



IXD+JOORAK MAGAZINE - 2019

CASA SUSTENTÁVEL



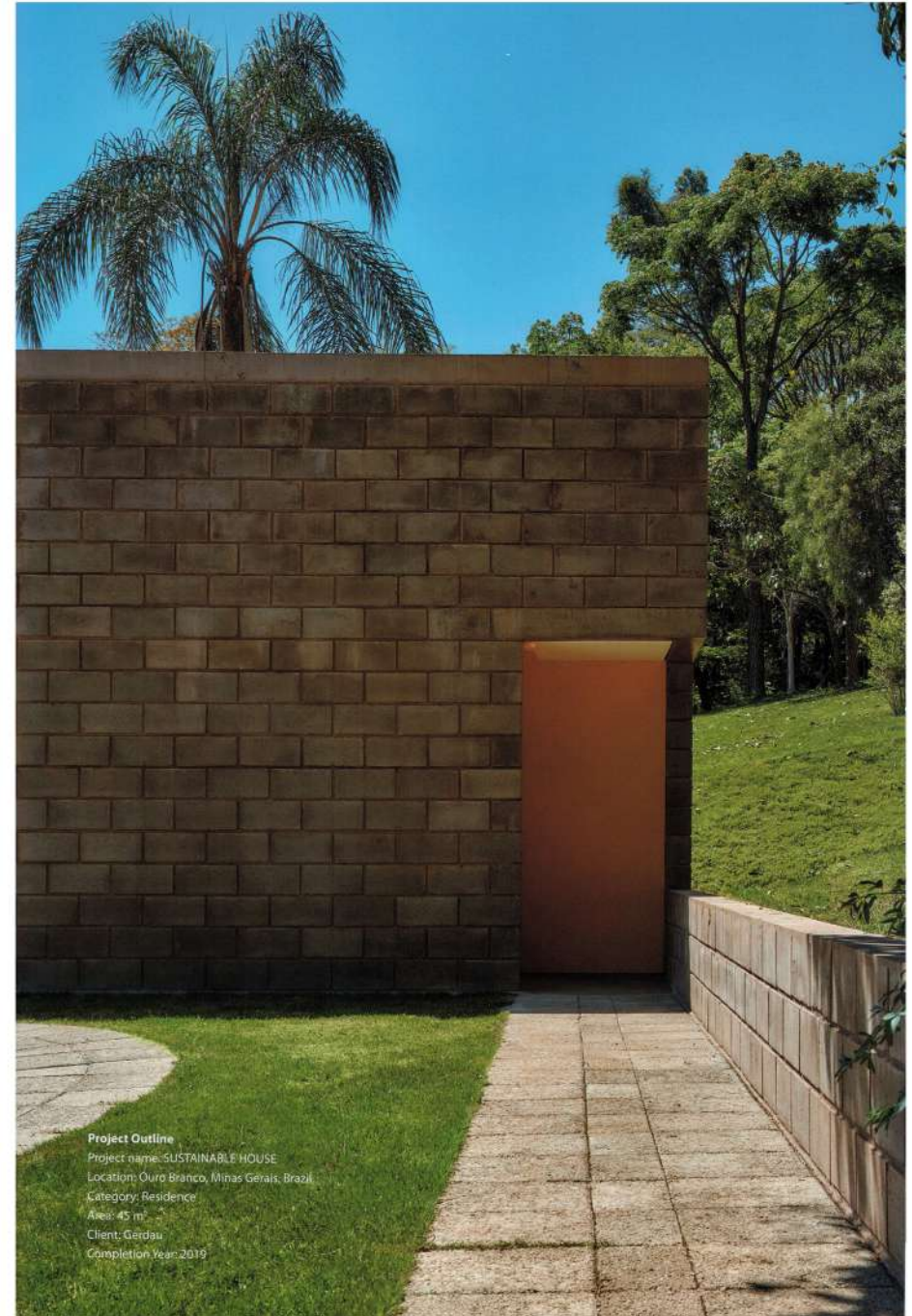
小 IXDESIGN JOORAK

狭小住宅 협소주택

SUSTAINABLE HOUSE

'지속가능성(sustainability)'은 세계 건축 씬에서 가장 주목하고 있는 이슈 중 하나이다. 브라질 Minas Gerais 지역의 협소주택 'Sustainable House'는 그 이름처럼 '자속 가능한 도시, 주택'의 설계와 연구를 위한 테스트 모델로 지어졌다. 사이트인 Minas Gerais는 세계 최대의 철강 생산 도시로, 구체적인 철강 제조 기업들이 다수 모인 곳이다. 도시는 자연스럽게 광업 폐기물의 처분을 두고 고민하게 되었고, 지역 대학의 광산공학부, 세계 최대 철강 기업 Gerdau, 그리고 테스트 모델의 건축/설계를 담당한 Gustavo Penna Architect & Associate가 그 솔루션을 위해 협업했다.

