H2OS, anti-desertification eco-village in Senegal

An open-source, autonomous and sustainable prototype

TAMassociati[1]

[1]Massimo Lepore, Raul Pantaleo, Simone Sfriso (cofounders senior partners)
Laura Candelpergher, Enrico Vianello (junior partners)
www.tamassociati.org

Citation: TAMassociati (2021). H2OS Anti-desertification eco-village in Senegal. *UOU scientific journal #01*, 144-155.
ISSN: 2697-1518. https://doi.org/10.14198/UOU.2021.1.12

H2OS. Eco-villaggio anti-desertificazione in Senegal

Un prototipo open-source, autonomo e sostenibile

Il progetto architettonico e tecnologico di H2OS è concepito e sviluppato da TAMassociati. H2OS è un esperimento di co-sviluppo promosso dal Circolo Sunugal (associazione di migranti senegalesi) di Venezia, sviluppato dalla Onlus Musoco (Venezia) in collaborazione con la Ong USE (Union pur la Solidarité et l'Entraide) di Dakar. È finanziato da), CGIL CAAF Nord-Est, 8 per mille Chiesa Valdese, LTA (Livenza Tagliamento Acque) ed è supportato da AUTODESK FOUNDATION (USA). È sostenuto anche da IdRiCo (Idee per Risorse Collettive), finanziato dalla Regione Friuli Venezia Giulia, e dall'associazione provinciale Arci Trieste.

Luogo:
Keur Bakar Diahité, Senegal

Team:
Progetto architettonico: studio TAMassociati
Ispiratore: Circolo Sunugal APS di Venezia
Coordinamento: MUSOCO onlus Mutalità, Solidarietà e Cooperazione / Partner locali: Ong senegalese "Union pour la Solidarité et l'Entraide (USE)
Progetto architettonico: studio TAMassociati
Partner tecnici: Francesco Steffinlongo, K&G Progetti

Tempi:
Percorso partecipato: 2012-2014
Progettazione architettonica: 2014-2015
Realizzazione eco-casa: 2015-2017
Superficie: 280 mq
Download the prototype: www.h2os-project.org

The H2OS architectural and technological project is conceived and developed by TAMassociati. It is an experiment in co-development promoted by the Circolo Sunugal (Senegalese Migrant Association) in Venice, developed by Onlus Musoco (Venice) in collaboration with the NGO USE (Union pour Solidarité et l'Entraide) in Dakar. It is funded by CGIL CAAF Nord-Est, 8 per mille Chiesa Valdese, LTA (Livenza Tagliamento Acque), and is supported by AUTODESK FOUNDATION (USA). H2OS is also supported by IdRiCo (Idee per Risorse Collettive), funded by the Friuli Venezia Giulia Region, and by the provincial association Arci Trieste.

Location:
Keur Bakar Diahité, Senegal

Team:
Architecture: TAMassociati
Inspired by: Circolo Sunugal APS di Venezia
Coordination: MUSOCO onlus Mutalità, Solidarietà e Cooperazione / Local Partner: Ong Union pour la Solidarité et l'Entraide (USE)
Technical Partners: Francesco Steffinlongo, K&G Progetti

Phases:
Participated process: 2012-2014
Project: 2014-2015
Realization: 2015-2017
Area: 280 mq
Download the prototype: www.h2os-project.org

Fig. 1 - TAMassociati, H20S, Keur Bakar Diahité, Senegal, 2017.

A RESEARCH BASED PROJECT

TAMassociati has inaugurated the ‘eco-maison’, the first lot of the H2OS project, which plans the construction of an eco-village in Senegal (at Keur Bakar, 200 km from Dakar) consisting of common spaces and housing modules self-supporting in energy and water in an area where desertification is inexorably spreading.

“Desertification, high dropout rates at school, emigration: H2OS is a project that aims to give hope to all the peoples of the African Sahel,” announce TAMassociati. It is an open-source pilot project, replicable, adaptable and perfectible elsewhere. It is the result of an international collaboration, born from the grass roots and inspired by Sunugal – an association of Senegalese immigrants in Italy – which has won increasing support. And it is destined to become a model of sustainable dwelling for the whole continent, but can be adapted anywhere “

The eco-village will become a symbol of eco-modernity, proportionate to the technical, managerial, and agricultural self-sufficiency of local communities, who are also the protagonists of this project.

