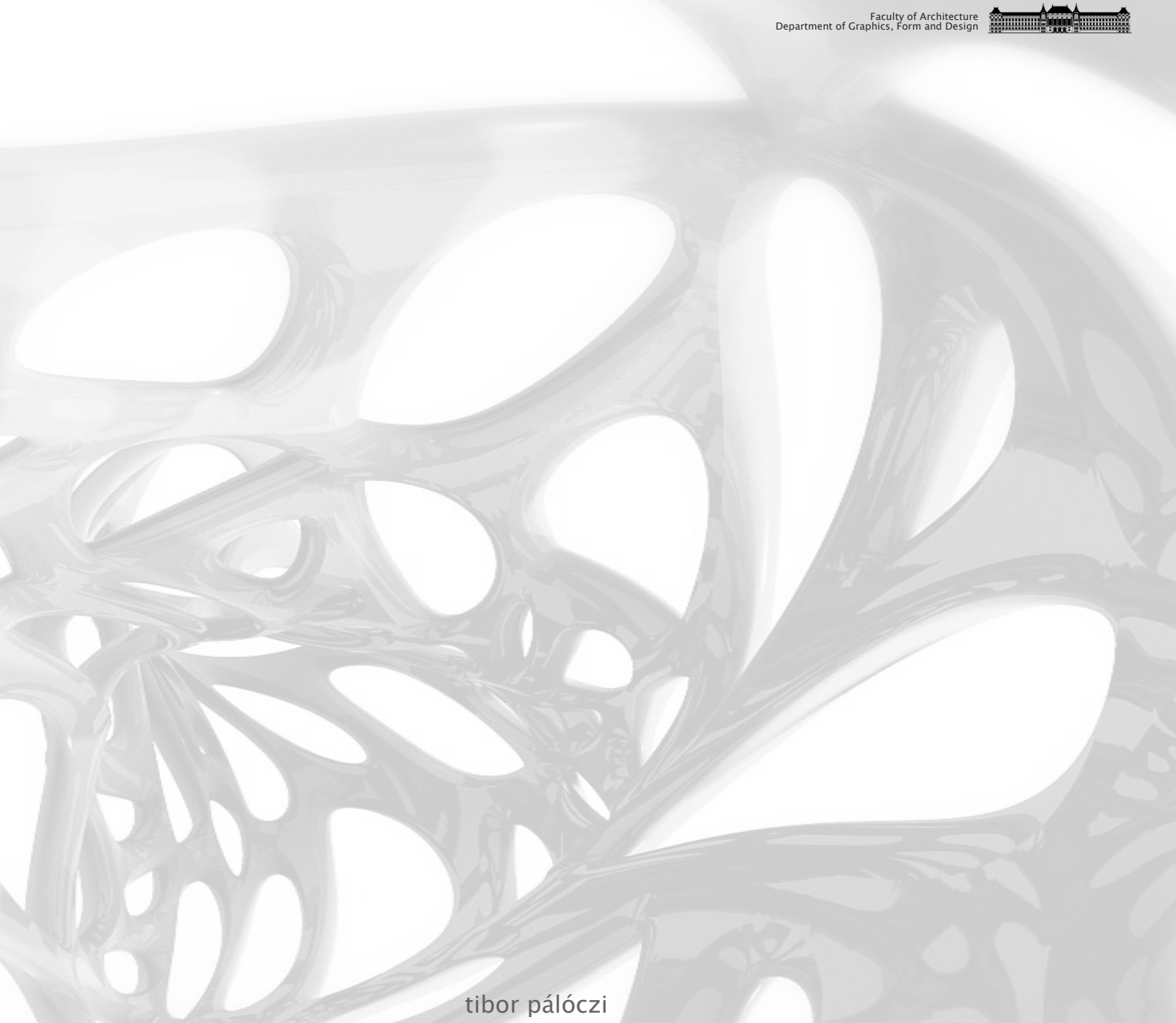
Faculty of Architecture
Department of Graphics, Form and Design



tibor pálóczi

FREEFORM SURFACES MODELING

FOR ARCHITECTS

BUDAPEST — 2020 SPRING

course description

course

BMEEPRAQ80G - Freeform Surfaces Modeling for Architects

host department

Department of Graphics, Form and Design

faculty/education

Architecture/ General - master english program

lecture/practice/labor (weekly)

0/2/0

time in education

9. Semester

prerequisites

according to the Code of Studies and Exams

short description

In this comprehensive modeling class students learn to create and edit accurate freeform 3D NURBS models and simple rendering. This fast-moving class covers most of Rhino's functionality, including the most advanced surfacing commands and rendering commands will be discussed in this class.

