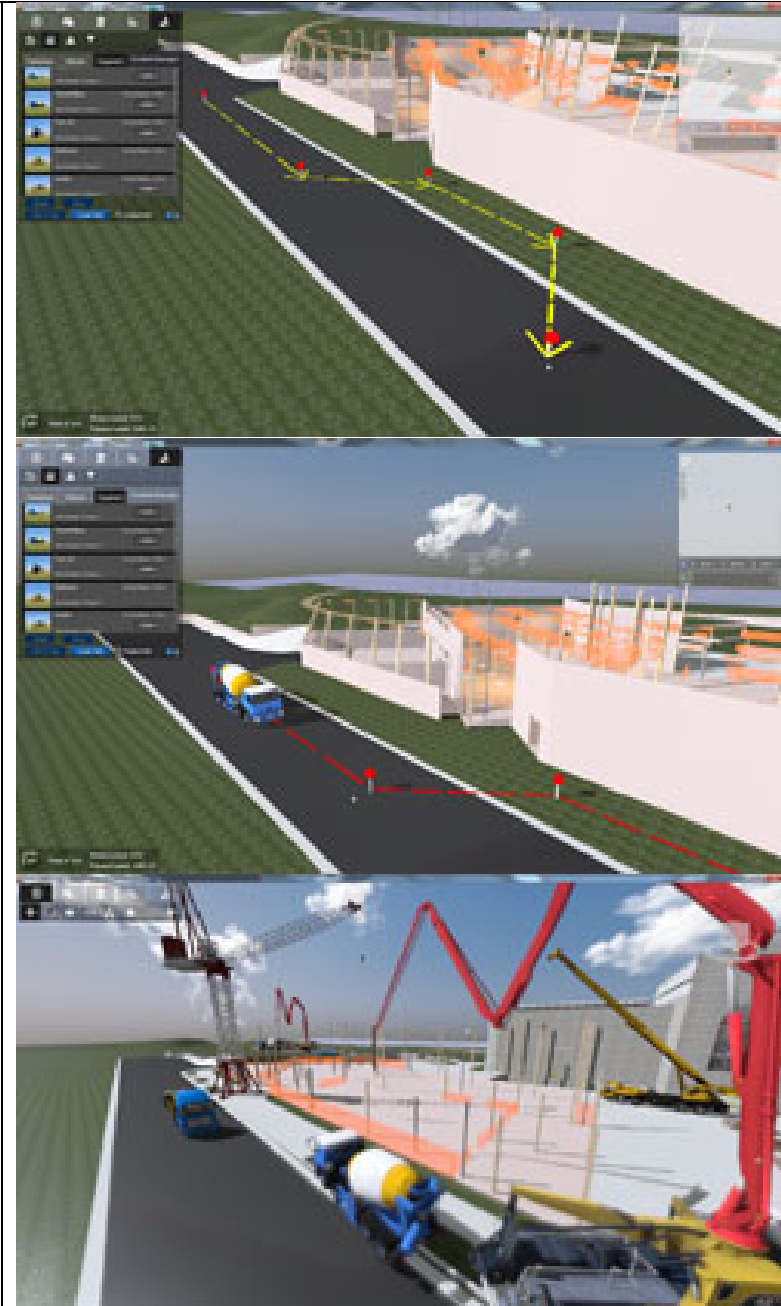
4.6	CSD	Architectural, structural, MEP drawings from contractor	test the feasibility of MEP ductwork / pipework, clash detection between MEP and Architecture / Structure		
4.7	Procurement, cash flow and payment	Contractor's design for architecture, structure and MEP, material and equipment to be used	Procurement, lead time and payment will affect the construction programme		
4.8	Construction safety check	Construction equipment	4D Construction simulation to highlight the construction sequence, while at the same time to visualize the temporary works during construction to ensure the site safety, delivery route, protective measures etc.		

