

SUSTAINABLE ARCHITECTURE

Energy-Efficient & Environmental Friendly
— New Tendency of Current Buildings

EDUCATION + CULTURE + SPORT

可持续建筑（中）

节能环保——现时建筑新方向
教育+文化+体育

高迪国际 HI-DESIGN PUBLISHING
刘健琨 毕崇云 吴越 胡丹琳 译



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PREFACE

序言

建筑学的基本责任之一，是要负责地使用地球上有限的资源。纵观历史，这一点毋庸置疑，也理应被建筑学所考虑。然而在某些情况下，由于建筑师自身的选择，亦或是社会对此的无知和冷漠，建筑师并非总是擅长贯彻这一职能也成了不争的事实。当然值得宽慰的是，如何迫切减少建筑物的碳排放以应对即将到来的气候变化的影响，并有效地使用能源与利用废物，已经在大多建筑公司的设计过程中被考量。本书的出版即是明证。

人们原本寄希望于这种普遍的对于势在必行的可持续性的专业回应，能够给行业内无处不在的应对可持续发展的所谓专家实践降降温。然而相反的是，公司们喧嚣地吹捧着彼此有多少 LEED 专业员工，签署了多少项绿色协议，如何画漂亮的红色和蓝色箭头，以及如何笃定地给予客户不可能的承诺——“零碳排放”。在美国，这种特定的掐架为保证一种工作中的吉祥观念而存在，即一个建筑师可以提供比另一个仅仅大谈特谈其可持续性的建筑带来更多的永续动力。建筑无需这种喧嚣，而客户应该得到更

多的实际功效。

建筑学同时需要两种诉求。第一种诉求是对于能极大程度地改变我们思考建筑与自然间关系的方式的新技术和策略的严谨而有经费保障的探索的诉求。巨大的创新势在必行，而这项工作，可能是大学的，或公共政策和慈善投资在研究与应用规模大于任何一个单体建筑的工作。第二个诉求是对于将建筑视为一种文化学科的新的重视度和价值体系的追求——其会是一个忠于历史的建筑，所考虑之事包含但远不止于其与气候变化的关系。倘若我们足够勇敢，这种有形的、可吸收的、可量化的可持续性之特点不应该使我们从辨别两个建筑的好与坏的细微和困难的对话中分心。

毫无疑问，世界需要能够有效地利用地球有限资源的建筑，而上述两种所谓的诉求并不会使建筑师贯穿这个基本的责任的能力有所减弱。诚然，世界真正需要的是一个关于我们如何看待自身与自然之关系的调整。当然，作为建筑师我们必须相信，世界也需要伟大的建筑。

杰弗里·博查德

马查多与希尔瓦蒂合伙人事务所设计师

It is a basic function of architecture to responsibly use the finite resources of our planet. This has been true throughout history and should be considered indisputable. It is also true that architects have not always been good at fulfilling this responsibility - sometimes due to their own choice or sometimes to the effects of an ignorant or apathetic society. It is clear though that the present urgency to reduce the carbon footprints of buildings, to respond to the impending effects of climate change, and to use energy and waste effectively has thankfully entered the design process of most architecture firms, as evidenced in this publication.

One would have hoped though, that the ubiquity of the profession's response to the sustainable imperative would quiet the claims of so-called expert sustainable practices. Instead, firms clamor over each other to brag about how many LEED professionals they have on staff, how many green pacts they've signed, how they can draw fancy red and blue arrows, and how they will definitely give their client the impossible - a zero-carbon footprint. In the USA this particular kind of cat-fighting is employed in the effort to secure jobs under the auspicious notion that one architect can provide a more sustainable building than another architect simply because they talk about it more. Architecture does not need this noise and clients deserve more substance.

What architecture needs are two simultaneous pursuits. The first pursuit is the serious and funded research of new technologies and strategies that will significantly alter the way we think about the relationship between architecture and nature. Massive innovation is required and this is likely the work of the universities, public policy, and philanthropic investments in

research and application at a scale larger than any single building. The second pursuit is a renewed attentiveness and conversation for the virtues and values of architecture as a cultural discipline - one with allegiances and histories that include but are far broader than its important relationship with climate change. The tangible, readily digestible, and quantifiable features of sustainability should not distract us from the nuanced and difficult conversations about what differentiates one architecture from another and, if we are very brave, what is good and bad.