softwares

NURBS-based CAD software (McNeel Rhinoceros 3D v6.x)

requirements

- visiting the class by the Code of Studies and Exams
- submitted work within deadline
- to enroll the course, the student will be able to use basic features of architectural CAD and graphics softwares (except Rhino 3D)

instructor

Tibor Pálóczi

about the teacher

Szombathely (HUN) 1977 • Diplom 2002 TUB • Masterschool XIX. Cycle • teacher since 2006

contacts

t.paloczi@rajzi.bme.hu
+36.20.56.99.150
http://rajzi.bme.hu/en/

objectives

classification of course

This class – DRAWING 8 – is obligatory for all students at Faculty of Architecture.

credit

The attainable credits is 2 in case of successful accomplishment.

aim of course

Primary aim is to know and to create the freeform surfaces and shapes precisely. Further goals are to document and to publish them as well as to visualize. A further goal is to develop students' visual skills, to recognize the application of knowledge in the right place and proportion, and to become aware of technological opportunities.

educational methods

Freeform surfaces modeling course is a practice with the use of computers. Classes contain the theoretical and practical knowledges, where students can acquire the curriculum, therefore visiting the class is obligatory.

rules for participation

Participation in the exercises is compulsory, and a meaningful presence is recorded in the course guide catalog. Failure of more than 30% will result in failure to complete the course and the student will lose credit for the course.

assessment

The focus of the course assessment is on the practical application of the theory into the project, so during the semester the student has to complete a semester-related practical assignment, which is prepared independently at home with regular tutor consultation. See the detailed semester project below.

expectation

After this course the student is expected to be able to:

- move comfortably around the Rhino modeling window,
- identify when freeform or precision modeling is required,
- create and edit curves, surfaces, and solids,
- use modeling aids for accuracy,
- produce simple renderings of the Rhino models.

syllabus

class 01 – 11/02

introduction · opening presentation · requirements

class 02 – 18/02 rh

fundamentals of rhino 3d · logic of software

class 03 – 25/02 rh

editing techniques · drawing tools · bool operations

class 04 – 03/03 rh

basic transformation · move, rotate, arrays and so on · consultation (chosen exercise)

class 05 – 10/03 rh

basic surfaces and shapes · extrude, revolve, chamfer, etc

class 06 – 17/03 rh

CV and weightening · curvature and evaluate

24/03 – Preliminary S W

class 07 – 31/03 rh

freeform surfaces · loft, rail, sweep, network and so on

class 08 – 07/04 rh

advanced transformation · orient, blend, twist, smooth, flow, cage, etc

14/04 – Spring Holiday

class 09 – 21/04

individual consultation (essential steps of 3d modeling)

class 10 – 28/04

individual consultation (actual modeling)

class 11 – 05/05

individual consultation (physical modeling)

class 12 – 12/05

evaluation of semester

05/19 – Studio Week

cloud folder

link

All sharing of the course (lectures, exercise files, literature, etc.) and the student's semester projects are uploaded via the GOOGLE DRIVE Cloud Folder. The cloud folder link is on the website of course.

semester project

aim of task

Use the skills you learned to design and create a small-scale design project which contains at least one freeform surface or shape. Students will also be working outside of class on project for a minimum of 1 hours per week.

desciption of exercise

It is necessary to model, document and - if possible - make physical models of small-scale freeform object(s) with freeform surfaces. The object can be a small architectural element (shade, roof, pavilion, etc) or a furniture (chair, desk, etc) or any design object (lamp, jewellery, etc). Submission of assignments is mandatory and a prerequisite for successful completion of the course.

submission parts

Fulfillment of the semester project is done by submitting (uploaded) documentation in digital form (and analogously in the case of a mock-up). The format of the documentation should fit the content and include the following parts:

- cover page (basic information — university, student's name, date, etc.)
- description (short description about the plan)
- drawings (plan, section, views, unrolled views, etc — minimal annotations with simple graphic style)
- visualization (technical illustration and/or simple 3d rendering or high-quality mock-up photos — min. 3/max. 10 images)
- physical model if possible (scale proportional mock-up)

formal requirements of layout

The graphic style of the plans is arbitrary, but the following points should be adhered to:

- simple, modest graphic design and typography
- proportional page size (e.g. landscape A4 or 16:9 scale-size)
- rather a multi-page „booklet" than a large tableau
- put work parts into separate pages
- vector drawings and/or printing quality (min 150ppi)

Students will receive further guidance and samples as the semester progresses.

