Practicum Report Executive Summary:  
Jonathan Kohlenberg in the Philippines with Build Change

For my practicum (summer 2015) I interned for an international engineering NGO called Build Change in a remote region in the Philippines that was severely damaged by supertyphoon Haiyan (locally referred to as Yolanda) in November of 2013. Build Change (BC) was started in 2004 by founder and CEO, Elizabeth Hausler Strand with the mission of reducing the number of deaths and injuries that result from houses that collapse during earthquakes. Build Change bolsters a community by hiring, training and networking local engineers, builders, and building materials producers as well as working with high level policy makers to develop suitable building standards (Hausler Strand, 2014). Their mission is to “greatly reduce deaths, injuries and economic losses caused by housing and school collapses due to earthquakes and typhoons in emerging nations” (buildchange.org). One of the things that distinguishes Build Change from many other nonprofits, and from many engineering and construction firms in the Philippines, is their steadfast devotion to using only high quality building materials and to building based international and country specific building codes.

This practicum was very beneficial experience. Interning for this international engineering NGO put form and shape to ideas we learned in the classroom at the Mortensen Center in Engineering for Developing Communities (MCEDC) and concepts I am studying in the Civil Systems department at University of Colorado Boulder. I ran a six-week long experiment testing the durability of lumber made from coconut palm trees (coco lumber). Analysis of this experiment concluded that, although coco lumber has the potential to be strong and durable enough to be used as structural members of permanent buildings, it is unlikely to reach this potential due to a number of uncontrolled variables. I also had the opportunity to gain exposure and participate in the implementation phase of a large, successful rebuilding building project. I joined BC engineers on their daily visits to homes under construction to consult, answer builder
questions, and problem solve special situations that arose. In addition, I was able to witness and be a part of the interaction between architects and engineers during the design phase of another project. This diverse team was made of an architect from Indonesia and engineers from Chile, the US, and varying regions of the Philippines. Working on this team allowed me to exercise communication skills as well as glean wisdom from so many points of view.

Through these projects I gained skills in engineering computer programs. I learned the basics of RISA in order to run calculations on truss designs to ensure structural stability and optimal material usage and cost. I also created 3d visual representations of modular concrete formwork and houses to be built in Maliwaliw (a nearby island) that will be used in builder training. I observed many triumphs, complications and failures to change Filipino building practices. The triumphs are a testament to the lasting change that Build Change will have in this community. Overall, it was terrific to be a part of a team that is working so hard and having a huge impact. I was incredibly impressed with the staff I worked with. I was given astute insight on engineering aspects, training techniques, and cultural elements of Build Change’s comprehensive building program. I was impressed by the attention to detail and devotion to doing things correctly and by the building code. This facet of Build Change set them apart from the crowd and made the two months that I lived there a great experience.