evropský sociální fond v ČR
EVROPSKÁ UNIE
MINISTERSTVO ŠKOLSTVÍ, MLÁDEŽE A TĚLOVÝCHOVY
OP Vzdělávání pro konkurenceschopnost
INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

TECHNOLOGIE A MATERIÁLY

ZEDNÍK

3

JAZYKOVÉ VERZE – VYBRANÉ KAPITOLY

(AJ, NJ)

Název a adresa školy:

Střední odborné učiliště stavební Pardubice s. r. o., Černá za Bory 110, 533 01 Pardubice

Autoři: Karel Kroulík, Lenka Štěrbová – AJ, Jan Bartoš – NJ

Název projektu: Inovace odborné výuky odborných oborů

Číslo projektu: CZ.1.07/1.1.28/02.0033

NĚMECKÁ VERZE

3 PODLAHY str. 28

3 FUßBODEN

Bodenbelag liegt auf der tragenden Struktur - ein Betonsockel oder Decke.

Fußboden - Funktion

a) ästhetische

b) Betriebs - begehbar, mobile

a) Chemische Beständigkeit

b) Isolierung - thermische, akustische und wasserfest

Die drei Grundlagen von Fußboden

a) Tragen: Fliesen, PVC, Linoleum, Parkett, Leisten, Teppichboden (JEKOR), Kunststoff-Beton, Kork

b) Träger / Puffer / Zementestrich, Spanplatten, Holzrost, Faserzementplatten , Gipsplatten, OSB-Platten

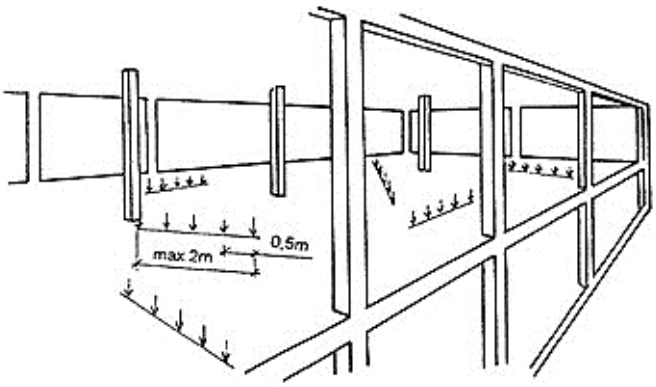
c) Isolierung: Wasser, Wärme-und Schalldämmung Boden

Böden nach der Anzahl der Schichten

a) Einzelschicht

b) Zwei-Schicht

c) Drei-Schicht



Ungleichheit (ČSN 74 4505)

- + / - 2 mm bis 2 m - Wohnzimmer
- + / - 3 mm - andere Räume
- + / - 5 mm - Produktion und Lagerhallen, Garagen

Abweichungen von dieser Linie sind in fünf Plätze in einem Abstand von 500 mm entlang der Stange an den Enden und in der Mitte Abstand von 500 mm von den Enden gemessen.

Gemessen mit Standard-Keil 220/20 mm. Die Enden der Latten Quadrat-Pad auf dem Rand von 1-2 cm mit der Höhe.

3.3 Trockenböden

Arten von schwimmenden Fußböden:

Knauf F 141 - einfache

Knauf F 145 - Doppel

Knauf F 142 - isoliert

Vorgehensweise:

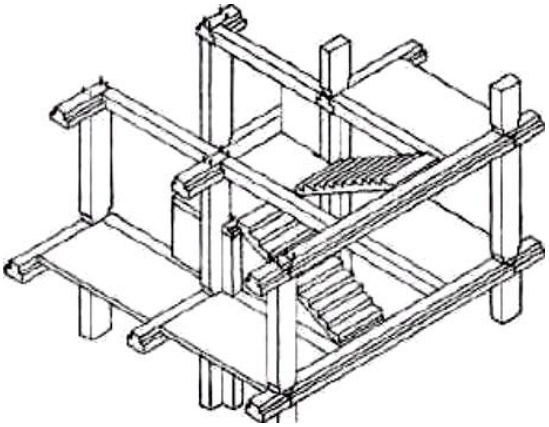
1. Fläche ausgleichen - Knauf - Fliesspachtel
2. Wir legen Basaltwolle, Perlite erweitert, um Wasserdampfbarriere, Polystyrol
3. Den Fußboden legen. Teile verbinden mit dem Leim in der Nut (UB Leim Knauf).
4. Die Dilatation zwischen Boden und Wand füllen wir mit Mineral und Silikonbändern aus.

