

An experiential experiment

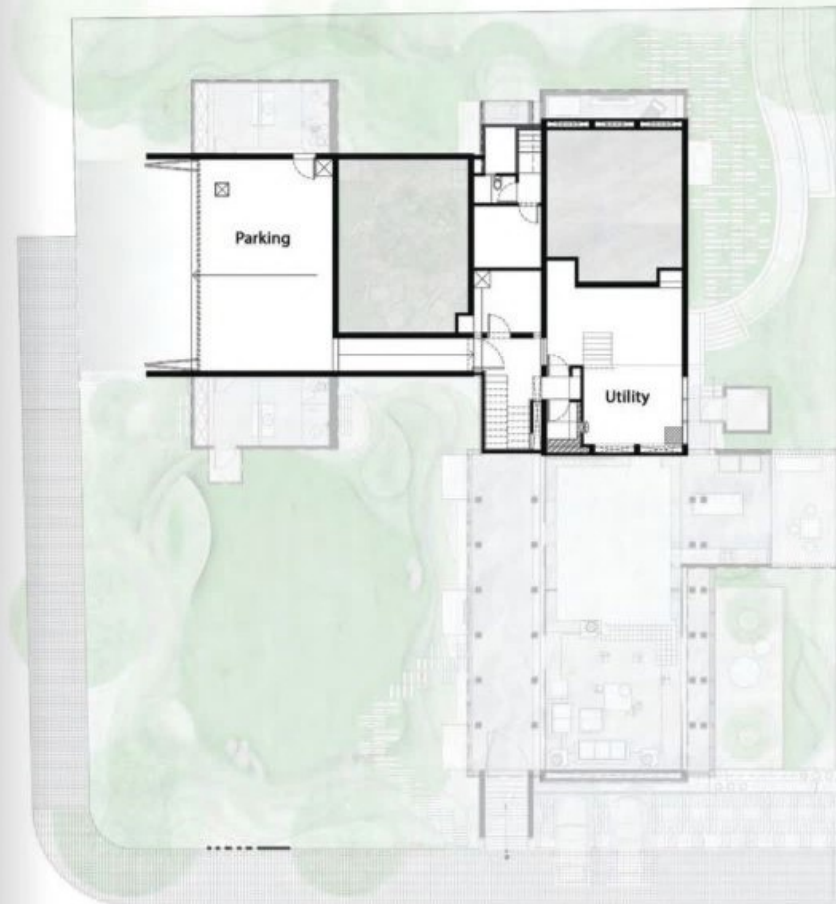
The Engineer's House, Surat



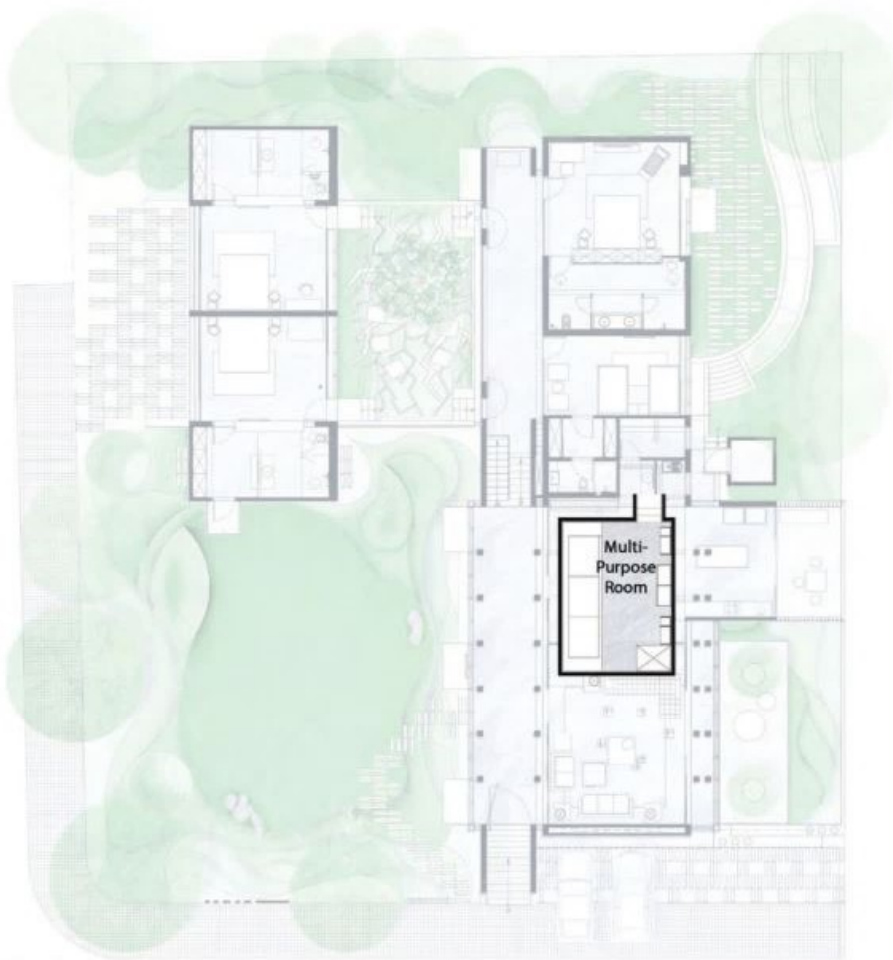
↑ Ground Floor Plan.

