CEU RENEWS: The Community Approach to Building a Sustainable Campus

03 November, 2015

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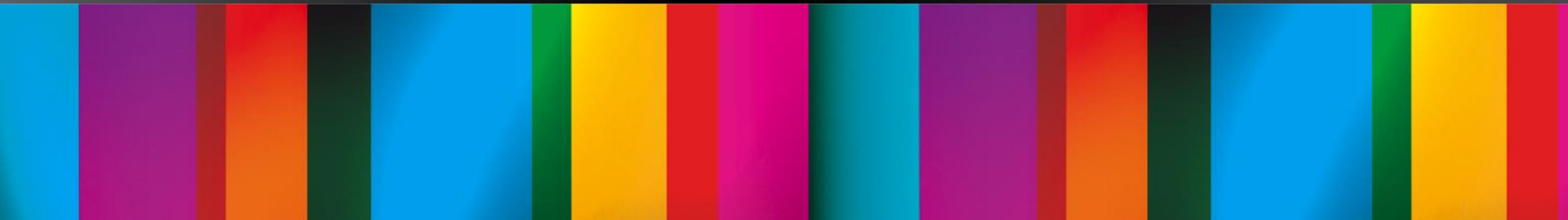


Outline

- Community approach to what?
  - What is SD in a University setting?
- A brief history of the SD movement at CEU
- Campus Redevelopment and strengthening commitments to SD
- Environmental Accreditation: What, Why, and Results
- Community Approach: Internal Input & External Benefits
- Future Campus: Virtual Introduction & Sustainable Design Elements

In Practice: Focus Areas and Redefining Goals

WHY?

HOW?

WHO?

FACILITY MANAGEMENT:

- ENERGY, WATER, WASTE
- MONITORING
- CARBON FREE TRANSPORTATION
- COMFORTABLE WORK/STUDY ENVIRONMENT

POLICY & PROCUREMENT:

- SMART PURCHASING
- SMART HYDRATION
- GREEN TRAVEL
- WASTE REDUCTION (PACKAGING)
- USER BEHAVIOR

Sustainable University

EDUCATIONAL OPPORTUNITIES:

- TEACH IT, PUT IT TO PRACTICE
- INNOVATIVE RESEARCH
- CROSS DISCIPLINARY COLLABORATIONS
- NOT JUST FOR THE ENVSCI DEPT

ENGAGEMENT & OUTREACH:

- ACTIVE CAMPUS COMMUNITY
- OUTREACH IN BUDAPEST
- INTERACT WITH LOCAL GROUPS
- PROMOTE SUS IN HIGHER EDUCATION
- INVITE CHAMPIONS OF SUS

Brief History of the Sustainability Movement at CEU:

What is the connection between student activism and Institutional change?

?

Brief History of the Sustainability Movement at CEU

- 2008: Adoption of campus sustainable development policy
- 2010: Formation of Sustainable Campus Initiative student group
- 2010: Formation of Campus Sustainability Advisory Committee
- 2012: Appointment of the University Environmental and Sustainability Officer
- 2010-present: Sustainable CEU activist group orchestrate a series of on and off-campus community outreach campaigns
- 2013: Administrative decision to pursue BREEAM environmental accreditation of campus redevelopment project
- 2015: Successful awarding of design stage certification for phase 1 of the project

Justification of Development Project: Core Concepts

Can we justify the need for new construction and refurbishment?

Will the development have external social benefit?

Will the enhancements decrease the resource footprint of the institution?

- Unification, modernization, preparation for future
- Specific functions designed with public benefit in mind
- Reduce energy intensity of building infrastructure by nearly half
- Commitment to using project to educate

One Step Further: BREEAM Environmental Accreditation

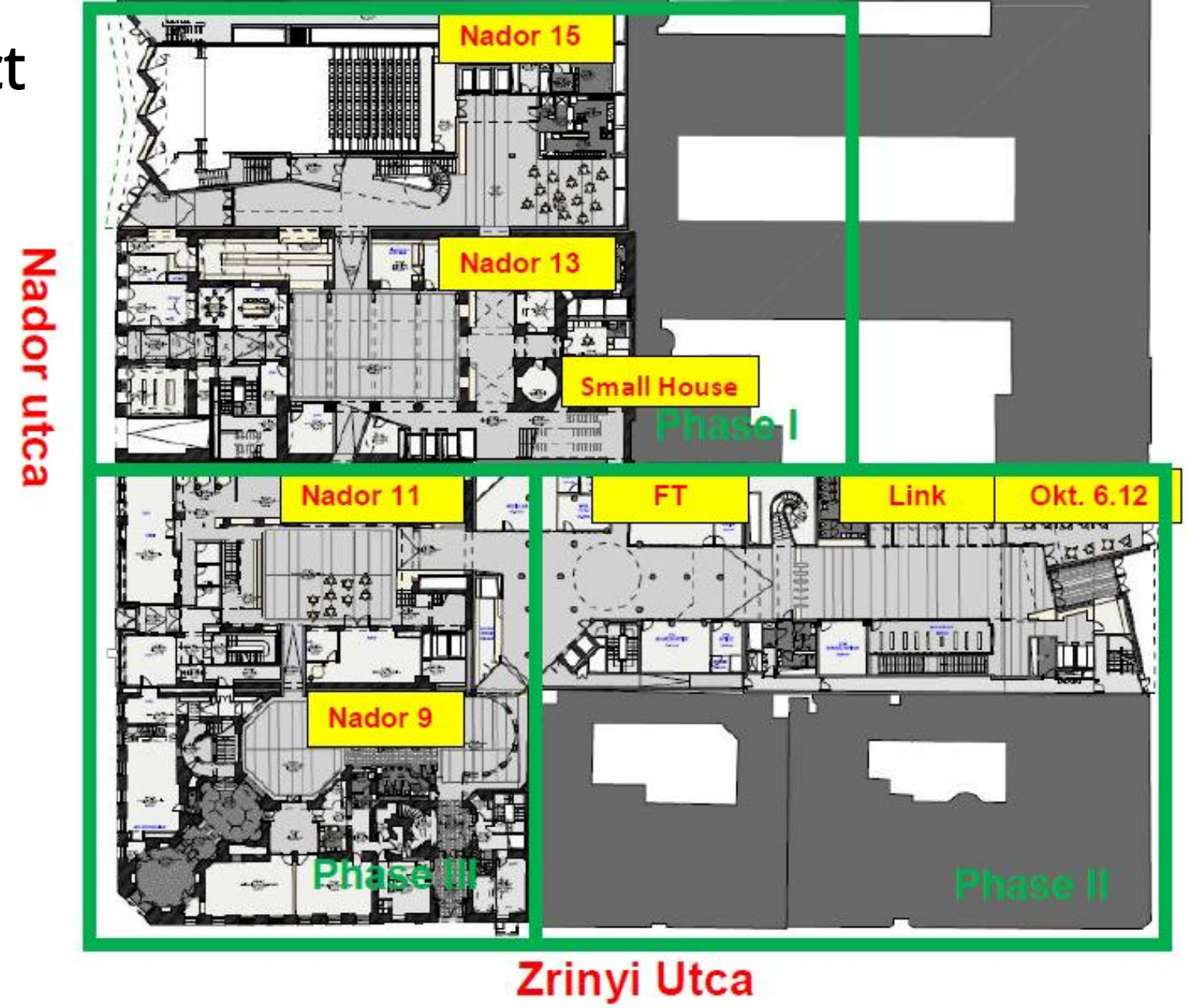
- **WHY Environmental Accreditation?** To push us further, set an example, and incorporate internationally recognized standards
- **WHY BREEAM?** International Acceptance & Local Expertise, Flexibility based on site conditions

Water 6%	Management 12%	Health and Wellbeing 15%	Materials 12.5%	Energy 19%
Waste 7.5%	Transport 8%	Land Use and Ecology 10%	Pollution 10%	Innovation 10%

BREEAM: Specific Influences on Project

- **Health and Well Being:** natural light, air circulation, high comfort level
- **Management and Consultation:** stakeholder input, community consultation, educational outreach
- **Transport:** full accessibility, abundant bike facilities
- **Land Use and Ecology:** positive impact on biodiversity and landscape
- **Materials Selection:** reuse, durability, and responsible procurement
- **Construction impacts:** safety, pollution control and resource efficiency
- **Energy:** reduced reliance on mechanical HVAC, energy efficient structural and mechanical design

The Project



Phase I: Dec. 2014 – Aug. 2016
Phase II: Sept. 2016 – Aug. 2018
Phase III: Sept. 2018 – Aug. 2019