The eco-dwellings, organized around the common eco-home technology, will be built of stabilized raw-earth bricks in a self-build system. The most complex elements of the buildings (extremities, services, utilities) are dealt with by specialized technicians who at the same time train the local workforce.

Fig. 2 - TAMassociati, H20S, Keur Bakar Diahité, Senegal, 2017.

On-site maintenance is part of a broader scenario of self-sufficiency and self-subsistence underlying the project. Sustainability is also embodied in the cost of the work: less than 200 euros per meter. The village is located in an area without electricity, water or school and health services.

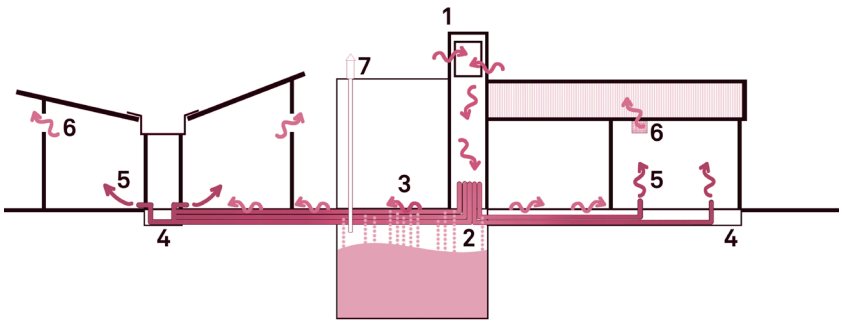
The eco-maison project completes the first phase of the project: “The community eco-maison, the heart of the new village,” state TAMassociati “will be a home for the community devoted to research, training, information, arts and crafts workshops, and social life. A public place of sharing, in which the first cornerstones of the ecological project will be shaped: from the recovery of rainwater for sanitary water to systems engineering, the filtration system and natural ventilation, passive building, energy production, phytodepuration of black waters and the photovoltaic circuit.

Next to it are the well, washhouse and a community organic vegetable garden, run largely by women and irrigated by the water recovery system: a true community garden, where farming rests on the principles of environmental compatibility, food and local culture”.

The challenge to designers, promoters and partners is clear: the Senegalese project, an African path to ecology, is a new proposal for the new type of modernity required by the continent, concerned to combine self-management, traditions, landscape and social fabric with the opportunities offered by the best international design.

“A non-invasive but participatory design, which will become a bulwark and symbol of rights,” conclude TAMassociati, “such as access to water, food, the possibility of living in the place where they were born and moving away voluntarily, not from necessity.”

Fig. 3 - TAMassociati, H20S, Keur Bakar Diahité, Senegal, 2017.



natural ventilation system

01. ventilation chimney

02. rain water tank

03. Conditioning ventilation ducts (PVC Ø110)

04. ventilation duct

05. interior ventilation

06. ventilation grid

07. tank's upper ventilation (Ø80)

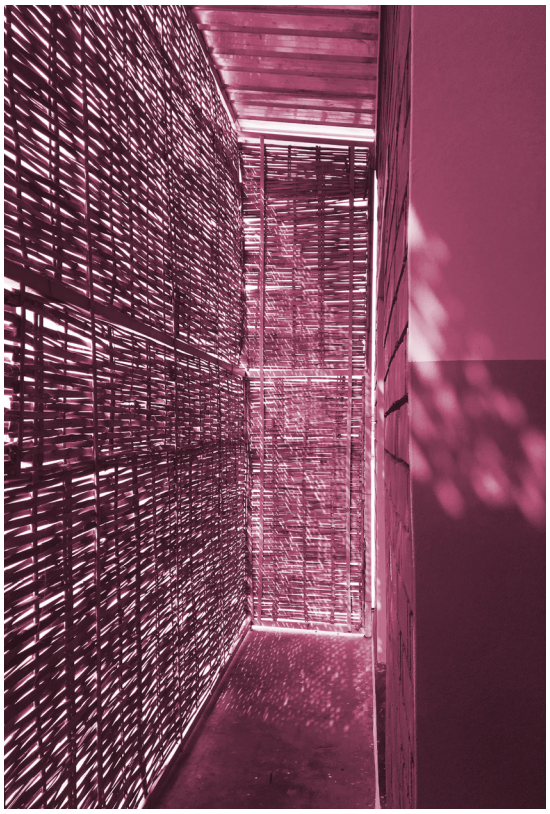


Fig. 4-5-6 - TAMassociati, H20S, Keur Bakar Diahité, Senegal, 2017.

