

围护结构的形式将直接反映建筑抵御外部天气环境的能力，所以围护结构被设计作为一种智能设备，可以调节内部环境，而以下的建筑系统将提供动态反应。围护结构可以提供舒适、明亮的室内环境，控制室内环境的变化范围。下面的设计意图将会整合在设计当中：

- 自然日光
- 朝向和体量
- 遮阳
- 高性能建材
- 呼吸屋顶——自主冷却
- 隔音措施
- 水收集
- 大型开放的规划空间
- 轻型屋顶结构

此外，设计中还采用了以下动态建筑工程系统：

- 浮动设定点与自调整舒适度
- 低能源排放通风
- 热回收通风
- 低特定风扇功率
- 高效照明系统与控制
- 雨水与非饮用水存储
- 高效电力与机械系统
- 楼宇控制系统

围护结构及其支撑框架采用模块化设计方案，并且尽量采用一致的模块及其构件以降低相应成本。屋顶结构的样式遵循几何学，并进行了优化，以符合直接高效的负载路径，并且可以降低结构材料的重量。结构与外壳理念还可以加快建筑速度，充分利用组件的预先加工，以及标准建筑技术。

屋面结构的形式将配合建筑造型，优化构件配置，提高荷载传递路径效率，以最小化结构自重和材料用量。主结构及围护结构设计旨在提高建筑经济性，最大化预制构件的使用率和标准化施工技术。建筑内部人员的安全及舒适将是最重要的原则之一，消防和人员疏散性能将会被综合考虑到建筑的设计当中。

The form of the roof and building envelope will respond passively to the climate like a shroud. It will be designed to perform as an intelligent device, breathing to moderate the internal climate, while the building systems below provide active responses. The roof will provide a comfortable, brightly lit internal environment. The building envelope will act to moderate the extremes of the climate and the following passive

strategies will be integrated within the engineering design:

- Natural daylight
- Orientation and massing
- Solar protection
- High performance fabric
- Breathing roof – free cooling
- Acoustic treatment
- Water harvesting
- Large, open plan spaces
- Lightweight roof construction

In addition, the following active building engineering systems are employed:

- Floating set points and adaptive comfort
- Low energy displacement ventilation
- Heat recovery ventilation
- Low specific fan power
- Efficient lighting systems and controls
- Rainwater and non-potable water storage
- Efficient electrical and mechanical systems
- Building Management System

The proposed envelope and the structural frame that supports it are driven by a modular design approach, using elements and components which are deployed and repeated as often as possible throughout the building.

The form of the roof structure follows geometry that is optimised to follow direct, efficient load paths and thereby minimise the weight of structural materials used. The structural and envelope concept also aims to be capable of being built economically, maximising the use of prefabrication of components and standard construction techniques wherever possible. The comfort and safety of people using the building is paramount and so the principles of fire engineering and good people movement will also be integrated into the building design concepts.

图例
 1 优化采光天窗,可自然采光,方便交通
 2 探索屋顶几何结构形式,实现最佳结构效率。
 3 高度隔热围护结构——最佳热工/日光性能。
 4 轻型、模块化、高效钢制空间构架,可构成复杂的几何形式
 5 空气分布直接流向公共空间内的最适宜位置

Key
 1 Optimised rooflight orientation for daylighting.
 2 Form found roof geometry for optimum structural efficiency.
 3 Highly insulated envelope – optimum thermal / solar performance.
 4 Lightweight, modular, steel roof structure, capable of forming complex geometry.
 5 Air distribution delivered directly to optimum levels within public spaces.