The Architects: John Tuomey and Sheila O'Donnell

The new CEU facade at Nador 15

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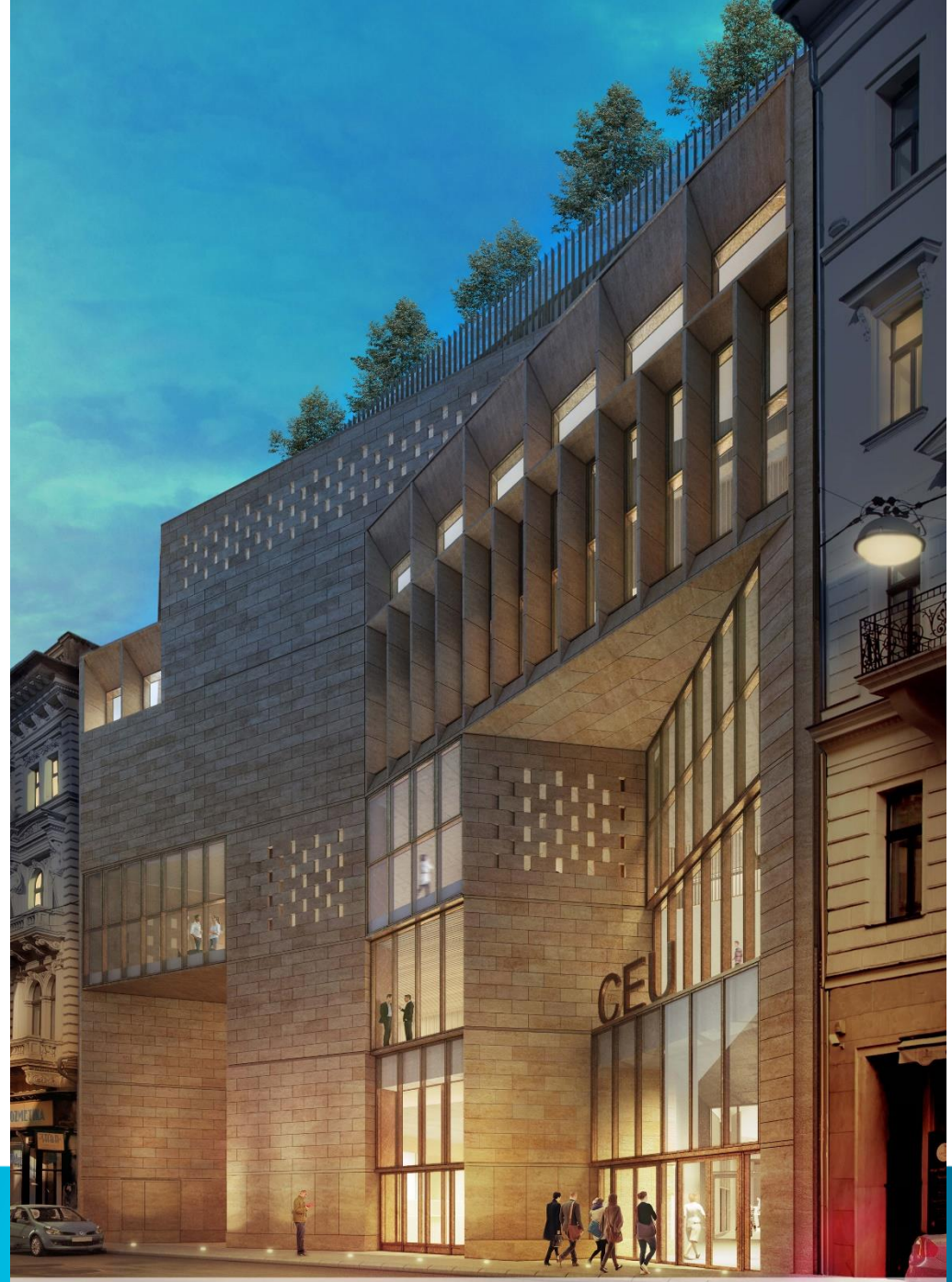

Evening view of CEU's new main entrance at Nador 15

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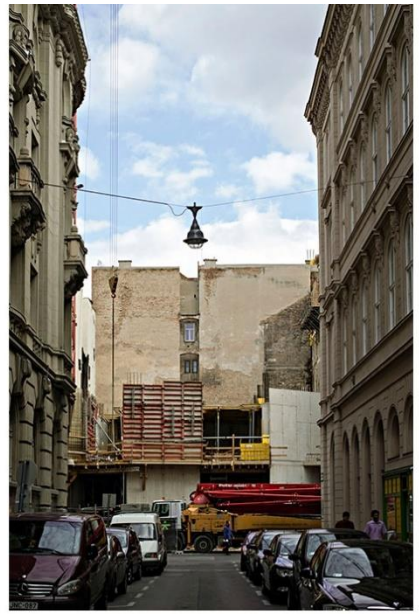
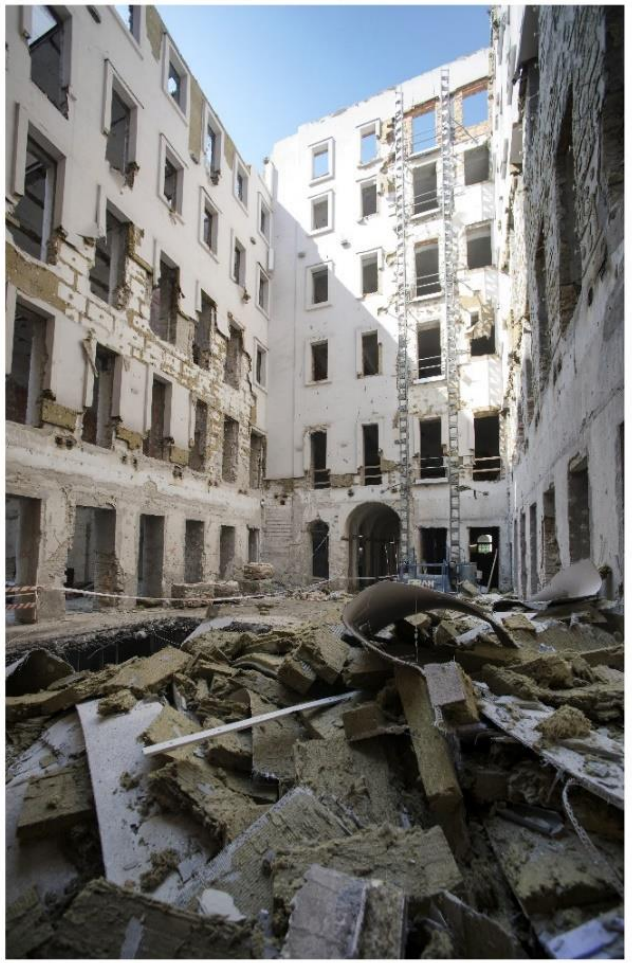
Changes of the Nador 15 Façade