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submission instuction

Submit your completed assignments by uploading. Please use the cloud folder of course. Parts of assignments must be merged into one file (ZIP/RAR/ISO/etc). Please use this naming structure: surname_firstname_projectname.pdf (or any file extension)!

deadlines

22.05. Submission of Project (Friday until 12 am)

29.05. Final submission of Project (Friday until 12 am) late submission - late fee applies!

way of evaluate

Student project will be evaluated based on the followings view-points (order is at the same time the order of priorities):

- concept and form
- accurate of 3d modeling
- quality of documenting
- physical model quality
- meeting the deadline

evaluation

The student's grade at the end of the semester is computed by the satisfactory completion of the semester plan submitted by the deadline and the active and adequate participation in practical classes.

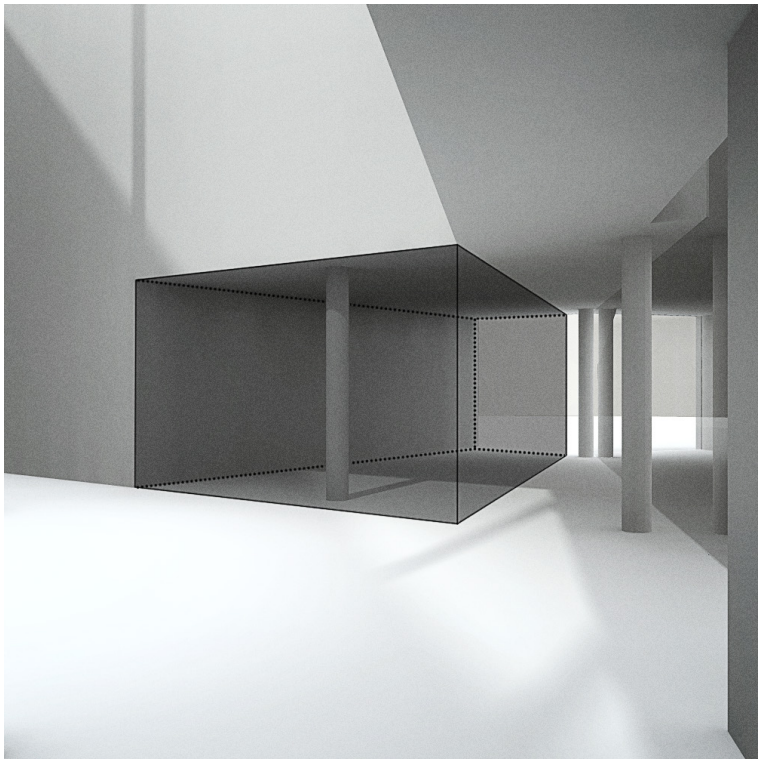
optional task

The "sites" and features detailed in the following pages are available to a student who does not wish to use their own unique idea. (The digital 3D model of the building can be found in the appendix to this PDF.) But within that, the student can also make unique concept regarding the location (building, interior, etc.) and task type (furniture, utility, etc.), which is related to the semester, to the course syllabus.

task types

01 buffet/bar

An indoor serving desk/bar that is connected to the downstairs consumer area.



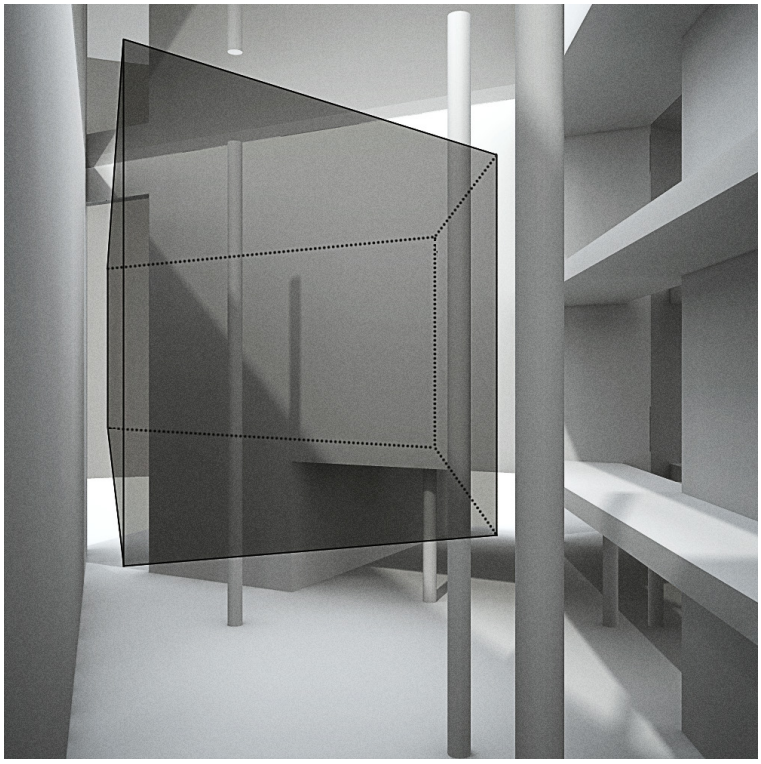
02 wall covering

Plastic, spatial movement of the high walls of the foyer. You can also think in patterns for cover the walls.