There is no doubt that the world requires buildings that effectively use the finite resources of our planet and these two named pursuits will not dilute the average architect's ability to fulfill this basic responsibility. What the world really needs is a massive adjustment in how we conceive our relationship with nature. But as architects we must believe that the world also needs great architecture.



JEFFRY BURCHARD

Architect, Machado and
Silvetti Associates

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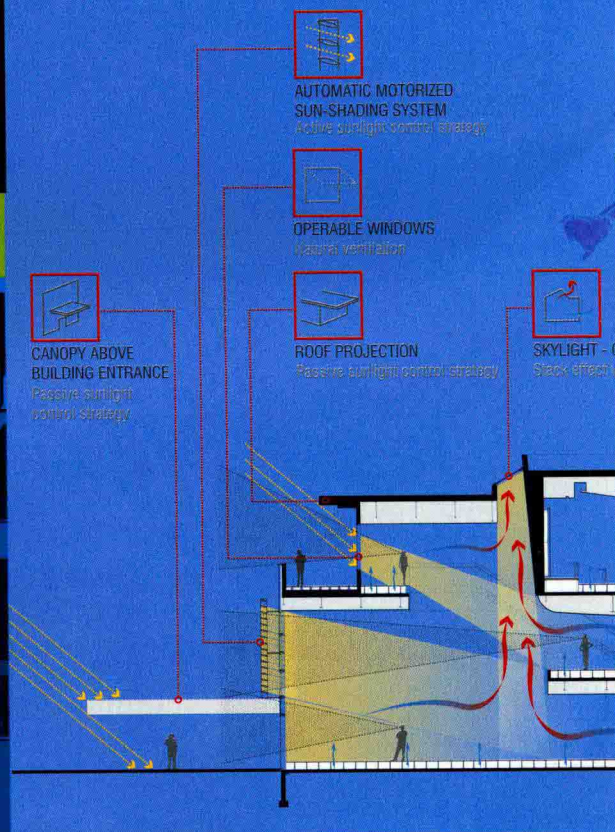
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绿色节能认证：美国绿色建筑认证 LEED 金奖

生物科学大楼

BIOLOGICAL SCIENCES COMPLEX

SUSTAINABLE & GREEN FEATURES 绿色节能特征

1. re-use of building structure and replacement of outdated building systems with energy efficient and water-saving systems

利用节能节水系统重新利用建筑结构，并替换落后的建筑系统

2. reduction of air change rates in laboratories from 10 to 8 air changes per hour with air system turned down to 50% at night

夜间实验室利用数量减半的空气系统将空气循环率降低，每小时从 10 减少到 8

3. installation of innovative solar lighting demonstration system on south facade with use of light canopies, mirrors and photo cells to re-direct daylight over lab benches

