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Creating A Strong Medical Gas Specification

Speaker

SHANNON MCAFEE
MEDICAL & LABORATORY GAS CONSULTANT

Panelists

GREG HOOD
VICE PRESIDENT

ELIZABETH ABELL
MEDICAL & LABORATORY GAS CONSULTANT

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What is a Medical Gas Specification?

- A document issued by Plumbing Designers to define the parameters of the materials and equipment to be installed in a facility during a construction project.
- A document that ensures the local codes for the project (in the case of medical gas NFPA 99) are complied with.
- It is important to keep this document updated with technology and code changes depending on location.
- This document needs to be revised for each project – there are sections that have options.

Anything covered that is proprietary will be noted.

Benefits of a Strong Specification

- Makes reviewing submittals easier
- Less RFIs from the contractor in that drawings and specification complement each other
- Reduces change orders
- Ensures the owner/end user has the products that they are comfortable with and meets their expectations
- Understanding the options in equipment to allow strong value engineering options to the owner

Common Sections to a Specification for Medical Gas

- General Definitions and Guidelines
- Products
  - Accepted Manufacturers
  - Materials
    - Outlets
    - Zone Valve Boxes
    - Alarm Panels
    - Manifolds
    - Medical Air Compressor
    - Instrument Air Compressor
    - Medical Vacuum Pumps
    - Accessories
- Execution

Focus on General Definition and Guidelines

- This section is where you define the project code compliance.
  - Option to always design to latest code?
  - Define the code revision based on project location.
- Define requirements under plumbing scope versus other disciplines (electrical).
- Will you allow manufacturers not specified? What are your preapproval requirement?

Focus on the Product Section – Accepted Manufacturers

Important to keep this section up to date

Common Mistakes:

- Listing industrial manufacturers has potential to provide systems that are not compliant with NFPA 99.
- Listing manufacturers of raw materials instead of complete systems (Hitachi, Busch, Becker, etc.).
- Listing manufacturer's representatives and not the manufacturer.
- Listing manufacturers that are no longer relevant.
- One manufacturer based on installed based.

Common Sections to a Specification - Outlets

Outlet Keying Index, Generations, Common Names

- Pin Index
  - Ohmeda
  - Diamond Series – Diamond 1,2,3 and DiamondCare (proprietary of BeaconMedaes)
- Latch
  - Chemetron – Series 400, 500
- DISS
  - Threaded
- Geometric
  - Puritan Bennett

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Common Sections to a Specification - Outlets

Outlet Brand Name

- Ohmeda/OhioMedical
- Ohmeda/Puritan Bennett/Beacon Medical/BeaconMedeas/Hillrom
- Amico
- Pattons Medical
- Chemetron
- Tritech
- Gentec

These labels DO NOT specify what keying index (type) of outlets that is in an existing facility.

Request a picture from the facility.

Focus on the Product Section – Zone Valve Boxes

Standards

- Material/Pressure Rating/Ball Valve Type
- Gauges Required
- Cover Requirements Listed

Options:

- Zone Valve Box with Sensor Provisions
  - Benefits:
    - Ease of certification as the sensor location can be confirmed without needing ceiling access
    - Each gas has a DISS demand check that the sensor is installed on to ensure the gas is correctly identified
    - This does not have to be project specific; Can be a standard
- Zone Valve/Area Alarm Combination
  - Benefits:
    - For very small facilities where the zone valve is very close to nursing station so the area alarm can be monitored.

Focus on the Product Section – Alarm Panels

Standards

- Wiring Requirements
- Programming Requirements

Option:

- Ethernet for Master and/or Area Alarm Panels
  - Benefits:
    - Connecting to a building management system
  - Consideration:
    - Does the owner want every area alarm panel connected or just master?
      - Ethernet capability adds cost to every panel
      - Most value engineering practices remove ethernet from area

Focus on the Product Section – Manifolds

Standards

- Location and Installation Requirements
- Automatic Changeovers
- Header Requirements

Options:

- Bulk
  - If Bulk – usually provided by owner or a contract with the owner
- Liquid by Liquid
  - Equipped with electronic controls to reducing venting
  - Equipped with a "look-back" control to ensure liquid container is fully utilized.
- High Pressure by High Pressure
  - Utilizing dome biased regulators
    - Reduces the need for heaters for all gases
    - Does not allow shuttle valves which are a single point of failure

Focus on the Product Section – Medical Air Compressors

Standards

- Redundant system including compressor, dryer, and filtration
- Desiccant dryer, dewpoint monitor, CO monitor, and filtration
- Oil-less technology