task types

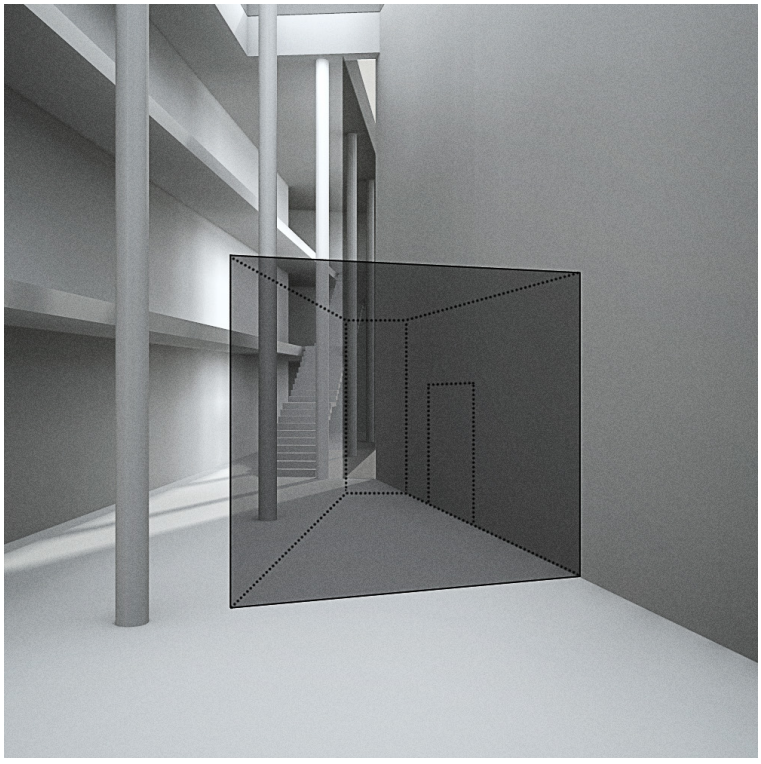
03 floating volume

Functional room (eg. meeting room) or other object (eg. lamp [group]) floating/suspended into the lobby airspace



04 entrace

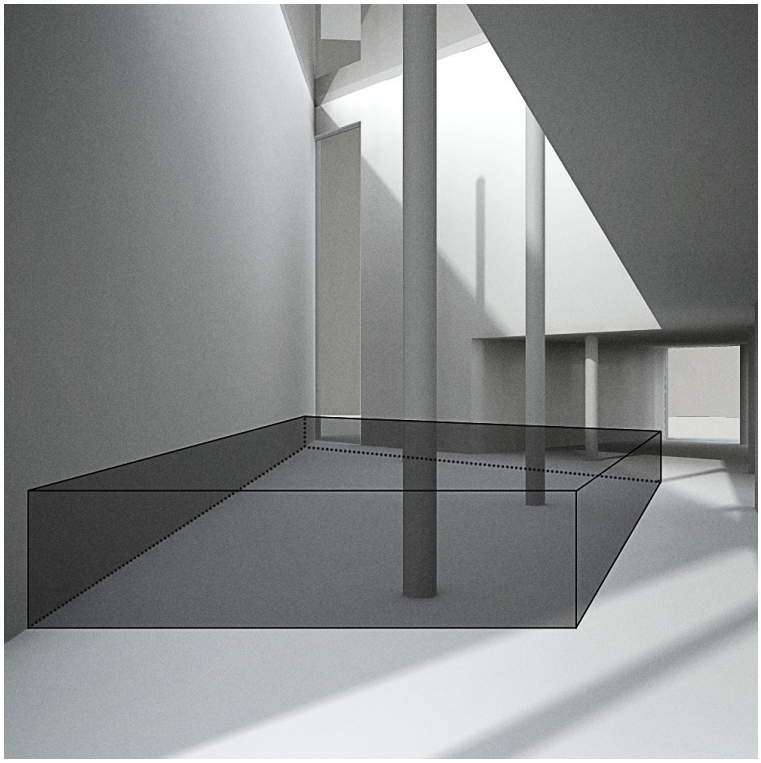
A boundary space or surface with an air-locking feature that extends into the foyer.



