RE: MAKE THE FUTURE
A Regenerative Building Center

Nancy Cheng's 2023-24 Advanced Architectural Design
RE:MAKE THE FUTURE
A Regenerative Building Center

The challenge
The opportunity
Themes
Process
Global warming is the challenge of our lifetime
Mass of cities now > earth's biomass

“Over the next forty years, our total building stock is estimated to double, while nearly a third of our present building stock will come down.”

“Construction & demolition waste is more than 2x household trash*  
- Build Reuse organization

*Source: Environmental Protection Agency (EPA) 2017 report
Lyceum Competition:
– Center for Regenerative Building
– Building community around design & reconstruction
– Training & green jobs

OPPORTUNITY: REMAKE OUR FUTURE
• Design for Disassembly & Re-use, Material passports
Climate action as social-economic hub
- Building Material Bank
- Maker Space & Innovation Lab
- Hostel for trainees

With classmates, research site options & pick your site, then customize a place-based design around the local community.

Making, Learning, & Earning
WHY AM I INTERESTED?

- 3rd daughter of Chinese immigrants – stretching $ for education
- Maker – sewing, pottery, watercolors, digital design
- Love: learning from others, reading, cycling, social justice
- Bauhaus education – love of art, lightweight structures
- Over 20 years of UO ecodesign, HOPES conferences
THEME: TECHNOLOGY’S NEW OPPORTUNITIES

• Aesthetic Expression
• Structural Efficiency
• Material Appropriateness
• Connections & Assemblies
RE:BUILDING IS A TRADITION

- Ise Shrine – twin

Rebuilt every 20 years

1300 years
Design for Change

- Modular systems that can adapt to growth and functional shifts

Penda “A thousand yards” botanical pavilion, 2019 Beijing expo; Aravena’s Incremental Housing
- Prefabrication with reversible assemblies

Puukucka Housing Block, Jyväskylä

Kindertagesstätte, Ulm

Treet, Bergen

Riedberg-Kalbach Comprehensive School, Frankfurt am Main

Mobile Kindergarten, Innsbruck

S. Bhandari et. al. *Journal of Building Engineering*, Modular CLT for seismic areas, 2023
SHELTER FROM SCRAPS – MY SUMMER PROJECT

Reciprocal frames: How much form can we create with few deconstructable components?
SYSTEMS THINKING

- Identify connections over different scales
- Track material flows to transform waste into resources
- Map social ecology
RE:NEW MATERIALS AS DESIGN

• Vandkunsten Nordic Building Reuse, 2015
Create a new aesthetic for ReUse

- Ningbo Museum by Pritzker Prize winner Wang Shu
- *Image from ArchDaily*
Create a new aesthetic for ReUse

• Ningbo Museum by Pritzker Prize winner Wang Shu

• Image from ArchDaily
RE:VITALIZE WITH THE SPIRIT OF THE PLACE

- Kamikatz Public House by Hiroshi Nakamura & NAP
RE:VITALIZE WITH THE SPIRIT OF THE PLACE

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Images by PAU – Practice for Architecture & Urbanism's Domino Sugar Factory, Brooklyn, NY
• Juxtaposition for impact

Images by PAU – Practice for Architecture & Urbanism’s Domino Sugar Factory, Brooklyn, NY
• Optionally engage with stakeholders
DEFINE DESIGN GOALS

Stormwater Management
- Facilitate collection, treatment, and reuse of on-site stormwater.
- Limit impervious surfaces to reduce stormwater pollutant loads.
- Maintain groundwater recharge and quality.

Maximize Solar Access
- Design buildings and infrastructure to take advantage of solar access.

Preserve and Enhance Habitat
- Preserve and enhance existing habitats.
- Define and preserve sensitive species and legacy trees.
Material experiments to find emotional core (i.e. Allied Works Architecture)

Joe Hudec’s OMSI Makerspace, M.Arch.’16
Learn through peer coaching
DEVELOP THE IDEA ARCHITECTURALLY

Anson Morris’ American School of Home Craft
Technical coaching by UO Alumni & professional allies
- Use this opportunity to learn new tools
- Emerging carbon calculators such as EPIC, Kaleidescope, OneClickLCA, Tally

Honour Colby, B.Arch.'23, Co-Living Studio
Anson Morris’ American School of Home Craft
SUMMARY

• Define a new Aesthetic of Reuse through material studies and digital refinement

• Create a project that grows out of your choice of site

• Envision a community hub for the circular economy focused on making, learning and earning

• Tell a great story and win $15,000!

Questions? Nancy - nywc@uoregon.edu

Diagram by Ally MacLean, M.Arch. & MBA ’16