The coming together of architects and engineers has always resulted in the creation of exceptional structures. On the same lines, a house for an engineer designed by ESSTEAM in Surat gives the engineer's knowledge a canvas to take shape on, translating quirky ideas into astonishing engineering marvels that question the conventional paradigms of everyday objects, and impart a bespoke, fun personality to the house.

*Text: Sharmila Chakravorty
Images: Ishita Sitwala
Drawings: ESSTEAM*



↑ Parking Floor Plan.



↑ First Floor Plan.



↑ Section.



↑ The engineer's House by ESSTEAM.

A quick Google search on 'Architects Versus Engineers' comes up with some rather funny results. 'Architects...Engineers who can't do math'; 'Engineers...Architects who can't do art'; 'Architect's dream = Engineer's nightmare'; 'Architecture begins where engineering ends'... and so on. And while the search results surely draw a chuckle, they also casually point towards the intersection – or the lack thereof – between the two professions. The underlying, unspoken distinction – the demarcation between the perceptions of what it means to be an architect and an engineer; the age-old disconnect between the architect and the engineer has shaped a rather uneasy relationship. While the one versus another debate is quite pointless, this alleged disconnect is often the source of great sorrow for all those involved in designing and executing building projects. However, the reality is that both key actors in the construction industry need to rely heavily on each other's skill sets to create projects that have a creative flair and inspire awe, yet exhibit structural integrity and pragmatism.

And more often than not, throughout time, the coming together and joining forces of engineers and architects has given birth to iconic projects that have shaped architectural history to where it stands today. Think Eiffel Tower in Paris, or Opera House in Sydney, for instance. In the Indian context, perhaps Tagore Memorial Theatre in Ahmedabad, the National Cooperative Development Building in Delhi, the Hall of Nations in Delhi, the Chandigarh High Court, and the Premabhai Hall in Ahmedabad are perhaps iconic structures that merit mention. Clearly, the collaboration between engineers and architects not only executes the design vision, but also enhances it. Another, more recent case in point, is the The

Engineer's House in Surat, where the client – a brilliant mechanical engineer and a global leader in the manufacturing of very high-end diamond-process related machines – collaborated wholeheartedly with ESSTEAM architects. The result – a technologically advanced house that pushes the conventional definition of what a house encapsulates, making every aspect of the house seem like a fun experiment in experientiality.

The client and the architect agreed to collaborate in a way that the house incorporates the rather large body of the engineers' knowledge in its design, through meaningful engineering resolutions to issues. This kick-started the endeavour to question the conventional paradigms of common elements that one doesn't give a second thought to – door closers, ceiling fans, elevators, air conditioning, louvres etc. yet, to truly customise the house, engineered solutions were put in place wherever possible – with no doubt stunning results, but involved massive product design and development efforts. And yet, these exercises didn't turn the design into a workshop-cum-museum-cum-artist's gallery hybrid – a space wonderful to look at but lacks the empathy and feel that one associates with a home. On the contrary, The Engineer's House retains the warmth one would expect of a home for a family of four, complete with the quality, style, and operational ease that a family unit demands.

The site is a 1400 square yard corner plot located in a gated society in one of Surat's newly developed areas. On this site sits a four bedroom villa, organised around two open spaces – the public lawns and the private courtyard.



