

15. Rooted in tradition.

Conversation with **Ar.Senthil Doss**, Principal Architect and Founder at Play Architecture.

Kalpa, Vol.04, 2023, pp. 89-92

Intent :

Architect Senthil Doss offers a unique perspective on Architecture by integrating historical influences and emphasizing sustainability. His work on the Devadhare Project, with the innovative use of brick tiles exemplifies the practical ramifications of his design principles. With a coherent understanding of materials, their properties and limitations, Ar. Doss develops an exclusive design language, which is reflected in most of his built forms. Doss's insights align seamlessly with Kalpa's focus on eco-friendly and culturally rooted practices, making him a compelling and inspiring figure for readership. The interview was conducted online where Architect Senthil Doss provided insight on his award-winning project, Devadhare and his belief in architecture as a practice and profession.

What were the primary determinants considered while curating the material palette for the project?

Kindly elaborate:

How did the project's locale and climatic nuances influence the selection of the chosen materials? Were there any avant-garde or pioneering materials employed in this endeavour? If so, what led to their selection? What role did the occupant's comfort, finance and health play in the selection of such materials?

The timbrel vault is inspired by a traditional African technique, which existed 800 years ago. Later seen in Spain, after which it disappeared, because of the lack of skilled labour and the expensiveness of the technique. The trigger was a masonry structure with negative brachian curvature that is ideally not possible in any traditional structure. It is conclusive of the fact that the geometry in any structure plays an important role. Prior to this, research work was being done on catenary based structures, which showed that the material that is used plays an important role. Conventional materials like concrete and brick were not suitable. Instead, thin brick tiles were used to give the vault a form. It was used in multiple layers, in different directions, which adds to the tensile properties of the vault. Took five years of research, using bricks and plaster of paris. Initial formwork was complicated and failure was met multiple times.



Timbrel vault in the "Devadhare" project (Image : Senthil Doss)

Timbrel vault can be used for long spans with negligible thickness, and its geometry plays an important role in understanding the resolution of forces with respect to the ground. A Catenary curve saves on a lot of material and reduces redundancy. Form becomes more meaningful, and less whimsical, when it is derived closer to nature, because straight lines do not exist in nature.

The Devadhare project started off by understanding nature with a stay in a tropical forest, a valley, with a lake and streams feeding into it. A structure like the one envisioned, would have problems of leakage due to the heavy rainfall that occurs in that region, if it is not dealt with properly, especially since it is a masonry structure. Recycled GI pipes were previously planted on site in the hopes that a platform could be mounted, that can be used for meditation etc. a spontaneous call, which was later embraced and allowed a program to conform around it. These pipes blended with the ecosystem and removing them would cause a disturbance to the existing balance. Hence, the columns were connected, and a thin stone flooring was built. The vault was built by people who did not know what it was. A system was developed out of steel as the formwork, which can be repurposed. We made sure the scale does not dominate the landscape. The scale and proportion was extremely important in that sense. It had to work practically for a dining space, which was to accommodate 40-50 people to dine, devoid of any decoration. So the architecture becomes the interior, the landscape or vice versa. Simple glass tables because it reflected the surrounding back into the space, like an oasis.

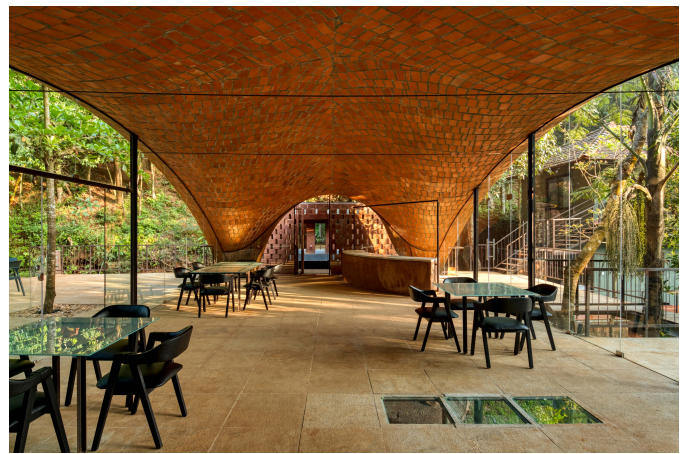
Did the cultural or historical milieu of the project area imbue the material selection with a sense of contextual resonance? If so, which materials were specifically chosen for their culturally significant symbolism?