ANGLICKÁ VERZE

7 MONTOVANÉ KONSTRUKCE str.85

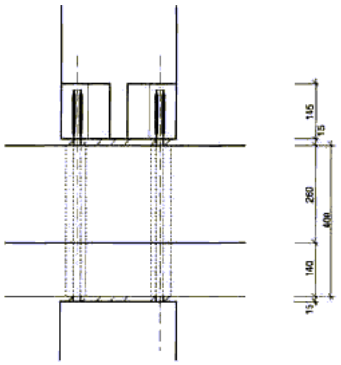
7 PREFABRICATED CONSTRUCTIONS

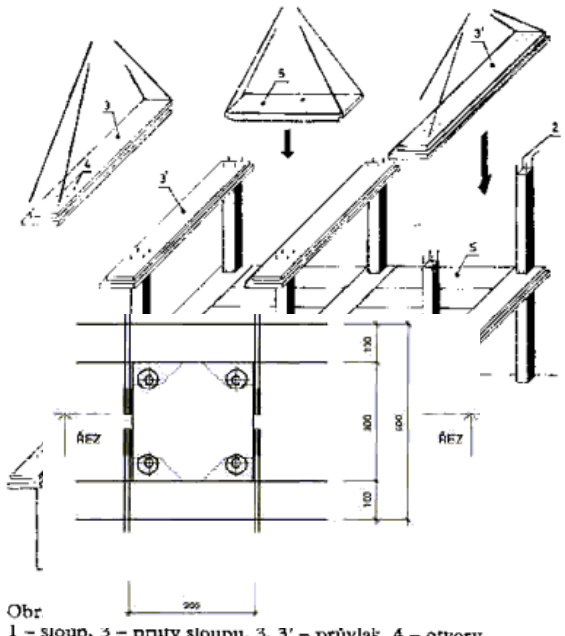
7.1 Prefabricated skeleton



S.1.2.

- A complete set from the second half of the 20th century.
- For civil constructions, industrial and agricultural buildings, for administrative buildings, shopping centres, schools, kindergartens, manufacturing plants, multi-storey garages, buildings for culture and sport
- Foundation footings, shafts, beams, columns, ribbons, stiffeners, reinforcing walls, ceilings, perimeter wall, stair parts, roof beams and boards
- Reinforcement of the columns passes through the drawing dies _ welded footings of the upper columns
- External wall: completed, sandwich like, and with a thermal insulating layer
- Structural module (axial distance of frames) **2.4 - 12 m**
- Floor height: optional (2.7 - **6 m**)
- Imposed load: 2.8 - **20 KN** / m2; it is increased by monolithing of a ceiling construction of a Kari network.





Obr
1 – sloup, 3 – pruty sloupu, 3, 3' – průvlak, 4 – otvory v průvlaku, 5 – stropní panel

