WELCOME!

to

15th INTERNATIONAL RADIANCE WORKSHOP!

Workshop Team

15th INTERNATIONAL RADIANCE WORKSHOP!

Organizer

Manens-Tifs INGEGNERIA

EURAC research

or

industrie

Pellini

ScreenLine

AGC GLASS UNLIMITED

VELUX®

Patronage

APIL Associazione Professionisti dell'illuminazione

GREEN BUILDING COUNCIL ITALIA

CARR

AiCARR

Cultura e Tecnica per Energia Uomo

Padova, September 29th, 2016

Manens-Tifs
ingegneria

Starting 2016 15th International RADIANCE Workshop

Roberto Zecchin

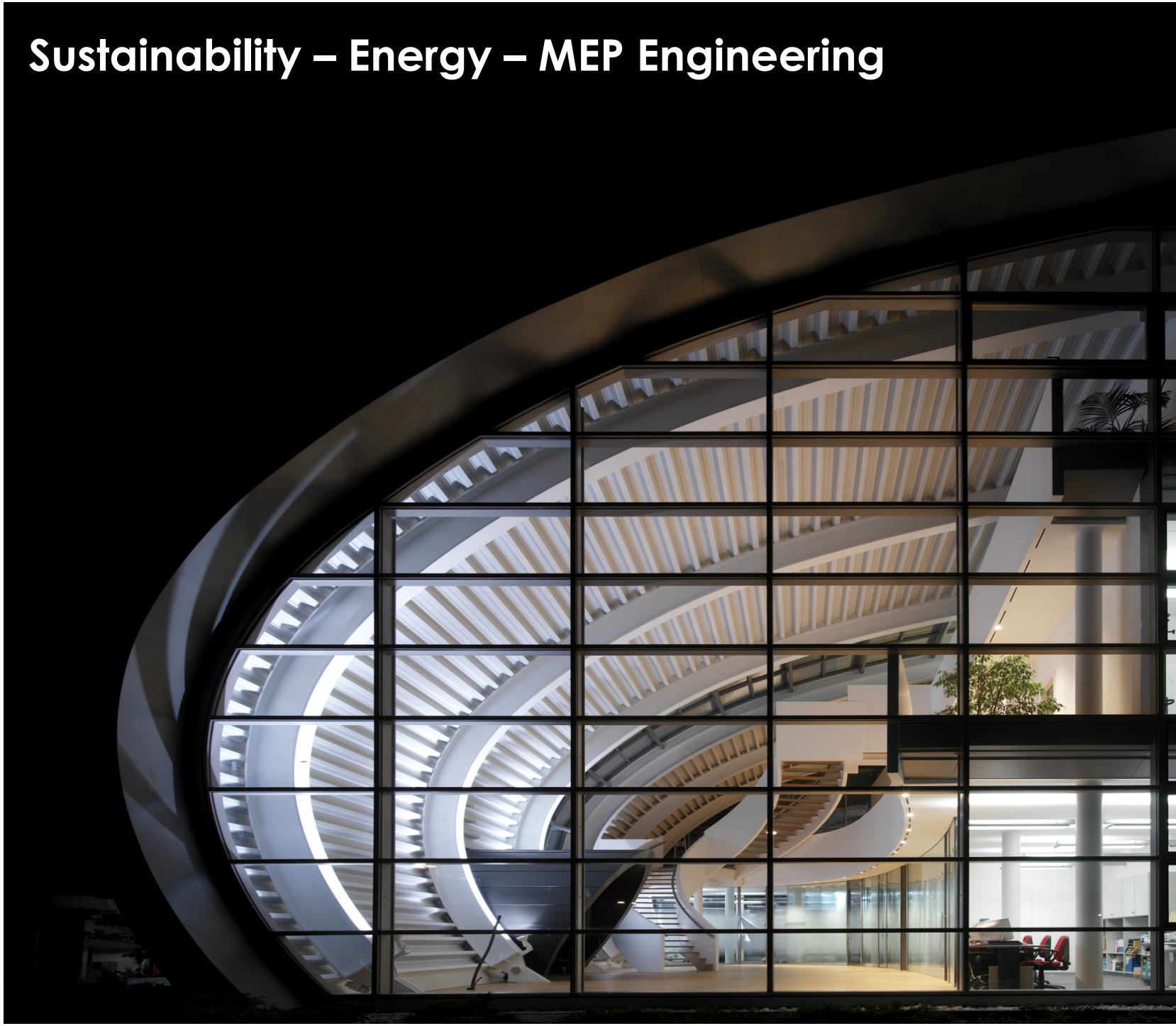
WHY RADIANCE WORKSHOP HERE?

Manens
INGEGNERI

Manens
INGEGNERI

nens-Tifs
ngegneria

Sustainability – Energy – MEP Engineering



able, Performance-
egrative, Design and
sulting Services"

About us

lting engineers specialised in the field of sustainability, energy and
engineering

ars of history

t specialist MEP company in Italy (170 staff in Italy, 200 staff
udi Arabia)

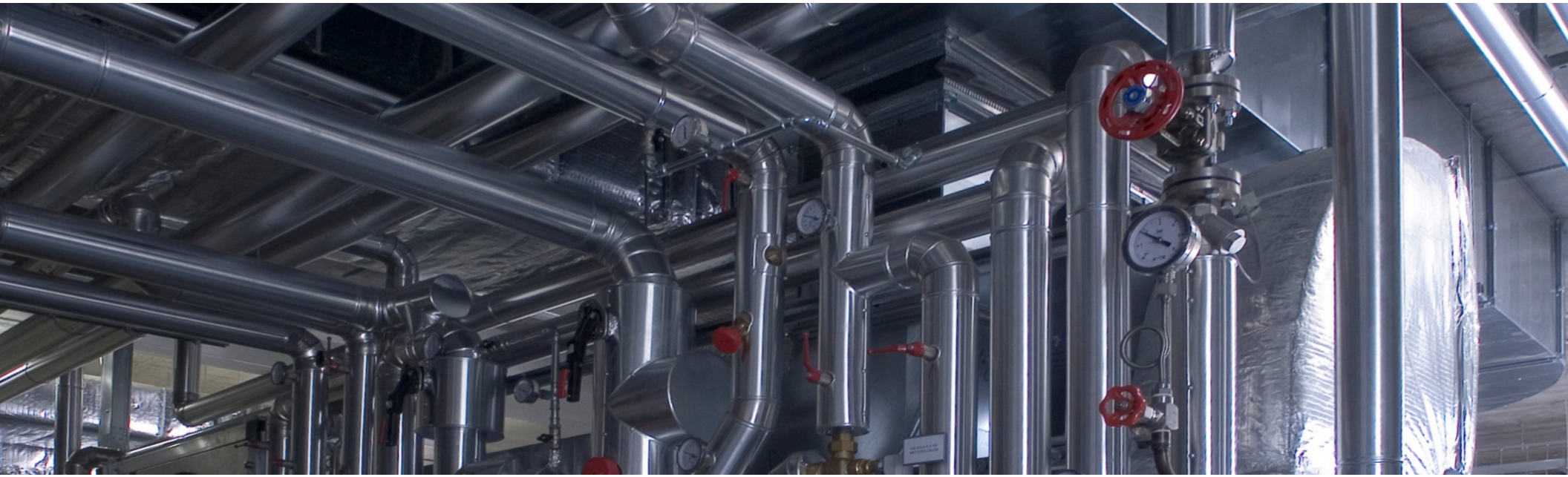
Manens
INGEGNERI

ENNESYS

FIRST Consulting Engineers

Green Building Council Italia

Mission



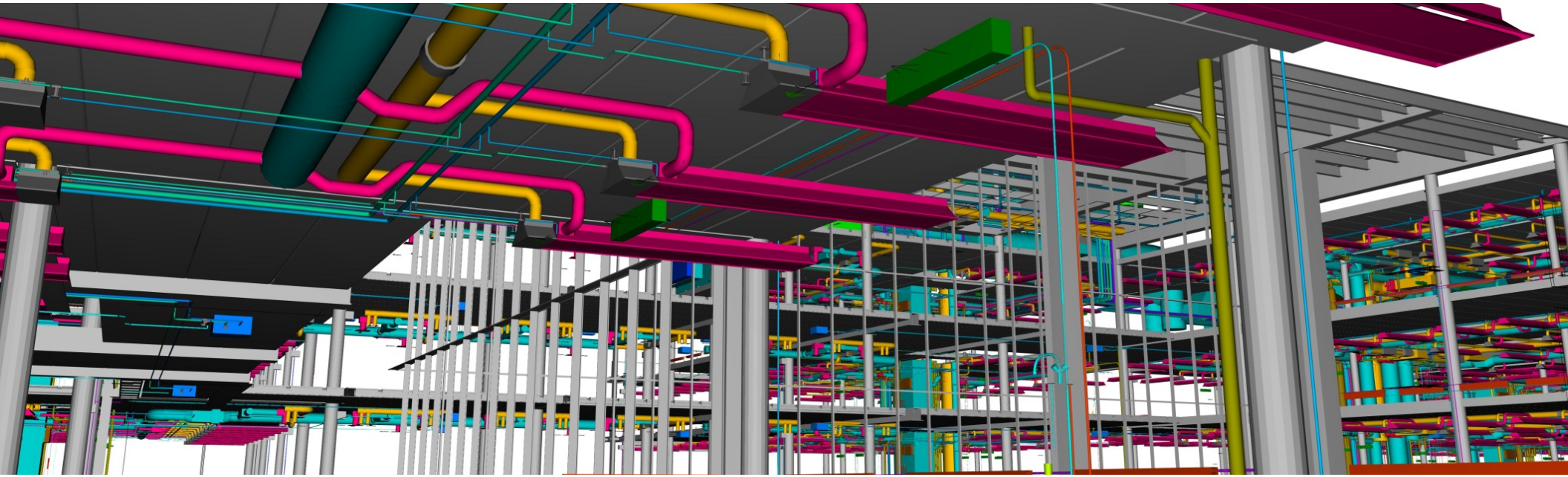
rpret and meet our Client's specific needs with technical solutions that integrate **Functionali**
and **Comfort** within **Sustainability** and **Energy**.

vide a **performance-based integrated building** design services for a cost-effective approach
f-the-art software simulation tools enabling the early assessment and optimization of compl
s.

ecognised leaders in the fields of **Sustainability** and **Energy** applied to the **building sector**.

Services:

Design, Site Supervision, Commissioning and Consulting



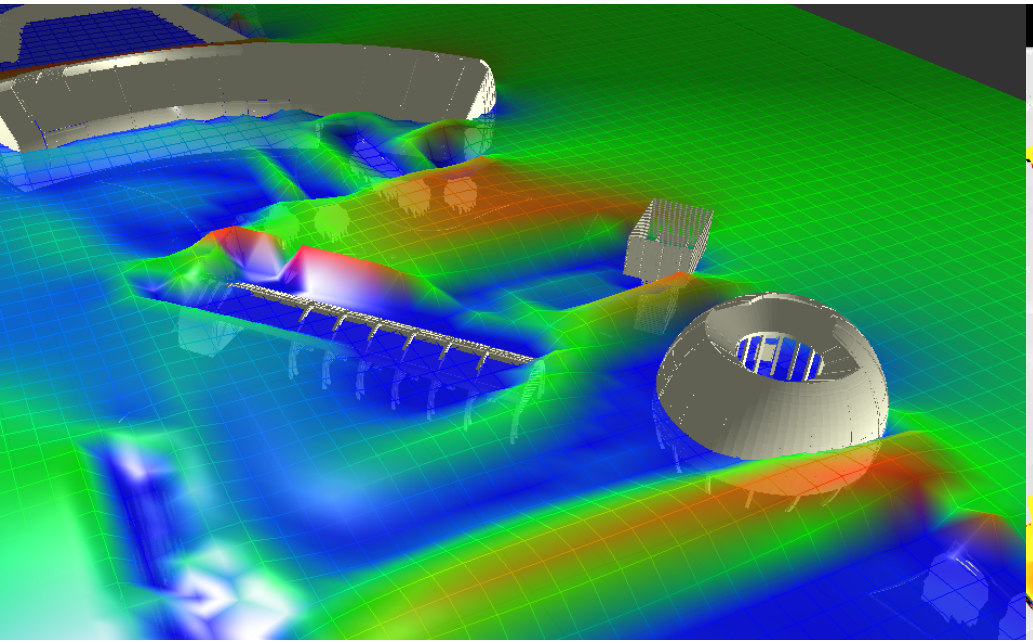
C systems (heating, ventilation and air conditioning)
ystems (plumbing, firefighting, and technical and medical gases)
rical systems (lighting, power supply and distribution, lightning protection)
y & Security (fire prevention, alarms, access control, TVCC)
ronics (IT & Communication systems, BEMS systems)
gy (renewables and energy savings)
ng Design
stics
ng Physics
onment and Sustainability

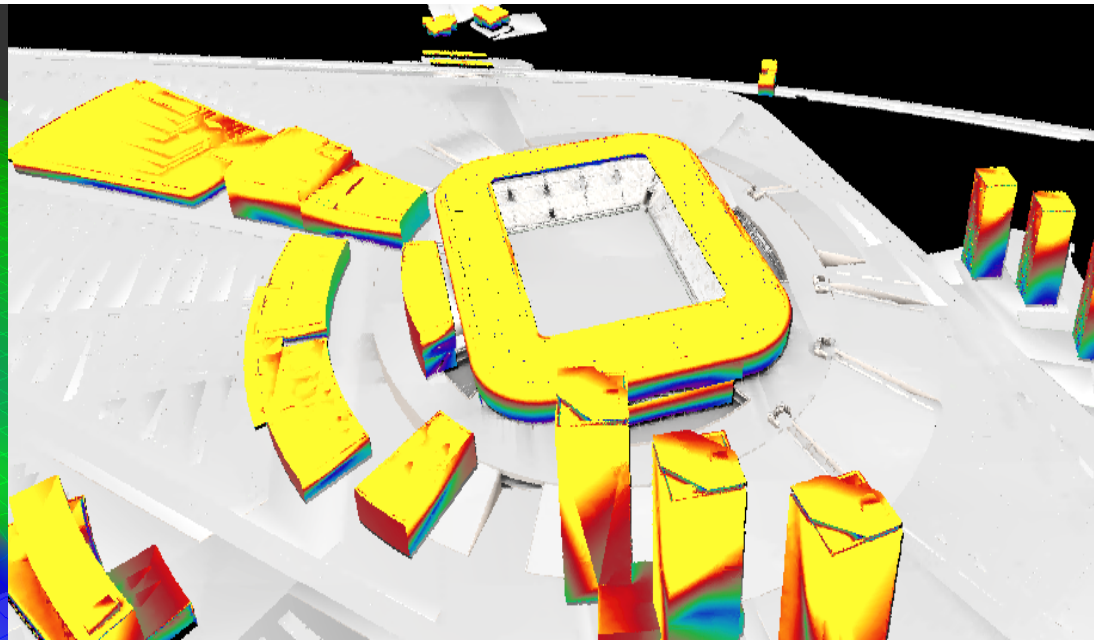
Sustainability

ns-Tifs is the Italian leader in sustainable design being involved in various projects and providi
ng services:

D Accredited Professionals (LEED APs) is now involved numerous LEED projects (LEED certified
urrently pursuing certification).
EAM International Assessors (Building Research Establishment Environmental Assessment Met
ocollo ITACA Experts (Italian version of International GBTool)
pean Energy Certification Experts

Building Physics





ns-Tifs use the state-of-the-art software tools enabling the study of building physics and nmental studies:

Radiation
de performance
hting and Visual Comfort
al Comfort (Computational Fluid Dynamics)
al Ventilation
tics

Main Offices

dova office is a full-scale experimental zero-emission building with innovative technology fo
nd represents an application of our working practice based on performance-based integra
and multidisciplinary approach

rona office is a refurbished 17th-century building and represents our appreciation for historic
vation and humanistic values

A Office is established to manage the construction of two new medical citadel in KSA.

Sectors: Districts

ns-Tifs has been involved in urban development for years.

ve reached levels of excellence in preliminary environmental-energy studies, in the use of able resources and in district heating and cooling systems.

priate solutions on a district-wide scale allow local CO2 emissions to be reduced and, in cer eliminated altogether.


“Citylife”: urban redevelopment of the forme


Urban redevelopment of the former “Michelin a

Sectors: Healthcare

care is the sector in which Manens-Tifs began its business more than forty years ago.

ealth of MEP design experience and long record of completed works have enabled us to ga
c expertise in dealing with the problems of individual wards and/or healthcare facilities, up t
s associated with the management and maintenance of large hospitals.


New Surgery Pole, Borgo Trento hospital / Vero

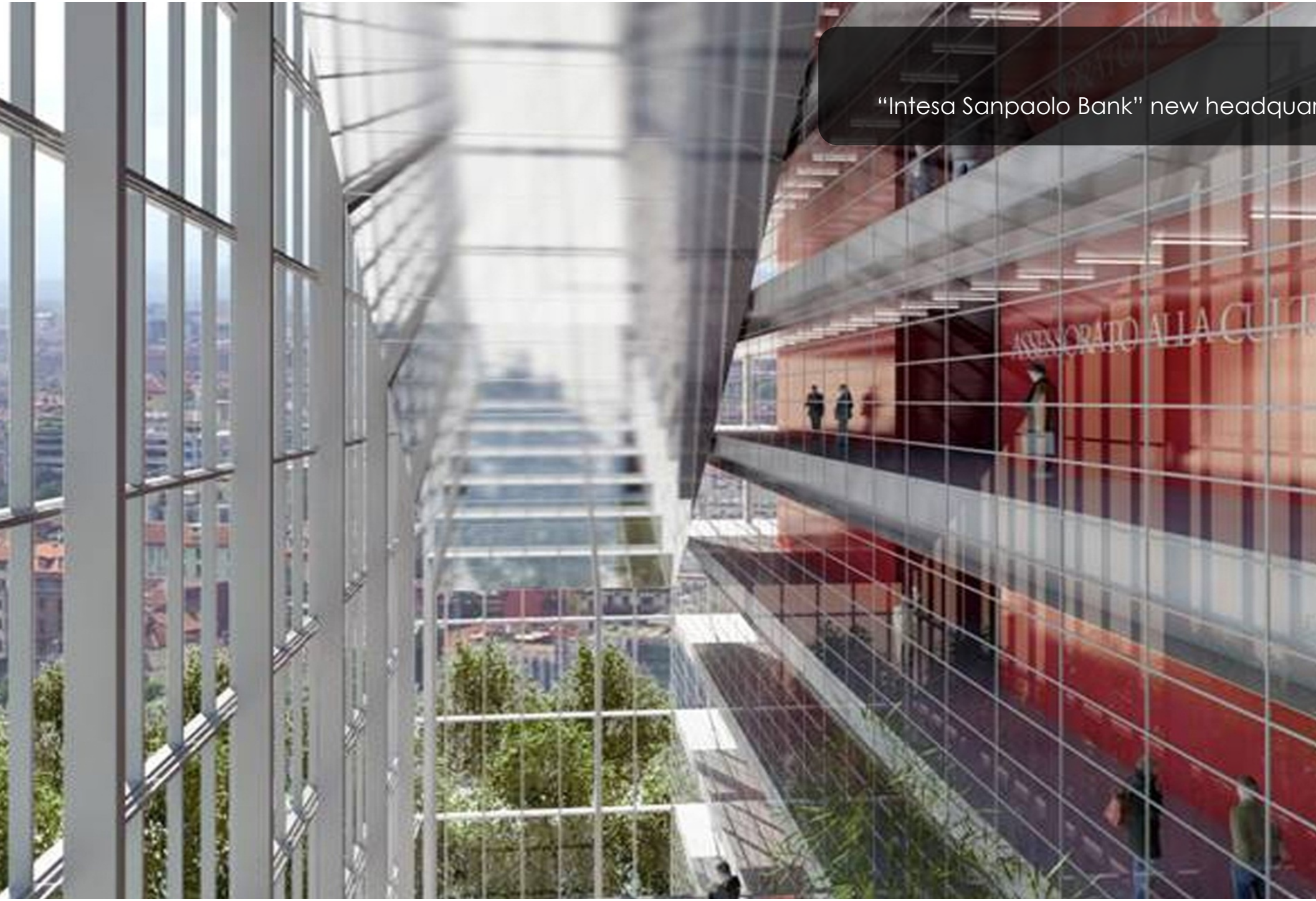

New “dell’Angelo” hospital / Mestr

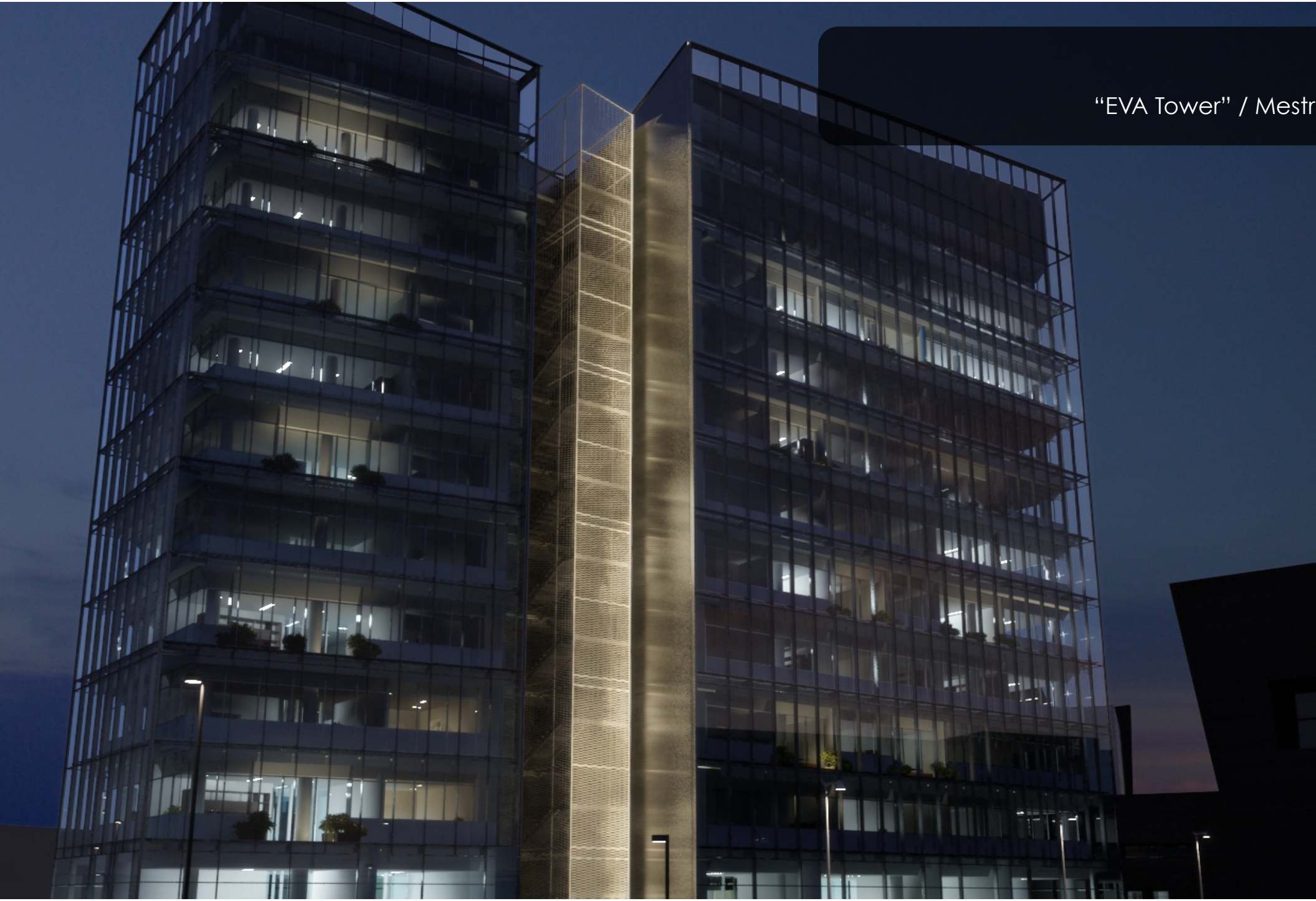

Hospital Central de l’Armé

Sectors: Offices

s buildings pose the greatest challenge to the integrated design of building envelope and es.

ns-Tifs developed specific working methods and software tools for studying this type of buildi y and indoor quality requirements, assessing the thermal properties, analysing acoustics and nting.

