To destroy is the first step in any creation.

– e e cummings

Where's the Kaboom? There Was Supposed to Be an Earth-Shattering Kaboom!

David N. Blank-Edelman
@otterbook

I lied to you


CAUTION
CONTROLLED
BLASTING
AHEAD
TURN OFF RADIO TRANSMITTER

some of what I am going to say is wrong

- It’s not a perfect analog
- The economic incentives can be different
- People

We are terrible

- We know how to build, but…
- We don’t know how to:
  - Destroy
  - Decommission
  - Demolish
  - Retire
  - Remove
- We sure as heck don’t know how to build things that are easy to destroy

Who Does?

@otterbook

Also…

- Deconstruction
- Disassembly

Qualities of Demolition (vs. Construction)

- Everyone thinks they can do it
- Does not work well with others

Source: TOP 10 DIFFERENCES DEMOLITION - VS - CONSTRUCTION, NDA 2014

DIFFERENCE # 7

DOES NOT WORK WELL WITH OTHERS

As a safety issue, when a structure is in the process of being demolished by a machine, that contractor must control the demolition area

EXCLUSIVELY!

National Demolition Association
2025 M St. NW, Suite 800 Washington, DC 20036
demolitionassociation.com

Source: TOP 10 DIFFERENCES DEMOLITION - VS - CONSTRUCTION, NDA 2014

Qualities of Demolition (vs. Construction)

- Everyone thinks they can do it
- Does not work well with others
- Known structure vs. unknown structure
- Materials: certainty vs. mystery

Source: TOP 10 DIFFERENCES DEMOLITION - VS - CONSTRUCTION, NDA 2014

How It’s Not Done

Source: Derek Miller, MarkOne, Inc.

Keys to the Process

- Reverse engineering
- Last on, first off
- Exception: the floor

Source: Derek Miller, MarkOne, Inc and Paul Morse, Morse Construction


DANS LE CAS D'UNE UTILISATION
ORIENTER LE DIFFUSEUR VERS LE
POSER. POUR RENPLACER L'AMPOU
COURANT. CONFULTER LE FEUILLET
MAX. 25 WATTS TYPE 25T8

Keys to the Process

- Reverse engineering
- Last on, first off
- Exception: the floor

Source: Derek Miller, MarkOne, Inc and Paul Morse, Morse Construction

Sustainable Demolition

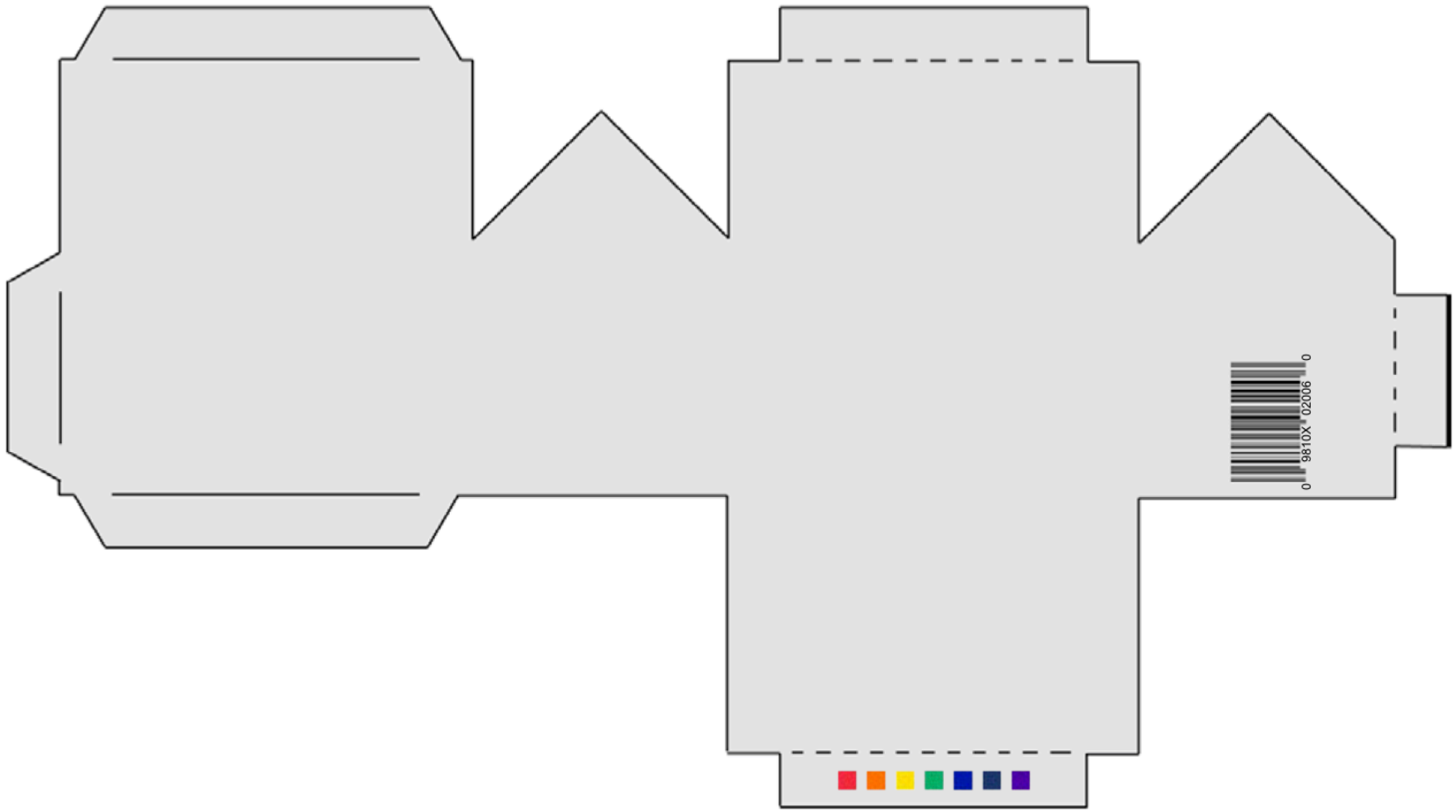
- Development:

