**History of building construction 2018/2019**

**Lesson 6 Exercises**

**8th April 2019**

**Glossary**

Bracing

Bolt

Rivet

Skeleton Frame

Cast iron

Wrought Iron

Curtain wall

Spandrel wall

I beam

Span

Girder

a) A piece of metal like a screw without a point which is used with a circle of metal (like a nut) to fasten things together;

b) A large or principal beam of steel reinforced concrete or timber used to support concentrated loads or isolated points along its length;

c) Structural elements installed to provide restraint or support (or both) to other members, so that the complete assembly forms a stable structure;

d) In a tall building of steel-frame construction, an exterior wall that is non-loadbearing, having no structural function;

e) A short pin, of a malleable metal with a head at one end used to unite two metal plates by passing it through a hole in both plates and then hammering down the point to form a second head;

f) a hard type of iron that does not bend easily and is shaped by pouring the hot liquid metal into a mould;

g) A commercially pure iron of fibrous nature; valued for its corrosion resistance

and ductility;

h) The distance apart of any two consecutive supports, esp. as applied to the opening of an arch.

i) A structural metal beam having a cross section resembling the letter I.

l) A type of steel construction, usually for buildings of considerable height, in which the loads and stresses are transmitted to the building foundation by a framework of steel columns and beams that support the walls;

m) In a multistory building, a wall panel filling the space between the top of the window in one story and the sill of the window in the story above.

**Who is the author…**

«The frame has come to possess a value for contemporary architecture equivalent to that of the column for classical antiquity and the Renaissance.»

*Mies van der Rohe, Colin Rowe, Sigfried Giedion*

«It is the opinion of some leading architects of Europe and America that it is entirely practical to eliminate masonry by using metal mullions , as in the Bauhaus. Or, if one desires to have solid walls for architectural effect, one may use metal panels between the mullions.»

*Robert Davison, Le Corbusier, Walter Gropius*

**True or False**

Tall buildings functioned as giant, vertical cantilevers, firmly anchored at the base, with a distributed load of wind over their entire surface.

*□ True □ False*

“Wrought” and “cast” referred to the methods of aluminium production, but also to chemical content.

*□ True □ False*

Wind bracing became an important part of structural frames as a matter of course in the boom of 1890–91 in Chicago.

*□ True □ False*

A riveted connection doesn’t offer any stiffness or reliability.

*□ True □ False*

Ludwig Mies van der Rohe(1886-1969) was a German-born architect known as the leader of the International Style.

*□ True □ False*

William Le Baron Jenney argued that the switch from cast-iron to steel columns had been the most crucial development in the realization of the tall metal frame.

*□ True □ False*

**Reading Comprehension**

**The Chicago Frame and the Dilemma of the Wall** (*Contemporary Curtain Wall Architecture*, Princeton Architectural Press, New York, 2011, pp. 10-23) By Scott Murray

p.11

In his essay Colin Rowe underlined the universal theme of the frame structure, describe its primary features

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Why is the skeleton frame considered an “architectural dilemma”?

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p. 12

The Chicago School: architects and buildings

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p. 16

The development of the iron application as delineated by Kenneth Frampton

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The origins of the standard I beam shape

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p. 17

The list of the buildings that anticipated the modern curtain wall system (New York and St.Louis)

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p.18

The effect of the frame on the bearing wall considering the position and the openings

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p.19

Describe the “vernacular language of the curtain wall” in Fagus Building (W.Gropius and A.Meyer)

Describe the curtain wall concept applied in two early-twentieth-century commercial buildings

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p. 22

The “most striking elements” of the Bauhaus workshop building

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Engineering and architecture in the XXth century buildings

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