

Net Zero Emerging Leaders Internship

EJ Del Rosario | Opsis Architecture | Energy Trust of Oregon

OPSIS NZELI Intern 2024

EJ Del Rosario

Background

- Current Third-Year M. Architecture Student at the the University of Oregon Portland Campus
- B.S. in Environmental Science at the University of Oregon
- First NZELI Intern for Opsis Architecture

Internship Duties

- Energy Model with Cove.Tool
- Develop Action Plan
- Document Typical Wall Assemblies
- Support AIA 2030 Reporting



How is Opsis Doing?

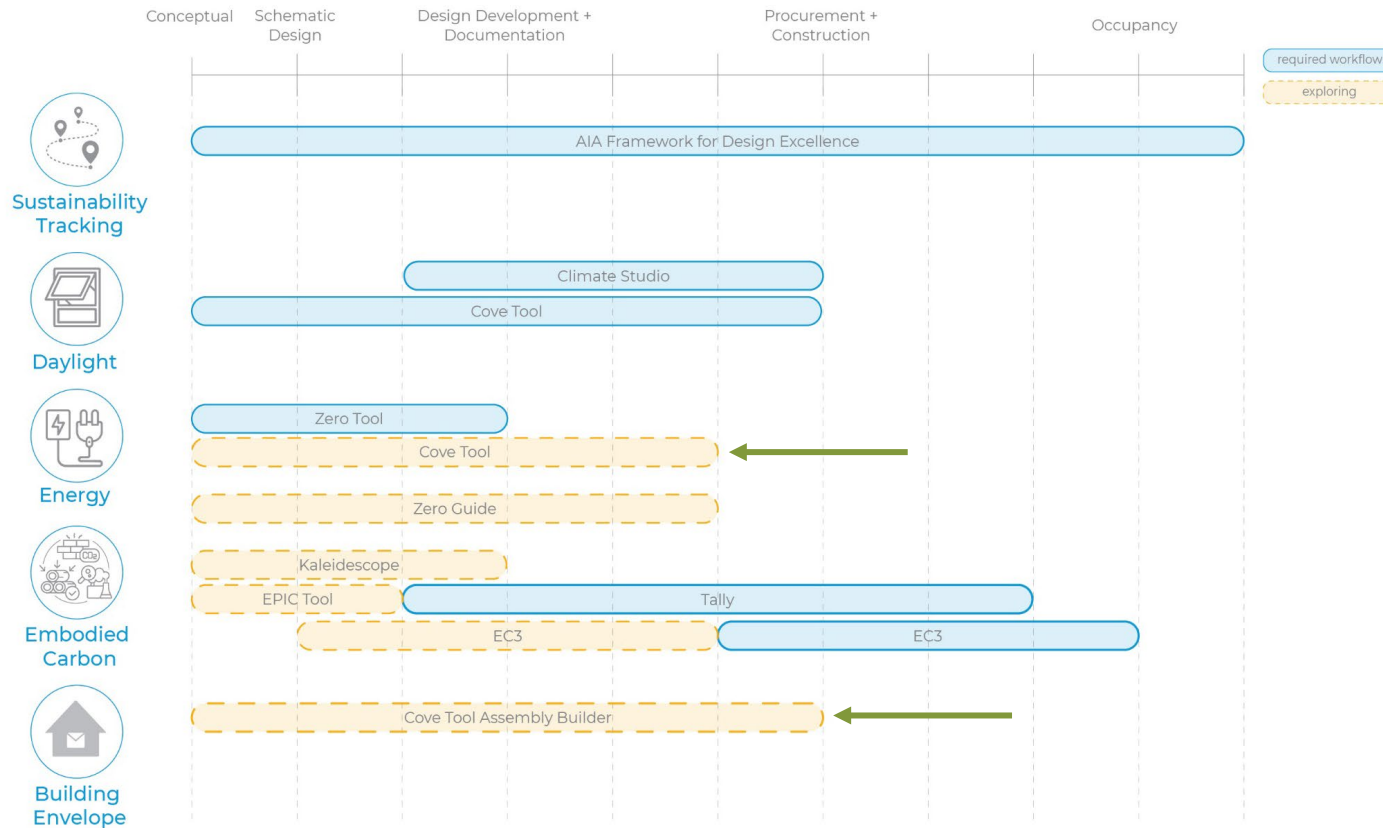


The Tools

Energy, Daylight, Embodied Carbon Analysis

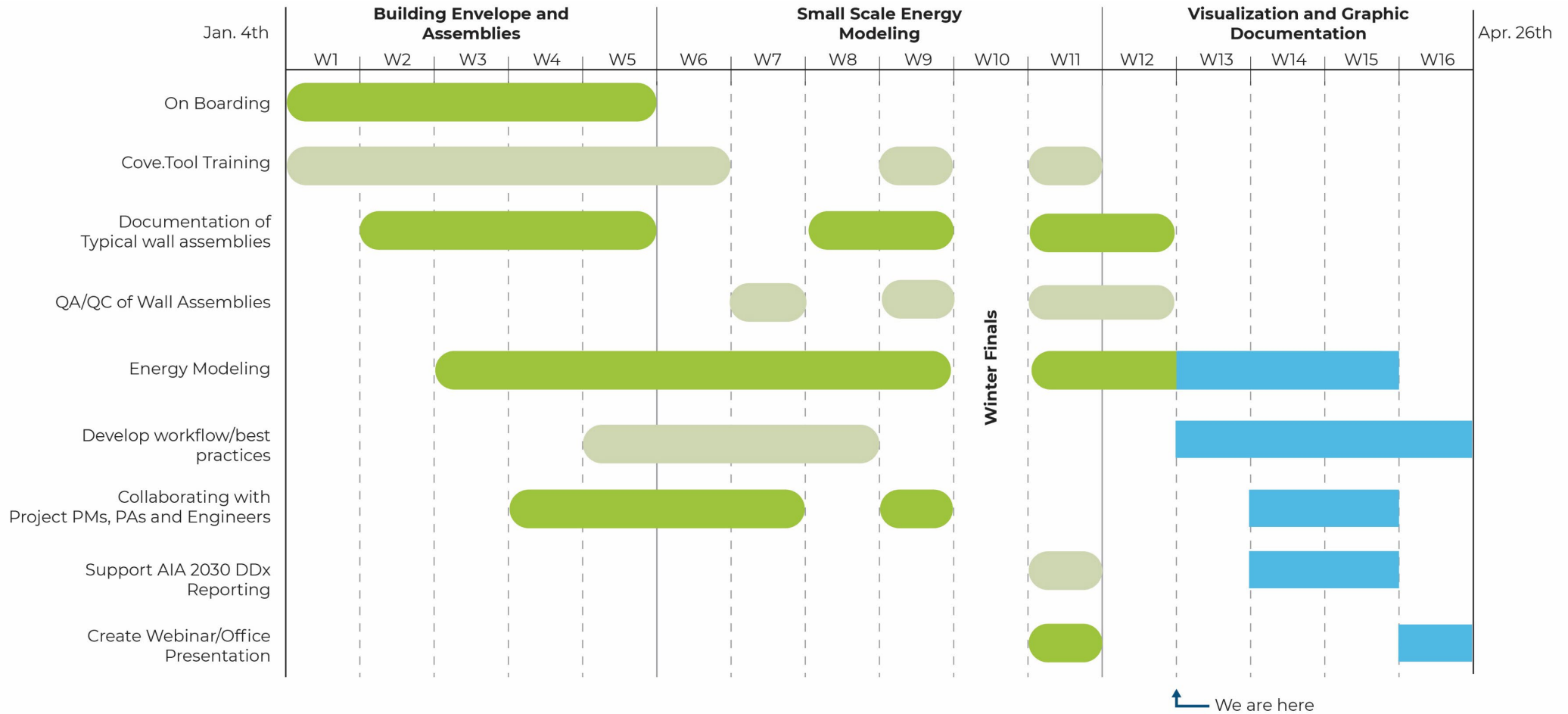
Through early modeling we are better able to identify gaps, improvement opportunities, and connect performance directly to design.