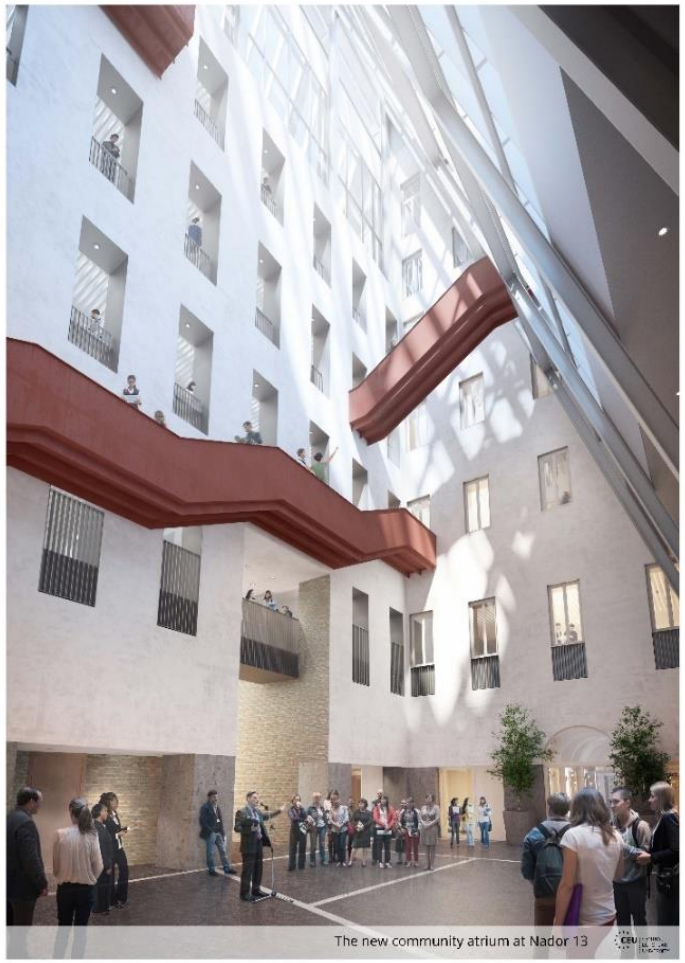




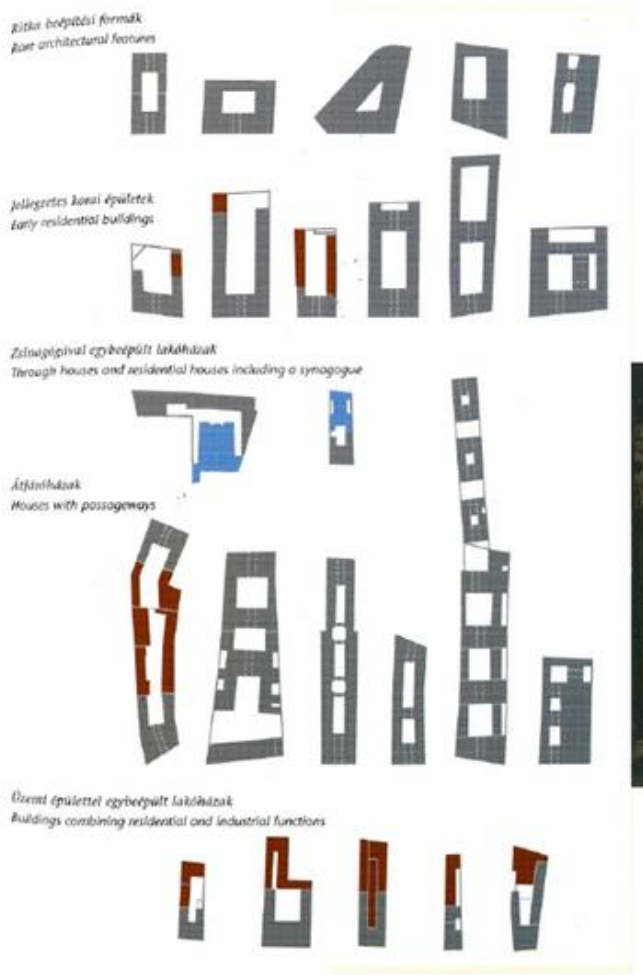



Changes of the Nador 13 Courtyard





Light within the Building as a Basic Architectural Principle – Courtyard System



CEU MASTERPLAN
STRATEGIC CONNECTIONS: RESEARCH AND ANALYSIS

MASTERPLAN 21
CEU BUDAPEST HUNGARY 29.06.2012
O DONNELL + TUOMEY ARCHITECTS

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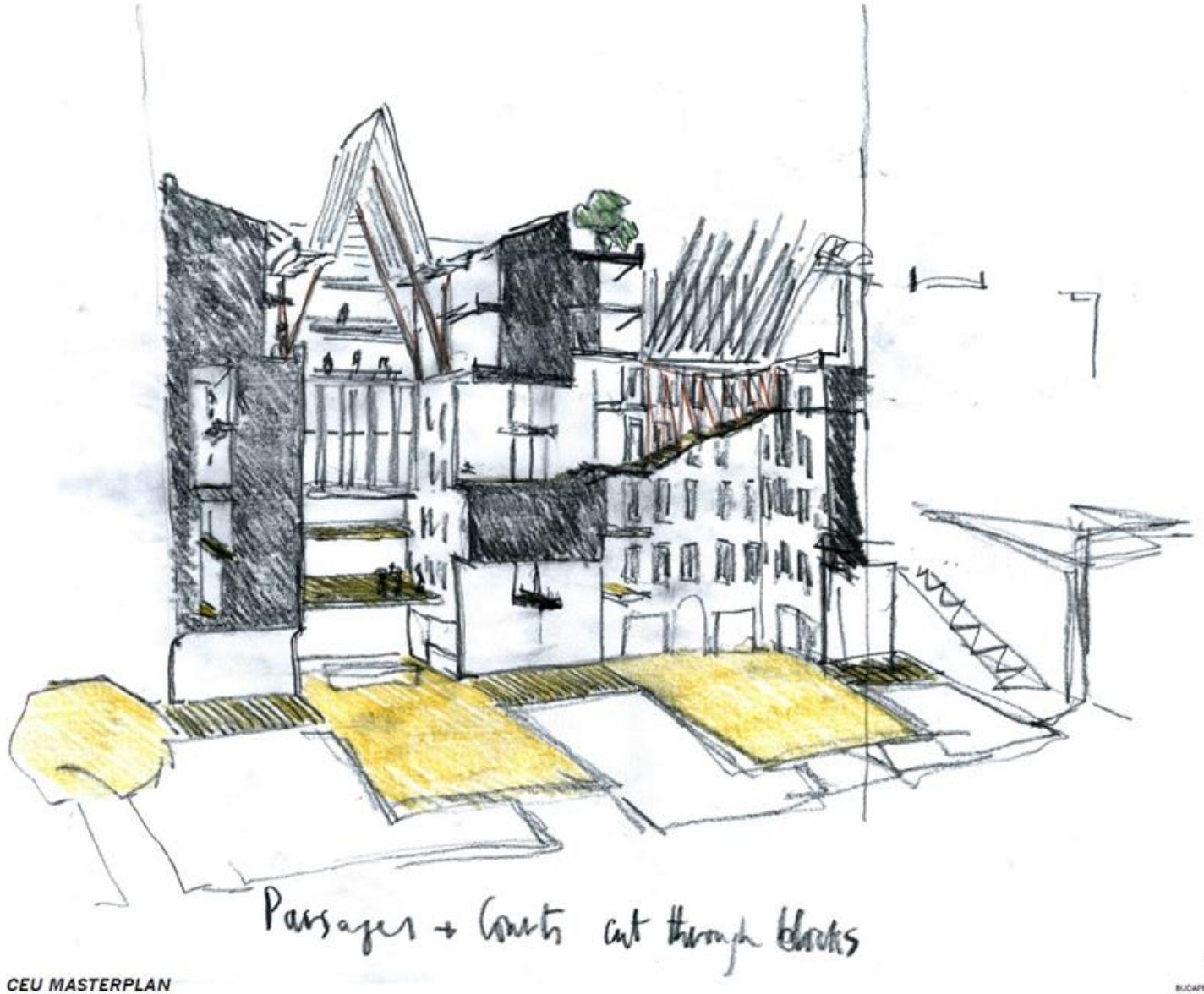
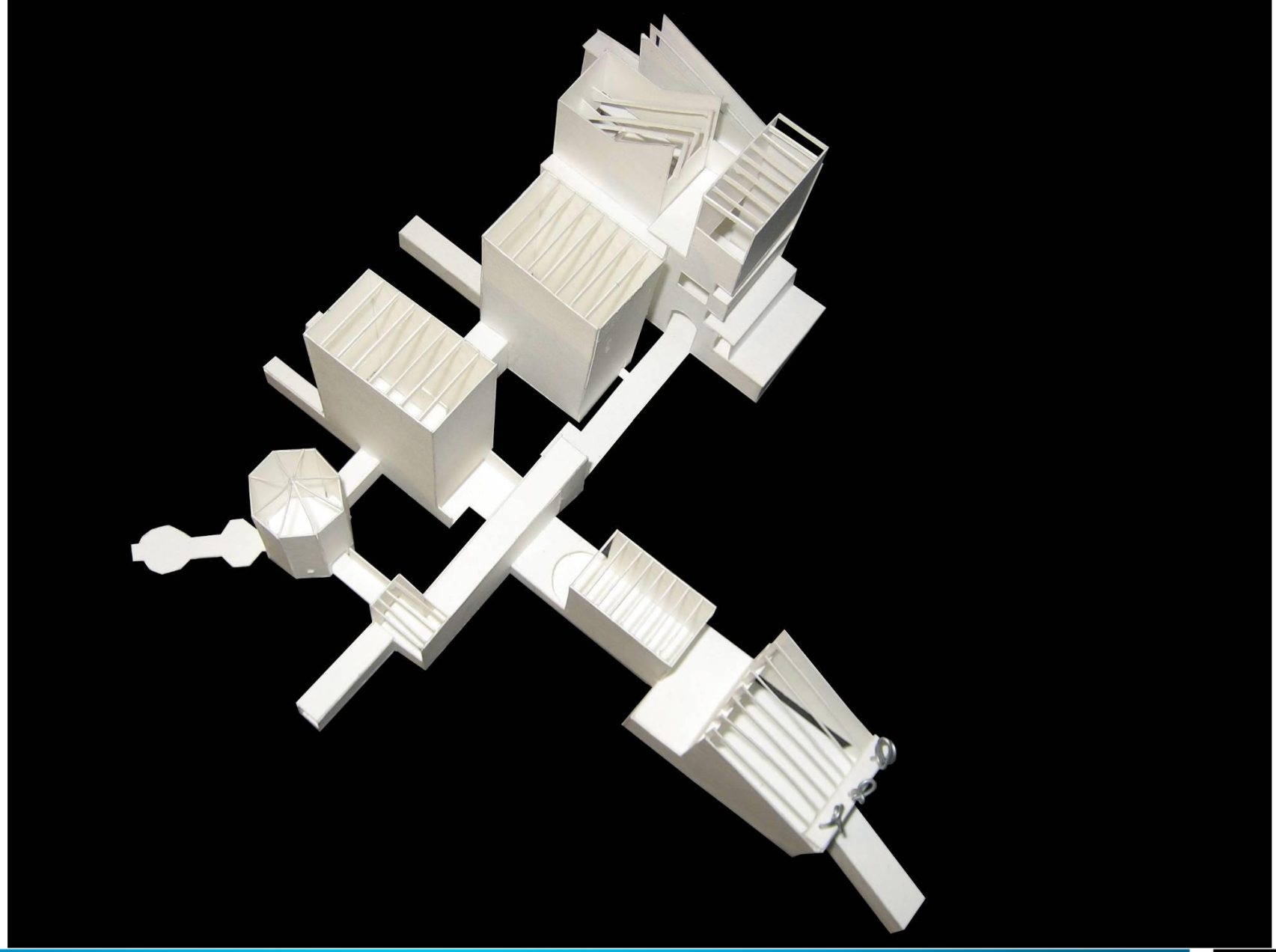


