USING VIRTUAL REALITY TO VALIDATE NEW METRICS FOR PREDICTION OF DAYTIME VIEW-OUT QUALITY AND PRIVACY
THE REVALUE PROJECT

Identify non-energy benefits in retrofits that can be the catalyst for investments in extensive energy conserving measures for existing multi-family housing.
SPATIAL QUALITY : DEFINITION

The spatial quality of an indoor environment is a subjective human conviction based on a multi-sensory experience of the space.
SPATIAL QUALITY : PHENOMENA

Numerous phenomena affects the ‘quality experience’ of a space...

Articulation: Qualitative

‘Bodily identification’
‘Spatial juxtaposition and interpenetration’

Examples:
‘Enclosure, demarcation, texture’
‘Thermal comfort’
‘Acoustics’
‘Glare’

Evaluation: Intuition // Descriptive Guidelines
SPATIAL QUALITY: PHENOMENA

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Evaluation: Intuition // Descriptive Guidelines // Calculations
Windows govern many phenomena that affects the perception of spatial quality.

Window design variables such as number, size, placement, and transparency governs subjective perception of:
Lighting level, noise, thermal comfort, and air quality...
...but also such as view-out and privacy.
QUANTIFICATION OF VIEW-OUT AND PRIVACY

Reference view
- Sub-areas -
  - Subjective factors (0-1) for view-out quality and privacy -

View-out
- Reduced area -

Area-weighted factors

Horizontal grid, point in eye position

Hypothesis
The area-weighted view-out quality or privacy factor (0-1) corresponds to the subjective vote of the view-out quality or privacy (0-1) in any grid point.
CALCULATION EXAMPLE

View-out quality factors

Privacy factors
RESULTS
VALIDATION OF VIEW-OUT QUALITY AND PRIVACY FACTORS

90 participants
## RESULTS

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<thead>
<tr>
<th>Environment A</th>
<th>View-out quality</th>
<th>Privacy</th>
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<tbody>
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<td>Experiment</td>
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CONCLUDING REMARKS

• The ReValue project has identified a promising calculable metric for view-out quality and privacy.
• The metrics can be used to instigate a qualitative discussion with stakeholders that prefer comparing numbers as indicator of quality.
• Equating spatial quality phenomena in the decision process.
• We acknowledge that further research is needed.