The analysis should start at the earliest stages of design to provide each project team relevant, iterative feedback while a design is still evolving, in order to optimize: orientation and form, embodied carbon reduction, energy performance, shading and daylighting, and building envelope.



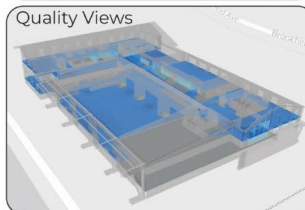
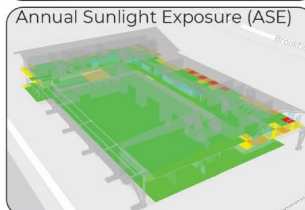
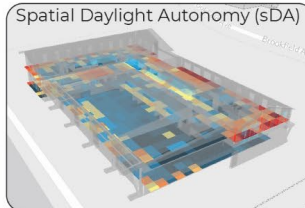
A variety of tools can be utilized to inform design decisions at different phases of a project. Some are part of our current workflow and others are currently being explored.

Internship Structure

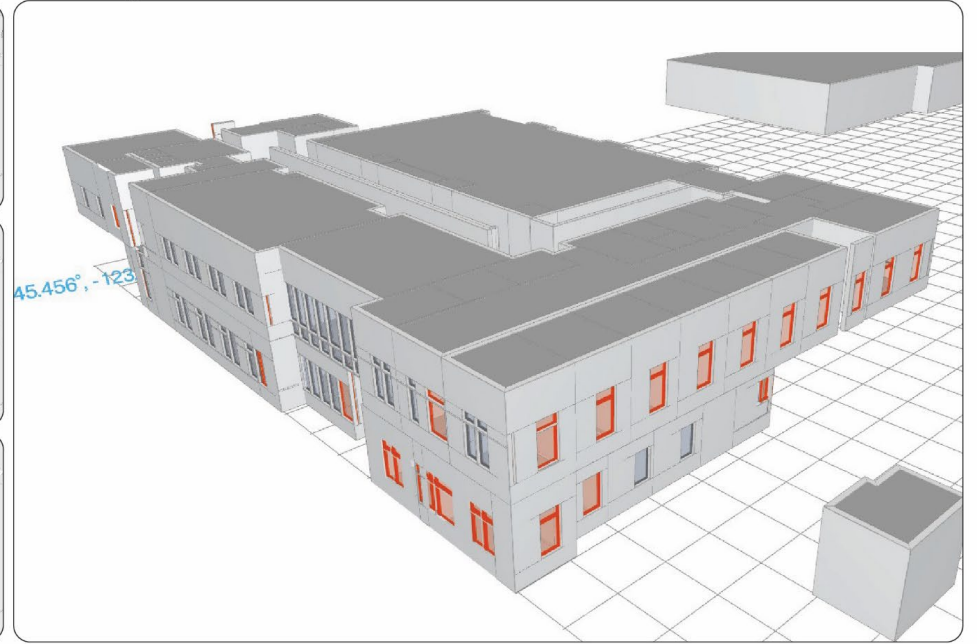


Cove.Tool Modeling and Analyzations

Tillamook Bay Community College (TBCC)



Drawing.Tool

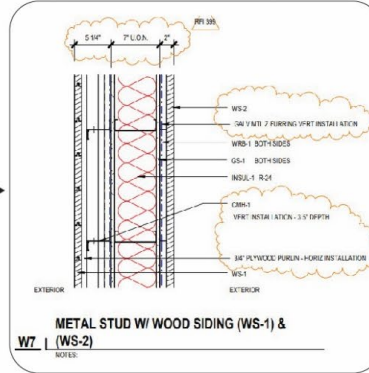


Wall Assembly Library and Integration

Selecting a Project



Tyt. Wall Assembly



Specs & CDs

COCC TREATY OAK SKILLS CENTER AND STUDENT HOUSING SECTION 07 21 00
011220 THERMAL INSULATION Page 1

PART 1 GENERAL

11 SUMMARY

A. Furnish all labor, material, equipment and services required for the installation of thermal insulation in wall and ceiling areas as detailed.