¹ Copper tunnel at the textured cube (Living).



¹ All North and South-facing spaces, including the four bedrooms, have indigenously designed operable louvers systems with an open-able layer of glass, from wall to wall.



¹ The louvers not only come in handy in Surat's hot and humid climate but also help in maintaining the connection with the landscape outside the rooms.



¹ The space opens up as the louvers are drawn up, blurring the distinction between the indoors and the outdoors.



¹ These louvers can also be lifted up, much like a bird's wingspan, to create a pergola.

The public block houses the living room, dining area, the kitchen and the elevator for the first-floor family room. Above the dining area is a slightly inclined copper box – the family room. Beyond the public block, a few steps led into the private realm with four bedrooms built around the courtyard. The material palette of house is simple, minimalistic and natural. Form finished, textured concrete walls add drama to the stark grey monotoes used throughout, also accentuating the sudden bursts of colour in various rooms. And while the program is standard for a housing format, it is the engineering marvels infused in every the various elements of the house that make this project so striking.

Take the louvered walls on the north and south for instance. All North and South-facing spaces, including the four bedrooms, have indigenously designed operable louvers systems with an openable layer of glass, from wall to wall. Not only does this come in handy in Surat's hot and humid climate, but also helps in maintaining the connection with the landscape outside the rooms. The space opens up as the louvers are drawn up, blurring the distinction between the indoors and the outdoors. It also harks back to the *otta* or *otta*, the entrance to a traditional Gujarati house that is accessed by a series of steps and serves a vibrant social function. These multi-function louvers control the amount of light and natural elements entering the rooms, and also ensure safety by keeping burglars out! These louvers can also be lifted up, much like a bird's wingspan, to create a pergola. The functioning is controlled by user-friendly mechanisms that lift and lock the louvers, and have been engineered using number of gears and levers.

Another interesting detail is the green elevator. Located in the living room, the elevator that connects to the family room on the first level is actually a square wooden platform with a bicycle seat and paddles mounted on a stand. This manually powered elevator can transport three people at a time to the upper level by simply paddling as if you would cycle! Again, this engineering marvel is complete with safety features such as an electrical override. The quirkiness continues in the rethinking of the ceiling fan – a large piece of fabric hands vertically over the bed. A complex metal assembly fixed to it operates it, much like a modern version of the Maharaja Fan found in Indian palaces and vernacular architecture where electricity was absent. The furniture too is designed with personality. For instance, the small bench in the veranda space is constructed using independent pieces of wood tied together using tensioned metal rope. So, when one sits on this bench, the wooden pieces displace and adjust to accommodate the contours of the person sitting on it.

The design excels in its incorporate of engineering elements while carefully and sensitively imbibing elements that are central to the creation of a home. While it literally is an engineer's mind and drawing board translated into a space one can live and enjoy, it is a space for discovery for even for those without an engineer-architect bent of mind. The design no doubt creates a house that is quirky, has a stunning personality and distinct character, but also questions the form and function of everyday objects; and tests innovations that hold the powder to completely alter how we experience a space. ■



¹ The louvers seamlessly connecting the indoors and outdoors.



¹ The manually powered elevator can transport three people at a time to the upper level by simply paddling like a cycle. This engineering marvel is complete with safety features such as an electrical override.



¹The bedroom is finished sans any cladding but concrete.



¹Similar to most of the house, the bathroom too is finished in concrete.



¹The design excels in its incorporate of engineering elements while carefully and sensitively imbibing elements that are central to the creation of a home.



¹The shell of the house and much of the interior is constructed in form finished concrete.



FACT FILE:

Project name	An Engineer's house
Architect Firm	ESSTEAM
Lead Architects	Snehal Shah, Nishith Jariwala
Project location	Surat
Completion Year	2017
Photo credits	Ishita Sitwala
Engineering & Fabrication	Janak Mistry (Lexus Softmac), Surat
Structure Designer	SMV Consultants, Surat
Electrical Consultant & Contractor	Crony Electricals, Surat
Landscape Consultant	Earthscapes, Ahmedabad
Horticulturist	Karmaveer Bhatt (Palash Associates), Surat
Civil Contractor	Jayantibhai Vadgama, Surat
Plumbing Contractor	Mujaver, Surat
Carpentry Contractor	Sohanlal, Surat
Stone Works	Prakash Chauhan, Surat