task types

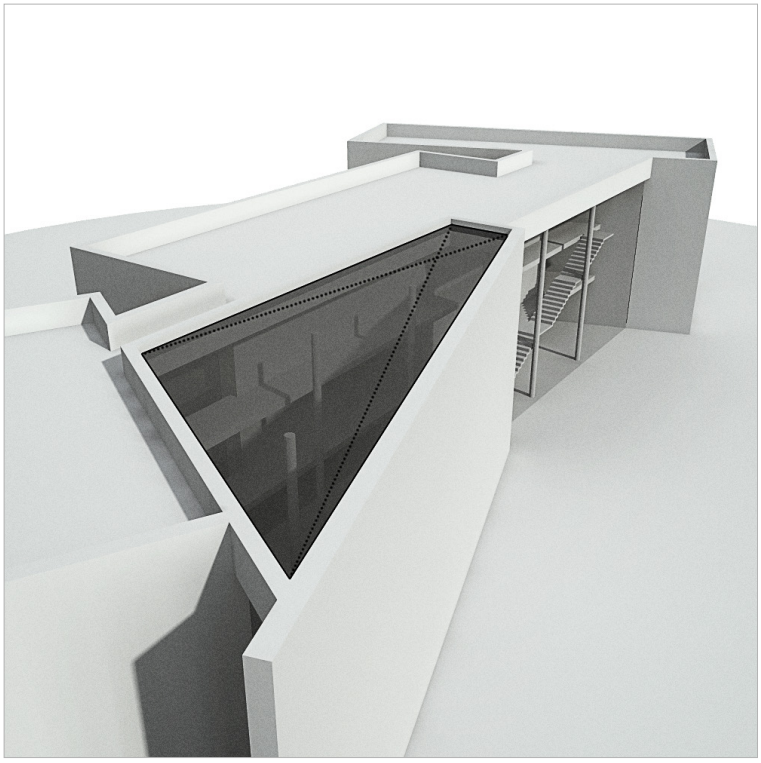
05 furniture

A furniture-like object placed in the lobby area for receptions/ relaxation/gaming/etc.



06 roof

Top closure of the foyer, including the skylight function.



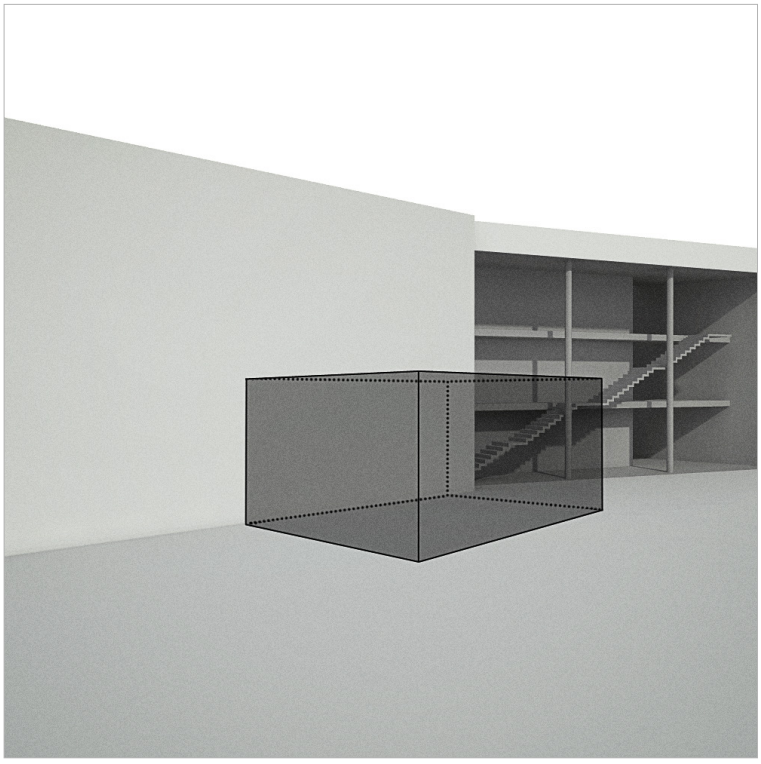
task types

07 glass wall

The design of the transparent surface delimiting the staircase with, for example, a shading function.

08 entry

Functional building part, structure or space (eg. canopy, air-lock) that emphasize the entrance of the building.



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