Questions on Employer’s Requirements.

Item 7.1. and item 12.

Quote:

* Building heat and hot water metering systems, set (4 temperature sensors, 4 ultrasonic flowmeters two / one heat meter calculator);

Quote as well:

* heat meter - complete in the composition of two flowmeters (counters) on the supply and return pipelines, two temperature sensors of the heat carrier and the heat energy calculator agreed upon in production;
* heat and water metering for DTW with two flowmeters on the supply and recirculation pipeline and two Water temperature sensors agreed upon in production;.

Question/request:

⁃ According to the attached diagrams (IHS-RU), it is assumed that in the listed buildings a different heat supply system of the facility is implemented: in addition to the heating system and the hot water supply system with a circulation pipe (4-pipe), there are also heating points with a heating system only (2-pipe), or with a heating system and a dead-end hot water supply (3 pipe). In order to prepare the correct Commercial Bid for metering units, you are kindly requested to indicate the correspondence of the facility and the heat supply system existing on it with the available loads of the heating system and hot water supply.

**Answer**: **3 main diagrams of IHS are used:**

**1. Complete diagram with hot water supply and circulation lines.**

**2. Diagram with hot water supply line without circulation line.**

**3. Diagram without hot water supply line.**

**As a sample, table with heat and hot water consumption data. If 0,000000 is shown in “Hot water supply” column it means that diagram 3 without hot water supply line is used. For remaining IHS the diagram 1 with hot water supply and circulation can be used temporarily. We will send corrected table with additional column where it will be indicated that there is no circulation line on IHS in shortest time. You will have only to deduct one flow meter from circulation line for each indicated site. There are few such sites.**

- According to the document attached to the Employer’s Requirements, indicating the facilities and subsequent parameters (DHS and DHW loads, number of inhabitants), a question arose about the indicated loads of the DHW system. According to the proposed regulatory document (SNiP 2.04.01-85\* or SP 30.13330.2012 “Internal water supply and sewerage of buildings”), according to which the loads and consumptions of the DHW and CWS facilities are calculated, according to the type and quantity of the water consumer, there is a mismatch of residents (water consumers) with the indicated loads (tabular loads are 2-3 times less than calculated).

Please indicate the regulatory documentation according to which the calculations of the load of the domestic hot water system were carried out, and also for the correct calculation of the consumptions and loads, please indicate the type of water consumers at the facilities and confirm the indicated number of residents.

**Answer: The loads indicated in the table should be taken into account.**

Item 12.1.1.

Quote:

The design of the heat meter should provide for a power supply source independent of the external network.

Question/request:

Is it about the non-volatile functioning of the metering unit as a whole or only of the Heat meter - Heat calculator (for the purpose of recording the time of non-metering)?

**Answer - Metering unit should be non-volatile as a whole.**

Quote:

Power elements of the heat meter must be replaceable. The design of the heat meter must allow for replacing the power elements without damaging the calibration seal.

Question/request:

What is the meaning of this if further it is stated that the operational life time should be at least 4 years (i.e. the minimum calibration interval of the vast majority of manufacturers).

Quote: The operational life time of the heat meter power elements shall be four (4) years or more.

**Answer – in the case of a battery operating life of more than a verification period, there is a need to replace it during the verification period, and if the seal is broken, then there is a need for an unscheduled calibration of the heat calculator automatically, that is extremely non-preferred.**

Item 12.1.3.

Quote:

The number of ultrasonic receiver-transmitter must be at least 4 (two beam).

Question/request:

According to the load data indicated in Bid documents and condition of item 12.1.1. "The dimensions of the heat meters must be determined so that the working (nominal) flows of heat meters have a value within 0.45 ÷ 1.1 of the values of the estimated consumptions HW for heating systems”. According to calculations, it turns out that most flowmeters will be DN32 and less. The number of manufacturers meeting these requirements is very limited. Please, consider the possibility of using single-beam devices with the number of transceivers – 2.

**Answer – Metering devices will be installed in existing HS (heat substations), in this regard, there is no possibility of straight sections. Therefore, it is supposed to use flowmeters with 4 transceivers (two beam).**

Quote:

As a minimum requirement, case material and all wetted parts shall be made of AISI 316 stainless steel, bronze or the better equivalent.

Question/request:

Will a cast iron case be the best equivalent?

**Answer – Cast iron is not acceptable.**

Quote:

Necessary straight pipe sections must not exceed: **No straight pipe sections**

Question/request:

The principle of an ultrasonic flow meter involves measurement of speed of the ultrasonic signal in a liquid (in one, two, three, etc. planes), to achieve measurement accuracy with this method, it is necessary to ensure a laminar fluid flow if there is a control valve in front of the flowmeter, measurement error will increase. Please remove the requirements to ensure accuracy of measurements or indicate the construction length of the flowmeter.

**Answer – Metering devices will be installed in existing HS (heat substations), in this regard, there is no possibility of straight sections. Therefore, it is supposed to use flowmeters with 4 transceivers (two beam).**

item 12.1.5.

Quote:

Heat meter calculators shall be in a split-variant. The calculator should be installed in the immediate vicinity of the flowmeter. The calculator installation on a flowmeter without taking protective measures against hot temperatures is not allowed.

Question/request:

* What is the point of installing the calculator in the split variant on a 4-pipe system?
* Which pipe of 4 should the calculator be as close as possible to?
* What will happen to the meter in the split variant if the heat meter fails?

We offer to remove the requirement “The calculator shall be in a split variant. The calculator should be installed in the immediate vicinity of the flowmeter.” And to formulate it as follows: “The calculator and all the components of the metering unit must have element-by-element verification — replacing the component of the metering unit without the need to replace additional parts”

**Answer – Please, read the item 12.1.5 carefully. All requirements specified here are mandatory.**