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## Conference Paper Session 11 Energy Modeling vs. Actual Building Energy Consumption

Architecture, Cartography and  
Energy:

Mapping the Way We Share  
Information to Build Better Buildings

2013 Annual Conference, Denver, Colorado

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## Learning Objectives

- Explain misaligned expectations between architects and buildings engineers.
- Describe how customized workflow maps can optimize the energy modeling process.
- Have gained knowledge from experience from an evaluation of nine properties with energy efficient multi-family dwellings.
- Have an insight to what might be the reasons to the gap between measurements and simulation results.
- Distinguish between the two general factors causing the discrepancy between predicted energy performance and actual energy consumption.
- Recognize that even projects following the LEED process do not always perform as well as predicted.

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## Acknowledgements

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- Adam Menter - Autodesk
- Asbjorn Levring - Danish Technology Institute
- Daniel Nielsen - Danish Technology Institute

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## Outline/Agenda

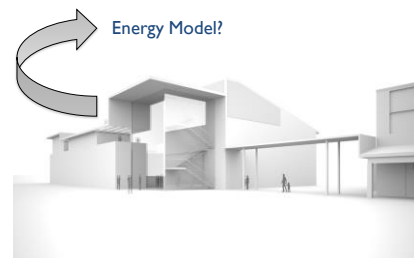
- Issues with current design tools and practices.
- Misaligned expectations between architects and buildings engineers.
- Customized workflow maps to optimize the energy modeling process.

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## Energy Targets & Global Trends

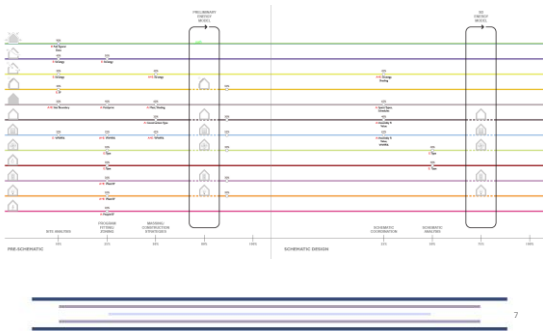


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## Creating Workflow Maps



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## Types of Exchanged Information



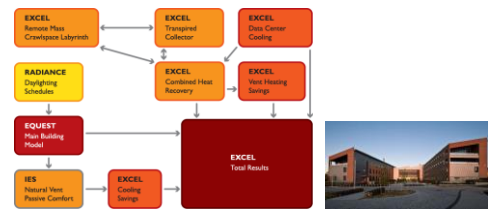
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## Design Tools vs. Holistic Analysis



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## Design Tools vs. Holistic Analysis



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How much energy are we using?

What's important to focus on?

Are we meeting our goals?

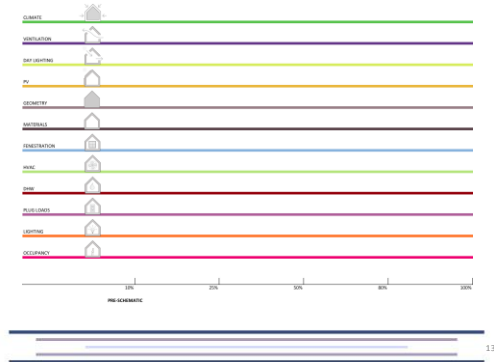
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## Types of Exchanged Information



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## Timeline



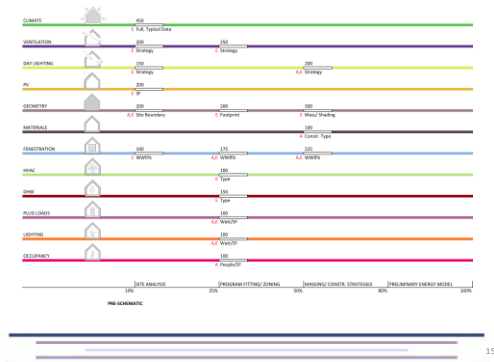
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## Coordination Events



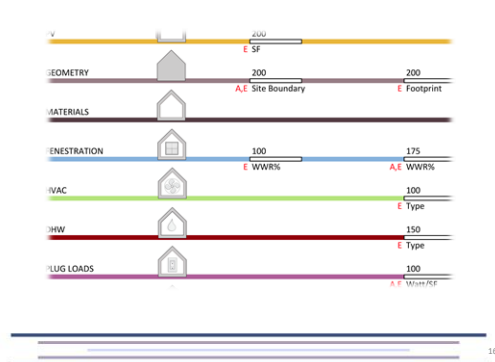
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## Station Markers



