STEEL COMPETITION

2011-2012 ACSA/AISC STEEL DESIGN STUDENT COMPETITION

OPEN CATEGORY

THIRD PLACE

Title: *[Re]Purposed*

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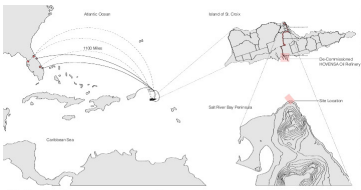


Salt River Bay Peninsula is home to many marine ecologies

The closing of the HOVENSA Oil Refinery provides materials for construction

[Re]Purposed

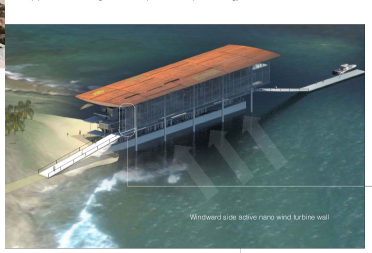
Investigating the potential of a decommissioned refinery

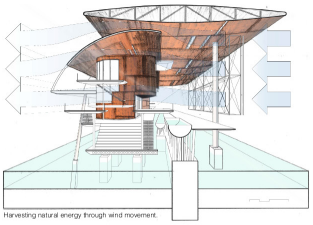
The refining process of the Climate Change Research Center takes into account the closing of the HOVENSA Oil Refinery by re-commissioning its refining mechanisms. Scavenged parts once used to support non renewable energy become a new paradigm that supports a clean, environmentally responsive energy. Rather than housing petroleum, the cylindrical tank is repurposed to house the study of the preservation of natural resources on St. Croix. The once singular use of the refinery tanks now become adaptive in the Research Center. The cylindrical tank is both de-constructed and used as a whole. The multiplicity of the singular component facilitates the dynamic and active program of the Research Center.

Similar to how the project looks inwardly to environmentally sensitive responses, the exhibition program does the same in relation to the maritime research areas. This focus inwards highlights the research centers, which are the heart of the building. The soon to be de-commissioned refinery that was once the economic stimulus of St. Croix has now found its root purpose in preserving the ecologies found on the island. The vernacular architecture of the island suggests a deep porch approach. By defining program around central closed systems, the overall energy footprint is reduced. These two moves allow the building to explore passive systems and create ways of gaining energy. The building is optimized to harvest the windward breeze of St. Croix to produce energy for the building and island as whole.

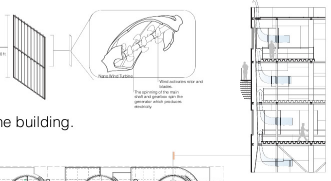
Locally Refined, Globally Responsive: Abandoned pieces of the oil refinery are [re]purposed for the Center.

A deep porch reduces heat gain to interior spaces and is a passive energy solution.

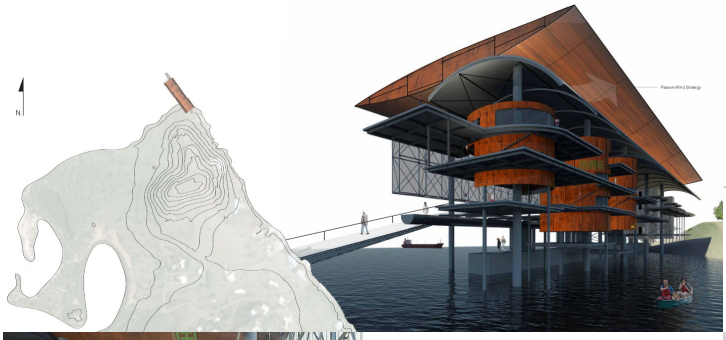


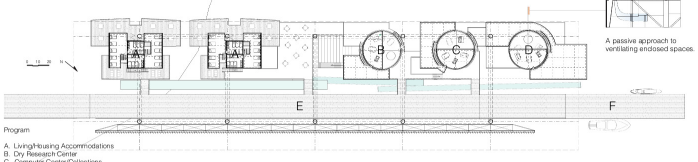


Harvesting natural energy through wind movement.