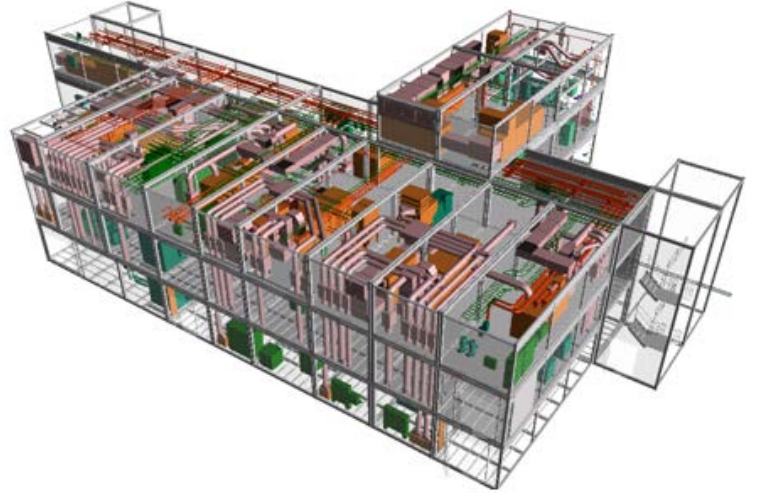
4.9

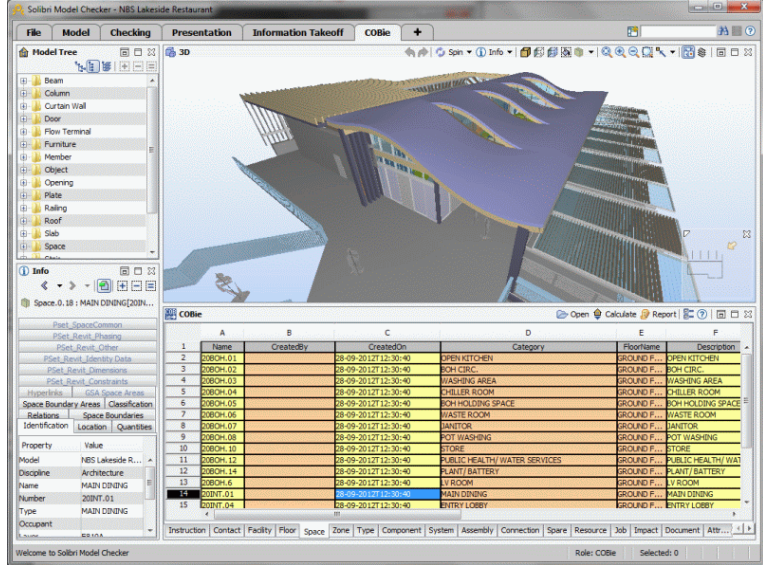
Site
management

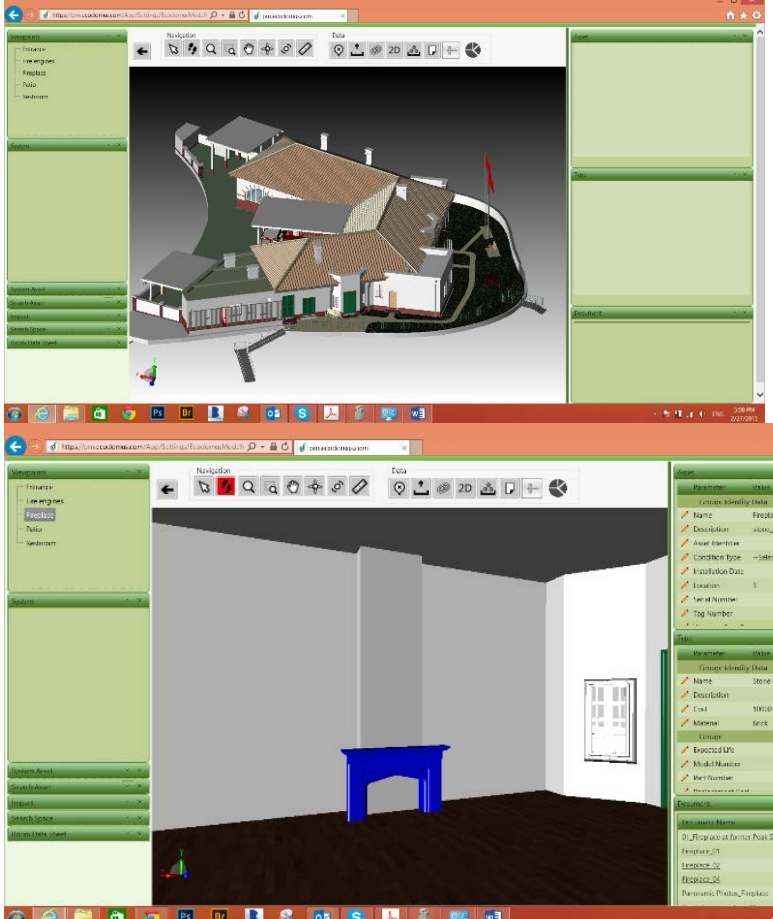
Procurement
schedule, lead time
and site logistic
planning, installation
