

A F L A  
O M E G A  
S C H O O L

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# INTRODUCTION

Located in Kosambi, Indonesia, the Alfa Omega School is host to 300 local students ranging from preschoolers, to those in senior high school.<sup>1</sup> Designed by RAW Architecture, short for Realrich Architecture Workshop, the school aims to reestablish the long history between the site with the local craftsmen.<sup>2</sup> The mission of the Alfa Omega School is to provide children with an education that fosters creativity and innovation by encouraging critical thinking, analysing, leadership and character skills, while learning with the respect of nature in mind.<sup>3</sup> The education is adaptable for every child's skills and individual talents, with a continuously evolving method of teaching.<sup>4</sup> The building is designed for Lisa Sanusi, along with the rest of the PKBM Alfa Omega team.<sup>5</sup> By use of construction with local materials within a five kilometer radius of the site, the design intentions were expressed and allowed for the project to be completed efficiently while maintaining a low carbon footprint.<sup>6</sup> This material extraction radius is important due to the constrictive timeline and budget, as the expectation remained that the project stay under \$1.2 million while being constructed in six months; this was successfully accomplished within the budget and within four months.<sup>7</sup> By exploring the philosophies of the architect, the importance of the site, the configuration of the building's formal gestures, and the strategic use of the relationship between craft and building practices, there is an expression of cultural sustainability that is unprecedented within the surrounding context.



## 01 ABOUT REALRICH ARCHITECTURE WORKSHOP |RAW|

Realrich Sjarief, the lead architect at RAW Architecture, comes from a three-generational background of architectural knowledge, as both his father and his grandfather were builders.<sup>8</sup> He graduated from the Bandung Institute of Technology in 2005, and following his graduation, he worked at firms including Urbane, DP Architects, and Foster + Partners.<sup>9</sup> He completed his Master's Degree in Urban Design at the University of New South Wales in Sydney, Australia.<sup>10</sup> Concluding his studies, he established RAW Architecture in 2010 in Jakarta, Indonesia, expressing that,

*The naming of his practice implies his approach to architecture (workshop) and material (raw). 'I see myself as an experimental architect and builder, ... I also believe that if you want to change the world, you need to change yourself first... To me, the best way to experiment is through my own projects.'*<sup>11</sup>

The philosophies of RAW stem from *suwung*, directly translating to emptiness, yet on a deeper level, the phrase means the freedom from perception and ego.<sup>12</sup> The three principles that are taken from this concept are:

*“memayu hawaning bawana meaning bringing beauty and peace to one’s world, mangganing kawula gusti meaning believing in something greater than oneself, and sangkan paraning purba meaning having consciousness of one’s role in the universe.”<sup>13</sup>*

These philosophies can be seen in work such as the Alfa Omega School, as well as his home studio which is in conjunction with his wife’s dental office and a semi public library complex.<sup>14</sup> The complex is an experimental build that is a place for material research; for example, the exploration of the use of bamboo, concrete, steel, and other local woods.<sup>15</sup> The firm looks to further explore with the use of natural materials and the specialists associated with it, in order to create a positive impact upon people’s lives.<sup>16</sup>



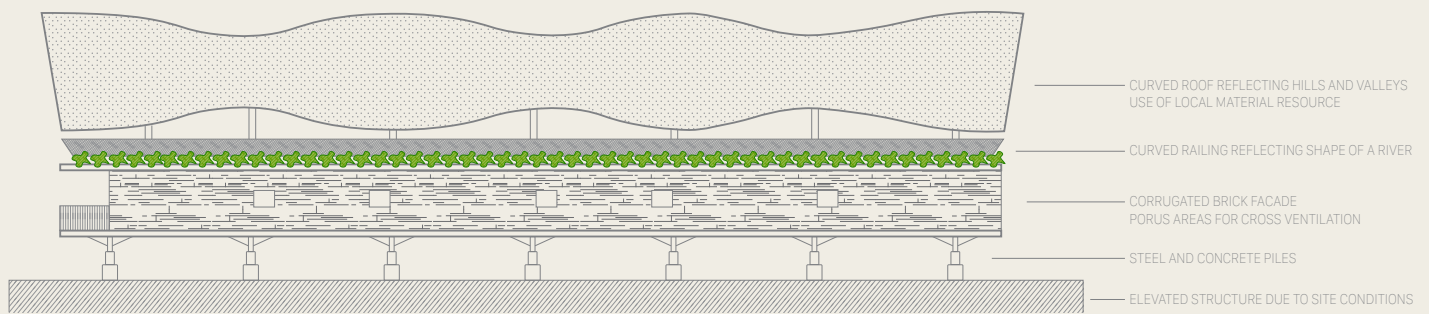
## 02 ALFA OMEGA SCHOOL SITE DESIGN

When designing and building the Alfa Omega School, the importance of the site and its relationship with the design became a prominent concept that Realrich decided to closely follow. As a result,

