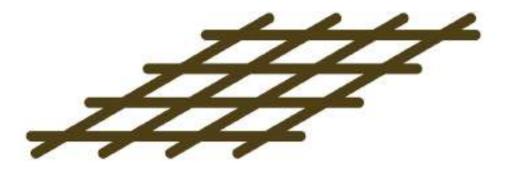
## Ad astra per aspera

# Coprire grandi luci

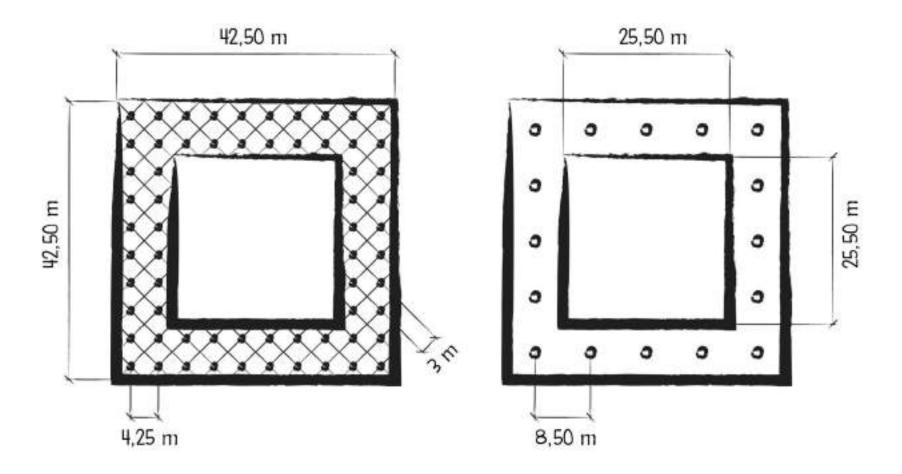
## graticcio



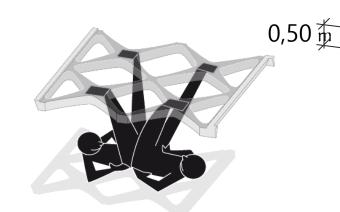


#### ambasciata d'Italia Brasilia | 1977 | P. l. nervi





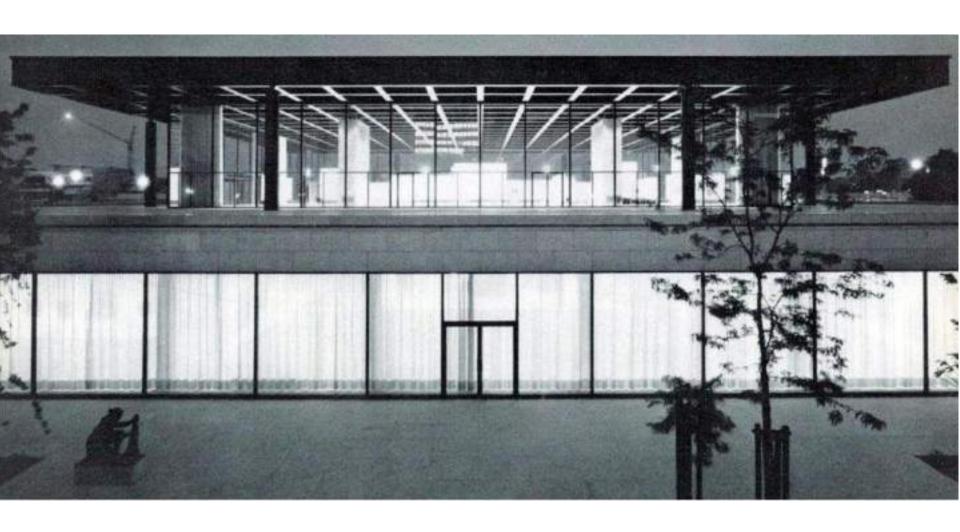


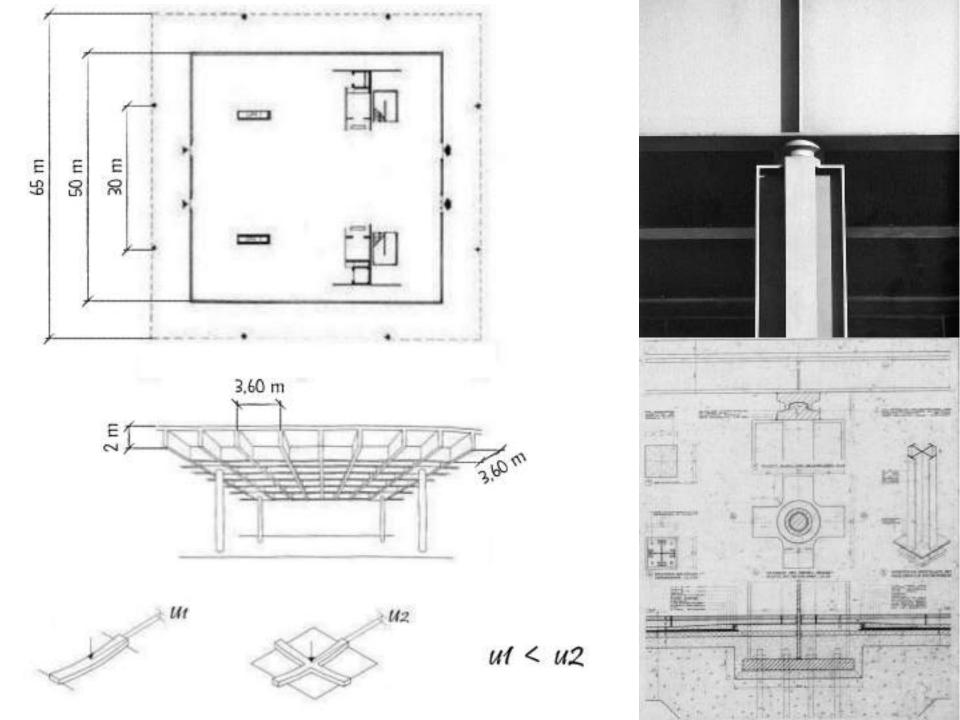






#### neue nationalgalerie Berlino | 1968 | I. Mies van der Rohe

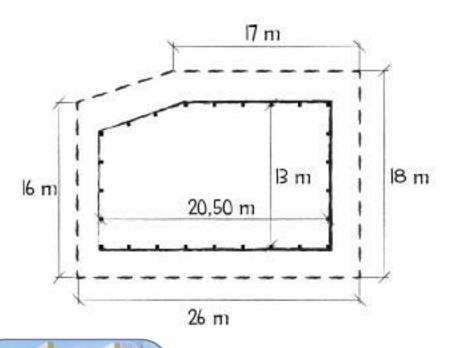


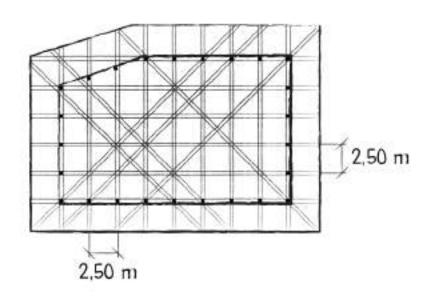




