Dr. Becker Gábor

Introduction to Building Constructions

General Information

www.epszerk.bme.hu

Budapest University of Technology and Economics
Faculty of Architecture Department of Building Constructions

Introduction to Building Constructions

course materials: Dr. BECKER GÁBOR prof. univ.

lecturers and practical teachers: Gyorgy IGAZ dr.
Eszter HÓBOR

department website: www.epszerk.bme.hu ➡ Courses in English

the course is registered with a final mark

notes: your own notes made during the lectures
department guide based on the lecture material

The composition of the final mark

class examination	max. 60 points	min. requirement 30 points
semester project	max. 100 points	min. requirement 50 points
notes prepared during lectures	max. 20 points	min. requirement 10 points

all sub-tasks individually must reach the minimum 50% for course completition.

total possible maxiumum of points: 180

final course mark:

0 – 89	fail (1)
90 – 109	pass (2)
110 – 129	medium (3)
130 – 149	good (4)
150 – 180	excellent (5)

important dates of the semester

class examination to be announced (appr.: on the 9th. class date)

re-write : to be announced (appr.: on the 13th. class date)

second re-write: during the exam period

semester (home) project

final deadline: as per collective faculty date

late submission: as per faculty date (fee and penalty!)

according to the regulations of the Faculty of Architecture, all late submissions will be automatically penalized with a 20% deduction. Late submission is only possible on the date defined by the Dean.

hand written notes must be prepared during the lectures by each student. The notes must be submitted with the semester projects.

Lectures and practical excercises

1. I. General information. Course contents, the position of the course in the overall curriculum of the department. Primary structures of buildings.
2. II. Comfort requirements. Requiremenst of space separator structures. Thermal and acqoustical behaviour of structures.
3. III. Structural systems. Walls, pillar frames, slabs.
4. IV. Slabs and stairs. Foundations, waterprofings.
5. V. Roofs: flat and pitched roofs. Partitions.
6. VI. External walls, facade coverings. Doors and windows.
7. Practical excercise: Structural systems
8. Practical excercise: The structures of a family house 1.
9. Class Examination
10. Practical excercise: The structures of a family house 2.

11. and 12. Semester project consutlation

on taking lecture notes

- use important key words

  e.g.: notes – will be marked ⟶ „mandatory”
- sketch diagrams
- into blank excercise book or plain paper, use pencil
- about „architectural” writing

about learning building construction materials

- reading alone will not do
- only by sketching – drawing simultaneously

the technical expression of „building constructions”

buildings + structures + learning

the structures of a building:

building elements that suffice various tasks and functions

→ everything, that composes, constructs the buildig

„building constructions”

the subject of building construction amongst other subjects of architecture

why should we know?

- professionally found decisions (technical, construction, material)
- performances, the definition of the requirements (eg. house entry door)
- especially important during reconstructions (an expected 60%)

who needs this?

- designers (generally and also for beginners)
- investors, technical controllers
- constructors
- property managers, faciliyt managers, breakdown managers
- real-estate experts, insurance, investment personnel

without it?

- „stylist architect" – remains on the surface (not technically definitive)
- Phoenix Architecton, architect practices, AA London

a change in the views: environmental, energy issues – becomes important

the necessity to know

the subject of building construction amongst other subjects of architecture

what if we lack the knowledge?

- the result will be different from the inteded – quality, view, cost

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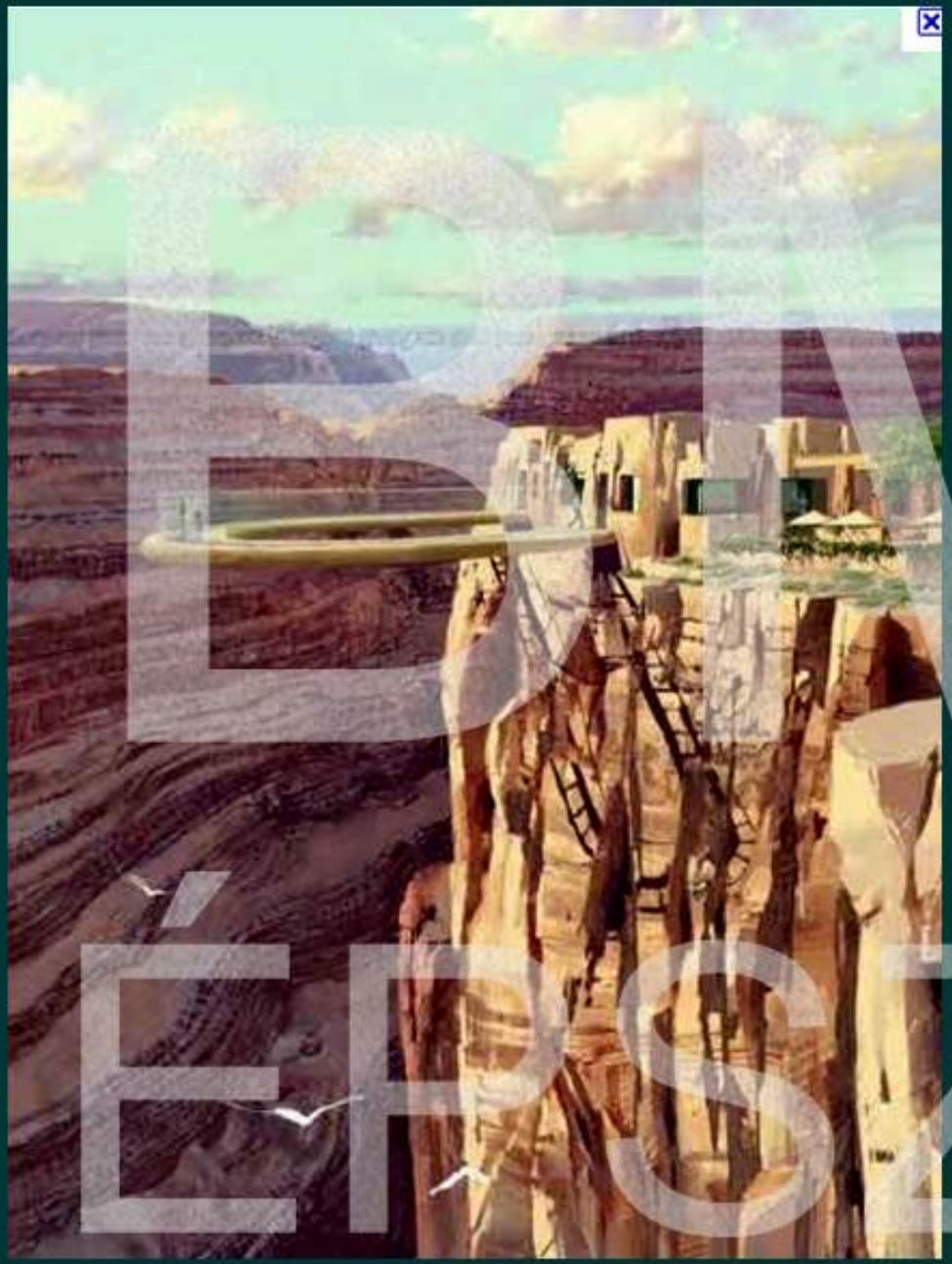
the necessity to know