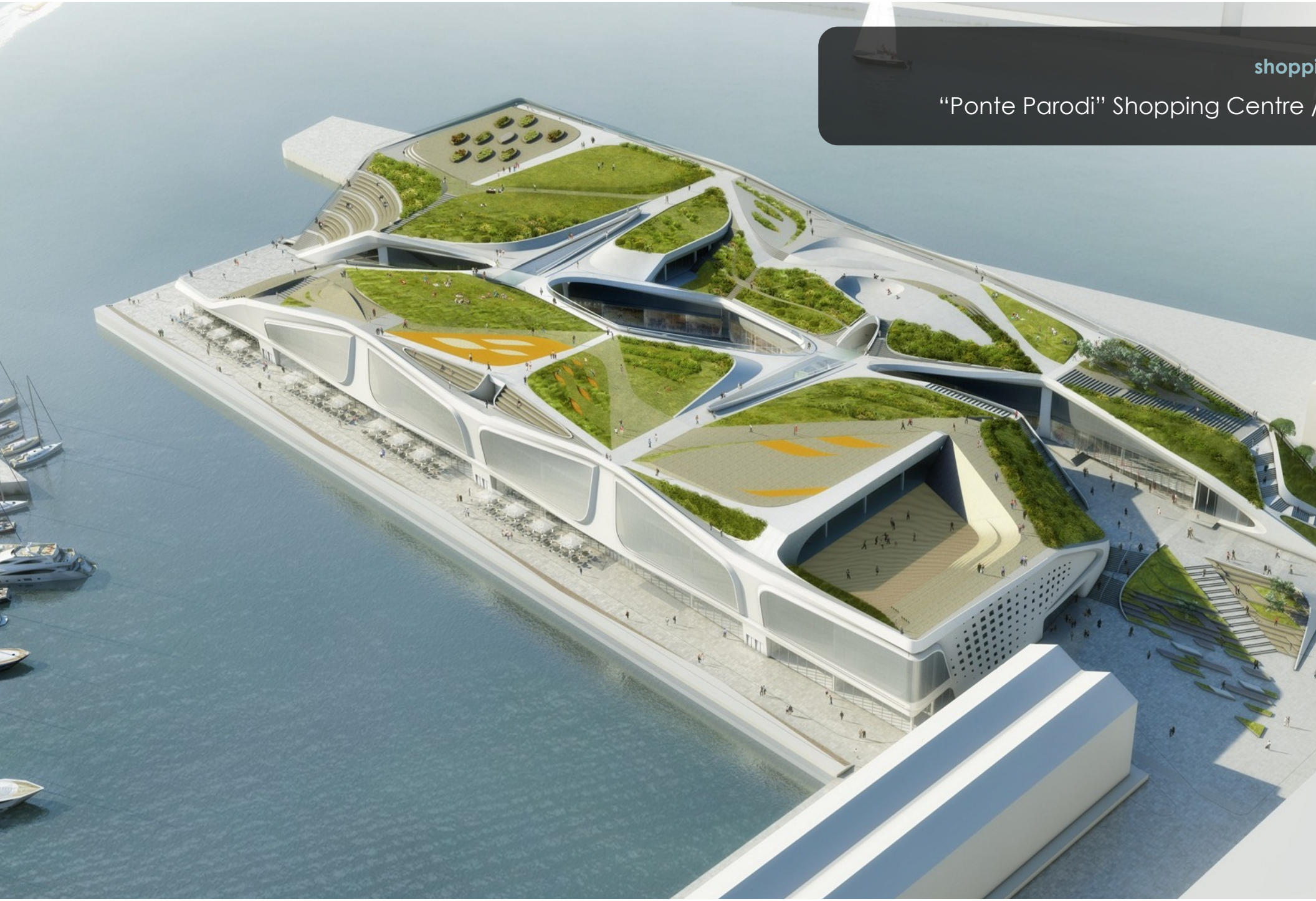

"Intesa Sanpaolo Bank" new headquar


“EVA Tower” / Mestr


“Treviso 2” complex

shoppi

"Romea" Shopping Centre / Margher



shoppi

"Ponte Parodi" Shopping Centre /

Sectors: Transportation

tegory comprises large-scale air travel and railway hubs, which present security issues.

perience in various projects allowed Manens-Tifs to develop the specific skills to integrate co
nctionality with security requirements, by introducing advanced technologies and innovativ
ns.


New Venice “Marco Polo” Airport / Tesser


New Doha International Airport / Doh

Sectors: Cultural Centres and Museums

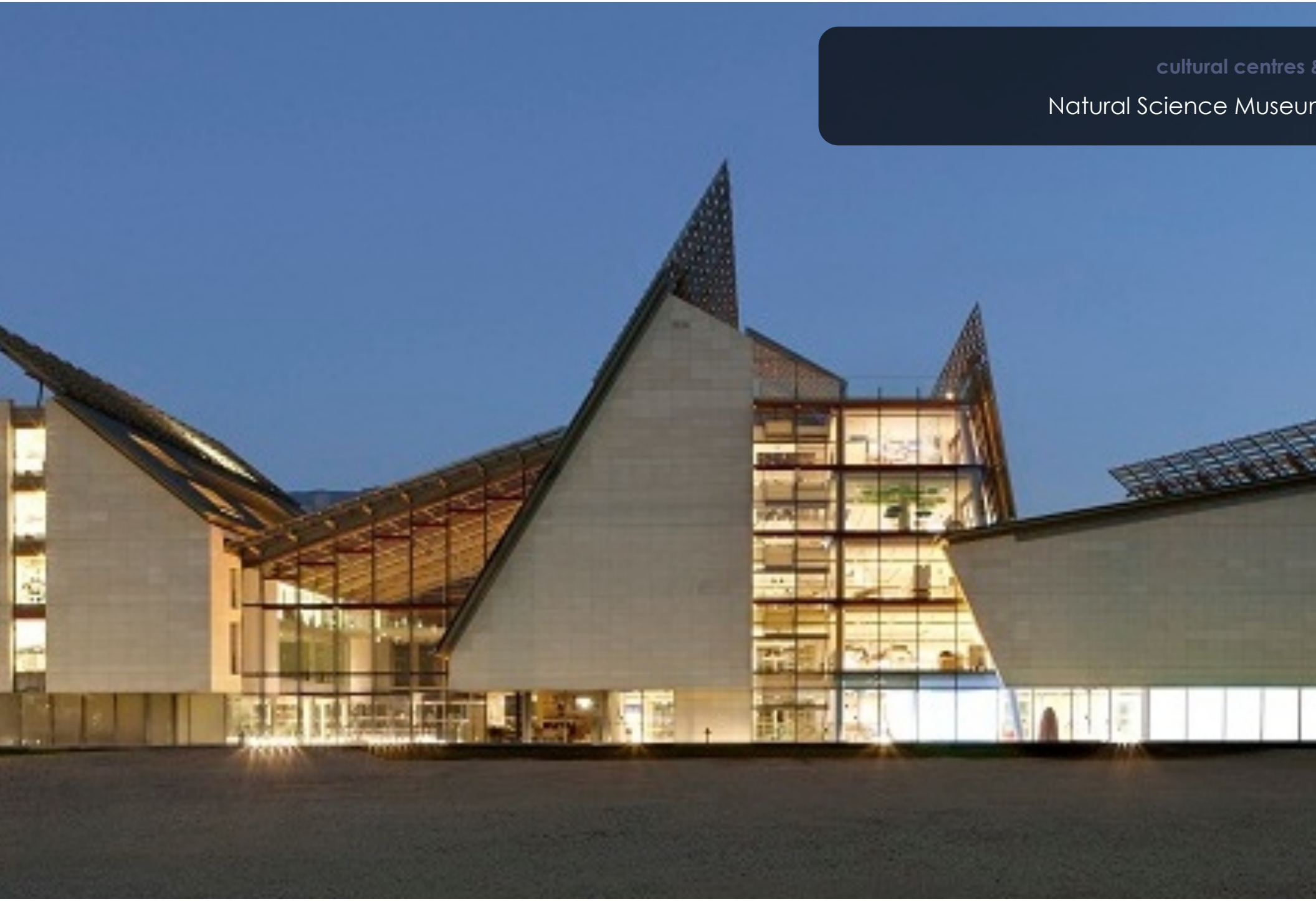
ving interest in art and culture, resulting in the increased number of visitors to museums, galle
raries, associated with the need to preserve our valuable heritage, calls for specific building
s engineering solutions that combine a strict control of environmental parameters for art pie
vation, with the requirements of visitors' comfort and complying and possible restrictions of
al buildings.

cultural centres &

Parco della Musica / Auditori

cultural centres &

Modern Art Museum / MART



cultural centres &

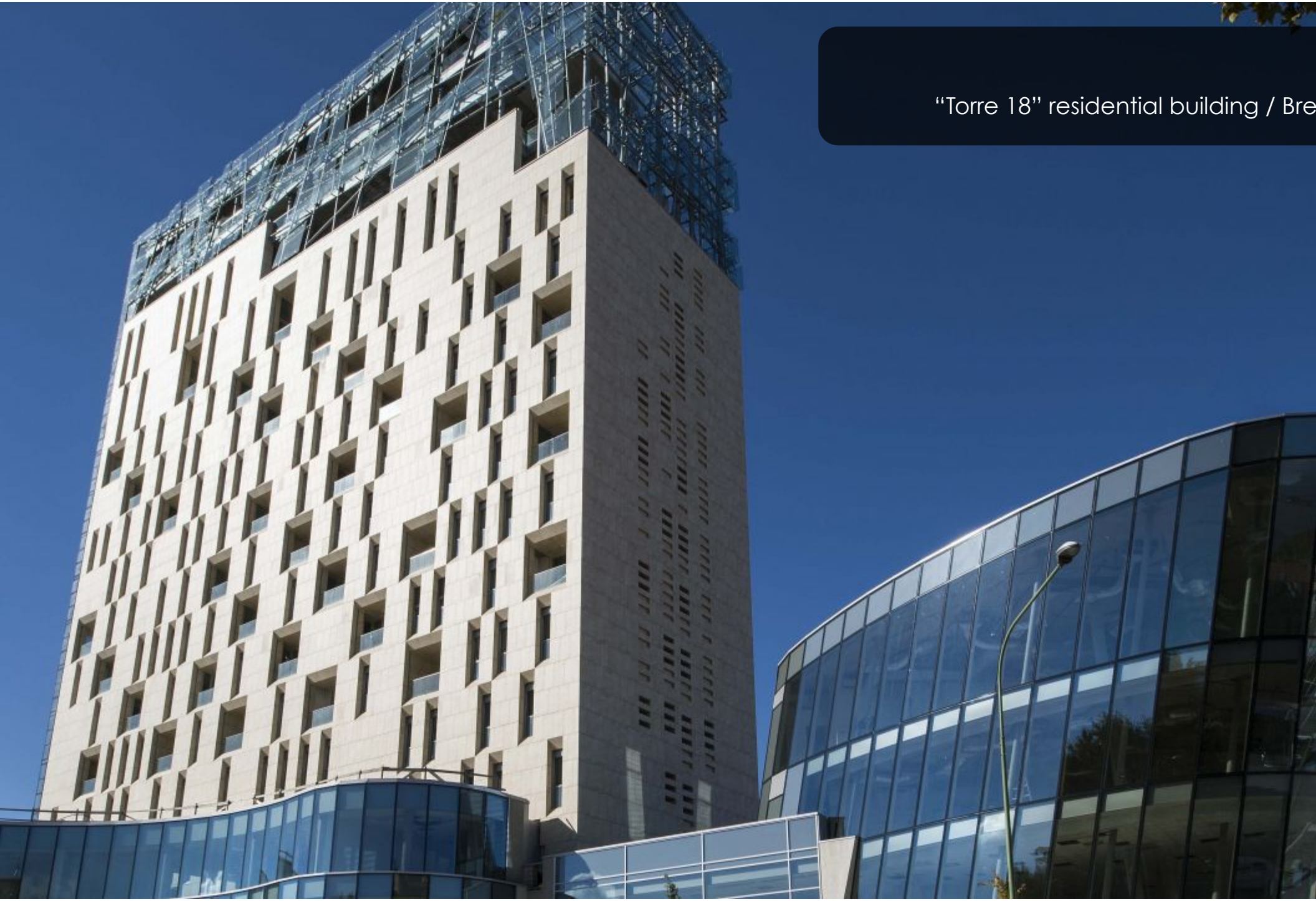
Natural Science Museum

Sectors: Residential

ng awareness of environmental sustainability issues and the need to reduce energy consum
ulted in building services engineering claiming an important role in the residential building s

has increased in major urban redevelopment projects, in which defining an integrated strat
production and distribution of electricity and heating and cooling, plays a key role in the d
s.

"Citylife", Libeskind residential building



"Torre 18" residential building / Bre

Sectors: Hospitality

reasingly common for buildings of this kind to constitute large envelops with sophisticated b
s whose objective is to assure high comfort level for guests.

are numerous aspects that contribute to creating optimum comfort for guests: microclimate
g, provision of communication and IT systems, soundproofing.


“Verona Forum” hotel

Sectors: University and Research Labs

y and research laboratories constitute buildings that must meet growing and constantly cha
s in terms of functionality, energy and the quality of the systems that power them.

uently, design must combine flexibility, scalability and superior energy efficiency.


university and research la
Faculty of Natural Science

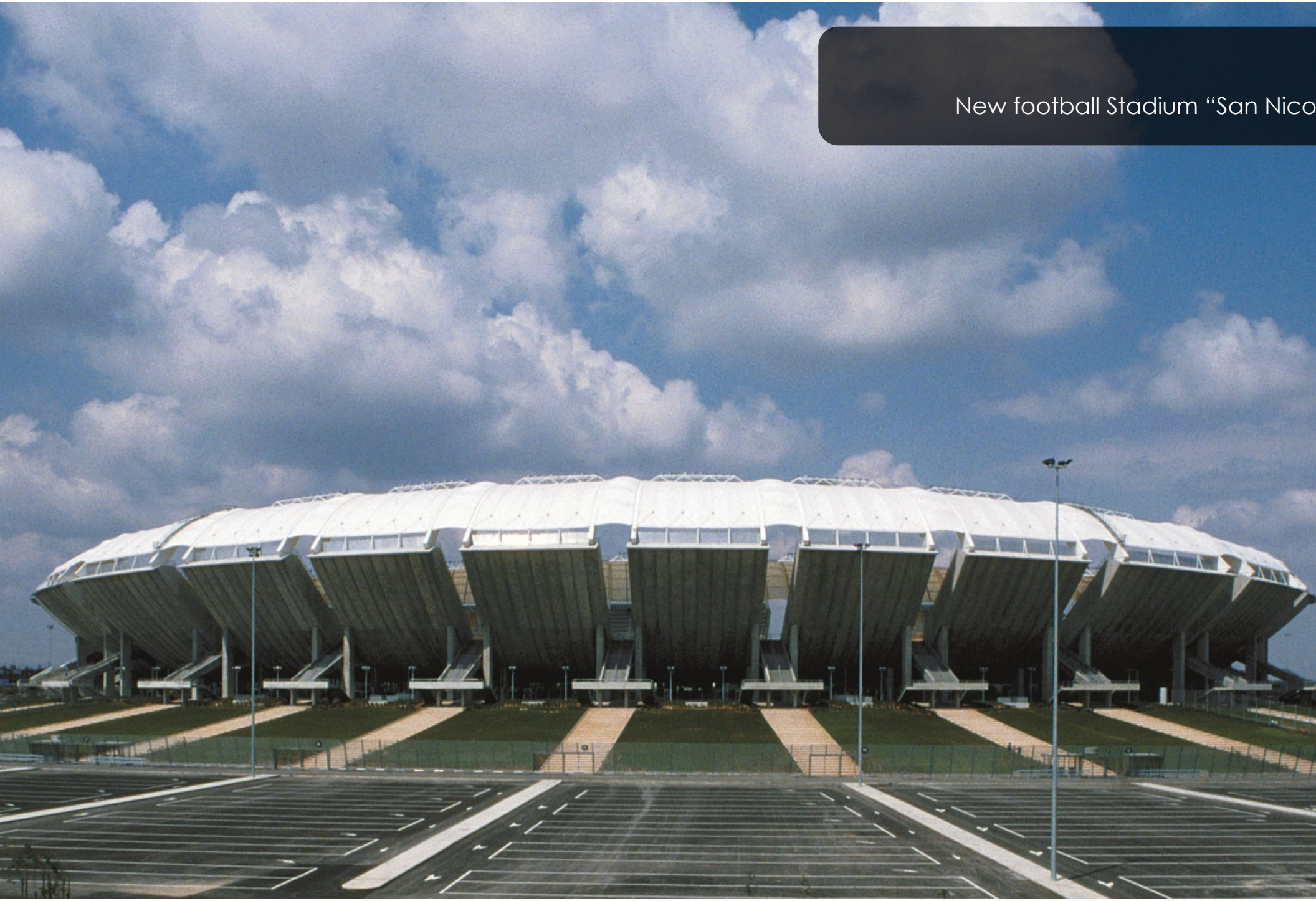

university and research labo
Faculty of Medicine / University of Perug


university and research la
Scientific & Technological Pole / University

Sectors: Sport

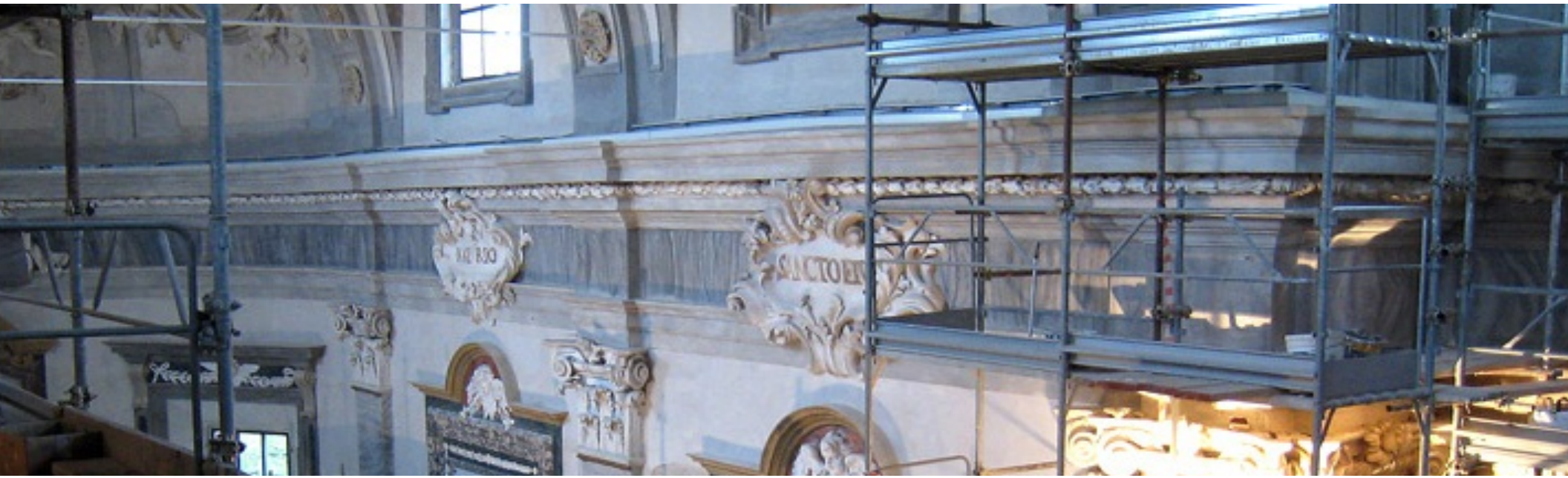
and more, new sports facilities and stadiums are being designed as multi-purpose facilities re
ommodate a host of different activities, such as sports, music events, exhibitions, business
es, to name a few.

ns-Tifs gained a strong experience in developing building services engineering solutions prov
al flexibility and energy performance, while ensuring the comfort and safety of spectators.


