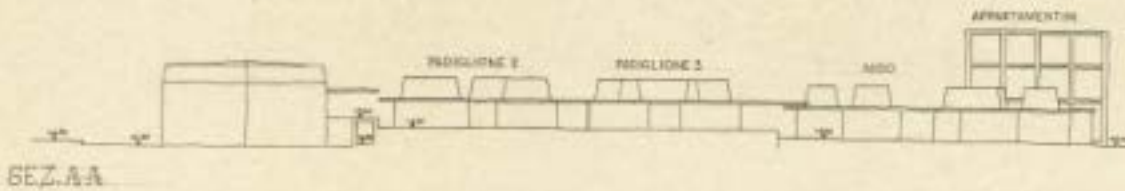
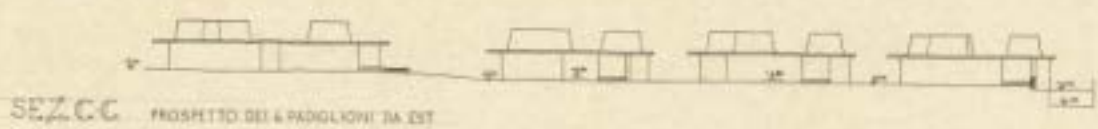
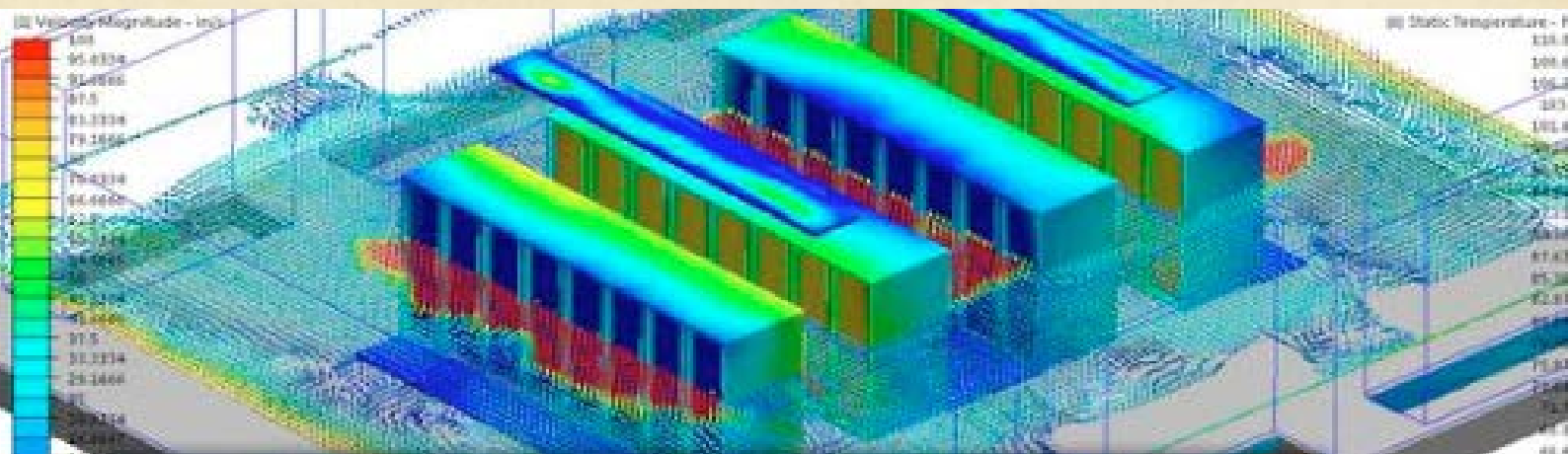
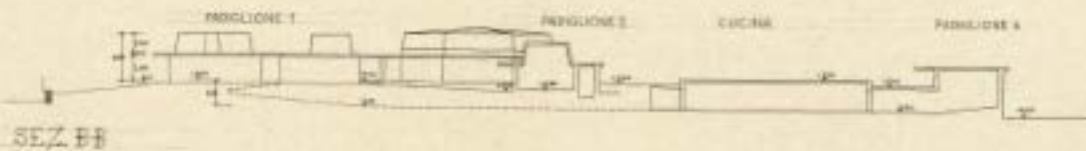




