

**Integrated Air Defense Center
Andover, MA**

ACHIEVEMENTS

The Integrated Air Defense Center (IADC) is located in Andover, MA. IADC is the Operations and Systems Integration Center for the Raytheon Integrated Defense Systems (IDS) business. There are 1.2 million square-feet of manufacturing, laboratory, and offices at the site with approximately 3,495 employees. Raytheon's (IADC) Roadmap to Operational Excellence began in 1999 with our Raytheon Six Sigma initiative. The Raytheon Six Sigma process uses lean principles to help identify and eliminate waste throughout the IADC. At the center of this process are our people who strive to improve everyday.

Quality and Cost

- 23% reduction in overall cost of quality as percent of sales
- 71% reduction in cost of rework as percent of Fabrication, Assembly, Inspection and Test Labor (FAIT)
- 46% reduction in unplanned scrap as percent of Fabrication, Assembly, Inspection and Test Labor (FAIT)

Delivery

- Examples;
 - Patriot Missile team reduced customer lead time by 60% over its life cycle
 - RAID team reduced build hours/unit by 75%, allowing for 100% OTD of product to our warfighters.

Customer and Industry Recognition

- 2005 29 Navy Best Practices recognized
- 2005 & 2006 AME Award for Manufacturing Excellence
- 2005 Northeast Shingo Prize Silver Award
- 2006 Northeast Shingo Prize Gold Award
- 2008 North American Shingo Silver Medallion Award

ENVIRONMENT

IDS Operations' Environmental Health & Safety (EHS) organization has a vision to ensure customer success by being a world leader in the protection of people, property and the environment. The Raytheon EHS strategy is to demonstrate environmental stewardship through pollution prevention, product development, resource management, site restoration and community involvement. A walk through the Center reveals the pride of the workforce in keeping

the factory clean with everything in its place, as defined by visual controls such as shadow boards, license plates and signage. Employees are encouraged to seek better ways of doing their jobs and are empowered to make the necessary changes in their workspace.

The company has created a culture that regards EHS as everyone's responsibility and first priority. The company emphasizes safety everyday. The EHS Council, which includes top site management, provides direction in monthly meetings regarding global site issues. Results include:

- In 2006, IADC recycled over 1,600 tons of paper, plastic, glass, wood, metals, etc.
- 2006 Environmental Protection Agency (EPA) Waste Reduction Leadership Award (Large Business Category)
- 2006 Innovation Award "Zero Waste Luncheon"
- 2005 Massachusetts Safety Council "Presidents Award"
- 2005 EPA WasteWise Honorable Mention "Green Purchasing"
- 2005 EPA Innovative Waste Reduction Leadership Award
- 2006 Received "A" from Raytheon Corporate EHS Audit

PEOPLE

Starting in 2005, the IADC focused even more acutely on lean transformation by leveraging its R6σ culture and involving *every* employee. The mission center continually monitors its increasing maturity levels driven by Raytheon's Total Employee Engagement (TEE) philosophy, the foundation of continuous improvement. It is recognized that real empowerment can only exist in an environment that allows the implementation of many ideas, versus a few top-down initiatives.

A workforce that understands expectations, coupled with a leadership team that listens and responds, creates a culture for TEE, which defines the employee empowerment philosophy. TEE starts with the identification of improvement opportunities generated in an environment where everyone is encouraged to eliminate muda, mura, and muri. Improvement potential may be identified as an issue or problem, an opportunity to prevent waste or a new improvement idea. The number of TEE ideas has

increased from an average of 130 per month in 2005 to 1,460 per month in 2007.

This transformation change towards embracing lean enterprise has also manifested itself in IADC's relationship with its customers and the outside community, its overall performance, the collaborative nature of its organization, its strategies, and perhaps most importantly, its culture.

PROCESS

The IADC's leaders embed a culture of continuous improvement and waste elimination throughout the organizational infrastructure. Raytheon's vision, values, strategies and goals are seamlessly flowed down through the organization, linking every employee to the business objectives.

Knowledge systems are in place and used as references throughout the mission center. Employees are empowered through Raytheon's culture of TEE and through the R6 σ continuous improvement teams to make sustained improvements and eliminate waste. Resources are allocated to ensure the center maintains an ergonomic, clean and safe working environment for all employees. Since 1999 there has been over 20,000 R6 σ specialist (Green Belt) projects completed. And lastly, the IADC continues to promote and deploy lean practices through its integrated CBT structure to achieve world-class results.

PRODUCTS

The IADC supports Raytheon Integrated Defense Systems' Integrated Business Teams: National and Theater Security Programs, Maritime Mission Systems, Future Naval Capability, International Operations and Civil Security and Response Programs. The organization manufactures and provides whole life services and support for In-Service Radars, Patriot Missile, Patriot Ground Support Equipment, X-Band Radars, Circuit Card Assembly and Surface Acoustic Wave. Manufacturing areas include: Radar Sub-Systems Solutions, Metal Fabrication Center of Excellence, Microwave Assembly, Cable Assembly and Electronic Components. Whole life services and support includes teardown, overhaul, assembly, integration, testing and logistics support. The U.S. Department of Defense is the largest customer, but the Center also supplies products to 22 other countries.

COMPANY

Raytheon Company was founded as the American Appliance Company in 1922, and later renamed Raytheon Manufacturing Company after the popular Raytheon radio tube which the company manufactured. Raytheon Company, with 2007 sales

of \$21.3 billion, is a technology leader specializing in defense, homeland security and other government markets throughout the world. With a history of innovation spanning 85 years, Raytheon provides state-of-the-art electronics, mission systems integration and other capabilities in the areas of sensing; effects; and command, control, communications and intelligence systems, as well as a broad range of mission support services. With headquarters in Waltham, Mass., Raytheon employs 72,000 people worldwide.

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