detail

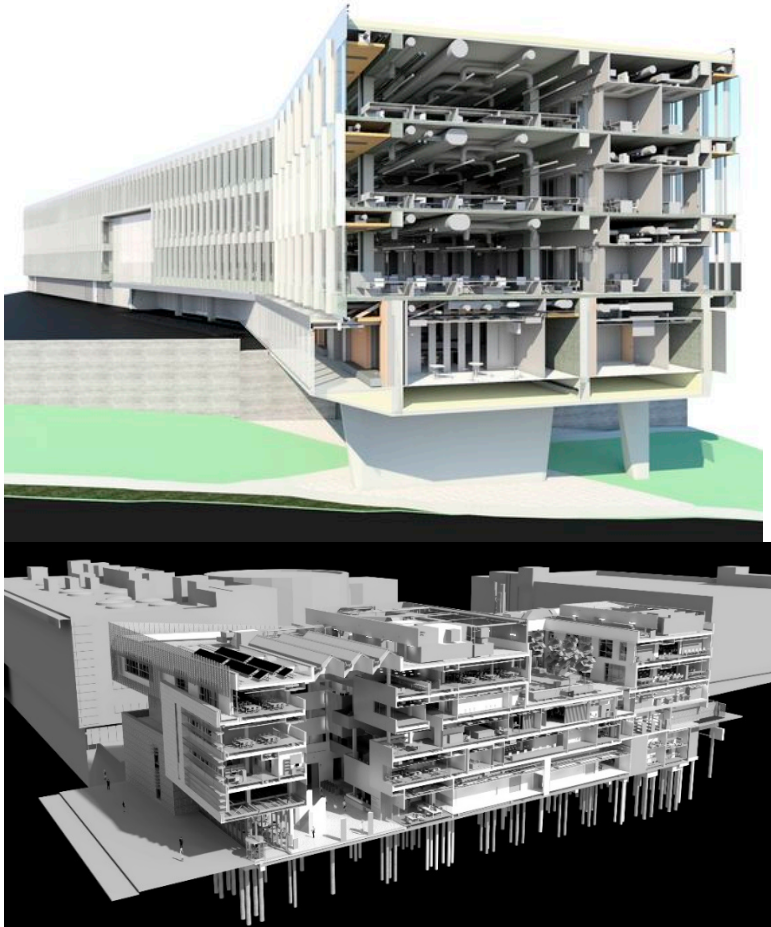
To utilize the 4D Construction
Simulation techniques facilitate
the site planning - material
storage, delivery path, hoist
management and installation
logistics.