#### Writers' theatre Glencoe | 2016 | Studio Gang Architects



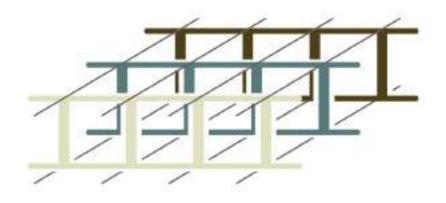








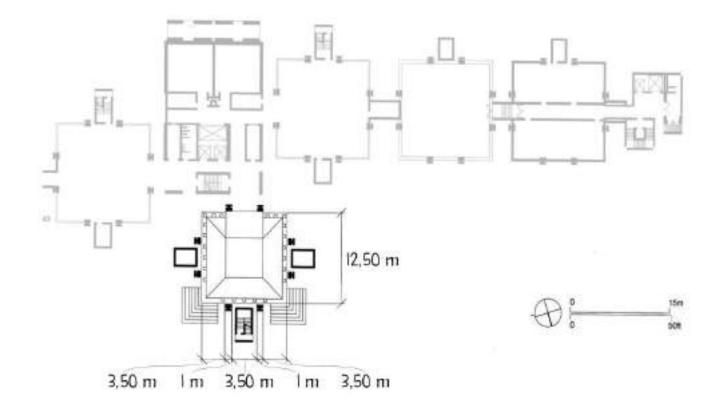
#### Graticcio di vierendeel

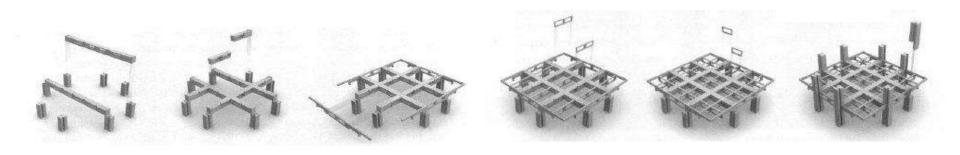


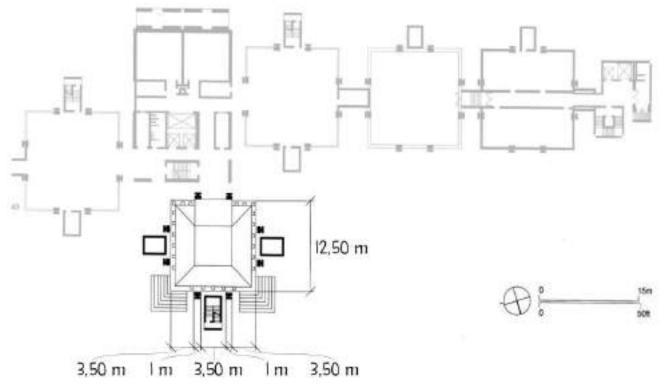


#### Medical Research Laboratory Philadelphia 1965 | L. Kahn





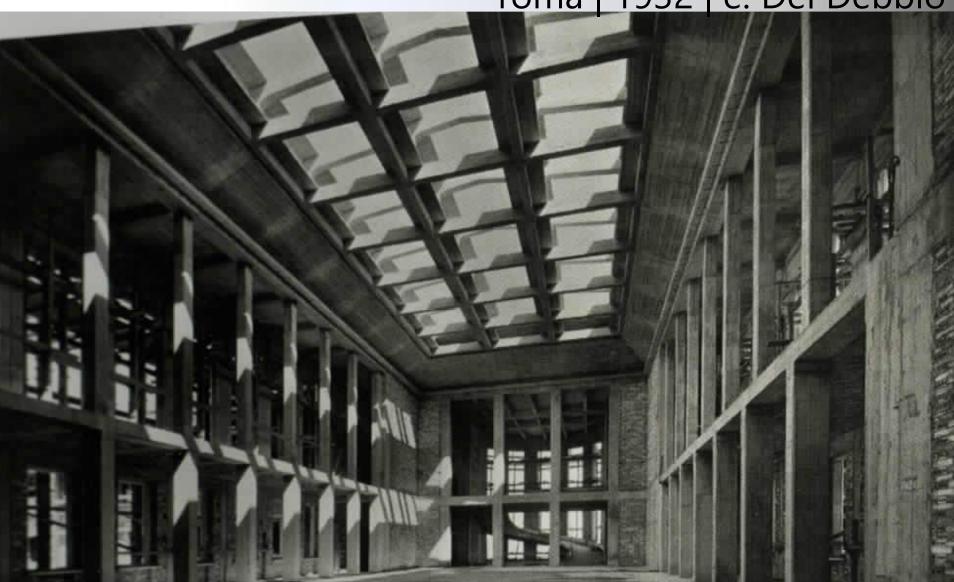


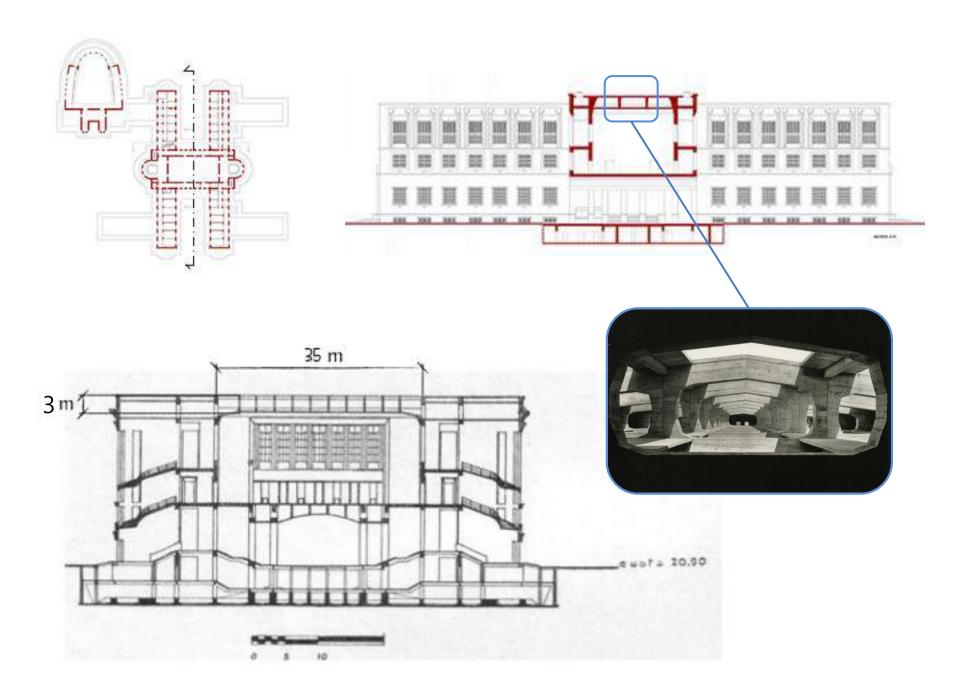






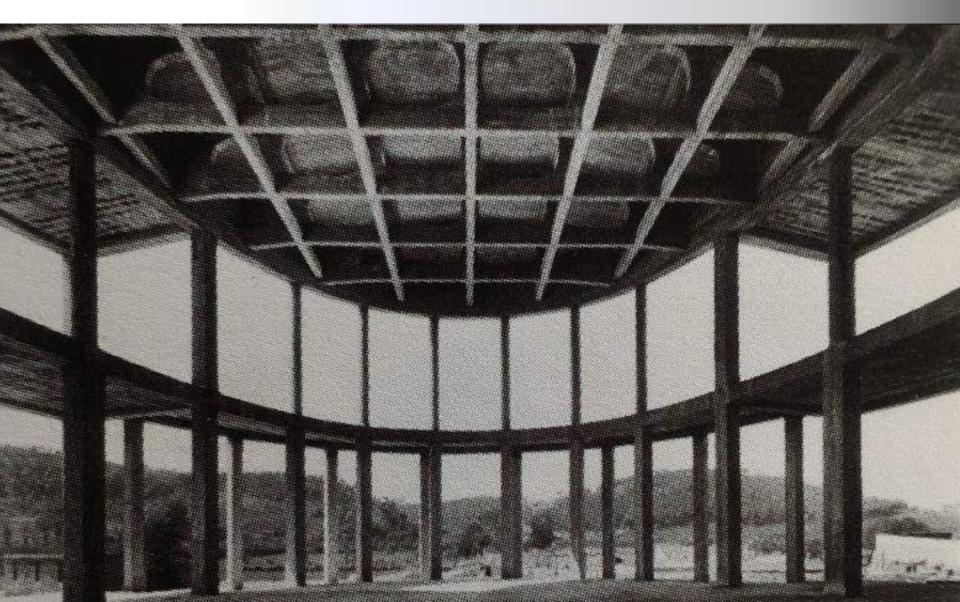
#### AULA MAGNA DELL'ACCADEMIA DI EDUCAZIONE FISICA roma | 1932 | e. Del Debbio