the subject of building construction amongst other subjects of architecture



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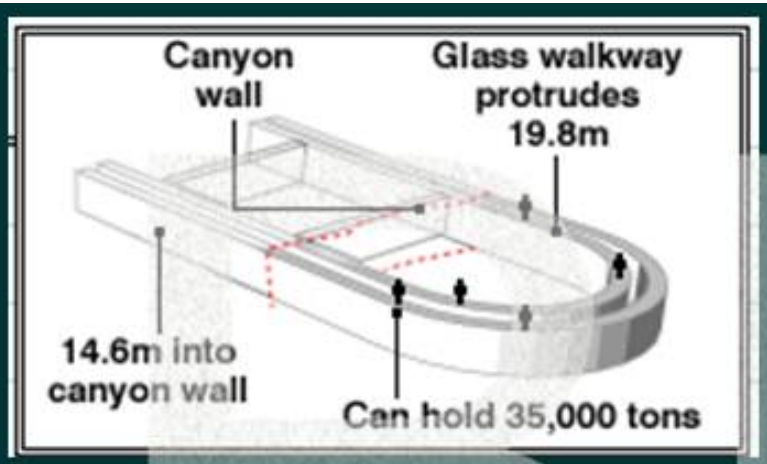
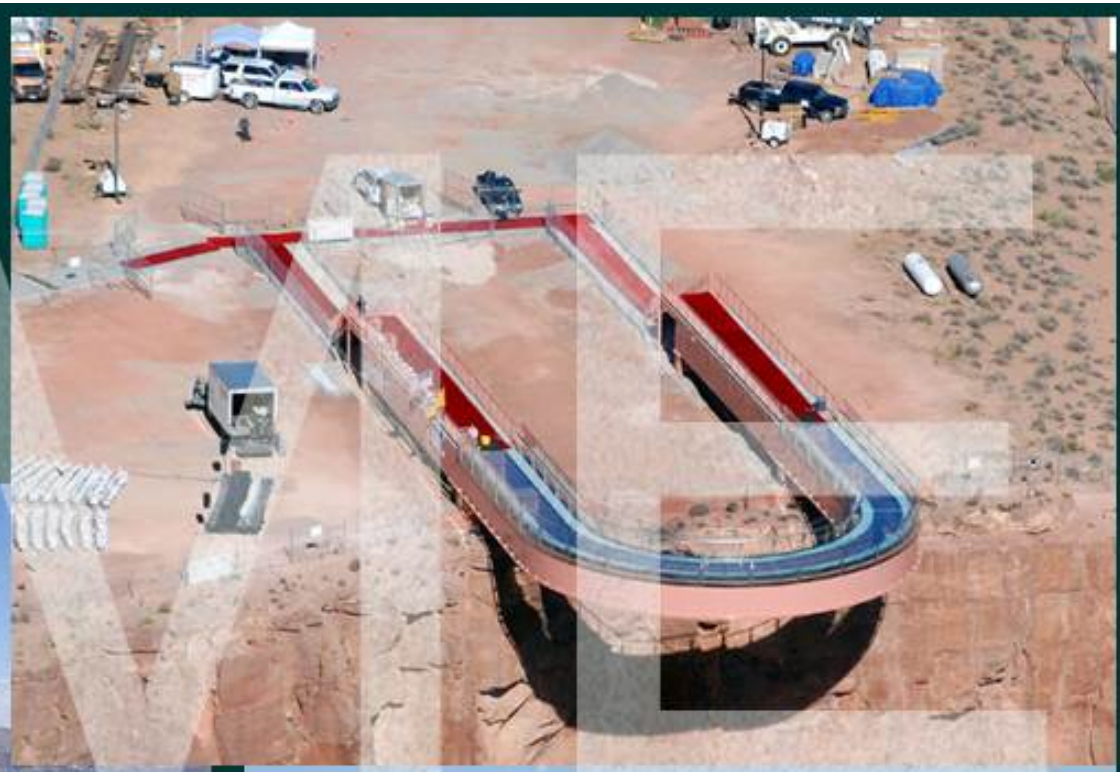
the necessity to know

the subject of building construction amongst other subjects of architecture





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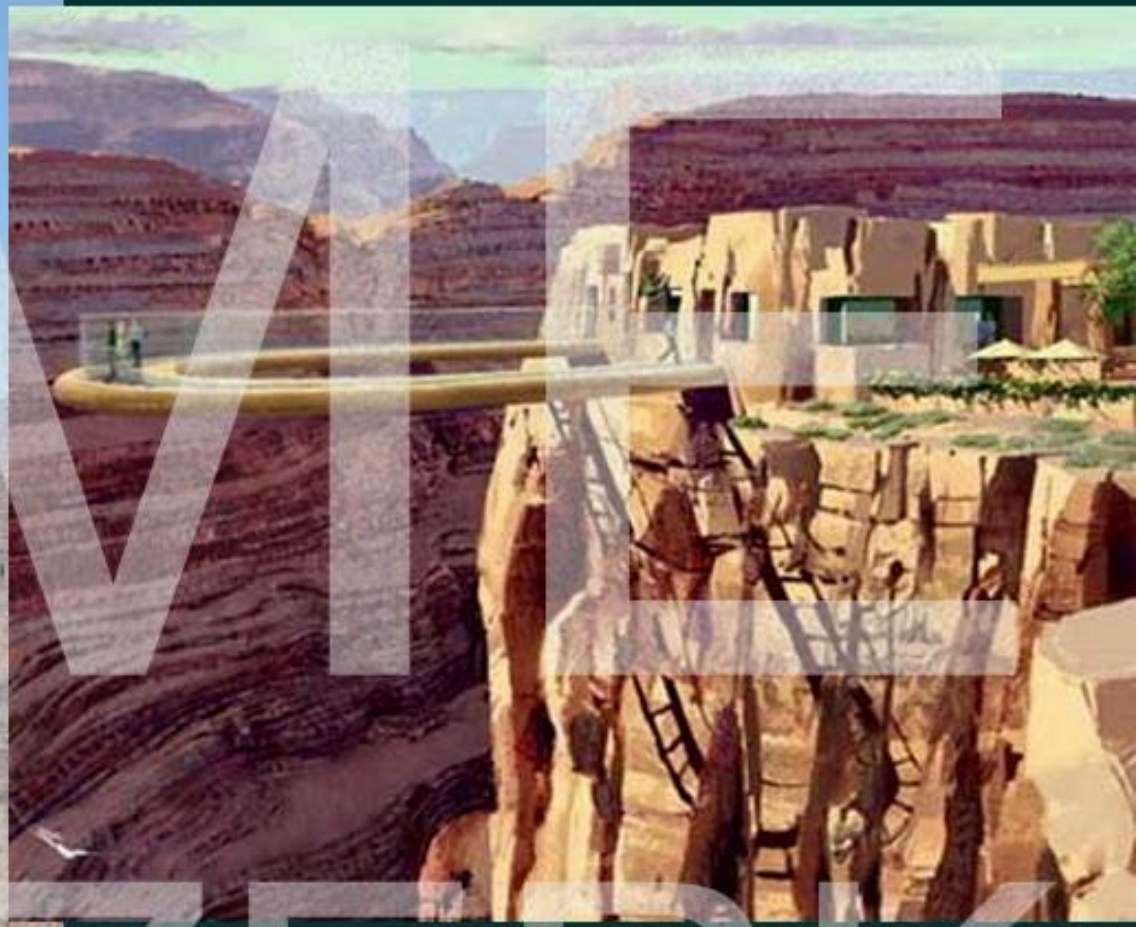