CEU MASTERPLAN

CAMPUS PASSAGES



0m 5 10

NADOR 9 | NADOR 11 | NADOR 13 | NADOR 15

NADOR UTCA SECTION PROPOSED

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The new community atrium at Nador 13

The grand foyer of Nador 15

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The entry to the new library and the Nador 15 atrium

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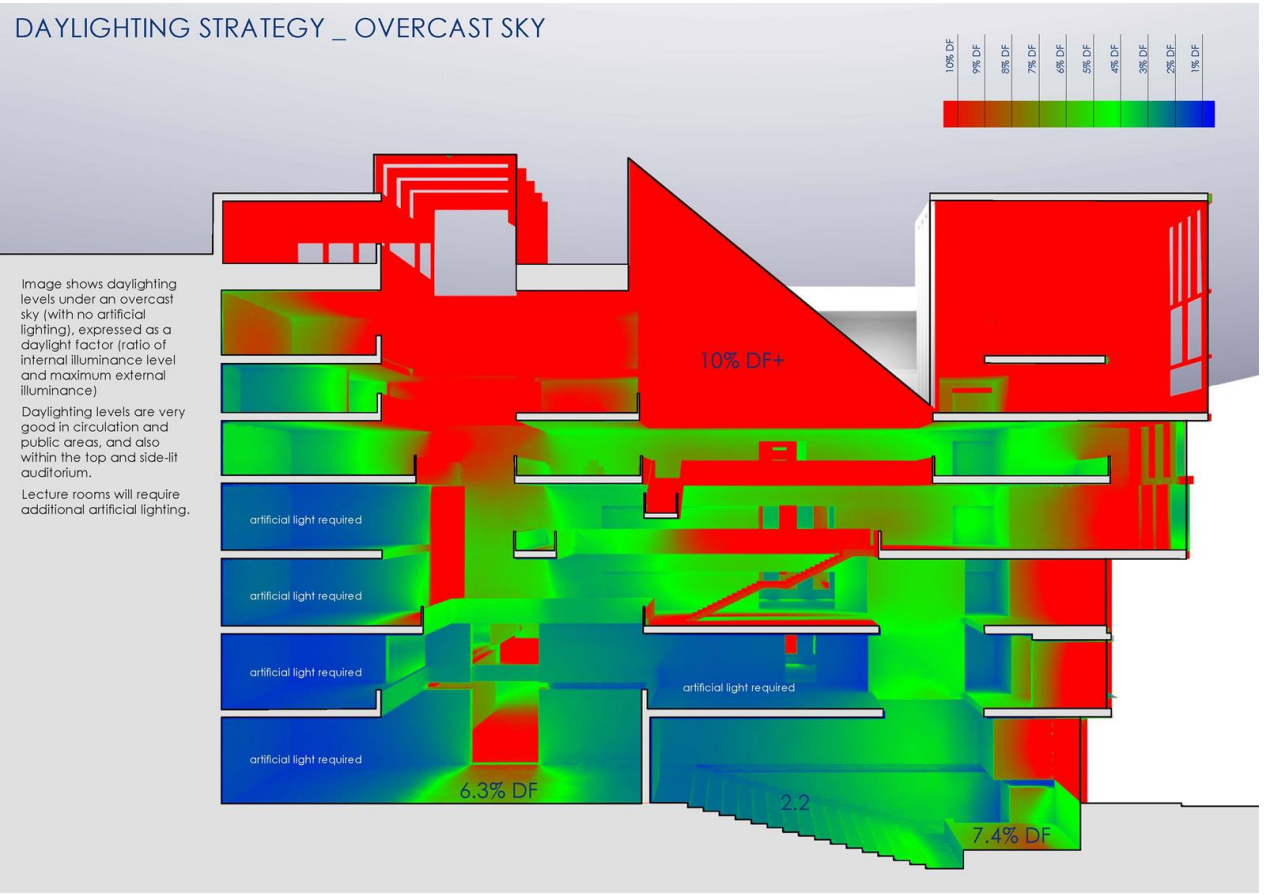
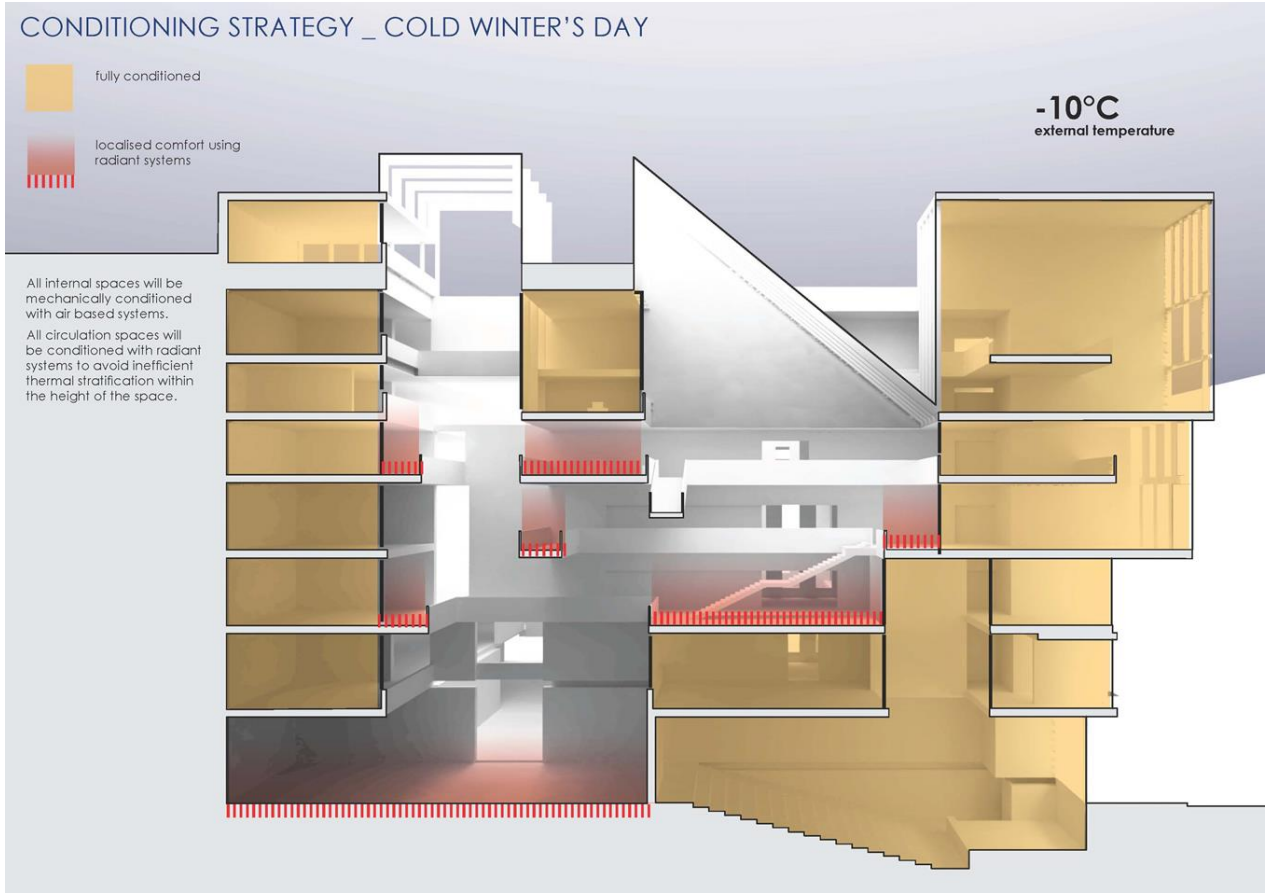
Sustainable Design at the Center of the Project
Natural Light and Daylighting Studies





Longitudinal Section through Nador 13 (Looking South)

IMAGE IS A VISUAL REPRESENTATION OF LIGHT FALLING ON SURFACES, RATHER THAN LIGHT REFLECTED OFF SURFACES. IT SHOULD NOT BE READ AS A PHOTO-REALISTIC REPRESENTATION.

NOTE:

1. Please note that the results obtained for the daylight studies are depicted as the worst case scenarios (i.e. a cloudy day in winter) and with all artificial illumination off. As such, significantly better results are expected under improved external conditions, and with artificial illumination where and when required.