Light skeleton

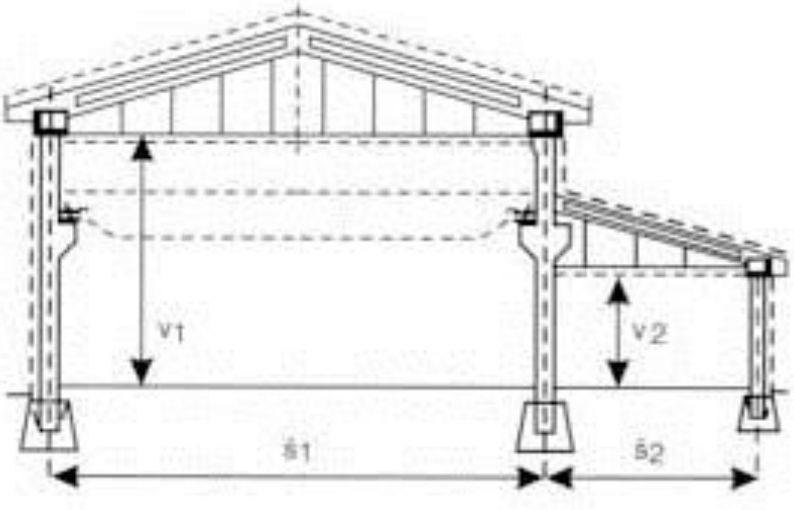
PREMO

- Height of the columns even for a few floors
- Beams on consoles without penetration (House of Technology, Globus)



1.1 Prefabricated halls

HALA JEDNOLODNÍ S PŘÍSTAVKEM - JUZO
Šířka Š1: od 12 do 18 m
Šířka Š2: od 7,5 do 9,6 m
Výška V1: od 7,5 do 9,6 m
Výška V2: od 3,4 m

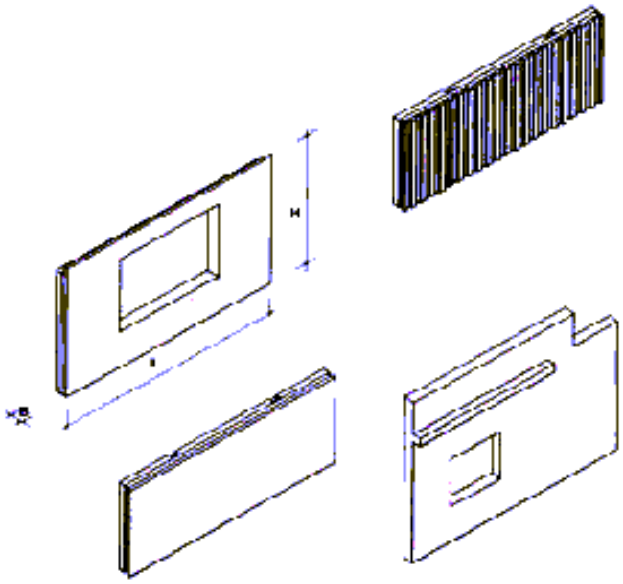


1.2 Wall systems

Wall sections

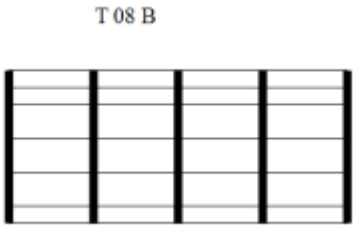
1. Supporting - internal, external and filling (with polystyrene of thickness of 5 cm - not suitable)
2. Loggia, attic, window
3. With windows and door frames or open penetrations
4. Reinforced concrete, ceramic, gas silicate

