

## Hive Earth Studio

Accra, Ghana

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**Hive Earth Studio** is a multi-disciplinary studio which specializes in the use of locally sourced and eco-friendly materials for the use of construction, interior design, art and design. The studio provides their consulting services worldwide and partners with the client during the concept stage, design creation and building process of the project. They also have a trainee program for people who want to be efficient in rammed earth construction. The studio mainly focuses on rammed earth which is both a building method as well as a material. The rammed earth material is a combination of earth, gravel, silt, clay and lime/cement as a stabilizer combined into a damp mix and it is rammed into forms in order to create a monolithic wall. Another building technique is utilizing sundried tiles which contain a mixture of laterite, granite chippings, palm kernel and a natural pigment. This mixture is sundried in forms and then meticulously installed on the site. Also, the studio is looking into the method of cast earth walls which is basically similar to concrete; it showcases the different designs like for example curved rammed earth walls and domes.

### Joelle Eyeson

im Videogespräch mit Mara Potthast

06 Mai 2022

### Hello Joelle. Could you perhaps briefly describe your professional activities for the interview and how you established the company?

**JE:** Initially we wanted to build our own housing development and we were looking at materials that we could use. We didn't see a lot of benefits on using brick and mortar to build. It's not something that goes with the climate and the aesthetics of the country so we looked at our traditional

earth architecture and we looked at ways to improve it. Then we came across rammed earth which is our main method of building. In this way we could combine our traditional method of building and modernize it using the rammed earth method. That's how we started our business in 2018 and it's what we mainly do: rammed earth construction.

We are also looking into other ways of construction. We do home decor products and wall coverings as well and we have done a few earth tile projects. So in essence what we do is, we use as much local and indigenous materials as possible for our construction and our home decor.

### How come that your architectural practice is focusing on earth as a building material?

**JE:** We are not actually an architectural practice; we are just earth builders and I think how it developed is that we just wanted to provide something different to the market. We ourselves, me and my partner, were looking to build our own house and we didn't agree with what was on the market at the moment. We realized that construction was going towards the 'western' way of building using 'western' materials. You can have a house in Ghana where most of the materials are imported. But we have an abundance of so many great materials on the continent, so why are we not utilizing them? If in our villages they use mud to build their houses and they last 80-90 years then why not doing research to see how we can benefit from the mud house and how we can utilize it today. What is currently available doesn't really fit with the climate and the environment.

### Do you focus on a special earth building technique besides rammed earth construction?

**JE:** We mainly focus on rammed earth and the sundried tiles but we are also looking into cast earth walls. This is basically similar to liquid concrete, but instead we are using liquid earth and pour it into forms to make mono-liquid walls. We have done a few walls using that method, but we still need to do a little more research before we bring it to the market. We are looking at doing different shapes. It's not like a diffe-

rent message; it just showcases the different designs like for example curved rammed earth walls and domes.

### Are you primarily concerned with new buildings or with the renovation of old buildings?

**JE:** To give a scenario: We are planning to build our office and we need an office in the city because that's where a lot of our clients are. Getting land in the city is very expensive, so what most companies do is they buy houses and then they tear them down and build a new building. It is not our intention to tear down an old building for a new earth building, so we are trying to see how we can incorporate earth into the old buildings without breaking them down - it is a lot of waste having to break down an old building. And we feel that many buildings from the 1950s/1960s and even the 70s are very well built and positioned. They serve a very good purpose for the city. The materials that were used might not be sustainable and quite toxic, so the question is: How can we make improvements to these buildings by using more sustainable and more ecofriendly methods? So that's one thing we are trying to find a balance in between.

### Does the decision to build with earth affect the design process in your studio?

**JE:** No, we love the challenge. Whenever an architect approaches us we will never say no. We don't want to restrict the architects and we don't want them to think: Oh, we cannot achieve it with earth, let's just use concrete bricks. So, we are very open for everything. We've got some really challenging projects, design-wise, coming up and we discuss how we can execute them. I know that quite a few rammed earth companies won't take on specific projects because they have a certain formwork that they purchase where you can only build straight walls. But our walls are all custom-made with our own custom-made formwork. So, we would hardly go out and buy a formwork to make straight walls. In all our projects - we have round and curved walls - we custom-make the formwork for the projects. So basically, we love the challenge of our practice.

### Who are your clients? How do you establish contact with your clients?

**JE:** We have a lot of people coming up to us and we have a lot of potential clients that want to work with us. To be honest, the majority of the inquiries, about 90% of them, we cannot accept because we are still too small. Everything has just grown so fast. Now we are doing projects that are going up four or five stories and we are still using basic equipment, but we are trying to catch up. At the moment we have one client who is providing us with a lot of projects so we are looking to scale within the next few months. We want to take on a lot more work with different clients. At the moment we are working with one architectural firm that is giving us multiple work. Also, because we are getting so many inquiries, we have a trainee program for the smaller jobs if you want to build a rammed earth wall in a do-it-yourself mode. So, there is an online video course and it's the first in the series of many that we are releasing. It's an opportunity for people who want something affordable or maybe in a remote area. So, the first course that we brought out is how to build a rammed earth wall and then later we will bring out tutorials that show how to install electric devices in your wall, how to construct foundations, how to attach your window frames, how to attach the roofing, how to make your own earth tiles etc. Basically, it's for self-builders and this is how we can deal with the sheer number of the people approaching us. Currently we have got about 600 to 700 people who want homes, just in Ghana. There are many architects from Nigeria, South Africa and all over the continent, some from the Caribbean, some from the States who want to work with us and we are trying to catch up. That's why we are producing these trainee programs to enable them to at least learn it themselves.