  "'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland, 1987)"

Source: https://dspace.lboro.ac.uk/dspace-jspui/bitstream/2134/9029/1/TRQ%20thesis%20final%20draft%20with%20corrections%202.11.11.pdf

DfD

Design for Disassembly
in the built environment:
a guide to closed-loop design and building



Source: http://your.kingcounty.gov/solidwaste/greenbuilding/documents/Design_for_Disassembly-guide.pdf @otterbook

What Makes it Easier

- **Transparency.** Building systems that are visible and easy to identify.
- **Regularity.** Building systems and materials that are similar throughout the building and laid out in regular, repeating patterns.
- **Simplicity.** Building systems and interconnections that are simple to understand, with a limited number of different material types and component sizes.
- **Limited number of components.**
- …easier to dismantle structures that are composed of a smaller number of larger members than a larger number of smaller members.
- **Easily separable materials.**

Source: http://www.lifecyclebuilding.org/docs/Designing%20Structural%20Systems%20for%20Deconstruction.pdf

What Makes it Easier, Level 2

- Use a simple, regular layout.
- Layer building systems.
  "When mechanical systems and envelope components are intermingled with structure, it is difficult to replace these systems during the building life and difficult to extract the structural elements at the end of the building's life."
- Use common, standard shapes and connections; minimize the number of different member sizes.
- Use removable fasteners; avoid adhesives.
- Avoid using multiple types of structural systems.
- Use salvaged materials, if available. If they were salvaged once, they can probably be salvaged again.

Source: http://www.lifecyclebuilding.org/docs/Designing%20Structural%20Systems%20for%20Deconstruction.pdf

Ten Key Principles for Design for Disassembly

1. Document materials and methods for deconstruction.
2. Select materials using the precautionary principle.
3. Design connections that are accessible.
4. Minimize or eliminate chemical connections.
5. Use bolted, screwed and nailed connections.
6. Separate mechanical, electrical and plumbing (MEP) systems.
7. Design to the worker and labor of separation.
8. Simplicity of structure and form.
9. Interchangeability.
10. Safe deconstruction.

