The Politics Of Poor Architecture (Earth Sector)

A critical look at materiality within architecture and ‘’Earth” as a construction material

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How many debts must still be paid to the leading lights of twentieth-century architecture who were not given due recognition during their lifetime? Quite a few- even if, as the mists of ideology disperse, a true picture comes into focus, and the value of their contribution becomes clearer. We have been given a limited version of the history of architecture of the last century, a time when the great urban hubs were formed and the shackles of stylistic convention were broken once and for all. Contemporary architectural research abhors the use of **'earth**' as a construction material despite its fundamental history within architecture. Thirty Percent of the world population or nearly 1,500,000,000 live in a home, made out of the earth. Roughly 20% of urban and suburban populations live in earth homes. Materials that were deemed essential and beneficial to architecture have been treated as a luxury that isn't spoken about, a luxury which is not fed the research and the focus it needs in order to benefit **the current environmental crisis that is occurring.**

Why has the use of such native material for the majority been abandoned and replaced by more commercial materials that arguably have far less benefit for advancing contemporary architecture? Thus it is important for us to first, understand the role of materiality within the history of architecture.

''It is true that materiality predominantly about the expression of material properties. "Every material possesses its own language of forms and none may lay claim for itself to the forms of another material."

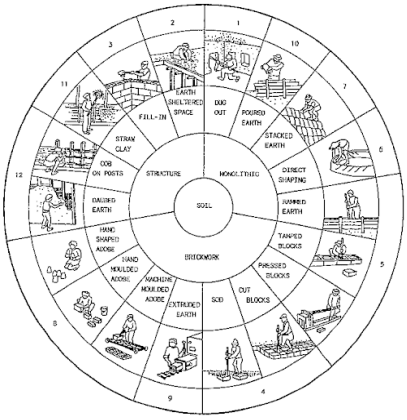
Adolf Loos

Modern architecture can be deemed flat and *''its flatness is strengthened by a weakened sense of materiality* '' writes Jonathan hill. Material or immaterial, they speak for architecture. They speak for the past and create what's to be as the future. What was architecture to begin with if not creating with what was available?

'*This concept [materiality in architecture]was previously regarded as a secondary consideration in architecture but recently emerged as an important element due to the recent advances in digital fabrication and digital science.'*

Modernism encapsulates the significance of 'Materiality ' within the borders of whatever we deem architecture, however within this very period of architecture we have placed focus on earth and natural materials, *why is that?* I believe the more important question should be placed on politicising a fundamental area within architecture that does not need to be politicised to be of benefit to modern architecture. Within this period of extensive research and limited knowledge, we have somehow pushed '***earth***' as a material to the side and have placed minimal research and resources into using natural materials within architecture, in most cases it is merely due to the day and age we are and how 'eco-friendly' we want our architecture to be labelled as. Thus natural materiality becomes politicised for labels. Anything outside this presumed mainstream was side-lined under the label 'regionalism' or 'curiosity'. This essay takes a critical look at the importance of materiality within architecture, the use of natural materials within contemporary and modern architecture, defines it's past, it's present with an effort to accelerate its future towards being an asset for modern architecture.

Architecture rose from what was around it. We created enclosures with the mere responsibility of protection. Protection against natural hazards, against the sun, against the wild and against one another. To build was to build with what was available. It was never what was aesthetically pleasing or architecturally significant in that time. Earth was one of if not the first material to rise and be built with. We created storeys and we created villages with it. We developed it and allowed it to go further than what was imaginable at the time. The material and the immaterial had a simple role and both played fundamental parts in reaching that goal. While architecture is characterised differently within different communities, it is understandable that earth and natural materials became most popular in housing the lower class. Roughly 50% of the population of developing countries, the majority of rural populations, and at least 20% of urban and suburban populations live in earth homes. [1] With that said, over the hundreds of years of earth, adobe and gravel being used, we have developed dozens of techniques and application methods which develop the characteristics of the material as well as tailor it according to different climates and also create different visual characteristics.*'' To build on earth is to build with a material which we trample with our feet every day of the week. However, earth can only be used for construction purposes if it has inherently good cohesion, provided by the presence of clay which acts as a natural binder."*[2] In the tradition of earth construction, we can recognize numerous building methods with an infinity of varieties reflecting the identity of the locations and cultures. In fact, 12 main methods of using earth as a construction material are recognised. Among these, seven are very commonly used and represent the main classes of technique.



Earth Construction: a Comprehensive Guide. Methods of earth construction

*''There is hardly an inhabited continent, and perhaps not even a country which does not have a heritage of buildings in unbaked earth, and even nowadays more than a third of humanity lives in a home built on earth" '*Houben, Hugo, and Hubert Guillaud. *Earth Construction: a Comprehensive Guide*. Warwickshire: Practical Action, 1994.

