



TYIN tegnestue

TYIN建筑工作室位于挪威特隆海姆市，于2008年成立，在泰国、缅甸、海地和乌干达等贫困和欠发达地区完成过一些项目。

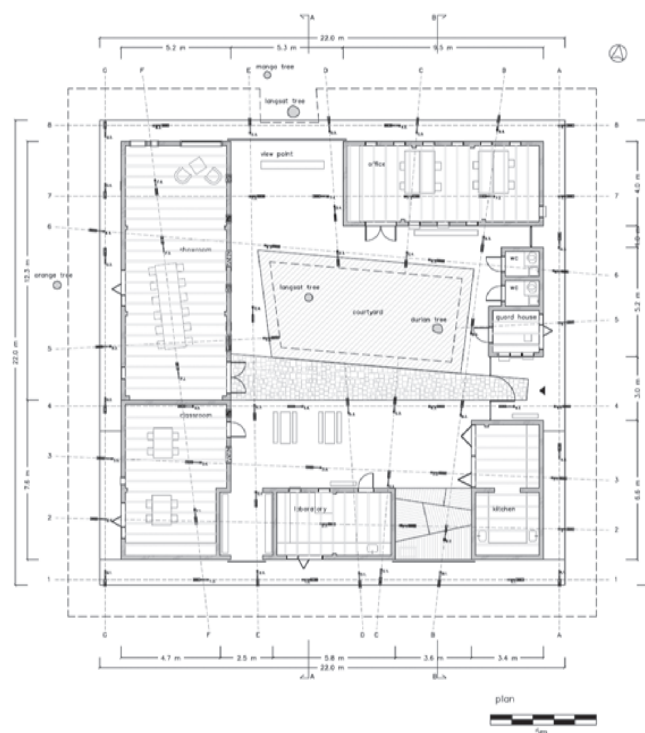
安德雷亚斯·杰特森（Andreas G. Gjertsen）和亚沙尔·汉斯达（Yashar Hanstad）是TYIN的领衔设计师。TYIN曾多次获得国际奖项，其项目在世界范围内都有出版介绍和展出。

解决现实和根本性的挑战，要求建筑在每个方面的设计都为一个目的服务——成为一个遵循着必要性的建筑。通过将当地民众的活动积极融入到建筑设计和当地建设项目中，使TYIN能够建立一个让知识与技能相互交流的框架。TYIN项目使用的所有材料都是从建设场地附近收集或是从当地贸易商那里购买。



CASSIA COOP TRAINING CENTRE

Cassia 合作社培训中心



平面图

客户：Cassia合作社

项目地点：Sungai Penuh, Kerinci, Sumatra, Indonesia

项目功能：肉桂生产的训练设施

时间：2011年8~11月

建筑师：Gjermund Wibe, Morten Staubo, Therese Jonassen, Kasama Yamtree, Andreas Gjertsen, Yashar Hanstad