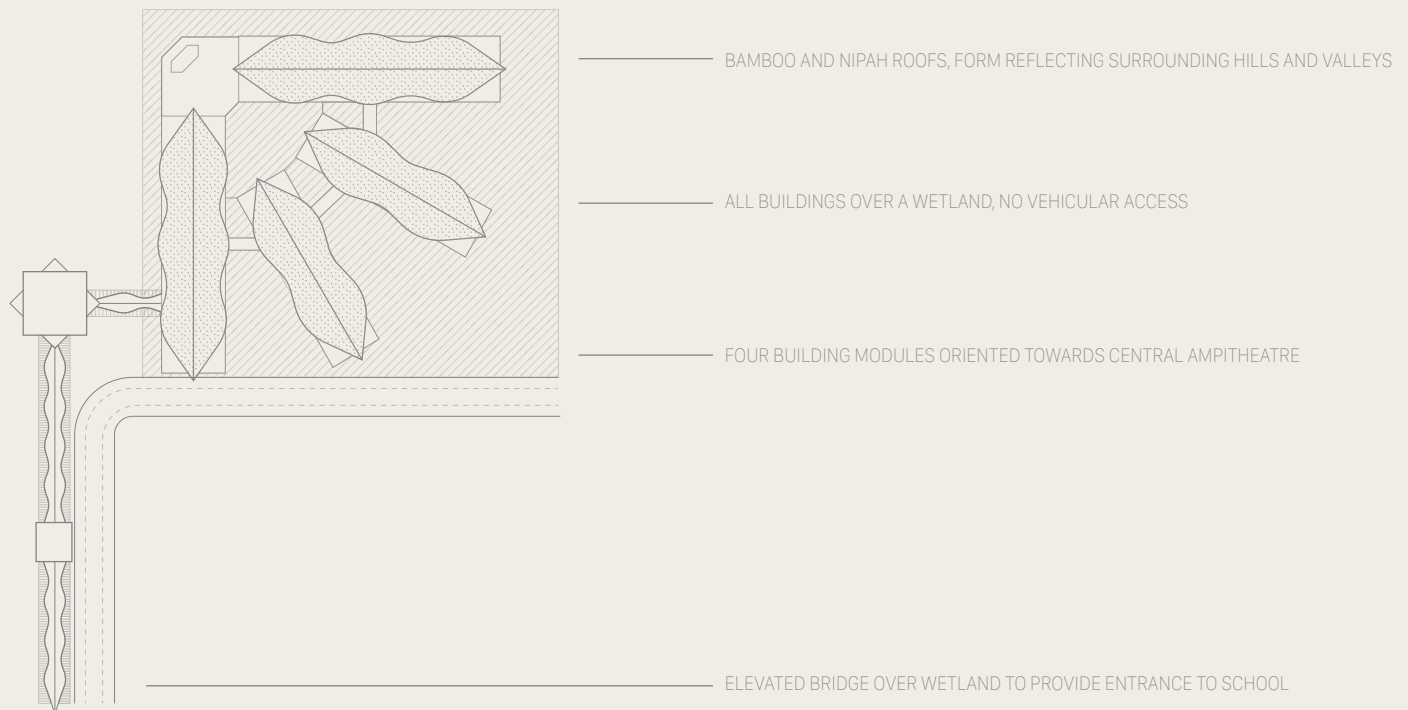
*The solution to answer the brief of the project is to create an optimum collaboration, or bridge relationship in the economic and creative process of construction in two important levels of masonry steel and bamboo construction which can enrich the economic impact of surrounding.<sup>17</sup>*