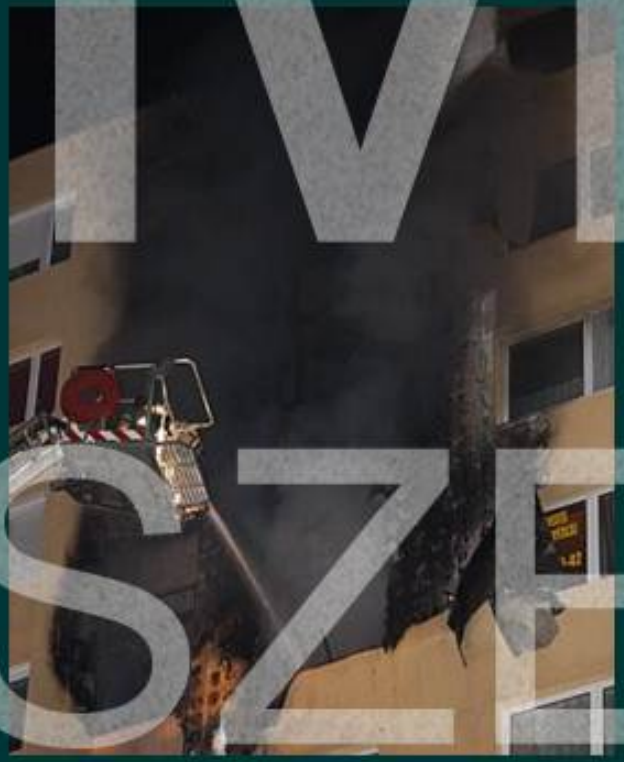
ÉPÍTÉSZERK

the necessity to know

the subject of building construction amongst other subjects of architecture

what if we lack the knowledge?

- the result will be different from the inteded – quality, view, cost
- low comfort (eg. noise), leakage, mildew, deterioration
- we allow the possibility for accidents, even life endangering (eg. floor, hanlebars, fire danger)



the necessity to know

the subject of building construction amongst other subjects of architecture

what if we lack the knowledge?

panel fire in Miskolc, 2009. August 15th.

the necessity to know

the subject of building construction amongst other subjects of architecture

what if we lack the knowledge?

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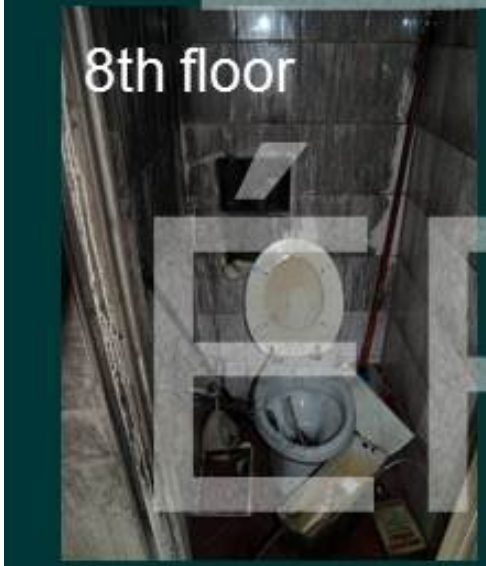
the 7th. floor after the fire

the necessity to know

the subject of building construction amongst other subjects of architecture



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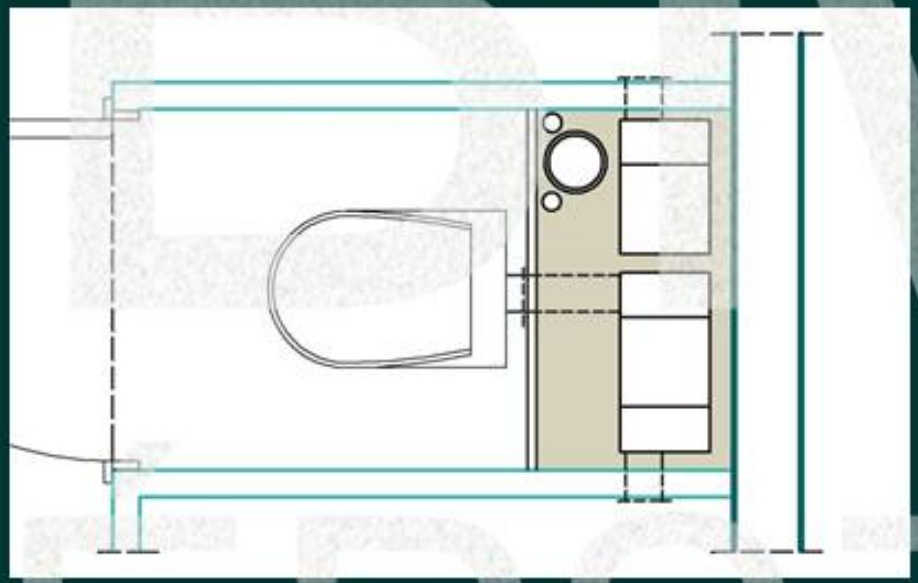
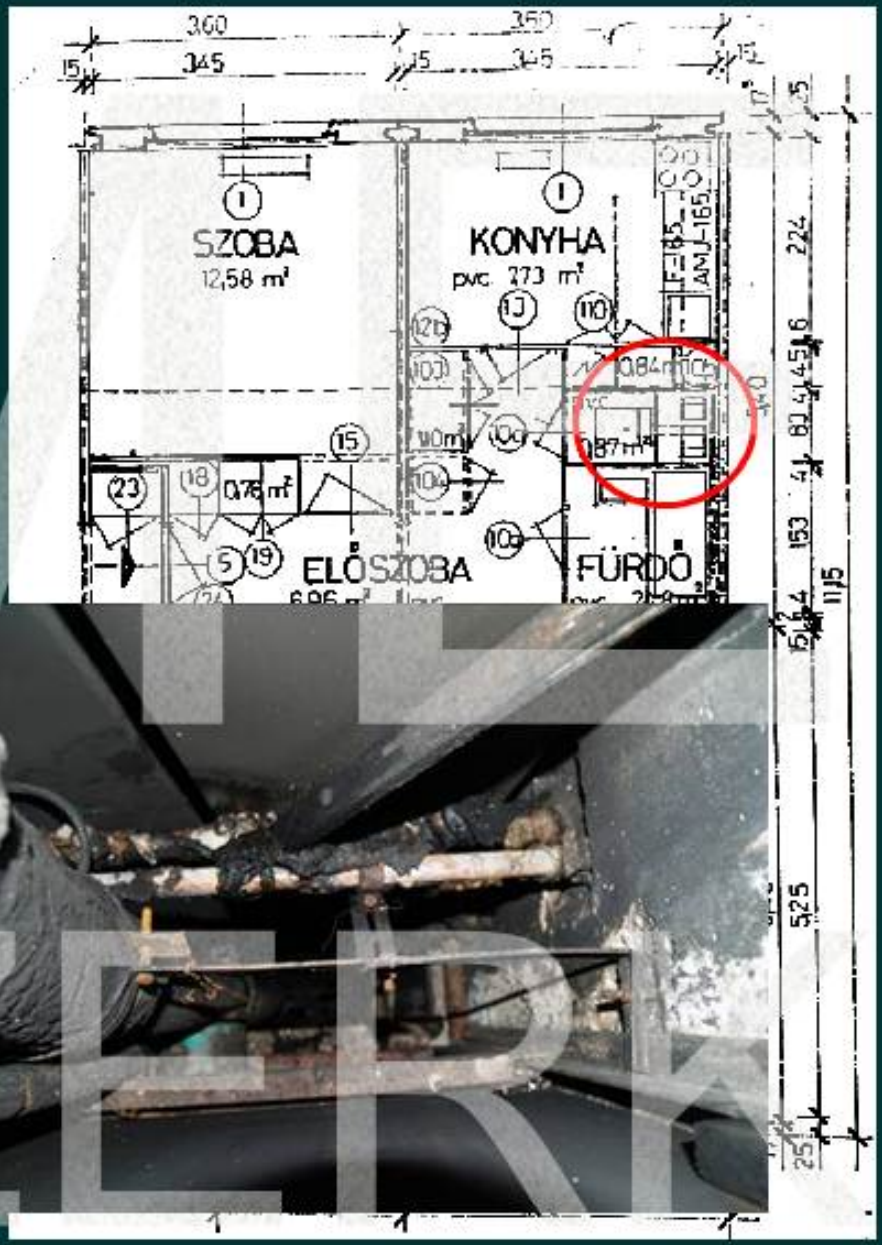
the necessity to know

the subject of building construction amongst other subjects of architecture

what if we lack the knowledge?