New football Stadium “San Nico

New Football Stadium of Siena / Sie

Sectors: Historical Building Restoration



ns-Tifs has been involved for many years in large renovation and redevelopment projects of
al buildings and has developed know-how and methodology for renovating buildings and
g them, whenever possible, to the most recent energy, comfort and sustainability standards

ed know-how includes energy auditing and identification of cost-effective energy efficienc
res.

historic

“Milano Centrale” Railway Station / M


historic
NH hotel / T

Sectors: Industrial Establishments

gs of this kind are characterised by different needs, depending on the type of products and
acturing processes.

case, the design must combine system reliability and functionality with a healthy workplace
or safety.

Indust

SIDI Sport / Tr

Sectors / Alternative Energiy

a field Manens-Tifs has been working in for many years, focusing on the design of photovolta
s, and systems that exploit vegetable oils and solid biomass.

pecifically, for biofuels systems Manens-Tifs has supplemented specific building services exp
gronomy and environmental expertise.

Manens-Tifs in Saudi Arabia

nens-Tifs has been appointed the design development activities and site supervision of two m
dical cities presently under construction in Riyadh and Jeddah each consisting of a 1700 b
pital and a 12000 people residential area, plus related utility areas


historical bu
Riyadh Medical city

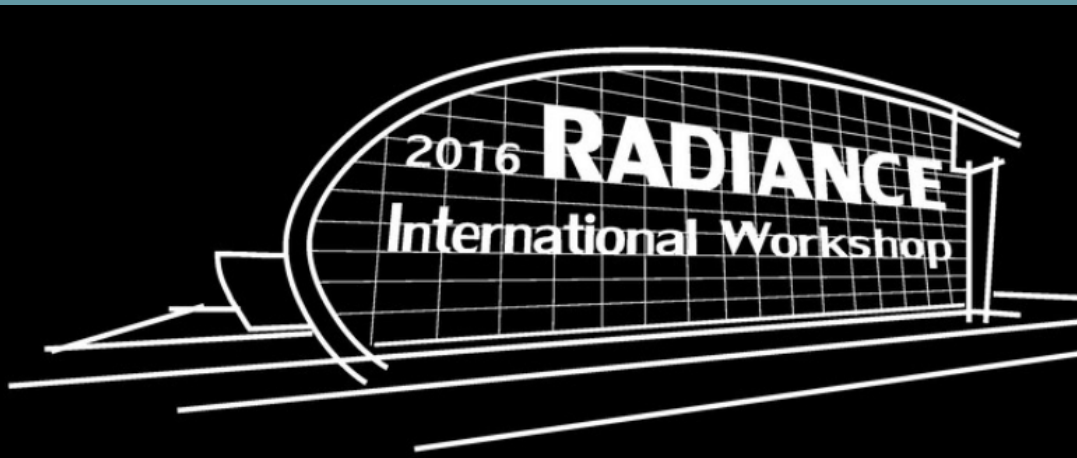

historical bu
Jeddah Medical city

WHAT IS RADIANCE FOR US?

Manens
INGEGNERI

1st Workshop (2002)

15th Workshop (2016)



Padua - August 29-31, 2016

Manens-Tifs, in collaboration with EURAC Research, is pleased to host the 15th Annual International Radiance Workshop from Monday, August 29th to Wednesday, August 31th 2016 at Manens-Tifs headquarters, located in Padua (Italy). With a long tradition of gathering academics, consultants and anyone interested in lighting related subjects using Radiance software, this event is a great opportunity to learn and exchanging ideas.

Attendees are invited to share examples of work they have performed using Radiance, or that is in progress, in a prepared 30-minutes presentation. Come to share your knowledge and/or learn about the latest Radiance features, developments, and opportunities to apply Radiance in your professional practice. Connect with enthusiasts from around the world who apply Radiance in research, lighting design, daylighting, animation, simulation, and rendering activities.

August 23rd news: A webconference system will be active for the workshop. If you want to participate, please contact us. Fees for webconference please look at registration page.

2010 – RADIANCE Validation + Dayli

Master Degree Thesis (G.A.

UNIVERSITÀ DEGLI STUDI DI PADOVA

Dipartimento di Fisica Tecnica

Tesi di Laurea in Ingegneria Edile

OTTIMIZZAZIONE E VALIDAZIONE SPERIMENTALE DI UN MODELLO DI CALCOLO DELL'ILLUMINAMENTO NATURALE

Relatore: Prof. Roberto Zecchin

Laureando: Giulioandrea Antonutto Foi

ANNO ACCADEMICO 2000-2001

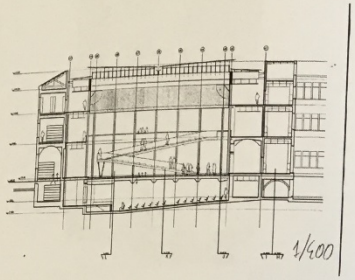


Fig.5.5 - Sezione laterale dell'edificio allo studio.

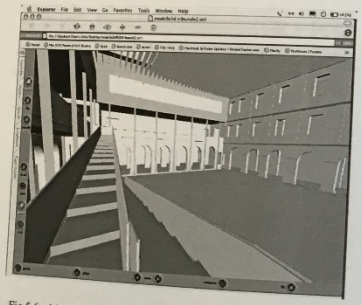
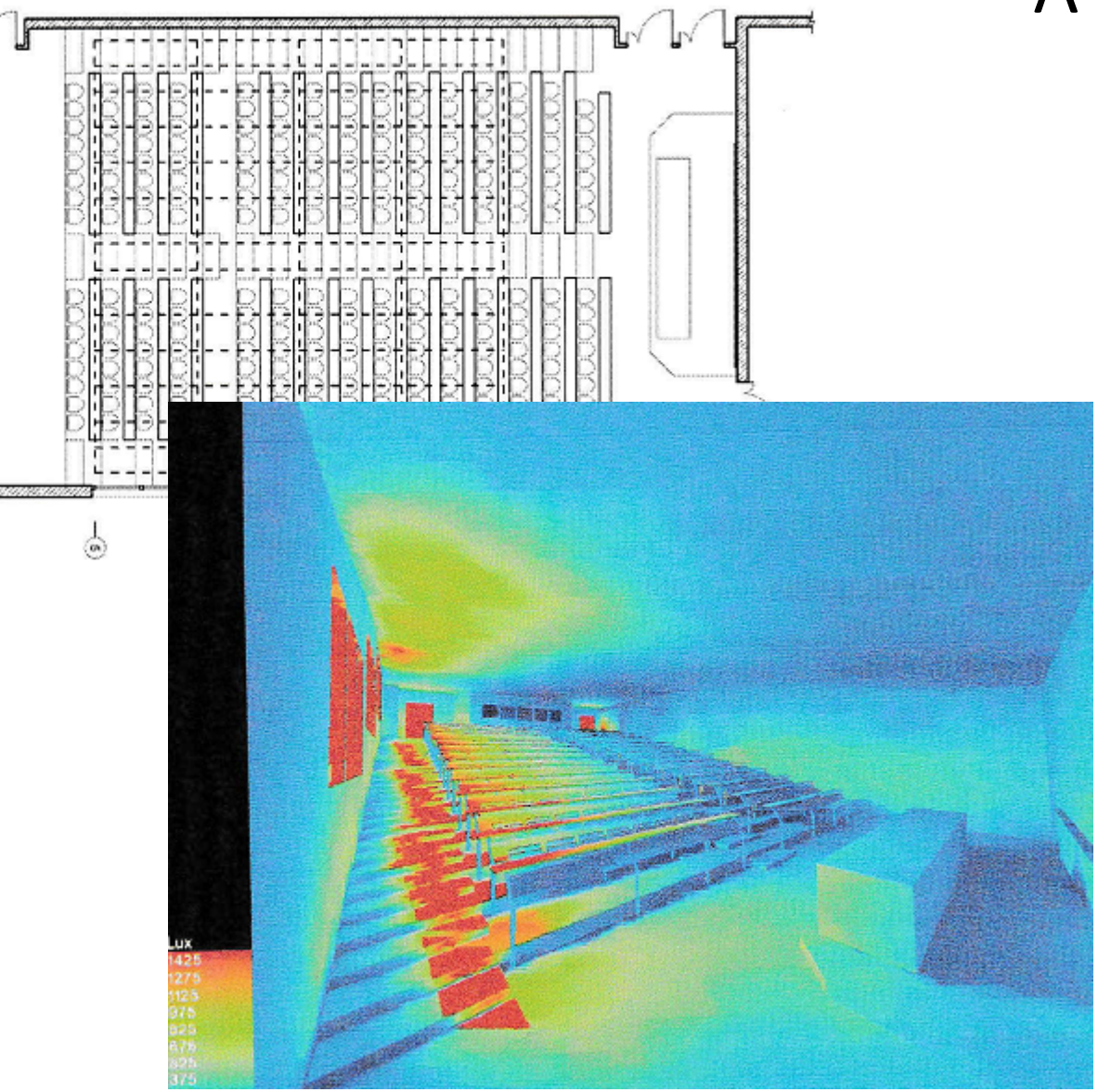
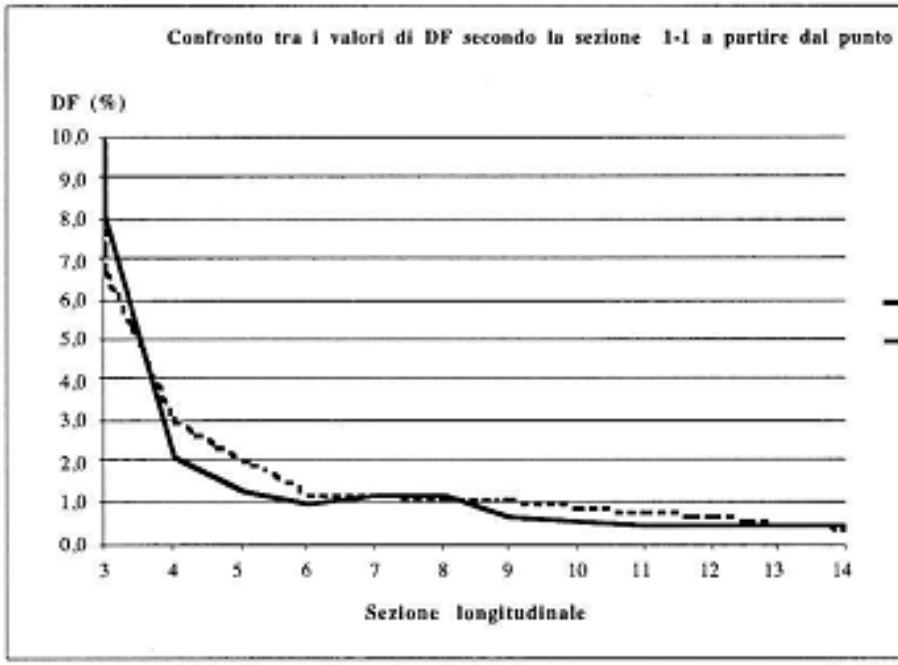


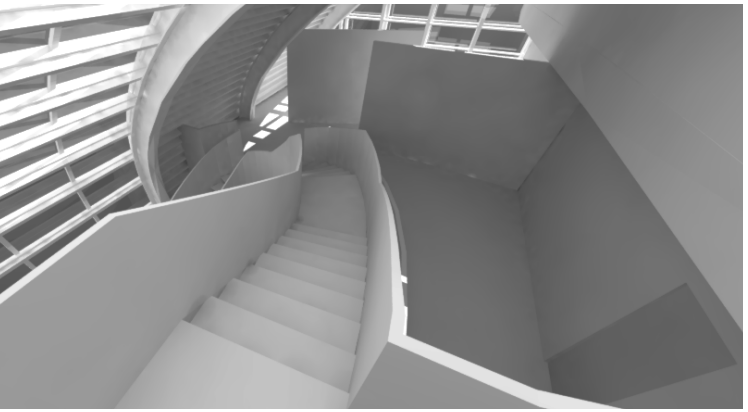
Fig.5.6 - Modello tridimensionale nel formato **.VRML* come appare attraverso un browser internet.

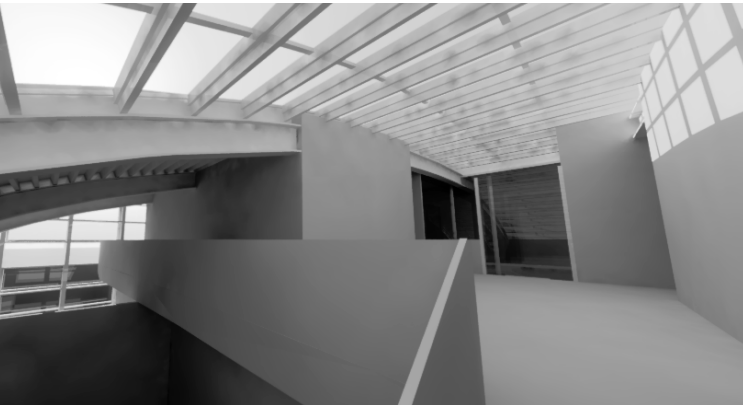
Fig.5.7 - Studio solare dell'ambiente interno l'edificio; le immagini mostran la situazione dalle 6 alle 17 del 21 marzo.

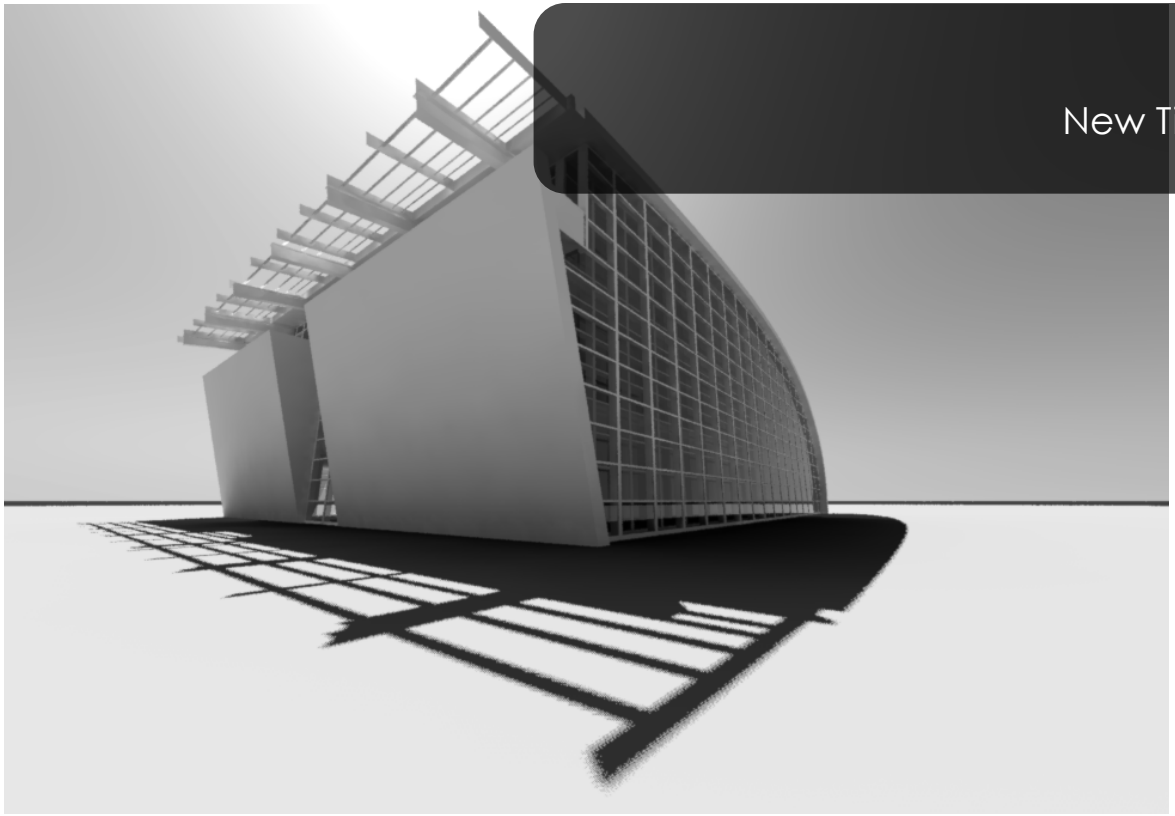
A lecture theatre at the Univ
Calculated vs. Mea