If you look at the tile vault, it was initially not historical. But the roots of the idea goes to history, but not Indian history, and the relevance in terms of why the technique can be adapted in India is because we are used to bricks and we have been living with bricks for hundreds of years. If you go to Tamil Nadu, it was even more appropriate

when we started the research because you get something known as “Achakal,” which means thin bricks in Tamil. It is a traditional way of constructing in Tamil Nadu, like all the mantapas and temples, the vaults, arches and foundations were built using this. This is very popular in Auroville too. The material belongs to the region and we did not know the technique. So it was very appropriate to talk about the scientific component, the global idea and use of sophisticated softwares to design and build, and a material which is very local. There is a nice marriage between this very parametric process, plus the regional idea coming through.

I happened to have a conversation with Prof. Philip Block from Zurich, when IIT Chennai invited us. I felt like the mason in this case and the professor was a mathematician. So why do you want to drag us both into this conversation? They said that both forms of knowledge hold equal value. So, I had a chance to ask if so much analysis is required. He was the one who developed the rhino vault, a software for analysing shell structures like this.

He just smiled and said that your project has proved that you do not need analysis, but when there is a need to probably submit a document to the government or when you really need an analysis, this is where the support systems come into play. It’s a nice marriage in terms of the global versus the local ideas. In the case of the timbrel vault, the trigger was more modern but it goes back to the roots of history. In the case of the stone house, the trigger was a very insignificant temple in Tamil Nadu, my hometown- Thanjavur and Kumbakonam. These are known for temples. In 2000, I had done 3-4 proposals for the same site, but I was not happy for some reason, because they were all known; the material was known,



Interior of the dining space (Image : Senthil Doss)

the way you wanted to build was known, and I think when you are doing something for yourself, that’s when you get the complete freedom of doing something new. So I wanted to come out of this comfort zone, and touch something which is new. I was with my wife and there was a lot of spiritual connection, and we were in this temple and it’s very common to see stone columns, and I think it was an appropriate time in the evening, with the evening sun kissing the stone columns and floor and it just left a femoral quality.

It’s just there and it disappears; the feeling. But it leaves an impact that is always in your heart. You come back and you think that it should work with stone; I think it’s a beautiful material and it’s got purity. You become mad and say, I just want to work with stone.

You come back from there and the context shifts from Tamil Nadu to Bangalore, specifically where our chappadis are our unsung heroes, so you see them as drains, slabs and compound walls. There was a question



Playful engagement with the roof (Image : Senthil Doss)

as to whether I can use this stone as the structural system. Alone, you know that it is weak in tension, so it cannot perform. So we did research for one and a half years in terms of how you can interlock, how you can join them and see how it could work; and I realised that I needed a structural engineer. With the vault, there was no structural engineer and I was also touching stone for the first time, so we felt that there is a need for somebody who would be able to make more sense. So I spoke to B.L Manjunath, our favourite structural engineer, and he was laughing. He said that, in spite of whatever you do, you are still an architect, you do not understand structural order. To the extent of what we were trying to do there, it's critical, because you need to really understand the material and its properties. As an engineer, he is able to see the pitfalls of the material, so he asked me if I wanted to goof up a couple of times and find a way to build, like the vault process, then well and good. He asked me if I had so much money, but I declined. It's my own project and I will have to fund it myself. He said that he will have to rearrange the way I am looking at it. He said that it's a great idea to work with stones and to combine them to form a structure, but the way in which we are combining will have to be revisited and look at the order in a different way. So he asked me if I am open to it. He said that I cannot be only an architect and I cannot be only a structural engineer. We will have to step into different shoes at different points of time. That's the reason I asked him to help me out. So it was a very beautiful journey in terms of sharing our thoughts and he came with whatever was finally constructed.

When it came to the roof, work was stopped for 3-4 months. He said that a beam and stone is not engineering-wise appropriate. So I asked how these ancient temples work, because that's what I have seen from my childhood. I was told that I only saw the beam but not the thickness of the wall supporting the beam. Which means he was talking about how it was density-based, traditionally, and in this case we are working with stone almost as a surface. So that's primarily the difference. But since the span was only 12ft, I asked him if we should really be worried about it. As it is we should be worried about it as it is not correct, engineering-wise. One fine day, we had waste cut pieces of stone, and



Aerial view of the timbrel vault in the Devadere project
(Image : Senthil Doss)

pasted it, and loaded 2 tons over it. The stone looked like it could probably withstand 10 tons more. As long as the load is distributed evenly throughout the surface, it will not have any issues.

