



POLITECNICO DI MILANO



POLO TERRITORIALE
DI MANTOVA



ZEBSS
Zero Energy Buildings
Summer School



Architettura, Energia e Ambiente

L'eccellenza italiana

Gualini Group

Involucri edilizi ad alte prestazioni

1 settembre 2016 - Mantova



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AGENDA

- Gualini Group: A solid background
- Stadium Project
 - Allianz Riviera – Nice Ecostadium
 - Arena 92 - Paris



Gualini S.p.A. Headquarter | Costa di Mezzate, Bergamo | Italy



Gualini Group

Gualini's factory

- 12.000 _{sqm} fully covered
- Daily Production:
 - 150 _{sqm} - Curtain Wall
 - 150 _{sqm} - Door & Window frames
 - 200 _{sqm} - Ventilated Facades

GUALINI®

A great overview.

Main References

Building envelope:

- Curtain walling
- Door and window frames
- Ventilated façades

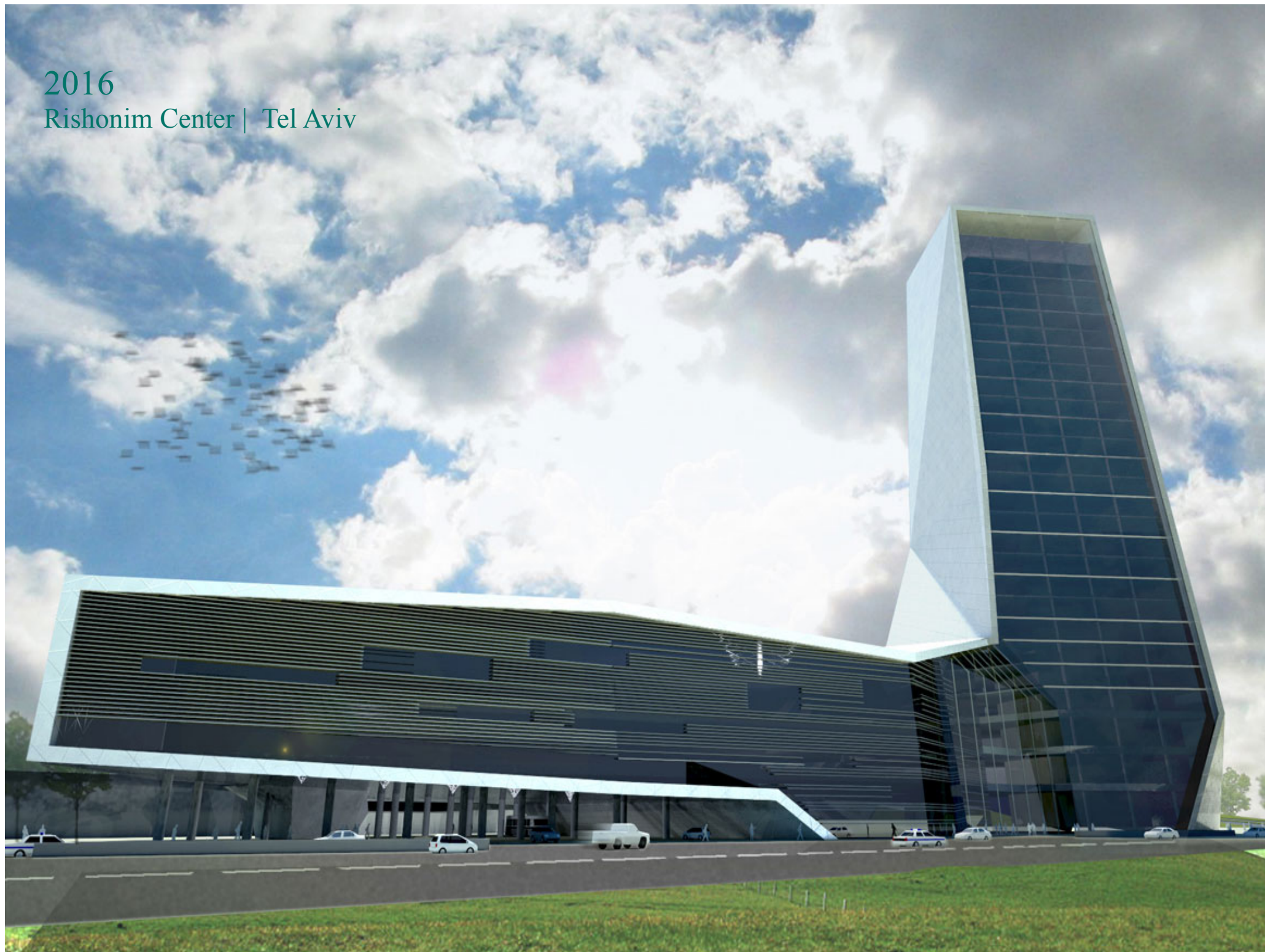
2015

Palazzo Italia | EXPO2015 | Milano



2016

Rishonim Center | Tel Aviv



Building envelope:

- Curtain walling
- Door and window frames
- Ventilated façades



UNA - Unica nell'architettura



FINESTRA
MINIMALE
MINIMAL
WINDOW

UNA
Baie Marquet | Cap D'Ail

UNA
Urbanistica dell'Architettura



UNA
Slow Home- Milano

UNA
UNA - Unica nell'architettura



TELAIO parzialmente NASCOSTO

Residence Montecarlo | Cap Martin



UNASLIDING

Hotel Li Cuncheddi | Olbia

UNA
UNA - Unica nell'architettura



Building envelope:

- Curtain walling
- Door and window frames
- Ventilated façades

2015

Control Tower | Ben Gurion Airport | Tel Aviv



2016

Scalo Milano | Locatè Triulzi



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Case history: Gucci Headquarter

GUCCI Headquarter - Milano



GUCCI Headquarter - Milano



GUCCI Headquarter - Milano



GUCCI Headquarter - Milano



GUCCI Headquarter - Milano



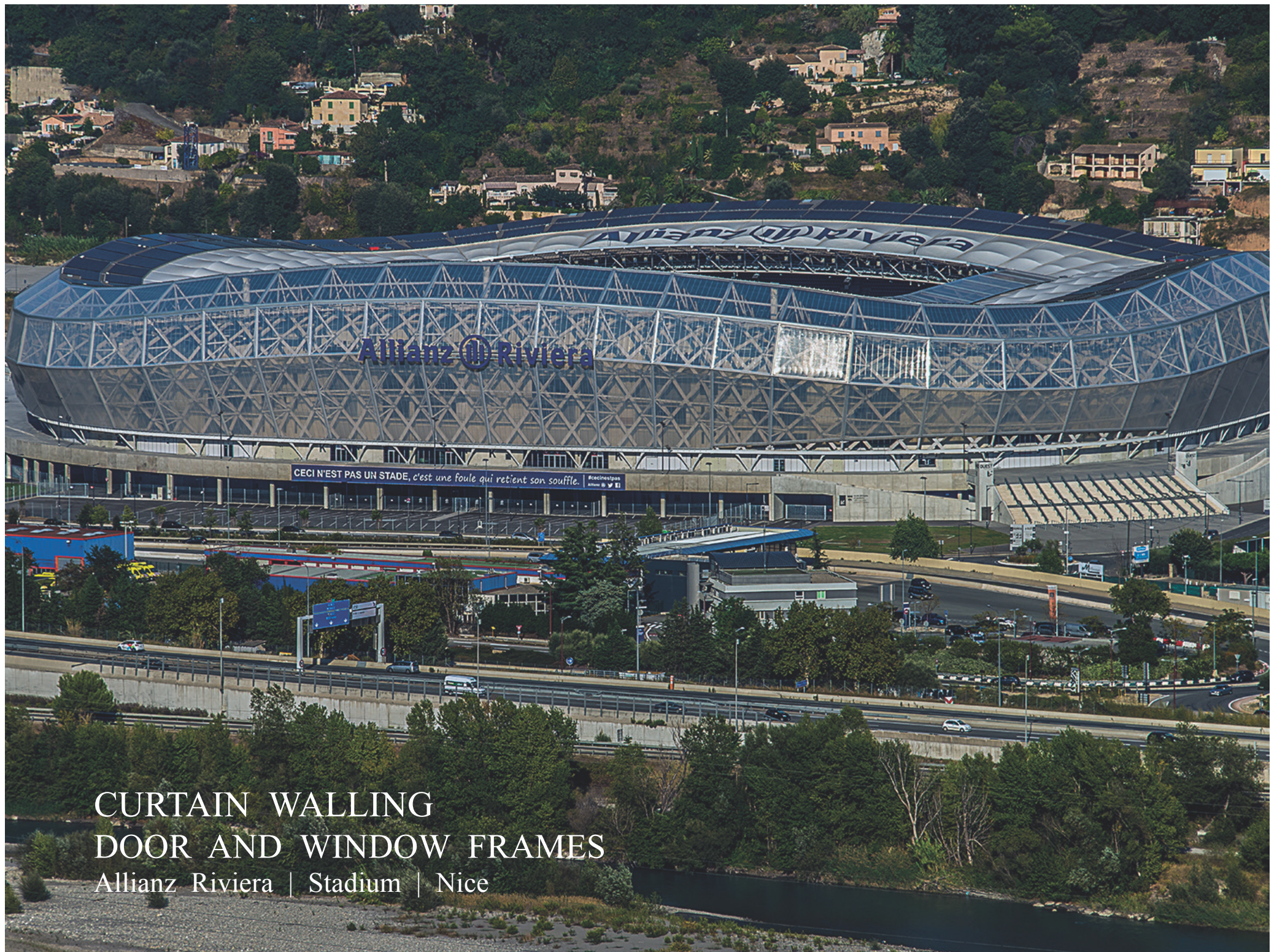
GUCCI Headquarter - Milano

GUCCI Headquarter - Milano

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A great overview.

Case history: NICE ECOSTADIUM



CURTAIN WALLING
DOOR AND WINDOW FRAMES
Allianz Riviera | Stadium | Nice

Nice Ecostadium



ALLIANZ RIVIERA

Nice Ecostadium



Nice Ecostadium - Project

- 245 mln €
- 35.624 seats
- The first sustainable stadium:
 - Internal structure: laminated wood and metal T-3500;
 - 7.500 sqm of solar panels on the floor and 6.000 sqm on the perimeter;
 - ETFE (ethylene-tetrafluoroethylene) translucent membrane. This means that at least 90% of the natural light enters.

