The Department of Architecture at CPP and the School of Architecture at UHM seek to establish a new collaboration offering courses to each student body to foster a novel experience and informative environment to explore and test architectural design with Precast Concrete. Centered around the issues of climate action and coastal disaster preparedness, both institutions seek to engage students in developing Coastal Environmental Disaster Relief Facilites (CEDfac), architectural solutions for disaster and tsunami relief facilities along the California and Hawaii coasts using Precast Concrete as primary building material. This interdisciplinary course is also intended to elevate cultural and architectural experiences with travel and exposure to different climates and cultures.

CalPoly Pomona (CPP) has successfully partnered with PCI West since 2010, being among the first architecture programs to engage in PCIʻs academic outreach. Over the past decade the partnership involved studio and elective courses focusing on topics that primarily engage Precast Concrete as an architectural component in the designer’s canon. Over the years students and faculty interacted and partnered successfully with engineers and engineering students, local producers, guest speakers and PCI to ensure a valuable and thorough experience while introducing Precast and Prestressed Concrete to aspiring architects.

The School of Architecture at UH Mānoa (UHM) has in the past engaged with local producers and invested individual efforts to educate students in the use of Precast and Prestressed Concrete. With Assistant Prof. Bundit Kanisthakhon joining the faculty full time in 2019, there are renewed interest and efforts to introduce and educate students on involving Precast Concrete as part of their design tools and processes.

The studio focuses on the creation of an experience for students, aimed at a sustainable future involving Precast/Prestressed Concrete. The joint studios will have a collaborative team-design projects as outcomes, developed in form of build-up exercises. The topics will vary through the proposed 4 year cycle to ensure adequate ability to adjust to the varying needs of both institutions and student bodies. The students will engage in team work with students from other institutions, travel, study local conditions and precedents to offere a well-rounded experience. In addition students wille experience similar but different production approaches, specific to each Stateʻs unique environment, climate and infrastructure. The experience is designed to offera cumulative publication, physical prototypes and a multitude of student design projects aimed at a critical infrastructural need. Following activities and experiences are included:

• Engagment of local partners and manufacturers,

• Field trips and travel to California and Hawaii,

• Local context analysis,

• Site visits with producers and involves presentations of those,

• Guest speakers and presentations by affiliated institutions such as Formliner, Polymer and engineering industries

• Design presentation in front of members of the industry, engineers and architects

• Cross-disciplinary collaboration

• Production of a proto-type solution for deployable disaster relief facilities in coastal regions

In addition, producers engage actively in critque and field-oriented technical education throughout the course sequence. Phased in three parts over four years a final tangible outcome in form of scaled mock-ups is anticipated.

Despite being significantly different, California and Hawaii have historically related connections. Throughout history many architects and engineers from California have migrated to Hawaii and vice versa, which has led to an important cultural exchange that is still alive today. Ultimately, both states played a strong role in the early development and establishment of Precast and Prestressed Concrete. These differences and relationships can be demonstrated through several aspects, a few of which are listed below:

1. Hawaii's resource limitations that advocates the use of concrete.

2. The building boom during the 1950s-1970s produced one of the most compact architectural environment of Precast and Prestressed Concrete in Honolulu, foremost represented through the outstanding work of pioneering structural engineer Dr. Alfred Yee.

3. The mild and dry coastal climate of California enabled producers to reduce cost and to set up shops.

4. The expansive infrastructural network and reliance on automotive mobility in California that facilitates the Precast and Prestressed Concrete construction industry.

Three major things that directly link the two States together are:

1. The threat to their coastal communities due to rising sea-level and climate change.

2. Densly populated coastal regions in both states

3. The threats to their built infrastructures through seismic, environmental and geological similarities resulting in earthquakes and tsunamis.

4. A well-preserved and rich history of the past 70 years of Precast Concrete architecture.

5. A strong demand for creative and innovative solutions to enhance their environmental agenda and conditions.

This collaborative studio is developed based on past courses that draw from the expertise and experiences of its faculty, which involves Emergency Housing Units in collaboration with HiEMA, FEMA and precast concrete studios and exercise sequences. The course design will combine these experiences and studies and projects a potential future expansion to address other coastal regions within the United States.

The versatility, durability, deployability and quality insurance of precast/prestressed concrete makes itan explicit primary material process for students to investigate modular disaster response structures in the coastal regions of Southern California and Hawaii.

Travel forms a critical and necessary component in architectural pedagogy. It aids students in understanding cultural, ethnical and other environmental impacts on design decisions. It warrants an exposure to a different, cultural, architectural history, and it enables an alertness and renewed affirmation of the relevance of context, environment, materiality and local practices to synthesize meaningful decisions. This allows Precast concrete to be understood beyond its local importance and instead as a critical component in the proposed disaster relief facility design umbrella topic of this joint undertaking.

Interdisciplinary collaboration prepares students and industry equally for a contemporary work environment, devoid of traditional boundaries. It tests and refines local particularities to be addressed in a virtual and physical setting, addressing aspects of file-to-factory production, remote quality control, virtual walk-throughs and regulatory restrictions.