

Architecture for Humanity  
Denver



Open Tech Forever

*present the*

# Forever Home

Open Source Building Design Challenge



Open Source

# Welcome

**Architecture for Humanity** and **Open Tech Forever** are demonstrating that it is possible to build an open source, compressed earth block (CEB) house that meets the **Living Building Challenge 2.1** standard.

We invite you to join our international call to action. Enter the contest and help us design a CEB home that we will build in the Spring of 2014 on our 40 acre site in Denver, Colorado.

We will document each home design and the systemic body of knowledge that informs this process, so that anyone in the world can both learn from and contribute to the project. This is an **open source house** for the world. The *Forever Home*.

## How to Enter

visit our **Wiki**

<http://goo.gl/51Y0pE>

## Questions?

post it on our **Github** page

<http://goo.gl/yDW8Yf>

(make a *'New Issue'*)

# Details

## Program

A home for one to two people to live and sleep in, joyfully, for life - 500 interior square feet for one to two people (and demonstrate scalability to 800 maximum for 3 or 4 people) on a flat site of 2000 square feet, configured in any proportion to support design - please limit to a single story, but feel free to add a basement (for utilitarian uses) and/or loft - outdoor living spaces are desired and do not count against 500 sf maximum

## Entry Fee

\$20 baseline - further contributions will be used for the construction project of the winning design

## Prize

Three tiers: 1st \$500 / 2nd \$300 / 3rd \$200

The winning designer will be invited to name the home - everyone is welcome to help us build

## Dates

Submissions will be accepted beginning **January 1, 2014** until **January 21, 2014**, 5:00 PM Mountain Standard Time - the awards ceremony will be held at the end of January in Denver, CO - location *TBA* - the home will be constructed in the **Spring of 2014**

## Eligibility

Open to All

## License

All submitted projects will be published under an open source license (CC BY-SA 3.0 US)

## Guidelines

The design must comply with all **Living Building Challenge 2.1** requirements (<http://living-future.org/lbc>) - the primary material of the walls must be compressed earth blocks (CEBs) and the maximum height for any wall is 14 feet - other supplementary materials may be considered if they are locally sourced, obtainable without additional cost (ie salvaged, donated, etc), environmentally responsible, and are equally easy to accumulate and build with - this is an **open source project** - it is important that your design could be shared and then adapted or modified for others to use in other cities, states, or countries

# Jury



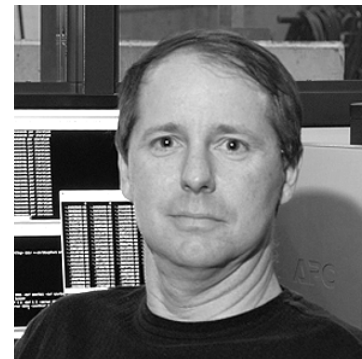
**Terra Mazzeo**

director, Architecture for Humanity Denver,  
architect



**Josh Radoff**

Co-Founder and principal of YR&G sustainability  
consulting, Living Building Challenge expert



**Thomas Bowen**

engineer, compressed earth block building  
expert, former Director of Sustainable  
Housing Projects for the Mortenson Center  
in Engineering for Developing Communities,  
CU-Boulder



**Johnathan Yelenick** (OTF)

Forty Forever land owner, soil scientist,  
permaculture farmer



**Marshall Hilton** (OTF)

licensed engineer, master's degree in  
architecture, former Production Director of CEB  
Press at Open Source Ecology



**Aaron Makaruk** (OTF)

Co-Founder, Open Tech Forever and Youth On  
Record

# Entry Requirements

A Revit (.rvt), Sketchup (.skp) or Autocad (.dwg) **three dimensional model** of the Forever Home design *and/or* a full set of **assembly axon drawings** *and/or* a **physical model** (check our website for a mailing address)

One **36" x 48" board**, submitted digitally in PDF form, containing the following minimum requirements:

*note: assume boards will be printed at full size and will be viewed from a distance of 2' - 4'; please size graphics and text appropriately*