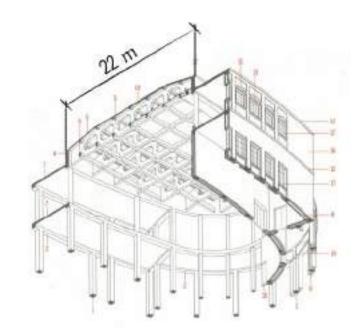


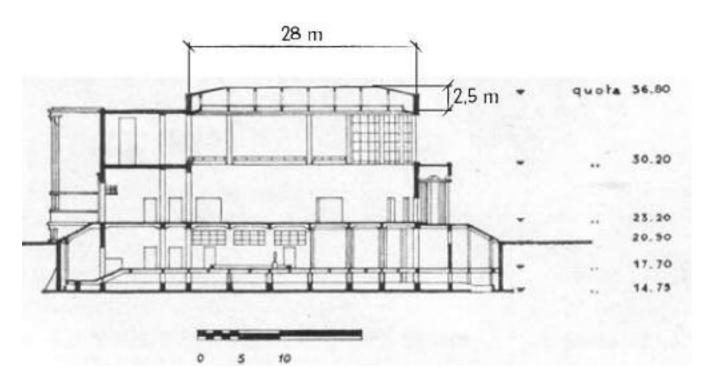


## PALESTRA DEL FORO ITALICO roma | 1932 | e. Del Debbio

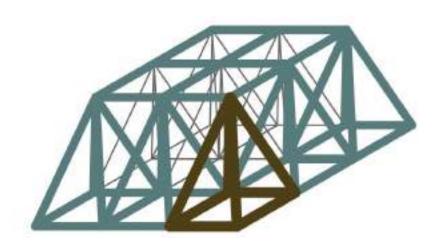






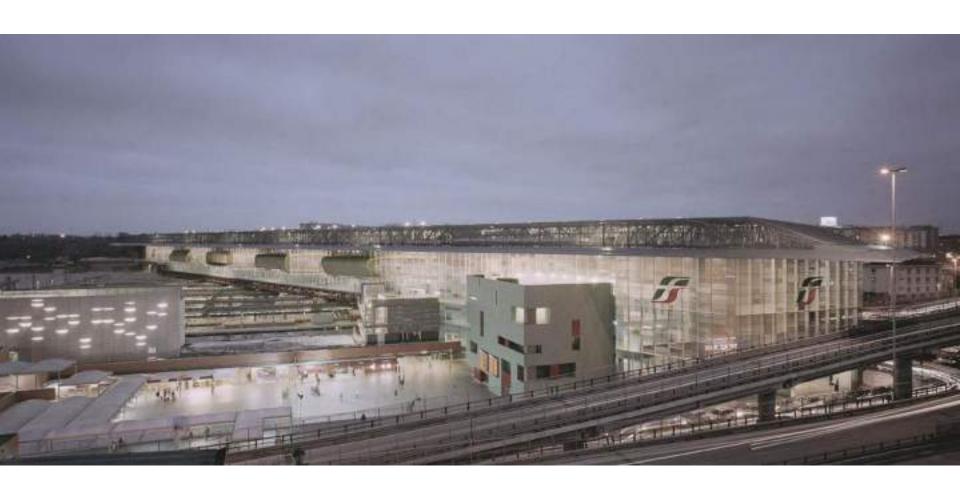


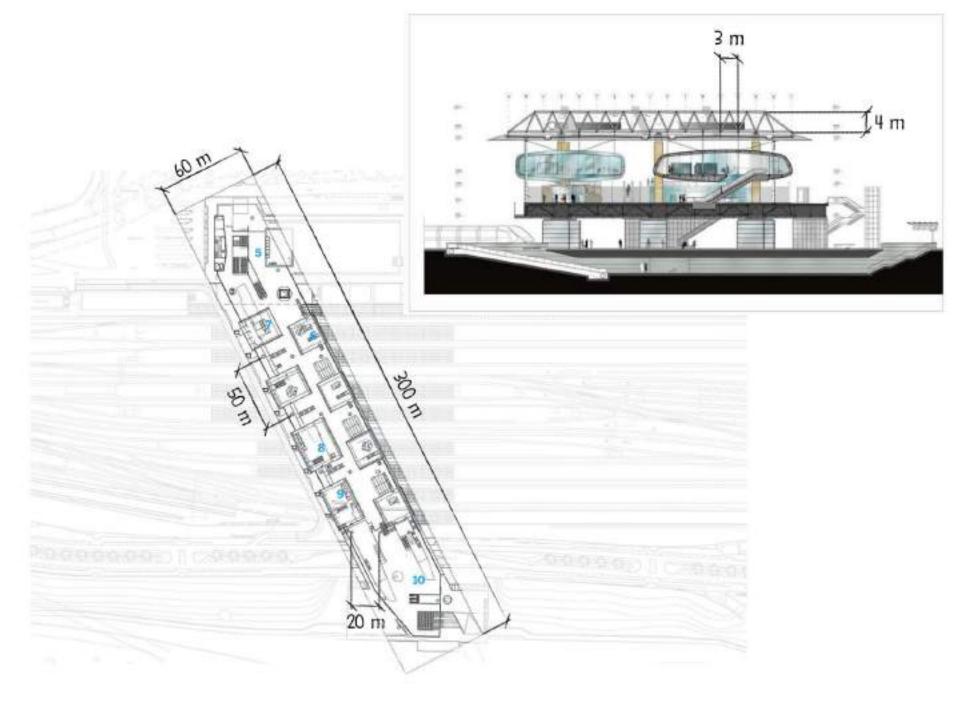
## Reticolare spaziale bilayer





## Stazione tiburtina roma | 2011 | abdr



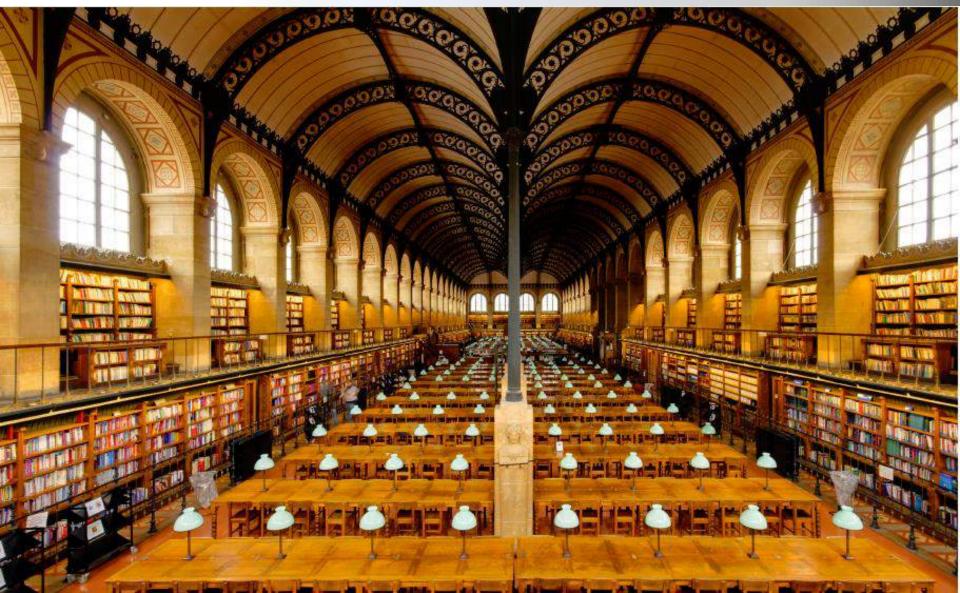


#### Successione di archi





## Biblioteca Sainte-Geneviève parigi | 1850 | H. Labrouste



## cupola





## Basilica di San pietro in vaticano roma | 1626 | Bramante

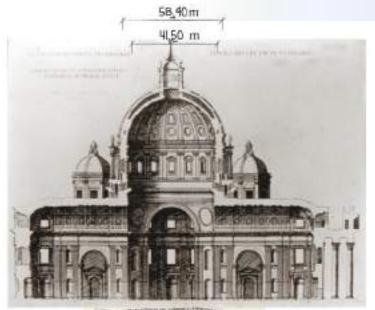


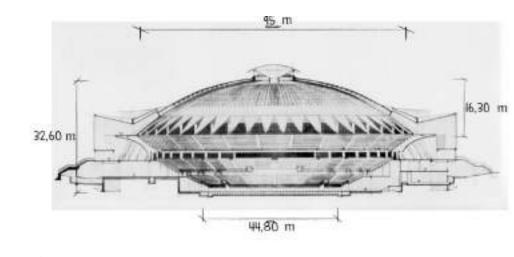


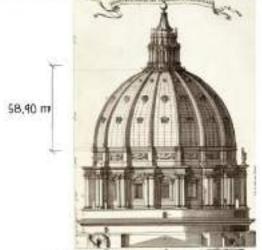
#### Basilica dei Ss. Pietro e Paolo roma | 1955 | A. Foschini