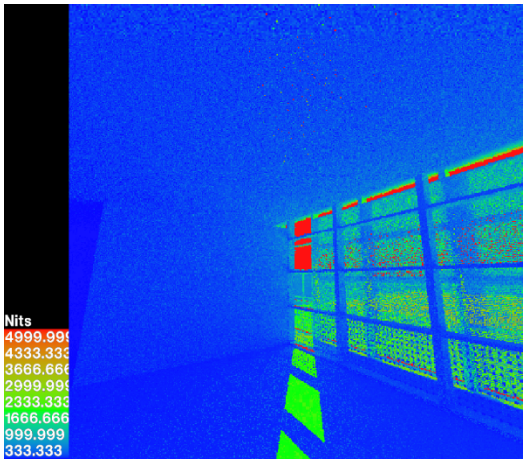


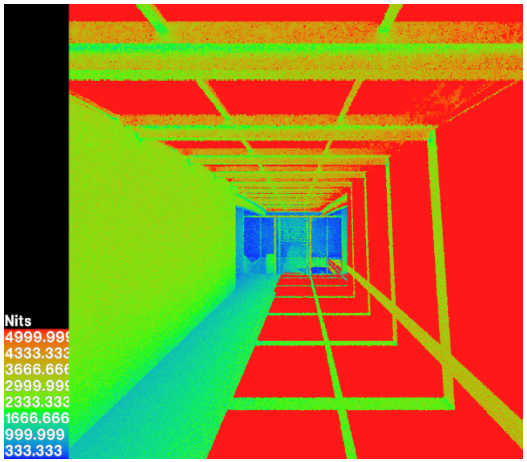


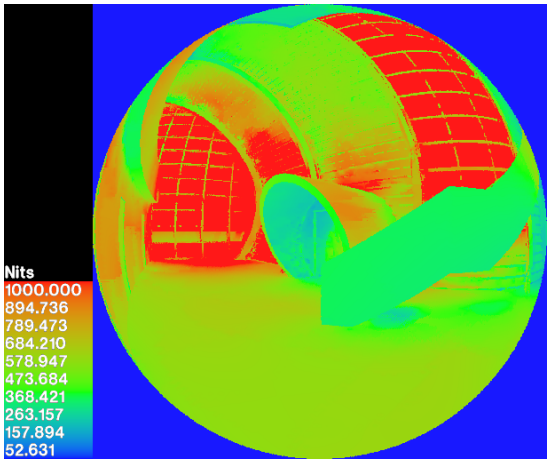


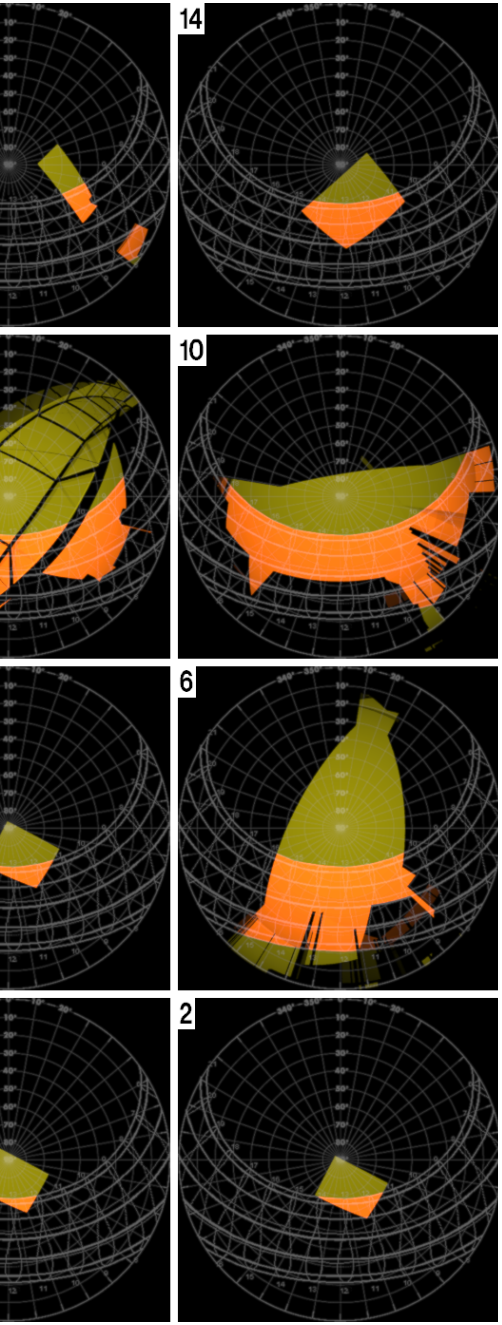
2003 – Do

New Tifs Buildin





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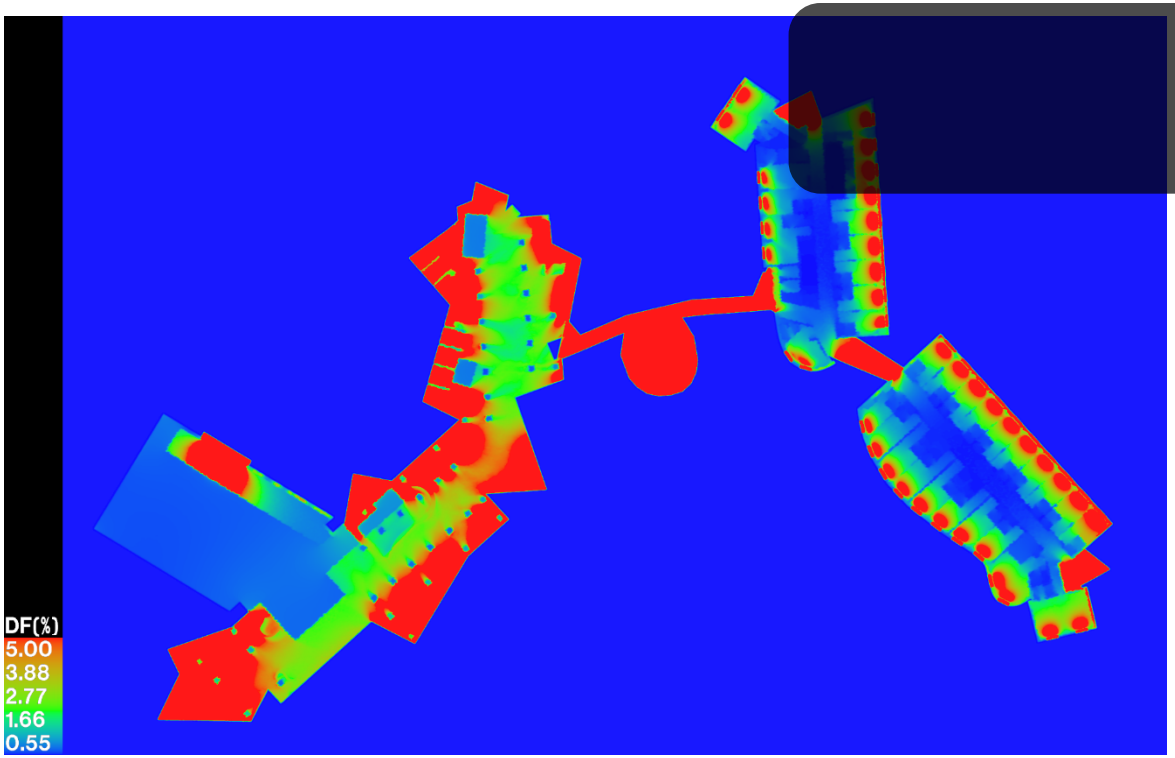
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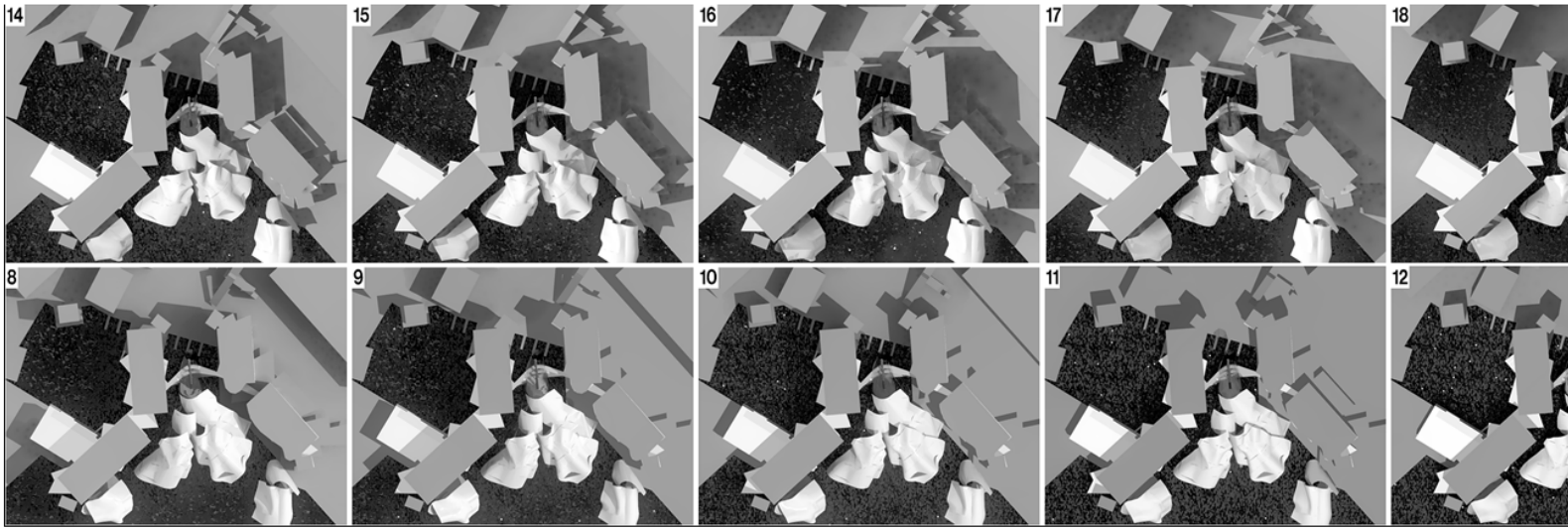
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2005 – RADIANCE Validation + Daylight Stud

Master Thesis (A.

UNIVERSITA' DEGLI STUDI DI PADOVA
Facoltà di Ingegneria
Corso di laurea in Ingegneria Edile

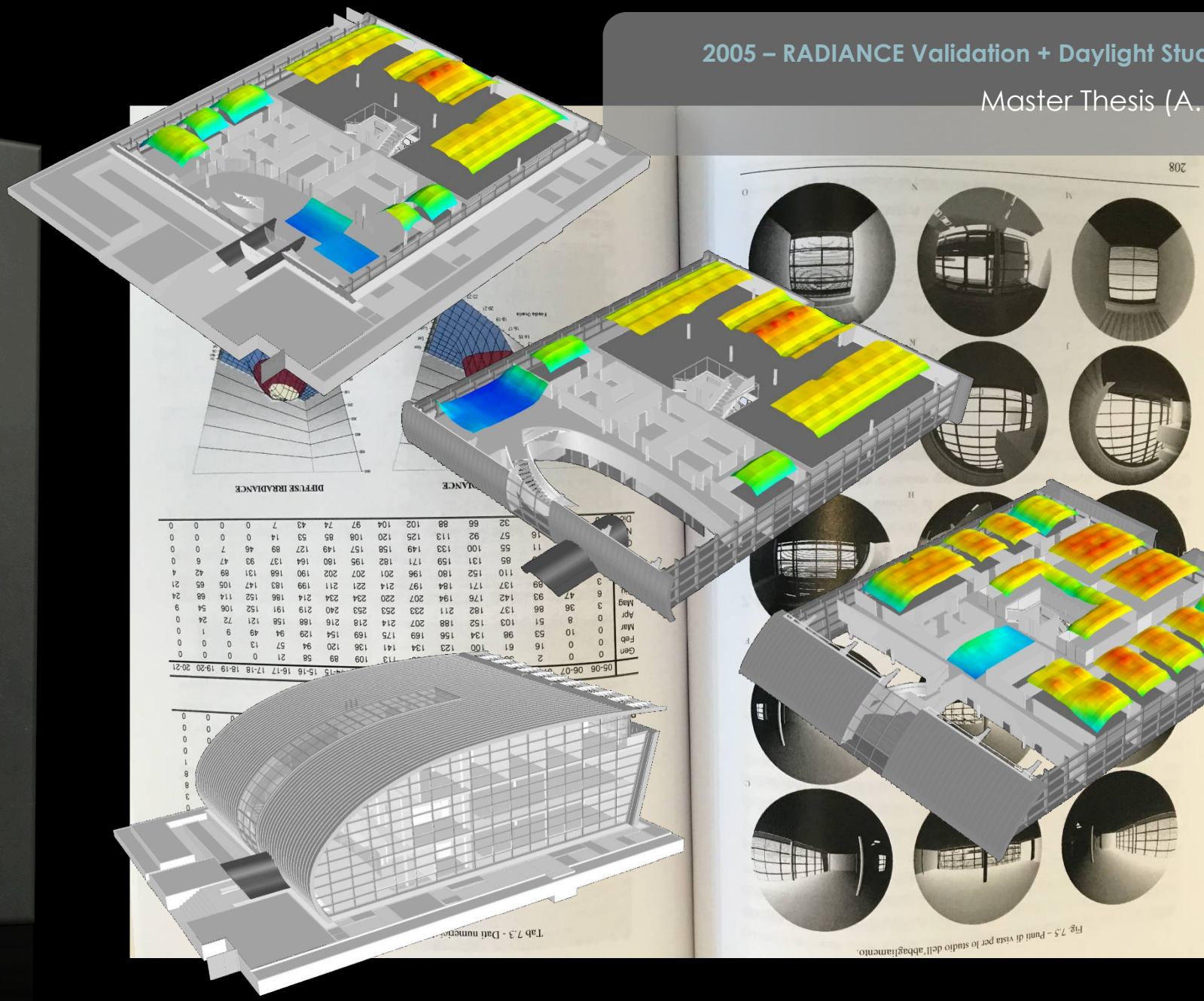
TESI DI LAUREA

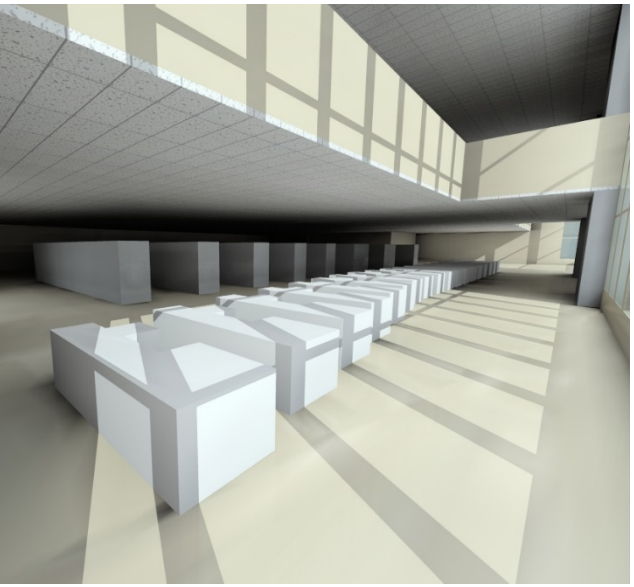
VALUTAZIONE DELLE APPLICAZIONI DI MODELLI NUMERICI ALLO STUDIO DELL'ILLUMINAZIONE ALL'INTERNO DI UN EDIFICIO

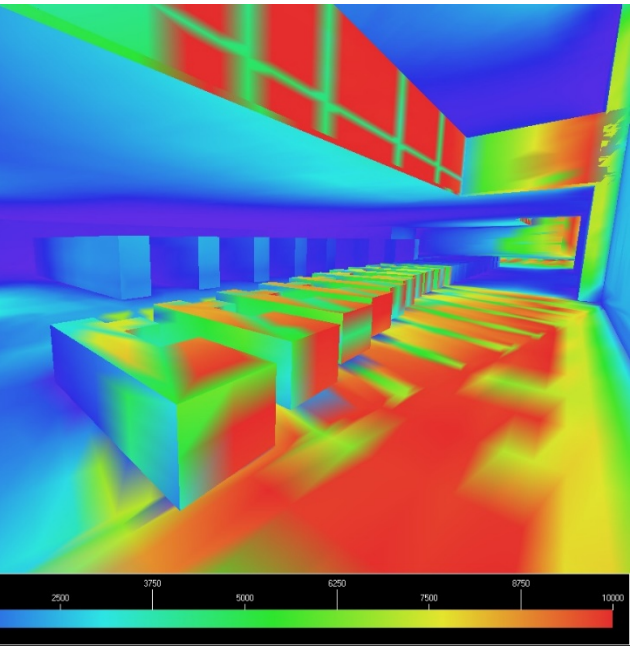
elatore: Ch. mo Prof. R. Zecchin

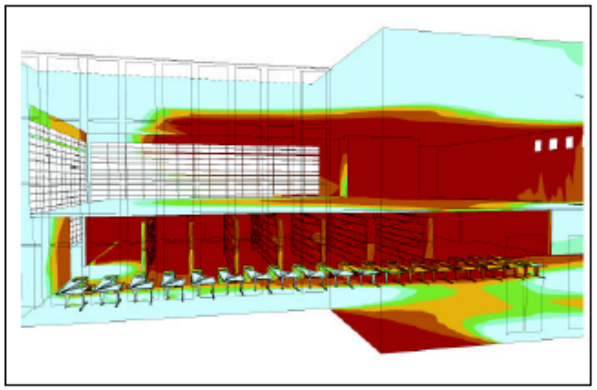
Laureando: Andrea Fornasiero

A.A. 2004-2005

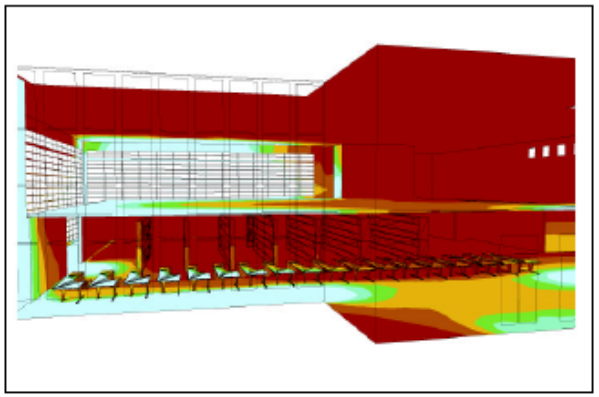








ORE 09:00



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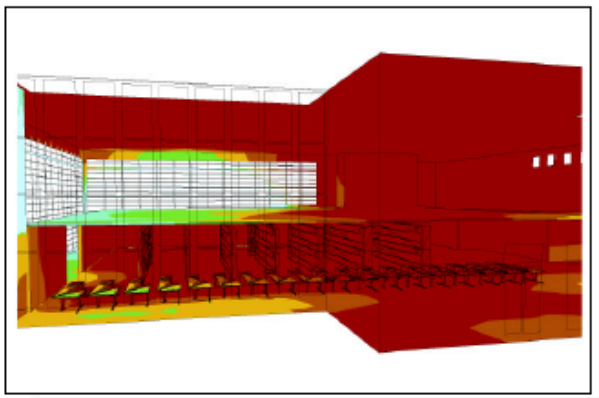

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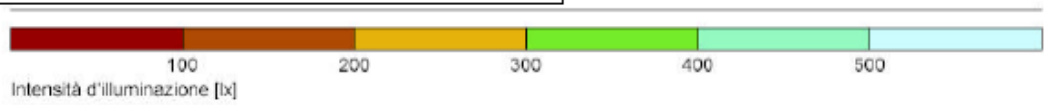

2006 – Daylig

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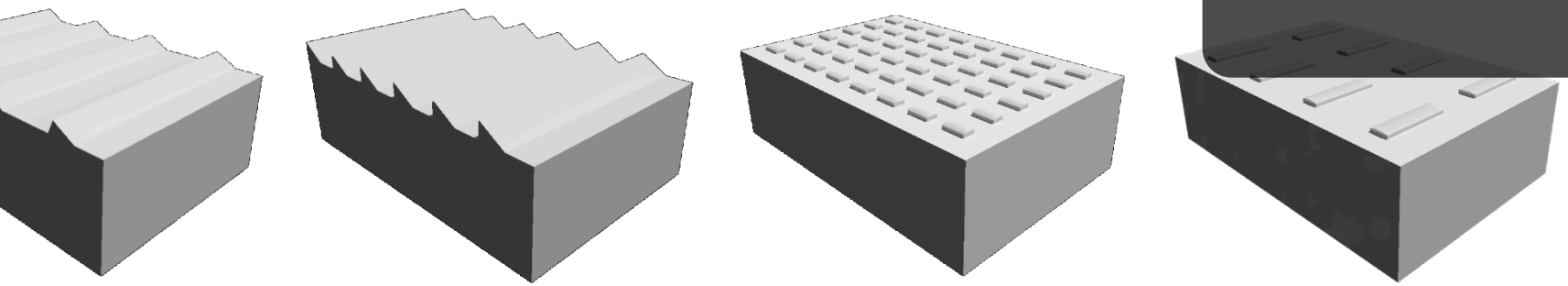
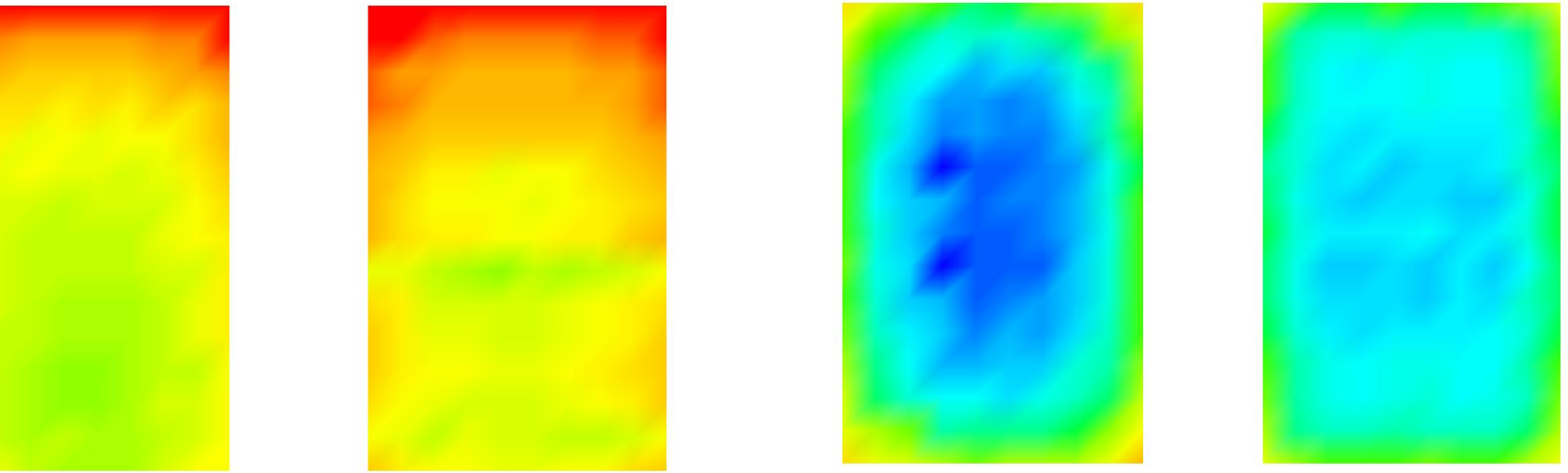
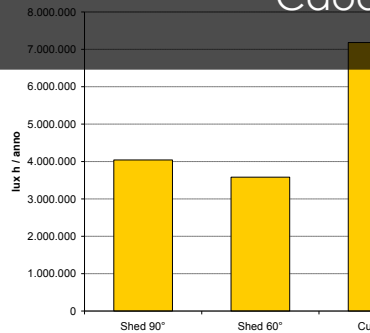
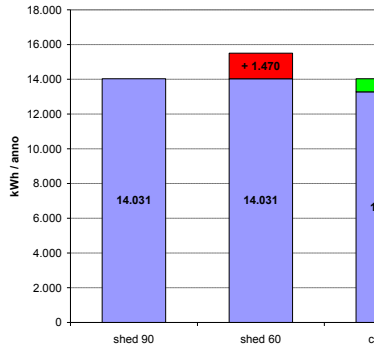
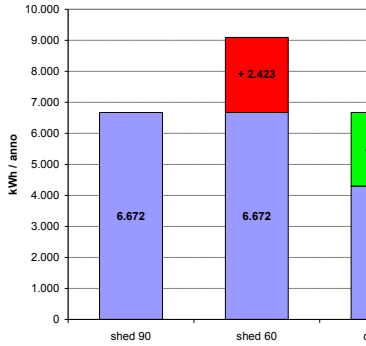




