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EarthBag Homes - you're standing on the building materials...



earthbag home

Long sandbags are filled on-site and arranged in layers or as compressed coils. Stabilizers such as cement, lime, or sodium carbonate may be added to an ideal mix of 70% sand, 30% clay. Straw may also be added. The earthbags are then plastered over with adobe. *Arquitectura en Equilibrio (Architecture in Balance)* www.flickr.com



earthbag home

Plastic bags recycled into plastic bags -- if plastic does not break down for a thousand years, this building is sure to last several lifetimes. Of course covered with adobe or plaster, so that the plastic does not offgas or degrade. Arquitectura en Equilibrio, Colombia. www.flickr.com



earthbag construction

Foundations differ as per site. Here, in a rainy locale, rocks were placed under the earthbags for drainage. Note the barbed wire which keeps the bags from slipping and creates an earthquake resistant structure. Arquitectura en Equilibrio, Colombia. www.flickr.com



earthbag construction

The time consuming part, filling the bags. The bags are filled in place on the wall. The CalEarth site says that three reasonably-fit persons can lay 100 linear ft of bag per day. Arquitectura en Equilibrio, Colombia. www.flickr.com



earthbag construction

Testing the strength of an arch. Arquitectura en Equilibrio, Colombia. www.flickr.com



earthbag home

Project Seres, Guatemala. projectseres.org www.flickr.com



earthbag home

CalEarth -- Emergency Shelter Village, Hesperia, California.

Iranian born architect, Nader Khalili developed the long-bag Superadobe prototype in California. In 1991 he founded the California Institute of Earth Art and Architecture (Cal-Earth), a non-profit research and educational organization. Photo by James www.flickr.com



earthbag home

Cal Earth -- Emergency Shelters. This long bag/barbed wire concept was originally presented by Nader Khalili to NASA for proposed building habitats on the Moon and Mars. Photo by Ashley Muse www.flickr.com



earthbag home

CalEarth let the layers show. Photo by James www.flickr.com



CalEarth -- this might not be totally earthbag, but like the fish face. Photo by James www.flickr.com



earthbag home

The aerodynamic forms resist hurricanes and the structures pass California's earthquake codes. They are flood and fire resistant as well. A double eco-dome can be built (bagged) in 10 weeks. Photo by James www.flickr.com



earthbag home
CalEarth photo by Mike Smith www.flickr.com



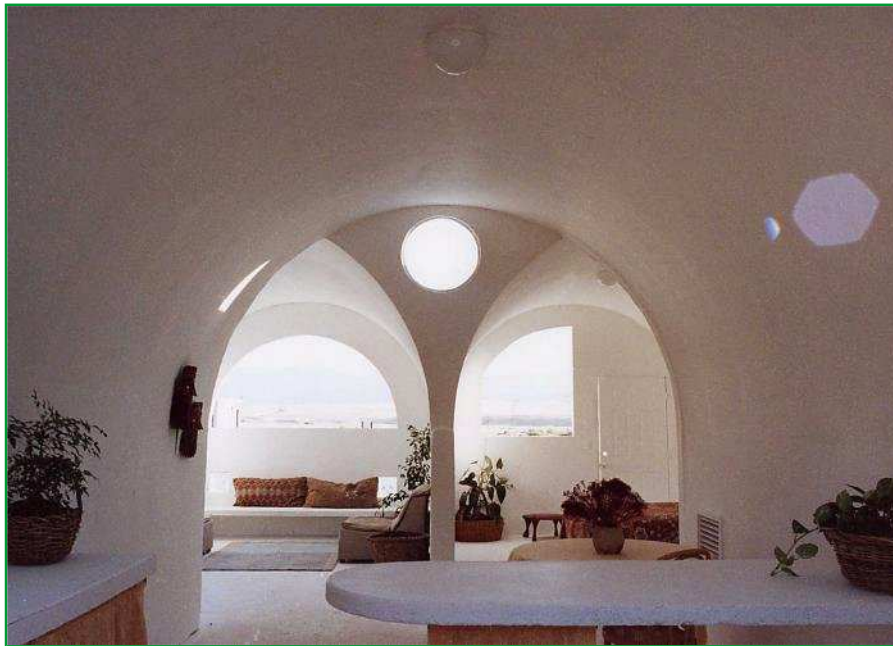
earthbag home
Classical Arches, domes and vaults updated. The combination fireplace and wind-scoop faces prevailing winds. Photo by James flickr.com



www.calearth.org

earthbag home

CalEarth -- inside of the vaulted house. calearth.org



earthbag home

CalEarth inside of the vaulted house. calearth.org



earthbag home
Cal-Earth -- exterior mud ornament. Photo by Ken McCown www.flickr.com