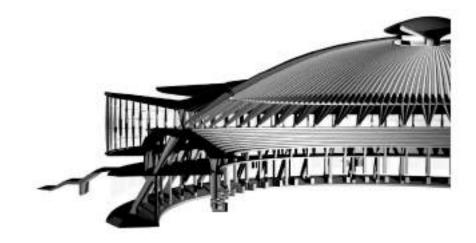


## Due tipologie di cupola a confronto...





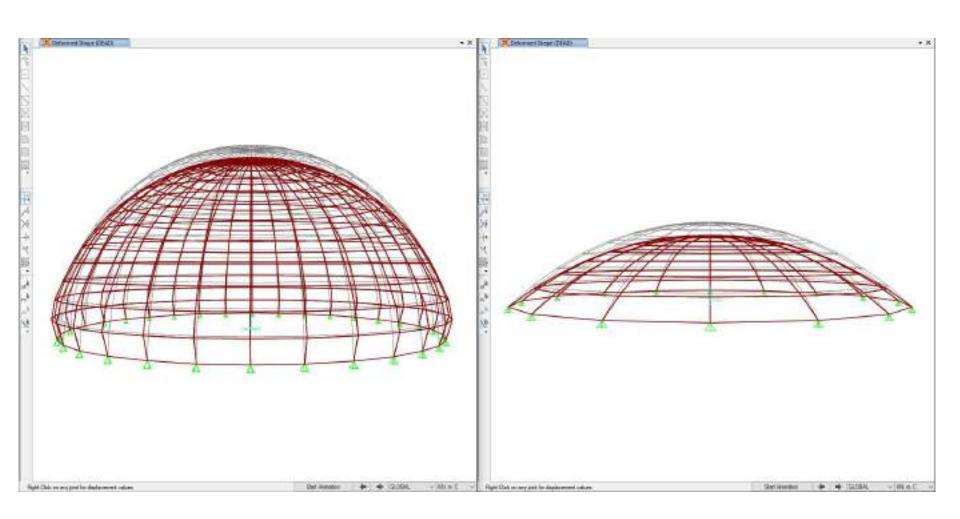




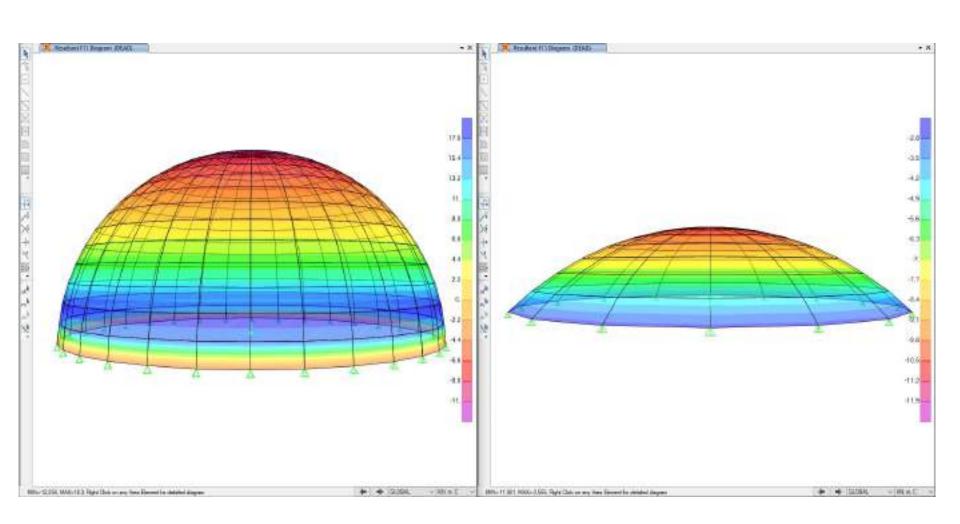
BASILICA DI SAN PIETRO, ROMA, M.BUONARROTI, 1546