Options:

- Scroll/Reciprocating/Rotary Screw
- Dryers
  - Demand Based Purging – the dewpoint monitor controls the dryer purging to reduce wear and tear on the compressor
  - Do you still allow refrigerated dryers?
  - Desiccant cartridges versus loose desiccant. Eliminate dusting that can cause failure and downstream contaminants.
- Control Panel – touchscreen and/or manual controls
  - Additional System monitoring of system performance such as System Health

Focus on the Product Section – Medical Vacuum Pumps

Standards

- Redundant System
- Cover Requirements Listed

Options:

- Technology: Claw/Lubricated Rotary Vane/Oil-less Rotary Vane
- Claw Technology VFD or not
- Claw Technology – O2 Safe with
- Control Panel – touchscreen and/or manual controls
    - Additional System monitoring of system performance such as System Health

Focus on the Execution Section– Certification

What is 3rd Party Certification?

- Are you comfortable with the certifying selling the equipment for the project and then certifying the installation?
- Do you want a certifier that only provides certification and does not provide the equipment?
- By listing the certifier in your specification you are potentially making your specification proprietary.

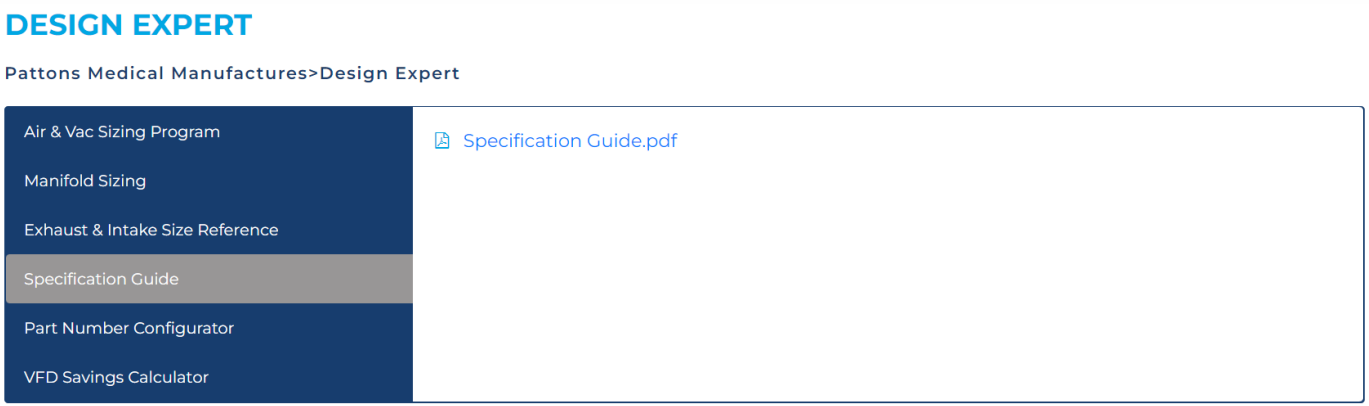
Focus on the Execution Section– Service, Start-Up, Training

Requiring the manufacturer to have local service.

- Many manufacturers partner with service organizations. It is important to not specify service as it could limit the facility in getting appropriate support.
- Manufacturer is responsible for starting up the equipment. This ensures the equipment is installed correctly outside of NFPA 99. That the equipment will run smoothly for the end user. (Drip legs installed, ambient temperature, etc.)
- The manufacturer is responsible for training the facility on the equipment.

What Makes a Strong Medical Gas Specification- RECAP

- Update your specification!
- Clean up approved manufacturers.
- Delete sections that are not relevant to the project that the specification applies to.
- Make the choices that are needed for technologies. Our specification makes that very easy by putting choices in RED.



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MEET YOUR MEDICAL/LAB GAS CONSULTANTS

International

SHANNON MCAFEE

(602) 780-5755

shannon.mcafee@pattonsmedical.com

Eastern USA

PAT COYLE

(704) 942-8904

pat.coyle@pattonsmedical.com

Southwestern USA

SHANNON MCAFEE

(602) 780-5755

shannon.mcafee@pattonsmedical.com

Texas USA

STEVE TORREZ

(346) 802-9701

steve.torrez@pattonsmedical.com

Midwest USA

JOSH PEDRAJA

(616) 307-5968

josh.pedraja@pattonsmedical.com

Western USA

ELIZABETH ABELL

(303) 328 7555

elizabeth.abell@pattonsmedical.com

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Q&A

Please submit questions in the "Questions" field box.

Thank You

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