### Where do you see the biggest challenges in building with earth?

**JE:** I think the biggest challenge that we are facing right now is that we are the subcontractors on the projects that we do. The main contractors do the concrete frames. One of the big-

gest challenges are the people we are working with, not the architects but the main contractors. They don't have faith in the products that we are producing and they doubt that earth can be as strong as concrete. Main contractors are quite scared to use earth and they don't believe that rammed earth can go up to 25 storeys. Therefore, we are getting a lot of pushbacks from them and from engineers as well because they are not used to work with earth. Also some clients are skeptical as they don't understand how it works. Another challenge is that it's a mixture of art and a construction method which takes time to be combined compared to conventional concrete structures.

#### Do you cooperate with other earth building companies?

**JE:** We haven't worked with another earth building company so far. But because of the project that we are about to start, which is a multi-storey building, the architect brought in a more experienced rammed earth consultant who has done this for about 30 years. With that project we are also looking into doing prefabricated rammed earth walls, so we are making those rammed earth wall panels in a factory. But in terms of actually working with another earth company we have never done that before.

#### To what extent does earth as a building material influence the timing of the construction project?

**JE:** At the moment working with earth can take longer than working with conventional materials, because when working with earth the infrastructure around earth construction is not as established as the infrastructure for working with conventional materials. Working with concrete, brick and mortar will enable you to get the job done faster. Since earth is not as established it can take 20 to 30% longer than working with conventional materials.

#### To what extent does earth as a building material influence the construction costs?

**JE:** It really depends on what the client wants. If we are doing

a large project with multi-stories, architects, and subcontractors the costs will be quite high. You have to pay for labor, which is probably the biggest cost in rammed earth constructions, because it's so labor intensive. The cost of the material is not that high as long as we are not using much of cement.

#### Are the clients happy with the results?

**JE:** Yes! They are very happy with the results. It happened on one occasion that a client wasn't really happy with the results but I think the reason was that the client thought the surface had to be smooth, but when working with earth this is not what you are going to get. Earth is rough. But most of the time the clients are very happy with what they get.

What is your experience with the submission/official approval of earth building projects?

In Ghana until recently there were no building codes for earth buildings, but they recently added a section for earth buildings which has helped a lot. We haven't had any issues in terms of permits or anything like that. I think most of the time people are just amazed: Wow, you are going to build a house of mud? And it is going to have these many stories? Normally we don't have people coming from the building code office to double-check what we are doing. So, we haven't had any issues at all or a construction stop or someone saying that our buildings are not safe or anything like that. Getting permits hasn't been a problem for us.

#### To what extent would guidelines or standards in earth building be important for the planning and implementation of your projects?

**JE:** Planning is very important in our projects. With rammed earth it's a very introvert job, it's not like typical construction work. You really need a plan B and C because anything can happen. We always have to hand in a plan to the main contractor and to the architect to make sure that we are on time with our work. We have to stick to their timelines so that they are not getting charged extra for the hire, the

equipment and so on. We also have to be prepared in case that it rains and recently it has been raining heavily in Ghana. Of course this affects our work which can be costly for the main contractor - so it's important to stick to the plan.

#### What role do political decisions or financial subsidies/ incentives play in moving earth buildings forward?

**JE:** We have received quite a lot of support from the current party. We received fundings from them, we received awards from them, just for the innovative potential of our ideas. Financially this is extremely important since our company is growing so fast and we want to accept more work and more clients. If we wouldn't get the funding we wouldn't be able to grow and that's why we are very lucky that our political state is ecofriendly, supporting us in our development.

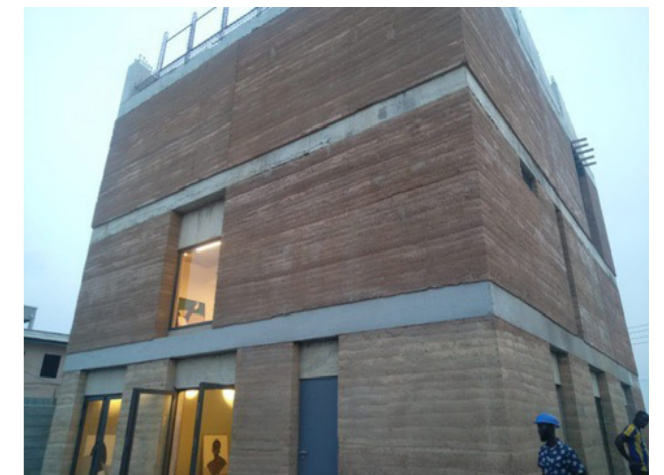
#### Are you also doing research on earth construction? If so, in which direction does the research go? Are there research grants?

**JE:** Yes, we are. We are doing research on cast earth walls. But we also want to do research on our rammed earth walls in order to receive more facts about the advantages of rammed earth and prove their effectiveness. E.g. we want to do research on how rammed earth walls effect the indoor temperature, in which way rammed earth walls are resistant to fire and how they behave in the case of an earthquakes. But we need the fundings to be able to do the research. We need to do the research to have concrete evidence.

#### Where do you see the future potential in earth building?

**JE:** I think earth building is going to be a huge topic with everybody being a lot more eco-conscious now. Especially architects are the main actors of change. They decide on what our future towns are going to be like and I think that architects nowadays are a lot more eco-conscious and conscious of materials they want to build with. So, I think we will see a lot more earth buildings in the future, especially on our continent, and we will be seeing less concrete once. So I think it is

going to be big.



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**Joelle Eyeson** is the Co-founder and managing director of Hive Earth and eco construction company she founded with her partner Kwame Deheer. Joelle has a background in property development and interior design. In 2014 Joelle relocated from the UK to Ghana and founded hive earth in 2018.