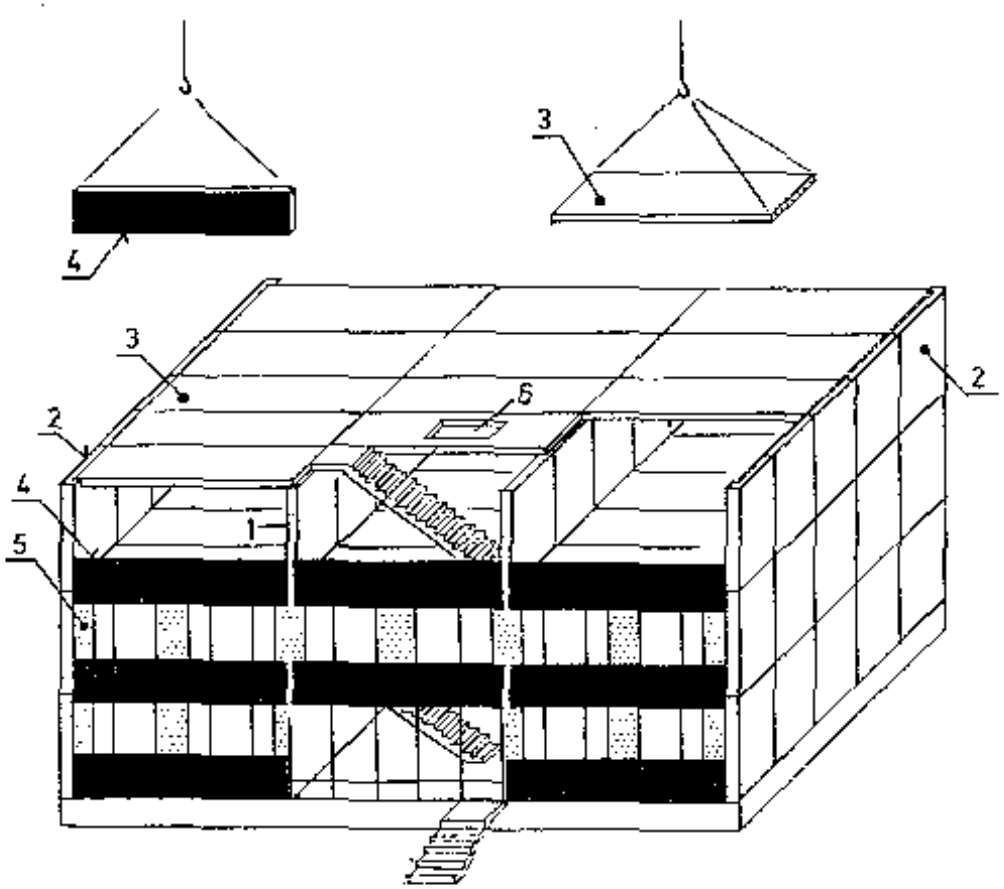
- Length: 60 – **480** cm
- Thickness: 14 – **25** cm
- Height: 124 – **278,5** cm



Prefabricated wall system T 08 B

- Older
- Transverse wall system
- Axial distance of walls: **6 m**
- Pardubice - Polabiny 1 – 4

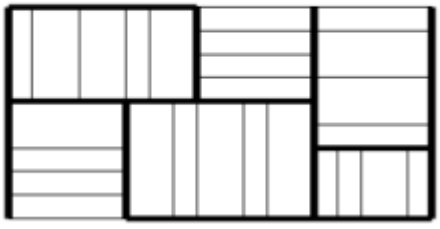




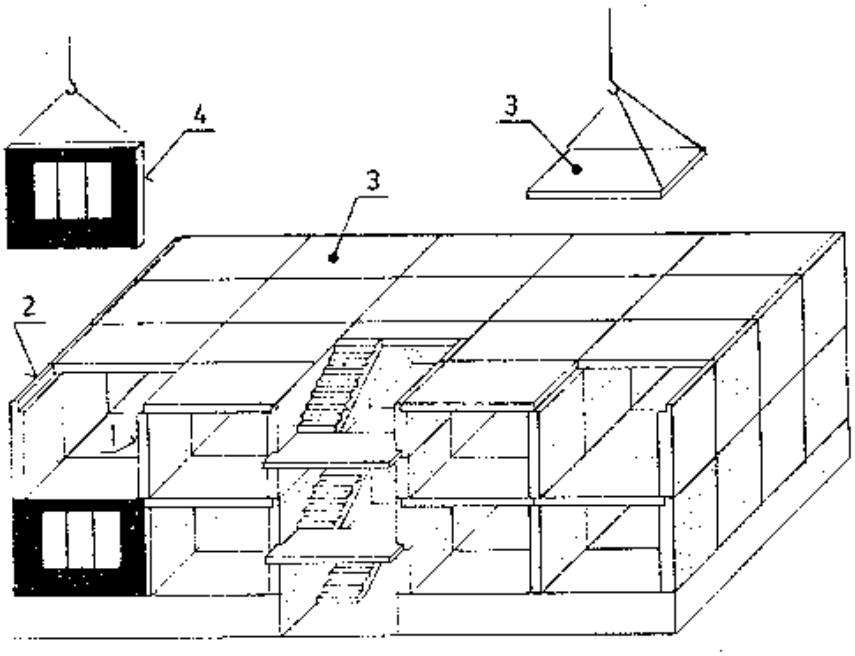
Obr. 16.11. Stavební soustava T-08B
1 – vnitřní stěnový panel, 2 – štítový stěnový panel, 3 – stropní panel, 4 – parapetní panel, 5 – meziokenní vložka, 6 – prostup pro výtahovou šachtu