参与学生：Rozita Rahman, Bronwyn Long, Sarah Louati, Zofia Pietrowska, Zifeng Wei

建造：TYIN tegnestue建筑事务所和当地工人

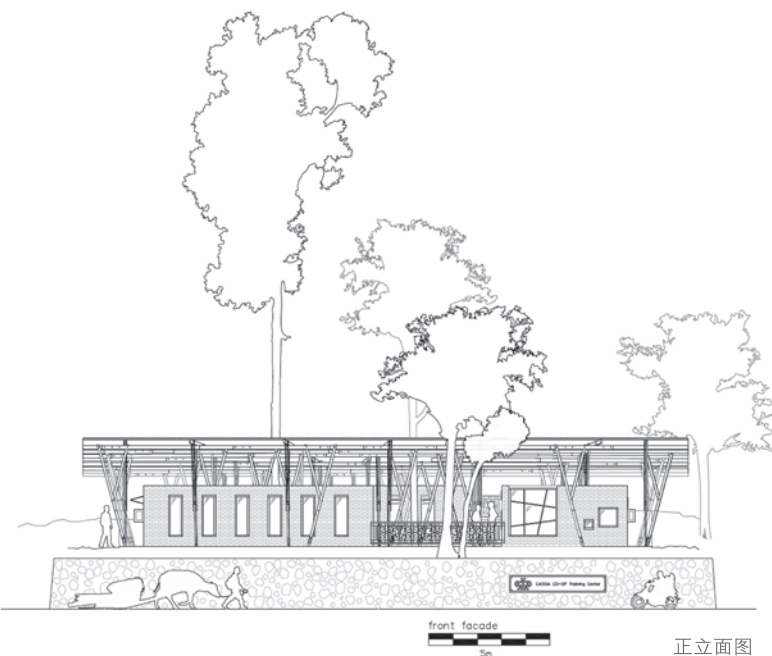
赞助：LINK建筑事务所

造价：30 000欧元

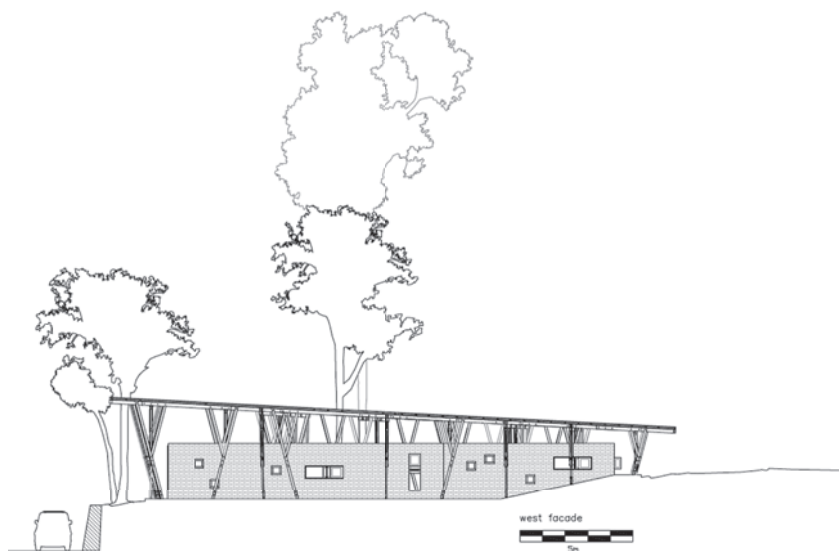
摄影：Pasi Aalto



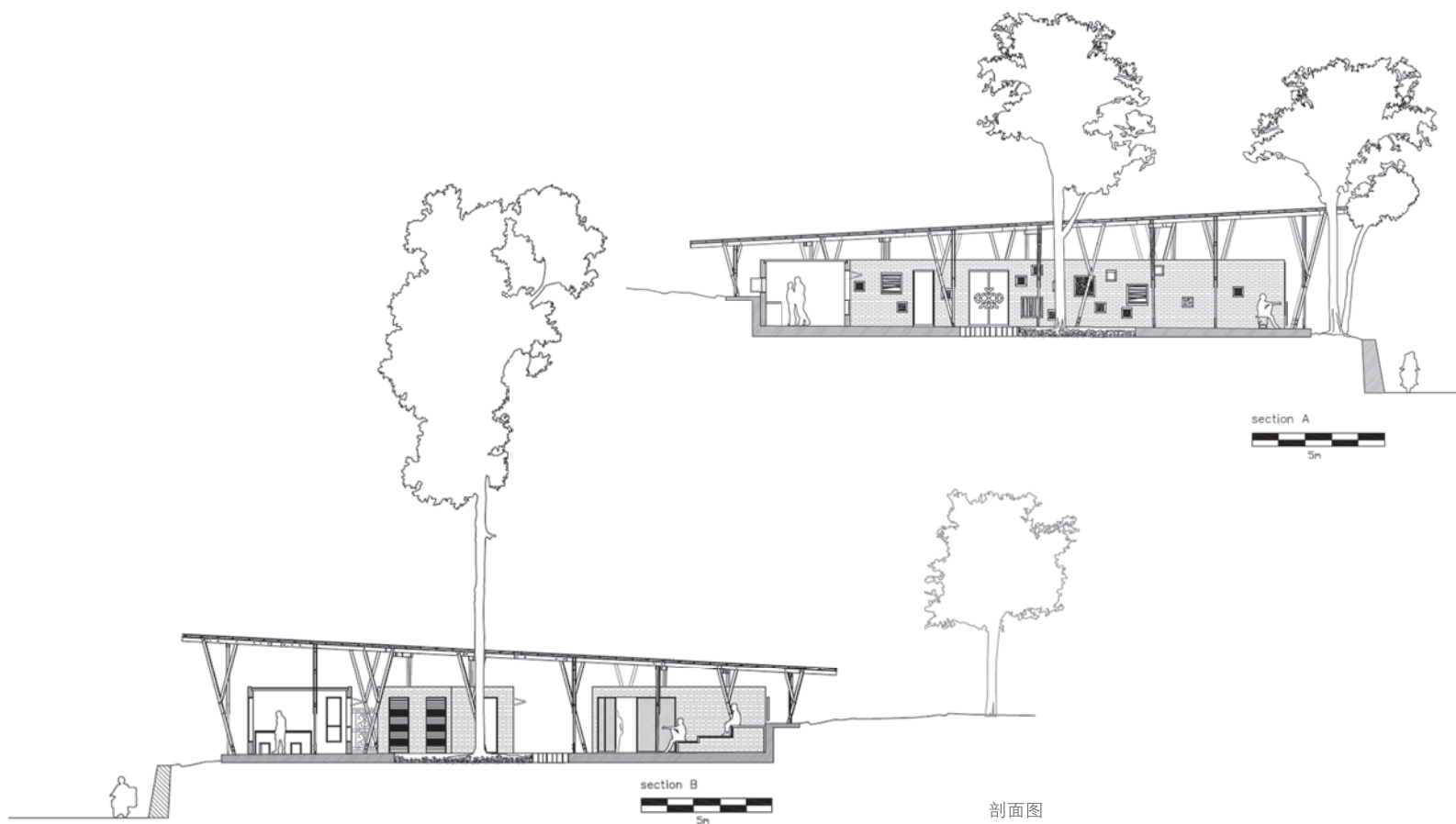
Cassia 合作社培训中心的工作从 2010 年秋天开始。这一切都源于法国商人 Patrick Barthelemy 的一次访问。他一路从苏门答腊赶来，到我们在 Trondheim 的办公室，与我们分享了一整包肉桂包和一个引人入胜的故事：故事一部分是讲述苏门答腊这个地区是如何提供了全世界所消耗肉桂的 85%；故事的另一部分也是更险恶的部分，讲述了工厂的工人缺乏自己的权利，在不安全和不卫生的工厂中长时间工作，并且工资很低。这个故事给我们留下了很深刻的印象。经过一年的规划，我们发现自己已经了解了苏门答腊的肉桂森林，于是准备为当地农民和工人设计并建造一所可持续性的肉桂学校。



