



# *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



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



# 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)



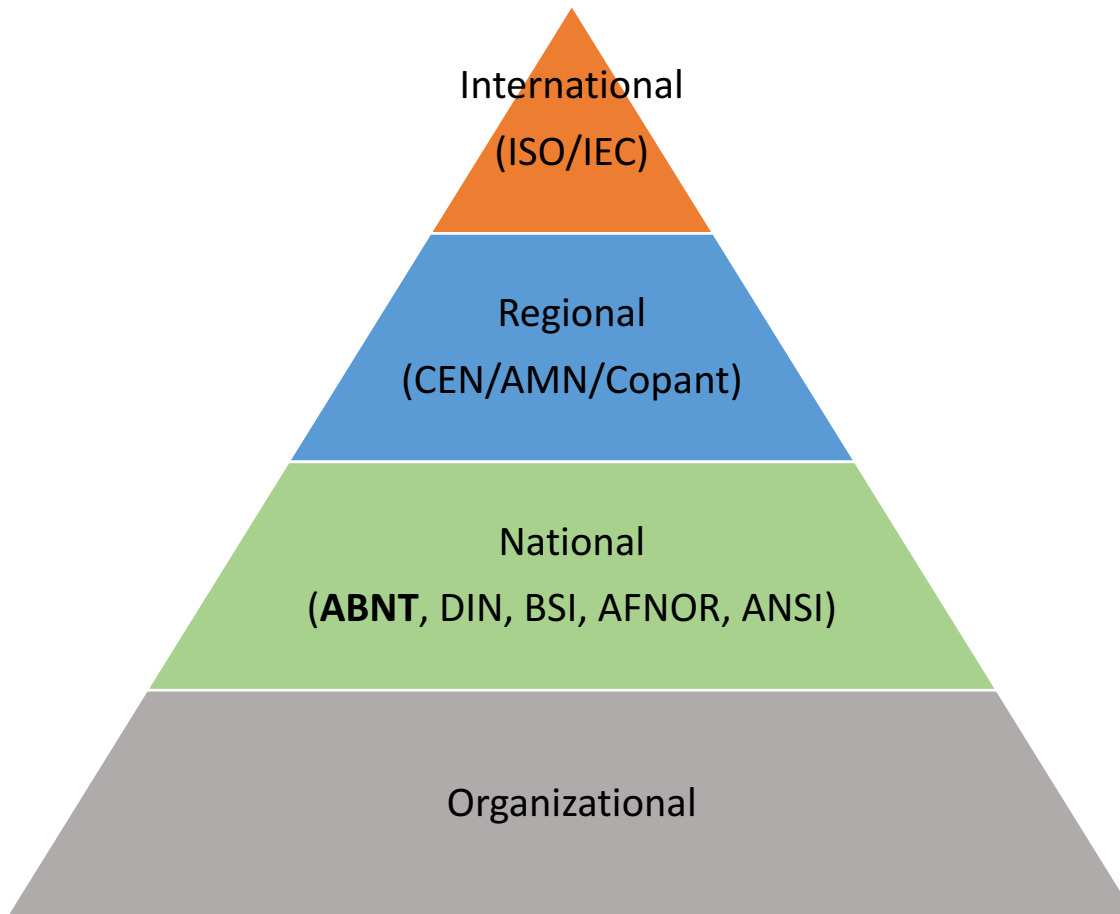
# Structure



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



# 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





# Structure



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







# 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



# Structure



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





# Strategic pillars in Brazil



WG – Water management and Saving

- 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