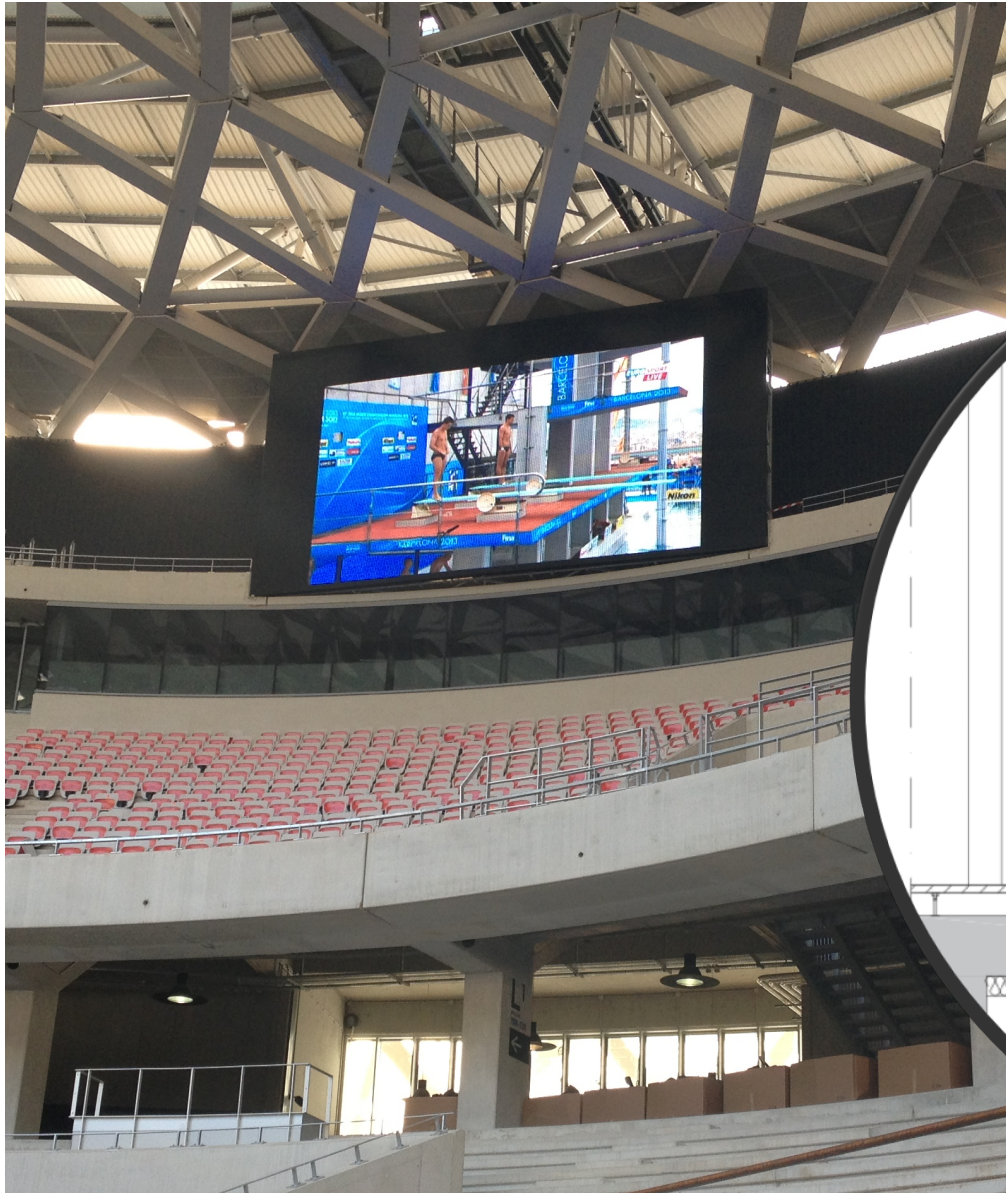
Nice Ecostadium - Gualini Products

- 9.000 sqm. Curtain Walls
- 1.000 sqm. Steel and glass fire walls

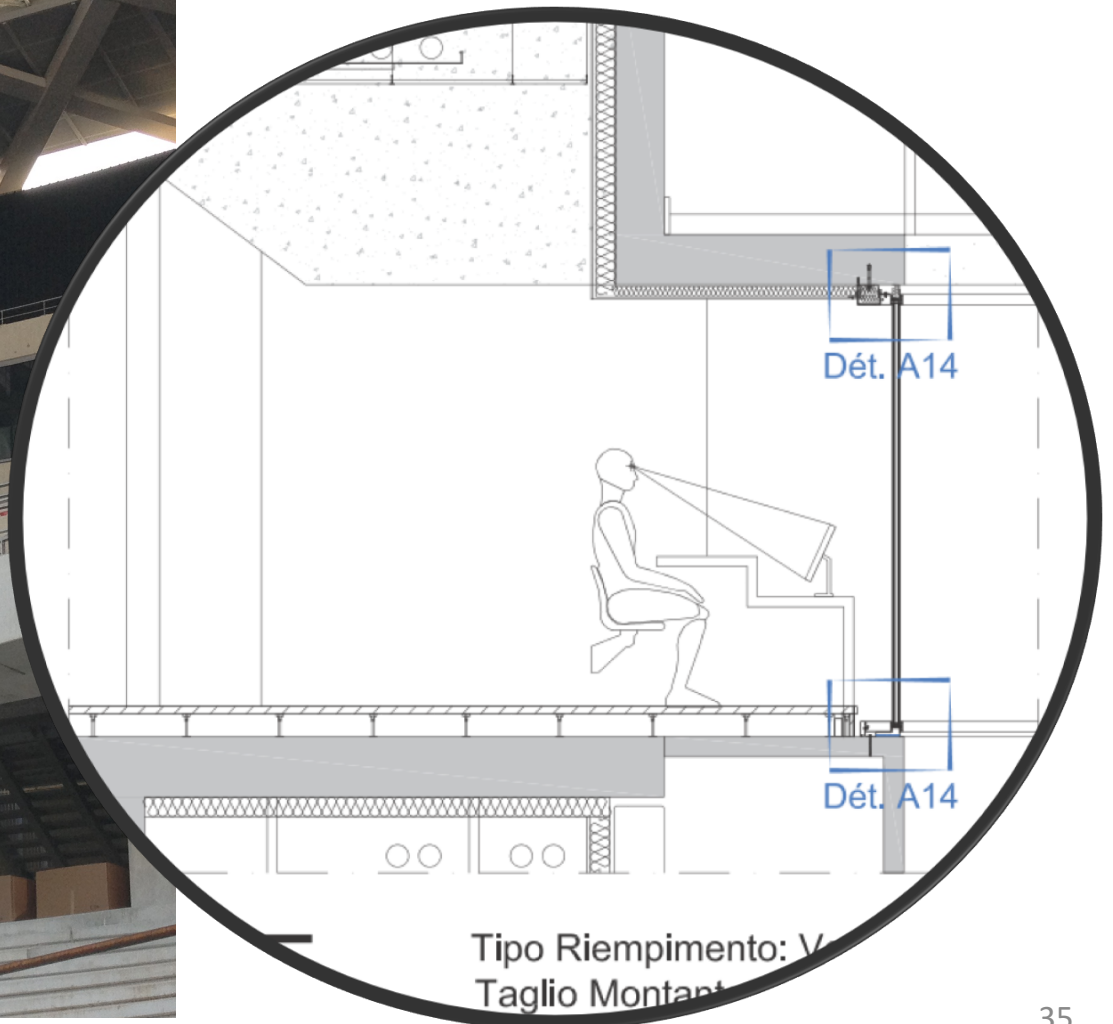
Nice Ecostadium - Features

- Acoustic features
- Building's ventilation

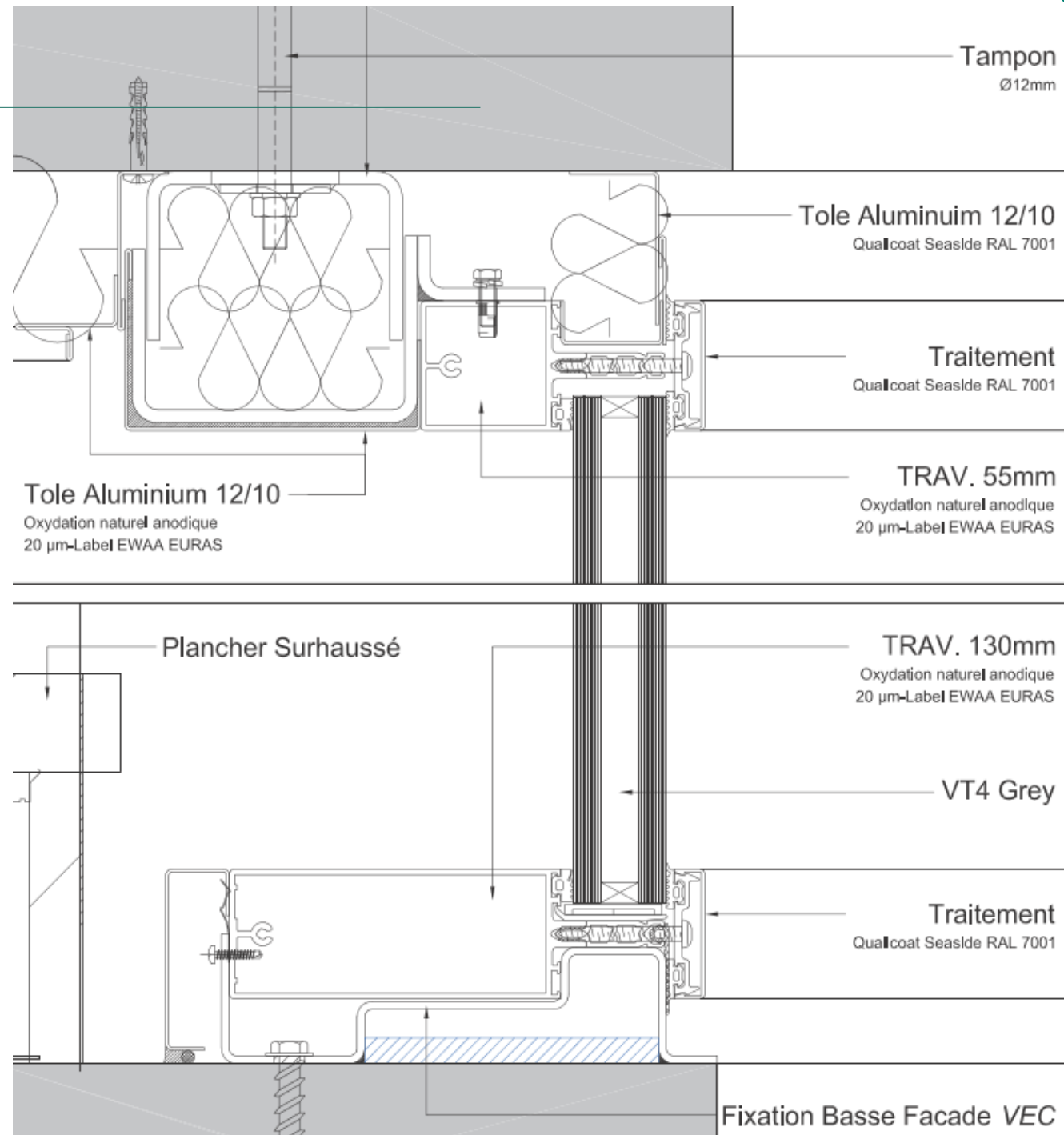
