Net-Zero Emerging Leadership Internship

SERA Architects | Energy Trust of Oregon
SERA Architects

Education

Portland, Or. Office

Sustainability

Oakland, CA. Office

Urban Design

Established in 1968

Large Firm | 184+

100% Employee Owned

Across 6 Studios |

Workplace

Housing

Hospitality

Reporting for over 10 years

Introduction |
History of Community & Sustainability | 

Blanchet House of Hospitality incorporates one of the city’s largest rainwater harvesting systems, energy-efficient lighting, extra insulation, thermally-broken low-e windows, and a 2,500 sf eco-roof that, together with the rainwater tank, allows for 100% of the stormwater to be managed on site and used for toilet flushing.

Edith Green Wendell Wyatt is LEED Platinum certified and will use 60-65% less energy than a typical office building. Combined with a unique rainwater harvesting system, which is estimated to achieve greater than 65% potable water savings.

Orchards of 82nd features a mix of 48 one-, two- and three-bedroom units ideal for young families, and supports ROSE’s Baby Booster Initiative aimed at improving quality of life for children in their first 1,000 days. The ground floor is activated by a community lounge and learning space, as well as a multicultural event space owned and managed by APANO.
Why? | Buildings account for 40% of energy consumption

Data is a powerful communicative language

Firms can use data for Design Processes

Incomplete Energy Feedback Loop

AIA 2030 Commitment

Energy Performance

Building Construction

Building Codes and Standards

Architecture Design

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Challenges:

- Communicating and maintaining sustainable efforts within a large firm.
- Energy tools can be dense and require specific training.
- Energy performance is typically after-the-fact reporting or considerations.

Goals:

- Bolster workflow efforts for DDx reporting firm-wide.
- Create simple architecture design tools to determine early energy metrics.
- Establish ways of thinking about energy metrics in pre-design efforts.
How do you communicate this to design teams?

2003 CBECS?

Not a Design Tool

Embodied Carbon?

Needed Paradigm Shift

 energy reductions to design

 Designed to reduce energy

 AFTER

 BEFORE

 SERA Architects
### EUI Benchmark Tool

<table>
<thead>
<tr>
<th>STEP #3:</th>
<th>STEP #4:</th>
<th>STEP #5:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select the applicable building typology of the Project. *Building Typology must be same for National and Regional for comparisons.</td>
<td>Select the applicable building typology based on the region. *Building Typology must be same for National and Regional for comparisons.</td>
<td>Determine your target EUI</td>
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</table>

**DESCRIPTION:** The National EUI is an average EUI that changes with different building typologies. The National EUI is based on the CBECB - 2003 building standards and is what the 2030 Commitment Goal EUI numbers are compared to. *Selected building typology should be the same between National and Regional as to get equal comparison. In some cases National EUI might be lower than Zero Tool, use the lower of the two outputs.

**DESCRIPTION:** The Regional EUI number is a prediction of energy consumption based off of regional climate conditions. This is a more accurate indication of energy consumption. *Selected building typology should be the same between National and Regional as to get equal comparison. In some cases National EUI might be lower than Zero Tool, use the lower of the two outputs.

**BASELINE EUI (kBTU/ft²/yr)**

<table>
<thead>
<tr>
<th>NATIONAL EUI (2030 GOAL)</th>
<th>REGIONAL EUI (ZERO TOOL)</th>
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<tbody>
<tr>
<td>Courthouse</td>
<td>COURTHOUSE (Portland, OR)</td>
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<tr>
<td>118</td>
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</table>

**TARGET EUI (kBTU/ft²/yr)**

<table>
<thead>
<tr>
<th>ENERGY CODE</th>
<th>2030 CHALLENGE</th>
<th>ZERO TOOL</th>
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<tbody>
<tr>
<td>IMPROVED</td>
<td>BETTER</td>
<td>EXEMPLARY</td>
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<tr>
<td>78</td>
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</table>

**DESCRIPTION:** Identify your project goal based on Project Compass goals for energy consumption (Better, Exempt, Exemplary). This EUI should provide a metric and goal for the buildings energy use leading toward Net-Zero Energy. If you plan on building to energy code what can be done to lower the projects EUI in an attempt to build better than code?
Batch Upload for a Large Firm

Challenges

- Engage studio leaders about the energy use of their projects.
- Simplify data entry and human error.
- Develop firm wide approach to 2030 Reporting.

(~40 Questions) x (~40 Projects) = 1,600 data points

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<th>D</th>
<th>E</th>
<th>F</th>
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<tbody>
<tr>
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Batch Upload for a Large Firm Continued

- Engage Energy Performance Awareness
- Increase Workflow Procedures
- Reduce Data Entry Process
- Gain additional Internal Data

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SERA: 2030 Reporting Questionnaire (2019)

Please input project information for 2030 Challenge Reporting and Embodied Carbon Reporting.

TIME | 2030 Reporting Questionnaire: approximately (20 minutes)
TIME | Embodied Carbon Questionnaire: approximately (15 minutes)

2030 Questionnaire = (27 questions)
Embodied Carbon = (24 questions)

REQUIRED | Project Revit Model
REQUIRED | General Calculator

If your project has any unusual conditions or you need to clarify any of your responses each section provides a space for additional comments or explanation. If you have questions please email (justin@seradesign.com) or ask within the provided comments sections.

All questions that are not applicable or unknown should be left BLANK.

There is an option to "Edit your Responses" after the survey has been submitted, if information needs to be input over multiple sessions. You will receive an email confirmation once you have completed the questionnaire. If you want to "edit your responses", select "Edit Response", within the confirmation email.

Email address *
Valid email address

This form is collecting email addresses. Change settings

SERA: Embodied Carbon Reporting Questionnaire (2019)

Form description
Steps Forward |

Embodied Carbon Tracking

Integrated Energy Modeling Tools

Internal Firm Reporting

Continued Knowledge Resourcing

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