CalEarth Vault under construction. Photo by Ashley Muse www.flickr.com



Sandbag construction in the Philippines? Long sandbags add stability, but using barbed wire between layers of shorter sandbags, is also fine. It takes much longer to fill the long bags than the short ones. Photo by SCDLR8899 www.flickr.com



earthbag home

Ninos y Jovenes boarding school in San Juan Cosala', Mexico. Pic taken by earthbag expert Kelly Hart see more photos of project here: www.flickr.com



earthbag home

This is the first EarthBag structure to receive proper building permits in New York State. A project of Sister Marsha Allen of Rochester, she hopes the students who helped build the structure will join her in Haiti, where she hopes to build many more.
www.rochestercitynewspaper.com



earthbag home

Gainesville, Florida. Photo by Justin Martin www.flickr.com



earthbag home
Gainesville, Florida. Photo by Justin Martin www.flickr.com



earthbag home
Gainesville, Florida. www.flickr.com



Earthbag Home under construction in Argentina. Lots more images here:

www.superadobeserrano.blogspot.com



earthbag construction

Tamping is a necessary step. Initially a trench is dug and then filled with gravel, cement or a sunken layer of bags. Makes nice benches as well. www.ecocentro.org



earthbag construction

Everyone lends a hand. Take earth building lessons in Brazil with www.ecocentro.org Some use bags as a temporary holder of adobe. The bags could rot away and the building would still be as sturdy. For this type of build, the bags need to be filled with a percentage of hardening material (such as adding 5%-10% hydrated lime or cement to dry soil, mixing well and then moistening lightly before filling and tamping bags) or pure adobe.



Inside an EarthBag ready for plaster. The other way to make an earthbag. A mix of native soil; clay/aggregate/sand, and/or insulating material such as lava stone, scoria, pumice, perlite or vermiculite inside polypropylene bags (which have a half life of 500 years). The plastic needs to be protected from the degradation of the sun's rays with a plaster. structure1.com/Earthbag.pdf



earthbag home
CalEarth photo by CuteMatrix www.flickr.com

If you do not like the idea of plastic bags - then Kelly Hart and Dr. Owen Geiger of

Earthbag Building suggest natural porous bags (hemp, jute, flax or linen) filled with dirt, stone powder and sodium carbonate or lime (or numerous other cement capable wastes). After you lay a course of bags, sprinkle the layer with water, and after drying you will have a cement layer. Read more here: earthbagbuilding.wordpress.com



Earthbag Home Plans lots more here: earthbagplans.wordpress.com



Earthbag Home Plans earthbagplans.wordpress.com

Resources:

Great 'how to' resource here: www.simpleearthstructures.com

Books, Supplies, Links, Lots of Info: earthbagbuilding.com

Cal-Earth focuses on researching, developing and teaching the technologies of Superadobe. The prototypes have not only received California building permits but have also met the requirements of the United Nations High Commissioner for Refugees (UNHCR) for emergency housing. calearth.org

Buy long bags here: calearth.org/shop

See structural notes at bottom of pdf: structure1.com/Earthbag.pdf

Simple Earth Buildings for the Humid Tropics by Patti Stouter: earthbagbuilding.com/pdf

Rubble-Bag Houses - How to: motherearthnews.com

How to make papercrete: www.greenhomebuilding.com

EcoFrame & EcoBags, Israel: www.ecobeamhomes.com

Lessons:

- California and Worldwide: calearth.org
- San Miquel de Allende, Mexico: karacadirearthbuilding.com
- Brazil: www.ecocentro.org
- Argentina: superadobeserrano.blogspot.com lots of building pics
- Northwest US: earthenhand.com
- Upstate NY: simpleearthstructures.com