Gualini Project: TV direction



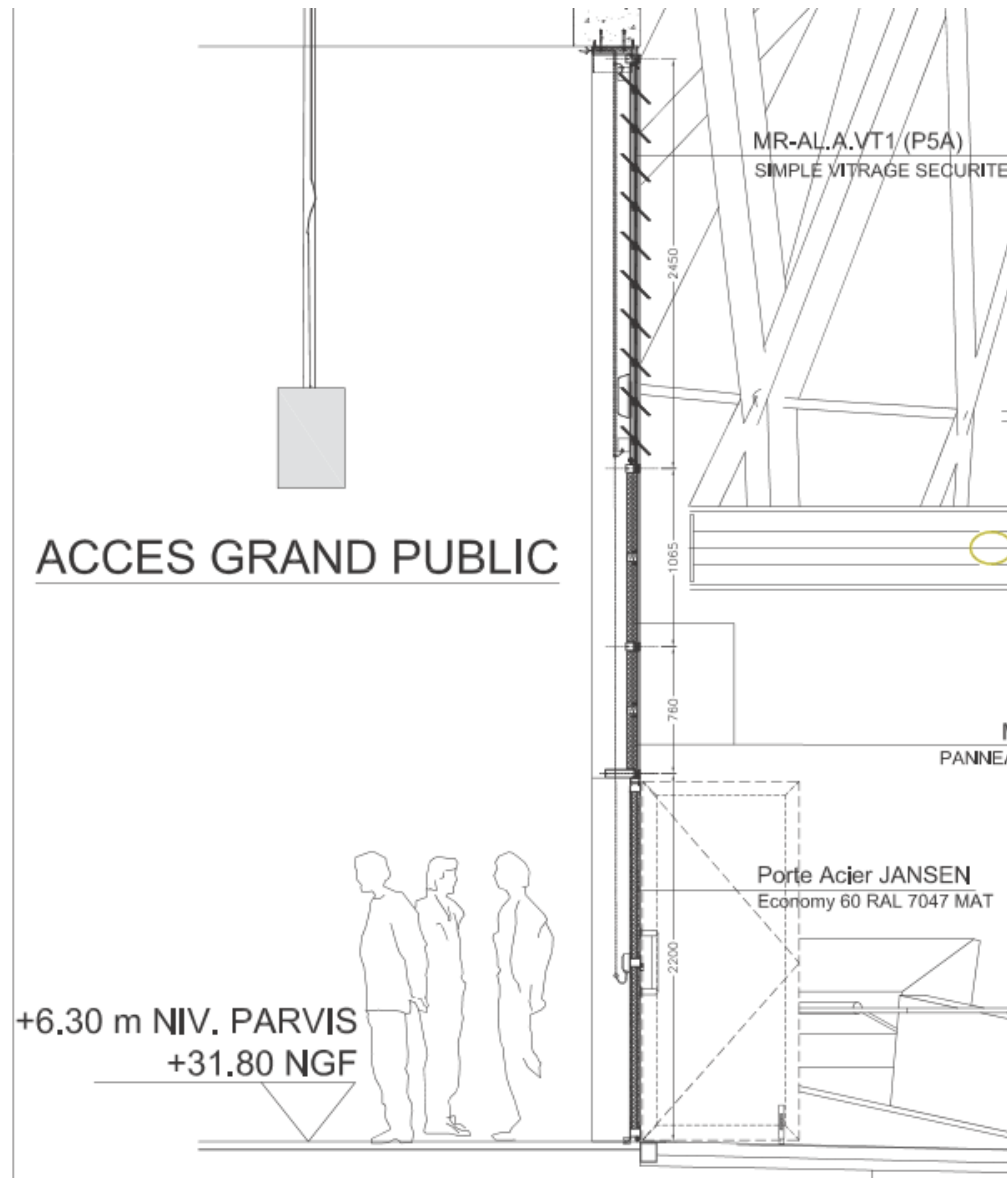
RA, tr = 45db



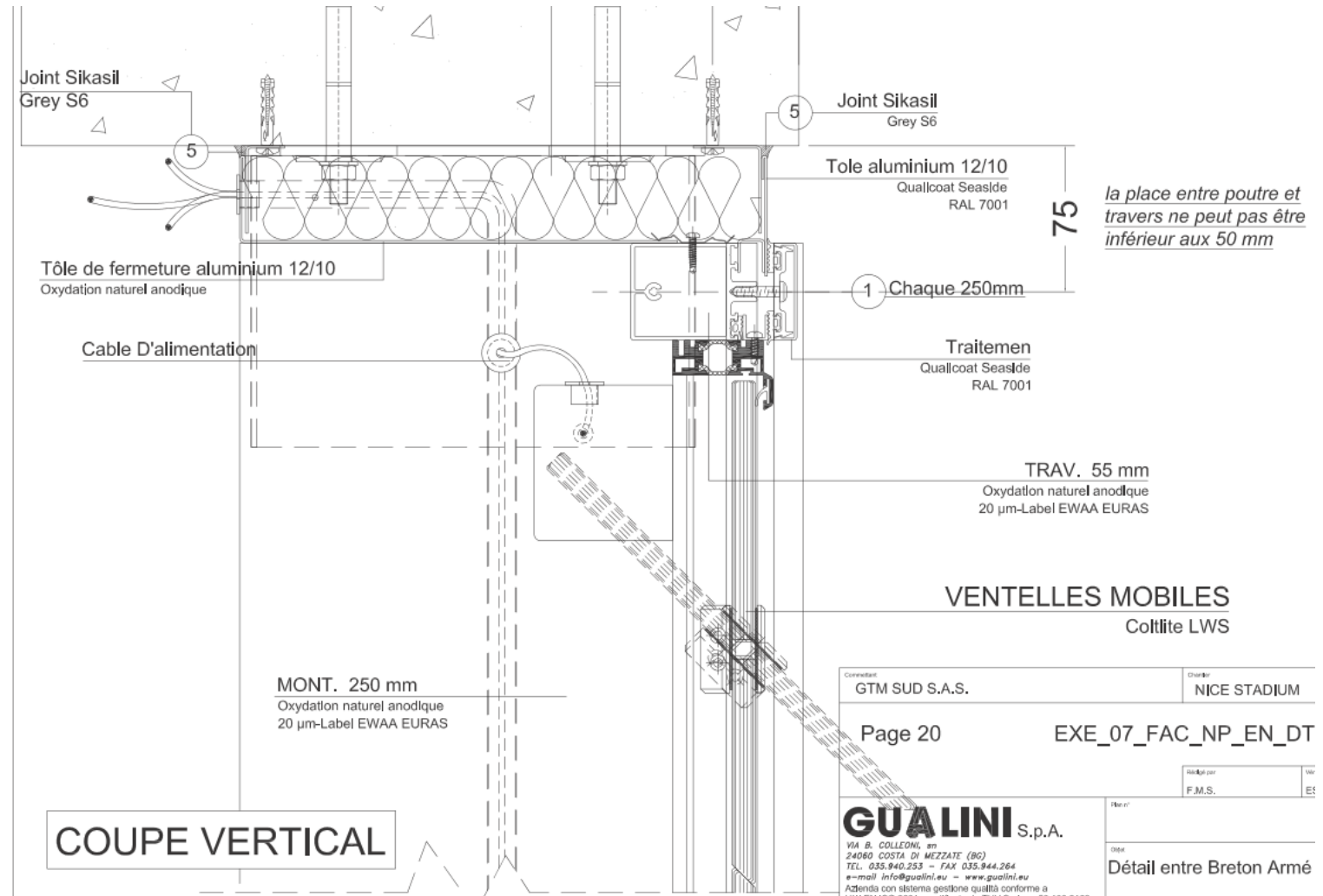
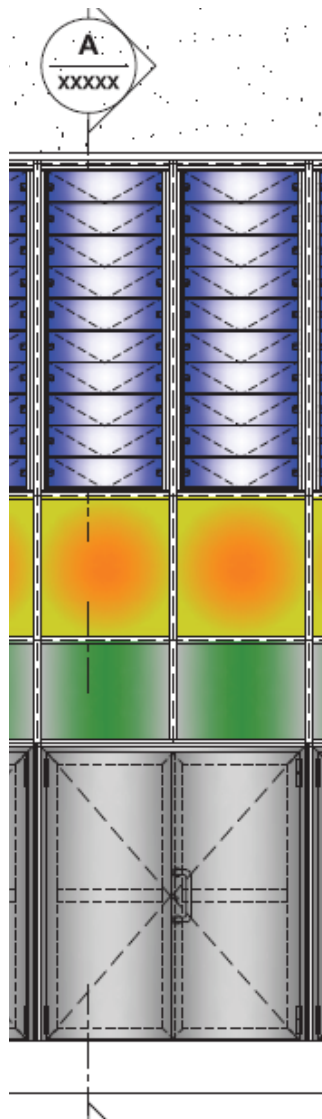
Acoustic Features



Gualini Project: Building's ventilation



Gualini Project: Building's ventilation



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A great overview.

Case history: Arena92 - Paris

CURTAIN WALLING

Arena 92 | Stadium | Paris



Arena 92 - Paris



Arena 92 Paris - Project

- 320 mln €
- 117.000 sqm
- 32.000 posti a sedere
- Struttura completamente flessibile con il tetto e gli spazi retraibili
- da 10 000 a 40 000 persone in modalità concerti.

Arena 92 Paris - Gualini Products

- 10.500 sqm. Curtain Walls
- 5.000 sqm. Ventilated alucobond façades
- Metal door and window frames
- Bright roof with steel structure.