5 Construction completed				
5.1	As-built model	Contractor's architecture, structure, MEP and landscape design, and MEP equipment	Related information to be stored in the model, extra information to future facility management purpose will be added	 

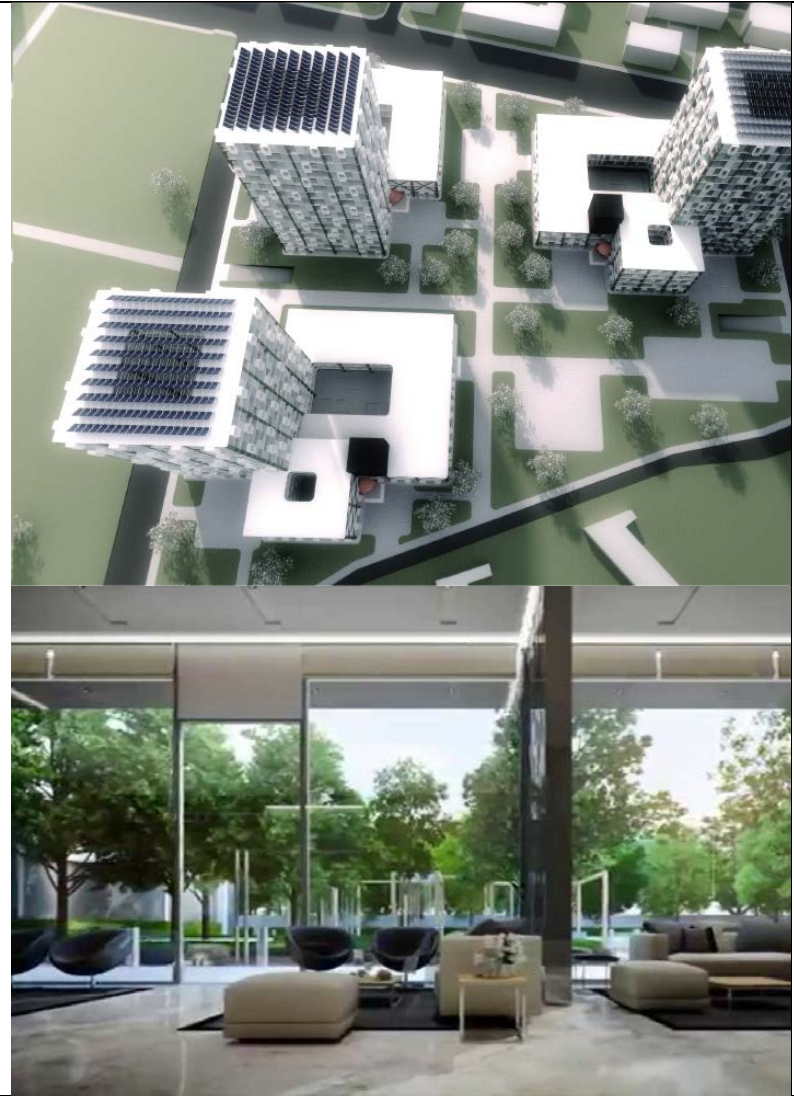
5.2	COBIE	Material, O&M manual, warranty and maintenance information	The information will be export and re-store into model in EcoDomus for facility management purpose	 The screenshot displays the Solibri Model Checker interface for a project named 'NBS Lakeside Restaurant'. The main window shows a 3D perspective view of a building model. On the left, there is a 'Model Tree' and an 'Info' panel. The 'Info' panel is currently showing the 'COBie' table, which lists building components and their properties. <table> <tr> <th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr> <tr> <th></th><th>Name</th><th>CreatedBy</th><th>CreatedOn</th><th>Category</th><th>FloorName</th><th>Description</th></tr> <tr> <td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td>2</td><td>DOCKH.01</td><td></td><td>28-09-2017 12:30:40</td><td>OPEN KITCHEN</td><td>GROUND F...</td><td>OPEN KITCHEN</td></tr> <tr> <td>3</td><td>DOCKH.02</td><td></td><td>28-09-2017 12:30:40</td><td>ROH CIRC.</td><td>GROUND F...</td><td>ROH CIRC.</td></tr> <tr> <td>4</td><td>DOCKH.03</td><td></td><td>28-09-2017 12:30:40</td><td>WASHING AREA</td><td>GROUND F...</td><td>WASHING AREA</td></tr> <tr> <td>5</td><td>DOCKH.04</td><td></td><td>28-09-2017 12:30:40</td><td>CHILLER ROOM</td><td>GROUND F...</td><td>CHILLER ROOM</td></tr> <tr> <td>6</td><td>DOCKH.05</td><td></td><td>28-09-2017 12:30:40</td><td>ROH HOLDING SPACE</td><td>GROUND F...</td><td>ROH HOLDING SPACE</td></tr> <tr> <td>7</td><td>DOCKH.06</td><td></td><td>28-09-2017 12:30:40</td><td>WASTE ROOM</td><td>GROUND F...</td><td>WASTE ROOM</td></tr> <tr> <td>8</td><td>DOCKH.07</td><td></td><td>28-09-2017 12:30:40</td><td>JANITOR</td><td>GROUND F...</td><td>JANITOR</td></tr> <tr> <td>9</td><td>DOCKH.08</td><td></td><td>28-09-2017 12:30:40</td><td>POT WASHING</td><td>GROUND F...</td><td>POT WASHING</td></tr> <tr> <td>10</td><td>DOCKH.10</td><td></td><td>28-09-2017 12:30:40</td><td>STORE</td><td>GROUND F...</td><td>STORE</td></tr> <tr> <td>11</td><td>DOCKH.12</td><td></td><td>28-09-2017 12:30:40</td><td>PUBLIC HEALTHY WATER SERVICES</td><td>GROUND F...</td><td>PUBLIC HEALTHY WA</td></tr> <tr> <td>12</td><td>DOCKH.14</td><td></td><td>28-09-2017 12:30:40</td><td>PLANT/BATTERY</td><td>GROUND F...