Computational Materiality for Sustainable Architectures and Comprehensive Skins

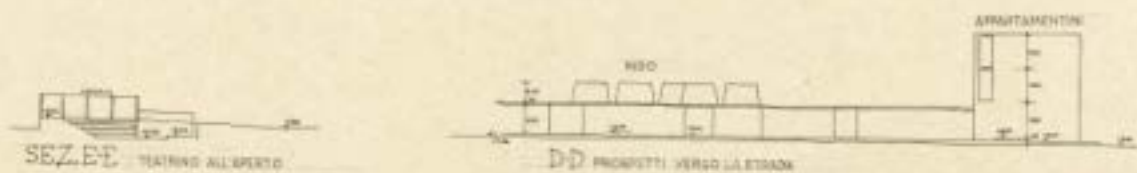


ASSIGNMENT GUIDE 01



Conceptual School Building Energy Assessment

A mass energy analysis on Tuscan examples and Italian masterpieces from the Past



SCALA 1:200
PROGETTO DI MASSIMA
DELL'ASCO ASDO
QUARTIERE CANTON VESCO
IVREA
1950-52 RIBOLDI

This exercise aims to stimulate a preliminary understanding on the geometric determinant of architectural buildings in relation to their energy behavior through the evidence of computational data.

Previous page:
M. Roldolfi, Asilo a Ivrea, sections

This page:
V. Giorgini, Scuola Media Cielo D'Alcamo a Bibbona

Next page:
G. Terragni, Asilo d'Infanzia Sant'Elia a Como

What to do

To carry out this exercise each student, individually, is required to provide a mass model of a selected school excluding constructive technologies and materials and subsequently to run a conceptual energy assessment.

Based on the results students also required to suggest some geometric changes preserving the building total volume in order to improve the energy behavior.

How to do

1. Select a school building in such a way that two or more students do not use a single building
2. Collect useful documentation to model the building
3. Get the geographic coordinates and locates the building on Google Earth in the correct orientation
4. Start to model the building envelope as a simple mass not including internal partitions, furniture, ... Support and techniques about this task will be provided in class

5. Research, select and declare the adopted benchmarking system from green metrics presented in class lectures
6. Run a conceptual energy analysis using Autodesk Revit+Insight or Open Studio as practiced in class
7. Select, print out relevant graphical output and write down your own considerations.
8. Identifies points of strength and weakness and show the possible geometric modifications in order to get a better energy behavior.

Outcomes & Evaluation

Students are asked to submit one sheet in UNI A1 format (vertical pagination) taking care to explain clearly and consistently the process, results, reasons that drove changes and the comparison between current and modified situation. In order to objectify results benchmarking from green metric is required.

Evaluations will take place in the form of a poster pin-up presentation in the classroom space.



[2]



[3]

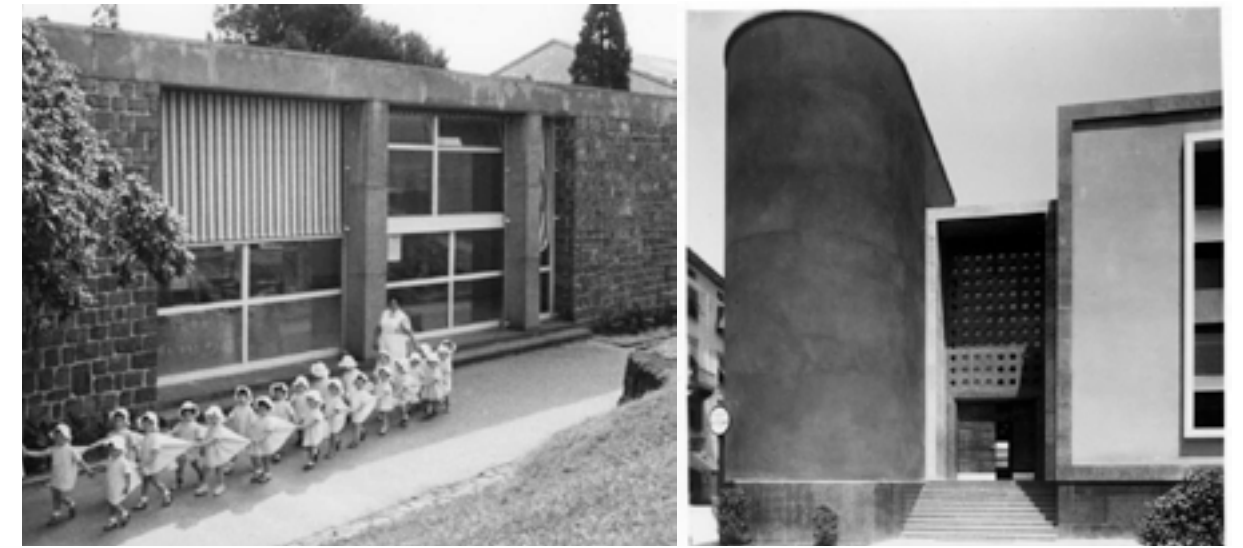
This page:
M. Ridolfi e W. Frankl, Istituto Tecnico Bordini a Pavia