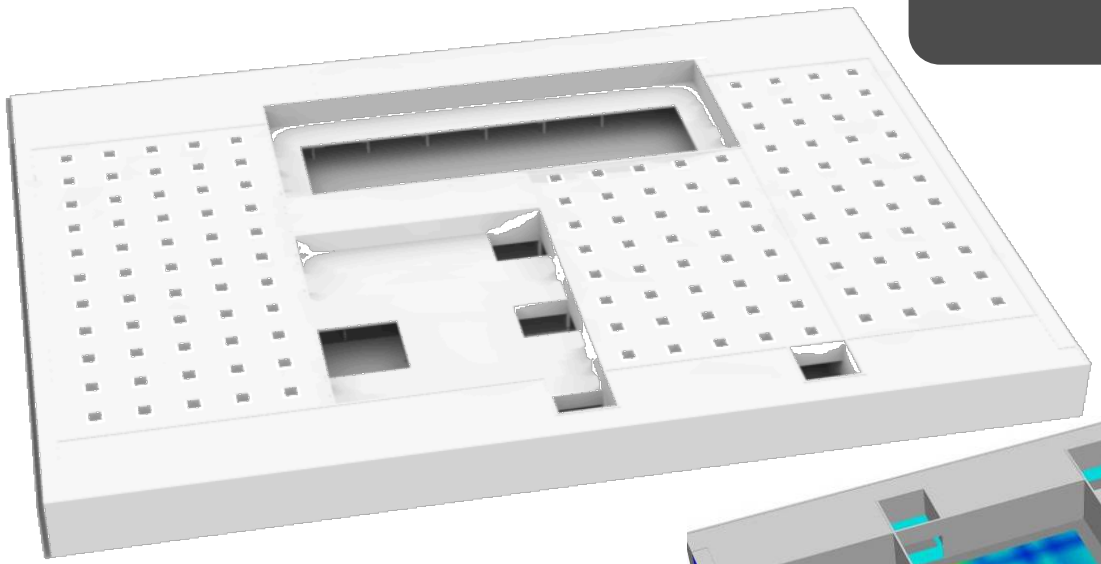


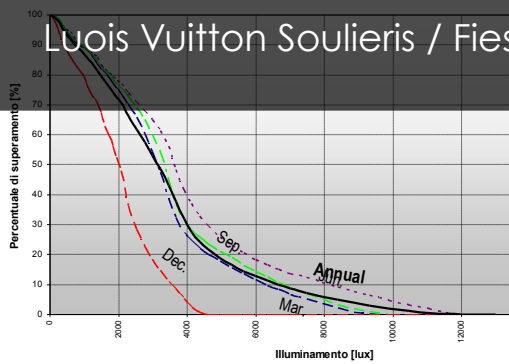


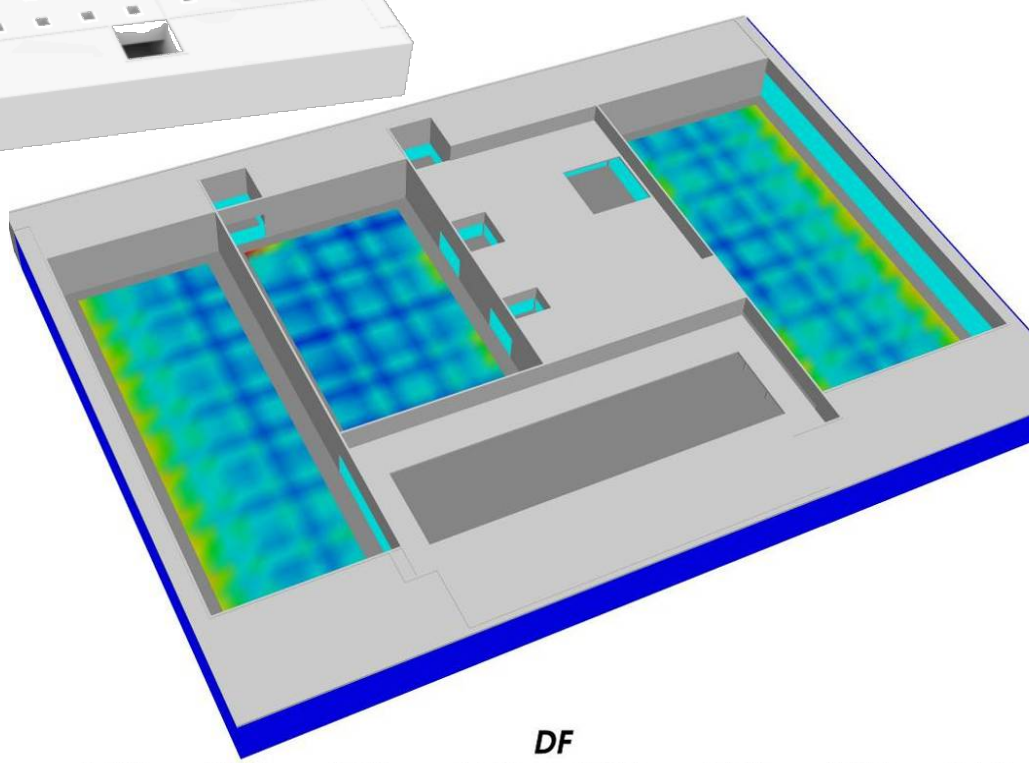


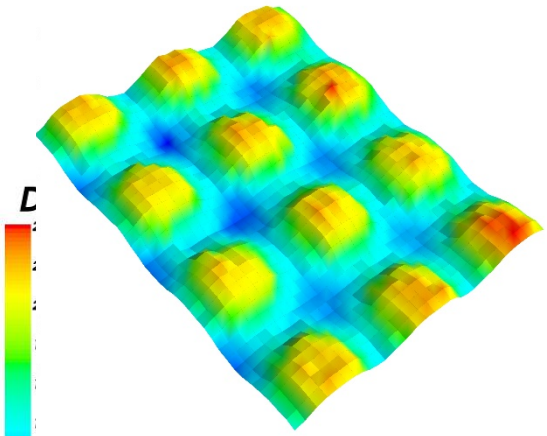
2006 – Daylight, DF, G

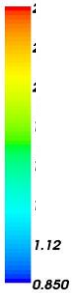
Luois Vuitton Soulieris / Fies





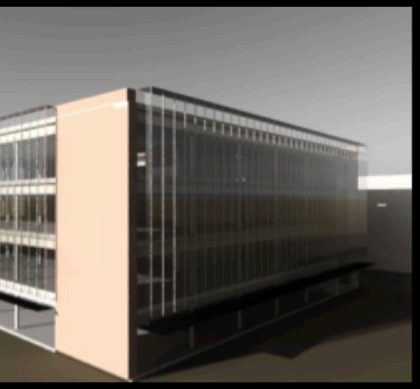


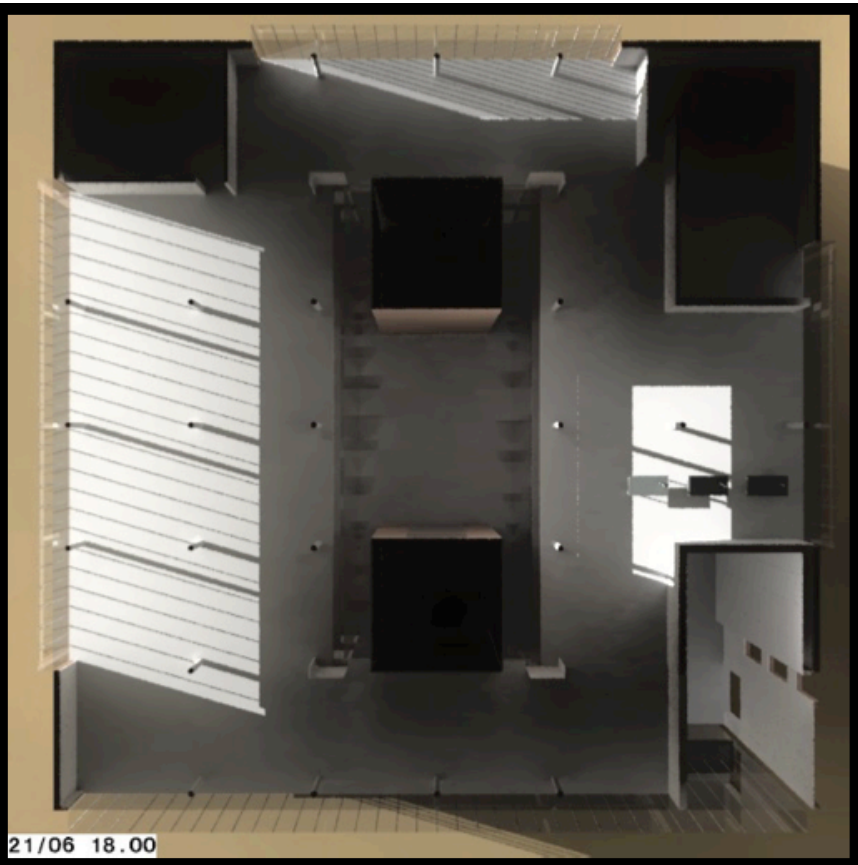




DF

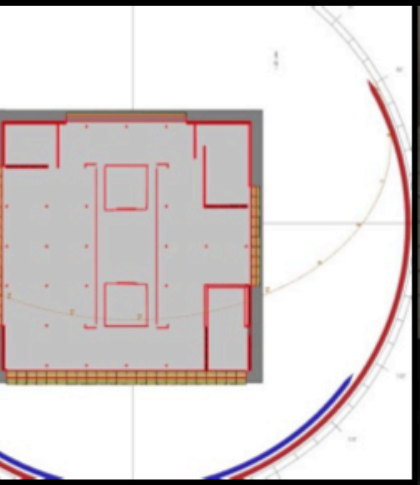
1.70 2.71 3.72 4.73 5.75 6.76 7.77 8.78

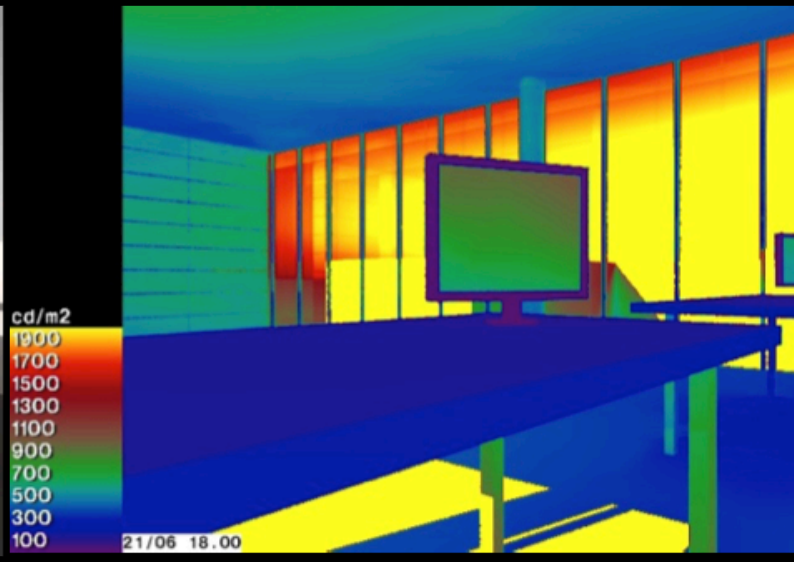


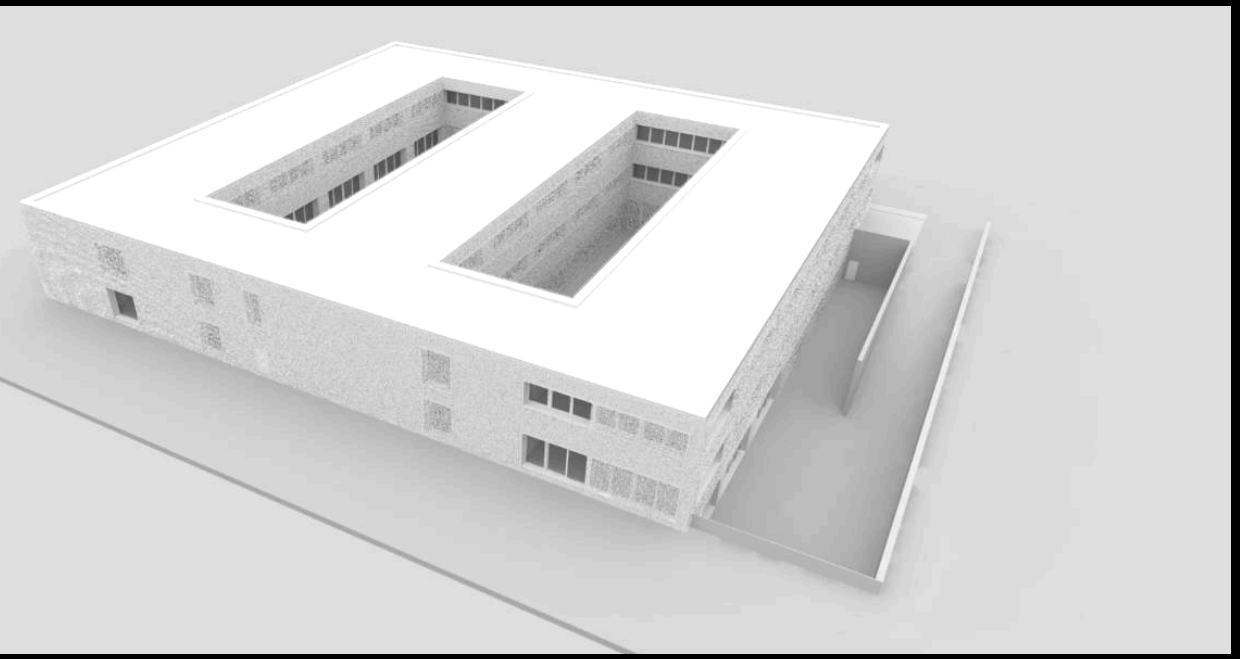


2008 – Envelope and do

iGuzzini new headquarter

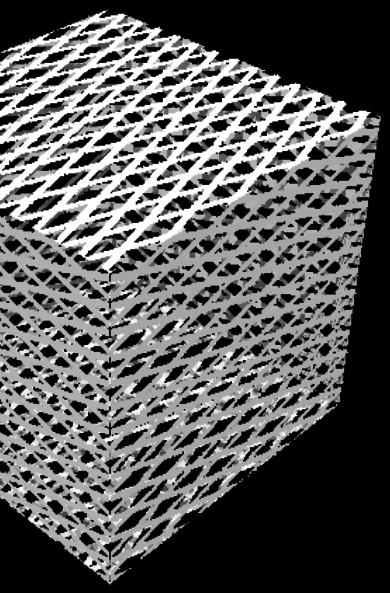


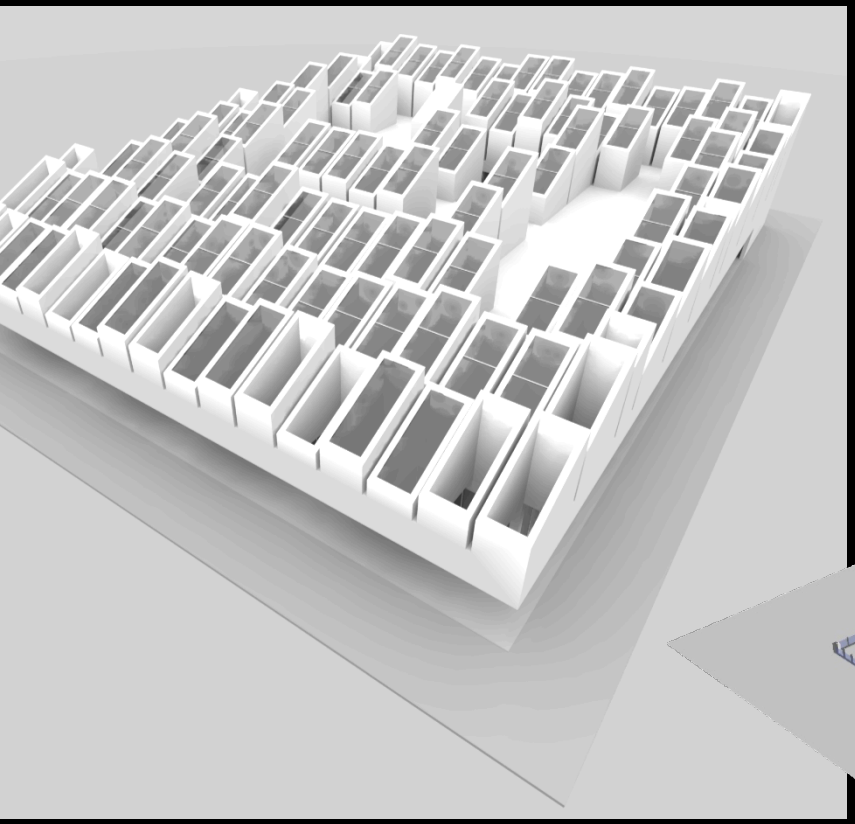




2009 – Daylight, DF, G

