



**Fabricators & Manufacturers
Association, International®**

AMERICA'S MOST WANTED: SKILLED WORKERS

A Highly-Skilled Workforce is Necessary to Meet 21st Century Manufacturing Needs

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Consider a manufacturing career amid media reports of shuttered factories, job losses and the worst economy since the Depression? Although certainly counter-intuitive, the answer to that question is a resounding yes! Despite the shaky economy, scores of American manufacturers are reporting a dire need for skilled labor.

Industry surveys reinforce this claim. According to the 2009 Manpower Talent Shortage Survey, among the most difficult jobs to fill in North America are those of the skilled manual trades, with electricians, carpenters/joiners and welders as the most in-demand employees.

In addition, an October 2009 report issued by the Manufacturing Institute, Deloitte and Oracle, cites that among companies involved in skilled production (whose employees are machinists, craft workers and technicians), 51 percent report shortages and see increased shortages ahead.

Although the United States has lost huge numbers of manufacturing jobs to countries like China, there still are well paying job opportunities for skilled workers in the manufacturing sector here. As more and more baby boomers retire, the problem is only expected to accelerate.

The looming skilled-worker shortage is an unwelcome threat to the nation's manufacturing base that needs to be addressed at multiple levels, from better educating the next generation of factory workers to improving the public's image of plant work.

Manufacturing's Image Problem

There's no doubt that manufacturing has an image problem – especially among today's youth. A national poll of teenagers underscored in a major way teens' disinterest in manufacturing and working with their hands, and how the educational system ignored this arena as a viable career option.

The poll, sponsored by Nuts Bolts & Thingamajigs (NBT), the Foundation of the Fabricators & Manufacturers Association (FMA), showed a majority of teens – 52 percent – have little or no interest in a manufacturing career and another 21 percent are ambivalent. When asked why, a whopping 61 percent said they seek a professional

career, far surpassing other issues such as pay (17 percent), career growth (15 percent) and physical work (14 percent).

A major reason that kids don't pursue careers in the skilled trades is the simple fact they are not introduced to them anymore. In the past, high school students could take a shop class and get a feel for working with tools, but today most kids don't have that chance.

Also, factory conditions have changed dramatically – yet many of today's youth are unaware. The old stereotypes of backbreaking labor and grimy working conditions persist, yet it's far from the truth. Ask people today what they think of manufacturing and most will probably recite a perception of a dirty, dangerous place that requires little thinking or skill from its workers and offers minimal opportunity for personal growth or career advancement.

It's absolutely critical to change this mindset and show young people how manufacturers have modernized, embraced new technologies and involved workers in management and product development.

A Nation of 'Non-Tinkerers'

American adults, too, may be a root cause of disinterest among American youth to fill jobs in the industrial arena. Another NBT poll revealed that America has become a nation of "non-tinkerers," with 60 percent of adults avoiding major household repairs, opting to hire a handyman, enlist their spouse, ask a relative or contact a property manager. And, 57 percent state they have average or below average skills at fixing things around the house.

This means young people essentially have no role models when it comes to repairing things themselves or taking pride in building something useful. It's no wonder why so many teens today dismiss the idea of considering a career in manufacturing or one of the manual arts such as electrical, plumbing, carpentry or welding.

Yet the survey also offers some hope that parents could influence their children to think about manufacturing work. The poll reveals parents actually would support having a young factory worker in their family. More than half – 56 percent – would recommend their child pursue a career in manufacturing or another kind of industrial trade.

Knowing so many parents will back their children in this career path is truly welcome news. When America recovers from its economic downturn, it will be vital to inform the nation's youth about the available opportunities.

Manufacturing Opportunities Abound

The manufacturing environment is changing in terms of needs, opportunities, and the talents required. Most of the fastest growing manufacturing jobs today require advanced knowledge and skills, but many in the available workforce lack these proficiencies and the educational background.

Technology is expanding exponentially throughout the industry — from design and production to inventory management, delivery, and service. Manufacturing positions today include exciting work with lasers and robotics. The introduction of CNC machine

tools has changed the nature of the work of machinists. Now, a machinist has to be computer literate and understand basic electronics and physics.

According to Laura Narvaiz, vice president of communications for the National Association of Manufacturers, “A lot of jobs require at least an associate degree or manufacturing certificate. Workers have to know how to program computers, fix computers and work with robotics.”

In addition to manufacturing demand, demographic factors contribute to the looming employment crisis. The average age of a worker in today’s skilled workforce is 56 years old. The baby boomer generation of skilled workers will retire within the next 5 to 15 years, creating the need for an estimated 10 million new workers by 2020.

Alan Burton, vice president for human resources at Maine-headquartered construction company Cianbro Corp., which employs millwrights, pipefitters, iron workers and electricians, says, “Generally, large manufacturers have a long-term workforce, but it’s an aging workforce. A large number of people are getting close to retirement and there aren’t enough new skilled workers to replace them.”

Increasing Interest in Manufacturing

Manufacturers, trade groups, educators and media must work to respond to this challenge. Industry associations are one group stepping up to the plate. In March, for example, NBT partnered with the National Association for Community College Entrepreneurship (NACCE) to launch a national pilot program of summer manufacturing camps that builds on NBT’s successful camp blueprint.

In 2010, 16 NACCE member community colleges throughout the United States will offer NBT summer manufacturing camps targeting youth at the critical level of junior high and high school, exposing them to math, science, and engineering principles, and industry technology, as well as basic entrepreneurship.