45m²의 협소주택 Sustainable House는 태양열 패널, 발전기, 바이오다이제스터(Biodigester: 폐기물을 통해 전력을 생산하거나 폐수를 처리하는 방식, 또는 정비) 빗물저장조 등을 갖추고 있다. 또한, 광산업, 철강 산업에서 사용하지 않는 부산물들을 주 자재로 주택을 건축했다. 지속 가능성, 전력 공급을 위한 기술적인 부분들을 차지하고서도, 주택은 세대주의 희망에 따라 내부의 레이아웃이나 외관을 변동할 수 있는 확장성을 갖추고 있다. 미래 주택에 대해 연구하는 학자들, 기술자들, 학생들은 Sustainable House를 통해 우리가 앞으로 살아갈 주거 공간은 어떤 모습일지, 어떤 것이 필요할지 어렵듯이나마 갈미를 잡을 수 있을 것이다.



Project Outline
Project name: SUSTAINABLE HOUSE
Location: Ouro Branco, Minas Gerais, Brazil
Category: Residence
Area: 45 m²
Client: Gerdau
Completion Year: 2019



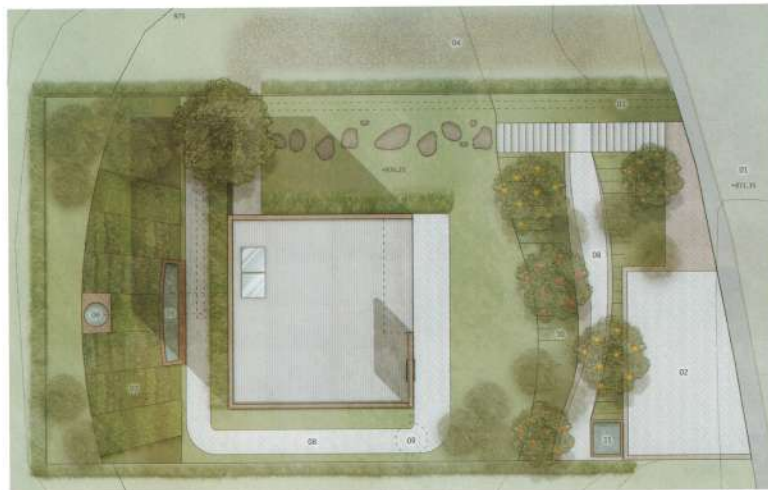
This house is a test model for studies and improvements, to achieve the ideal result for the construction of sustainable cities and neighborhoods. The Mining Engineering Department of the Federal University of Minas Gerais (UFMG) in partnership with Gerdau has developed a solution of blocks, draining floors and iron ore tailings mortar, a solution that can transform mining waste management in the future. For the development of this technology and the construction of the House, about 30 people have focused on solving this challenge that unites sustainability, education and quality housing. The 45 m² house complied with the Federal My House My Life program, and was designed by architect Gustavo Penna, who sought the ideal combination of design and the best use of natural resources. The House has environmentally friendly systems that are already accessible to the market, such as solar heating, power generation, biogas, composting tanks

and rainwater collection. "Our SUSTAINABLE HOUSE is made of matter and spirit. Raw material, the unused by-products of mining activity, is the main component: we take advantage of its qualities and properties. Finding an environmentally sound use for these wastes determines the unique character of the housing unit. In its spirit, the housing unit intends, besides its technical function, to be a home, a place for each person to feel valued, welcomed in their dreams, hopes and desire to live together. Every house, even in its simplicity, must be able to create a sense of pride and self-esteem," adds Gustavo Penna. Researchers and students can visit the Sustainable House at Gerdau Germinar Biocenter. The space acts as an environmental education tool and its main objective is to show in practice the relevance of mining for the contemporary world and the various technologies that can be adopted in our homes, in order to make them more sustainable.





Credit Information
Architect: Gustavo Penna Architect & Associates
Web: www.gustavopenna.com.br
Email: diana@gustavopenna.com.br
Photo Credits: Jomar Bragança



IMPLANTATION

- 01. Existing Way
- 02. Parking
- 03. Infrastructure Range
- 04. Accessible Entry
- 05. Wetland Water Treatment
- 06. Biogasster
- 07. Vegetable garden
- 08. Educational Path
- 09. Rainwater Capture Tank
- 10. Fruit trees
- 11. Composting tank