Source: http://your.kingcounty.gov/solidwaste/greenbuilding/documents/Design_for_Disassembly-guide.pdf

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Source: http://your.kingcounty.gov/solidwaste/greenbuilding/documents/Design_for_Disassembly-guide.pdf

"A classic and probably a work of genius" —JANE JACOBS, author of *The Death and Life of Great American Cities*

HOW BUILDINGS LEARN

What happens after they're built

New Orleans, 1857

The same two buildings, 1993

STEWART BRAND

creator of *THE WHOLE EARTH CATALOG*

Brand's Six S's

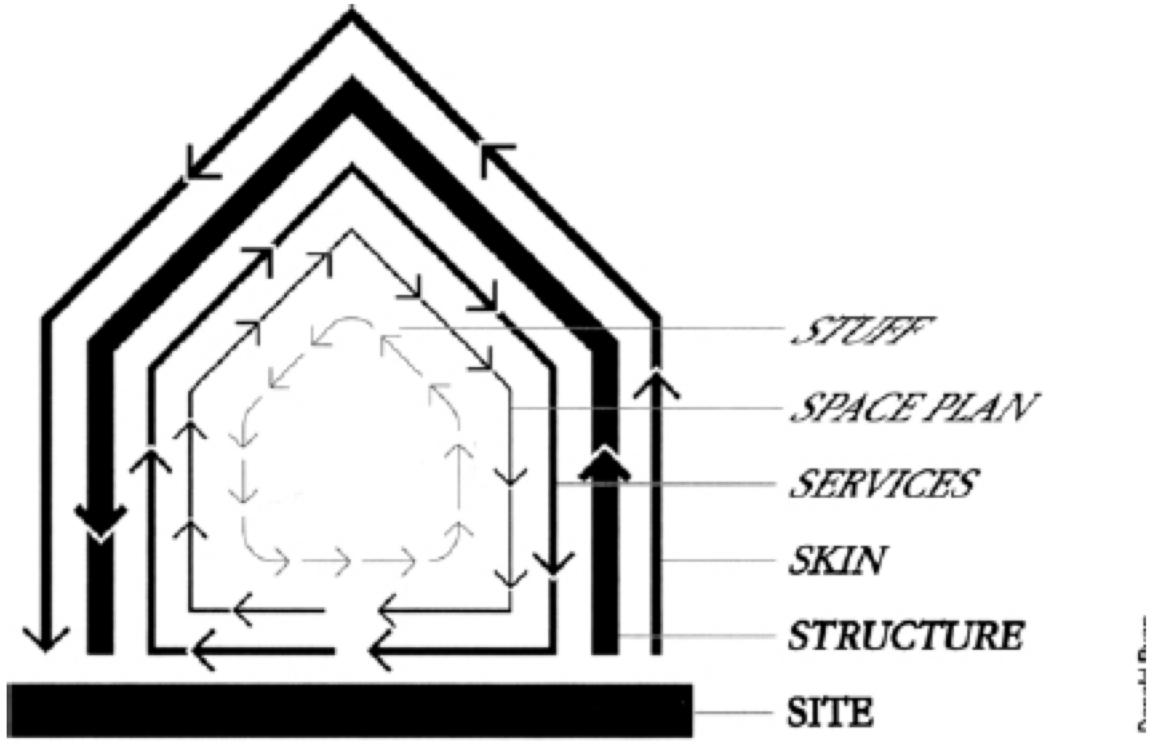
1. Site
2. Structure
3. Skin
4. Services
5. Space Plan
6. Stuff

Source: http://your.kingcounty.gov/solidwaste/greenbuilding/documents/Design_for_Disassembly-guide.pdf

Brand's Six S's

1. Site (forever)
2. Structure (30-300 years)
3. Skin (~20 years)
4. Services (7-15 years)
5. Space Plan (3 years, commercial – 30 years, home)
6. Stuff (?)

Source: http://your.kingcounty.gov/solidwaste/greenbuilding/documents/Design_for_Disassembly-guide.pdf



shearing layers of change that are in constant friction

Source: *How Buildings Learn*, Stewart Brand, 1994

Shearing Layers of Change

- By focusing on the points of connection between separate systems that have the most disparate service lives, DfD can have very practical and economically valuable impacts. Repair and replacement cycle information can be used to **identify the most critical connections between building assemblies and components where the greatest life-span friction will occur.**

Source: http://your.kingcounty.gov/solidwaste/greenbuilding/documents/Design_for_Disassembly-guide.pdf

So what do you got?

Talk to me

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- @otterbook


Job Seeker
stack-a-ribbon awards
U.S. PATENT NO. 5,611,160

Talk to me

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Discussion?

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