Arena 92 Paris - Features

- Acoustic features
- Thermal insulation

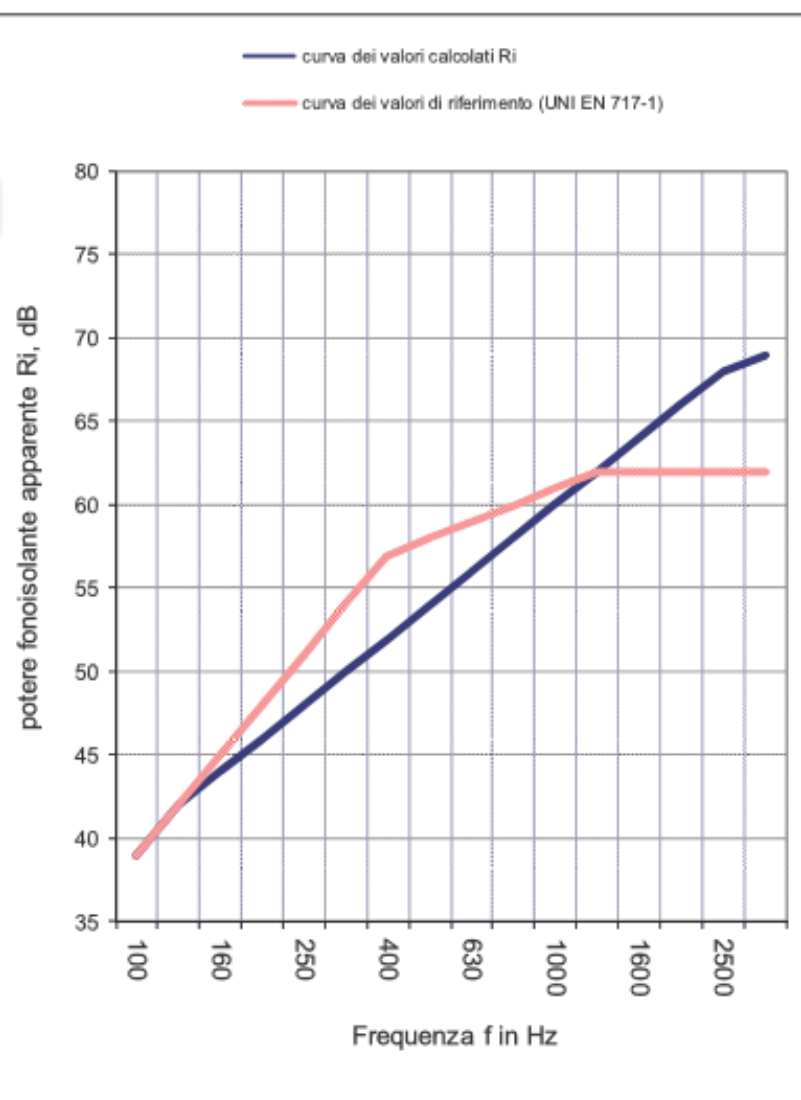


Acoustic Features

$R_w(63\text{Hz}) > 18\text{db}$

Frequenza Hz	R dB	R dB
50	17,0	
63	28,0	27,0
80	35,0	
100	39,0	
125	42,0	41,0
160	44,0	
200	46,0	
250	48,0	48,0
315	50,0	
400	52,0	
500	54,0	54,0
630	56,0	
800	58,0	
1000	60,0	60,0
1250	62,0	
1600	64,0	
2000	66,0	66,0
2500	68,0	
3150	69,0	
4000	70,0	69,0
5000	69,0	

Valutazione secondo la ISO 717-1:
 $R_w = 58 \text{ dB}$
 $D_nT_w = 60 \text{ dB}$



C -1; Ctr-5 dB

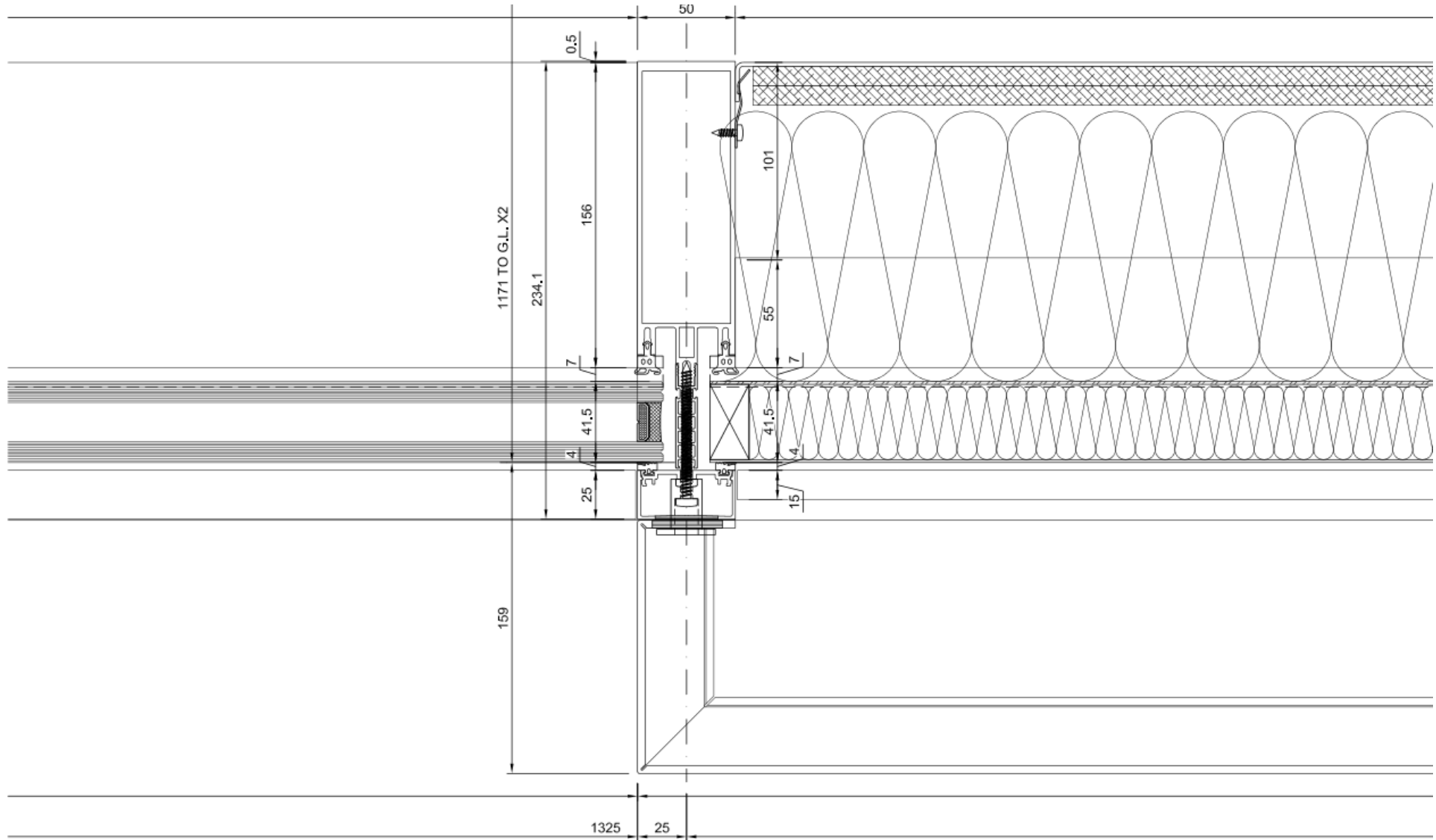
Figure 8 Calcul du pouvoir phono-isolante de la partie courante (coupe B)