building machinery
shaft





panel fire in Miskolc, 2009. August 15th.

the necessity to know

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Introduction to Building Constructions

Primary structures

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the structures of a building:

building elements that suffice various tasks and functions

→ everything, that composes, constructs the buildig

the structures of a building:

building elements that suffice various tasks and functions

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facade

the structures of a building:

building elements that suffice various tasks and functions

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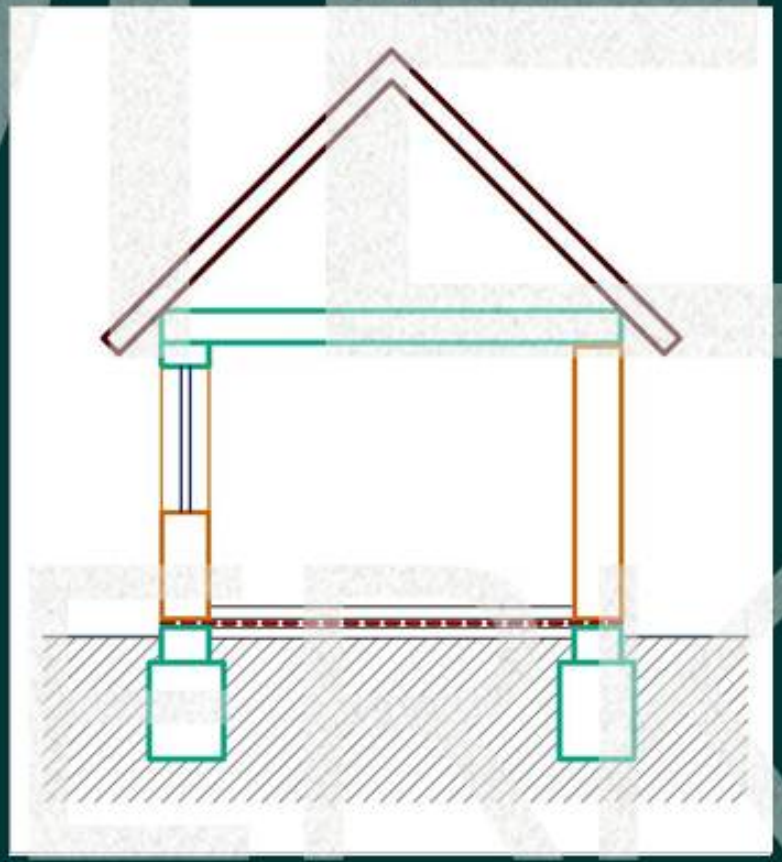
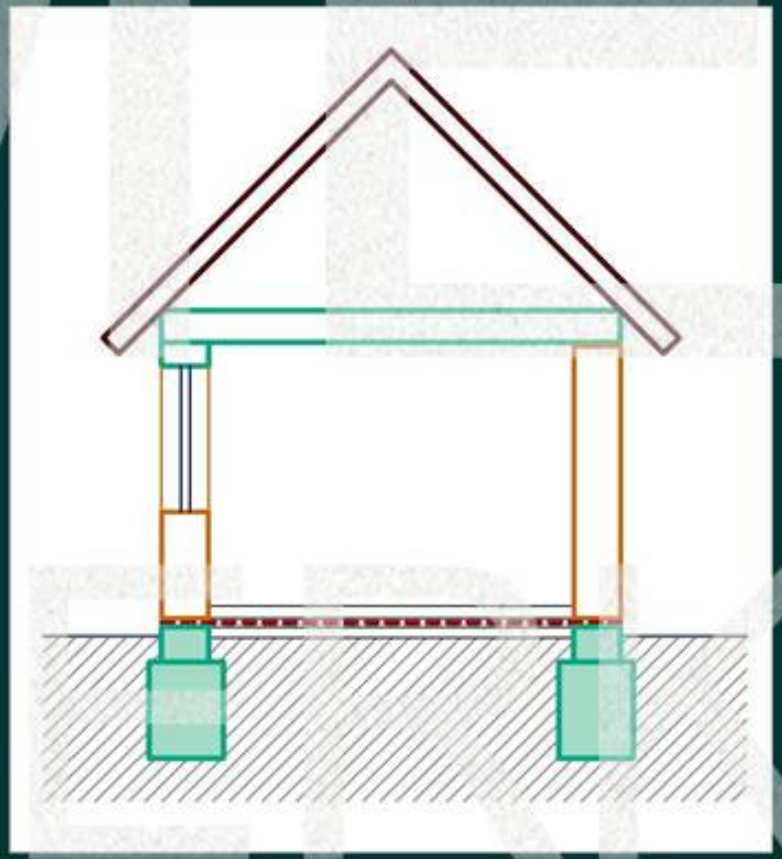


section

the structures of a building:

building elements that suffice various tasks and functions

→ everything, that composes, constructs the buildig



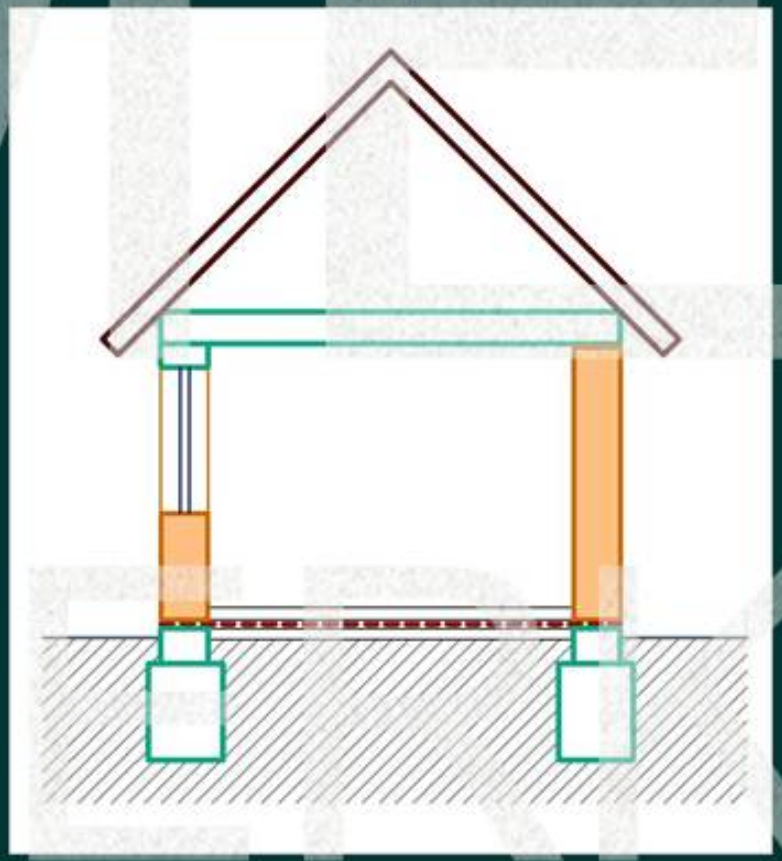
foundations

the structures of a building:

building elements that suffice various tasks and functions

→ everything, that composes, constructs the buildig

walls



the structures of a building:

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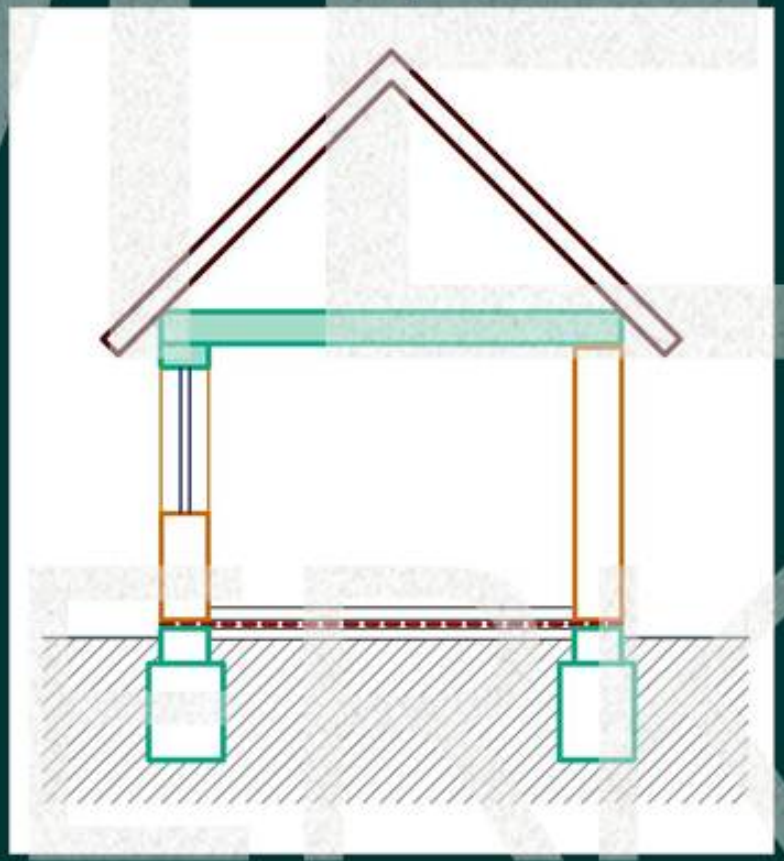
→ everything, that composes, constructs the buildig

slabs



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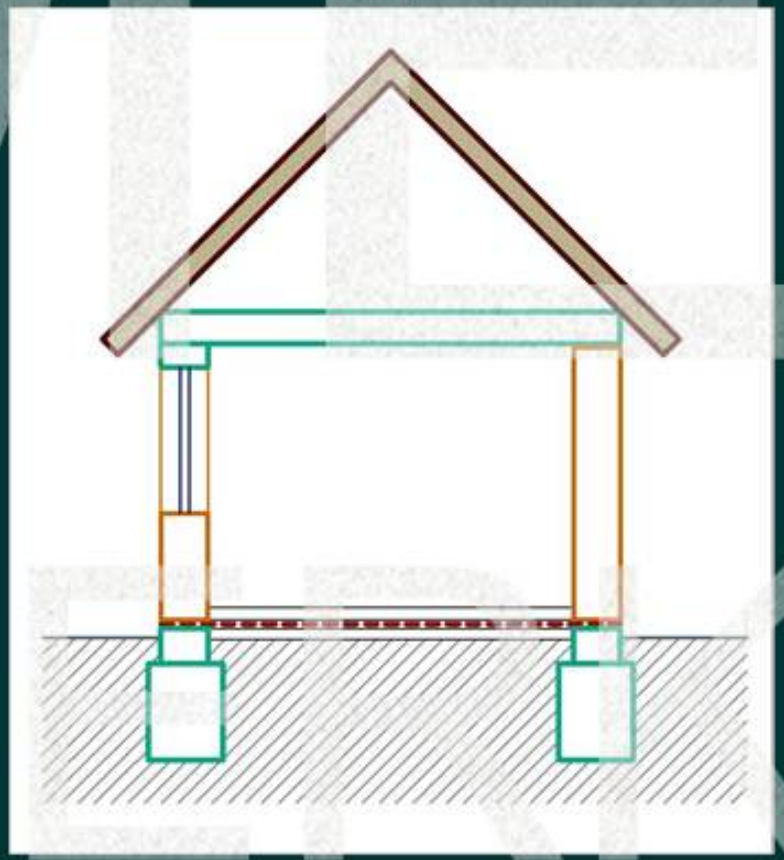
→ everything, that composes, constructs the buildig

(pitched) roof

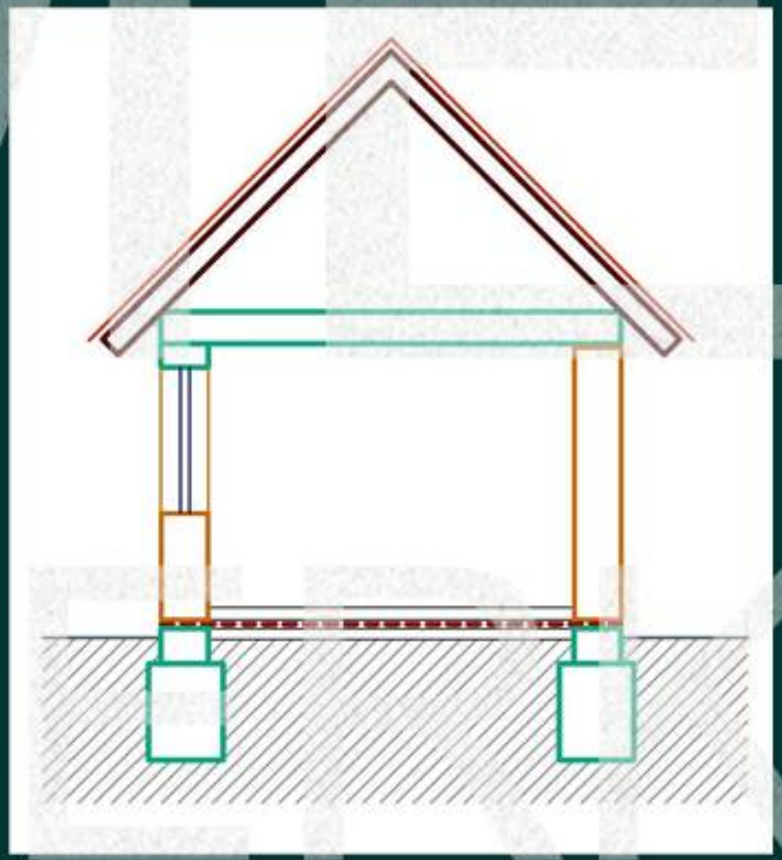


the structures of a building:

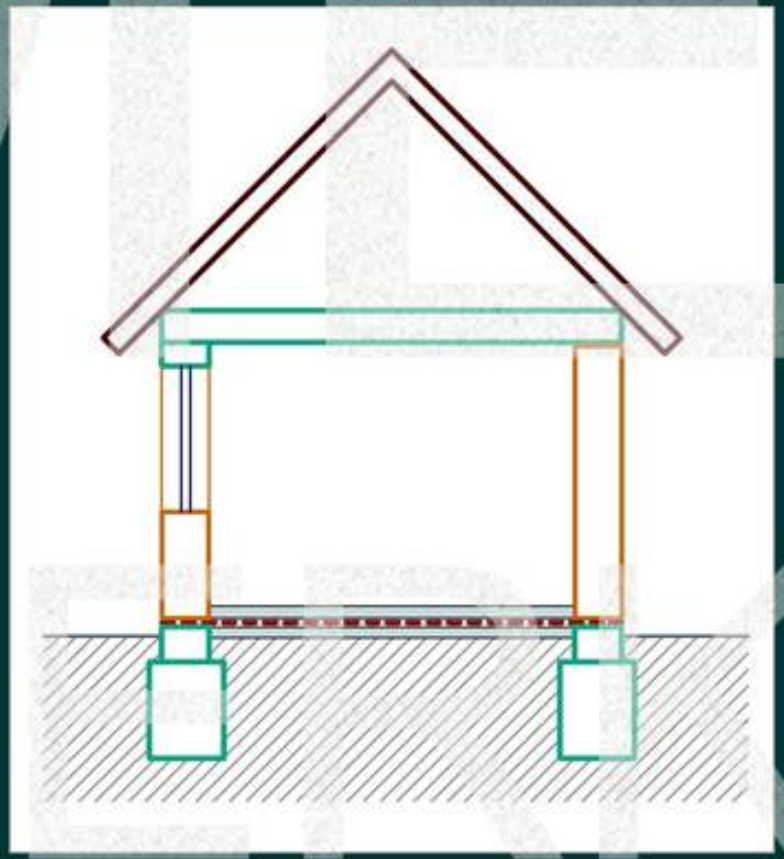
building elements that suffice various tasks and functions

→ everything, that composes, constructs the buildig

roof covering



(ground) floor slab



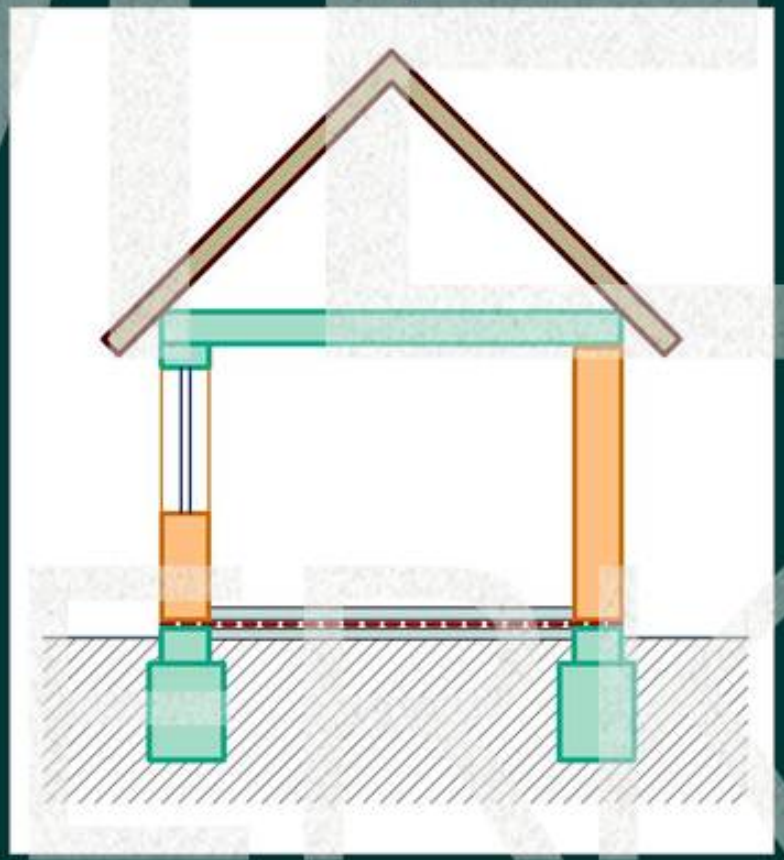
primary structures

introduction - about primary structures

the structures of a building:

building elements that suffice various tasks and functions

→ everything, that composes, constructs the buildig



cross-section

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earthwork, foundations

the construction stages of a traditional structured family house

walls, slab steelwork

the construction stages of a traditional structured family house

BIVALY ÉPÍTÉSZERK

slab forming, concrete work, walls

the construction stages of a traditional structured family house

TETŐSZERKEZET

roof structure and covering

the construction stages of a traditional structured family house

the structures of a building:

building elements that suffice various tasks and functions

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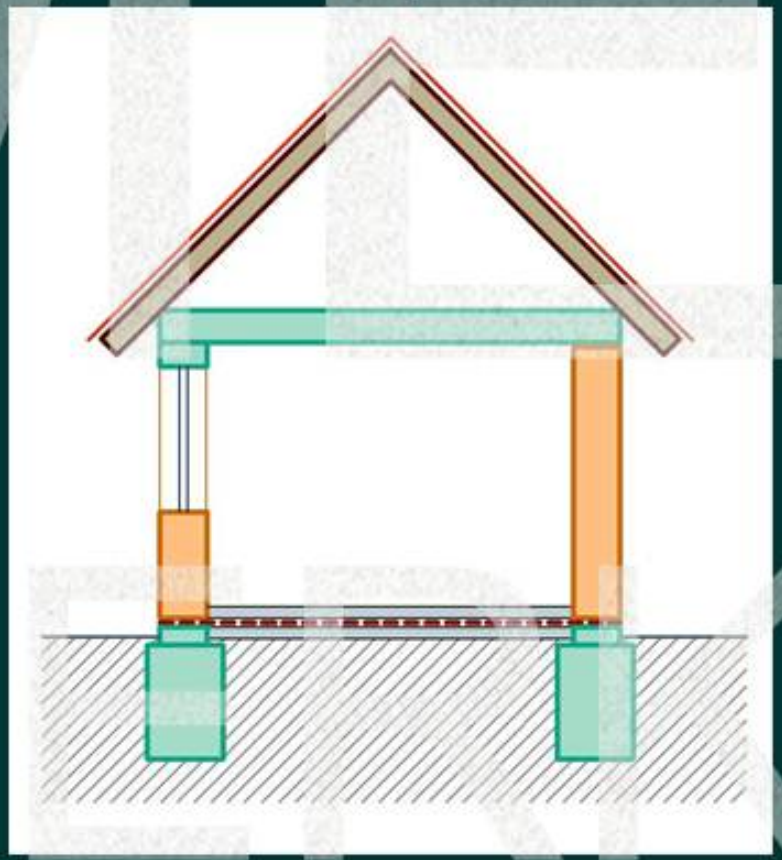