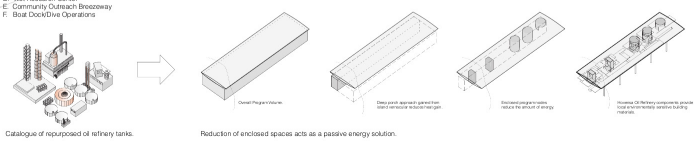


Off the Grid: The active and passive systems power the building.



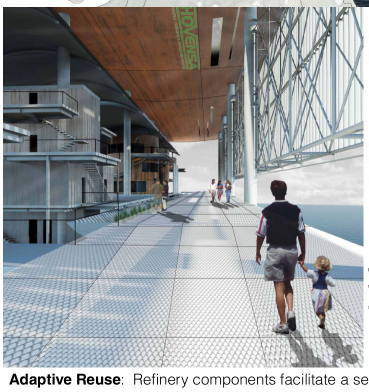


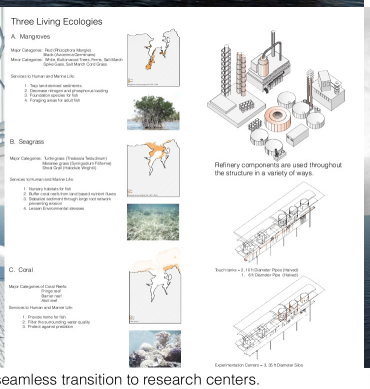
A passive approach to ventilating enclosed spaces.



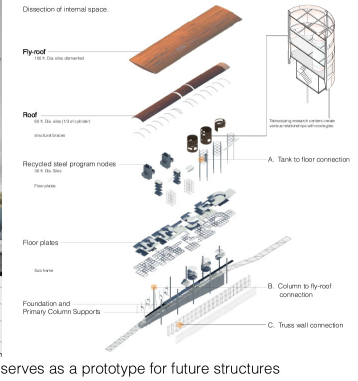
Catalogue of repurposed oil refinery tanks.

Reduction of enclosed spaces acts as a passive energy solution.

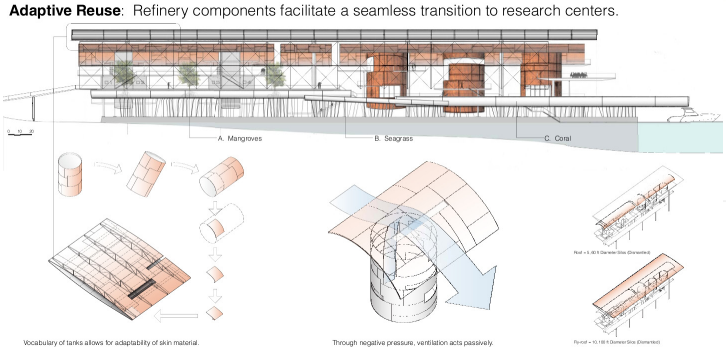




Adaptive Reuse: Refinery components facilitate a seamless transition to research centers.

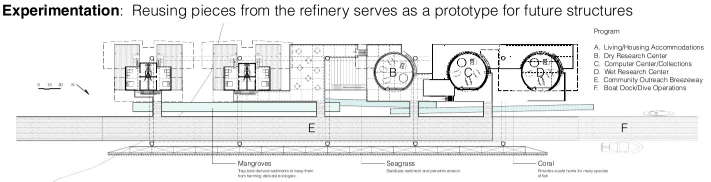


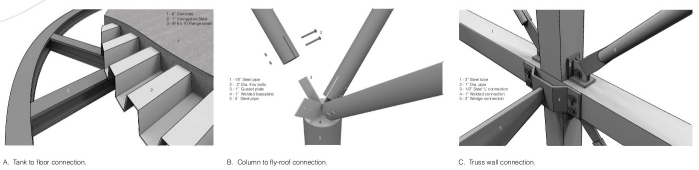
Experimentation: Reusing pieces from the refinery serves as a prototype for future structures



Vocabulary of tanks allows for adaptability of skin material.

Through negative pressure, ventilation acts passively.





A. Tank to floor connection.

B. Column to fly-roof connection.

C. Truss wall connection.