Camp participants use technology to create a product from start to finish, providing them practical manufacturing experience in 3D design, CNC programming, welding, machining, and more, while learning product creation, problem solving, entrepreneurship and team building.

Visits to area manufacturers provide an up-close look at products being made as well as career advice and inspiration from the entrepreneurs who run the companies. In addition to manufacturing technologies, camp participants also learn entrepreneurship principles such as how products launch businesses and how small businesses are run.

NBT also issues scholarships to students at colleges and trade schools pursuing careers in manufacturing. In 2010, approximately 20 scholarships will be awarded to students across the country.

Other organizations are working on improving the image of manufacturing as well. For example, the Weld-Ed National Center for Welding Education and Training offers summer camps, specifically for girls, focused on welding skills. And NAM is working to attract young people to manufacturing through its “Dream It. Do It” campaign. Programs like these could not exist without a need.

Business and Educators Must Partner

Reaching educators is key to improving the future skilled workforce. Education priorities today rarely position manufacturing as a preferred career choice, and high school counselors and principals often fail to realize that manufacturing is a viable option for students. Thus, today's youth just aren't aware of the skills needed in an advanced manufacturing environment and the careers available.

Partnerships between local manufacturers and educational institutions will encourage more people to enter the field and to employ more skilled workers in plants and factories. Manufacturers should consider offering field trips for local elementary and middle school classes, as well as Boy Scout and Girl Scout troops. Ideally, a young, energetic worker will lead a brief tour of the plant. When students see a clean, modern facility full of sophisticated machinery, it will fascinate them and leave a lasting impression. If more companies partner with schools and youth organizations and arrange factory visits, the word will definitely spread.

Employers should foster ties with education officials in local communities and be willing to invest in people. Manufacturing equipment suppliers should consider donating equipment to local trade or vocational schools to support manufacturing courses. Manufacturers also should advise instructors and counselors at community colleges or high schools on job opportunities available and in curriculum planning.

“Manufacturers should reach out and be more active in their communities,” said Dr. Chris Kuehl, economic analyst for the Fabricators & Manufacturers Association, International (FMA). “Manufacturers aren't terribly active in Chambers of Commerce or professional associations or with their local universities and colleges.”

One of the most innovative programs in recent memory designed to give young people a view of manufacturing opportunities is called Max & Ben's Manufacturing Adventures. It's a web site where two 13-year old boys present their tours of local manufacturing facilities in video format. Funded through a community-based job training grant from the Department of Labor, the program was conceived and executed by Western Technical College in La Crosse, Wis.

We need to reach today's youth through the school system to help them realize they can operate the most advanced, sophisticated equipment in the world at a highly competitive wage.

Workforce Development Programs

States, schools and businesses should consider addressing the shortfall in skilled workers directly through vocational training and workforce development programs. One such initiative was recently launched in California. Governor Arnold Schwarzenegger unveiled the “I Built It-Youth” campaign, a statewide effort to begin training California's future skilled workforce to help rebuild California's infrastructure.

The campaign is a collaboration between the California Department of Industrial Relations and the California Department of Education. It is designed to promote careers in the construction trades to junior and senior high students through apprenticeship

opportunities and fosters participation in the state's economic recovery process to prepare them to join the next generation of skilled workers in California.

“Rebuilding California’s infrastructure will require a new generation of skilled workers and this campaign will promote apprenticeships targeted at our youth to prepare them for these important jobs,” Schwarzenegger has stated. “The recent passage of legislation to reform and rebuild the state’s water system is the perfect example of a project that will require the talents and knowledge of these workers. Investing in California’s workforce is a key component to our state’s long-term economic recovery.”

Another example of a successful workforce development program is The Society of Manufacturing Engineers’ partnership with Project Lead The Way. The initiative develops more than 250 Gateway Academies that give young people insight into the value of math, science and teaming. These academies provide a platform for future engineering and manufacturing to help youth find meaningful careers in the skilled trade arena.

Fostering Training

Another strategy to attract the next generation of workers is a concept employers have used for centuries – the apprenticeship and its cousin, the internship. Their value has never been so significant and appreciated; young people are exposed to the exciting opportunities in manufacturing while companies have a chance to recruit, evaluate and hire needed employees. Manufacturers should institute these programs or other training initiatives to introduce high school students to careers in the trades.

Companies also should tap the knowledge of their aging workforce as these highly-skilled workers can play a training role both within and outside an organization. Climax Portable Machine Tools in Newberg, Ore., for example, instituted a cross-training program that features senior machinists training and acting as mentors to junior employees, and established an in-house training program to help reverse the attrition of highly trained machinists and to keep them current with the new skills necessary.

Other older machinists act as advisors to instructors at local community colleges to assist them in teaching the newest machining techniques and helping with curriculum planning. By recognizing the value of these workers, Climax strengthens both its own internal processes, and reputation within the community and with customers.

Overhauling Manufacturing’s Image

All of the campaigns and programs described here can help change young people’s minds about manufacturing – if they hear about them. We must constantly inform the media about all of these exciting initiatives with energetic public information campaigns, work with them to help tell these stories to the public – and convince young people dream jobs are there for the taking.

It’s also one of the missions of the NBT, co-founded by actor, producer and director John Ratzenberger, to spark interest among young people in the industry and help revitalize the future of manufacturing in America. The NBT utilizes its resources in local and national public awareness campaigns to spread the message that manufacturing is a viable career

option. Information about those efforts and programs is available at <http://www.nutsandboltsfoundation.org/>.

Young people need to know that both historically and moving forward there is a high demand and great future potential – including the opportunity to own and operate your own business – that comes with a career in the skilled trades.

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