cross-section

foundation, framework

the construction stages of a small, wood-frame house

DIY HOUSE WORK

framework, roof and facade covering

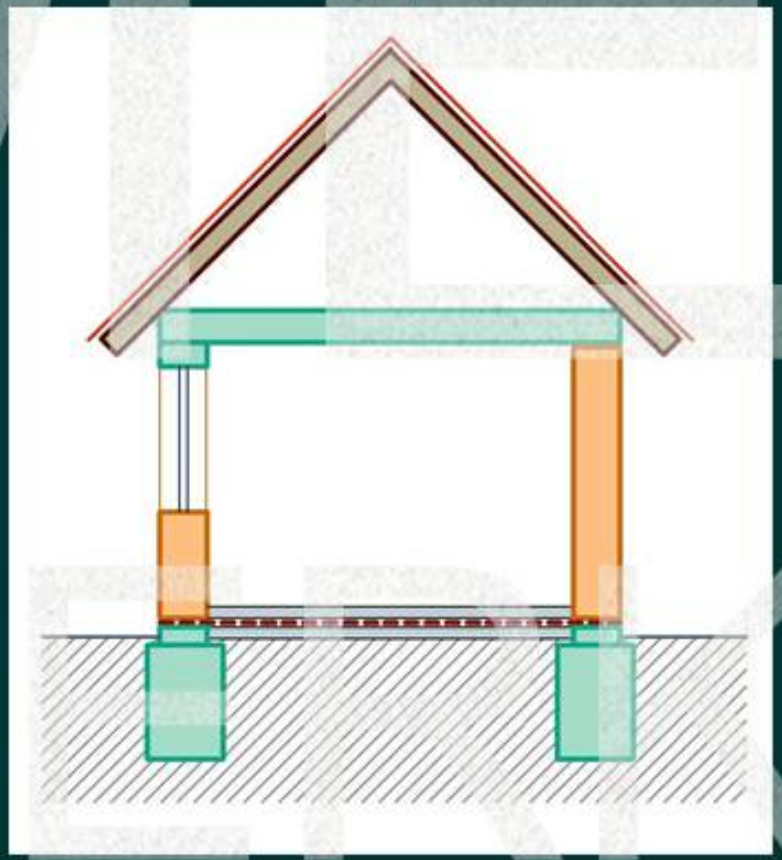
the construction stages of a small, wood-frame house

the structures of a building:

building elements that suffice various tasks and functions

→ everything, that composes, constructs the buildig

there are not only traditionally made wall structure buildings



section

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primary structures

introduction - about primary structures

primary structures

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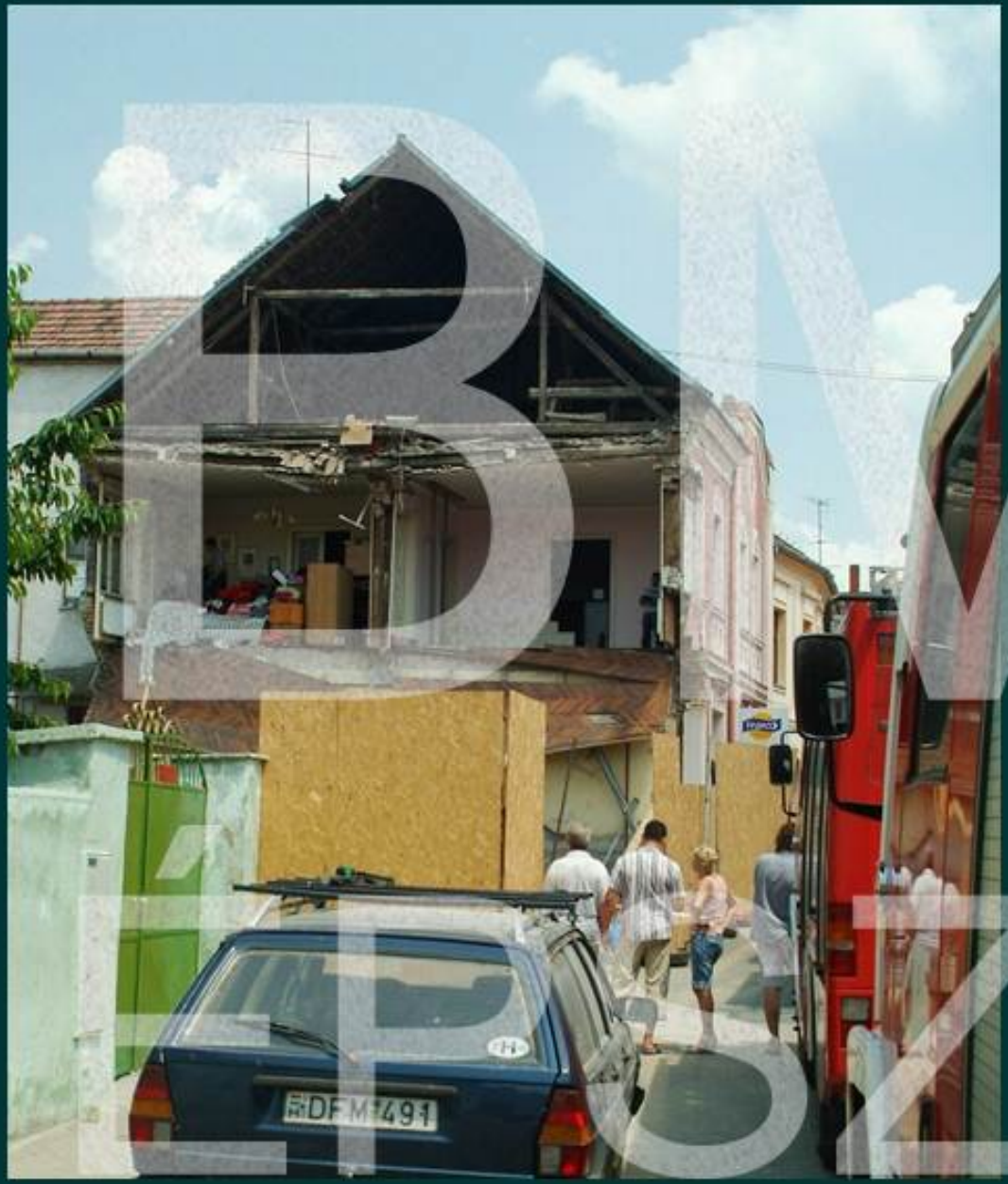

primary structures

introduction - about primary structures

- general information, dates
- defiining building constructions:
  building components that suffice various tasks and functions
- the position of the subject in the overall subjec of Architecture
- the necessity of the subject of building constructions
  (why, whom? what happens if we do not know?)
- the basic building components are:
  - foundations
  - walls (+ doors and windows)
  - slabs
  - (pitched) roofs, roof coverings
  - (ground) floors
- the construction stages of a traditional structured family house
- the construction stages of a small, wood-frame house

terminology

footings

roof coverings

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basic information

information – course, lecturers, parctical teachers, contact information

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about the profession

- multi-color, various professional applications
- „off-course” within the profession
- variability

