GAS INSTALLATION (4)

e-learning material

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3. EQUIPMENT OF BUILDING GAS SYSTEM

Classification of building gas system equipment [3]:

- A type (gas stoves),
- B type (gas boiler construction for inside air),
- C type (gas boiler construction for outside air).

3. EQUIPMENT OF BUILDING GAS SYSTEM

Requirements for pipes are defined by:

- LST EN 12007-3:2015,
- LST EN 10217-1:2003/A1:2005,
- LST EN 12007:2002.

3. EQUIPMENT OF BUILDING GAS SYSTEM

The building gas system calculation:

$Q^d = K_{sin}\ q_{nom}\ n_i$;

- Ksin – building gas system coeficient [3], for boilers – 0,85, for gas stoves – 1,0.
- q_{nom} – technical characteristics of the equipment, m3/h.

3. EQUIPMENT OF BUILDING GAS SYSTEM

An example of building gas system calculation :

$Q^d = K_{sin}\ q_{nom}\ n_i$;

For a detached small-family house:

$Q_{2\text{-}3} = 0{,}85 * 2{,}65 * 1{,}0 = 2{,}25\ m^3/h.$

$Q_{2\text{-}4} = 1{,}0 * 0{,}817 * 1{,}0 = 0{,}817\ m^3/h.$

3. EQUIPMENT OF BUILDING GAS SYSTEM

The building gas system calculation - example:

Gas flow calculation				
No	**Q_{pr}, m^3/h**	**K_{sin}**	**N_i, unit**	**Q_{sk}, m^3/h**
1	**2**	**3**	**4**	**5**
Single family house				
1-2	-	-	2	3,07
2-3	2,65	0,85	1	2,25
2-4	0,817	1,0	1	0,817

Fig 1. Gas system calculation table [14]

3. EQUIPMENT OF BUILDING GAS SYSTEM

***The building gas system calculation scheme*:**

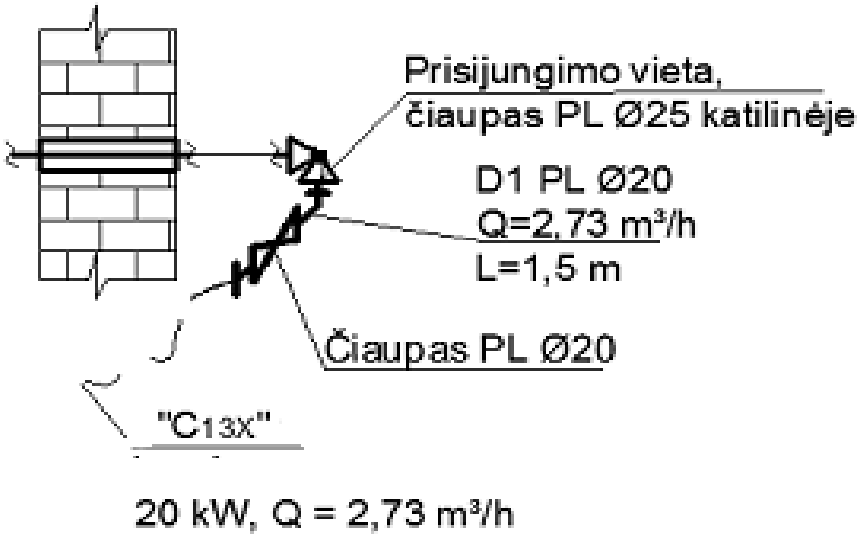


Fig 2. Gas system installation scheme [14]

3. EQUIPMENT OF BUILDING GAS SYSTEM

The building gas system calculation - example:

$Q^d = K_{sin} \; q_{nom} \; n_i$;

For a detached small-family house:

$Q_{1\text{-}2} = 0{,}85 * 2{,}73 * 1{,}0 = 2{,}34 \; m^3/h.$

3. EQUIPMENT OF BUILDING GAS SYSTEM

The building gas system calculation - example:

Gas flow calculation							
No.	Equipment		User	K_{sin}	$Q = \sum_{i=1}^{m} K_{sin} \cdot q_{nom} \cdot n_i$	Q_t	Q_{sk}
	DK	DV4					
—	—	—	—	—	m^3/h	m^3/h	m^3/h
1	2	3	4	5	6	7	8
1-2	30kW		1	0.85	0,85·1,0·2,73=2,34	—	2,34

Fig 3. Gas system calculation for a small family house [14]

3. EQUIPMENT OF BUILDING GAS SYSTEM

Gas alarm system. Gas detectors [13].

- Gas alarm system can be installed in small family houses.
- Gas detectors technical information, installation schemas, technical characteristics of the equipment, installation requirements [13].
- To allow detection of a gas leak, an odor is added to natural gas.

