Building a Pharmaceutical Manufacturing Facility
Panel Presenters

- Mark Spiecker, President of STAQ Pharma
- Brett Lundeen, SPD Project Manager Turner Construction
- Lee Gard, Project Manager Murphy Company
- Gary Arnold, Manager of Denver Pipe Fitters
STAQ Pharma Introduction

- We are STAQ Pharma. We previously operated the largest 503A Hospice Infusion Pharmacy headquartered in the Front Range of Colorado serving approximately 1,500 patients per day with sterile, compounded medications.

- We are building a **new 503B outsourcing facility**, in accordance with cGMP Quality design and operating requirements.

- Our 503B will operate with a **unique mission we call STAQ**.
  - Safety, Transparency, Availability and Quality
  - We will serve large hospitals and hospital systems by automating a very large cleanroom facility in Denver.

- We seek to be a business partner with our clients and solve / manage pharmaceutical issues together (stocking, availability, chain of custody, safety, disposal, etc...).
Why 503B Outsourcing?

• In recent years, researchers have discovered benefits (reduced medication error rates and better utilization) from manufactured and prefilled O.R. syringes.

• Peer-reviewed literature supports a switch to prefilled O.R. syringes for 3 benefits:

  1. **Decreased healthcare cost** (pre-filled syringes, non-sterile to sterile, can often cost less than syringes filled either by Anesthesiologists or in high volume, long-dated anticipatory compounding by Hospital Pharmacy)

  2. **Decreased waste** – One Study found cost of over $185,000 in annual preventable waste at one hospital\(^1\)

  3. **Reduction in adverse events** - Easily-read labels on prefilled syringes streamline processes and reduce confusion during stressful situations

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About Turner Construction

- Diverse Company in over 18 Market Segments Including:
  - Pharmaceutical/Industrial
  - Aviation
  - Healthcare
  - Tenant Improvement
  - Data Centers
  - Sports and Entertainment Venues

- Over 6,000 Employees Worldwide with 46 Offices in the US
- $12 Billion of Work in Place per Year on over 1,500 projects
- All Jobs, No Matter the Scale, Get the Same Turner Service
Building STAQ Pharma

- Comprehensive Pre-Construction Process
- Developing a Plan and Schedule
- Selection Process of True Trade Partners
- Focusing on Safety, Schedule, Quality and Cost
- Challenges of Building Pharmaceutical Project
About Murphy Company

- Privately held since 1907, 4th generation ownership
- Headquartered in St. Louis, regional office in Denver
- Licensed in 43 states – Perform selective work throughout the United States
- $330M in annual revenue
- Full service mechanical contractor serving a wide range of industries:
  - Breweries
  - Pharmaceutical / Biotech
  - Laboratories / Research & Development
  - Healthcare
  - Data Centers / Mission Critical
  - Manufacturing
- Focused on providing valuable solutions to our customers
Cleanrooms require precise air control to maintain GMP.

Cleanroom HVAC system operation:
- Rooftop units provide cooling to the return air circulating units.
- Return air circulating units feed laboratory valves.
- Valves control volume of air in and out of rooms.
- Inline fan filter units provide HEPA filtration at room supply air.
- Differential pressure is set by supply and exhaust air volume offset.

Higher duct construction and cleanliness standards required.

Understanding of cleanroom construction and how the HVAC system works is key.
Murphy Pharma / Laboratory Experience
Denver Pipefitters Joint Apprenticeship Training Program
Program Requirements

- 8500 Hours of On-The-Job-Training (documented hours showing exposure to key areas of the industry)

- 1260 Hours of Classroom Instruction (Classes are held Monday thru Friday from 5:30pm to 9:00pm, with additional weekend classes)

- Must accrue at least 5 industry recognized certifications

- Pass all classes with a 70% minimum including a week long 2000 point (1000 pt. theory, 1000 pt. practical) completion exam

- Obtain their Journeyman Mechanical License from City & County of Denver (includes passing the ICC F31 National Journeyman Mechanical licensing exam)

- Highest Standards in the Industry!
Providing the best trained professionals in the high purity industry