Developing In-House Ergonomics Expertise

Applied Ergonomics Conference

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3M
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3M is a large global company
- US Based
- Operations in over 60 countries
- Manufacturing, Pilot Plant, Laboratory, Administrative/Sales
- Over 40 Technology platforms
- Over 55,000 products

Internal Ergonomic Requirements
US/OUS Regulations and Standards
Corporate Initiatives

Growth

Cost

Cash

Values and Reputation

Maintain a Safe and Healthy Workplace

Develop and Implement Programs that Improve Workplace Health and Safety

Reduce exposure to Ergonomics (MSD) Risk

Ergo Key Objective

Ergonomics Strategies

Job Analysis Methods

Design Criteria

Training/Professional Development

Cost Benefit Analysis

Technical Consultation
Ergonomics Strategy

• Build a **Sustainable** Ergonomics Process
  - Supporting H&S Professional Development
    • Locations develop necessary expertise in-house
  - Creating consistency within 3M locations globally
  - Establishing and achieving internal ergonomics expectations
3M Program History

- **1980 - 1990**
  - Centralized Ergonomic Expertise
  - Initial understanding of Ergonomic Issues

- **1990 - 2000**
  - Global Safety & Health Plan with Ergonomic requirement
  - “Turbo Ergo” creating Ergo Teams
  - Corporate Staff primary Ergonomic Experts
3M Program History (cont.)

- 2000 - 2005
  - Corporate Governance Role
  - MacroErgonomic Perspective
    - Centralized leadership
    - Locations with ergonomic expertise
  - Standardized program elements
    - Job Analysis Tools
    - Training Program
    - Communications
What was Needed?

• Location expertise to:
  – Coordinate and manage location’s ergo program and initiatives
  – Conduct job assessments, identify and implement appropriate controls
3M Ergonomic Leadership

- Ergonomists
  - Corporate: Manager, Technical Experts
  - Business
  - Plant

- Health and Safety Professionals
  - CSP
  - IH
  - Occupational Medicine Nurses
Ergonomics Training & Certification

Internally trained and certified resources at all applicable manufacturing, pilot plant, laboratory and distribution operations.
3M EJA Certified Resources

• Training
  – Technical topics
    • Physiology and Biomechanics
    • Anthropometry and Workstation Design
  – Job analysis tool
    • E-meetings
    • 2 day workshop

• Certification
  – Three phases to demonstrate proficiency:
    • Valid job assessments
    • Identify and implement solutions
    • Assess effectiveness
Why Certification?

• Accurate use of the job analysis tool
• Identify the most important ergonomic issues
• Identify and implement effective and cost efficient solutions
• Accurately identify the cost/benefits of the improvements
3M Ergonomics Certification Process

Introduction to the EJA

Module 1: Ergonomics: Physiology, Biomechanics and Musculoskeletal Disorders
- Pretest
- Readings
- Homework
- Discussion
- Case Studies
- Post Test
- 2 E-meetings
- 2 Office Hours

Module 2: Ergonomics: Anthropometry and Workstation Design

Module 3: Ergonomics: Introduction to Ergo Job Analysis Tool
Preparation for EJA Workshop
- ID high risk jobs
  ✔ Stats review
  ✔ Job History information
- Prepare location case study information for Workshop

Module 4: Ergonomics: 2 - Day Workshop
- Hands-on workshop
- Job analysis practice
- ID solutions

Submit case study for preliminary certification
+ Phase 1 certification review
+ Phase 2 certification review
+ Phase 3 - permanent certification awarded
## EJA Certification Process: Phase 1

<table>
<thead>
<tr>
<th>Task</th>
<th>What to Submit</th>
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<tbody>
<tr>
<td>Identify Jobs with Potential Ergonomic Issues</td>
<td>Completed Job Pool WorkSheet</td>
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<tr>
<td>Complete initial screening assessments</td>
<td>Minimum of 10 initial screening assessments include Score Sheets and job videos</td>
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<tr>
<td>Prioritize jobs</td>
<td>Minimum of 5 job assessments, Score Sheet, Data Collection sheets, videos, and solution implementation plan for 1 evaluated job</td>
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<tr>
<td>Verify Controls</td>
<td>Solutions and implementation plans and follow-up job assessments</td>
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Time Commitment

- **Modules 1, 2 & 3: Technical Training** -
  - Independent study and E-training
  - 6 - 7 days distributed over 12 weeks (depends upon existing participant’s knowledge and skills, can choose to test out of first two modules)

- **Job Assessment Workshop** (must complete Modules 1, 2 & 3 to attend)
  - Two-day hands-on job assessment skill development training at a 3M manufacturing location

- **Ongoing Commitment & Support**
  - Minimum time commitment of 10% to 30% of time based upon their location’s ergonomics need.
Required Job Analysis Equipment

- Dynamometer
- Pinch Gauge (30-lb.)
- Goniometers (180° Digit)
- Push-Pull Force Gauge
- Tape measure
- Stop watch
- Video Camera (most locations have one)
- Digital Camera (optional)
Certification Phase 1:
Develop Expertise

- Practice using the tool
- Develop accuracy
- Become efficient
Certification Phase 2: Solution Development

- Expand knowledge of ergonomic solutions and controls
- Implement and document solutions that resolved ergonomic issues
Certification Phase 3: Solutions & Process Efficiency

- “Fine tune” skills identifying, implementing and assessing solutions.
- Gain experience identifying critical issues and solving them effectively with efficient use of resources.
- Develop strategies to “sell” solutions.
Ergonomic Resource Planning

- Ergonomic resources at locations
  - Technical Knowledge & Skills
  - Time to Implement Ergonomics
- EJA Certified Resource named in document
- Ergo Coordinator named in document
3M Ergonomic Resources

- Five BCPE
- EJA Certified Resources - over 140 in the Certification process
  - IH
  - Safety
  - Occ. Med.
3M Management Sponsors

- **Business**
  - Executive Vice Presidents
  - Manufacturing Directors

- **Environmental, Health and Safety Operations**
  - Vice President
  - Safety Director

- **Engineering**
  - Vice President
  - Engineering Design Director
Key Learnings

• Create a comprehensive plan
• Integrate with business and staff partners
• Leverage what already exists
• Create process to measure progress and lead the oversight of that progress
• Create a target goal/outcome with measurable milestones
• Communicate, communicate, communicate
• Adapt, adapt, adapt, adapt, adapt
Questions?