3. EQUIPMENT OF BUILDING GAS SYSTEM

The building gas system installation:

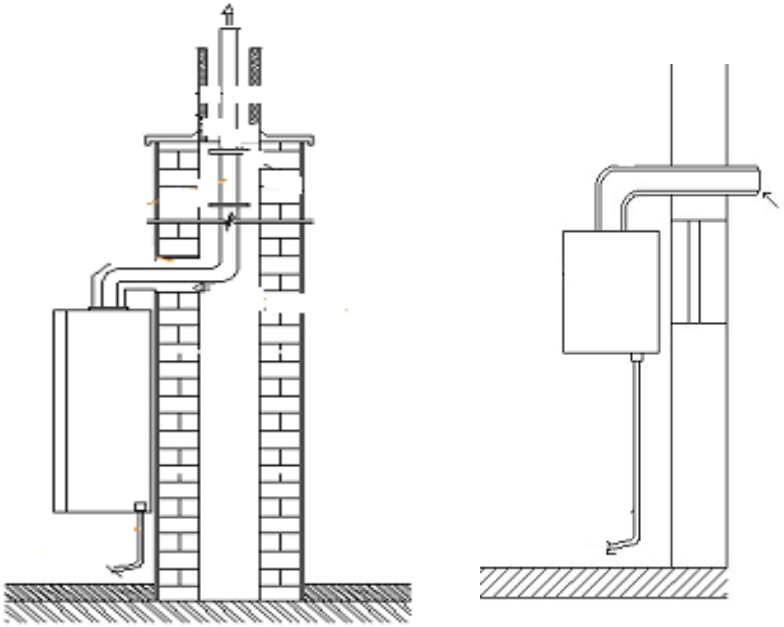
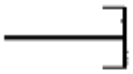


Fig 4. Gas boiler installation scheme [14]

PROJECT OF BUILDING GAS SYSTEM

Design gas system, different pipes d

Design gas system, different gas pressure



End point of gas system

Gas regulator

Gas meter

Fig 5. Information for the project [4]

PROJECT OF BUILDING GAS SYSTEM

	DGHW	Domestic gas hot water heater
	DGEHW	Domestic gas/electric hot water heater
	GB	Gas boiler
	GIH	Gas infrared heater

Fig 6. Information for the project [4]

PROJECT OF BUILDING GAS SYSTEM

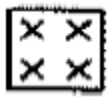
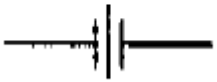
	GRH	Gas room heater
	GRAH	Gas room air heater
	GS	Gas stove

Fig 7. Information for the project [4]

PROJECT OF BUILDING GAS SYSTEM

Domestic gas water heater

Gas pipes in plan



Gas pipe connection

Fig 8. Information for the project [4]

PROJECT OF BUILDING GAS SYSTEM

Requirements for a gas boiler room:

- Gas boiler room – nonliving room;
- Boiler room - min. 7,5m3;
- +6m3 for every gas boiler;
- Boiler room hight min. 2,0 m;

PROJECT OF BUILDING GAS SYSTEM

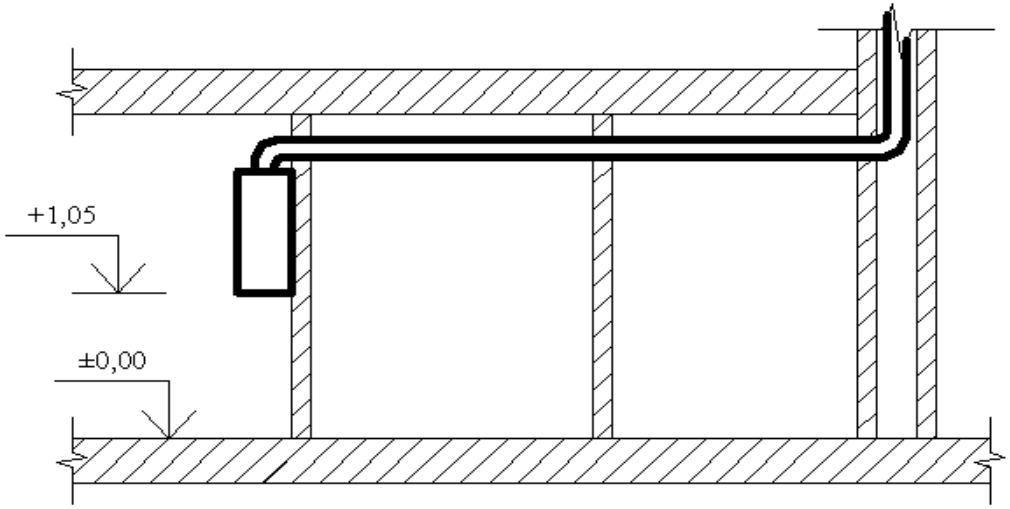


Fig 9. Example for the project [14]

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