With no access to the road, the site, previously occupied as a rice paddy field, resulted in muddy and unstable conditions containing a large sum of water.<sup>18</sup> As a result, the school was raised 2.1 meters, done through the use of concrete and steel piles,<sup>19</sup> above the site to eliminate problems with building in unstable conditions and preventing flooding.<sup>20</sup> As aforementioned, the relationship between local builders with the community members became an important experience when it came to the design process of the Alfa Omega School. These included a local stone mason, a steel

welder, and a bamboo craftsman, aiding in creating individuality within the design scheme as well as helping with optimizing resources, time constraints, and pure manpower.<sup>21</sup> This method of working with local craftsmen helps to inform Realrich's architectural practice going forward initiating social and collaborative design processes.<sup>22</sup> The importance of learning from nature and the integration of learning with nature for the students curriculum was a continuous concept that has carried its way through to the post production phase. Despite site conditions, the location was deliberate in the design scheme to correspond with surroundings and allows for children to connect to nature, promoting an outdoor learning experience.<sup>23</sup> The sinusoidal curved form that the roof takes is meant to emulate the surrounding hills, valleys, and mountain formations to further create a connection with the site.<sup>24</sup> The angled curved railings of the raised pathways are used to connect with a local river.<sup>25</sup> In portions of the building where the steel is exposed, the architects designed the space to have floor to ceiling windows in order to create a visual connection between the other school wings and with the local mountain landscape.<sup>26</sup>