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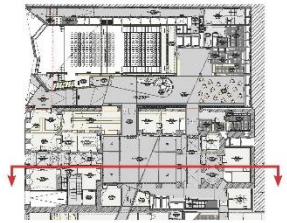
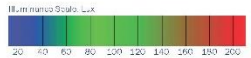
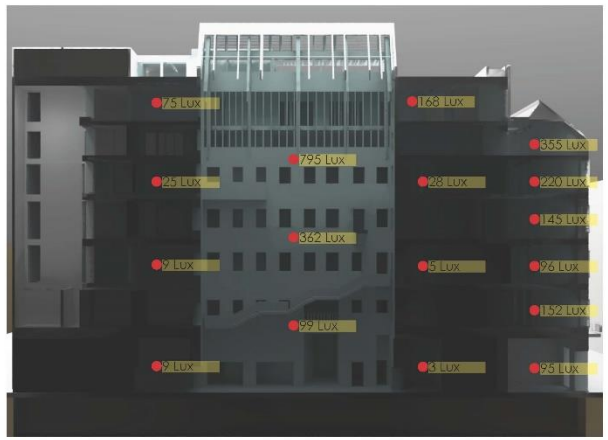
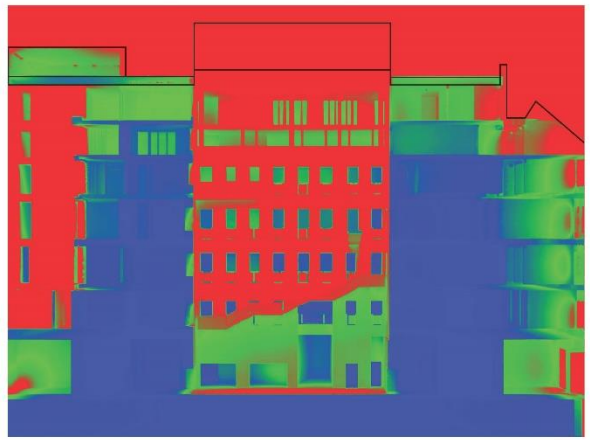


Key Plan







Longitudinal Section through Nador 15 (Looking South)

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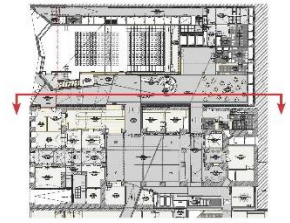

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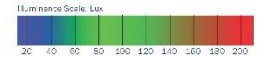
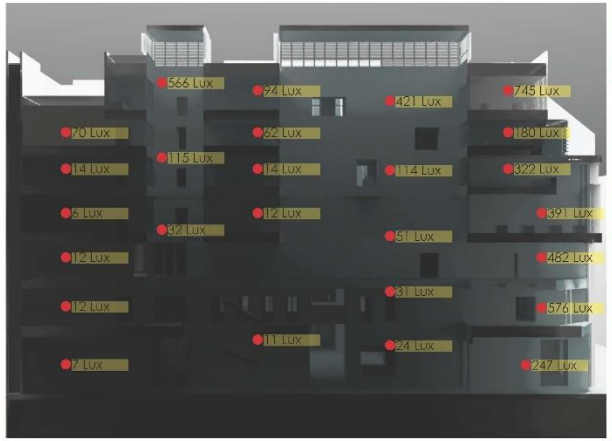
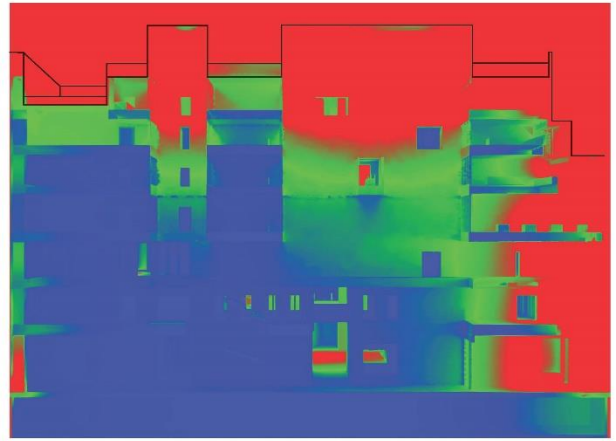
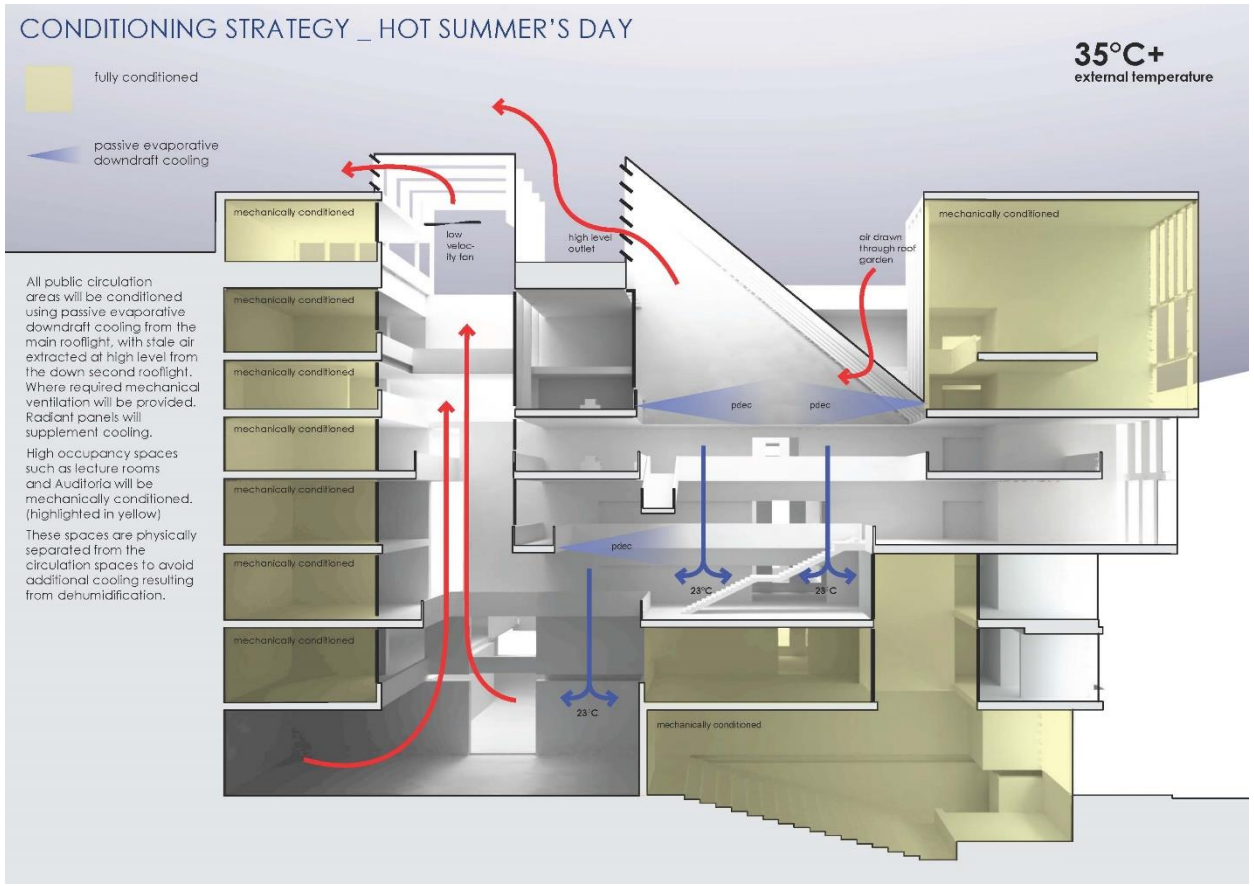
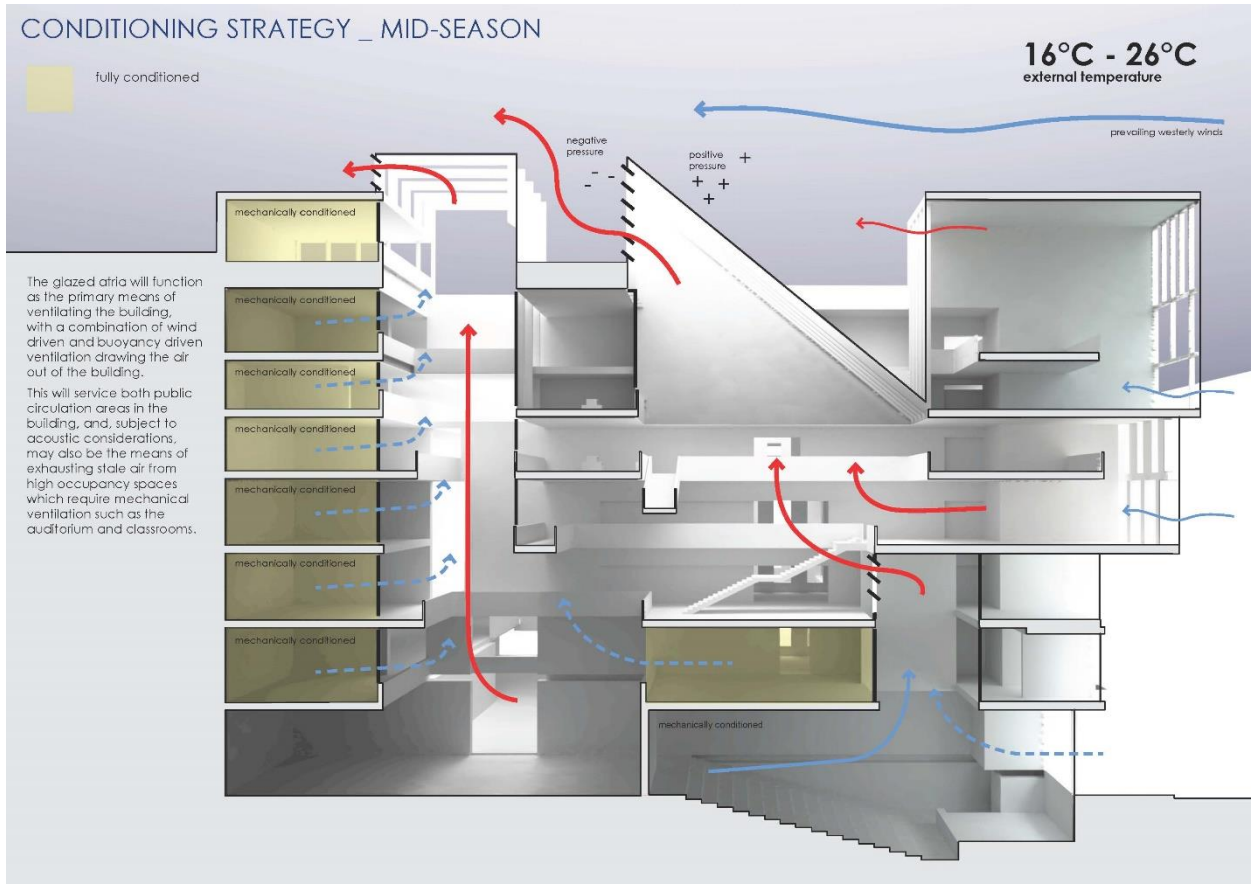




