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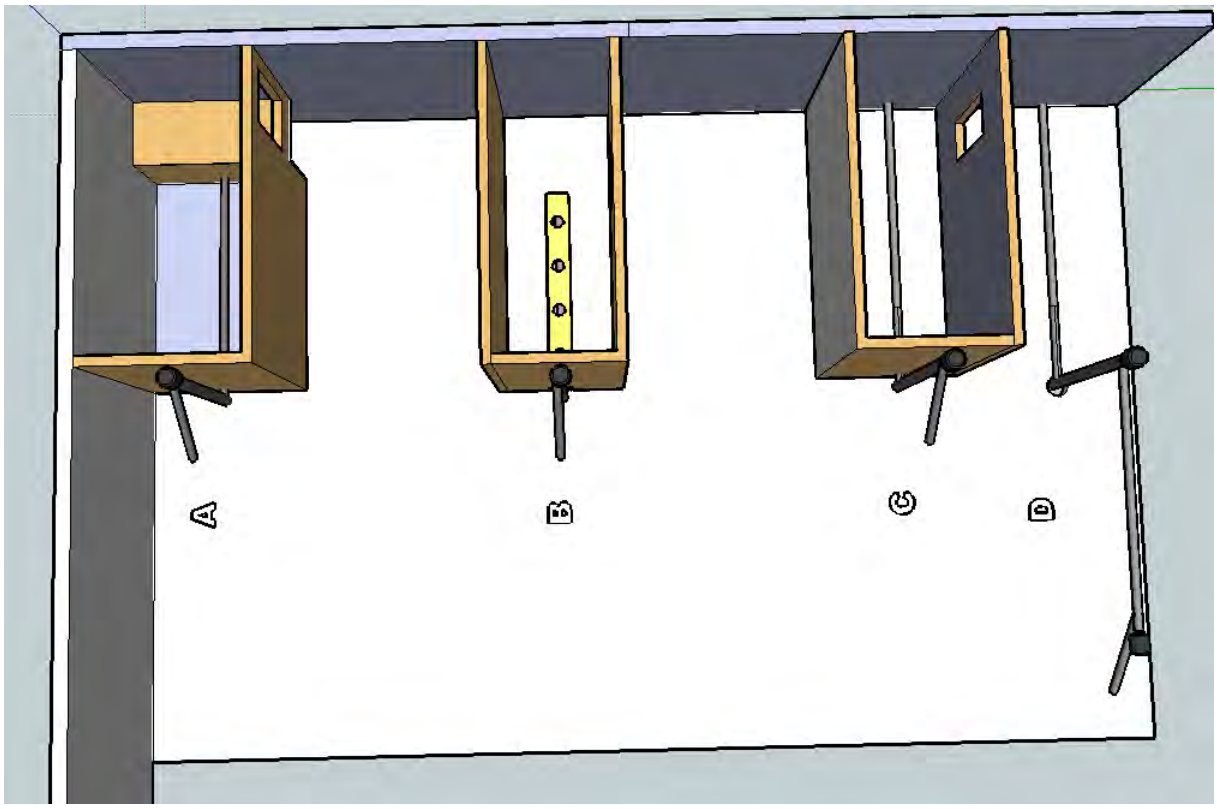
Layout description of feed system & silo.



Contact Matene if you want the 3D drawing above for real time viewing with the Google Sketchup Viewer.