## DESIGN STRATEGIES

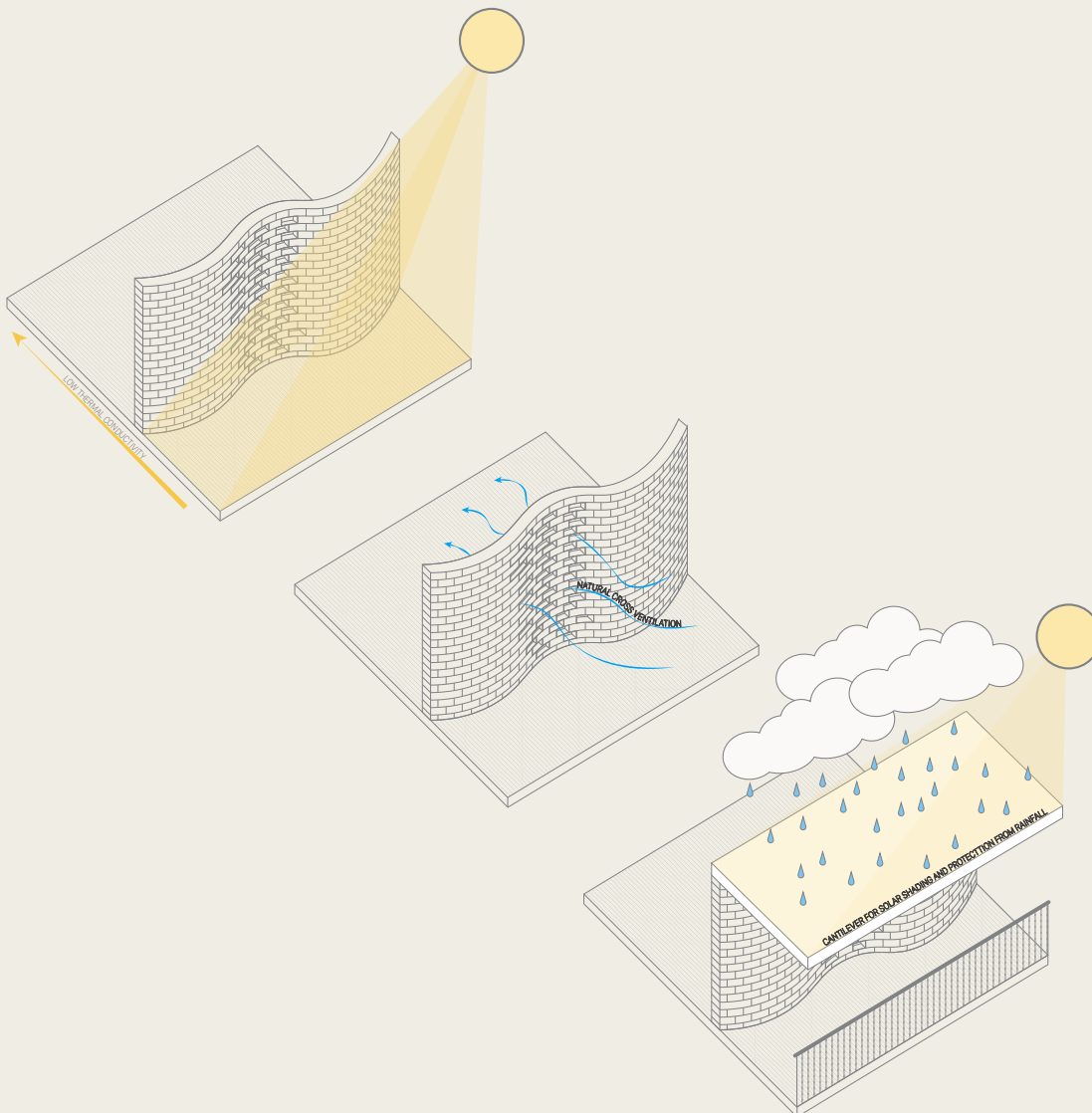


## SITING

## 03

DESIGN CONCEPT  
AND PASSIVE  
STRATEGIES

There are multiple aspects to the configuration of the Alfa Omega School's buildings. The concept remained for the school's connection with nature to be a main driving force of the design to tether the children to their surroundings and create an emphasis on outdoor learning.<sup>27</sup> The four separate classroom buildings are designed in a modular fashion and are arranged in a fan shape, spreading out from an ovalecular form in the middle, which acts as an amphitheatre space for the school.<sup>28</sup> The classrooms are set into the interior of the overhanging roof structure of the second storey, allowing for walkways along the side and connecting to the neighbouring buildings.<sup>29</sup> In addition, the four buildings have access to a central courtyard space with green space between each building.<sup>30</sup> This further instills a visual connection between each of the classroom buildings and the local landscape. The sinusoidal curved roof works to illustrate the narrative of the beginning, the end, and the inbetween of the alpha and the omega.<sup>31</sup> This curvature is further translated into the curved railings and benches of the school.<sup>32</sup> Working in conjunction with the steel structure, local bamboo is used to form a simple roof truss system which is then clad in the nipah leaves.<sup>33</sup> The undulating brick facade becomes porous at the concave curvature points to allow for natural cross ventilation.<sup>34</sup> In addition to the porous facade, the high ceilings of the pitched bamboo roof allow for further air circulation.<sup>35</sup> A complementary passive strategy is the low thermal conductivity of the concrete floors and bamboo ceilings that aid in keeping the school at a comfortable 27°C year round.<sup>36</sup> The roof is cantilevered an additional two metres to provide natural shading and protection from the heavy rainfall of the area.<sup>37</sup> Finally, the school is naturally lit during the day time, while utilizing LED lights at night.<sup>38</sup>



## 04 MATERIALS AND CONSTRUCTION

Due to the constricting timeframe of the construction process for the Alfa Omega School, material selection and availability was an extremely important factor that informed the design. RAW Architecture navigated this issue by creating a close relationship with local craftsmen who brought their own individual personality to the project.<sup>39</sup> The crafts-people brought their expertise to the project with specific knowledge of bamboo, steel, and masonry. Perhaps the most prominent material that was used in the construction of the Alfa Omega School was the strategic use of bamboo. Indonesia is widely known for being the country with the most developed methods of working and using bamboo as a construction material.<sup>40</sup> Bamboo is specifically used in this project due to its flexibility, low maintenance construction, and the abundance of resources close to the site.<sup>41</sup> Bamboo's material qualities cause cracking, colour change, and weathering as the medium ages, as a result of its exposure to the elements.<sup>42</sup> In addition, as bamboo cracks, the material absorbs the vibrations without causing further breakage, as a result lessening human and material damage.<sup>43</sup> The bamboo components of the school are used to inform the roof structure, the cladding, and the flooring.<sup>44</sup> The roof, as aforementioned, takes its form from the surrounding landscape, and is constructed through the use of weaving nipah leaves as it is a material that can be easily manipulated.<sup>45</sup> Used due to its availability, the masonry component of the school's ground floor takes on a waved shape similar to that of the bamboo formwork above. The fluid form that the wall takes was found to be more structural than a straight linear wall allowing for the building to use no columns as the wall is load bearing.<sup>46</sup> Steel is used in the school for its structural efficiency, durability, and for its ability to be constructed quickly.<sup>47</sup> The steel is used in various ways and differing components, from thickness to treatment, throughout the school.<sup>48</sup> The studio is quoted saying:

*“Steel, with its variation of thickness and treatments, gives chances for versatile details of design ...”<sup>49</sup>*

Used in conjunction with concrete, steel is a major component in elevating the building to its 2.1 metre raised height above the site.<sup>50</sup> The two categories of craftsmen included the light structure and the heavy structure. The light structure craftsmen focused primarily on the bamboo roof structure and triangular steel frame, while the heavy structure constructed the masonry modular classrooms and steel framework.<sup>51</sup> It is important to note that the light structure craftsmen finished their production prior to the heavy craftsmen. As a result, this allowed for the groups to work in conjunction to complete the heavy craftsmen's work and finish the project in a shorter time span.<sup>52</sup>