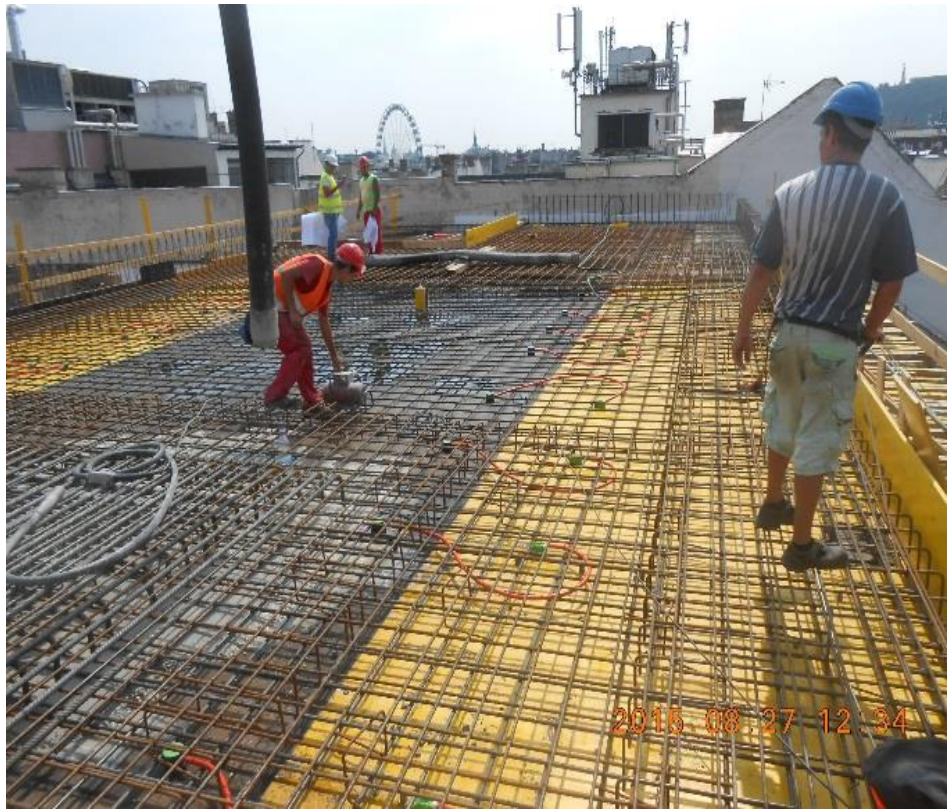


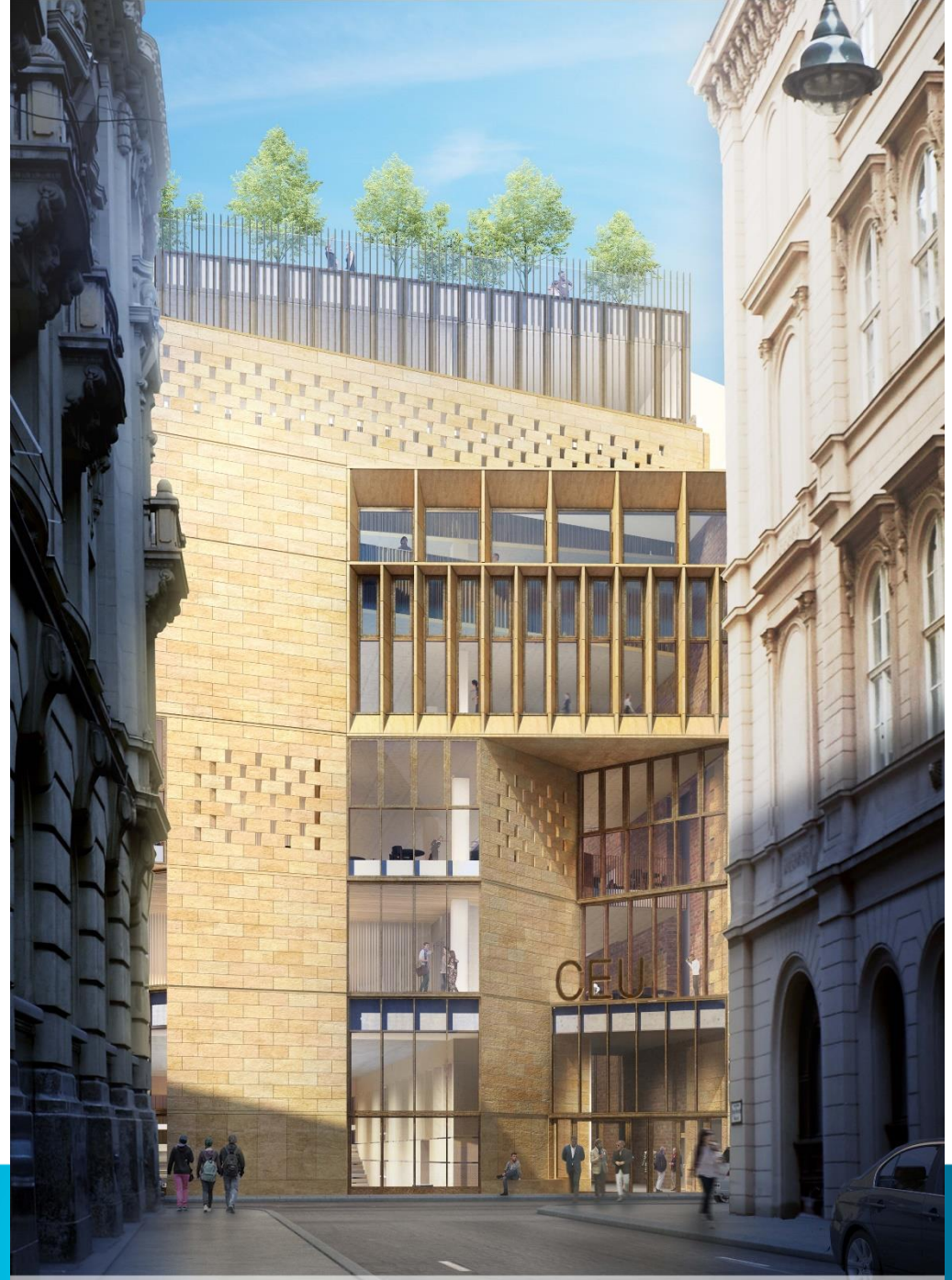
Sustainable Design at the Center of the Project
Passive Conditioning Strategy





Sustainable Design at the Center of the Project
Mass Thermal Heating and Cooling





The new CEU facade as seen from Vigyazo street

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04. SOLAR CONTROL INVESTIGATION: LEVELS 03 & 04

The three scenarios investigated are as follows:

SCENARIO 01 (Current solution)

- Level 03 Glazing (Lower): Microshade
- Level 03 Glazing (Upper): Microshade
- Level 04 Glazing: Microshade

SCENARIO 02

- Level 03 Glazing (Lower): Normal Glazing (Clear glass with 60-40 solar control coating) + Internal Blinds
- Level 03 Glazing (Upper): Normal Glazing (Clear glass with 60-40 solar control coating)
- Level 04 Glazing: Microshade