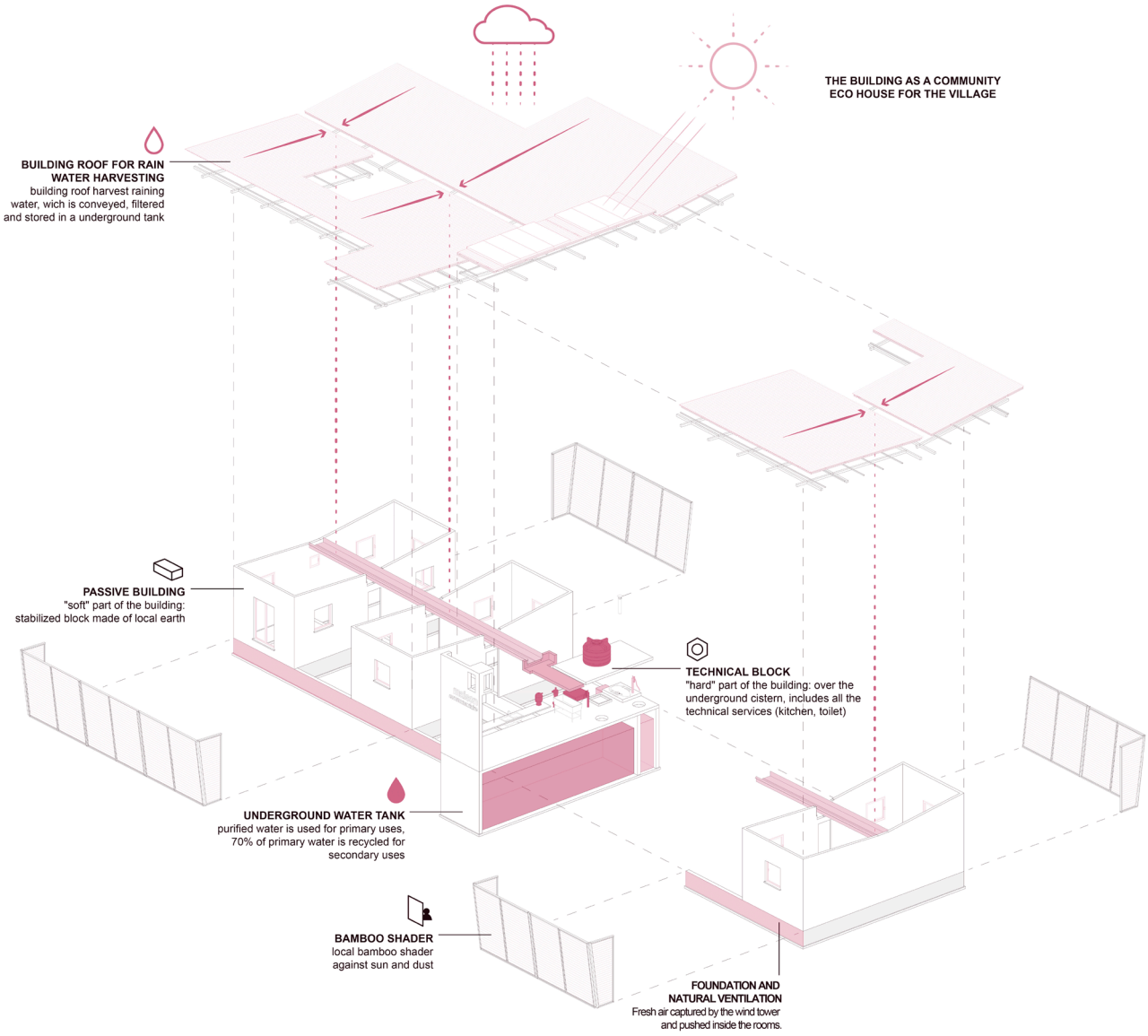


Fig. 7 - TAMassociati, H20S, Keur Bakar Diahité, Senegal, 2017.

