



Scientific breakthrough

A fresh, open approach to laboratory design has transformed the traditional image of scientists spending long hours in isolation



Exciting work is often conducted behind dull facades. Scientists, for example, have traditionally spent much of their time in solitary endeavour – more often than not, cloistered away in a grey, uninspiring public building.

But, as this project shows, it doesn't have to be this way. When Steven Ehrlich Architects was commissioned to design a new biotech research facility, the company took its cue from the nature of a scientist's work.

Architect Steven Ehrlich says he wanted the new Kendall Square Biotech Laboratory to reflect the activity and culture that occurs within.

"The building is located in the heart of the burgeoning biomedical research centre of Cambridge, Massachusetts, and is comprised of medical research laboratories, offices and support services," he says. "Consequently, it was important to develop a design paradigm that would reflect the new biotech technologies, and also relate to the existing fabric of the surrounding architecture."

In keeping with this design philosophy, Ehrlich used DNA as a metaphor for the project's exterior skin. Part of the building's facade features terracotta panels, composed of four different textures of the same colour clay.

Above left: This new scientific research facility was designed to reflect the latest biotech technologies, says architect Steve Ehrlich.

Top: Textured terracotta panels are arranged according to the pattern of the four sequential gels of a DNA molecule.

Above: The building is composed of a series of overlapping planes and volumes.



Above: Laboratories and offices are planned around a central atrium, with circulation areas designed to encourage staff interaction. The open design concept extends to the externally loaded elevators. Stained Ventwood panels, to the right of the elevators, create a lattice-like structure that appears to float within the space.

"Each texture represents one of the four components that make up a DNA molecule, and the pattern echoes the sequencing of DNA strands," says Ehrlich. "The facade changes character as the light changes at different times of the day."

The terracotta was also chosen to harmonise with the traditional brick architecture of the city, and to contrast the extensive use of channel glass.

"The terracotta panels and channel glass create a lively composition of overlapping planes and cubic mass," says Ehrlich. "The warm earthiness of the terracotta is a counterpoint to the translucent, fluid quality of the channel glass – it

provides a kinetic counterplay between weight and weightlessness."

To highlight the front facade, the northern elevation is dominated by a 9m canopy, held in place by two non-symmetrical masts constructed by local ship builders. Vertical, charcoal masonry slices through both the north and south facades, expressing the vertical shafts within, and marking the building's entrances.

Inside, the main design priority was the provision of comfortable, light-filled working environments that would encourage staff interaction.

"Scientists are accustomed to working for long



hours in isolation in labs and at computer screens, but social interaction and discussion are essential," says Ehrlich. "We wanted to design a building that would foster employee happiness and creativity by encouraging social opportunities."

To provide such an environment, the research labs are organised around a six-storey, 30m-high atrium, which brings light into the core of the building.

"One of the most underused elements of traditional laboratory facilities is the use of natural daylight," says Ehrlich. "Here it is a primary humanising element."



Above: The entire roof of the north facing atrium is glazed to bathe this space in natural light. The light also filters into offices fronting this space.

Left: Stainless steel mesh creates a veiled view of activity within the atrium.



Above: Structural elements are exposed within the atrium, highlighting the use of honest materials – a visual reference to the use of scientific reasoning in the search for truth. Clear glass panels in the laboratories and offices provide a visual connection to the atrium.

Open walkways, strategic stairways and veiled platforms further animate the interior, providing spaces that encourage and facilitate chance encounters.

To filter light down to the lowest levels of the building, primary circulation corridors are provided on every level of the southern elevation. Ehrlich has also designed enlarged lounges, or “living rooms in the sky,” on each floor.

“In addition, there are outdoor terraces under the eaves of the canopies. These extend from a cafe, library and gym, providing park views, and allowing human activity to energise the facade.”

Internal materials mimic those on the exterior, with exposed, diagonal, brace frames highlighting the structural system.

Ehrlich says this supports the truth-to-materials approach to the design that the architects considered appropriate for a building that espouses scientific reasoning.

Other materials include stained, clear-sealed Ventwood panels that rise from the entry in a series of folding planes along the elevator core. This lattice-like structure appears to float within the elevator lobbies, providing both seating and canopies. Visually, it is also a warm counterpoint



Location: Kendall Square Biotech Laboratory, Cambridge, Massachusetts
Owner: Lyme Properties
Principal architect: Steven Ehrlich, FAIA, Steven Ehrlich Architects, Culver City, CA
Associate architects: Symmes Maini & McKee Associates, MA
Construction company: Siena Construction
Civil engineer: Daylor Consulting Group
Mechanical engineer: Arup
Lighting designer: Horton Lees Brogden Lighting Design
Curtainwall consultant: Heitman & Associates
Geotechnical consultant: CDM Jessberger
Licensed site professional: ThermoRetec
Structural steel frame: General Steel
Exterior cladding: Black polished concrete masonry from E Dillon & Company
Metal and glass curtainwall: Kawneer
Channel glass curtainwall: Pilkington Profilite
Panelised terracotta rainscreen: Christian Pohl GmbH
Composite aluminium panels: Alucobond
Louvers: Aiolite
Roofing: Elastomeric
Glazing: Viracon
Skylights: LinEI
Entrance doors: Tempglass
Metal doors and frames: Curries
Special door frames: Rediframe by Dunbarton Corp
Wood doors: VT Industries
Wood slat ceilings: Rulon
Paints and stains: Hammerite, Rust Cap
Panelling: Rulon
Special surfacing: Epoxy terrazzo: general polymers installed by DePaoli Mosaic Company

Photography by Chuck Choi, Paul Warchol and Peter Vanderwarker

to the steel and concrete, says Ehrlich.

Circulation corridors feature stainless steel mesh, which not only provides a degree of intimacy, but also animates views, creating an interesting veiled effect.

Aluminium storefront systems with laminated glass serve as a secondary veil along corridors, and separate the laboratories and offices from the central space. Clear glass in the middle level of the system allows staff to connect to the activity within the atrium, avoiding a closed-in feeling. The glassed enclosure system also brings additional light into the work areas.



Left: Large stairwell landings are designed to encourage chance encounters with colleagues and foster harmonious working relationships. Beneath the stairs, a collection of large stones reinforces the natural, raw feel of the interior.