SCENARIO 03

- Level 03 Glazing (Lower): Normal Glazing (Clear glass with 60-40 solar control coating) + Internal Blinds
- Level 03 Glazing (Upper): Normal Glazing (Clear glass with 60-40 solar control coating)
- Level 04 Glazing: Normal Glazing (Clear glass with 60-40 solar control coating) + Internal Blinds

Normal Glazing (Clear glass with 60-40 solar control coating) + Internal Blinds

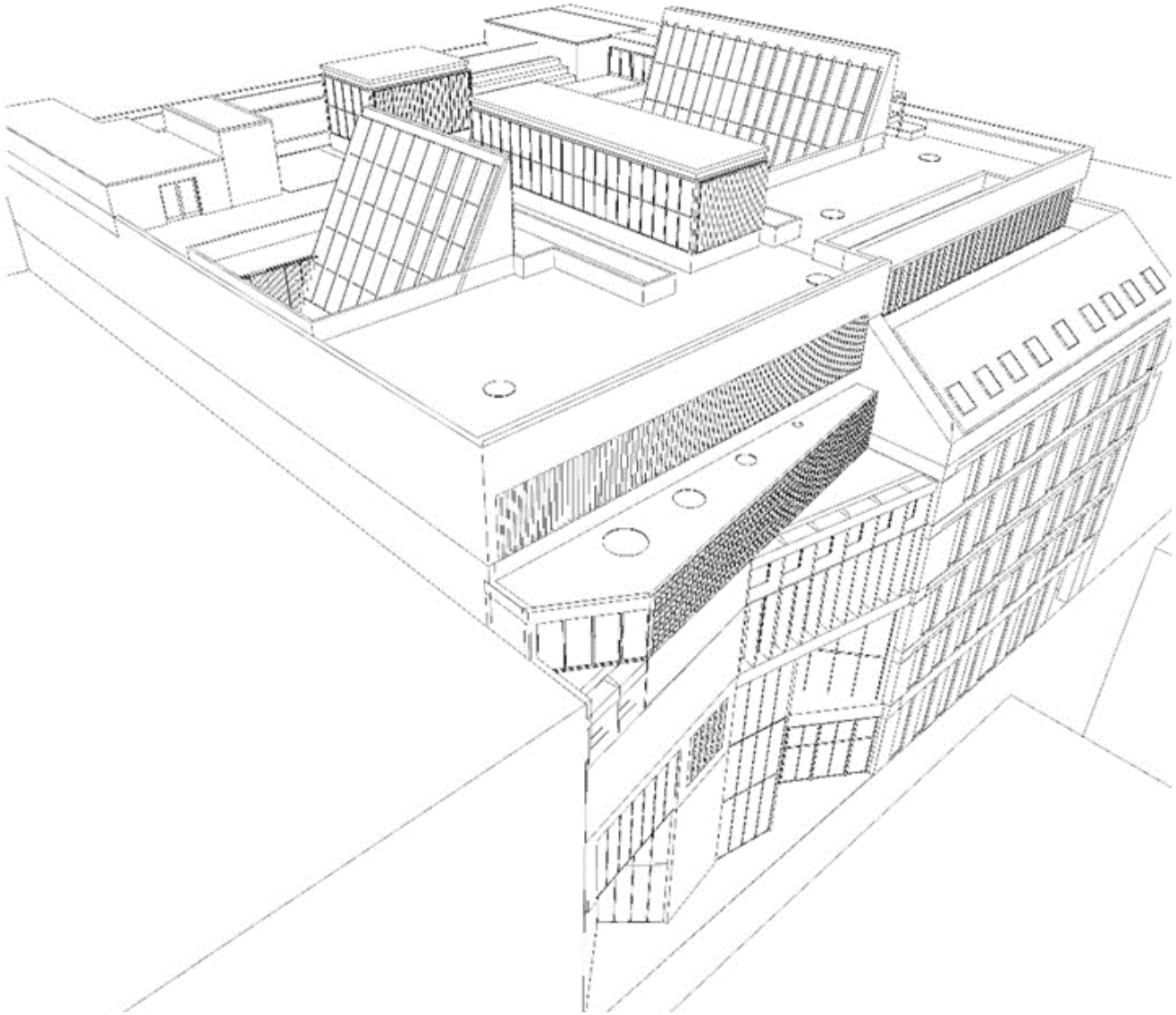
Normal Glazing (Clear glass with 60-40 solar control coating) [NO BLINDS]

Microshade

The auditorium facing Nador street

Conference suite (Nador 15) - room with view to the Danube

Skylights



The roof garden with view to the Danube and the Parliament

The new community atrium at Nador 13

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Lateral Section through Nador 13 Atrium (Looking up)

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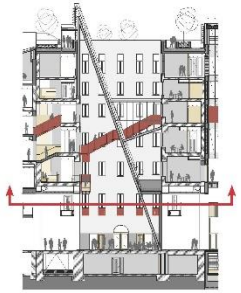
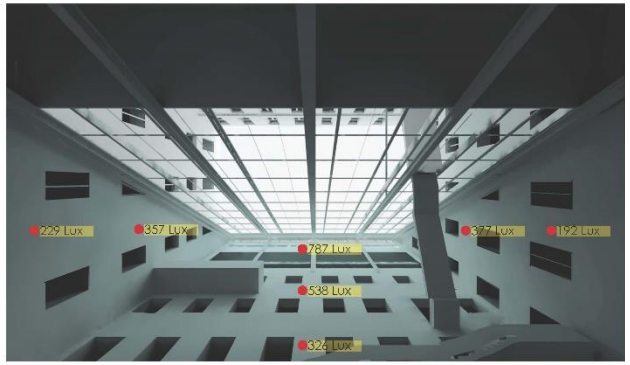
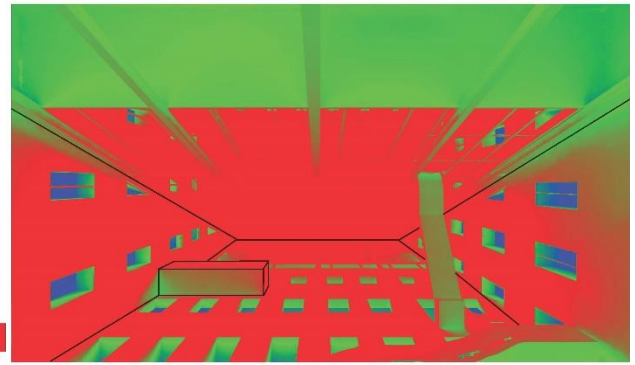


Key Section





Illuminance Scale: Lux

20 40 60 80 100 120 140 160 180 200

AO
architecture | environment

Nador 13 + Nador 15

Level 06

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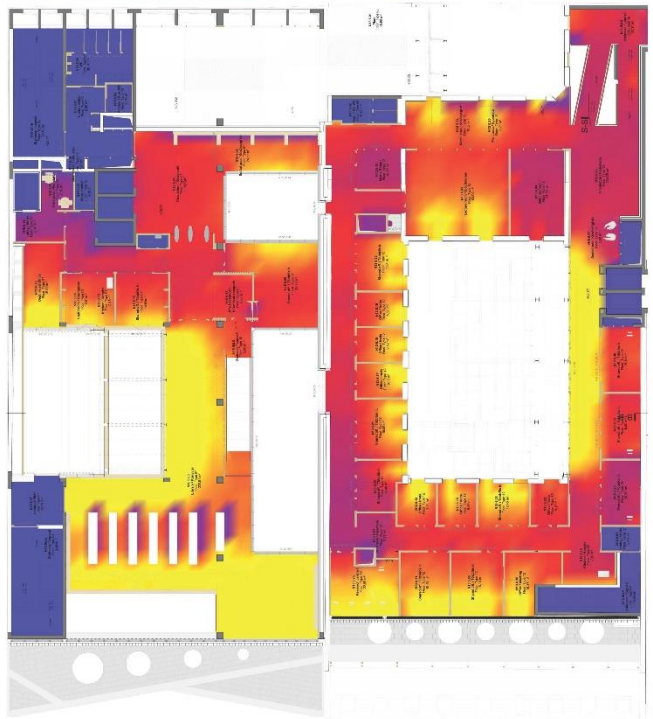
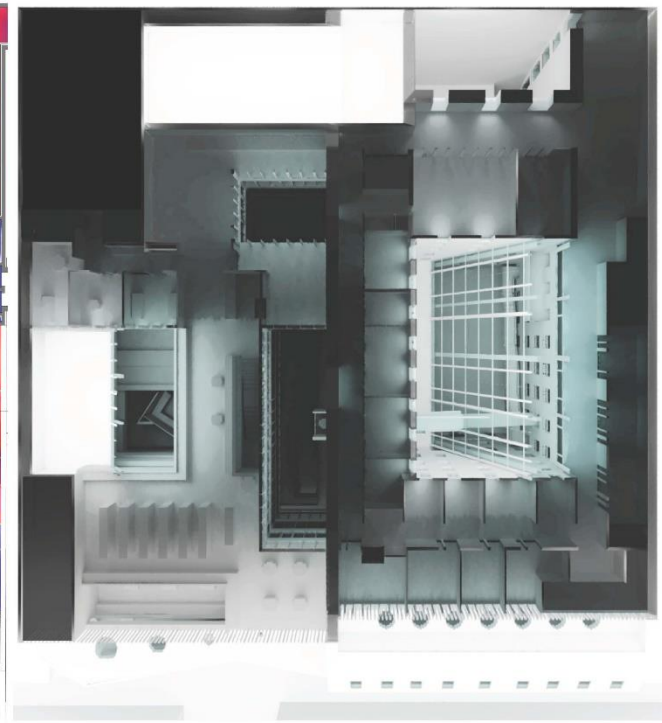
% Daylight factors @ 750mm working plane