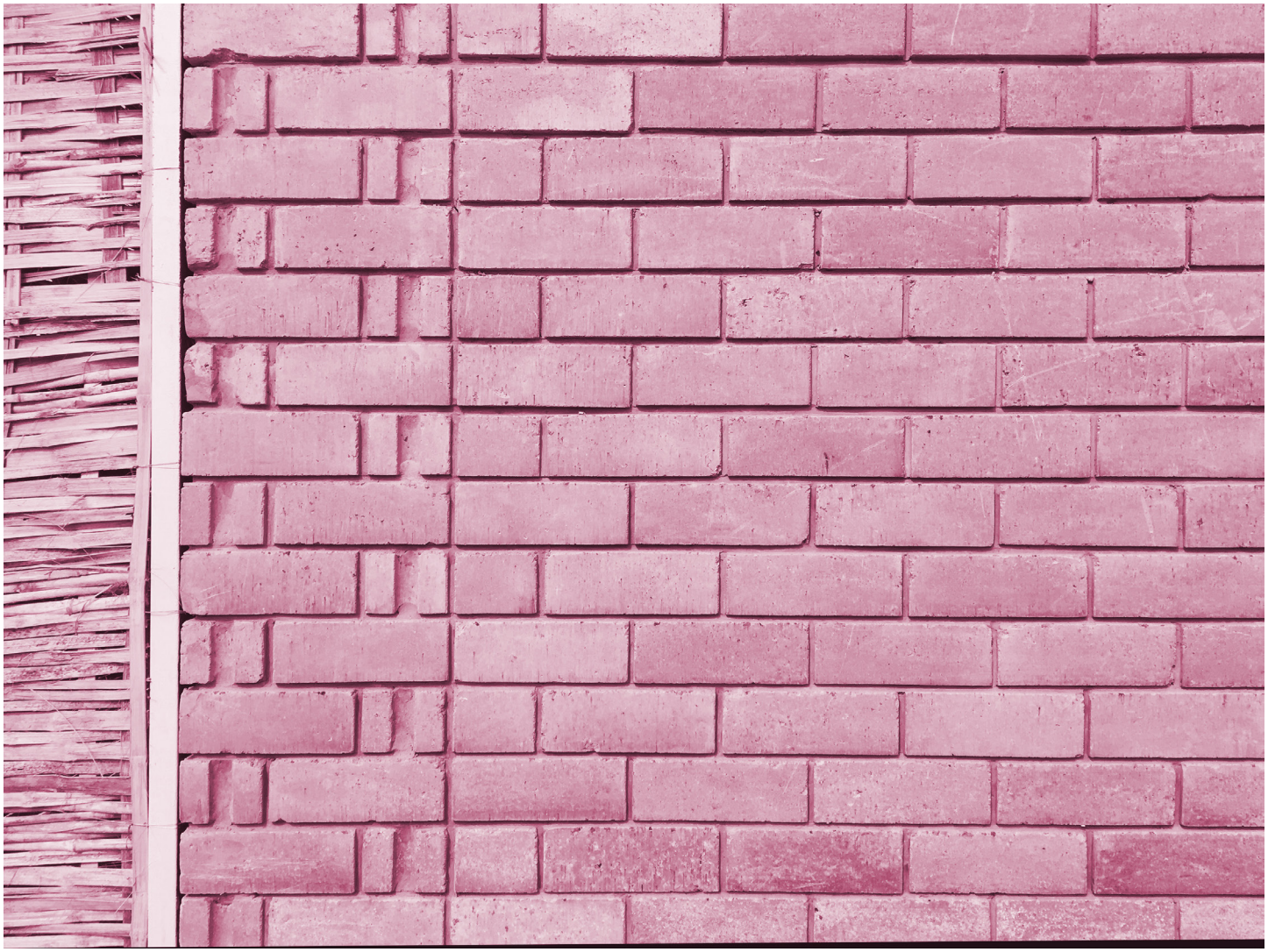


Fig. 8-9 - TAMassociati, H20S, Keur Bakar Diahité, Senegal, 2017.