Prefabricated wall system T 06 B

T 06 B

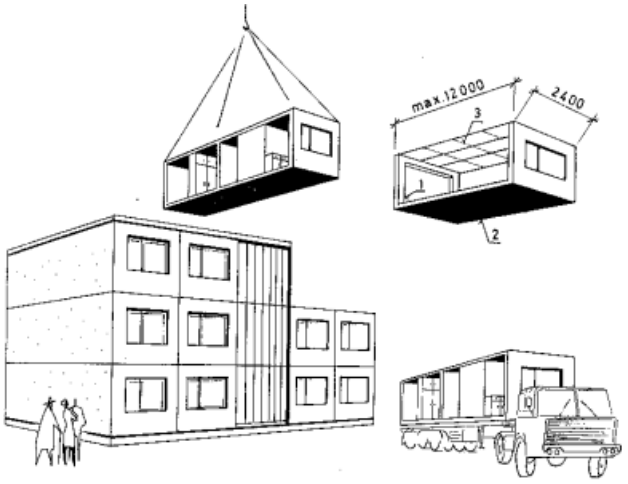


- New
- Axial distance of walls: **3,6m** (3m, 4,2m a 6 m)
- <u>Bidirectional</u>
- Pardubice - Dubina
- Advantages: speed, mechanization



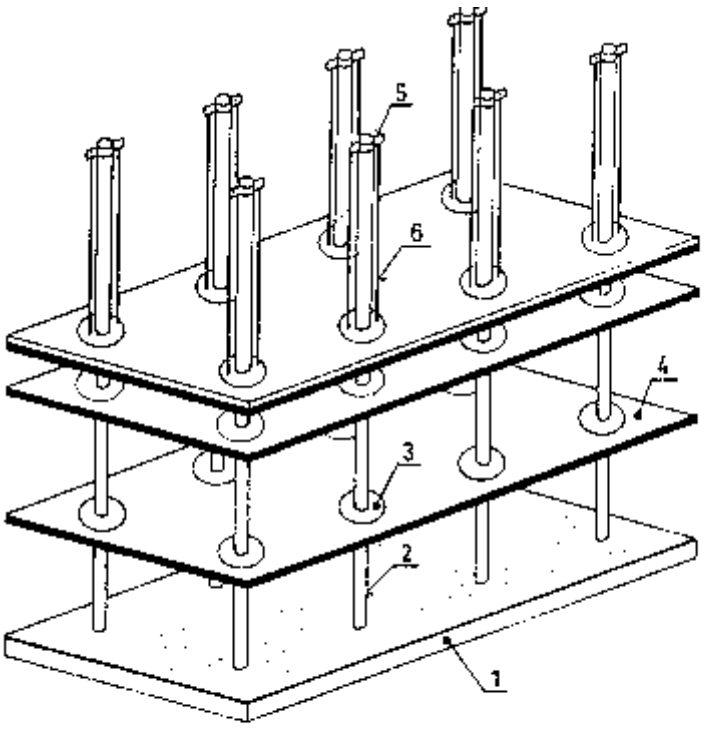
Obr. 16.10. Stavební soustava T-06B
1 – vnitřní stěnový panel, 2 – štítový stěnový panel, 3 – stropní panel, 4 – obvodový panel

1.3 Space system



1.4 Elevated ceilings

- Ferro concrete boards concreted gradually on the cardboard
- After hardening gradually lifted by a system of pulleys and welded to the columns



Obr. 16.14. LIFT SLAB
1 – podkladní beton přízemí nebo sklepa, 2 – sloup,
3 – kruhová hlavice, 4 – stropní deska, 5 – závěs vřeten,
6 – vřeteno

QUESTIONS FOR REVISION

1. How do we divide prefabricated structures?
2. What parts of prefabricated structures do you know?
3. What are the advantages and disadvantages of prefabricated structures?