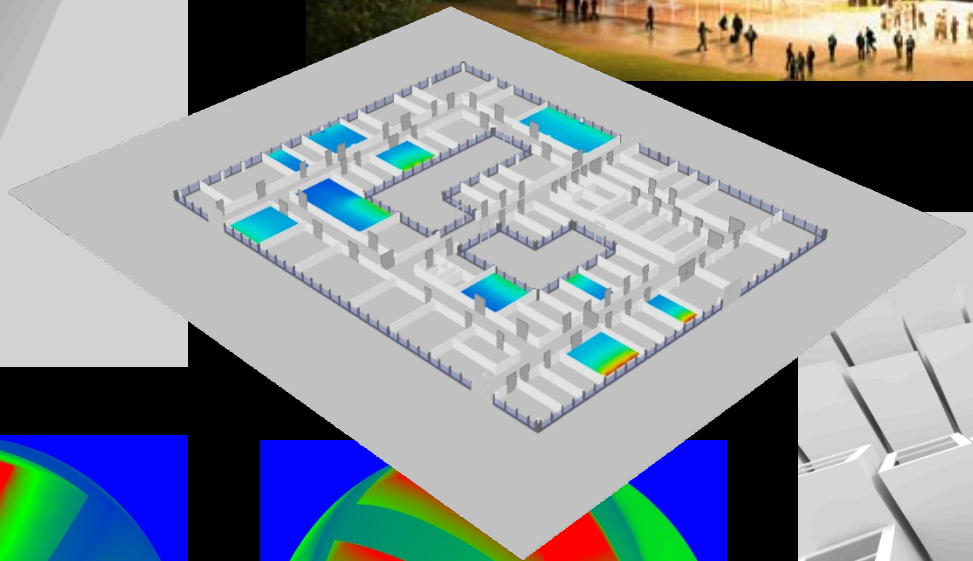
New Building Manfrotto / Bassano D

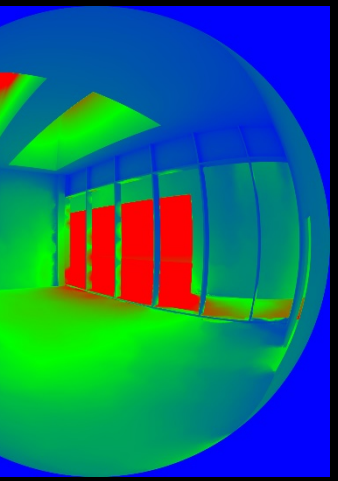


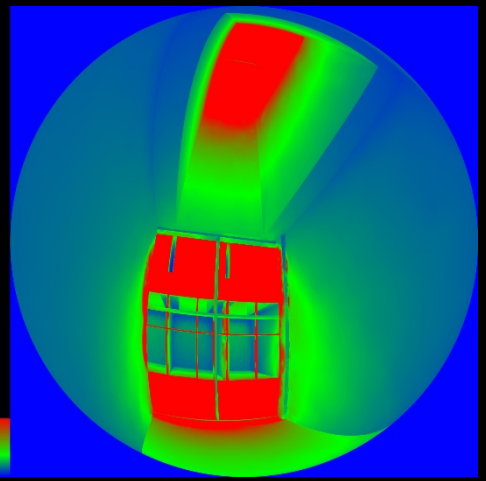


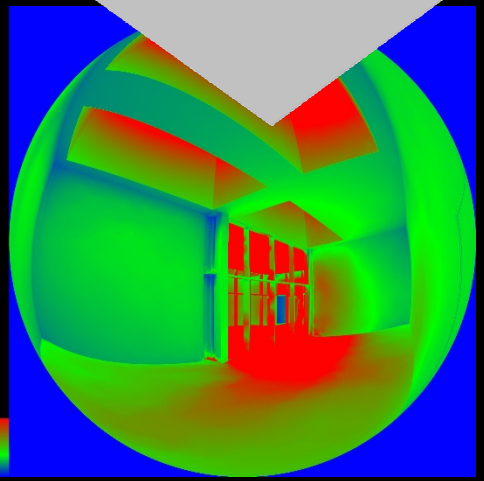
2009 – Daylight, DF, G

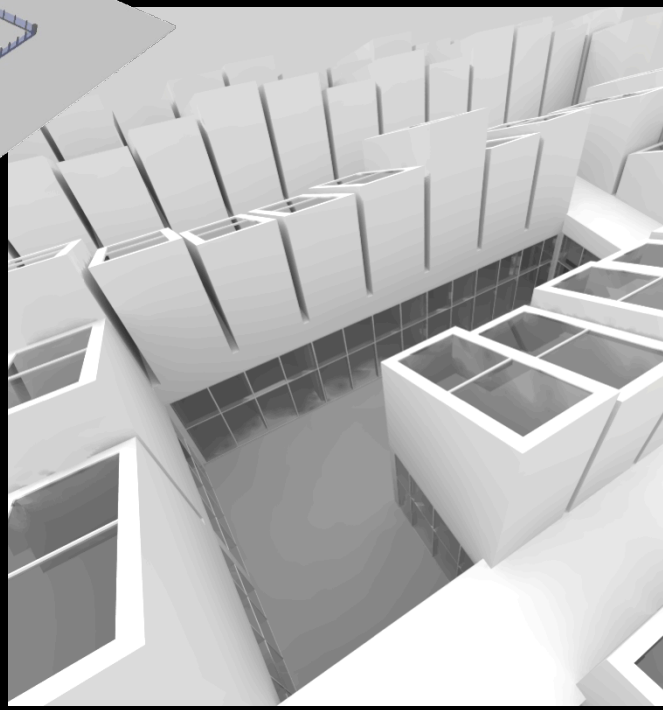
ARPA E

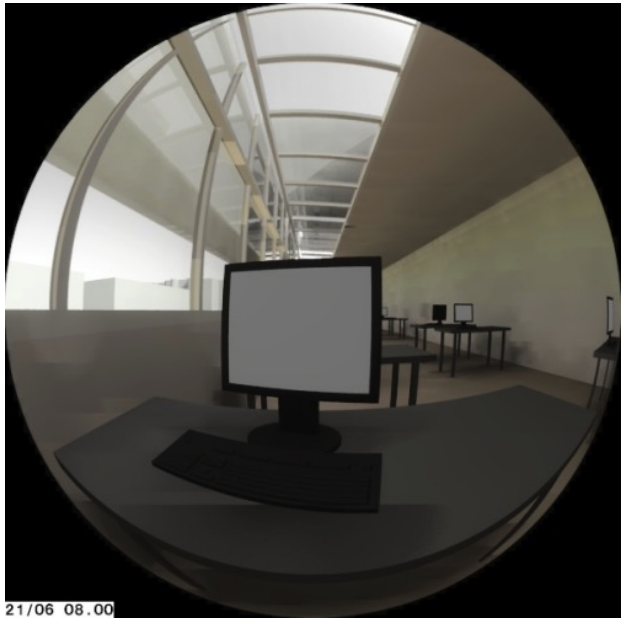
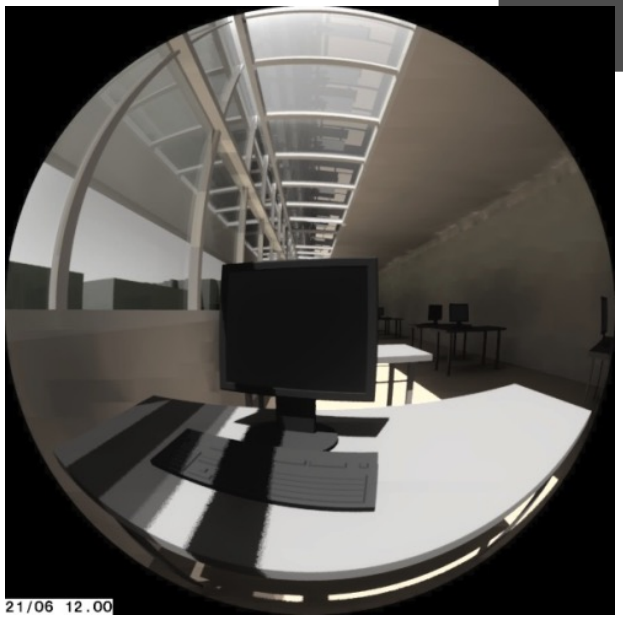
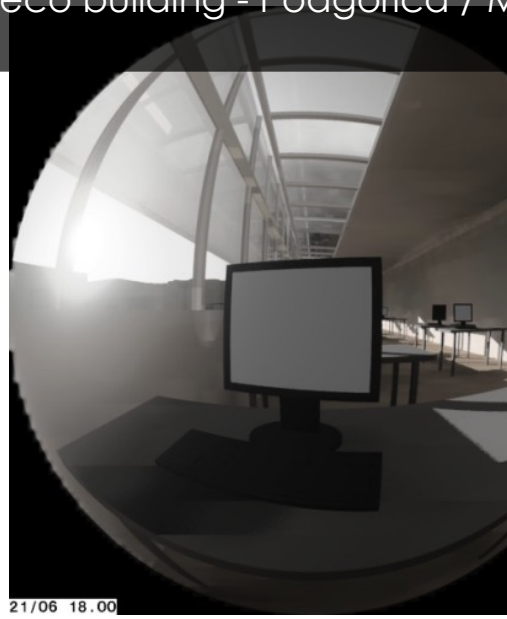
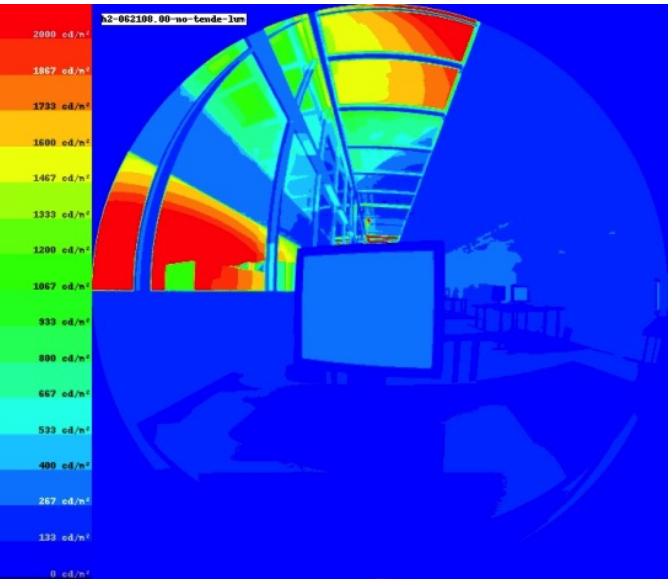
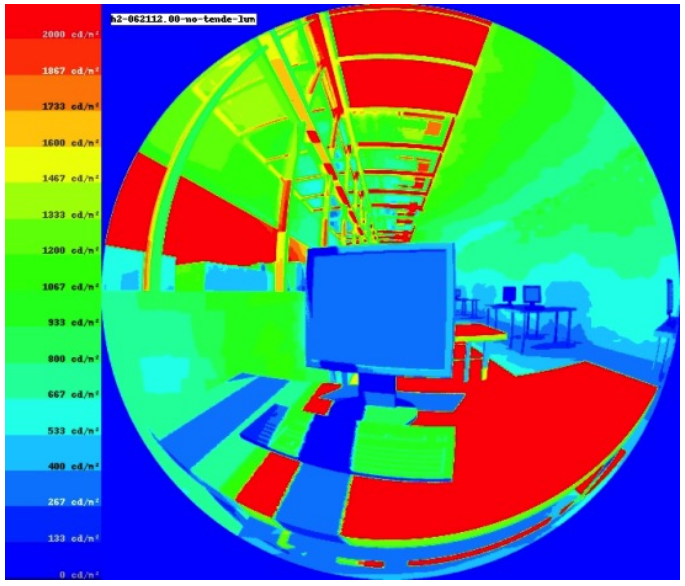
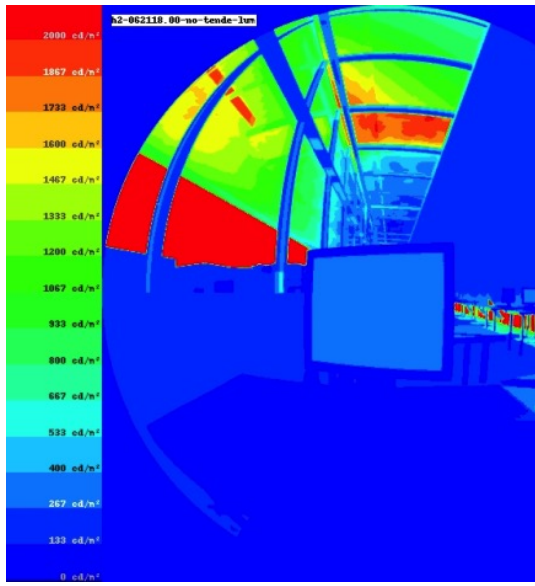






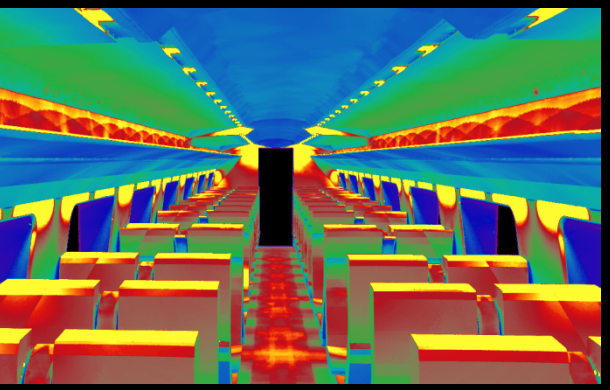


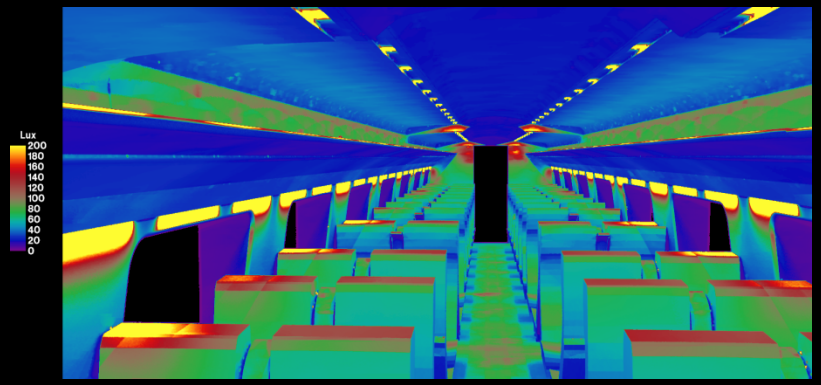


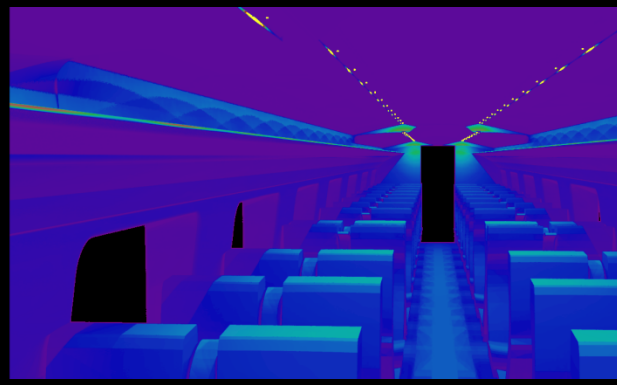
ORE 8:00	ORE 12:00	ORE 18:00
		
		