More Pictures:

- Lots here: structure1.com/Earthbag.pdf
- Interesting bathroom by master builder Gernot Minke www.asl.uni-kassel.de
- School in Mexico: www.escueladeenergiasolar.org
- For Korean readers: whitehole.tistory.com
- Nice step by step images from Panama: www.landtrees.net

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Keiren **to John**
 Posts: 66 Reply #66 on : Thu September 19, 2013, 09:39:42

Yes as to the structure being fire proof. Also flood resistant and capable of withstanding strong earthquakes. I would think that lightening would not strike a large mound of dirt unless absolutely nothing else around...Hope that helps...

- John Ventanilla**
Posts: 66

Facility Management
Reply #65 on : Thu September 19, 2013, 07:13:19

Hello

Good day I am studying facility management, I would like to ask if earth bag construction is a intelligent building like if its fire proof, lightning proof, flood proof and earthquake proof?

Thank you.
- Hasan Morris**
Posts: 66

cost and shipping to Indonesia
Reply #64 on : Sun September 01, 2013, 09:25:55

Good day, I would like to know the cost of your earth bags for a 4 bedroom 3 bathroom house combined with shipping. Also would it be possible to request a consultant in the construction of the earth bag house so as help train local workers in Indonesia.
- Ernesto Arriaga**
Posts: 66

jungle house
Reply #63 on : Sun July 28, 2013, 11:38:54

I have this lot near Cancun and is in the jungle, I will make a little house with earth bags, autosustainable, but can be with my design? is circular but doesnt want dome in roofs.
- Rajesh Karthikeyan**
Posts: 66

Earthbag Building in India
Reply #62 on : Tue April 23, 2013, 12:10:49

Hey thanks for the pics and tips.

Doing an earthbag retreat and residence in TN, India after a lot of study of Nader Khalili and Owen Geiger's earthbag construction.

Great work guys... all of you.. thanks a lot for the pioneering research.

Hello Dr. Amod. You can contact me if you need any help at mountainmakers.india@gmail.com.

We need more earthbaggers in India.
- Christie**
Posts: 66

WOW THANK YOU
Reply #61 on : Sat April 13, 2013, 08:24:55

What wonderful work you have done here to collate all that information.

thank you so much.
- Dr. Amod Kumar**
Posts: 66

Earthbag houses in India
Reply #60 on : Wed March 20, 2013, 04:24:50

We are planning to develop an eco-resort. We wish to use earth-bag construction technique. Is it possible to find some Indian resource?
- Ricky**
Posts: 66

Earthbag Construction, Sandbag Buildings
Reply #59 on : Fri February 22, 2013, 12:15:55

Building of a squarre earth home in the balkans KOSOVO , around mid april 2013, the exact date will be sent via email.

Contact detail for inscription : quranheals@hotmail.com
- C. Hagen**
Posts: 66

Alternative Enterprise
Reply #58 on : Sun December 23, 2012, 14:07:02

Fyld dine indkøbsposer
- Melissa**
Posts: 66

Awesome!
Reply #57 on : Mon December 10, 2012, 00:22:20

Thank you for this information. This is something I really want to do....soon!
- Ronkofa**
Posts: 66

Cool!!!!!!
Reply #56 on : Fri December 07, 2012, 15:14:18

Thank you for the excellent information you are providing about building with earth bags. I actually plan to build my house in Jamaica using earth bag technique. I certainly appreciate the information available on your site.

Thank you
- Keiren**
Posts: 66

@Greg
Reply #55 on : Fri November 09, 2012, 20:50:21

That's a good question for an expert! Try Patti Stouter (simple_earth@yahoo.com) or Kelly Hart/Owen Geiger (kellyhartATgreenhomebuilding.com / strawhousesATyahoo.com - they would surely know...