正立面图



西立面图



剖面图





不仅在品质上，更重要的是在道义上，Cassia 合作社培训中心都志在比它的竞争者们做得更好。他们希望培训中心树立一个标准，即一个社会企业如何良好运行的标准：当地的农民和工人能获得合理的工资，有适宜的医疗保险，并有机会去学校接受教育。除此之外，Cassia 合作社的工厂将是卫生与安全的。

该项目背后的主要想法是基于砖和混凝土基础上的轻木结构这样的经典概念，而木建筑给人以一种身在肉桂树森林中的感觉。Cassia 合作社培训中心是围绕着一对高大的榴莲树而建造的，面对着美丽的 Kerinci-lake，身后是茂密的肉桂树森林。项目的主要挑战是在不小于 600m² 的屋面下创造自然通风。基于通过以前项目所积累的知识和经验，我们使用了建筑结构蓄热体，以减少太阳照射并使屋檐最大化，这些措施对于帮助我们实现目标起到了极大的作用。

项目在施工时主要使用了两种材料：当地生产的砖和肉桂树的树干。肉桂树的树干是生产肉桂时的副产品，在当地很少被使用。这在我们看来是非常不应该的，所以我们从主要结构到建筑内部的每个方面都利用了肉桂树树干。在整个项目的实施过程中，最让我们印象深刻的是培训中心门与窗手工艺的精细程度。