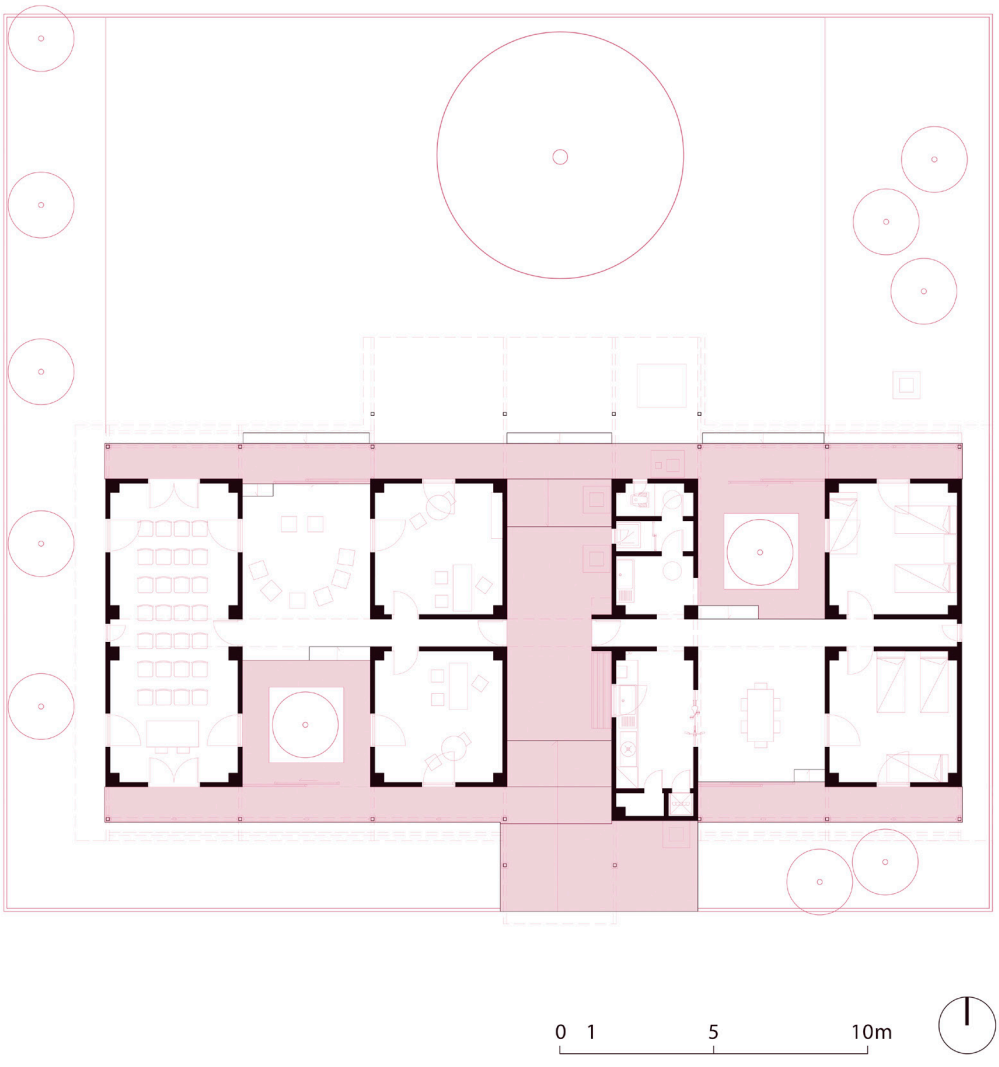


Fig. 10 - TAMassociati, H20S, Keur Bakar Diahité, Senegal, 2017.

Fig. 11-12- TAMassociati, H20S, Keur Bakar Diahité, Senegal, 2017.

TAMASSOCIATI

Active in Social Design internationally since the last millennium, TAMassociati combines a civil and professional commitment, working in sustainable architecture, urban planning, landscape design, participatory and educational processes, graphic design and social communication.