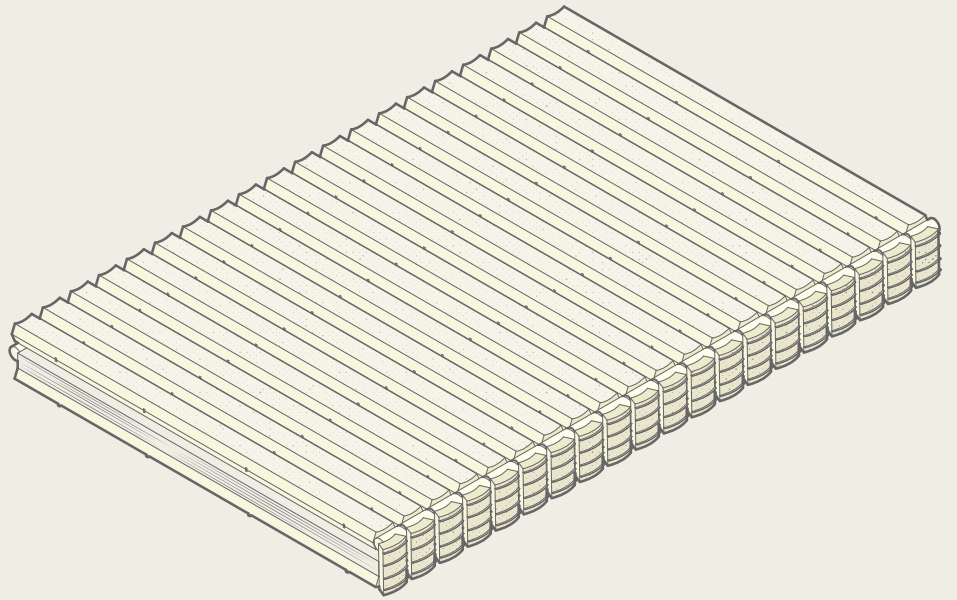
## CONCLUSION

The design of the school is a reflection of the learning processes taught within the Alfa Omega School. Conceptually, the school works to unite students' knowledge with the surrounding site, the community values of craftsmanship, and the use of local materials to evoke a strong environmental and economic connection. RAW Architecture's philosophies were successfully carried through from the early design phases of the project, to the current occupancy and teaching practices of the curriculum. The culture of the school successfully implements itself onto the site by creating a permanence in time and space by balancing the collaboration between the build process and the programming of the building. The strong connection to nature remains a key stakeholder in the permanence of the design with its site context. Spoken by Realrich himself:

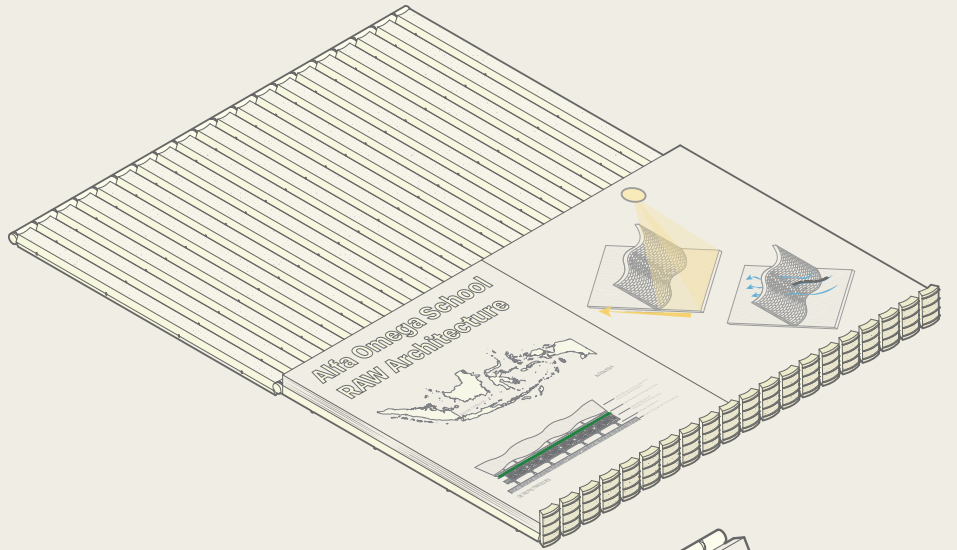
*“Alfa Omega is a spirit of endless learning in the cuddles of children's dreams”.<sup>53</sup>*