施工的主要内容包括大量栓接在混凝土基础上的 Y 形柱的生产。Y 形柱的位置主要服从于建筑的平面布置，而整体结构的系统保证它们的坚固性和刚性。在大面积屋面的下方，有 5 个砖结构建筑，他们之间有一个小型的实验室，另外还有教室、办公室和一间厨房。

在 3 个月的短暂时间内完成这样规模的项目，建筑材料物流的规划是最主要的挑战之一。项目一共有 70 名工人参与建设，并有 8 头水牛从森林和锯木厂现场将树木拖运过来，这时项目管理就变得至关重要了。整个项目简化为了 10 个简单的细节，用基本而又实际的方法来设计，让从未受过训练的工人建成这个项目成为现实。

在这个地区，项目另外一个重大的挑战就是频繁的地震。这个建筑已经在好几次超过 5 级的地震中幸存，这表明将建筑不同的构件以不同的材料区分开来的想法非常奏效。Cassia 合作社培训中心通过了来自大自然的检测。我们希望并相信建筑能履行其职责，给当地农民和工人带来安全、卫生以及可持续的工作场所。（译：赵欣 / 校：吴春花）





The work on Cassia Coop Training Centre started during the autumn of 2010. It all began with a visit from a French businessman, Patrick Barthelemy. He had come all the way from Sumatra to our office in Trondheim, and sat before us with a fascinating story and a briefcase full of cinnamon. Part of the story told of how an area of Sumatra supplies 85 % of the cinnamon consumed worldwide. Yet another and more sinister part of the story concerned workers without rights, underpaid and working long days in unsafe and unsanitary factories. The story made an impression on us. After a year of planning we found ourselves deep within the cinnamon forests of Sumatra, ready to design and build a sustainable cinnamon school for local farmers and workers.

Cassia Coop Training Centre has become a unique centre with ambitions of being better than its competitors, not only in quality, but first and foremost in ethics. The centre wishes to set a new standard in how to run a socially well functioning enterprise; local farmers and workers will receive proper payment, a decent healthcare program and have access to schools and education. In addition, the factories of Cassia Coop will be sanitary and safe.

The main idea behind the project is the classic concept of a light wooden construction on a base of heavy brick and concrete. The wooden construction gives a feeling of being within a cinnamon forest. Cassia Coop Training Centre is built around a pair of mighty durian trees, with a scenic view of the beautiful Kerinci-lake in the front and with its back towards lush cinnamon forest. A major challenge has been to create a naturally ventilated climate beneath a roof surface of no less than 600 square meters. Knowledge and experience gained in former projects have greatly aided us in achieving this, through the use of thermal mass, reduction of sunrays and maximized eaves.





The project is mainly constructed from the use of two materials; locally crafted brick and the trunk of the cinnamon tree. The trunks are a by-product from the cinnamon production and it has a low status among the locals. This low status, however, seem quite undeserved, and so we chose to utilize the trunks in everything from the main construction to the interior of the centre. The finesse of craftsmanship found on, amongst other things, the doors and windows of the centre, is some of the most impressive we have witnessed during our projects.

The main construction consists of a mass produced Y-pillar, bolted down into a concrete footing. The placement of the pillars subordinates to the floor-plans, while the system of the construction secures tightness and rigidity. Underneath the massive roof surface we find five brick buildings, amongst them a small laboratory, classrooms, offices and a kitchen.

In a project of this size, with a short timeframe of three months, logistics will present itself as one of the major challenges. With seventy workers taking part, eight water buffaloes hauling trees from the forest and an on-site sawmill, project management becomes essential. The entire project is made up of ten simple details. Basic and pragmatic approach to design made it possible to realize this project with an untrained workforce.

Another major challenge of building in this area is the frequent earthquakes. The construction has already survived several quakes reaching over five on the Richters scale. This proves that the idea of separating different building components with different material frequency works. Cassia Coop Training Centre has passed the test of the forces of nature. We hope and believe it will also fulfil its ambition of giving the local farmers and workers a safe, sanitary and socially sustainable workplace. [AT](#)

