Big Dig Building
Project title

NA05_ANLTC
Office ID

Project data

City
Cambridge

Country
United States

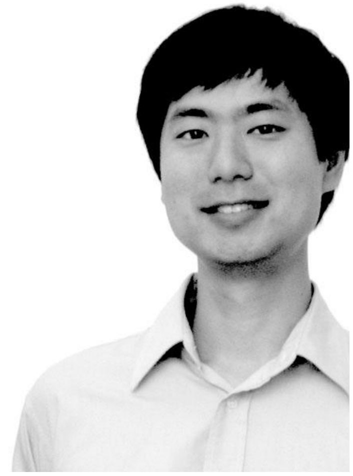
Type
Architecture (housing)

Status of planning
Preliminary design stage

Start of construction
March 2007

Author and contact

Name	Hong, John S, m, 1969
Profession	Architect
Organization	SINGLE speed DESIGN
Address	171 Brookline Street
Zip Code	02139
City	Cambridge
State	MA
Country	United States
Language	english
Phone	617 576 9300
Fax	617 576 7200
E-Mail	info@singlespeeddesign.com
WWW	www.singlespeeddesign.com



Legal guardian & further authors

Further authors: 1.: Park, Jinhee, Architect, 1972-03-30, f, info@singlespeeddesign.com, SINGLE speed DESIGN, Cambridge, United States; **2.: Pedini,** Paul, Civil engineer, 1955-06-10, m, Jay Cashman, Inc., Boston, United States

Project description

Most are familiar with Boston's ongoing "Big Dig"- the Central Artery Tunnel Project that is one of the largest, most complex infrastructural undertakings in American urban history. Few, however, give thought to the massive amount of waste that accompanies construction on this scale, namely the dismantling of the existing elevated highway and the miles of temporary structure used and discarded throughout the project.

As an alternative to this urban scale waste, the Big Dig Building proposes to relocate and reuse these infrastructural materials as building components, adapting them to uses ranging from structural systems to cladding. Moreover, if time=money, proven highway fabrication technologies can be utilized to construct Big Dig Building(s), drastically expediting the construction sequence. Finally, as this recycled infrastructure offers the potential to create architecture that can withstand much higher loads than conventional systems, landscape can be easily brought to the roof and upper levels of the building, increasing useable open space, controlling runoff, and bringing natural environments closer to building users.

So far, public and local governments have remained tacit about the future of millions of tons of materials that must be disposed of as this monumental endeavor comes to a close. Like the urban renewal frenzy of the original elevated highway, the heroic effort of building an artery through downtown Boston involves the erasure of existing structures in the name of "progress." Where the failure of the original structure can now be clearly measured by the way it divided neighborhoods, the downside of the Big Dig's "progress" is more elusive yet just as severe: it has the potential to negatively impact the environment and economy if salvageable materials that contain a high degree of embodied energy are destroyed.

In terms of the regional urban planning process, the implications of Big Dig Building reaches far beyond the realm of architectural design by becoming a model process for other cities to adapt. For example, what if the paradigm of infrastructural re-use had been integrated into the way the Big Dig work was implemented? As the elevated artery is deconstructed, the reconstruction of the materials into dwelling units would become a viable strategy to alleviate Boston's housing crises. Public money going toward storage, demolition, and the long-term consequence of wasted embodied energy, could instead be productively directed toward the creation of new housing. Finally, as specialized infrastructural workers become increasingly out of work as the Big Dig comes to a close, these same workers would enjoy longer durations of employment lending to the political and economic sustainability of such a venture.

NA05_ANLTC
Office ID

Big Dig Building
Project title

Statement target issues	Self assessment

Quantum change and transferability
★★★★★

Re-using infrastructure not only contributes to sustainable construction by harvesting embodied energy with materials that also contain high thermal mass, it also allows the merging of landscape and architecture through its high load-bearing capacity. Dismantled and relocated, these materials can be utilized in both large and small scale projects as well as for a wide variety of programs, as structural spans are greater than standard framing. Based on a 'kit-of-parts', if a Big Dig building becomes 'obsolete', its components can be dismantled and re-used in another building instead of going to the landfill. Proven infrastructure building techniques can cross over into the architectural realm, allowing for expedited, cost-saving construction sequences.