PALAZZO DELLO SPORT DI ROMA, M.PIACENTINI E P.L.NERVI, 1960

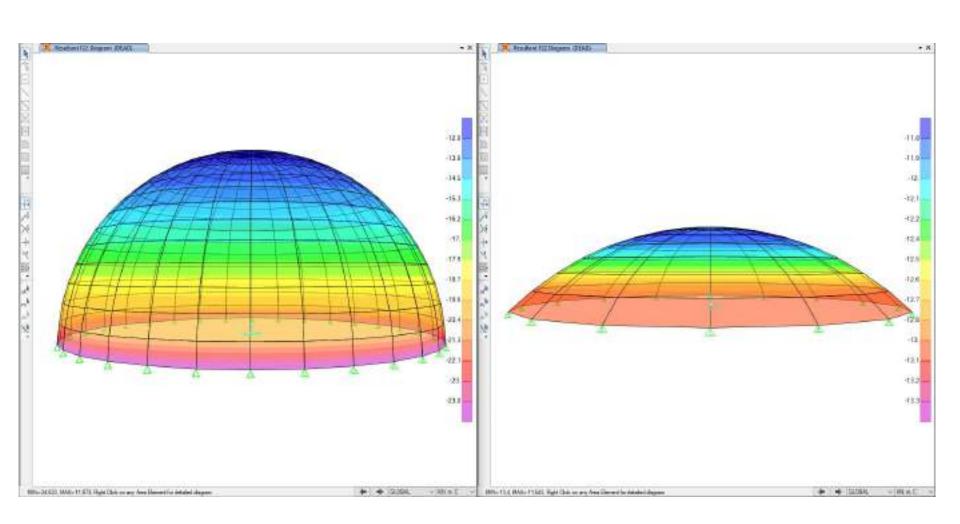
#### deformata



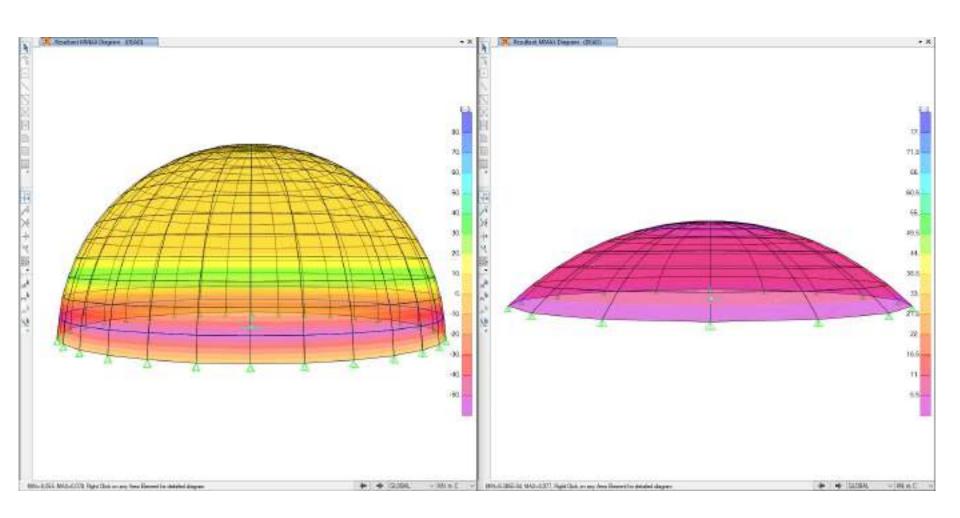
#### Sollecitazione sui paralleli



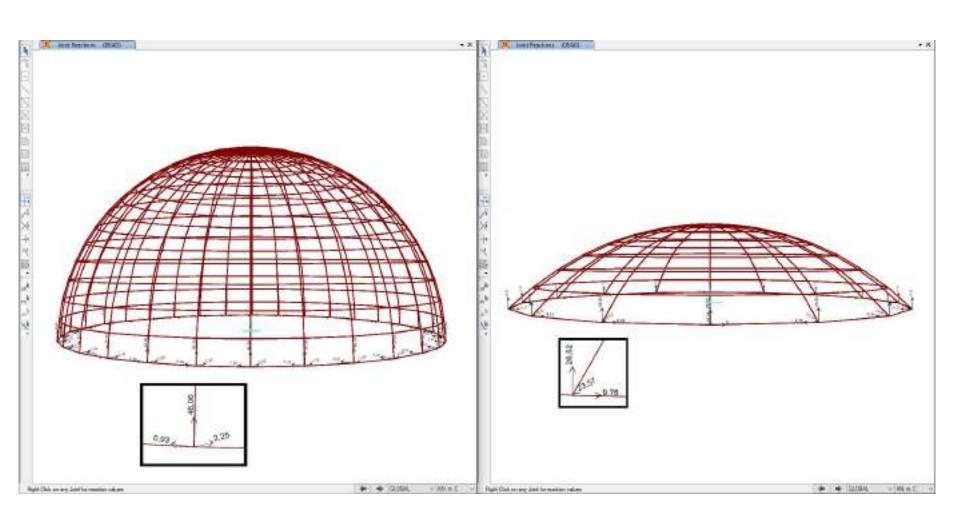
#### Sollecitazione sui meridiani



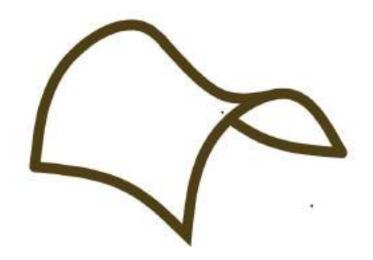
#### Momento flettente massimo



#### Reazioni vincolari

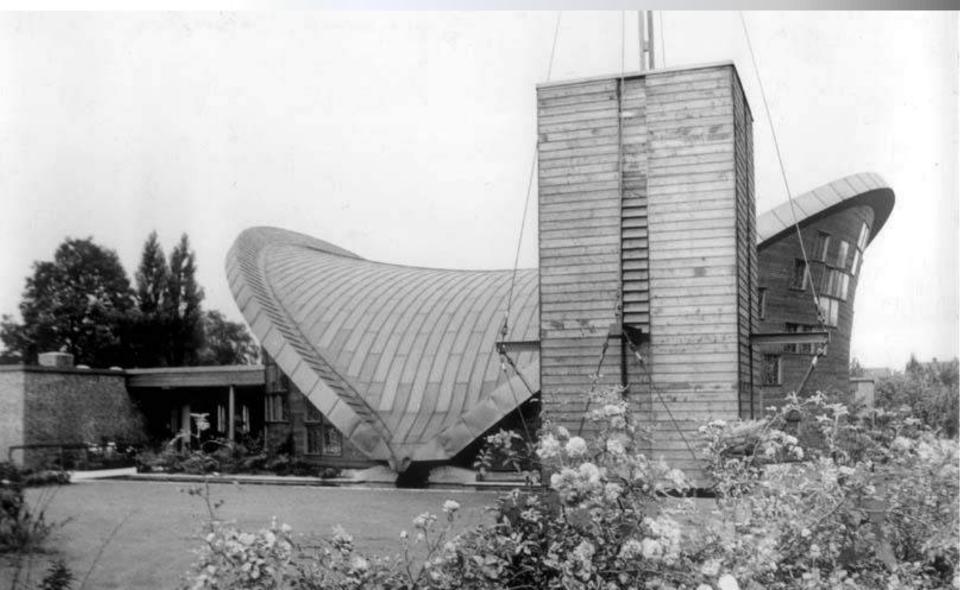


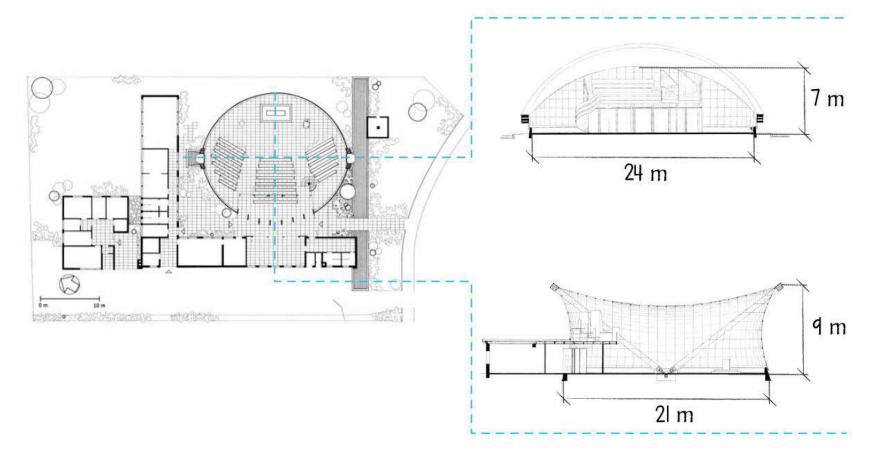
## Paraboloide iperbolico

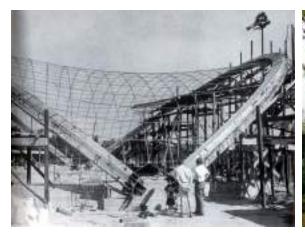




#### Iglesia de San Lucas Bremen | 1963 | f. otto





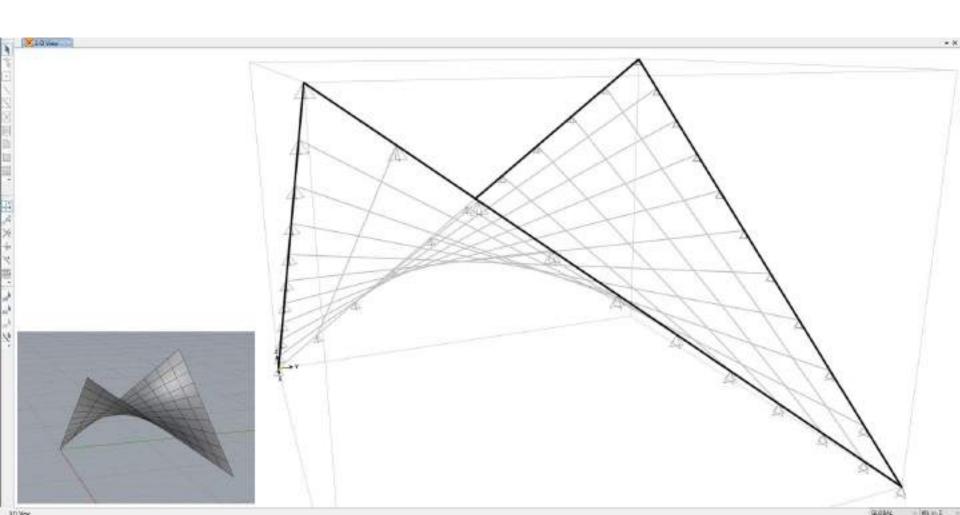