10 VLIV STAVEBNÍCH MATERIÁLŮ NA ŽIVOTNÍ PROSTŘEDÍ str. 104

10 INFLUENCES OF BUILDING MATERIALS ON ENVIRONMENT

All activities associated with buildings, such as a design, construction, use, reconstruction and demolition have a direct or indirect impact on the environment.

Building, on the one hand, consumes natural resources (materials, energy, land, water), on the other hand, produces a range of wastes and pollutants (usually as a result of covering energy needs).

Influence of buildings can be assessed on several levels, according to various factors:

- Global level (e.g.: ozone depletion, global warming the greenhouse effect),
- Regional level (e.g.: environment acidification, eutrophication of waters, smog)
- Local level (e.g.: consumption of resources - materials, soil, water).

For many years the assessment of the impact of buildings has been carried out (and different processes) on the environment by EIA methodology, and according to law no. 100/2001 coll., about assessment of impacts on environment.

The purpose of the law is to eliminate environmental impacts as soon as at the stage of their project preparation.

10.1 The basic criteria for evaluating the energy performance of buildings

Energy consumption

Well-known, in practice now commonly used and often required by legislation, is assessment of the energy performance of buildings. To evaluate the overall energy performance of the building there are energy audits processed for several years, according to regulation no. 213/2000 coll., and its related rules. Less complete energy balance than a methodology of energy audits quantifies The Energy Performance Certificate according to executive regulation no. 148/2007 coll.

10.2 The energy label for the house or apartment

Since 2013, there is the new obligation for civil property owners, to issue an energy certificate of a property, in the following cases:

At sale

a) **A house** registered on the Certificate of Ownership as habitation over 50 m2;
b) **Commercial and administrative buildings**;
c) **Housing units** over 50 m2 (up to 2016 may be substituted by three invoices for annual energy bill)_

At rent

d) **The object to housing** - The whole part of the building (area greater than 50 m2);
e) **Commercial buildings, office buildings** (the entire building that is rented as for example_ business premises, offices);

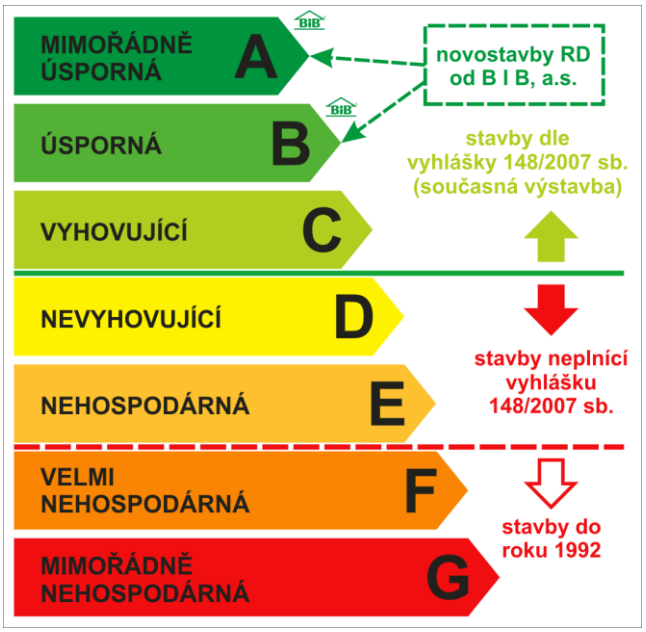
f) **Buildings of the state administration** with an area greater than 500 m2 (since 1. 7. 2013)_

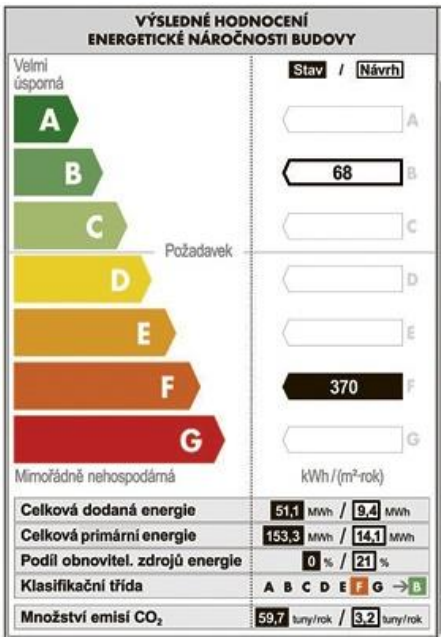
In the case disregard of the obligation you can expect a fine in the **range of 50 to 100 thousand crowns.**