Greg
Material in Bags
 Reply #54 on : Fri November 09, 2012, 18:18:21
 Posts: 66

I want to build an earthbag home in Hawaii and want to know if I can use cinder instead of sand, which is harder to come by here. Please let me know, Thanks, GReg

Tarek Elbarouni
Questions
 Reply #53 on : Sun September 16, 2012, 05:22:28
 Posts: 66

Hello sir

First of all I want to thank you about all these good informations , actually I plan to build my house using earthbag technique but I've some questions

- 1- What is the minimum possible width for earthbag? I mean if i use a bag with 20CM width to give me as a result a wall like if I use normal blocks , or the thickness of wall will be not strong enough .
- 2- if I finish my house, and in future i want to open a new window or new door in internal or external wall can i do it ? or it will be as a risk to collapse the whole wall
- 3- the roof , can i use some prefabricated cement beams as the array and put the bricks between them and then the cement to create the normal roof like modern houses? Or sand bags can not hold the weight if roof!
- 4- could i build two floors with the same plan ? I mean the wall over the wall

Thanks and best regards
 Tarek Elbarouni

Terry
Re: Earthbag Construction, Sandbag Buildings
 Reply #52 on : Thu July 12, 2012, 09:35:58
 Posts: 66

These buildings are really cool. I wish I had known about them when I toured eco homes in your region.

Cheers, Terry

Irv
Barbed Wire
 Reply #51 on : Sun July 01, 2012, 19:43:04
 Posts: 66

I admire the look, feel and simplicity of this type of construction. However, I see the barbed wire creating problems in the long run similar to the use of rebar in concrete structures. Eventually the barbed wire will oxidize and create structural problems and weakening of the overall structure. Perhaps a nylon or plastic substitute could be used.

Keiren
To Vedette and Donna
 Reply #50 on : Fri June 08, 2012, 19:52:35
 Posts: 66

Yes, they hold up really well, as well as adobe. But one must make sure there is good drainage around the base of the building so the walls never sit in water. Earthbag buildings also hold up really well during earthquakes and are resistant to fire to boot.

Yes, they can be heated and cooled with the bonus that the walls are so thick the interior temps will be more stable.

I hope you both get to build one one day!

Vedette
Natural Calamities.
 Reply #49 on : Fri June 08, 2012, 12:35:11
 Posts: 66

Would these hold out through rain and natural calamities?

Donna
earthbag construction
 Reply #48 on : Tue May 22, 2012, 11:18:22
 Posts: 66

Can these homes be built in the Midwest? They are just like a regular house and can be heated and cooled right?

julia Posts: 66	Re: Earthbag Construction, Sandbag Buildings Reply #47 on : Tue May 15, 2012, 00:07:54	
		this is amazinggggg! i would love to help build and live in a home like this.
Anonymous Posts: 66	Re: Earthbag Construction, Sandbag Buildings Reply #46 on : Sun May 06, 2012, 13:57:46	
		a
envienna Posts: 66	http://blackhawkmynes-online.com Reply #45 on : Fri May 04, 2012, 05:03:27	
		woooooowwww..
gene Posts: 66	ah ---YES! Reply #44 on : Fri May 04, 2012, 00:30:41	
		I have wanted un underground Hobbit house for many years. This would be a perfect method. Many thanks!
Mark Posts: 66	Cool! Reply #43 on : Mon April 30, 2012, 14:32:27	
		Love the innovation behind this, and am always in favor of energy saving, low resource ideas. Now imagine having a few bicycles to power the homes! I imagine with the materials used, you'd already be using way less to maintain a comfortable temperature, so what if you had bike generators powering your lights and everything else, like these guys did! www.melodeego.com
Anonymous Posts: 66	Re: Earthbag Construction, Sandbag Buildings Reply #42 on : Sun April 29, 2012, 23:53:48	
		THIS IS HOBBIT HOUSE.
Anonymous Posts: 66	Новите чудотворци! Reply #41 on : Sun April 22, 2012, 15:38:28	
		Възхитен съм от решимостта на господин Нейдър Калили да материализира своята величествена идея,и направи съпричастни към нея голяма част от посетилите мрежата!Вярвам,че някъде ще се окаже като спасителен остров,който ще задоволи житейските нужди на много хора.Удобно е,топло изолационно,дълготрайно,устойчиво на трус,дълготрайно и въпрос на индивидуален избор. Желая успех на благородното начинание!
Carmen- Elizabeth GUZMAN LOMBERT Posts: 66	earth home Reply #40 on : Thu April 12, 2012, 16:07:43	
		very exciting. good luck
	Lenisaurus incredible Reply #39 on : Tue April 03, 2012, 14:51:41	
		these buildings are magnificent and i'm sure a great experience to build!
Delris Posts: 66	Re: Earthbag Construction, Sandbag Buildings Reply #38 on : Sun March 18, 2012, 11:59:04	
		These are awesome, but I have to wonder how you get a building permit for something like that.
Coty Posts: 66	Re: Earthbag Construction, Sandbag Buildings Reply #37 on : Tue February 21, 2012, 09:00:46	
		Boo on Jomar. I guess there always has to be a downer on a comment thread. Most of these countries don't have the materials for the "age proven alternatives". They are labor intensive because that's one thing they do have and not to mention that it's a community building these together and that is just as important.
Maxi Malone Posts: 66	earthbags Reply #36 on : Tue February 21, 2012, 07:07:02	
		How ingenious, can't believe there are Earthbag homes here in Florida, USA, where I live. Blessings - Maxi