Gualini Project: Thermal insulation



$U_{tot} = 1,2 \text{ W/m}^2\text{K}$

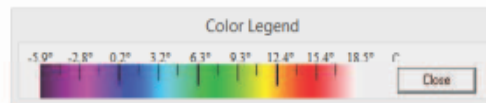
Gualini Project: Thermal insulation



Gualini Project: Thermal insulation

Montant fixe verre-verre

U-Factors				
	U-factor W/m ² -K	delta T C	Length mm	Rotation
Edge	1.1150	27.0	2050	N/A
				Projected X



U-Factors				
	U-factor W/m ² -K	delta T C	Length mm	Rotation
Edge	1.1150	27.0	2050	N/A
				Projected X

Display

☒ U-factor

☐ R-value

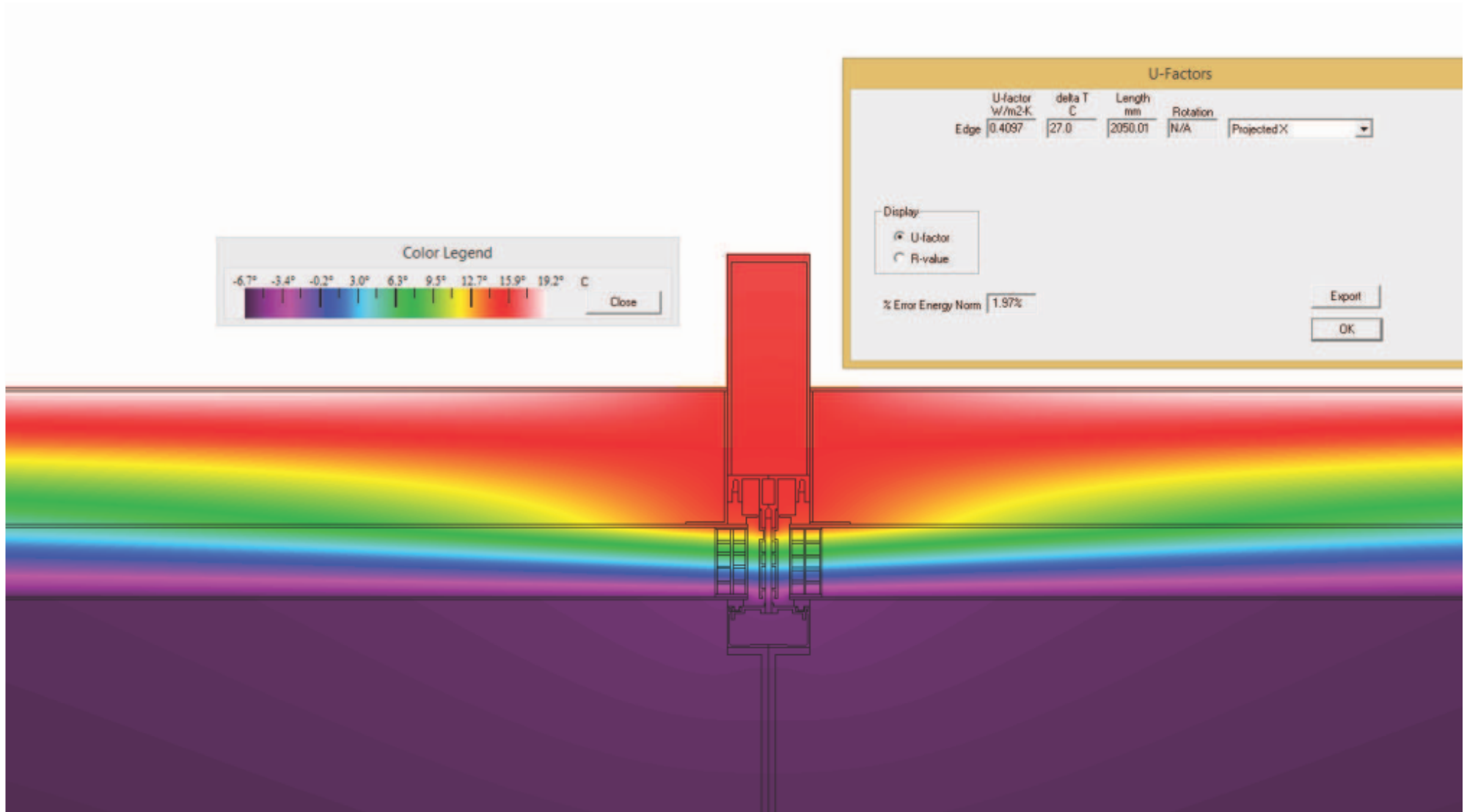
% Error Energy Norm 1.52%

Export

OK

Gualini Project: Thermal insulation

Montant fixe panneau-panneau



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Case history: Ben Gurion Tower

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Case history: Scalo Milano City Style

Grazie per l'attenzione

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