## **NATURE SUPPORTS EDUCATION**

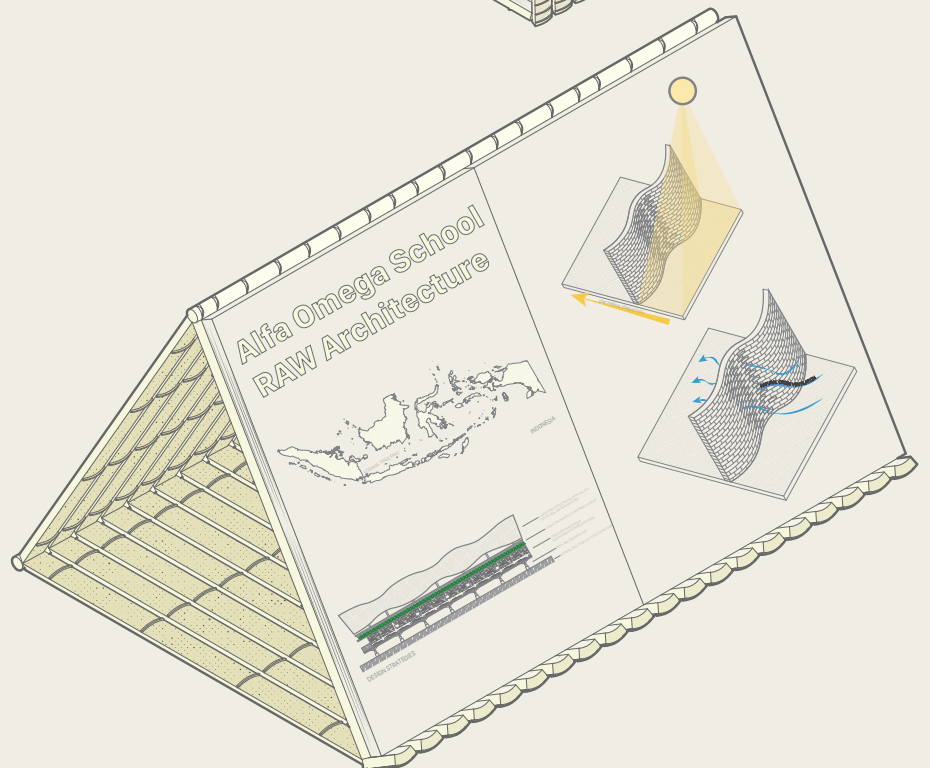
The concept behind the housing of the report is inspired by the main design themes of the Alfa Omega School. A common thread that supports their design moves is how nature reinforces and supports education. Through their siting, forms, and material palette, nature is a prevalent theme that can be found throughout the building. The object reflects a specific design gesture within the building that also doubles as a stand for the report. When closed the object resembles a cover for a book, however when unfolded and stood up it forms into the main bridge that connects the entrance to the school. As nature supports education, the 'bridge' supports the knowledge within the report. The housing was imagined to be clad with strips of bamboo, which is a local material to the site and heavily used throughout the building.