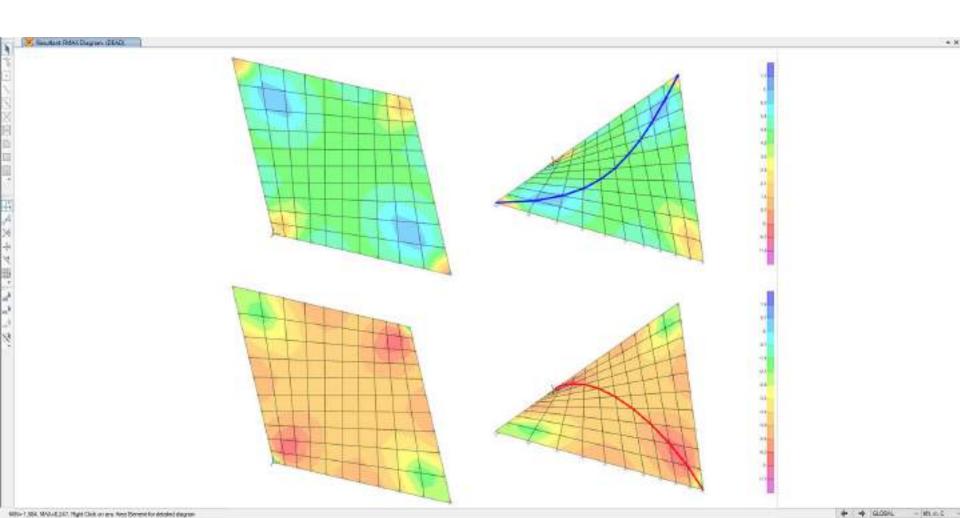


#### Modello geometrico e meccanico Paraboloide iperbolico



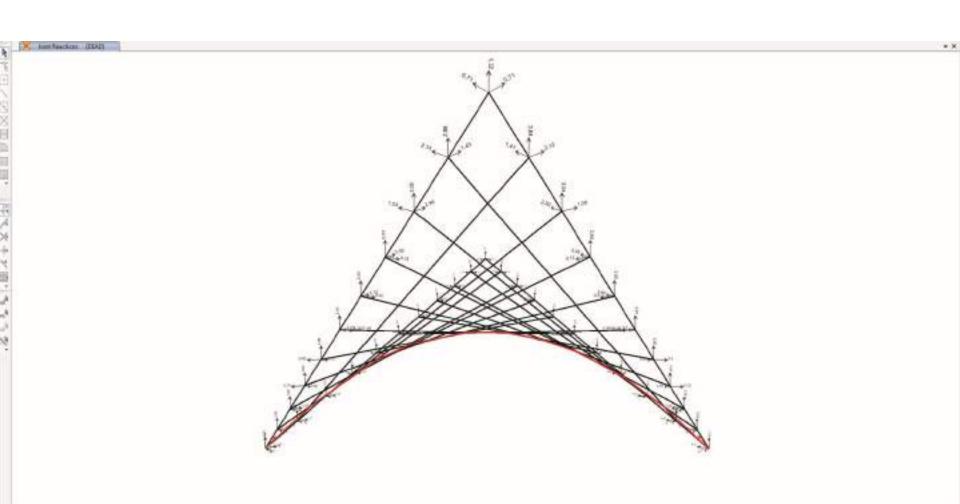


#### Sollecitazioni di membrana Paraboloide iperbolico



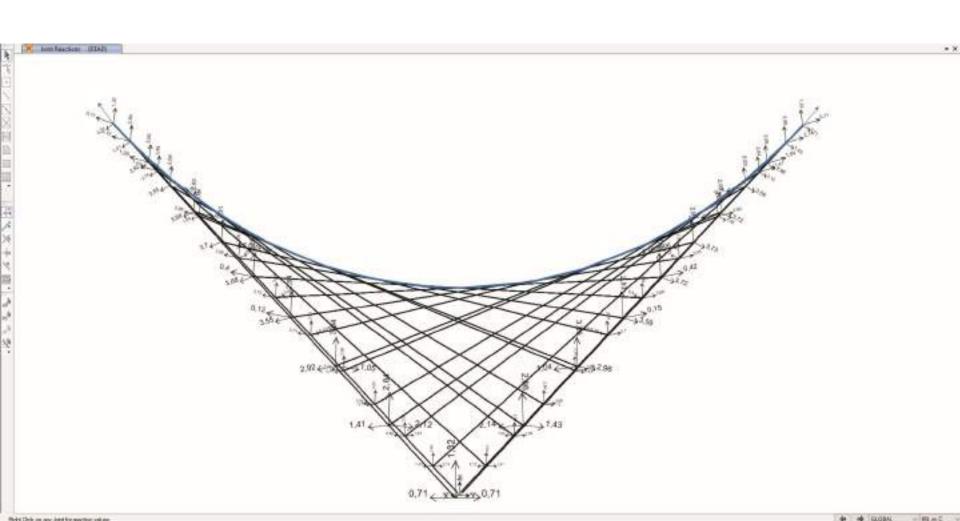


#### Reazioni vincolari Paraboloide iperbolico

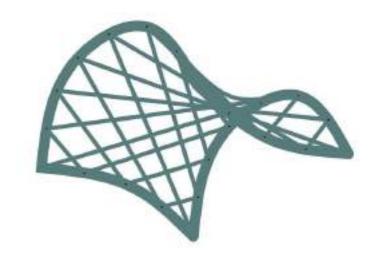


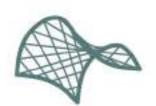


#### Reazioni vincolari Paraboloide iperbolico



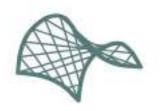
## Reticolari spaziali monolayer



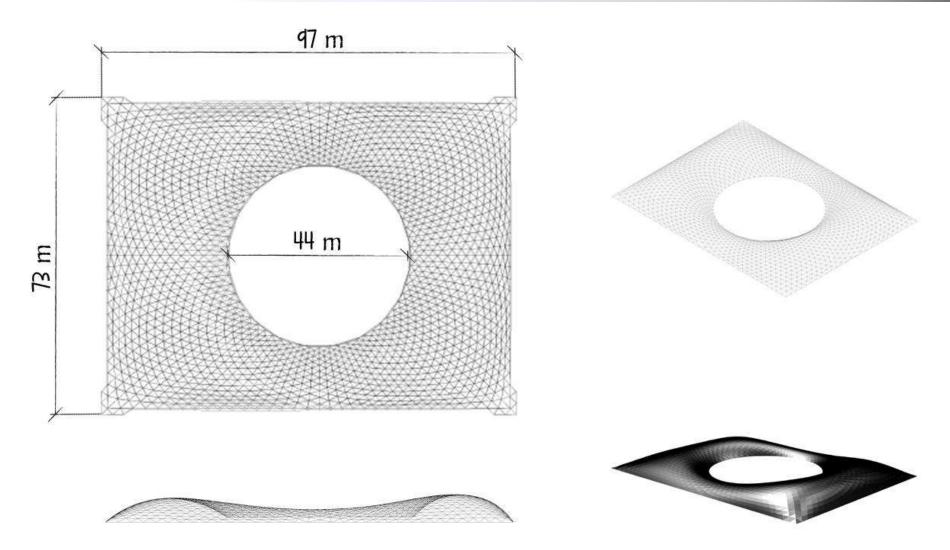