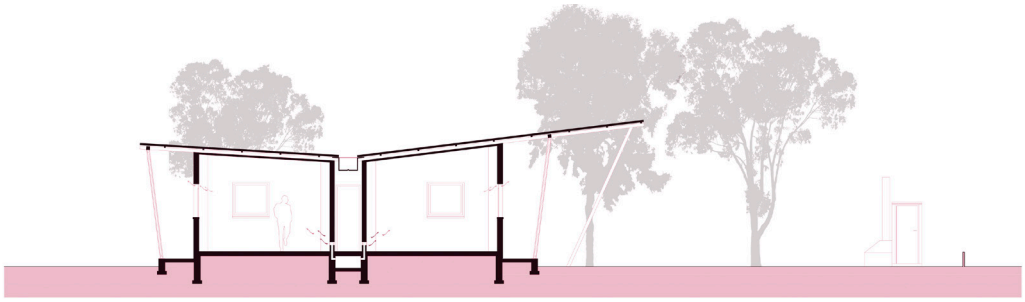
The office has won widespread recognition and numerous prizes: in 2013 it received the Aga Khan Award for Architecture for the excellence represented by the Salam Centre for Cardiac Surgery in Sudan, the international Ius-Capocchin prize for construction of the world's most sustainable pediatric hospital (Port Sudan) and the Curry Stone Design Prize for the overall sustainability (social and environmental) of recent projects built in different parts of the world. In 2014 the practice won the Zumtobel Group Award for innovation and sustainability represented by the pediatric hospital it built in Sudan (Port Sudan). It was named Italian Architect of the year for 2014 "for its ability to enhance the ethical dimension of the profession."

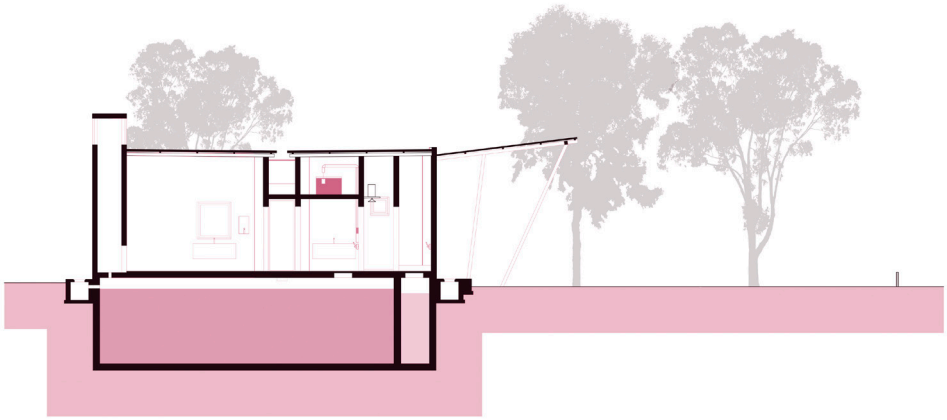
TAMassociati has been the curatorial team of the Italian Pavilion at the 15th International Architecture Exhibition of La Biennale di Venezia "Taking care – Designing for the Common good".

Winner of the prize Italian Architect of the Year 2014, TAMassociati has displayed its works at numerous exhibitions and international events, including Architecture is Life at the Aga Khan University in Karachi, Pakistan, 2014; Five Projects for a Sustainable World, Cité de l'Architecture et du Patrimoine, Paris, 2014; AFRITECTURE – Building Social Change at the Pinakothek der Moderne in Munich, 2013; the Triennale di Architettura in Milan, 2012; International Architecture Exhibition of La Biennale di Venezia, 2012 and 2010 editions.

Currently TAMassociati is working in Uganda, Senegal, Italy and Afghanistan. It has offices in Venice, Bologna, Trieste and Paris.

Fig. 13 - TAMassociati, H20S, Keur Bakar Diahité, Senegal, 2017.





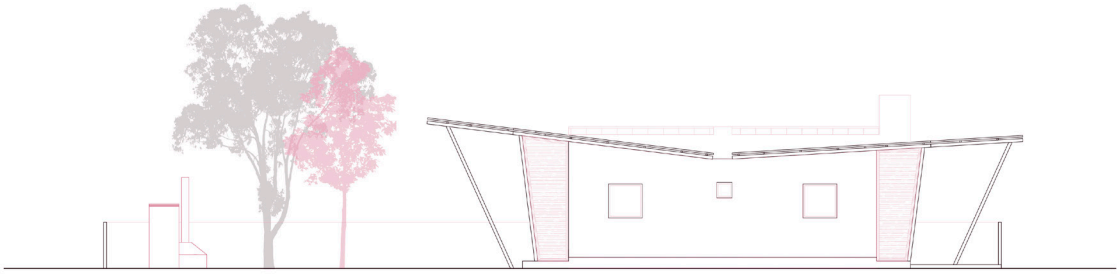


Fig. 14 - TAMassociati, H20S, Keur Bakar Diahité, Senegal, 2017.