[1] Houben, Hugo, and Hubert Guillaud. *Earth Construction: a Comprehensive Guide*. Warwickshire: Practical Action, 1994. 1.02 Universality, pg 06
[2]Houben, Hugo, and Hubert Guillaud. *Earth Construction: a Comprehensive Guide*. Warwickshire: Practical Action, 1994. 1.02 Universality, pg 04

Hassan Fathy was one of the pioneers of developing baked and unbaked earth structures which majorly focused on housing the lower class of Egypt. To simply consider Hassan Fathy as the expert in local traditions or the ‘poet of raw earth’ disregards his capacity to combine architectural creativity with respect for tradition. Fathy developed many studies over his lengthy career. Introducing countless earth structures in Egypt as well as contributing extensive research in developing earth as a construction material.[3]

Hassan Fathy and The Architecture for the Poor: The Controversy of Success

Hassan fathy left a mark on not only Egypt’s urban centers but also on the development of suing natural and local materials in contemporary architecture.
‘’Despite this underwhelming record, Fathy’s oeuvre is celebrated in the West as an example of “other/vernacular modernism” and is celebrated in Egypt mostly by his students as authentic modernity/spirited continuity with the past.”[4] While attempts similar to Fathy’s were made over the years marking the importance of earth and natural materials within architecture, soon these materials were replaced and forgotten for the most part. They were used to create ‘’better ‘’more conventional materials although it is a fact that those materials were not better but more aesthetic and more commonly preferred. For instance, earth and concrete are similar in their base components yet one has zero if not negative carbon emissions and one is responsible for roughly 8% of the world's carbon dioxide (CO2) emissions[5], according to think tank chatham House.

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[3] Damluji, Salma Samar, and Viola Bertini. *Hassan Fathy Earth & Utopia*. London: Laurence King, 2018.

[4] “Hassan Fathy and The Architecture for the Poor: The Controversy of Success.” archidatum, n.d. http://www.archidatum.com/articles/hassan-fathy-and-the-architecture-for-the-poor-the-controversy-of-success/.

[5] **Emissions** means the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time.

Here we can point to immense growth of conventional materials such as cement, concrete, brick masonry and glass and an extreme reduction of the use of earth, adobe and natural materials. The question becomes, *why did we abandon a material which we had developed for centuries and had become our primary base material ? A material which was efficient, available and easy to use, and we replaced it with labour heavy, expensive and toxic materials?* While these materials were mostly used in developing countries with higher percentages, they (developing countries) also started to switch to more conventional materials which arguably also created housing issues due to the expense of creating these spaces, the lower class could no longer afford to live there and had to move out, and thus areas were transformed.It is usual for the working classes to emulate the upper echelons of society, and thus it follows that the architectural taste tends to trickle down from above. [6]It is important to notice that the reduction was gradual and in several stages. The initial stage; a cultural hierarchy was created within architecture and how the architure of different cultural groups looked. Thus creating the second stage; a lower demand and lower interest in housing which was created with earth due to it being deemed ‘architecture for the poor’. The third stage; after the initial switch, the working class also avoided earth buildings thus majorly deeming it a redundant material and bringing production to stagnant minimum.

Hassan Fathy and The Architecture for the Poor: The Controversy of Success

Earth construction remained at bare minimum for many years while we exceeded our resources producing conventional materials. These materials not only demanded extensive energy and resources, they also created colossal levels of toxins and made the construction industry one of the richest yet one of the most corrupt industries. At the time, architecture was not a field of interest anymore. It had become merely a monopoly game of which company makes more money. Architecture of course becoming collateral damage. The construction industry used architecture as means to dominate yet we were still teaching young architects in architecture school to build with concrete due to it’s aesthetically pleasing character, not understanding how architecture was being driven into being labeled one of the most detrimental industries.

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[6] Houben, Hugo, and Hubert Guillaud. *Earth Construction: a Comprehensive Guide*. Warwickshire: Practical Action, 1994.

While it would be years before the architectural and construction community would make any move towards it, soon the whole world was aware of the critical point we were in and how much we had damaged our planet. By 1988 factors including drought and heat and vast fires, had pushed a focus on greenhouse gasses and have put climate change on the front pages. However it would take nearly another 20-25 years before the severity of this damage would come head to head with architecture forcing architects around the world to step out of the utopian bubbles and face the real world. ‘’**Together**, **building and construction are responsible for 39**% of **all carbon emissions in the world**[1], with operational **emissions** (from energy used to heat, cool and light **buildings**) accounting for 28%” writes World Green Building Council[7]
Thus earth returns to the world of architecture and construction.confronted with a twin crisis of economy and energy in the modern age, today the industrialized countries have started a dialogue of the revival of earth as a building material and are backing research programmes and developing applications. The world speaks a unified language today and that is. The importance of global warming and reducing CO2 emissions.[8] The Uk alone has reduced their CO2 emissions by 38% since 1990[9], and are set to reduce it to zero by 2050 according to the documents published in 2019 by Department for Business, Energy & Industrial Strategy.[10]
While earth has become one of the most significant reappearing materials around the world including throughout Europe and the US, some may argue that the role of this material has been politicised and not taken as seriously as it should be. While many have devoted their careers in order to research this material and push it further in order to be able to build with it faster, taller and better, some projects can clearly be seen as clickbait[11] within architecture. An example of said projects is the *‘’Nk'Mip Desert & Heritage Centre”.* This Project which was done by DIALOG, was first opened in 2006. Located in Osoyoos, British Columbia.
‘’The Nk’Mip Desert Cultural Centre is designed to be a specific and sustainable response to the building’s unique context.” Text Provided by the architects[12]