## A. Vision

1. A design narrative of no more than 700 words articulating the design concept and approach
2. At least one three-dimensional exterior rendering showing the building in context - e.g., axonometric or perspective,
3. and, At least one interior rendering showing an experience of the design from the inside

## B. Materials

A comprehensive materials list including quantities, and annotated drawings of sufficient detail that all major materials and systems are identified. These may include detailed wall sections, wall section perspectives, exploded axonometrics, or other drawing typology which clearly communicates the full building assembly and proposed systems

## **C. Performance**

Diagrams describing strategies to reach Living Building Challenge (<http://living-future.org/lbc>) requirements, with emphasis on how design connects inhabitants to the natural systems that support their humanity: water collection, energy harvesting, waste recycling, food growth, natural sunlight, fresh air - drawings should illustrate the relationship of the building to the 2000 sf site

## **D. Flexibility**

1. Diagrams describing flexibility of design in supporting joyful lives (how does design support everything from quiet contemplation to celebratory camaraderie?). Provide at a minimum the following drawings: a plan, 2 building elevations, a building section, an interior perspective and an exterior perspective
2. Diagram(s) describing adaptability of the design to other orientations, and
3. Diagram(s) describing adaptability of the design to other locales, cultures, climates
4. Diagram(s) illustrating adaptability of design to accomodate extra 1-2 people (How does the house grow from 500 to 800 sf)?

# Open Source Collaboration

Our goals are to **a)** create a **successful design** that we prototype in the Spring of 2014\* and **b)** to create an online, **public repository of knowledge** to help others adapt the design for their own use. Throughout the duration of the challenge, we invite you to contribute research to our public wiki. Together, we can collaboratively develop a repository of information about the compressed earth block construction method and related topics in order to shorten the learning curve for others. The wiki is a place for **further resources**, and it will be consistently updated throughout the duration of the project.

**Forever Home Wiki:** <http://goo.gl/yDW8Yf>

We will also invite you to join our jurors and sustainable building experts in **online hangouts** to discuss the progress of the project, share information, and learn from leaders in the industry. These sessions will happen periodically - a schedule will be published on the wiki.

\*OTF maintains the right to modify all submitted designs, including the winning one, for its purposes and does not enter into a contractual obligation to build the winning design

# Building Method

Compressed earth blocks (CEBs) are made from a mixture of sand, clay, moisture, and a 5-8% stabilizer additive (cement or lime). They can be made from site-sourced materials using a hand-powered or hydraulic press, and machines that make three thousand blocks in an eight hour period are standard.

We are using this building method, because it is non-toxic, sustainable, and affordable, while allowing for beautiful finishes that are commonly seen throughout the Southwestern United States, Mexico, Spain, and the greater world.





# Site Layout

The building will be a first of many erected on a 40 acre permaculture farm near Denver, Colorado. The community is developing multiple enterprises through a cooperatively-owned company, Open Tech Forever. The vision for the site is to create local industrial economies based on the sharing of innovation and the responsible, regenerative use of natural resources.

The land will host a large Community Supported Agriculture (CSA) program with permaculture, greenhouses, and aquaponics systems. In 2014, Open Tech Forever will complete a prototyping and manufacturing facility for open source products with plans to expand to a larger facility (10,000 sq. ft. or larger) in development.

The site will also be a location to host enterprise development trainings for youth, veterans, low-income populations, and the general public.





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The Lakes at Dune  
Park Condominiums

E-112th Ave

3982 E 112th Ave

E-112th Ave

38.5 acres

Belle Creek  
Community Garden

Belle Creek  
Charter School

Adams County  
Animal Shelter

Clay Creek

Brighton Rd

85

85

85

85

85

76

76

6









# Thank You.

Architecture for Humanity

<http://denver.architectureforhumanity.org/ity.org>

Questions?

<http://goo.gl/yDW8Yf>

Open Tech Forever

<http://opentechforever.com>