Other issues relating to the issuing of energy certificates:

1. A new property owner has the right to claim from the original owner the processing of a card up to three years back from the date of the conclusion of **the purchase contract**. If the seller does not pass a building energy certificate to the new owner, he comes in the risk of financial penalties and possible disputes about the incompleteness of the purchase contract.
2. Obligation does not apply to **recreational objects and buildings or apartments with smaller area to 50m2.**
3. Prizes "PENB" for **new houses will start in around 3,000 Kč**

Druh budovy	Třída energetické náročnosti budovy spotřeba energie v kWh/m²/rok						
	A	B	C	D	E	F	G
	Mimořádně úsporná	Úsporná	Vyhovující	Nevyhovující	Nehospodárná	Velmi nehospodárná	Mimořádně nehospodárná
Rodinný dům	< 51	51 – 97	98 – 142	143 – 191	192 – 240	241 – 286	> 286
Bytový dům	< 43	43 – 82	83 – 120	121 – 162	163 – 205	206 – 245	> 245
Hotel a restaurace	< 102	102 – 200	201 – 294	295 – 389	390 – 488	489 – 590	> 590
Administrativní	< 62	62 – 123	124 – 179	180 – 236	237 – 293	294 – 345	> 345
Nemocnice	< 109	109 – 210	211 – 310	311 – 415	416 – 520	521 – 625	> 625
Vzdělávací zařízení	< 47	47 – 89	90 – 130	131 – 174	175 – 220	221 – 265	> 265
Sportovní zařízení	< 53	53 – 102	103 – 145	146 – 194	195 – 245	246 – 297	> 297
Obchodní	< 67	61 – 121	122 – 183	184 – 241	242 – 300	301 – 362	> 362





http://stavba.tzb-info.cz/tabulky-a-vypocty/128-on-line-kalkulacka-uspor-a-dotaci-zelena-usporam

Trend reducing energy consumption for operational needs of buildings is now unquestioned and growing fast, but in the "built-in" energy of building materials and constructers (i.e. bound energy consumption) it is only at the beginning of development. In the future trend can be expected to find new ways to ensure not only minimization of operational energies, but also bound energy consumption and other aspects (for example emissions) throughout the life cycle of buildings, i.e. from the construction phase through the use phase, reconstruction and modernization to the stage demolition.

Heat pumps, solar panels, photovoltaic panels, wind and hydro power stations, biomass

A very actual problem nowadays is for example global warming, which means an assessment of an amount of equivalent emissions CO2. Emissions of carbon dioxide are commonly quantified in energy audits, and theirs reduction in the process of rehabilitation of buildings has an impact on the possibility of allocation of subsidies, but with a link to energy consumption during the construction phase of a building, it is necessary to conclude even CO2 emissions at this stage.

10.3 Disposing of construction waste

At each construction activity arises construction and other waste from completed new buildings from reconstruction and demolition. These include: rest of bricks, remnants of plaster, concrete, remnants of insulation, polystyrene, cotton wool, asphalt cardboard remnants of insulation, boards residues, hardened cement, excess soil, rubble from demolished walls and partitions, rubble from battered plasters, knocked down concrete, old installation (water, sewer, gas, electricity...), pulled out boards, old beams, backfills of floors, cinder, clay, insulating materials.

Recycling centre (e.g. ELZET) is focused primarily on storage and recycling of construction and demolition waste. Large and small firms as well as physical persons, offers storage of concrete, reinforced concrete, asphalt, tiles and other waste.

QUESTIONS FOR REVISION

1. What do you know about assessment of the energy performance of buildings?
2. How do we dispose construction waste?