Ethical standards and social equity
★★★★

As in Boston, infrastructural improvements go hand-in-hand with booming economies and rising housing costs. When an elevated artery is deconstructed, materials slated for destruction can instead be reconstructed into affordable dwellings. As open space and community also go hand-in-hand, the ability to merge landscape and architecture also contributes to the social well-being of the community.

Ecological quality and energy conservation
★★★★★

Massive amounts of embodied energy is saved in re-using infrastructure. These benefits are enhanced through passive heating, cooling, and day lighting strategies, as well rebate-based energy generation. Planted roofscapes allow for efficient land-use while minimizing the impact of run-off. Efficient, low-impact infrastructure-building techniques are applied to the construction sequence.

Economic performance and compatibility
★★★★★

Instead of public funds going toward destroying infrastructure, funds can go toward public building projects incorporating these materials. Regionally this would employ a labor force that is typical unemployed after an infrastructure effort is completed. Since construction is expedited and materials are 'free', public projects that utilize these materials will benefit greatly in added savings.

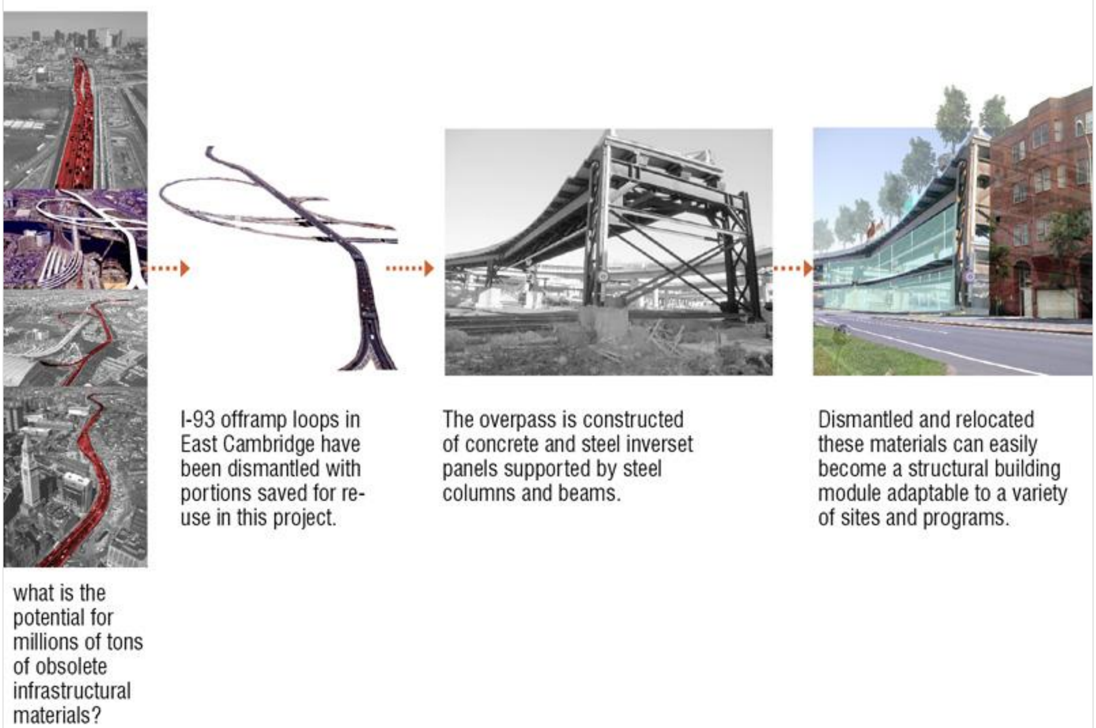
Contextual response and aesthetic impact
★★★★★

Big Dig Building allows a merging of the natural and man-made. Through cantilevered gardens and planted roofscapes, open space brought closer to everyday activities can positively impact inhabitants, particularly in dense urban environs. Moreover, longer spans allow for programmatic flexibility and multiplicity in an era where notions of home and work are becoming increasingly blurred.