2.0 1.8 1.6 1.4 1.2 1.0 0.8 0.6 0.4 0.2 0





AO
architecture | environment

Lighting

A flexible classroom

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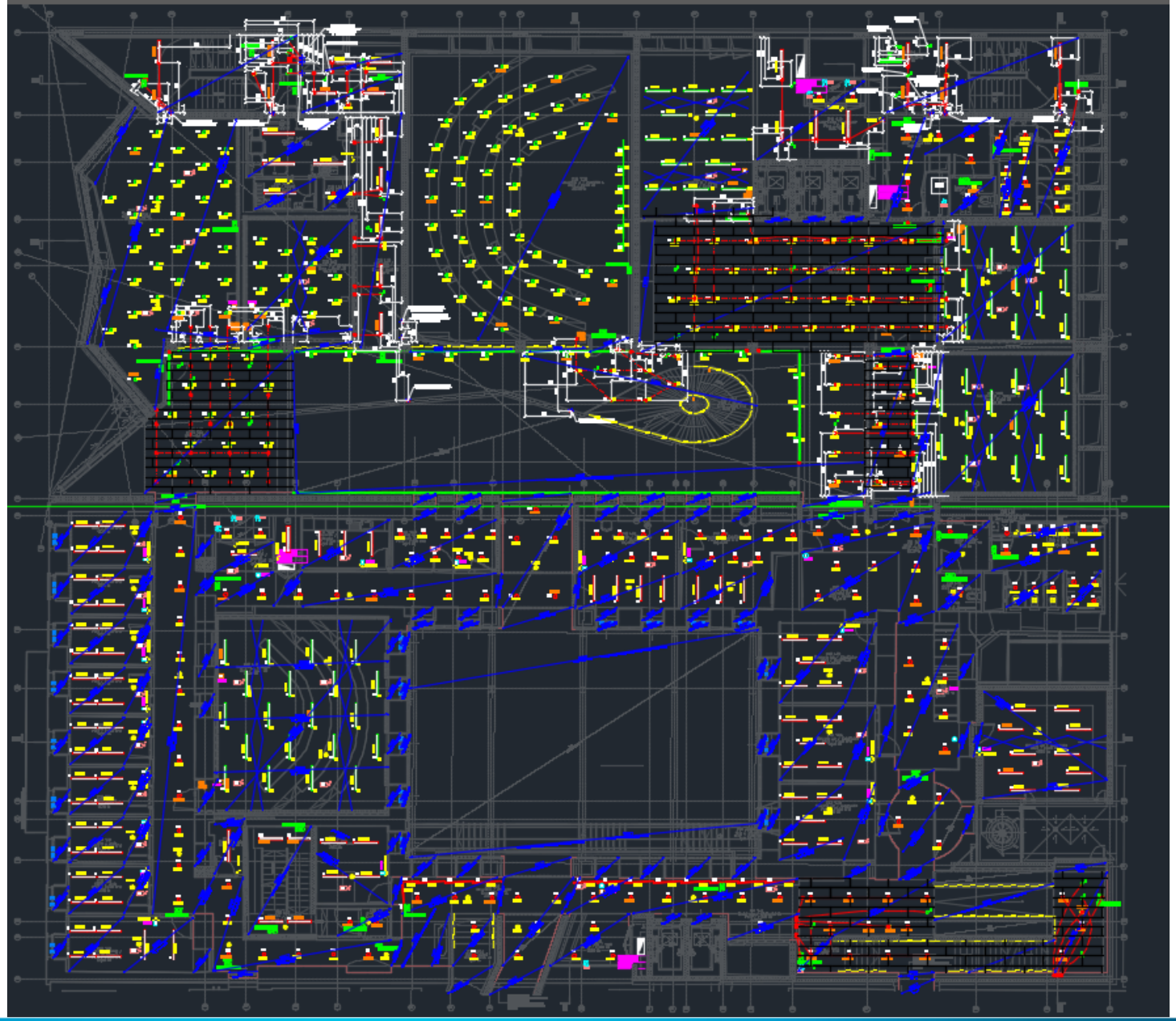

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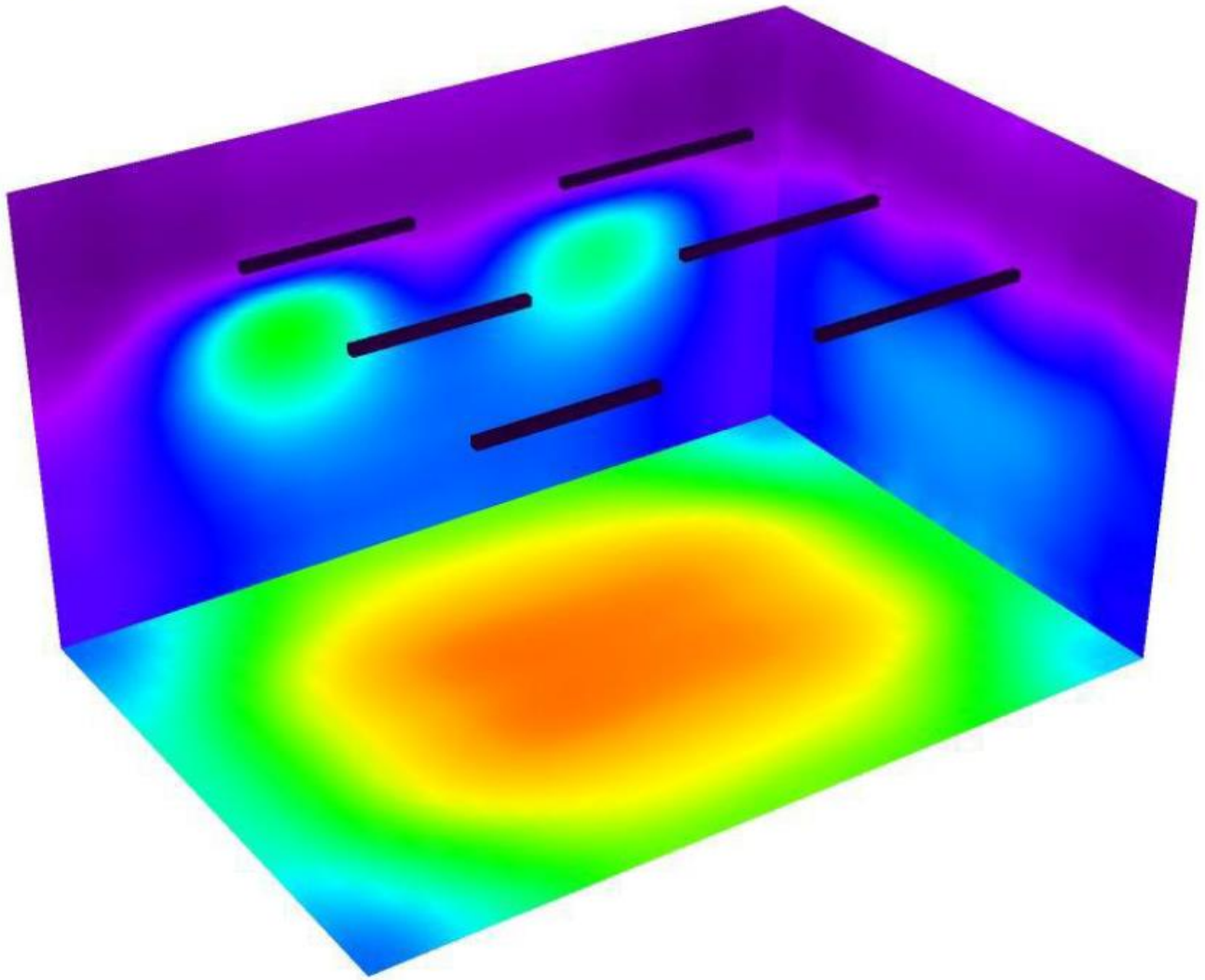

SOCIOLOGICAL ASPECTS

- General awareness & expectations
- Carbon footprint
- Simplicity of use

ENVIRONMENTAL ASPECTS

- Green values
- Savings on energy and environment
- Directives: RoHs, EuP, EEI…

TECHNICAL ASPECTS

- Small applications
- Large applications

POLITICAL ASPECTS

- Directives, regulations
- Governmental stimulations and subsidies
- (Inter)national conformity

ECONOMICAL ASPECTS

- Cost of ownership (maintenance, service, lamp life…)
- Return on Investment (ROI)
- Increasing energy prices + energy shortage