2012 - New Train Coaches Li

Far System

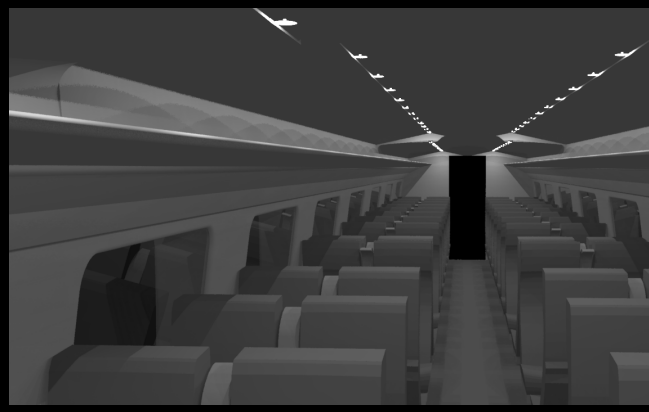




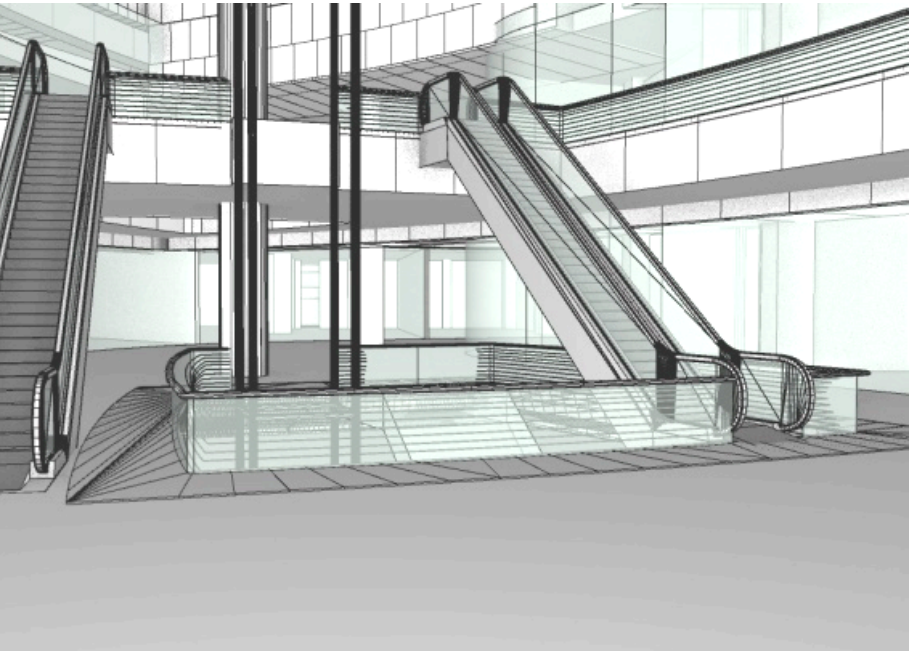


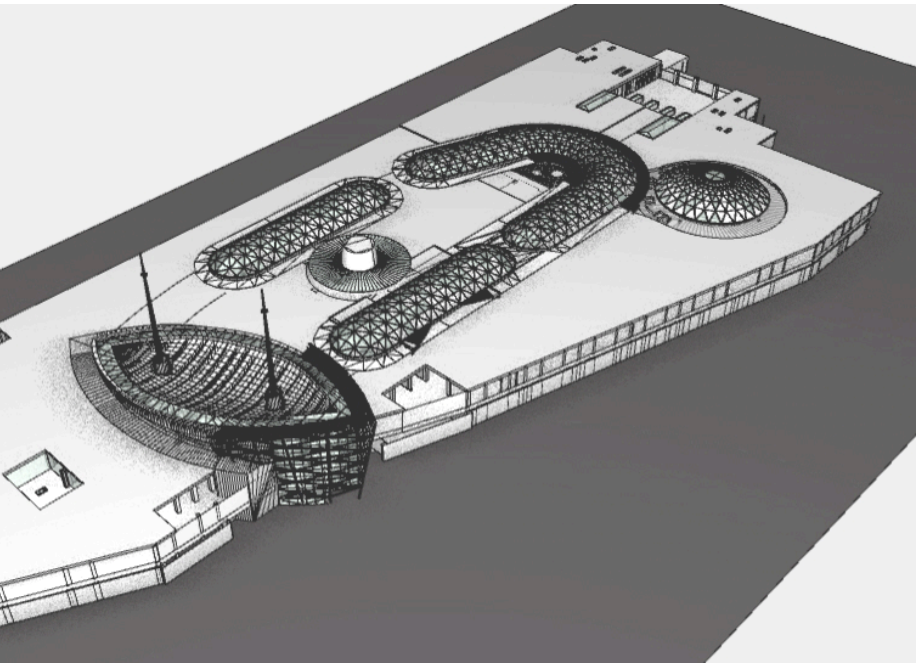
Full Light Mode

Half Light Mode



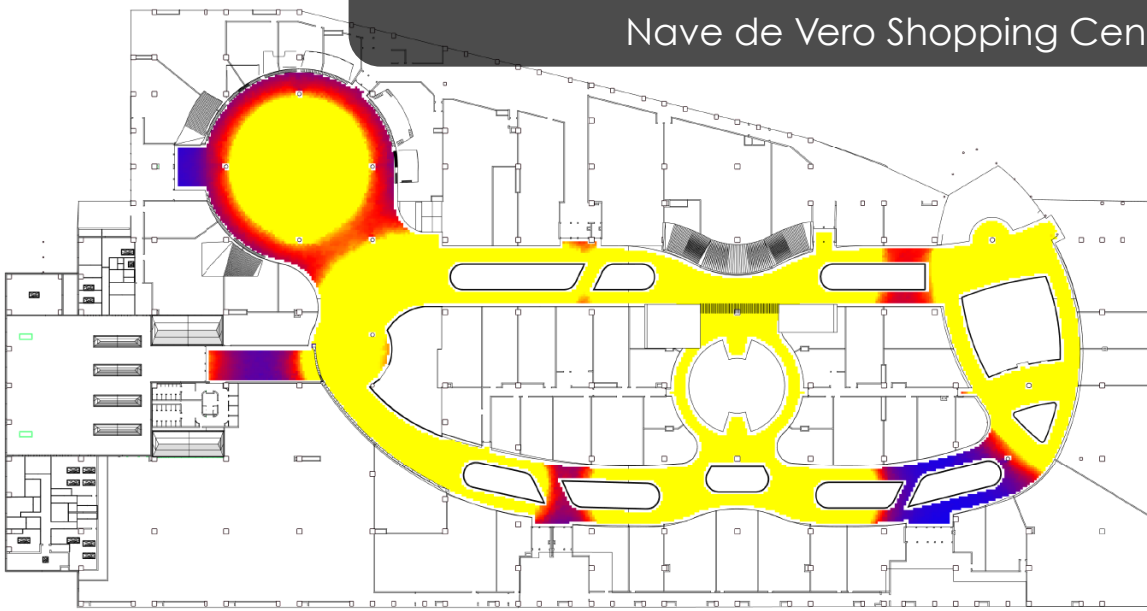
Emergency Light Mod

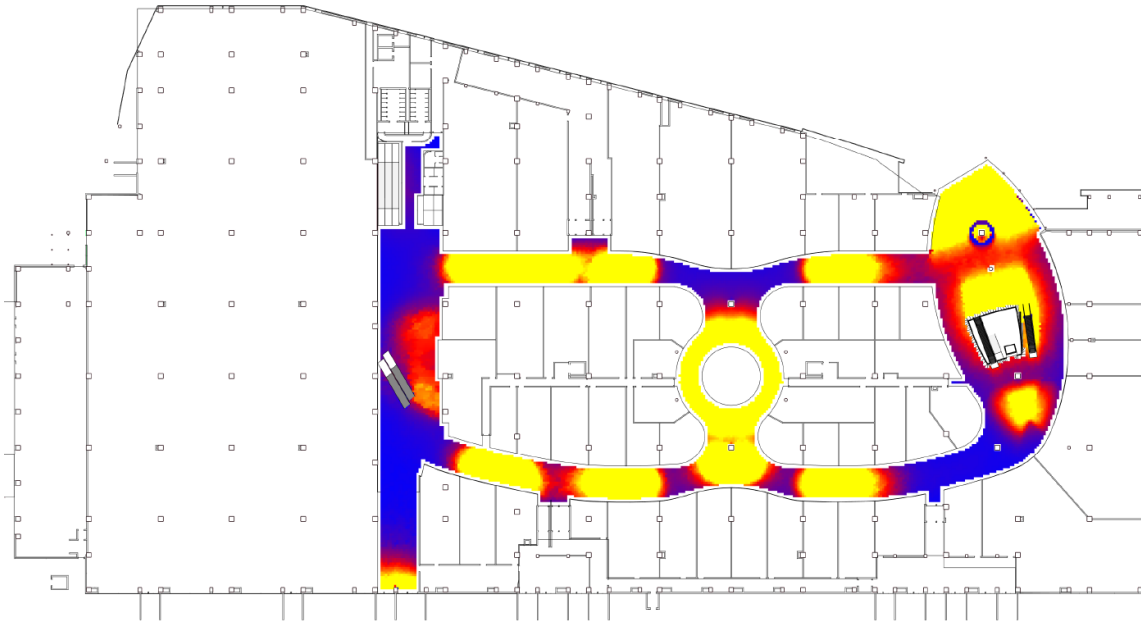




2012 –Bream HEA
(More than 37.000 pts gri

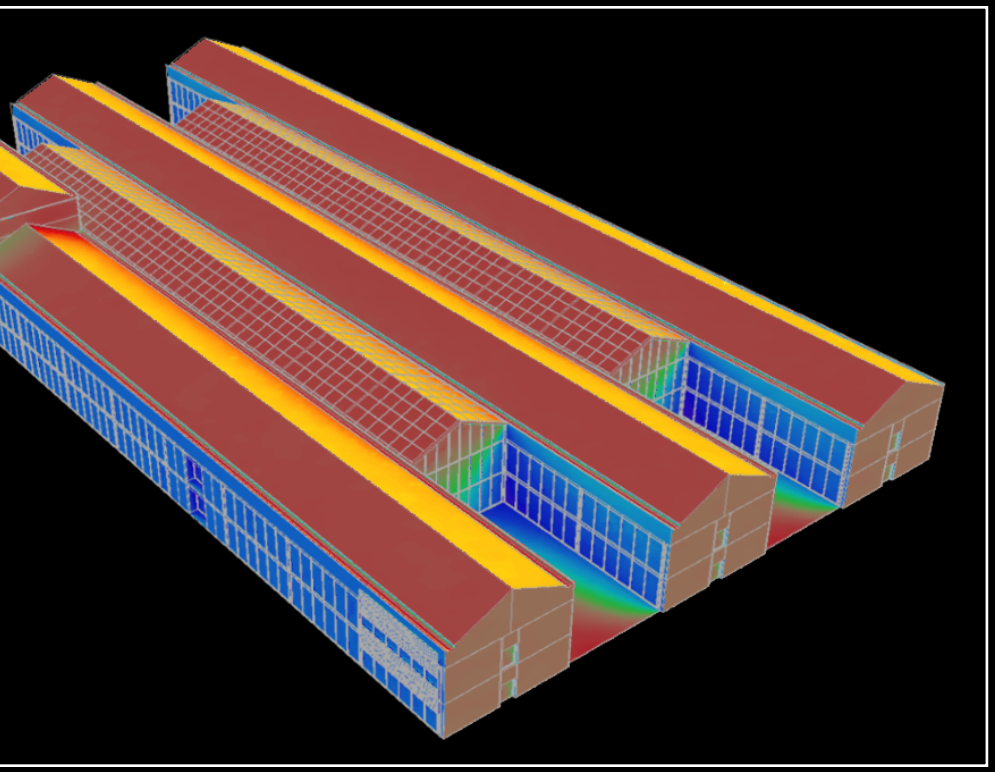
Nave de Vero Shopping Cen





2013 - Solar Radiation and D

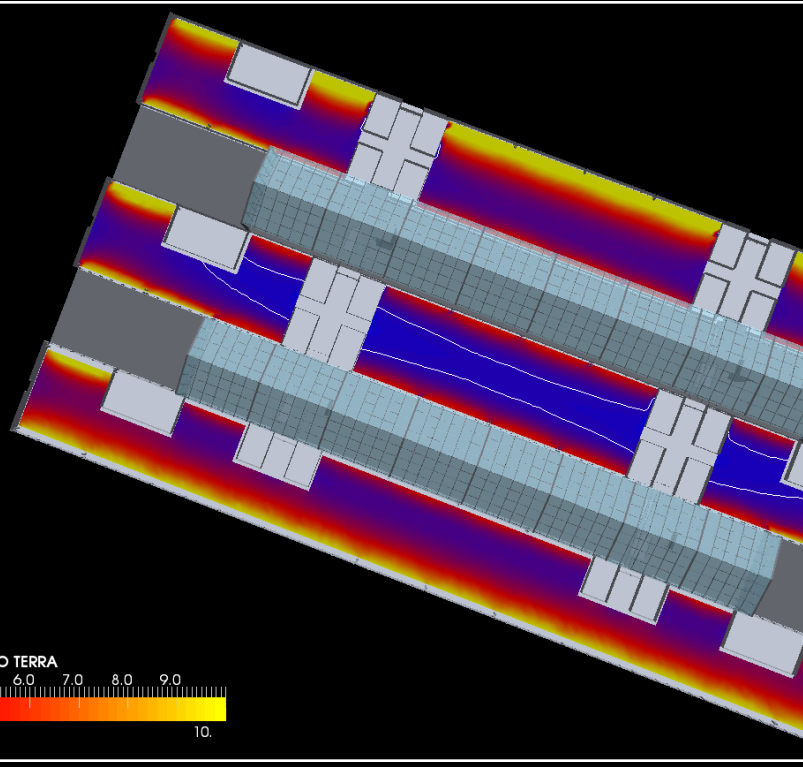
Prysmian Group New Headqua

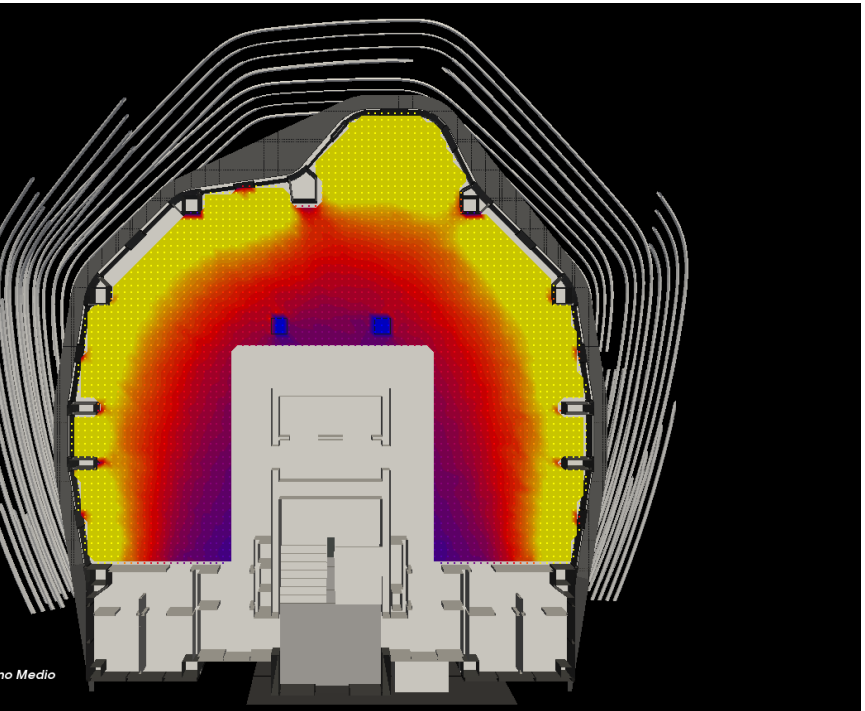


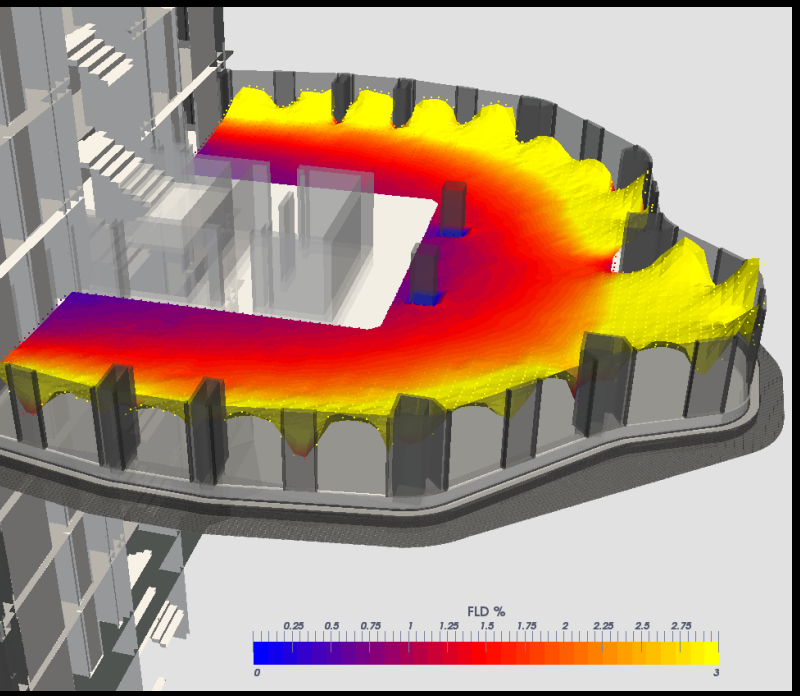
CASO_00 (Riferimento)

1) Indici riflessioni superfici
- Edificio, Pavimento: 50%
- Edificio, pareti interne: 70%
- Edificio, pareti esterne: 35%
- Edificio, controsoffitto: 80%
- Serra, Pavimento: 35%
- Serra, Pareti interne (scale ecc): 50%

2) Trasmittanza luminosa TL
- Edificio, Vetri Esterni: 0.64
- Edificio, Vetri Interni: 0.64
- Serra, Vetri Esterni: 0.64

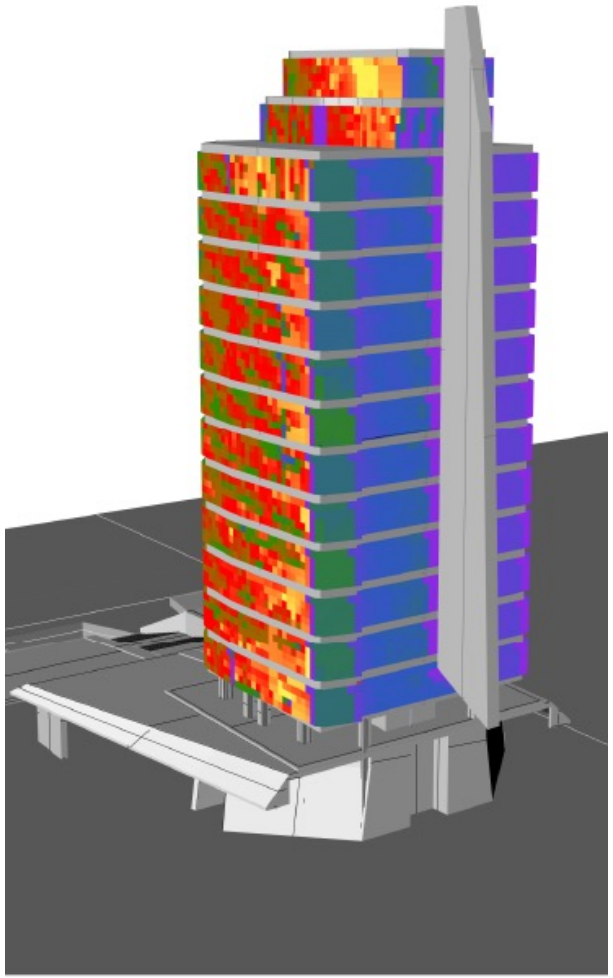


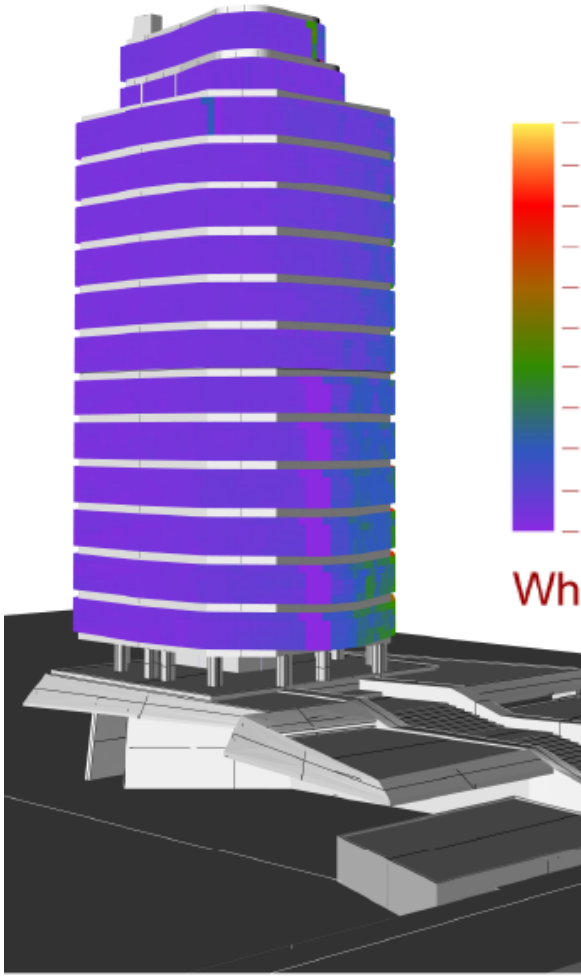




2013 - Solar radiation and D

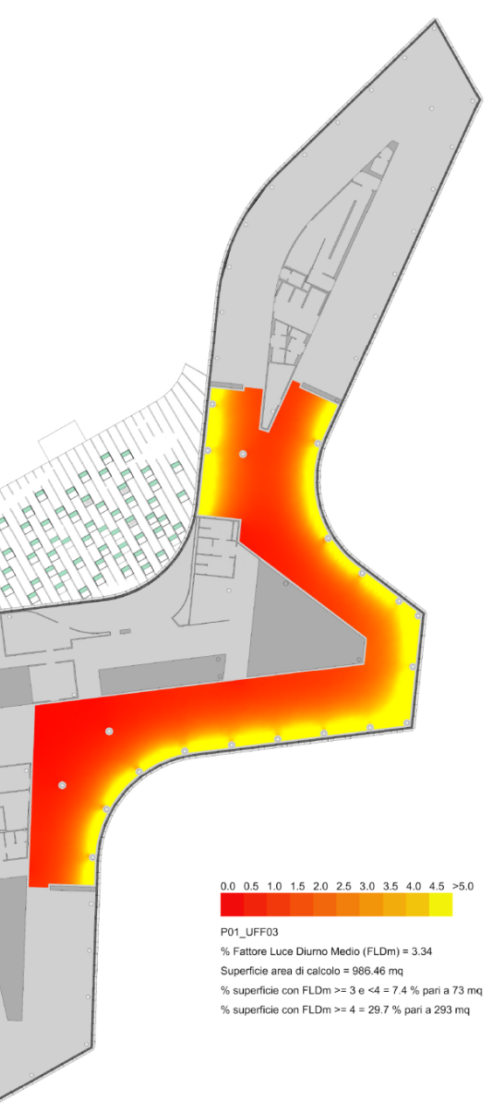
Zucchetti New Headqu

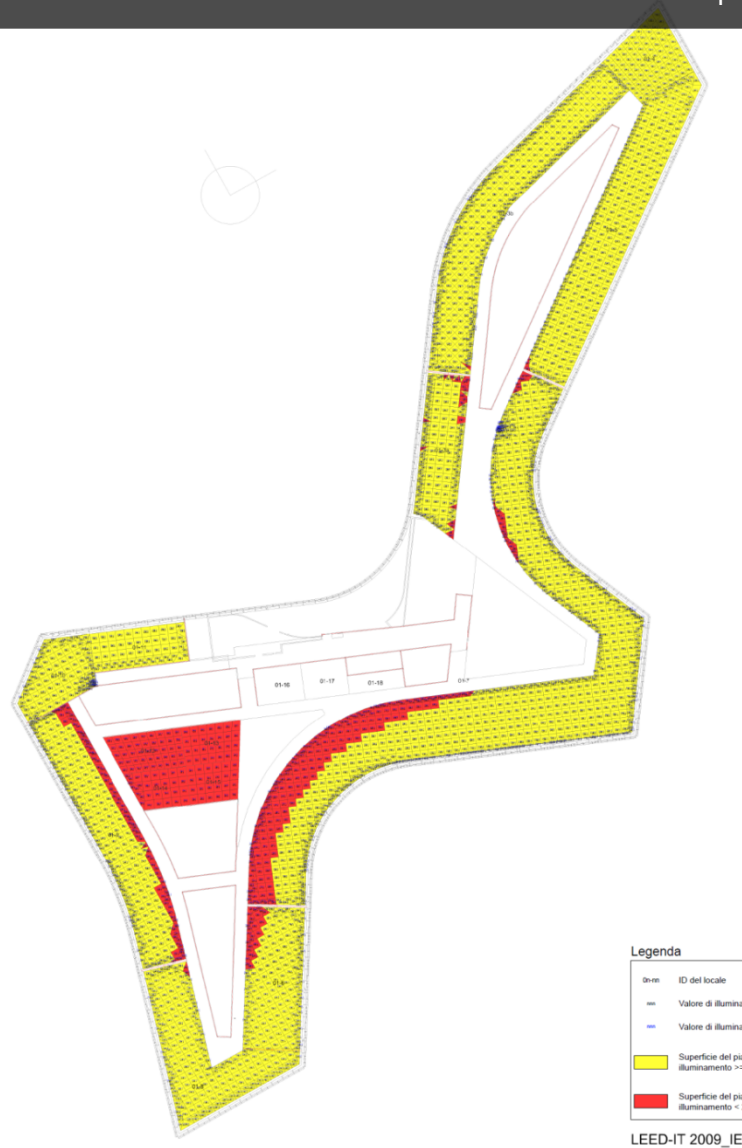




2013/2014 – Day
LEED V3 IEQc8.1 compliance

Lavazza new headqu





2014 – Roller

Lavazza new headqu

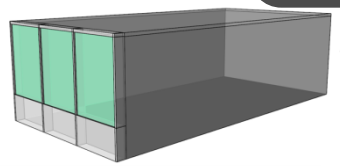


Immagine 3D modulo senza tenda

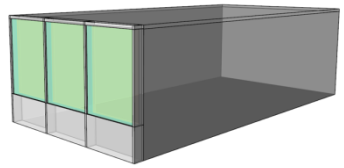
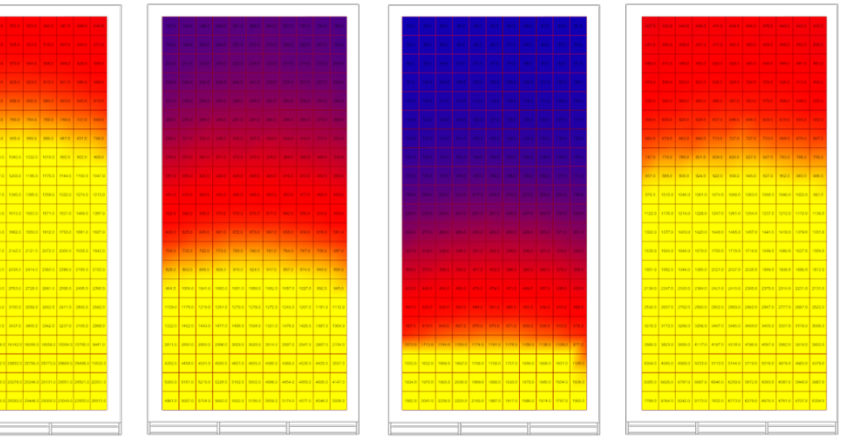


Immagine 3D modulo con tenda

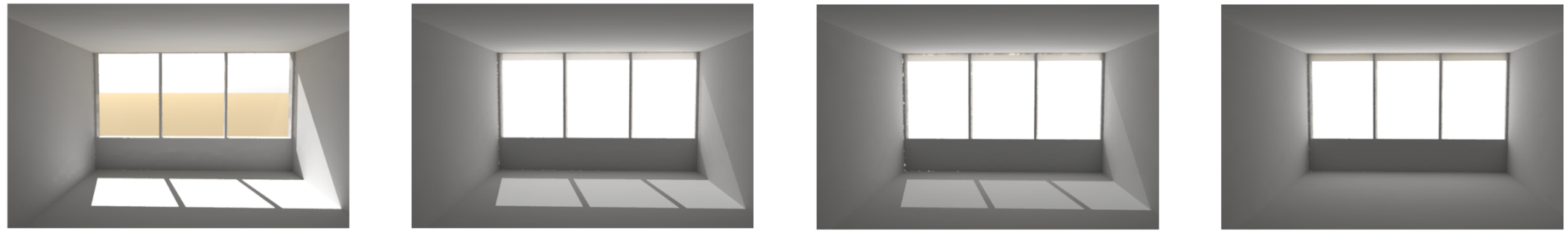
	SCREEN G3	SCR
FATTORE DI APERTURA OPENNESS FACTOR FACTOR DE APERTURA FACTEUR D'OUVERTURE DUIC HLASIGHEITSFAKTOR ПРОСВЕТ	10%	
TRASMISSIONE LUCE VISIBILE VISIBLE TRANSMITTANCE TRANSMISION LUZ VISIBLE PROPAGAÇÃO DE LUMINOSIDADE TRANSMISSION LUMIÈRE VISIBLE LICHTTRANSMISSION ZICHTBARE LICHTTRANSMISSIE ПРОПУСКАНИЕ СОЛНЕЧНОГО СВЕТА	12%	
RIFLESSIONE SOLARE SOLAR REFLECTANCE REFLEXION SOLAR REFLEXÃO DE ENERGIA SOLAR RÉFLEXION SOLAIRE SOLARREFLEXION LICHTREFLECTIE ОТРАЖЕНИЕ СОЛНЕЧНЫХ ЛУЧЕЙ	82%	

