



Background material for working Group 1 – PLUMBING (Cooling and heating)

The PLF on the definition and writing of learning outcomes will focus on three concrete vocational education and training qualifications: for plumbing (heating and cooling), CNC machine operation and for tourism and travel. These qualifications represent the wide scope of knowledge, skills and competences covered by VET qualifications in Europe today. The annex to this note contains four examples of how learning outcomes have been defined and written in the field of plumbing (cooling and heating):

- Germany: The certificates supplement describing the requirements for passing the examination of ‘Plant mechanic for sanitary, heating and air-conditioning systems’.
- Ireland: Advanced crafts certificate for ‘Plumbing’
- Norway: Curriculum for ‘Plumbing’
- Spain: The certificates supplement describing requirements for ‘Technician in Refrigeration and Air Conditioning Installations’

While different in format (and partly) in purpose, these cases – together with the presentations of national cases in the working group itself - provide a basis for discussions and comparison. Participants in the working group will be able to and indeed encouraged to add to these four examples.

Annex 1: Plumbing certificate, Ireland

Annex 2: Plumber certificate, Norway

Annex 3: Certificate supplement sanitation climate and heating, Germany

Annex 4: Certificate supplement technician refrigeration air condition, Spain



Plumbing Ireland.pdf



Plumber Norway.rtf



Germany sanitation,

climate and heating.p



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Suplement_Refrigera

Possible questions for the working group

The following ‘menu’ of questions should be used as a starting point for the working group. The working group should decide on 2-4 questions to focus on, thus signalling what is considered to be key challenges in this area:

1. Learning outcomes descriptions serve many purposes and address several groups of users; to what extent are they able to balance the needs of
 - Learners
 - Employers

- Teachers
 - Assessors
 - Others?
2. Which are the strengths and weaknesses regarding the way the horizontal dimension of intended learning outcomes (knowledge, skills, competences, attitudes etc.) are described?
 3. Which are the arguments for and against a standardised way of describing domains of learning outcomes (for example following the EQF KSC (knowledge, skills, competence) approach)?
 4. Which are the strengths and weaknesses of the way levels and the increasing complexity of learning outcomes is described (the vertical dimension)?
 5. How do learning outcomes balance occupation specific and transversal knowledge, skills and competences? Who has participated in the definition and writing of learning outcomes?
 6. How can learning outcomes balance the need for specificity (for example for assessment) with the need for flexibility, guidance and openness (being responsive to the needs of individual learners, employers and training providers
 7. How can definition and writing of learning outcomes be supported by research; for example through development of taxonomies and conceptual frameworks?