- Jomar **Sandbag Construction**
 Posts: 66 Reply #35 on : Sun February 19, 2012, 17:48:07
 Seems extremely wasteful and too labour intensive, given the age proven alternatives.
- Anonymous **Re: Earthbag Construction, Sandbag Buildings**
 Posts: 66 Reply #34 on : Thu February 09, 2012, 12:27:43
 these are amazing, i would totally be on board to live in a neighborhood like this! really good eco friendly idea.
- Paul Patane **Energy Efficient Buildings**
 Posts: 66 Reply #33 on : Wed February 01, 2012, 12:04:17
 I work for a company that does Energy Performance Certification in the UK and have to say I am very impressed by these structures. If we could just find somewhere for the rain to go then I think these would take off in a big way in England. Trouble is, we'd all be out of a job! If you want to know more about Landlord EPCs click here. "
- Aryacalanath **Re: Earthbag Construction, Sandbag Buildings**
 Posts: 66 Reply #32 on : Wed January 18, 2012, 19:48:21
 Tattooine houses biotch!
- Monique Harmon **Re: Earthbag Construction, Sandbag Buildings**
 Posts: 66 Reply #31 on : Wed January 18, 2012, 17:55:04
 This is truely amazingg and beautiful!
- Shapewear **Bad weather**
 Posts: 66 Reply #30 on : Tue December 13, 2011, 10:09:36
 How do these houses do on rains and heavy weather conditions?
- location voiture agadir **http://exotikcar.com**
 Posts: 66 Reply #29 on : Sat December 03, 2011, 12:27:52
 Really awesome! i like the idea and the building material earth friendly. thanks for this alternative
- Greg **http://www.raief.com**
 Posts: 66 Reply #28 on : Fri November 11, 2011, 21:34:56
 Exciting and innovative. This is really great information and hopefully will circulate beyond this exposure to many people around the globe.
 The only issues that I see would be with power. I know that many places would not require permits but in many countries the electrical and the water supplying would present a problem to the ordinances.
 If the complete package were to include self reliance on power from solar and wind then this could really take off like a storm and never see the dust gathering from complacency. Great article.
- Debby Bruck **Congratulations on great designs, innovation and earth friendly projects**
 Posts: 66 Reply #27 on : Tue November 08, 2011, 21:10:14
 Such a fine presentation of environmentally sound construction and earth friendly materials to reduce waste, recycle and reuse. How do we get builders to use this type of construction in neighborhoods? It most likely would not fit in established areas, but would take off in new developments. Blessings, Debby
- galvinaven **galvinaven.wordpress.com**
 Posts: 66 Reply #26 on : Wed November 02, 2011, 11:25:11
 OMG! Seriously awesome!
- Melissa Waddingham **self build**
 Posts: 66 Reply #25 on : Mon October 31, 2011, 13:24:01
 Amazing constructions and so simple and great ingenuity.
- Scarlet **http://familyfocusblog.com**
 Posts: 66 Reply #24 on : Sun October 30, 2011, 09:21:19

How cool! Some of the photos look like Luke Skywalkers home! Thanks for sharing great photos of something I have never seen before!