## Great court at british museum londra | 2000 | N. Foster



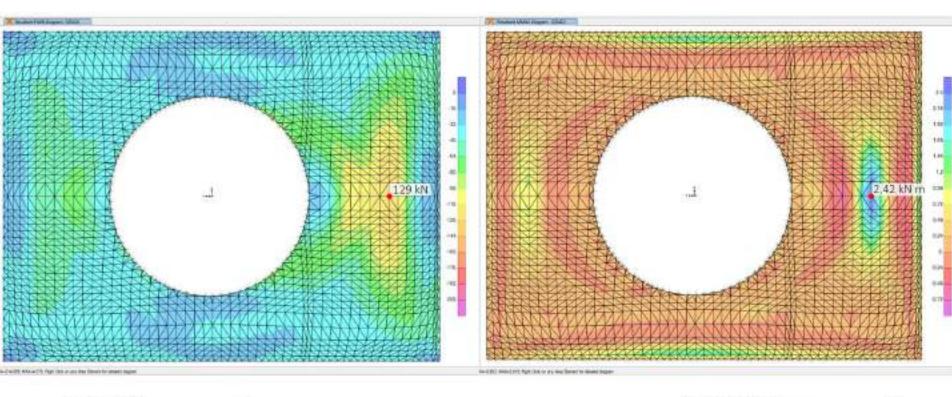


## Geometria Great court at british museum



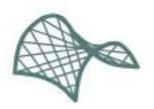


## Tensioni di membrana e tensioni flettenti Great court at british museum

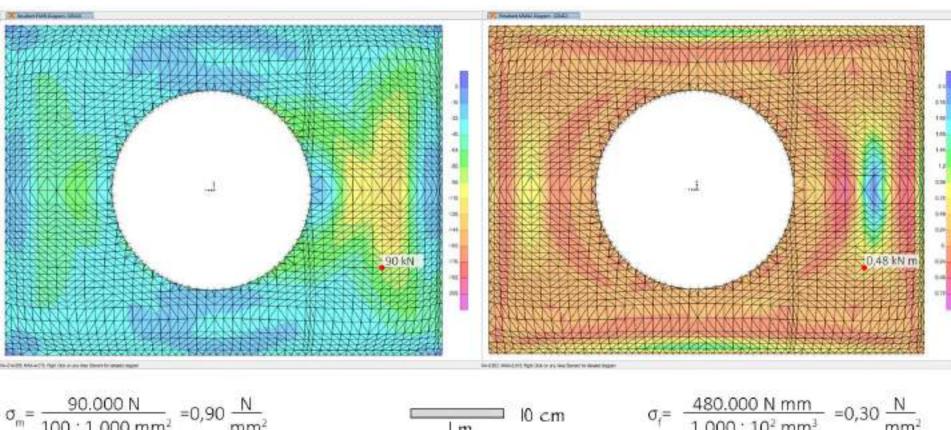


$$\sigma_{m} = \frac{129.000 \text{ N}}{100 \cdot 1.000 \text{ mm}^{2}} = 1,29 \frac{\text{N}}{\text{mm}^{2}}$$

$$\sigma_{\rm f} = \frac{2.420.000 \text{ N mm}}{1.000 \cdot 10^2 \text{ mm}^3} = 1.45 \frac{\text{N}}{\text{mm}^3}$$

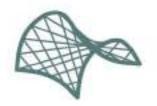