Big Dig Building
Project title

NA05_ANLTC
Office ID

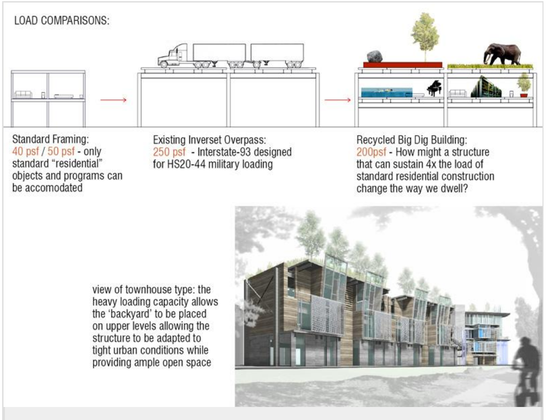
1. Large-scale elevated landscape elements are merged with the architecture as the recycled structure is able to withstand enormous loads



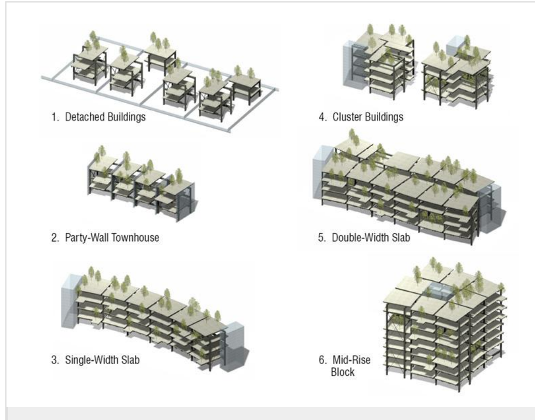
2. From highway to housing - instead of discarding 'obsolete' infrastructure, a second life for these materials is viable

NA05_ANLTC
Office ID

Big Dig Building
Project title

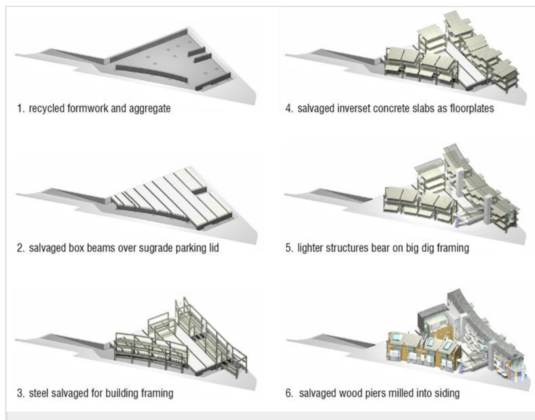


3. Load comparisons



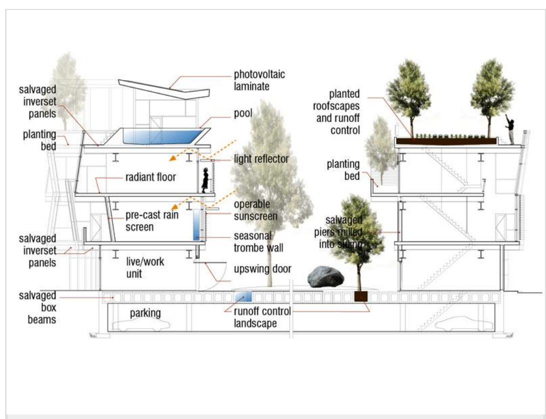
4. Big dig typologies

5. Facade as vertical landscape



6. Construction sequence

7. Court - salvaged boxbeams



8. Typical section

9. Long-span allows flexibility

10. Interior views