Recycle Gal **Very interesting!**
Posts: 66 Reply #23 on : Tue October 25, 2011, 11:26:37
Such a cool concept, I absolutely love the look of these and the general idea. My only concern is how they would work in different climates.. A pretty inventive idea, and so eco-friendly!

Kim Claseman **encourage more study of process.**
Posts: 66 Reply #22 on : Thu October 20, 2011, 18:42:17
We have wasted so many domiciles to quakes, hurricanes, Tsunami, due to failure of the materials and planning of the buildings. Using the earth itself to build residences, and probably animals, and more.
Creating all of these will lead to creating newer means of heating, cooling, power sources, storage.

chip adams **permits**
Posts: 66 Reply #21 on : Thu October 20, 2011, 02:37:20
can they be made to code?

chip adams **getting bags**
Posts: 66 Reply #20 on : Thu October 20, 2011, 02:35:15
I would like to try to build one but I would have to get bags and use slate as outside because I have a lot of it. I am disabled so I have plenty of time but not much strength. thanks for the inspiration.

Anonymous **Re: Earthbag Construction, Sandbag Buildings**
Posts: 66 Reply #19 on : Wed October 19, 2011, 20:19:02
this is pretty nice building material. Ancient tech with the modern touch, I'm about to tear my house down and build a dirt house.

Paranoiasnfm **Re: Earthbag Construction, Sandbag Buildings**
Posts: 66 Reply #18 on : Wed October 12, 2011, 04:12:00
Amazing!

Andy Norman **Inspirational**
Posts: 66 Reply #17 on : Fri October 07, 2011, 02:25:54
I love these alternative, eco friendly ideas for buildings. Cracks me up that people suggest they are not practical or ugly. Wake up, what is practical about our current building strategies and in my eyes these are far more beautiful and in harmony with nature than most existing structures. Love it!!

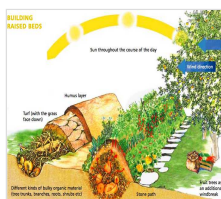
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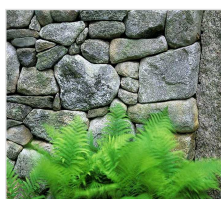
Hugelkultur
Instead of putting those branches, leaves and grass clippings in bags by the curbside...build a hugel bed.



Keyhole Gardens
This sustainable gardening method uses kitchen and garden waste and gray water (or wash water) as food for



Moon Gates
A threshold between worlds, (or garden features).



Dry Stone Walls
Constructed without mortar or cement. The art of the waller.

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Wattle Edging

Ancient as gardening. Wattling is fun and attractive.



Wattle Fence

Since Neolithic times we have fenced our sheep and vegetables in this easy to make (albeit time consuming)



Earth Sheltered

The earth-house uses the ground as an insulating blanket that efficiently protects it from temperature



Modern Underground

Underground homes with a modern bent. A large thermal mass stabilizes inside



Pit Greenhouses

For those in northern, high altitude or windy climates who wish to grow their food year round. Take advantage



Stacking Firewood

Ingenious ways to stack firewood.



Rocket Mass Heaters

The rocket mass heater works on similar properties as a masonry heater. A fast, high



Masonry Wood Cookstoves

Masonry heaters can incorporate cook stoves. And cook stoves can act as



Masonry Heaters with Ovens

Bake ovens can be either white (the fire is in another box, usually below the oven)



Masonry Heaters

Heat, not pollution. The cleanest burning wood stoves have been around for centuries, yet have taken a



Indoor Pizza Ovens

If you live in a cool climate, you might as well investigate adding a masonry heater along side your pizza oven. Or



River Rock Fireplaces

Although lots of mass and beautiful, most heat goes straight up the flue. Build a



Container Homes

Somewhere around 30 million steel shipping containers exist today. 8 feet wide by 8.5 feet high, and either 20 or 40 feet



Insect Hotels

Call them bug condos, insect hotels, insect habitats, wildlife stacks, insect boxes, insect houses, insect walls,



Outdoor Earth Ovens

Examples of pure cob and adobe, and refractory castable cement over bricks.



Outdoor Brick Ovens

Recycle some old bricks...into an oven.

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Steel Arch Buildings

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