Case Study: 5S Organization of a College Test Lab

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5S organization can be the key to effectiveness and efficiency in the workplace. This is a case study of how we instituted 5S in a very dynamic environment. The fluid power laboratory at Milwaukee School of Engineering uses mostly a student workforce. This workforce has little to no previous experience working in an industrial environment; in addition, the workforce hours are built around class schedules. This study shows how with a little training and empowerment, the students were able to transform the physical environment in this very non-routine workplace.
• MSOE Fluid Power Lab
• 5S Defined
• Organizing a Project Plan for Change
• Effecting Change with Part-Time College Student Workforce
• Sustainability
Fluid Power Institute

The Fluid Power Institute™ at MSOE is one of the leading academic fluid power research laboratories in the nation. Established in 1962, FPI is a leader in motion control and fluid power education, research and evaluation.
Situation: Fluid Power Test Lab

• Workforce
  – 6 full-time employees
  – Approximately 15 engineering student workers with 25% turnover rate

• Facilities
  – Office area
  – Multiple storage areas
  – Test lab
  – Off-site test lab
What Is the 5S System?

• A Place for Everything – Everything in its Place
• The Fundamentals of Standardization
• It is a way of thinking that provides workplace organization
5S Basics

• A place for everything
  – The right tools to perform the job at hand
  – Locations determined by safety and ergonomics
  – Designed work spaces

• Everything in its place
  – Surgeon approach: locate the right tool at the right time without losing focus on the patient
  – Saves money
    • No time wasted searching for tools
    • Tools and supplies are readily available for use: no over-purchasing
The 5S’s

- **Seiri** – Sort (tidiness and/or organize)
- **Seiso** – Shine, also Scrub (cleanliness)
- **Seiton** – Straighten (orderliness)
- **Seiketsu** – Standardize
- **Shitsuke** – Sustain
Sort : Fundamentals

• Identify the work place to be 5S’ed
• Make everything in that work place visible
  – Take things out of drawers and cabinets
  – If possible, remove everything that is not bolted down to a Sorting area away from the work space
• Immediately throw away anything that is junk
Sort : How To

• Separating the Needed from the Not Needed items
• Determine disposition of every item
• Look carefully at:
  – Tools
  – Parts
  – Information
    • Especially on Bulletin Boards
    • Books and Manuals
• Consider how much of supplies and materials are really need
Why Sort

- Efficient use of space
- Safety
- Save Money: do not buy things you already have
• Student was designated as the Red Tag leader
• Red Tags were used to tag materials that were identified as “Not Needed”
• Red Tag items were cataloged on spreadsheet
• Spreadsheet was sent to management and given a time frame of 1 week to make a decision
• Unneeded items were removed – scrapped
• Needed items were un-red-tagged and identified, including purpose and attributes
FPI Examples - Sort

- Like items gathered together
- Pre-Kitted items
Red Tag Examples
• While we have the area cleared out, thoroughly clean everything
  – Building
  – Tools
  – Equipment
Why Shine

- Safety
- Find defects on equipment
- Prolong asset life
Shine: Implementation

- Institute Cleaning Schedule
- Management Leadership
- Solvents to clean oil
Straighten: Fundamentals

• Everything must have a place
• Place the items used most often closest to the action
• Consider shadow boards and labels for everything
• Horizontal surfaces and cabinets with doors are our enemies
  – Horizontal surfaces collect “Stuff”
  – Doors hide bad organization
Why Straighten

- Defined place: Efficiency
- Shared work space
- Safety
- Save Money
  - Care for your tools
  - Do not over buy items
Straighten: Implementation

- Relocate hose assembly station
- Designated oil storage; containment
- Label storage areas
- Label materials
Cabinets standardized to each other, not their purpose
Oil Storage

Before

After

• Locations marked
• Oil accessible, safely
• Spill containment
Basement Storage

Before

After
• Make agreement on how the area will be maintained
• Written processes and expectations
• Set the rules for your area:
  – Restock parts at the end of the shift
  – Clean out refrigerator on Fridays
  – No oil spills
• Focus on the daily/weekly routines
• Assign responsibility – by name whenever possible
Why Standardize

- Clear responsibilities
- Ease of training
- Efficiency
Standardize: Implementation
Designed Storage
Bar Code Tracking
Standardize : After
Sustain : Fundamentals

- Audit
- Report (Metrics)
Why Sustain

• Ensure goals are on track
• Training tools
• Faster indoctrination
Sustain : Implementation

Down This Aisle:
- Wheels
- Carts
- Manifolds
- Flanges
- Pipe Thread Fittings
- Adapter Blocks
- Adapter Plates
- L-Brackets
- Ball Bearings

Remember to turn off lights and lock door when finished.
Before

Put Your Stuff Away When You Are Done, OR ELSE!!!

After

Welcome to the FPI Basement!
Please Put Things Back Where They Belong.
You’re Smart, and It’s All Labeled.
FPI – Standardize

Southwest Cell

200 HP hydraulic motion testing
Implementation

• Quiz
  – What are the benefits of 5S to FPI?
  – What are the barriers to 5S?
  – Who is responsible for the operation of the lab?
  – How can we start on 5S today?

• Team Work Exercise
  – Communication
  – Daily meeting instituted
5S – Recap

- Non-Traditional Work Environment
  - Part-time student workforce
  - Testing facility
  - Multiple storage areas
- Part-Time 5S Coach
5S – Keys to Success

• Designate Champion
• Set clear roles and responsibilities
• Set clear, attainable goals
• Follow up and coaching
• Documentation
• Believe in power of standardization
Questions?

Thank You

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