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[7] “New Report: the Building and Construction Sector Can Reach Net Zero Carbon Emissions by 2050.” World Green Building Council, September 23, 2019. https://www.worldgbc.org/news-media/WorldGBC-embodied-carbon-report-published.
[8]
[9] “Analysis: Why the UK's CO2 Emissions Have Fallen 38% since 1990.” Carbon Brief. ZEKE HAUSFATHER, February 4, 2019. https://www.carbonbrief.org/analysis-why-the-uks-co2-emissions-have-fallen-38-since-1990.
[10] Department for Business, Energy & Industrial Strategy. “UK Becomes First Major Economy to Pass Net Zero Emissions Law.” GOV.UK. GOV.UK, June 27, 2019. https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law.
[11] clickbait/ˈklɪkbeɪt/
*noun*INFORMAL

1. (on the Internet) content whose main purpose is to attract attention and encourage visitors to click on a link to a particular web page.

[12] Valenzuela, Karen. “Nk'Mip Desert Cultural Centre / DIALOG.” ArchDaily. ArchDaily, May 23, 2014. https://www.archdaily.com/508294/nk-mip-desert-cultural-centre-dialog.

After doing just below surface level research on this project, one will find that the role of earth in this projects served more to bring attention to the firm than reducing the embodied energy[13] or the CO2 emissions of the construction. While the facade can be recognised as *''The largest rammed earth wall in North America."*[14], it also serves no structural purposes and could have been easily replaced. What is not spoken about in many articles that were written about the project is , what are the rest of the walls, foundations, or floors made out of.

Nk'Mip Desert Cultural Centre / DIALOG (2006) ***The largest rammed earth wall in North America."***

*''Ever since man learnt to build homes and cities around 10,000 years ago, earth has undoubtedly been one of the most widely-used construction materials the world."*Houben, Hugo, and Hubert Guillaud. *Earth Construction: a Comprehensive Guide*. Warwickshire: Practical Action, 1994.

After devoting my third year project to this topic, I can confidently argue that while this topic can seem very niche within architecture, in my opinion it has more effect on architecture and it's reputation than we realise. It almost seems like a loophole which was created by the construction industry, and architecture was used as means to an end. Many architects around the world have realised this and have devoted 30 plus years in promoting these materials,developing them and pushing their boundaries, I believe it is important for us to

[13] Embodied energy is the sum of all the energy required to produce any goods or services, considered as if that energy was incorporated or 'embodied' in the product itself.
[14] Valenzuela, Karen. "Nk'Mip Desert Cultural Centre / DIALOG." ArchDaily. ArchDaily, May 23, 2014. https://www.archdaily.com/508294/nk-mip-desert-cultural-centre-dialog.

understand where we came from and the importance of materiality within architecture, and continuing to feed research into a material that can benefit our reputations as architects and our place as humans.It is now a critical time for everyone as we are revisiting every aspect of our domestic lives to better our effects on our environment. Architects were given the brush and we were given permission to create so I believe it is important for us to create what benefits our communities, our nature and our planet. It is important to take a moment and analyse where we stand as architects and as members of the society. While many believe this was something that naturally occurred, I believe that the emergence of conventional material within architecture had very little to do with the philosophy of architecture or design proposals and it was much more related to what was commonly used at the time. Who decided what was common at the time? The construction industry of course. We are now at a point in time where we have lost modern architecture to a selection of conventional materials which almost seems illegal nowadays. We are at a point where schools have stopped allowing students to design with pure concrete, where we have 50-100 projects in one year pushing conventional materials to be recycled, reused and more beneficial as well as developing and building with natural materials. This is a point where we have taken back our places as architects and have now been placed in a route to write new history. I believe there is still a lot to be done however, architects need to be smarter in this day and age. For many years we have lived in our utopian castles and refused to believe any industry is smarter than us. We have been proven wrong. we have arrived at a place in time where we have to make a shift and change and maybe then, 100 years from now we will look back and know that we did our part.

To conclude, I believe we must start to learn from our past and learn from how we built when no technology was used. Only then can we take in the hundreds of years of experience and apply it to the modern age.Using our current knowledge and technology we can push our learnings from the past and enhance the characteristics of these materials. We must look at our excess construction waste and incorporate it into our materials, making conventional materials stronger while we reuse the waste which is produced and reduce our production of said conventional materials. We must look at earth, adobe, gravel mixes and etc, and push them further to be able to build faster, stronger and better with them. We must pay attention to the young generation of architects as they are for the most part focused on creating new methods to reduce our effects on our planet within architecture, methods that can be pushed further and can respond to the issues we are facing today. Yet we use them as interns and are not including them in design decisions by any means. This generation is the generation that is going to make the switch and if we are smart we will listen to them and allow them to use their careers ahead to contribute to eco conscience architecture and materiality.That being said,With the immense demand for homes in developing countries at the present time, we have more than enough space to design and improve.

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-*Hassan Fathy and The Architecture for the Poor: The Controversy of Success*