**01 CLOSED**



**02 UNFOLD**



**03 STAND**



## ENDNOTES

- 1 School of Alfa Omega: RAW Architecture - Realrich Architecture Workshop," Archello, accessed February 17, 2020, <https://archello.com/project/school-of-alfa-omega>.
- 2 Realrich Sjarief - RAW Architecture," My Mayonnaise Jar - Realrich Sjarief's Foolish Story, accessed February 17, 2020, <http://real-rich.org/profile/>.
- 3 "Alfa Omega School," Alfa Omega School, accessed February 17, 2020, <http://alfaomegaschool.sch.id/>.
- 4 Ibid.
- 5 RAW Architecture, accessed February 17, 2020, <http://raw.co.id/theguild/>.
- 6 Ruba Ahmed, "School of Alfa Omega: RAW Architecture," Arch2O.com, Arch2O, last modified August 19, 2019, <https://www.arch2o.com/school-of-alfa-omega-raw-architecture/>.
- 7 Lucy Wang, "Passive Solar School in Indonesia Celebrates the Natural Landscape," Inhabitat Green Design Innovation Architecture Green Building, August 19, 2019, <https://inhabitat.com/passive-solar-school-in-indonesia-celebrates-the-natural-landscape/photography-by-eric-dinardi-13/>.
- 8 "Realrich Sjarief's Open Experimentations," INDESIGNLIVE SINGAPORE | Daily Connection to Architecture and Design, July 12, 2019, <https://www.indesignlive.sg/people/realrich-sjarief-open-experimentations>.
- 9 Ibid.
- 10 Ibid.
- 11 Ibid.
- 12 Ibid.
- 13 Ibid.
- 14 Ibid.
- 15 Ibid.
- 16 Ibid.
- 17 "Realrich Sjarief," Archello, Accessed February 17, 2020, <https://archello.com/user/sjarief-realrich-2>
- 18 Ibid.
- 19 RAW Architecture, accessed February 17, 2020, <http://raw.co.id/theguild/>.
- 20 "Raíces En El Arrozal: Alfa Omega School in Tangerang, Indonesia -- RAW Architecture," *Arquitectura Viva* no. 201 (0, 2018): 30. <https://search.proquest.com/docview/2008356713?accountid=12005>.
- 21 Ruba Ahmed, "School of Alfa Omega: RAW Architecture," Arch2O.com, Arch2O, last modified August 19, 2019, <https://www.arch2o.com/school-of-alfa-omega-raw-architecture/>.
- 22 "Realrich Sjarief's Open Experimentations," INDESIGNLIVE SINGAPORE | Daily Connection to Architecture and Design, July 12, 2019, <https://www.indesignlive.sg/people/realrich-sjarief-open-experimentations>.
- 23 Ruba Ahmed, "School of Alfa Omega: RAW Architecture," Arch2O.com, Arch2O, last modified August 19, 2019, <https://www.arch2o.com/school-of-alfa-omega-raw-architecture/>.
- 24 Enrique Reig Navarro, "Cubiertas de bambú: creación de espacios flexibles para las escuelas del futuro." PhD diss., (2019), 55. <https://riunet.upv.es/handle/10251/129346>.
- 25 Ruba Ahmed, "School of Alfa Omega: RAW Architecture," Arch2O.com, Arch2O, last modified August 19, 2019, <https://www.arch2o.com/school-of-alfa-omega-raw-architecture/>.
- 26 Jon Astbury, "Alfa Omega School's Classrooms Are Shaded by Zigzag Bamboo Roofs," *Dezeen*, August 28, 2019, <https://www.dezeen.com/2019/08/28/alfa-omega-school-raw-architecture-tangerang-city-indonesia/>.
- 27 Realrich Sjarief, "Vernacular in Nature, School of Alfa Omega, Salemban Tangerang : RAW Architecture, Indonesia," *Architecture + Design* 34, no. 9 (09, 2017): 25, <https://search.proquest.com/docview/2079939135?accountid=12005>.

- 28 Enrique Reig Navarro, "Cubiertas de bambú: creación de espacios flexibles para las escuelas del futuro." PhD diss., (2019), 55. <https://riunet.upv.es/handle/10251/129346>.
- 29 RAW Architecture, accessed February 17, 2020, <http://raw.co.id/theguild/>.
- 30 Ibid.
- 31 Ibid.
- 32 Ibid.
- 33 Ruba Ahmed, "School of Alfa Omega: RAW Architecture," Arch2O.com, Arch2O, last modified August 19, 2019, <https://www.arch2o.com/school-of-alfa-omega-raw-architecture/>.
- 34 RAW Architecture, accessed February 17, 2020, <http://raw.co.id/theguild/>.
- 35 Ibid.
- 36 Lucy Wang, "Passive Solar School in Indonesia Celebrates the Natural Landscape," Inhabitat Green Design Innovation Architecture Green Building, August 19, 2019, <https://inhabitat.com/passive-solar-school-in-indonesia-celebrates-the-natural-landscape/photography-by-eric-dinardi-13/>.
- 37 Realrich Sjarief, "Vernacular in Nature, School of Alfa Omega, Salembaran Tangerang : RAW Architecture, Indonesia," Architecture + Design 34, no. 9 (09, 2017): 32, <https://search.proquest.com/docview/2079939135?accountid=12005>.
- 38 Ruba Ahmed, "School of Alfa Omega: RAW Architecture," Arch2O.com, Arch2O, last modified August 19, 2019, <https://www.arch2o.com/school-of-alfa-omega-raw-architecture/>.
- 39 RAW Architecture, accessed February 17, 2020, <http://raw.co.id/theguild/>.
- 40 Enrique Reig Navarro, "Cubiertas de bambú: creación de espacios flexibles para las escuelas del futuro." PhD diss., (2019), 13. <https://riunet.upv.es/handle/10251/129346>.
- 41 RAW Architecture, accessed February 17, 2020, <http://raw.co.id/theguild/>.
- 42 Kengo Kuma, "Building with Bamboo," in *Habitat: Vernacular Architecture for a Changing Planet*, edited by Sandra Piesik, (London: Thames & Hudson, 2017) 560.
- 43 Enrique Reig Navarro, "Cubiertas de bambú: creación de espacios flexibles para las escuelas del futuro." PhD diss., (2019), 13. <https://riunet.upv.es/handle/10251/129346>
- 44 Ibid., 55.
- 45 Ruba Ahmed, "School of Alfa Omega: RAW Architecture," Arch2O.com, Arch2O, last modified August 19, 2019, <https://www.arch2o.com/school-of-alfa-omega-raw-architecture/>.
- 46 Ibid.
- 47 RAW Architecture, accessed February 17, 2020, <http://raw.co.id/theguild/>.
- 48 Ibid.
- 49 Jon Astbury, "Alfa Omega School's Classrooms Are Shaded by Zigzag Bamboo Roofs," Dezeen, August 28, 2019, <https://www.dezeen.com/2019/08/28/alfa-omega-school-raw-architecture-tangerang-city-indonesia/>.
- 50 Ruba Ahmed, "School of Alfa Omega: RAW Architecture," Arch2O.com, Arch2O, last modified August 19, 2019, <https://www.arch2o.com/school-of-alfa-omega-raw-architecture/>.
- 51 Ibid.
- 52 Ibid.
- 53 RAW Architecture, accessed February 17, 2020, <http://raw.co.id/theguild/>.