OSIZIONE SUD - 21 Marzo ore 12:00



o Vetri | Screen G3 | Screen G5 | Thermotec

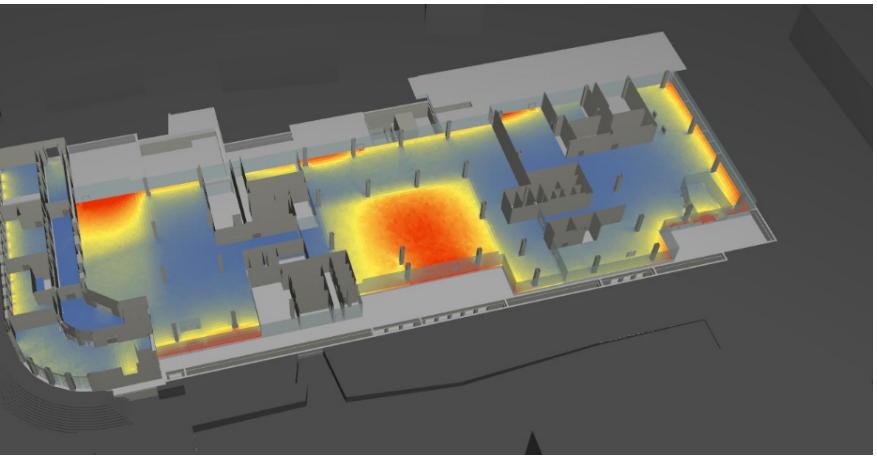
posizione SUD - 21 marzo, ore 12:00

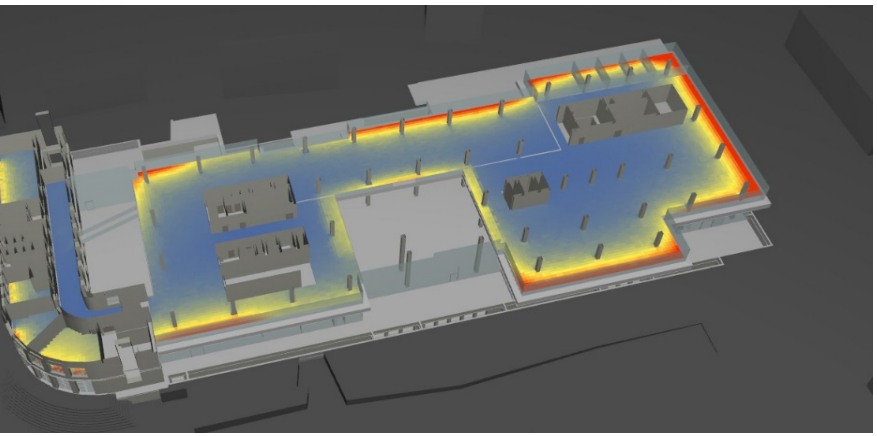


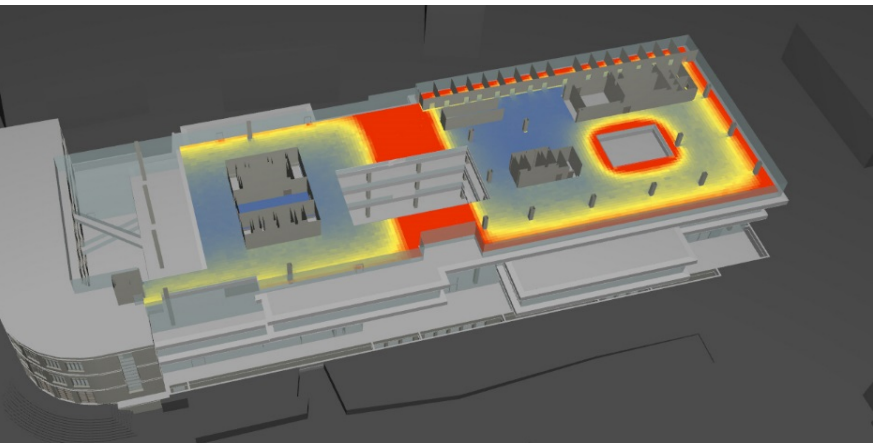
Solo Vetri | Screen G3 | Screen G5 | Thermotec

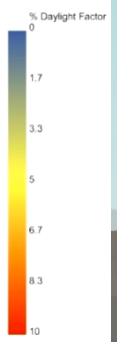
2016 – Daylight, DF, Glare, DA,

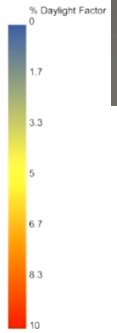
Bibiolteca di Bolzan

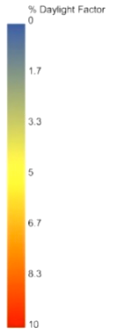


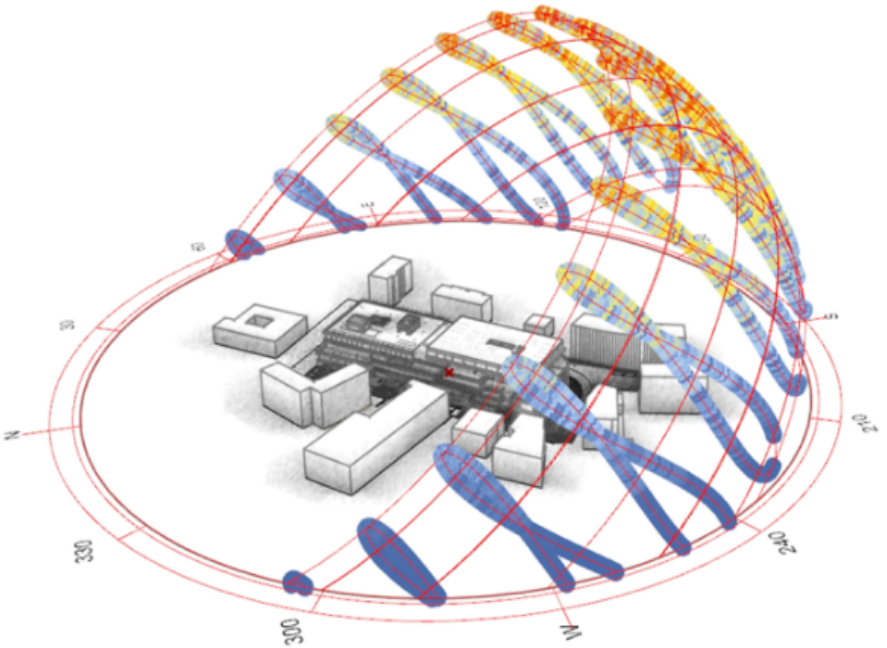


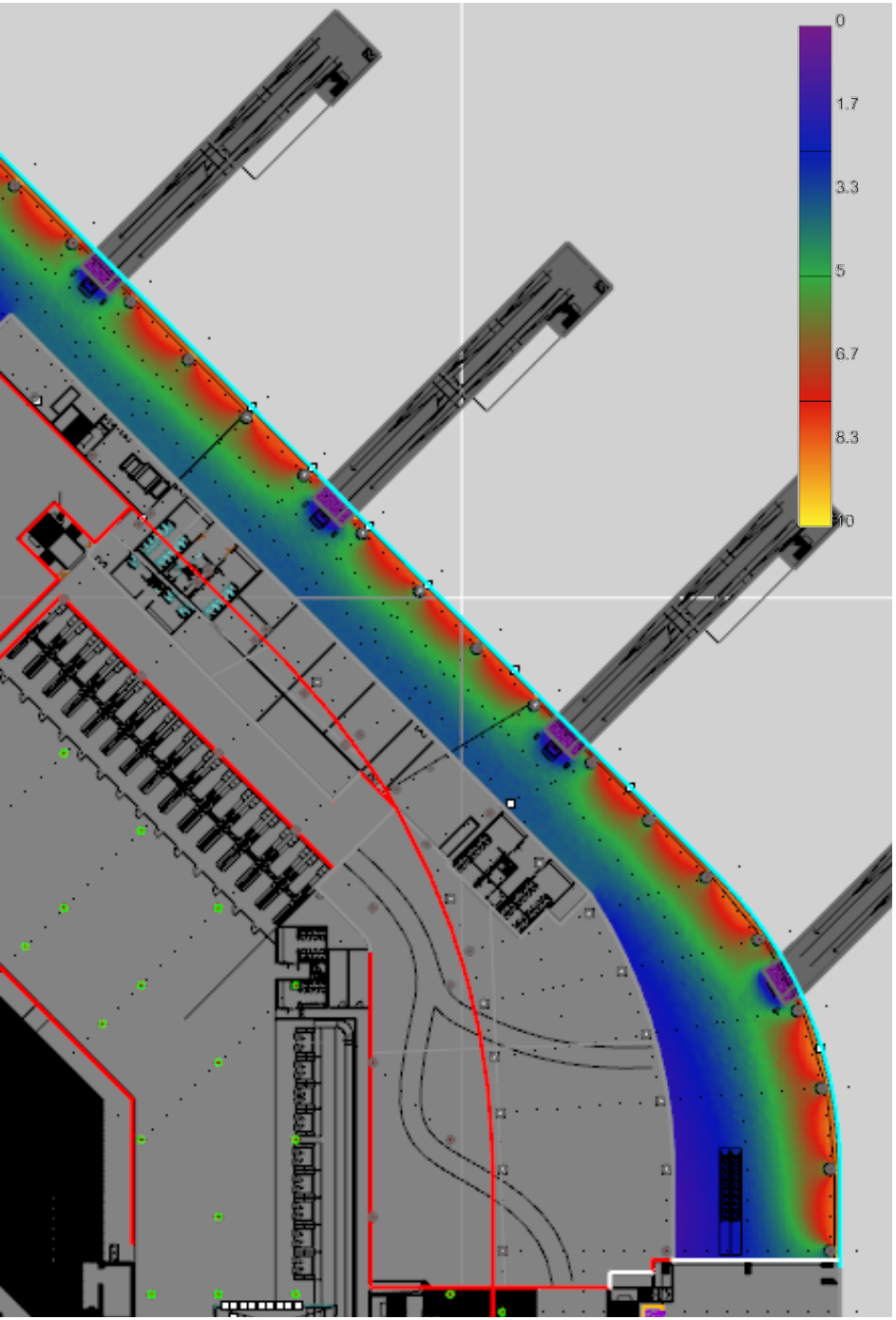








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1.7
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5
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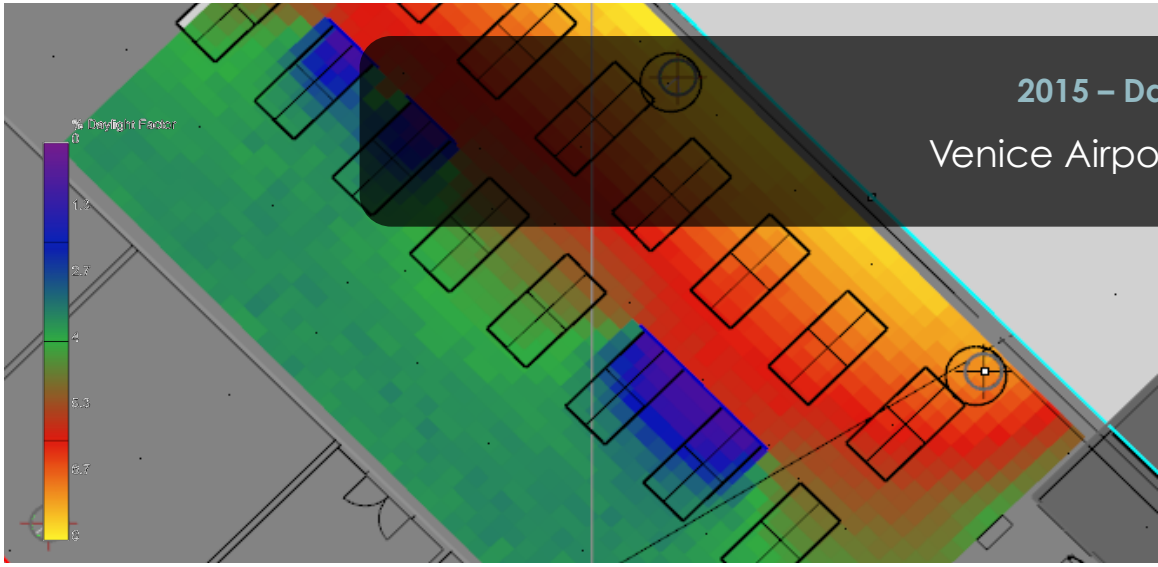
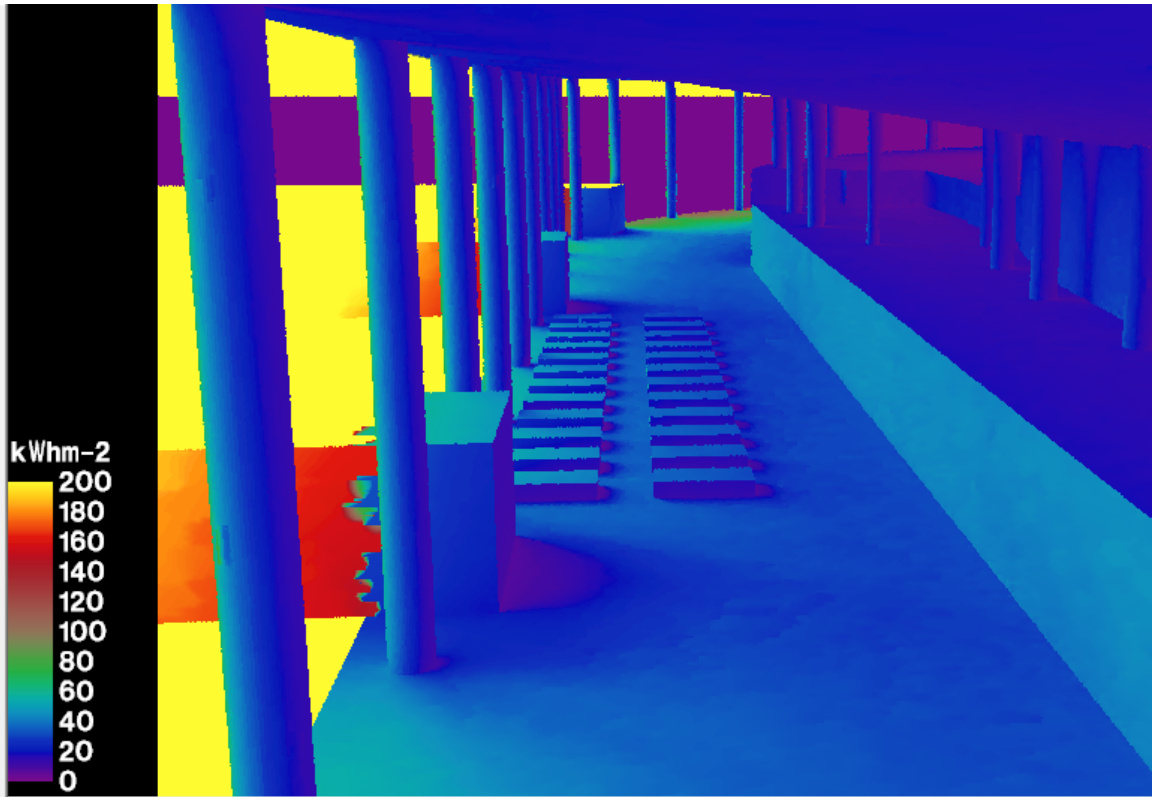
8.3
10


2015 – Do
Venice Airpo


kWhm-2
200
180
160
140
120
100
80
60
40
20
0

Modulo di preiscrizione
da inviare entro il 7 maggio 2012

Corso monografico
Radiance: simulare la luce
Dipartimento di Ingegneria Industriale
Università degli Studi di Padova
7, 8, 9 – 21, 22, 23 giugno 2012

Nome .....

Cognome .....

Indirizzo .....

Città .....

Titolo di studio .....

Ambito di attività .....

Tel. .....

Fax .....

E-mail .....

Si richiede l'iscrizione a
□ Moduli I e II □ Modulo II

Autorizzo il Dipartimento di Ingegneria Industriale dell'Università di Padova ad inserire i miei dati nei loro archivi informatici, nel rispetto di quanto previsto dal Decreto Legislativo n. 196/2003.

Data .....

Firma .....

AND NOW,
TO START……

Manens
INGEGNERI

The workshop Program - Day 1 - Mon, August 29th

9:30 # Registration
0:00 # Introductions/Overview - Roberto Zecchin (Manens-Tifs SpA)
0:35 # What's new in RADIANCE for 2016 - Greg Ward (Anyhere Software)
:55 # Coffe break
:30 # Validation of F-matrix and 6-phase Method - Greg Ward (Anyhere Software), Eleanor Lee (LBNL)
:30 # Out-of-Core Photon Mapping: When More Isn't Enough - Carsten Bauer [on behalf of Roland Schregle]
:05 # The Sunlight Beam Index A Simple Method to Rate Windows and Shading Systems - John Mardaljevic (Loughbor
ty)
2:40 # Validation of the Radiance 5-Phase-Method against field measurements - David Geisler-Moroder (Bartenbach Gm
:40 # Lunch
4:15 # EvalDRC a new, versatile frontend for climate-based daylight assessment - Carsten Bauer (Radzilla)
:50 # Evalglare 2.0: New features, faster and more robust HDR-image evaluation - Jan Weinold (Ecole Polytechnique Fé
anne)
5:25 # An expression of three-dimensional distribution of light in architecture with photon flows - Nozomu Yoshizawa (
ty of Science)
:45 # Coffe break
6:20 # Terrestrial Light's Skyometer: Leveraging real-time, temporal and spatial HDR sky-maps for building automation
- Andy McNeil (Terrestrial Light) [on behalf of Chris Humann]
6:55 # Using radiance to design a low cost prismatic stationary concentrator for photovoltaic modules - Khaled Nassar (
n University in Cairo)
8:00 # Research of the modeling and measuring of solar shadings with very peculiar behavior - Lars Grobe (Ismir Institu
ogy), Giuseppe De Michele (EURAC), Luca Papaiz (Pellini Industrie)

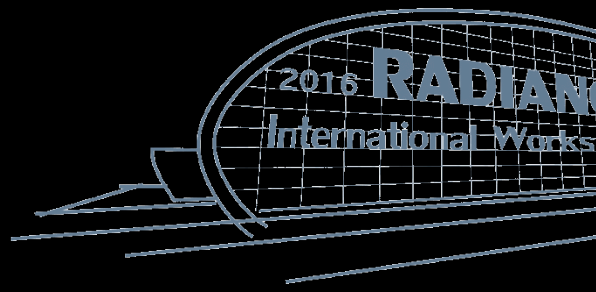
The Workshop Program - Day 2 - Tue, August 30th

- 09:35 # Dynamic Visualization of Annual Building Simulation Data - Alen Mahic (University of Oregon)
- 10:10 # Daylight in Heritage Spaces - A Combined CBDM and HDR Project - John Mardaljevic (Loughborough University)
10:45 # Inter-model comparison of CBDM techniques - Eleonora Brembilla (Loughborough University)
11:05 # Coffe break
11:40 # Online survey on CBDM workflows - Eleonora Brembilla (Loughborough University)
12:15 # Rendering omni-directional stereo images with Radiance - Andy McNeil (Independent daylight consultant)
12:50 # Immersive scenes with Radiance in a Virtual Reality Headset: comparison of virtual and real environments - Kynthia
othori (Ecole Polytechnique Fédérale de Lausanne)
13:50 # Lunch
14:25 # Blender for Radiance images processing and results visualization - Lucio Boscolo Mezzopan (Far System)
15:00 # Radzilla 2.0 - Carsten Bauer (Radzilla)
15:35 # iPhone app (Aftab Luminance) - Miri Majid (SWECO AB)
16:10 # Artlight 2.0 – an optimized TRNSYS-model for coupled thermal and daylight simulation based on the three-phase-m
Geisler-Moroder - Hauer Martin (University of Innsbruck)
16:30 # Coffe break
17:05 # Analysis of a light shaft with variable reflectance - Santiago Torres (Arup)
17:40 # A web-based simulation platform for the energy, daylight and glare evaluation of fenestration systems - Bruno Bue
hofer ISE)
18:15 # Automating radiance workflows using Python [webconference] - Mostapha Sadeghipour Roudsari, Sarith Subrama
State University)
19:00 # Shuttle to Padova downtown & Aperitivo
Workshop Dinner

The Workshop Program - Day 3 - Wed, August 31st

- 09:35 # Comparison of BSDF data generated by a virtual and a real goniophotometer (PG2) - Andreas Noback (TU Darmst
- 10:10 # Application of a spectral sky in Radiance for daylighting calculations including non-image-forming light effects - Pa
emagha (Eindhoven University)
- 10:45 # Ensure the Visual comfort and Thermal comfort of the occupants in an office space by maximizing the Utilization o
ht using Electrochromic glass - Raghuram Kalyanam (Technische Universitaet Kaiserslautern)
- 11:05 # Coffe break
- 12:35 # Q&A - Open discussion
- 13:35 # Lunch

nd, to finish, some food for thought ,
he blackboard:



ould the use of software tools (just to say: Radianc
ncreased in the design of buildings ?

so, how can this be achieved? Better links with
fication Systems.?....

e the user interfaces easy enough to promote the us
DIANCE (by reducing the man-time required), but
ugh fool -proof to avoid misuse (and consequent
takes)?

e criteria and expedients for validation
surements enough developed?

SOME ANNOUNCEMENTS

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huttle service *is provided to participants housed in Padova city. Those who have changed accomo*
r not yet communicated are kindly requested to report to the organizing team

shop room WiFi: *A WiFi connection is available to participants.*

: 2016RadianceWS_WIFI
: radiance2016

les of the presentations must be handled to the organizers before the start of any session *for*
ding. You are kindly requested to submit any requirements to the organizers. Presentation format

shop Dinner *- in the evening of Tuesday 30th, we shall reach Padova city centre, by shuttle bus leav*
ly at the end of the session from the workshop site.

oking corner" is outside the building, at the top of the entrance stairs, near the ashtray (!)

is a toilet at this floor, just outside this room, on the right, and one at ground floor, in the main lob
sible during lunch time.

Some Announcements

estream is available for those who need to repeat the screen on their laptop: please contact ea or Giorgio

rture. *At the end of the workshop you can go back via our shuttle service to your nmodation or the city centre or the railway station or the bus station, both suitable also for ing the airport, or you can book an "Air Service" shuttle (about 35 €) to reach directly the rt.*

and Assistance. *Should you need any help, info or assistance, do not hesitate to contact us at ellular phone number:*

- ***Silvia Discoto: +39.347.158.05.93***
- ***Roberto Zecchin: +39.348.409.58.88.***
- ***Andrea Fornasiero: +39.349.1767.245***
- ***Giorgio Butturini: +39.338.192.73.96***

AND NOW . . . IT'S UP TO YOU!

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Thanks for your attention

15th International RADIANCE Workshop
September 2016, 29th-31° - Manens-Tifs – Padova - Italy