NET ZERO EMERGING LEADERS INTERNSHIP

ALONDRA MALDONADO | HENNEBERY EDDY ARCHITECTS





ABOUT ME

24 Years old

Grew up in Gresham/Portland Area

Reynolds High School Class of 2016

UO BA In Environmental Studies w/ double minor in Architecture & Business Class of 2020

PSU M.Arch School of Architecture Class of 2024







HENNEBERY EDDY ARCHITECTS

PORTLAND | BEND | BOZEMAN

NET-POSITIVE DESIGN PHILOSOPHY: We aspire to design net-positive solutions through healthy, efficient, and adaptive spaces that are responsive to our clients, the environment and the people who use them.









OVERVI EW

AIA 2030 DDX REPORTING // WORKFLOW CREATED

COVE.TOOL ENERGY MODELING // HOW DID WE USE COVE AND ITS BENEFITS

EMBODIED CARBON

// WHAT IS IT AND WHY DOES IT MATTER?





















Reporting Year



ENERGY MODELING

REVIT MODEL // EXPORTING TO COVE.TOOL

COVE.TOOL MODEL // HOW WE USE COVE AND ITS BENEFITS

















The emissions from a building's energy consumption.

The emissions from manufacturing, transportation, and installation of building materials.

EMBODIED CARBON

Embodied Carbon // DEFINITION

Why Does it Matter? // DISTINCTIONS TO KNOW

Strategies and Considerations // WAYS TO MEDIGATE



Annual Global CO₂ Emissions



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Building Construction Industry and Other Construction Industry represent emissions from concrete, steel, and aluminum for buildings and infrastructure respectively.

EMBODIED CARBON

Is the amount of CO2 and other GHG emitted during the extraction of raw materials, manufacturing of materials, transportation, construction of materials, waste of materials as well as the emissions a building produces during operation.



Total Carbon Emissions of **Global New Construction** with no building sector interventions



EMBODIED CARBON: The amount that cannot be reduced once a building is complete

OPERATIONAL CARBON: The amount of carbon emitted during the operation of a building



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STRATAGIES TO REDUCE EMBODIED CARBON

STEP 1: WHERE ARE WE AND SETTING A BASELINE

REDUCTION STRATEGIES

- Low Carbon Materials
- Material Minimization
- Material Reuse & Recycling
- Local Sourcing & Transportation
- Construction optimization strategies

OTHER CONSIDERATIONS

- <u>Reuse:</u> Adapt & ruse of existing buildings
- <u>Reduce:</u> Material optimization & specification of low to zero carbon materials
- <u>Sequester:</u> The design of carbon sequestering sites & the use of carbon sequestering materials

SOME ALTERNATIVES

- Geopolymer Concrete Ceme alternative
- Rammed Earth Emerging potential low-carbon construction material
- Low-Carbon Brick with Solid Waste Materials

fly ash, steel say, calcium carb, dredged mud







WHY THIS PROJECT?

- GOOD SIZE
- NEW BUILDING MAKES EMBODIES CARBON SCOPE STRAIGHTFORWAR D
- NO AGGRESSIVE GOALS







ASSEMBLY BUILDER







LESSONS LEARNED

CHALLENGES // CREATING A NEW POTENTIAL WORKFLOW

LEARNED ABOUT FIRM CULTURE // MY EXPERIENCE AT HEA

CONFIRMED DESIRE TO WORK IN SUSTAINABLE DEISIGN // APART OF MITIGATING THE CLIMATE CRISIS THROUGH DESIGN



THANK YOU

ALONDRA MALDONADO | HENNEBERY EDDY ARCHITECTS



