Course guide
290631 - ENVOLLEU14 - Light Building Envelopes

Last modified: 05/07/2024

Unit in charge: Vallès School of Architecture
Teaching unit: 753 - TA - Department of Architectural Technology.

Degree: DEGREE IN ARCHITECTURE STUDIES (Syllabus 2014). (Compulsory subject).

Academic year: 2024 **ECTS Credits:** 4.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Garrido Torres, Pablo

Others: PABLO GARRIDO TORRES - 1
JAIME PROUS MARTÍN - 1

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
ET2G. An aptitude for applying technical and building standards.
ET8G. The ability to conceive, calculate, design and erect enclosures, roofs and other structural work and integrate them into existing buildings and urban areas (T).
ET16G. Adequate knowledge of industrialised construction systems.

Generical:
CE8. An understanding of structural, construction and engineering design problems related to building design.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

To know and to distinguish the basic characteristics of the main elements and systems used for the resolution of the light envelopes. Design basic constructive solutions of lightweight envelopes. Analyze the main features of the lightweight envelopes of existing buildings. Know the principles for the implementation of light envelope systems. To know reference buildings in the construction of light envelopes. Apply coherent criteria of architectural design for the resolution of projects of buildings with light envelopes. Use specialized technical vocabulary. Furs. Principles for lightweight envelopes. Techniques for the construction of complex envelopes based on the use and combination of specialized layers and solutions. Pre-industrialized. Proper use of materials. Regulatory Aspects. Assessment. To know tools and processes to apply criteria of sustainability in the light envelopes.

STUDY LOAD

Type	Hours	Percentage
Hours medium group	22,0	22.00
Hours large group	22,0	22.00
Self study	56,0	56.00

Total learning time: 100 h

CONTENTS

Syllabus

Description:
Knowledge of building systems for the resolution of light envelopes based on specialized and pre-industrialized elements.

Full-or-part-time: 44h
Theory classes: 22h
Practical classes: 22h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:

- Avellaneda, Jaume; Paricio Ansuategui, Ignacio. Los Revestimientos de piedra. Barcelona: Bisagra, 1999. ISBN 8492312556.
- Monjo Carrió, Juan. Tratado de construcción : fachadas y cubiertas (II). Madrid: Munilla-Lería, 2007. ISBN 8489150761.
- "Envolventes I". Tectónica. 1996, núm. 1.
- "Envolventes II". Tectónica. 1996, núm. 2.
- "Vidrio". Tectónica. 1999, núm. 10.
- "Muro cortina". Tectónica. 2003, núm. 16.
- Koschade, Rolf. Sandwich panel construction : construction with factory engineered sandwich panels, consisting of metallic facings and a foames polyurethane core. Deggendorf: Ernst & Sohn, cop. 2002. ISBN 3433016178.
- Knaack, Ulrich. Reimagining the envelope. Rotterdam: 010 Publishers, 2012. ISBN 9789064508004.
- Reichel, Alexander; Hochberg, Anette; Hafke, Jan-Henrik; Raab, Joachim. Open-close : windows, doors, gates, filters. Basel [etc.]: Birkhäuser, 2010. ISBN 9783764399610.
- Manual del vidrio. Madrid: CITAV, 2001.
- Paricio Ansuategui, Ignacio. La Protección solar. Zaragoza: Bisagra, 1997. ISBN 8492312505.
- Paricio Ansuategui, Ignacio. La Piel ligera : maduración de una técnica constructiva. Barcelona: Grupo Folcra Edificación : Actar, DL 2010. ISBN 9788492861392.
- Pardal March, Cristina; Paricio Ansuategui, Ignacio. La Fachada ventilada y ligera. Barcelona: Bisagra, 2006. ISBN 8493132055.
- Behling, Sophia; Behling, Stefan; Achenbach, Joachim. Glass : konstruktion und technologie in der architektur = structure and technology in architecture. München: Presterl Verlag, cop. 1999. ISBN 3791321552.
- Graf, Franz. Glass in the 20th Century architecture. Mendrisio: Mendrisio Academy Press, 2011. ISBN 9788887624502.
- Wigginton, Michael. Glass in architecture. London: Phaidon, cop. 1996. ISBN 0714829226.
- Loughran, Patrick. Falling glass : problems and solutions in contemporary architecture. Basel [etc.]: Birkhäuser, cop. 2003. ISBN 3764367121.
- Avellaneda, Jaume. Façanes lleugeres amb cambra ventilada : criteris per al disseny constructiu. Sant Cugat del Vallès: ETSAV, 1996. ISBN 8476536607.
- Knaack, Ulrich. Façades : principles of construction. Berlin: Birkhäuser, cop. 2007. ISBN 9783764379612.
- Herzog, Thomas; Krippner, Roland; Lang, Werner. Facade construction manual. Basel [etc.]: Detail, cop. 2004. ISBN 3764371099.
- Paricio Ansuategui, Ignacio. El Vidrio estructural. Barcelona: Bisagra, 2000. ISBN 8493132020.
- Oesterle, Eberhard. Double-skin facades : integrated planning : building physics, construction, aerophysics, air-conditioning, economic viability. Munich [etc.]: Prestel, cop. 2001. ISBN 9783791325040.
- Murray, Scott. Contemporary curtain wall architecture. New York: Princeton Architectural Press, cop. 2009. ISBN 9781568987972.
- Castelló, Daniel; Calderón, Juan Manuel; Masseck, Torsten; Mañà i Reixach, Fructuós. Cuaderno técnico : comportamiento energético de una fachada acristalada. Parets del Vallès: Hydro Building Systems, 2005. ISBN 8460968111.
- Meijs, Maarten; Knaack, Ulrich. Components and connections : principles of construction. Basel: Birkhäuser, cop. 2009. ISBN 9783764386696.
- Sánchez-Ostiz Gutiérrez, Ana. Cubiertas : cerramientos de edificios. Madrid: CIE, Dossat, c2002. ISBN 8495312204.
- Brookes, Alan. Cladding of buildings. 3rd ed. London: E & FB Spon, 1998. ISBN 0-419-22170-0.
- Sánchez-Ostiz Gutiérrez, Ana; Campo Baeza, Alberto. Fachadas : cerramientos de edificios. Madrid: Cie Dossat 2000, 2011. ISBN 9788493974701.
- Fachadas ligeras : manual de producto 2015. Barcelona: TPE Tecnopress Ediciones, 2015. ISBN 9788493902315.