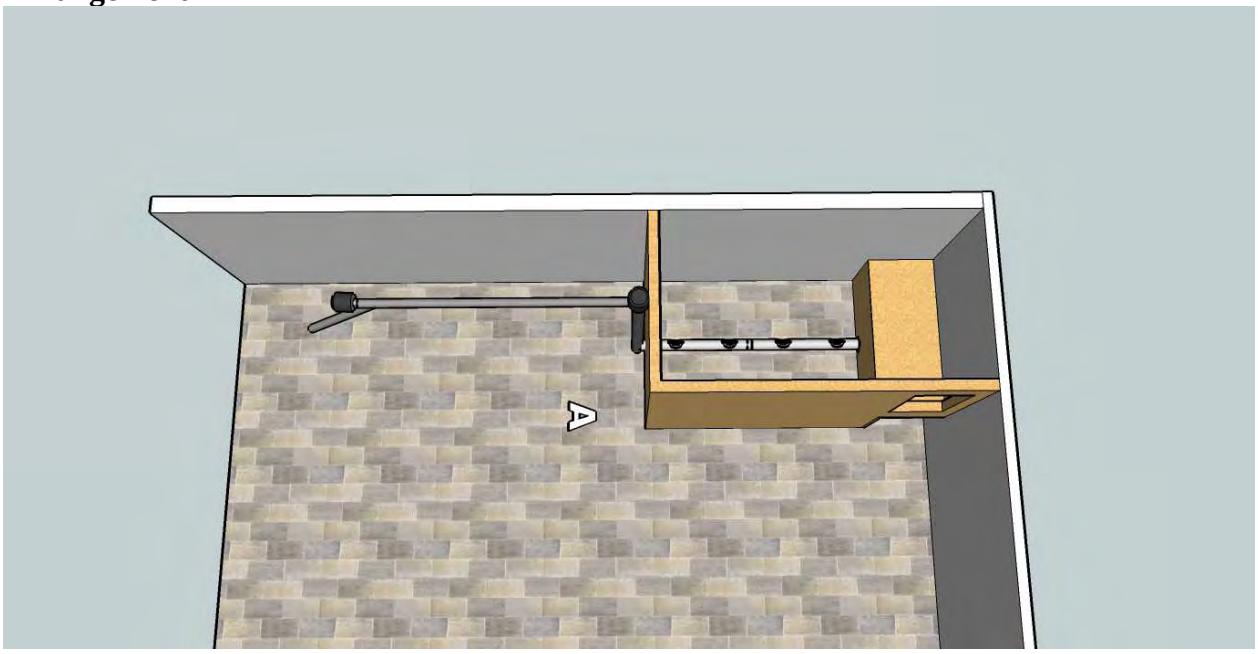
Drawing description:
This document describes three silo arrangements for the Matene conveyor system.
The design make it possible to service all of the conveyors, even with the silo filled up with pellets.
The silo conveyor has its motor drive in the back and pushes pellets forward into the vertical conveyor.
The A, B & C arrangements above differ on how the silo conveyor is installed and how it can be removed from the silo, this depending on the accessability.

Arrangement C
The most simple ”Do It Yourself” silo is type C. The screw conveyor is a plastic pipe of 75mm diameter with coil and the unit is resting within a 110mm pipe.

Arrangement C

If solution C is not possible, choose secondly solution A.