南立面安装的智能日光照射系统，通过华盖、镜子和光敏感装置将自然光朝向会议室的座椅

ARCHITECT

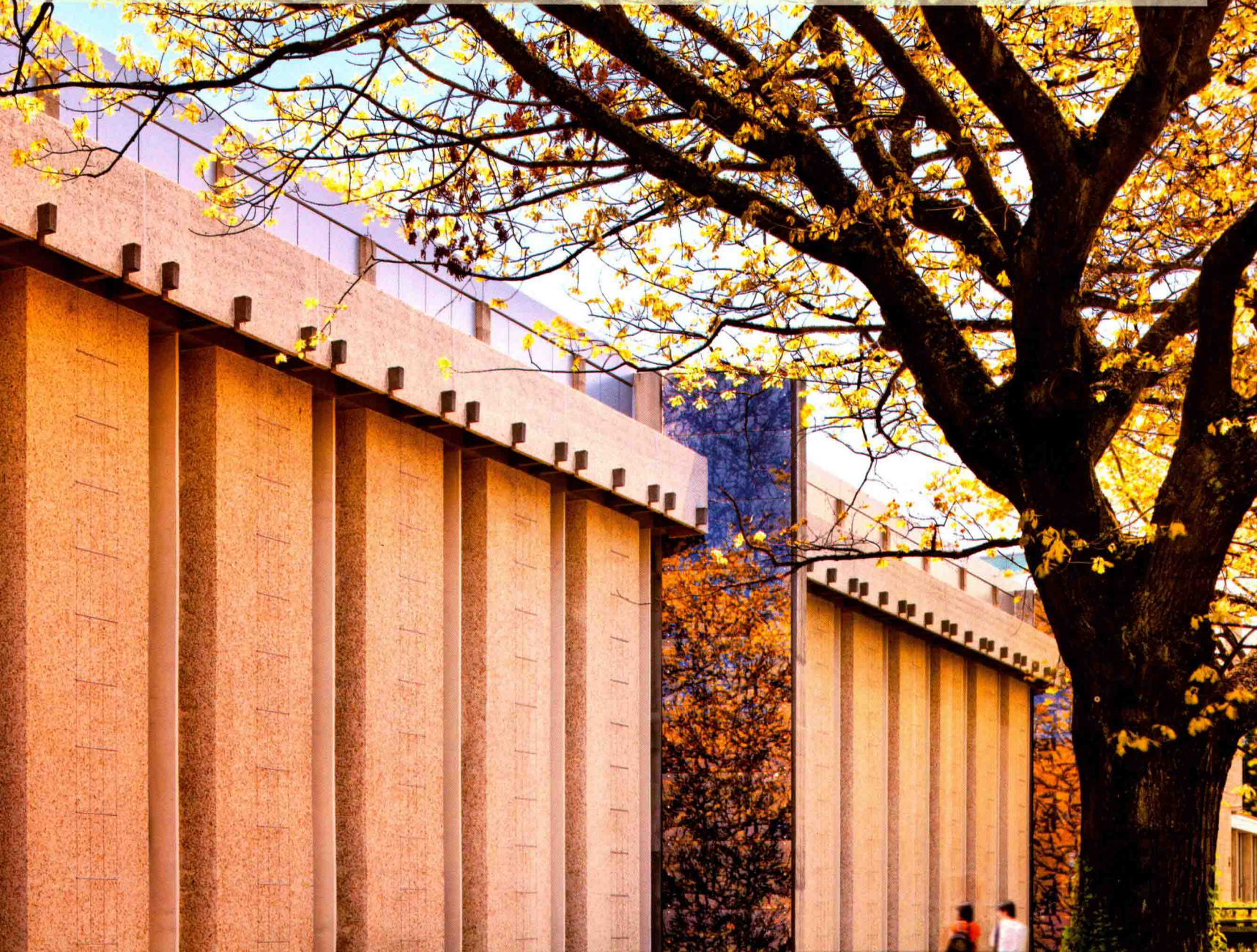
Acton Ostry Architects Inc

LOCATION

Vancouver, Canada

PHOTOGRAPHER

Martin Tessler





The mandate of the University of British Columbia Renew program is to modernize, rather than replace, out-dated and obsolete buildings. By rehabilitating old structures, substantial reductions in raw materials, energy inputs, and pollutants are achieved – more than any replacement ‘green’ building could accomplish. The Renew program meaningfully adds re-Use to the sustainability tenets of Reduce and Recycle, commonly practiced in green building design.

The Biological Sciences Complex is located at the heart of the University of British Columbia Vancouver Point Grey campus. The South and West wings of the complex were fast-tracked through design and construction in only 19 months to meet a federal stimulus funding deadline. The \$47-million, 170,000 sq. ft. project now houses state-of-the-art laboratories, aquaria, research spaces, classrooms, offices and gathering spaces for the Departments of Botany and Zoology.

The all-new mechanical systems include a comprehensive energy-scavenging hydronic heating/cooling system, variable flow lab exhaust, natural ventilation for private

offices, and an aquatic life-support system. Electrical services include emergency power systems to protect ongoing research, state-of-the-art networking, and advanced lighting systems that include a prototype daylight-harvesting system developed at UBC.

The project is LEED Gold certified, a challenging feat to achieve in view of the exacting requirements of laboratory buildings. Roof drainage integrated in the buttresses diverts rainwater to a swale along Main Mall. Single-glazed windows were replaced with double-glazed operable windows; further, existing solid spandrel panels were replaced with double-glazing to increase daylighting in laboratories, classrooms, faculty and administrative offices. Corridors benefit from large expanses of translucent glass, allowing natural light to enter spaces in the building that are more deeply recessed. The facility will accrue enormous operating energy savings over the next forty years. The project was a study in the many ways consultants can help preserve the Earth and its living inhabitants – the same goals as the Bioscience researchers who now use the facility.

