In response to the Bureau of Reclamation’s current report on climate change and western water resources, 2012 terminal studio students will design the “Center for Water Resource Transition” for Tucson, Arizona. The enrichment award will subsidize travel to Tucson in January and will support take-away tools for designing for future shortages of water and material in any region. Student design proposals will be entered into the EPA Lifecycle Building Design competition.

Water

The people of the Santa Cruz river valley around Tucson, Arizona already consume more fresh water than the region can support. Climate change forecasts predict even less rainfall in the future, reducing river flows in the desert by 8-20%. Like other communities in the desert southwest, Tucson will have to drastically reduce its water consumption per capita, depopulate the region, or both.

What are the architectural implications of designing for net zero water use in the desert? How can a building engage hydrological cycles in a visible, experiential way? What about the embodied water in the materials of the building or in its operations energy?

Life cycle thinking

Good building design accounts for the full life cycle of a building from its initial construction to its inevitable end of life. Construction materials embody enormous amounts of carbon emissions, energy and other life cycle environmental impacts while the lifespans of the majority of buildings are quite short. Buildings should be designed so that the environmental value of their materials can be recouped. Or, as the EPA Life cycle Building Challenge puts it, so that “today’s high-performance buildings today [can be] stocks of resources for the future.”

What are the design implications of planning for a building’s eventual deconstruction in terms of conceptualizing the building program and in terms of the media of architectural representation? Can a building’s engagement with material resource streams offer other ways to engage environmental / experiential cycles?
**Studio structure**

It is recommended that studio participants have taken (or plan to take in winter term) one of Moore’s seminars “The Ecology of Building Materials” or “Introduction to Lifecycle Assessment for Buildings.” With some support from studio enrichment funds, the class will visit Tucson for a couple of days before the start of winter term.

Winter term will be dedicated to preparing proposals and design submissions for the EPA’s Lifecycle Building Challenge. This will be an opportunity to frame, develop, and communicate a powerful perspective on the questions posed by the studio prospectus. The spring term will be dedicated to developing that proposal in detail.

The building site is the Valley National Bank Operations Center at 3434 E. 22nd Street in Tucson. The future of this monumental bank is currently in debate and it may be demolished, adapted, or preserved during the coming months. Depending on the current state of the building and in keeping with a life cycle view on building design, students may presume to keep much, little, or none of the current building.