Arrangement A

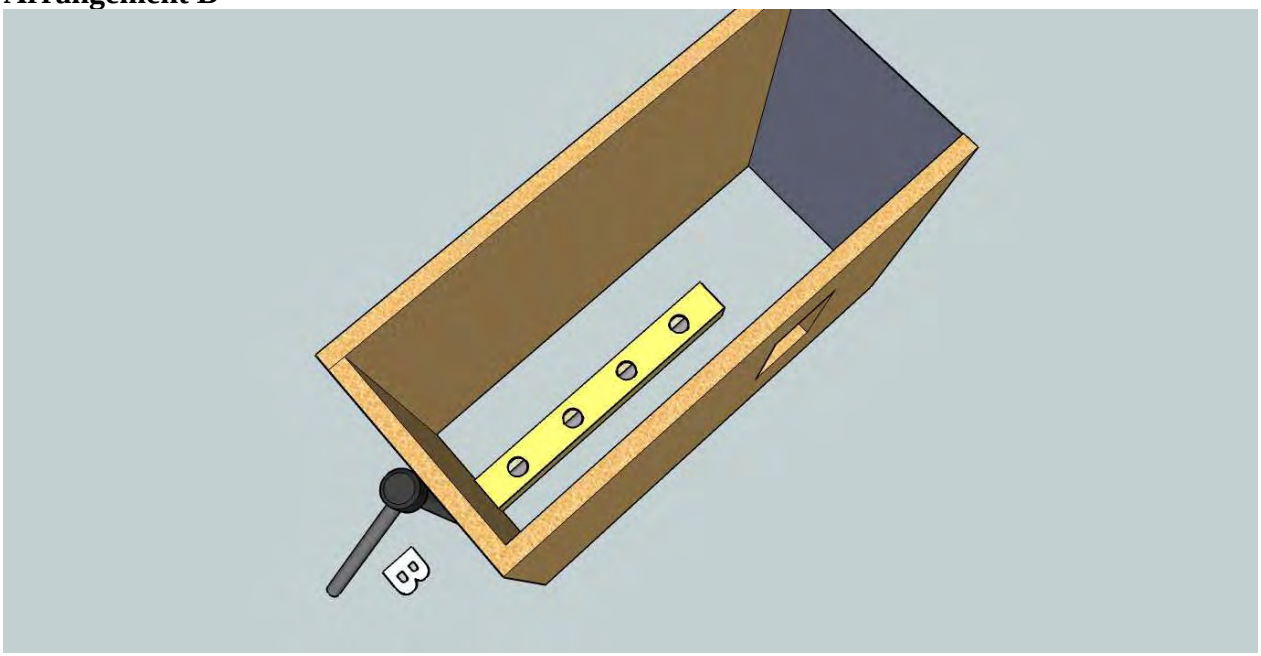


1 Arrangment A

2 Arrangement A

In this arrangement, the motor drive of the silo conveyor can be removed under the built in ”box” in the back of the silo. Once it is disconnected, the conveyor can be slid out of the silo and from the external plastic pipe it’s lying in, etiher in sections or as a whole unit, either from behind or front of the silo. Access to the silo is above the ”box” and the box creates a platform to stand on innside the silo.

Arrangement B



3 Arrangement B

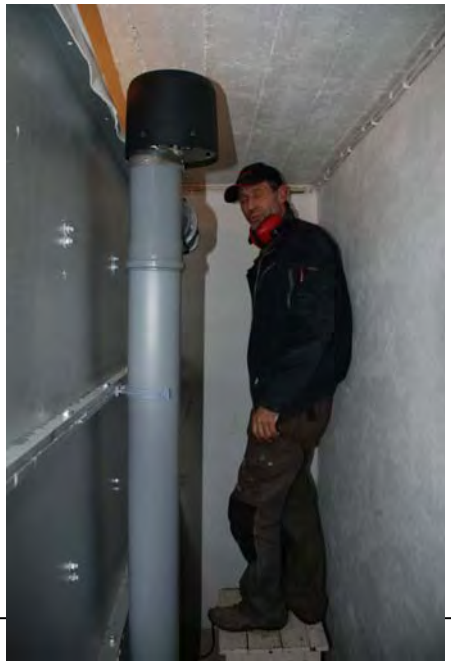
Third option is B. Use this option if it is only possible to extract the silo conveyor from the front of the silo and you are not able to access the silo from the sides. The conveyor box takes some time to build but enables the conveyor to be pulled out from the front side of the silo.

General
Max length of the silo conveyor is 2,6 meters total length.

Silos can be built with V-bottoms or flat bottom. The advantage with flat bottom is higher filling volume if lack of space or room height. You achieve a ”reserve tank” which is nice to have when the boiler stops but the remaining pellets have to be manually moved to the conveyor inlets when silo is appoximately 70 % empty.
A flat bottom silo is often required due to lack of space in normal houses.

Pictures of solution C (Installed and in operation in Finland).

Prefabricated silos can typically made of steel og fabric. Pictures are found below:



Above: Fabric silo installed behind the furnace room. Silo holds 4,5 tons of pellets. Direct feed from silo conveyor through the vertical conveyor and the pellets drop down to the burner in the boiler. The complete heating system shown above is supplied by Matene a.s to a client in Norway.

Pictures of fabric silo below. Observe that the vertical conveyor can be installed directly onto the silo frame or wall on either side of the silo. Efficient and service friendly installation.

Although the silo above only have one outlet, the silo you build yourself will have a silo conveyor with several inlets. This feature reduces concentration of fine particles and spreads the fines to all of the conveyor inlets thus reducing compaction and crushing of pellets in the transport process. In addition, the Matene silo inlets are designed for precise capacity control as

the conveyor will never be filled completely. No need to use a lot of force in the conveying process.
The picture below shows the filling degree of the silo conveyor. If a conveyor is full of pellets, this will often lead to friction forces and crushing of pellets.