So the plan is a typical, traditional grid, with the centre open. The material is traditional and if you just change the order, the experience achieved is completely different. Traditional plan, traditional material, but the order is different. One of my inspirations was Bruce Lee, and he found a lot of redundancy in the process of martial arts. That's something that we have been trying to do, consistently as well. Either with the Sakleshpur project with the form, and a stone project which is the opposite of the Sakleshpur project. A very simple thought, but very challenging in terms of execution, and hence, we made sure to be close to the site at all times. No concrete or steel was involved in the project, other than the compound wall which is a gabion wall.

With an atypical/uncommon fusion of materials comes extensive research and added complexities. What were the challenges encountered in harmonising the chosen materials, and keeping it in tune with the conceptual framework? How were these intricacies adroitly addressed?

With 23 years of experience working as an architect, you learn to digest the whole process in layers. It is simultaneous, and never an isolated process. You have to look at the essence of the project, and the material has to be appropriate. It cannot be forced. It has to be deep-rooted and holistic. So all these layers keep adding in your head, and I always see it as a continuous process. So you choose a material, which leads you to a certain understanding, that leads to a certain form. On the contrary, like the Devadhare project, you have to have a roof that lets the water flow back into the stream and it was supposed to show this dialogue between impermanence and permanence. Concrete is more permanent and a thatch is temporary; so the in between is explored.

Today, sustainability is an indisputable precept of any discipline. How would you define sustainability and its applicability? What were some of the decisions made that animate resource management as a sustainable system?

Sustainability is not a new concept; it has been forgotten in the last 20 years. When I was a student doing my thesis, I think this concept resurfaced. Nowadays with social media, the visibility is more. Somehow, sustainability is seen as very research-based, and only few people would adopt it, like Auroville.

So if we talk about sustainability, it means being closer to nature and being sensitive to the local context. Some construction techniques cannot be framed as a sustainable practice. A rammed earth construction in a place where you do not get red earth is not sustainable; or if you imagine all of us building with earth as a

material, we might run out of earth. But on the other hand, once the purpose of the building is over, it can just disappear into the landscape. So when you do something like this, you have to know how long a building can perform, and once its purpose is served, how easily it can disintegrate into the landscape. That's one way to look at sustainability.

With respect to larger sustainable systems, if you look at the Devadhare project, the whole structure was built around the existing landscape. Only a few branches on the trees were trimmed so that they do not fall during the construction process. If you look at water systems, the entire form of the structure is to accommodate for the flow of water, which reflects in the geometry. So the water goes back to the landscape, through the streams. It does not require any specific harvesting system; we just have to make sure that the water does not stagnate elsewhere, and that it is allowed to flow back into the source. In fact, neither of the two projects had any need for a separate water harvesting system, because of the presence of an existing water body near the site.

With respect to recycling, it happens at a very small scale, in terms of the formwork and the interior dining elements, which could be very poetic, or it could be the aspiration to recycle. But to be honest, I do not consciously work with these harvesting systems, but maybe in the future.

Technology has its implications on the quality of material, its utility and the innumerable choices we have as designers. What are some of the advanced systems that have been adopted in your projects?

One aspect was that I was not big on using cranes, so that's something we will have to bridge in the future. We will definitely look at new ways of doing things in the future. Nothing against cranes, but a lot of heavy machinery may affect the site, especially if the site is very eco-sensitive, which would call for a lot more work. But I think we need to be balanced; this is a learning process. Sometimes, for a larger agenda, you might have to give up on certain smaller agendas.

Lastly, what would be your advice to young architects in creating and energising one's design through material choices and resource management?

My advice is to be passionate and be in touch with your soul; we do not need to compare our life to anyone else, because every individual person is special and unique by itself, so you need to be truthful to your calling, keep walking your path, irrespective of your pitfalls. Be true to whatever the situation is, and surrender to it. We only talk about success measured in the work we do and how much money we earn, which is not necessary for everyone. That's something I would like to tell everyone. Design sensibly and understand the material. There is no right or wrong, good or bad.

Interviewee's profile :



Ar.Senthil Kumar Doss

Senthil Kumar Doss, graduated from (NIT) Regional Engineering College, Trichy in 1999, began his Architectural career with his Internship at the Internationally renowned Architect B.V. Doshi's office based in Ahmedabad. Having spent 5 years of working with Dominic Dube, Senthil went on to establish his own practice under the banner Play Architecture. Play Architecture tested various "Isims" in Architecture, complementing and successfully integrating research and practice since 2005 and has been recognised through various Indian awards and publications in international journals. Apart from practice, Senthil is an academician, researcher and Guest lectures/ Conduct workshops at various schools of Architecture in India and Dubai. Email - skud@playarchitecture.in