## Tensioni di membrana e tensioni flettenti Great court at british museum

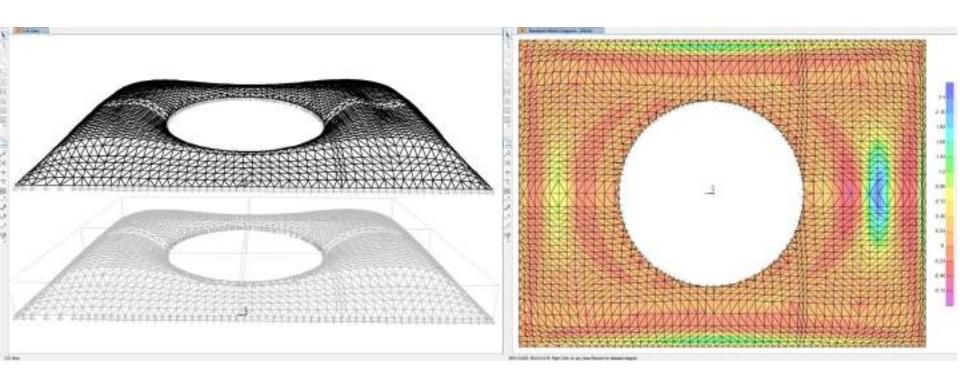


$$\sigma_{\rm m} = \frac{90.000 \,\rm N}{100 \cdot 1.000 \,\rm mm^2} = 0.90 \,\frac{\rm N}{\rm mm^2}$$

$$\sigma_{f} = \frac{480.000 \text{ N mm}}{1.000 \cdot 10^{2} \text{ mm}^{3}} = 0.30 \frac{\text{N}}{\text{mm}}$$

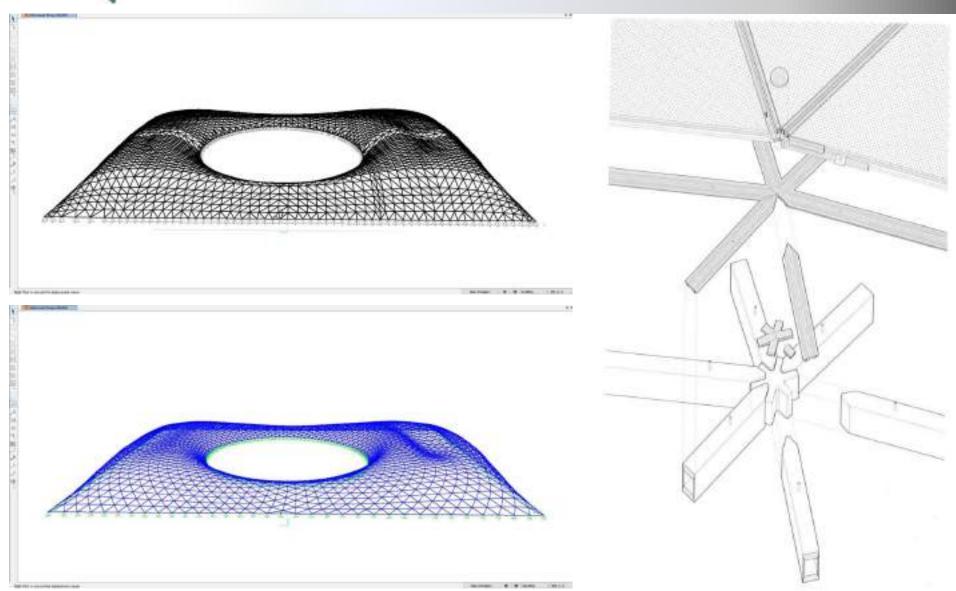


## Relazione tra la deformata e il momento flettente Great court at british museum





## Nodo incastro Great court at british museum





## Sollecitazione assiale e momento flettente Great court at british museum