B. Related Sections:

- Division 5 Section "PVC Single Ply Membrane Roofing"
- Division 31 Section "Excavation and Fill"

12 REFERENCES

A. American Society for Testing and Materials (ASTM).

13 ADDITIONAL REQUIREMENTS

A. Listed R-values are for insulation only and represent minimum acceptable values.

14 SUBMITTALS

A. Submit data for each type of insulation product specified.

B. Product data for each type of insulation product specified.

C. Product test reports from and based on tests performed by a qualified independent testing agency evidencing compliance of insulation products with specified requirements including those for thermal resistance, fire-retardant characteristics, water vapor transmission, water absorption, and other properties, based on comprehensive setting of current products.

D. Research or evaluation reports of the model code organization acceptable to authorities having jurisdiction that evidence compliance of non-plastic insulations with building code in effect for Project.

15 QUALITY ASSURANCE

Cove.Tool

COCC Treaty Oak Skills Center

Summary

Quantity: 15.48

Area: 1452

Volume: 7.67

Cost: \$44.28

References

1. American Society for Testing and Materials (ASTM)

2. Division 5 Section "PVC Single Ply Membrane Roofing"

3. Division 31 Section "Excavation and Fill"

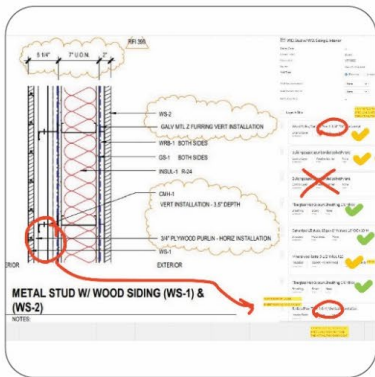
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4. Research or evaluation reports of the model code organization acceptable to authorities having jurisdiction that evidence compliance of non-plastic insulations with building code in effect for Project.



QA & QC

NAME	DESCRIPTION	UNIT	QUANTITY	AREA	VOLUME	COST
W7 (WS-2)	Metal Stud w/ Wood Siding	Sq. Ft.	15.48	1452	7.67	\$44.28
W8 (WS-1)	Metal Stud w/ Wood Siding	Sq. Ft.	15.48	1452	7.67	\$44.28

Library

Selected Walls

Assign Walls

Custom Blendo, 2 layers, on steel
Blendo, R-13 @ R-13 @ C-1

*W Stud w/ Brick Masonry

*W Stud w/ Metal Panel

Name

Wall

Identification

Wall Type: Exterior Wall

Dimensions

Length: 27 ft 5.25 in

Thickness: 8 ft 11.25 in

Height: 10 ft 0 in

Constraints

Look Height to Floor Above:

Endpoints to Move: left right

Material Properties

Texture A: None

Texture B: None

R-Value (R-IP FTU): 35.175

Cove.Tool

Optimization

Summary

Name	Length	Thickness	Height	R-Value	Area	Volume	Cost
W7 (WS-2)	27 ft 5.25 in	8 ft 11.25 in	10 ft 0 in	35.175	1452	7.67	\$44.28
W8 (WS-1)	27 ft 5.25 in	8 ft 11.25 in	10 ft 0 in	35.175	1452	7.67	\$44.28

Optimization Summary

Summary

Quantity: 15.48

Area: 1452

Volume: 7.67

Cost: \$44.28

Optimization

Next Steps

- Develop Cove.Tool Office Procedure
- Support AIA DDx 2030 Reporting for Next Year
- Introduce “big picture” data points for PMs
- Analyze and Integrate another project of similar scale but in an earlier phase
- Present work to the office



Highlights

- Working with the Team
- Learning energy goals, metrics, and entities of sustainability
- The range and breath of exposure

Lessons Learned

- Troubleshooting Challenges
- Time Management
- Professional Growth



A nighttime photograph of the Oregon Zoo Education Center. The building features a prominent wooden pergola structure over the entrance, illuminated from within. A large, abstract sculpture made of perforated metal stands in the foreground. The sky is a deep blue, and the building's interior lights are visible through the glass walls. In the background, there are trees and another building structure.

Thank you

Opsis Architecture | Energy Trust of Oregon