



Four Pillars of Plumbing

Training Requirements for Plumbing Industries

Brazil 2017

Abu Dhabi – October 2017





Structure

- Plumbing industry context
- Standards & Regulation
- Training pathway
- Discussion





Structure

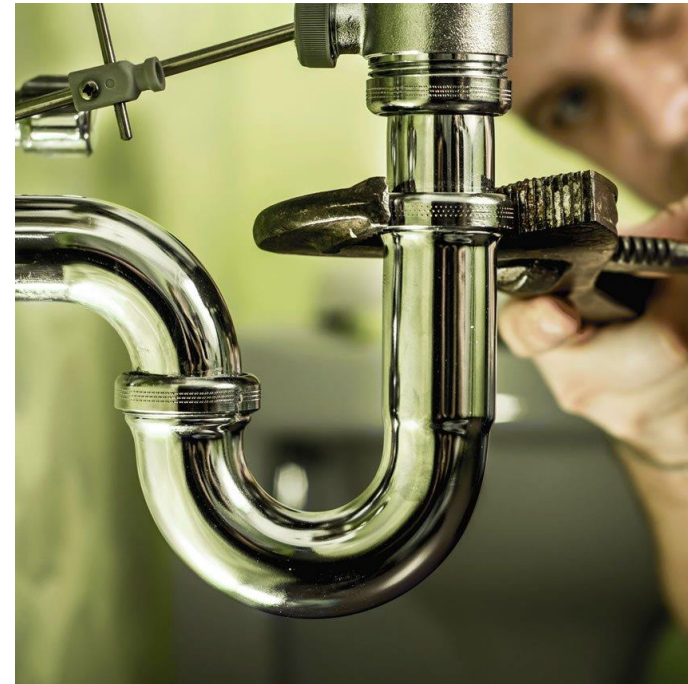
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Industry context



- Hydraulic Installer
 - Meaning of “plumbing and drainlaying”
 - No particular terminology used for diferente specialities
 - Works on building hydraulic installations
 - Project analysis
 - Standards attendance
 - Specific procedures
 - General services in water distribution are included
 - Cold and hot water
 - Draining systems
 - Heating systems
 - Not include cooling & ventilation systems
 - Fire protection systems



Industry context



- Gas Installer
 - Meaning of “gasfitting”
 - Different terminology used for each specialities
 - Gas distribution installer (tubing)
 - Appliances installer
 - Measurement systems
 - Works on building gas installations
 - Project analysis
 - Standards attendance
 - Specific procedures and materials
 - General services in gas distribution are included
 - Gas pipe & tubing distribution
 - Appliances (heaters, cookers)
 - Inspection
 - Connection with gas distributor company





Industry general context

- No mandatory training requirements for Plumbing services industry
- No mandatory certification scheme
- Building Construction Industry is more involved with training programmes (SENAI)



