City Information Modeling: Designing Resilient Cities

Interactive 3D Zoning

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We are on the mission to

Provide the fastest path toward zoning compliant urban design.
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Problem #1

Is this urban planning according to Industry 4.0 standards?
Problem #2

Development design is separated from development control.

Area Size = 23,865 m²
FSI = 1.79
GFA = 42,773 m²
NFA = 31,470 m²
Site Coverage = 30.18%
Req. Parking Spaces = 763
...
Solution

Interactive 3D Zoning

Method Validation
Validation #1

**Modeling Time & Accuracy**

Using early version of Modelur users were able to **get design done 2.4 times faster** (average), all while being also **4 times closer to required FAR**.

<table>
<thead>
<tr>
<th></th>
<th>Manual Modeling</th>
<th>Interactive Modeling</th>
<th>Interactive Zoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>1:25:15</td>
<td>1:05:21</td>
<td>0:35:51</td>
</tr>
<tr>
<td>FAR MAX</td>
<td>1.68</td>
<td>1.58</td>
<td>1.57</td>
</tr>
<tr>
<td>FAR MIN</td>
<td>1.2</td>
<td>1.4</td>
<td>1.45</td>
</tr>
<tr>
<td>FAR AVG</td>
<td>1.53</td>
<td>1.49</td>
<td>1.50</td>
</tr>
</tbody>
</table>
Validation #2

Design Accuracy

Users struggle to get FAR right. Although one might say average looks good, individual results show **problem in getting FAR right**. Using Interactive 3D zoning, results are a lot closer to required FAR.
Validation #3

Placing Errors

Using Interactive 3D Zoning placing of buildings becomes a lot less error prone as users are warned about mistakes in real-time, while designing.
Although there was significant reduction in time needed to model the development, the quality of the design remained the same. End result depends on the designer, not tool!
Validation #5

Clarity & Transparency

Most of respondents (all involved in urban planning and design) found proposed interactive 3D zoning method to be more clear and transparent than traditional zoning (maps and text).
Use Cases
Use Case #1

Prepare City Plans

- Verify existing GIS data
- Check existing situation
- Define new regulations
- ...

73 City Blocks, 16 Land Uses, 1458 Buildings, ...
Use Case #2

**Design New Masterplans**

- Design directly within zoning
- Calculate parking requirements
- Plan construction phasing
- ...

94ha, FSI: 0.97, SC: 29.5%, GFA 926,000m², ...
Use Case #3

Design Infill Developments

- Test design alternatives
- Validate sun insolation
- Create complex buildings
- ...
Early Adopters
Thank you!

Questions?

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www.modelur.com