## BIBLIOGRAPHY

- "Alfa Omega School." Alfa Omega School. Accessed February 17, 2020. <http://alfaomegaschool.sch.id/>.
- Ahmed, Ruba. "School of Alfa Omega: RAW Architecture." Arch2O.com. Arch2O. August 19, 2019. <https://www.arch2o.com/school-of-alfa-omega-raw-architecture/>.
- Astbury, Jon. "Alfa Omega School's Classrooms Are Shaded by Zigzag Bamboo Roofs." Dezeen. August 28, 2019. <https://www.dezeen.com/2019/08/28/alfa-omega-school-raw-architecture-tangerang-city-indonesia/>.
- Kuma, Kengo. "Building with Bamboo." In *Habitat: Vernacular Architecture for a Changing Planet*, edited by Sandra Piesik, 560-561. London: Thames & Hudson, 2017.
- "Raíces En El Arrozal: Alfa Omega School in Tangerang, Indonesia -- RAW Architecture." *Arquitectura Viva* no. 201 (0, 2018): 30-33. <https://search.proquest.com/docview/2008356713?accountid=12005>.
- RAW Architecture. Accessed February 17, 2020. <http://raw.co.id/theguild/>.
- "Realrich Sjarief." Archello. Accessed February 17, 2020. <https://archello.com/user/sjarief-realrich-2>.
- "Realrich Sjarief - RAW Architecture." *My Mayonaisse Jar - Realrich Sjarief's Foolish Story*. Accessed February 17, 2020. <http://real-rich.org/profile/>.
- "Realrich Sjarief's Open Experimentations." INDESIGNLIVE SINGAPORE | Daily Connection to Architecture and Design, July 12, 2019. <https://www.indesignlive.sg/people/realrich-sjarief-open-experimentations>.
- Reig Navarro, Enrique. "Cubiertas de bambú: creación de espacios flexibles para las escuelas del futuro." PhD diss., 2019. <https://riunet.upv.es/handle/10251/129346>.
- "School of Alfa Omega: RAW Architecture - Realrich Architecture Workshop." Archello. Accessed February 17, 2020. <https://archello.com/project/school-of-alfa-omega>.
- Sjarief, Realrich. "Vernacular in Nature, School of Alfa Omega, Salemban Tangerang : RAW Architecture, Indonesia." *Architecture + Design* 34, no. 9 (09, 2017): 24-26, 27, 30, 32. <https://search.proquest.com/docview/2079939135?accountid=12005>.
- Wang, Lucy. "Passive Solar School in Indonesia Celebrates the Natural Landscape." *Inhabitat Green Design Innovation Architecture Green Building*. August 19, 2019. <https://inhabitat.com/passive-solar-school-in-indonesia-celebrates-the-natural-landscape/photography-by-eric-dinardi-13/>.