

Chapter:	Implementation
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### Construction

During the building process coordination meetings with representatives for the utility and all contractors has to be held. Before the meeting status of the work should be checked and during the meeting status of work, time schedule and work of the next two weeks shall be discussed. All changes in payments etc. shall be registered in the notes of the meetings.

If the work is divided on different contractors, the utility has to be careful, that the responsibility between the contractors is clear. Especially in the following situations:

- If one contractor has prepared the area (for ground mounted solar collectors) and another contractor shall implement the solar collectors, there has to be a written agreement in advance about the requirements on land preparation of the solar collector installer. Before collector mounting, the contractor has to state that the ground is prepared in an acceptable way.
- If one contractor is doing the piping and another contractor shall implement the solar collectors, there has to be a written agreement with result of pressure test (with air) of the pipes and acceptance that the pipes are clean and accepted by the solar collector entrepreneur.
- Before anti freeze fluid is added to the system a test of tightness (with air or nitrogen at max 0.5 Bar) can be done (after sunset) for the solar collector part, and a cold test of the control system has to ensure, that pumps, heat meters etc. is functioning. When anti freeze fluid is added a pressure test (1.5 x the operation pressure) has to be done (also after sunset)

Large collector fields can be divided in sections and anti freeze fluid added sector by sector.

#### **The following activities should be made before the constructions phase begins:**

##### **a) Immediately after signing the contract:**

- Project briefing for contractor at site
- Preparing of detailed time schedules in coordination with staff on site including determining work schedule and off-times
- Finalization of substructure and details of fixation
- Clarification of infrastructure and coordination of construction works

##### **b) At the beginning of collector mounting**

- Final clarification of all relevant details for installation and mounting on construction site with the client (f.e. clarification of shop drawings)
- Approval of substructure for collectors
- Installation training for elevation construction and for mounting collectors and their needed connections

### c) Before start up

- Approval of all components (pressure tests etc.)
- Test operation and performance control
- Training with local responsible persons / maintenance staff
- Joint taking over

## Commissioning

Before commissioning there must be a period (2 weeks) where the plant runs automatically and the following instructions for operation of the plant have to be delivered to the utility:

- technical data for components
- description of how the plant is operating
- how to check, that the plant is running normally and maintenance routines (check list)
- how to solve typical problems (adding of anti freeze liquid, unbalanced heat exchanger etc.)

During the commissioning the entrepreneur(s) deliver drawings and P&I diagram showing the actual work.

A commissioning report including list of faults and when they are corrected has to be written and signed by the partners.

After the commissioning there will still be a run-in period where the entrepreneur(s) has to support the utility.

When air is removed from the system and there has been a period with much solar, the entrepreneur(s) shall balance the flow in the total system.

↓ *The SDH fact sheets addresses both technical and non-technical issues, and provide state-of-the-art industry guidelines to which utilities can refer when considering/realizing SDH plants. For further information on Solar District Heating and the SDHtake-off project please visit [www.solar-district-heating.eu](http://www.solar-district-heating.eu).* ↑