</td><td>PLANT/BATTERY</td></tr> <tr> <td>13</td><td>DOCKH.6</td><td></td><td>28-09-2017 12:30:40</td><td>V ROOM</td><td>GROUND F...</td><td>V ROOM</td></tr> <tr> <td>14</td><td>DOCKH.01</td><td></td><td>28-09-2017 12:30:40</td><td>MAIN DINING</td><td>GROUND F...</td><td>MAIN DINING</td></tr> <tr> <td>15</td><td>DOCKH.04</td><td></td><td>28-09-2017 12:30:40</td><td>ENTRY LOBBY</td><td>GROUND F...</td><td>ENTRY LOBBY</td></tr> </table>		A	B	C	D	E	F		Name	CreatedBy	CreatedOn	Category	FloorName	Description	1							2	DOCKH.01		28-09-2017 12:30:40	OPEN KITCHEN	GROUND F...	OPEN KITCHEN	3	DOCKH.02		28-09-2017 12:30:40	ROH CIRC.	GROUND F...	ROH CIRC.	4	DOCKH.03		28-09-2017 12:30:40	WASHING AREA	GROUND F...	WASHING AREA	5	DOCKH.04		28-09-2017 12:30:40	CHILLER ROOM	GROUND F...	CHILLER ROOM	6	DOCKH.05		28-09-2017 12:30:40	ROH HOLDING SPACE	GROUND F...	ROH HOLDING SPACE	7	DOCKH.06		28-09-2017 12:30:40	WASTE ROOM	GROUND F...	WASTE ROOM	8	DOCKH.07		28-09-2017 12:30:40	JANITOR	GROUND F...	JANITOR	9	DOCKH.08		28-09-2017 12:30:40	POT WASHING	GROUND F...	POT WASHING	10	DOCKH.10		28-09-2017 12:30:40	STORE	GROUND F...	STORE	11	DOCKH.12		28-09-2017 12:30:40	PUBLIC HEALTHY WATER SERVICES	GROUND F...	PUBLIC HEALTHY WA	12	DOCKH.14		28-09-2017 12:30:40	PLANT/BATTERY	GROUND F...	PLANT/BATTERY	13	DOCKH.6		28-09-2017 12:30:40	V ROOM	GROUND F...	V ROOM	14	DOCKH.01		28-09-2017 12:30:40	MAIN DINING	GROUND F...	MAIN DINING	15	DOCKH.04		28-09-2017 12:30:40	ENTRY LOBBY	GROUND F...	ENTRY LOBBY
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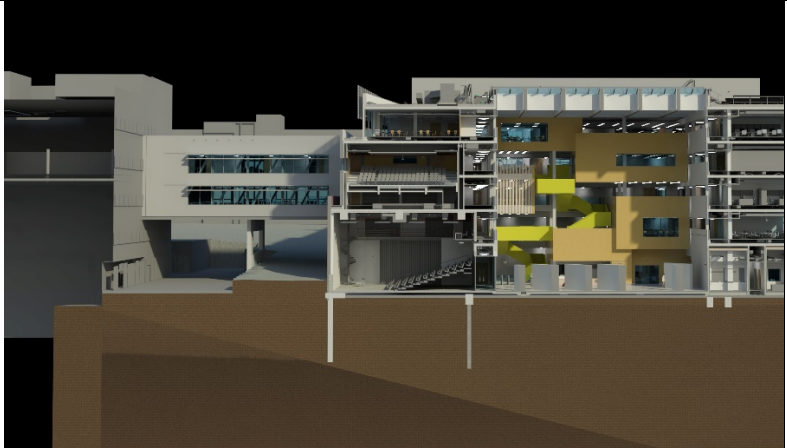
6	Facility management				
6.1	Model and COBie information re-combine in EcoDomus for facility management	Model: contractor's design for architecture, structure, MEP and related equipment, landscape design Information: information that facility management required, e.g. material, O&M manual and warranty	Extra time and human resource required for facility management because of the insufficient information, massive information could be centralize and accessible when BIM technology introduced into facility management		

7	Marketing purpose			
7.1	Perspective	Architectural, structural, MEP and landscape design, material, color selection and tree information	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	

7.2	3D printing	Architectural, structural, MEP and landscape design, material, color selection and tree information	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	