Next page:
L. Figini, G. Pollini, Asilo Nido Olivetti a Ivrea
A. Libera, Scuola Elementare R.Sanzio a Trento

SCHOOL BUILDINGS LIST

Italian masterpieces from the Past

- Adalberto Libera, *Scuola Elementare Raffaello Sanzio*, Trento, 1931-34
- Mario Ridolfi e Wolfgang Frankl, *Istituto Tecnico Bordini*, Pavia, 1935-36
- Giuseppe Terragni, *Asilo d' Infanzia, Sant'Elia*, Como, 1936-37
- Luigi Figini, Gino Pollini, *Asilo Nido Olivetti a Borgo Olivetti*, Ivrea, 1941
- Mario Ridolfi, *Scuola Media Leonardo Da Vinci*, Terni, 1952-61
- Mario Ridolfi, *Asilo Olivetti di Canton Vesco*, Ivrea, 1964
- Aldo Rossi, *Scuola Elementare di Fagnano Olona*, Varese, 1972
- Aldo Rossi, *Scuola Media Broni*, Pavia, 1979



Tuscan examples from the Past

- Francesco Tiezzi, *La Montagnola all'Isolotto*, Firenze, 1954-55
- Italo Gamberini, *Scuola Elementare Gabelli*, Grosseto, 1958-60
- Luigi Vagnetti, *Scuola Elementare ad Anghiari*, Arezzo, 1956-61
- Giuseppe Giorgio Gori e Rosario Vernuccio, *Istituto professionale Einaudi e Scuola Materna Comunale*, Grosseto, 1957-61
- Mario Ridolfi, *Scuola Materna a Poggibonsi*, Siena, 1955-64
- Giorgio Calza Bini, *Scuola Elementare Leonardo da Vinci*, Abbadia San Salvatore, 1964
- Vittorio Giorgini, *Scuola Media Cielo D'Alcamo a Bibbona*, Livorno, 1965-66
- Luigi Pellegrin, *Scuola Media Raffaello*, Pistoia, 1966-70
- Carlo Chiappi, P. Bonaiuti, S. Grassellini, P. Pettini, Rosario Vernuccio, *Complesso Scolastico Pirandello a Cintoia*, Firenze, 1971
- Edoardo Detti e Carlo Scarpa, *Liceo Scientifico Enriques*, Livorno, 1961-72
- Luigi Pellegrini, *Complesso Scolastico Marchesi a Pisanova*, Pisa, 1972-74
- Carlo Chiappi, Rosario Vernucci, Franco Bonaiuti, *Centro Scolastico a Borgo San Lorenzo*, Firenze, 1979
- Massimo Carmassi, *Asilo Nido a San Marco*, Pisa, 1975-80
- Remo Nocchi, *Scuola Media Don Milani a Marina di Massa*, Massa
- Massimo Carmassi, *Scuola Media Gamerra a Putigliano*, Pisa, 1983
- Giancarlo De Carlo, *Istituto Commerciale Cattaneo a San Miniato*, Pisa, 1986-81
- Alessandro Gioli, Andrea Corsi, *Scuola Elementare alle Badie*, Prato, 1991-97
- Vittorio Gregotti, Mauro Galantino, *Centro Scolastico*, Arezzo, 1987-2000

➤ start your research from: <http://www.architetturatoscana.it/at2011/ricerca.php>