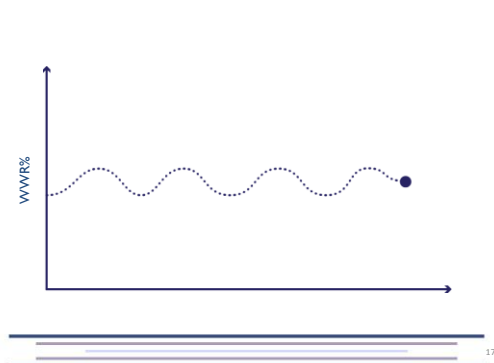
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## Level Of Detail



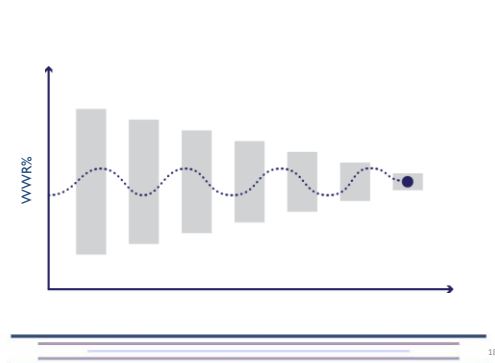
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## Level Of Detail



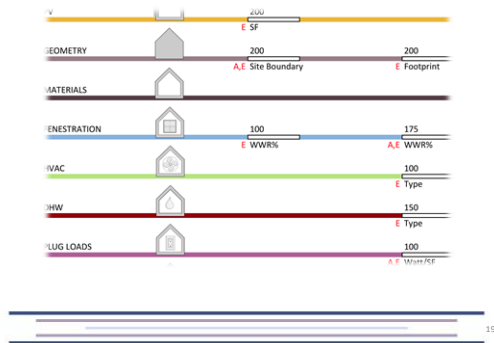
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## Level Of Detail

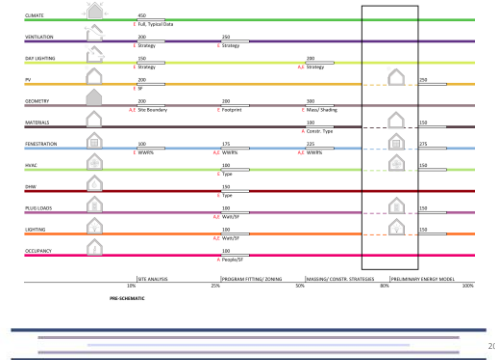


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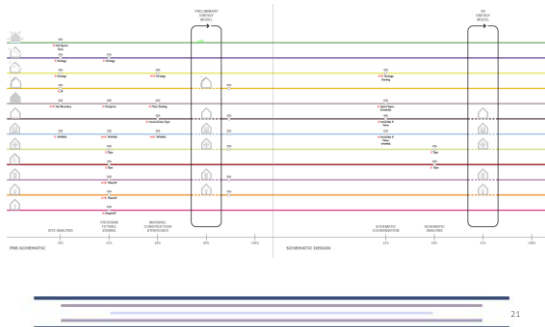
## Specific Details



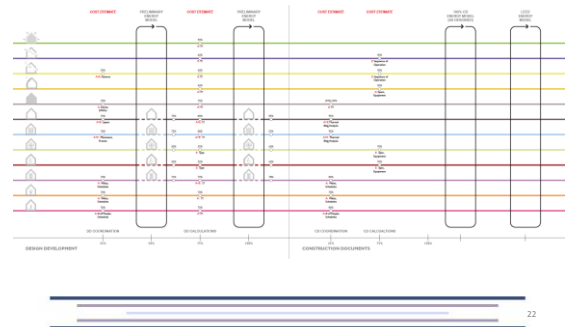
## Energy Modeling



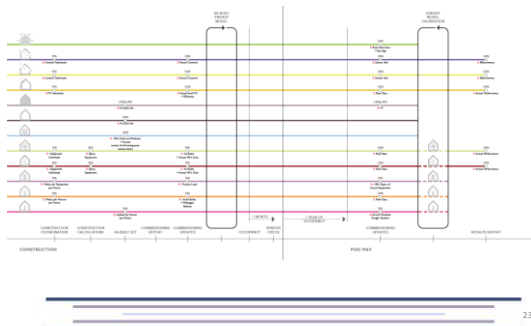
## Pre-Schematic &amp; Schematic Design



## Design Development &amp; Construction Documents



## Construction &amp; POE / M&amp;V



## Conclusions

- The language of information exchange
- Implications for other disciplines
- Challenges of implementation
- Next steps

## Bibliography

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## Questions?

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