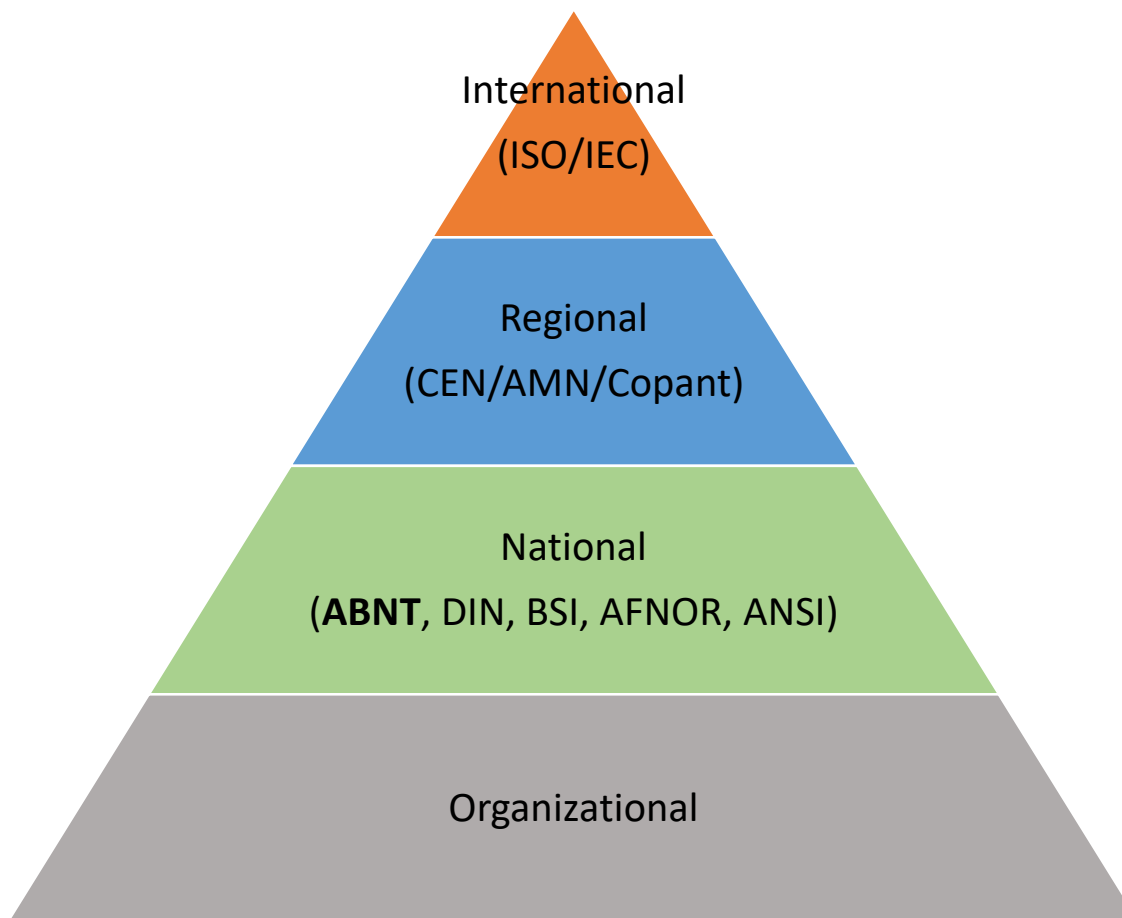


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Standards in Brazil





Standards – Water Installations



- ABNT NBR 5626 – Building cold water project and construction
- ABNT NBR 7198 – Building hot water project and construction
- ABNT NBR 8160 – Building draining systems project and construction
- ABNT NBR 10897 – Fire protection using sprinklers
- ABNT NBR 10844 – Building rain draining project and construction
- ABNT NBR 13714 – Fire protection using hydrants
- ABNT NBR 15932 – Competence requirements for hydraulic installer





Standards – Gas Installations

- ABNT NBR 15526 – Building gas distribution project and construction
- ABNT NBR 13103 – Building gas appliances installation
- ABNT NBR 15902 – Competence requirements for gas appliances installer
- ABNT NBR 15903 – Competence requirements for building gas distribution system installer
- ABNT NBR 15904 – Competence requirements for building measurement installer
- ABNT NBR 16216 – Competence requirements for gas systems inspector (assessment)
- ABNT NBR 16302 – Competence requirements for polyethylene solder



Compliance

Competence Regulations

- INMETRO Portaria 010 – 04 January 2011
- Voluntary system for competence in Building Construction Sector
 - Gas appliances installer
 - Gas distribution system installer
 - Gas measurement systems installer
- INMETRO Portaria 483 – 01 October 2015
- Voluntary system for competence in Building Construction Sector (update)
 - Hydraulic systems installer
 - Gas inspector
 - PE solder

Market Regulations

- ABRINSTAL Qualinstal Programme
- Voluntary conformity assessment scheme for Building Construction Sector
 - Hydraulic building systems
 - Gas building systems
 - Fire protection building systems
- Includes evaluation of: project, products, competence, management and technical capacity of the company responsible for building installations





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Training structure

- Hydraulic Installer
 - Federal law 9394/1996 – directives for national education
 - Federal law 5154/04 – drivers for law 9394 implementation
 - Federal law 11741/08 – directives for professional education
- Hydraulic installer 160h
- Hydraulic professional installer 800h
 - Basic module (400h)
 - Final module (400h)





Training structure

- Gas Installer
 - Federal law 9394/1996 – directives for national education
 - Federal law 5154/04 – drivers for law 9394 implementation
 - Federal law 11741/08 – directive for professional education
- Gas appliances installer 200h
- Gas distribution system installer 160h
- Gas inspector 60h (up)
- PE solder 60h





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Strategic pillars in Brazil

- Design
- Products
- Labor (human resources)
- Plumbers (companies)
- Instalations (assessment)





Partners & Sponsors



WG – Water management and Saving

- Abrinstal
- Sindinstalação
- Sabesp
- Abrammat
- Deca
- Tigre
- Amanco
- Docol
- Eluma
- Tupy
- Apolo
- Saint-Gobain



- Esteves
- Genebre
- Emetti
- Lorenzetti
- Bosch
- Hansgrohe
- Grohe Dawn
- Geberit
- Comap
- CBCS
- USP IEE



Discussions / Suggestions

