Since architecture is at its core, the design and creation of shelter, graduate students in the Spring 2016 "Advanced Tectonics" course worked in teams to develop innovative architectural solutions for temporary sustainable shelter at a scale similar to that found in tiny home villages and tent cities as a response to the growing problem of homelessness in King County which is the 4th largest nationwide in metro areas. Knowing that homelessness is a worldwide crisis from the refugee camps in the Middle East to the slum villages of India, the students’ solutions can be applicable on a global scale.

The type of research or informational resources used by the students + explain how the students arrived at their respective designs. The course utilized the following structure:

Phase I: Understanding the Problem (a duration of two weeks) teams were tasked to develop a breadth of understanding on homelessness in terms of its origins and escalation in addition to the multiple contextual factors surrounding homeless populations. Some of the key questions they were asked to come up with answers for were: What is the definition of homelessness? Who is considered homeless? What are the most important causes of homelessness (social, cultural, economic, environmental, etc.) and what are the most important effects it has? What is the magnitude of the issue locally, nationally and globally? What are the basic needs for individuals that experience homelessness in the Seattle area? Some of the many resources students referred to in their quest to answer these questions were: The U.S. Department of Housing and Urban Development, The National Health Care for the Homeless Council, The National Coalition for Homeless Veterans, The National Alliance to End Homelessness, The City of Seattle and The Seattle Times. Readings such as Andrew Heben’s book titled "Tent City Urbanism" were assigned to the students in order to help develop an understanding of the problem.

Phase II: Precedent Examples (a duration of two weeks). Teams reviewed existing innovative examples of shelter solutions for the homeless and examples of small scale shelters to become familiar with materials used, response to user needs and assembling and disassembling mechanisms. The latter is important since occupants of tent cities usually relocate every three to six months.

Phase III: Concept Design (a duration of three weeks). Teams defined the homeless populations they are targeting and started to lay the foundation of their optimum shelter solution. They conveyed their ideas using sketches, diagrams, photos of inspirational projects, sketch models, and a full scale mockups of a portion of their concept. Their work was presented to other faculty members at the school and the feedback they obtained helped refine and clarify their ideas.
Phase IV: Design Development (a duration of three weeks). In this phase, teams finalized their main decisions in terms of materials used, construction methods, building technologies and quality of the space. Architecture drawings were developed that help explain the designs and replicate them if needed. Teams that had larger scale community solutions which involved more elaborate construction were asked to build smaller scale mockups rather than full scale versions that would require much more effort outside the scope of this course.

Phase V: Pre-final Design (a duration of three weeks). In this phase, the full scale mockups were built and the detail drawings were finalized. Students also created a presentation board and PowerPoint presentation that briefly explained their concepts and the iterations they went through to reach to their designs.
Phase VI: Final Design (a duration of two weeks). Teams used this phase to make tweaks to their mockup, drawings and presentation boards. Their work was presented to the larger university community during the last week of school on Todd Steps along Terrell Mall. There was very high interest in the projects and an article was published in the Daily Evergreen which can be found at: http://www.dailyevergreen.com/news/article_870b81cc-163a-11e6-9491-0b098500e550.html
Design elements used: practical, traditional, creative, or innovative?
Student solutions adopted an unconventional approach to utilize sites, materials and components that would typically be ignored to create shelters for their targeted populations. This included using the space between the structural columns that support the Seattle monorail to create a vertical community, using mailing tubes as a structural element to create shelters for tent city populations and using a torsion connection to tie pallets together and form an enclosure for homeless students.
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**Did this project make an impact on your students in any way?**
This project had an extremely positive impact on the students and I believe is an experience they will continue to remember for many years to come. Establishing the significance of this problem from the first few weeks of the semester derived the teams to dedicate time and energy that exceeded expectations, pushed them to leave their comfort zone and encouraged them to develop innovative solutions for such an important humanitarian issue that global community is facing. This course was a testimony to the willingness of our students that represent the future generations to make our world a better place for everyone.

**Did this project make an impact on you?**
For me, this project was a great learning experience that I will never forget and will be a reference point for my future courses. Being from the Middle East and knowing what the growing refugee population in that region is facing, this course was a great platform to explore solutions for the State of Washington that could eventually trickle abroad. The work in this course is also in line with the university's land-grant mission and the school's focus around hands-on projects that consider issues of sustainability.

**How can private support improve or enhance the work being done by your students?**
Private support is key to furthering the work done by students in this course. Some areas of improvement include:

Building complete units of the proposed shelters to test all issues that actual users would face, especially with assembling and disassembling. Funding and support would be required to pay for students, purchasing materials and designating a site on campus for construction.

Pilot testing the complete units by locating them at outdoor spaces of nearby shelters and allowing occupants of those shelters to test student designs in real life. Funding and support would be required for coordinating will shelters and transporting the units from and to WSU.

Presenting student work to the governor of Washington to help spread knowledge on these ideas and maybe get them built on a large scale. Funding and support would be required to arrange a meeting with the governor and student travel expenses.