The Four Pillars of Plumbing
How Switzerland reassesses the profession’s training requirements
Case study: apprenticeship
suissetec

- Industry and employers' association

  - Includes organisations from these areas
    - Metal roofing/building shell
    - Heating
    - Air conditioning
    - Ventilation
    - Cooling/chilling
    - Plumbing/water/gas

- Represents all the steps in the value-added chain, i.e. manufacturers, suppliers, planners and builders
Burj Khalifa

Piping in these buildings by Georg Fischer Piping Systems (Member of suissetec)

Burj al Arab
## Key figures for Switzerland

<table>
<thead>
<tr>
<th></th>
<th>suissetec members</th>
<th>Non-members</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of companies</td>
<td>3,300</td>
<td>3,000</td>
<td>6,300</td>
</tr>
<tr>
<td>Number of salaried employees / subj.</td>
<td>32,500</td>
<td>6,500</td>
<td>39,000</td>
</tr>
<tr>
<td>to collective agreements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual turnover builders/planners</td>
<td>CHF 6.2 billion</td>
<td>CHF 2.7 billion*</td>
<td>CHF 8.9 billion*</td>
</tr>
<tr>
<td>Number of employees per company</td>
<td>9 - 10</td>
<td>2 - 3</td>
<td></td>
</tr>
<tr>
<td>Number of apprentices</td>
<td>5,600</td>
<td>1,000</td>
<td>6,600</td>
</tr>
</tbody>
</table>

* = estimate/sources: survey of suissetec member services / Swiss Federal Statistical Office
Swiss vocational education and professional training system (VPET)
The Swiss education and training system

Upper-secondary level vocational education and training (VET)
1 - 3 years

College/university
3 - 5 years

Vocational apprenticeship
2 - 4 years

Secondary school
4 years

Elementary school
9 years
Trial apprenticeship
Ability Test
Apprenticeship contract
On the job training at the workplace
Vocational school
Industry courses
Apprenticeship in Switzerland:

- **At work**
  - 4 days a week

- **Vocational education and training (VET) school**
  - 1 day a week

- **Industry courses**
  - e.g. 36 days in 3 years
Assessing future training requirements
Why redesign training in plumbing?

Federal Vocational Education Act:
→ mandatory examination of requirements and reassessment every five years

Decision: redesign
The key questions:

- What is the best approach to plumbing today?
- What should the training requirements be in the plumbing sector?
- What should the standards be?
Redesign: composition of the working group

- Schools
- Industrial training providers
- Entrepreneurs
- Practitioners
- Cantons (Provinces)
- State Secretariat (Confederation)
- Education specialists
- Examination experts
Redesign: the process

Phase 1: Defining the basics
- Develop an Activity Profile
- Validate the Profile among companies

Phase 2: Developing a training plan
- Develop a Training and Education Plan
- Develop a detailed Training and Education Plan plus teaching aids for schools, industrial courses and companies

Phase 3: Adopting the Plan in schools, industrial courses and companies
Redesign:

From:
Theoretical training

To:
Practical training
Redesign: The results

- The Activity Profile
- The Training and Education Plan
The Activity Profile: an overview

<table>
<thead>
<tr>
<th>Area of Activity</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planen der Arbeiten</td>
<td>Einfache Installationspläne erstellen</td>
</tr>
<tr>
<td>Installieren von Versorgungsleitungen Wasser</td>
<td>Wasserleitungen demontieren</td>
</tr>
<tr>
<td>Installieren von Versorgungsleitungen Gas</td>
<td>Gasleitungen demontieren</td>
</tr>
<tr>
<td>Installieren von Entsorgungsleitungen</td>
<td>Entsorgungsleitungen demontieren</td>
</tr>
<tr>
<td>Installieren von Vorwandsystemen</td>
<td>Vorwände rückschichten</td>
</tr>
<tr>
<td>Durchführen von Abschlussarbeiten</td>
<td>Abfälle trennen und entsorgen</td>
</tr>
</tbody>
</table>
The Activity Profile: an extract

<table>
<thead>
<tr>
<th>Area of Activity</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (a) Task Planning</td>
<td>devise simple Installation plans</td>
</tr>
<tr>
<td>2 (b) Installation of Water Supply</td>
<td>removal of water pipes</td>
</tr>
</tbody>
</table>
The structure of the new Training and Education Plan for Plumbing

Skills Area 1: Planning work tasks

Skill 1.1: Devise simple installation plans

The trainee shall be able to devise simple installation plans giving an overview of the plumbing installations planned for part of a building or for a small building (e.g. of two apartments).

To do so, the trainee shall first obtain the requisite architects’ plans and documentation, and shall then work with the architect or another industry specialist to determine the extent of the work required and the client’s needs.

<table>
<thead>
<tr>
<th>Company performance goal(s)</th>
<th>School performance goal(s)</th>
<th>Industrial course performance goal(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1 To procure the planning documents and further information (e.g. equipment lists) required to devise an installation plan</td>
<td>1.1.1 To interpret simple architects’ plans</td>
<td>1.1.1 To interpret simple installation plans and schematic views</td>
</tr>
<tr>
<td>1.1.2 To interpret simple installation plans and schematic views</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Any questions?