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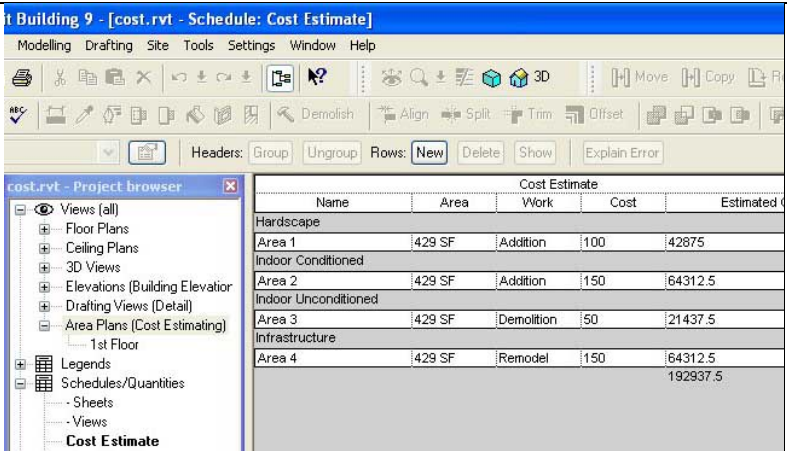
7.3	Animation for interior and exterior	Architectural, structural, MEP and landscape design, material, color selection and tree information	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area
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7.4	Color plan or isometric perspective	General arrangement plan, interior design including furniture, material and color selection	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	
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7.5	Sales brochure	Leasable area and material selection	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area
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7.6	Area schedule and unit price	Architectural design and unit price	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	 The screenshot displays the Revit interface for a project named 'Building 9'. The main window shows a 'Cost Estimate' schedule with the following data: <table border="1"> <thead> <tr> <th>Name</th> <th>Area</th> <th>Work</th> <th>Cost</th> <th>Estimated</th> </tr> </thead> <tbody> <tr> <td colspan="5">Hardscape</td> </tr> <tr> <td>Area 1</td> <td>429 SF</td> <td>Addition</td> <td>100</td> <td>42675</td> </tr> <tr> <td colspan="5">Indoor Conditioned</td> </tr> <tr> <td>Area 2</td> <td>429 SF</td> <td>Addition</td> <td>150</td> <td>64312.5</td> </tr> <tr> <td colspan="5">Indoor Unconditioned</td> </tr> <tr> <td>Area 3</td> <td>429 SF</td> <td>Demolition</td> <td>50</td> <td>21437.5</td> </tr> <tr> <td colspan="5">Infrastructure</td> </tr> <tr> <td>Area 4</td> <td>429 SF</td> <td>Remodel</td> <td>150</td> <td>64312.5</td> </tr> <tr> <td colspan="3"></td> <td></td> <td>192937.5</td> </tr> </tbody> </table> The project browser on the left shows the following structure: - Views (all) - Floor Plans - Ceiling Plans 3D Views - Elevations (Building Elevation) - Drafting Views (Detail) - Area Plans (Cost Estimating) 1st Floor - Legends - Schedules/Quantities - Sheets - Views Cost Estimate	Name	Area	Work	Cost	Estimated	Hardscape					Area 1	429 SF	Addition	100	42675	Indoor Conditioned					Area 2	429 SF	Addition	150	64312.5	Indoor Unconditioned					Area 3	429 SF	Demolition	50	21437.5	Infrastructure					Area 4	429 SF	Remodel	150	64312.5					192937.5
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7.7	Facility	Architectural, structural, MEP and landscape design	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area
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