basic information

information – course, lecturers, parctical teachers, contact information

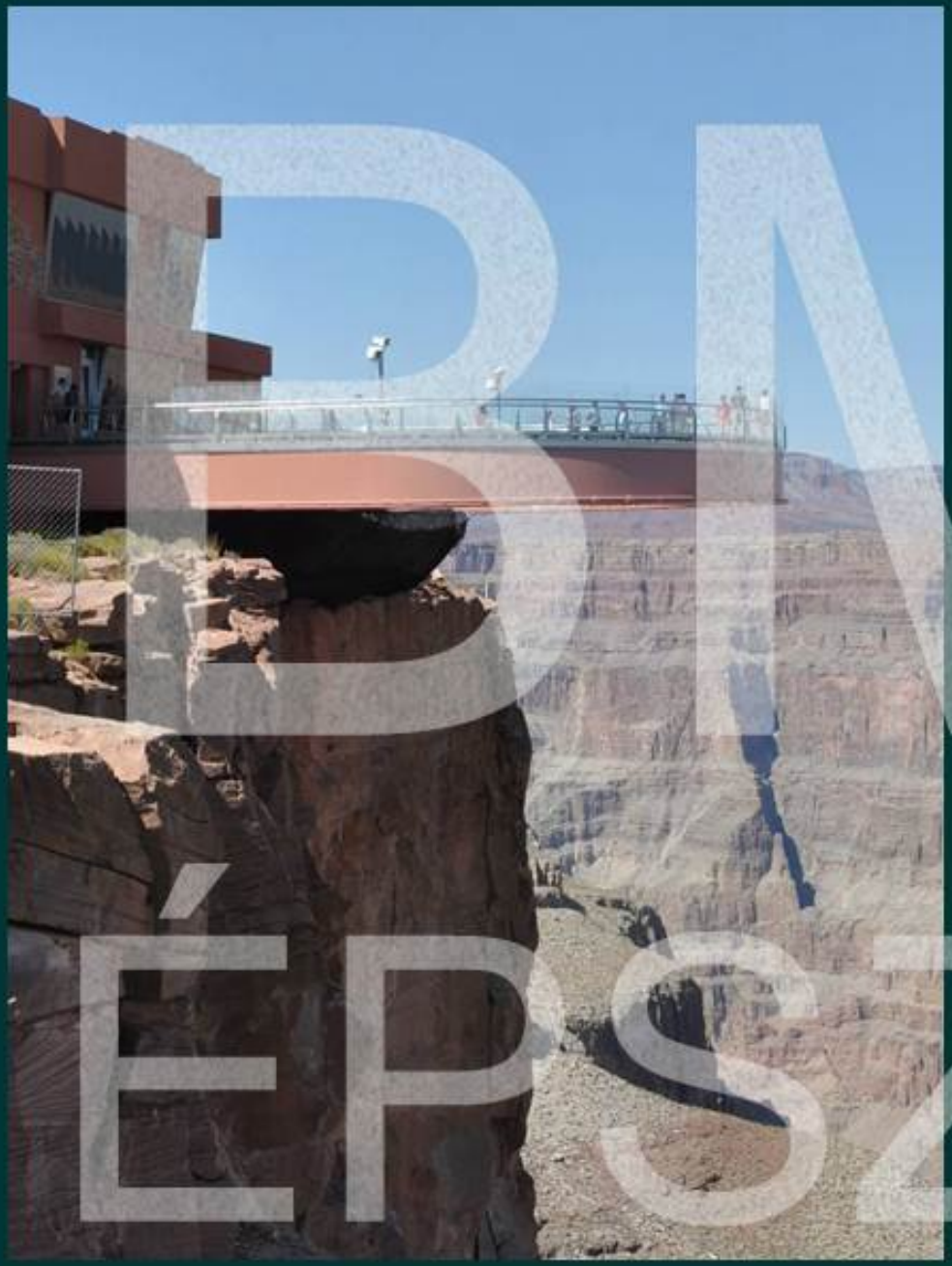
intent

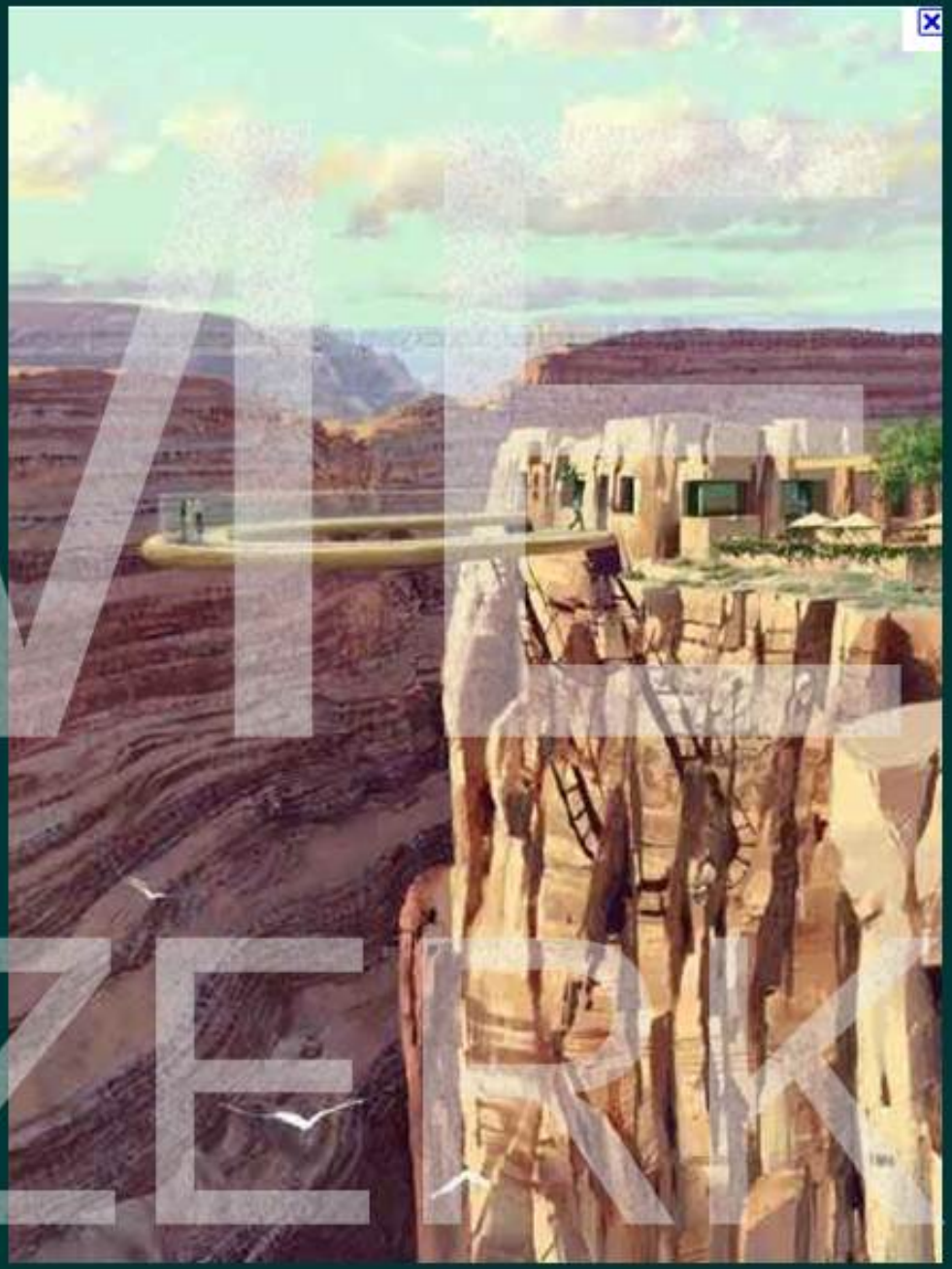
- own use
- investment
- municipality (social or development intent)

lot – purchase, selection (local regulations, orientation)

design

- program: the vision
- draft plans – sturctures are in the „background”
- permit plan – defined structures, but in small scale, also in writing
- tender plans
- construtcion plans
- production plans





DIVI ÉPÍTŐSZERKEZETEK

basic information

information – course, lecturers, parctical teachers, contact information

glass use in architecture

internal partitions
- internal windows
- glass walls (element, panel)
- internal doors

external partition (glazing)
- glasses, curtain walls
- elemental glass walls
- skylights, glass roofs
- complex glass structures

self-supporting glass structures
- „framless glass" applications
  linking plate connection, etc.
- structured curtain walls
- hung glass walls
- spot fixed glass walls

load bearing glass structures
- rigid rail type glass panels
- walkable glass
  - false floors
  - glass slabs
  - glass stairs

structural elements
- glass ribs (vertical)
- glass beams
- pillars
- frame grids