7 Information for planning

7.1 Regulations, standards and guidelines

Regulations for the implementation of the heating system

To implement and operate the system, the rules of technology and legal provisions are to be observed:

- Technical building laws and regulations, which can vary from state to state in Germany. Therefore, in case of doubt, contact the local construction authorities.
- Fire protection and the chimney are the responsibility of the district chimney sweep. He/she must be informed before starting installation and the suitability of the chimney must be clarified.
- As regards the safety of the heating system, EN 12828 "Heating systems in buildings" applies in the European Union. The specialist company carrying out the installation is especially liable for compliance.
- As regards electrical safety, national regulations and laws are to be complied with in addition to the EN standards. The electrical specialist company is especially liable for this.
- Wood and pellet heating is often sponsored by public authorities. Before ordering the system, please find out about the currently valid guidelines that must be met in order to be eligible.

Inspecting the boilers

The ETA boiler fulfils the requirements of EN 303-5 as regards the design, safety and emissions. This has been confirmed by testing carried out by BLT Wieselburg and TÜV Süddeutschland.

CE compliance

Compliance with EU guidelines and EN standards is the responsibility of the manufacturer and is confirmed with the CE mark on the type plate. In a CE declaration of conformity, which can be requested from the manufacturer (www.eta.co.at), the underlying guidelines and standards for series production are provided.

CE conformity is equivalent to national test marks, such as the "Ü mark" in Germany.

7.2 Noise emission

Airborne noise emission

In normal operation, the airborne noise emissions from a pellet or wood chip boiler is between 40 and 50 dB(a) with individual peaks of up to 75 dB(a) (ignition fan and pellets vacuum motor).

To limit airborne noise emissions, the usual measures that are required for all boiler rooms are sufficient:

- Heavy doors such as the legally prescribed fire doors
- Restriction of the air intake openings to the required minimum
- Sound absorption insulation in the floors of the rooms above

Structure-borne noise

Noise problems with pellet or wood chip boilers are primarily caused by structure-borne noise emissions, that is from the noise energy that is introduced into the building. The main structure-borne noise emission sources and required damping measures are listed in the following.

- **Squeaking and creaking of the fuel conveyor screws:**
  Squeaking and creaking from the fuel conveyor screw depends on the fuel used, which is why the volume can have a wide range. Even if these noise sources are negligible in 90% of systems, without measures to counteract structure-borne noise transmission, the limit value of 30 dBA (for domestic technical systems) can be exceeded in the adjacent living rooms for 10% of systems. For this reason, cover the screw in the wall opening with mineral wool to prevent noise being introduced into the wall. In the same way the store room should be set up on a floating screed to acoustically decouple the conveyor from the building.
- **Chimney noises through the draught fan:**
  For chimney noises through the draught fan, a soft integration (for example with a ceramic cord) of the flue pipe is used in the chimney connector for soundproofing.
- **Natural resonance of the chimney:**
  The natural resonance of a chimney occurs if the chimney emits a certain frequency from the boiler (pipe organ effect). As soundproofing for brick-built chimneys, additional insulation and sealing of the

cleaning openings helps. For metal chimneys, additional wall consoles attached to the masonry can help.

- **Noise emission through heat exchanger cleaning of the boiler:**
  For soundproofing, blocking de-ashing during night hours with the time programme available on the control system helps. So does a floating screed in the boiler room and setting up the boiler on the ETA sound-insulation set. Design the rigidly connected installation (flow and return, thermal emergency cooling valve) so that introduction of noise into the masonry is minimised.

7.3 Boiler room

Installation of the boiler

The boiler may only be installed in dry surroundings. The permitted ambient temperatures are between 5 and 30 °C.

The boiler may only be installed on a flat, non-combustible surface. The distance of flammable materials in the immediate vicinity of the boiler must be heeded in accordance with national regulations.

Requirements for the boiler room

Boiler rooms must be built with fire-resistant F90 (EI90) walls and ceilings; in Switzerland EI30 up to 70 kW and EI60 over 70 kW.

An escape door to a corridor or to the outside is required. The door F30 (EI30) must open in the direction of escape and be self-closing with a tight seal. Boiler room doors that open onto escape routes must be EI90 (F90).

The boiler room must feature air inlet and outlet vents with minimum diameters for the boiler.

To prevent flue gases from escaping, it must be ensured that negative-pressure does not occur in the boiler room. Building installations, such as suction for the ventilation system or installed compressors, for example, are thus not permissible.

Floor characteristics

The boiler may only be installed on a flat, non-combustible floor. The floor must be capable of supporting the boiler's weight. For more information see the chapter 12 "Technical data".

Sufficient lighting in boiler room

The boiler room must have lighting sufficient for the installation and commissioning of the boiler.

There must be no heating appliances in the vicinity of escape routes

Boilers may not be installed in stairwells, corridors or rooms through which escape routes lead to the outside.

Free minimum cross sections for the air intake openings

The boiler requires air for combustion. That is why free minimum cross sections are required in the boiler room for the air intake openings. In Austria, these are defined in ÖNORM H 5170, see the following table.

Boiler output [kW]	Free minimum cross sections in cm²		
	Austria (specification from ETA)	Germany	Switzerland
20	400	150	206
30	400	150	309
40	400	150	412
50	400	150	515
60	400	170	618
70	400	190	721
90	400	230	927
110	440	270	1133
130	520	310	1339
180	720	410	1854
200	800	450	2060
350	1400	750	3605
500	2000	1050	5150

Tab. 7-1: free minimum cross sections

A protection grille at the air intake opening also reduces the free cross section. Therefore, the air inlet opening must be larger depending on the protection grill. In air ducts through channels a calculation by a specialist is required.

The values listed may vary from country-specific and national regulations. Enquire about it at your authorities. If no rules exist, we recommend the Austrian minimum cross sections to use as a guide.

Too small-sized air inlet openings may result to low pressure in the boiler room. This can lead to a reduction of the boiler output, as well as to an exit of flue gas in the boiler room.

Boilers that are operated with an external air supply require no further supply air and outlet openings in the boiler room.