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Engineering a better jobs outlook

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ROCKFORD — Although any job growth is welcome, economic development officials are increasingly concentrating on the types of jobs created.

And engineering, so vital to the health of Rock River Valley's economy, is projected to see solid job growth, thanks in part to the region's deep roots in the field.

"When discussing job growth, we always go back to Richard Florida's book 'The Rise of the Creative Class,'" said Janyce Fadden, president of the Rockford Area Economic Development Council. The book discusses how knowledge-intensive jobs are becoming increasingly valued in today's economy, and attracting "creative" workers is key to increasing an area's earning power and potential.

"The competition to bring wealth-creating jobs to our area is very intense," she said.

Between 2004 and 2014, the number of nonfarm jobs in the area is expected to increase more than 11 percent from about 166,000 to 185,500, according to projections from the Illinois Department of Employment Security.

According to the state data,

the Rock River Valley is going to be a magnet for occupations such as schoolteachers, nurses, social workers and food service workers. Solid professions, and in some cases, well-paying.

From homes to roads

Engineering is categorized as a "creative class" profession; the number of engineers in Boone and Winnebago counties is expected to increase about 10 percent over 10 years.

Engineering is like health care in that it is **a large field with numerous specialties**. According to the state, the largest engineering specialties locally are mechanical, industrial, electrical, civil and electronics engineers. Trends in one part of the occupation have little to do with the others.

Many midsize and small manufacturers are outsourcing more and more of their design work to Asian firms in the continued effort to cut as much cost out of making a product as possible.

Civil engineering is relatively stable in the Rock River Valley but the clientele is changing. Many civil engineering firms have been busy in the past five years designing subdivisions because of the housing boom. That work has all but disappeared in the housing slowdown, which has left a record number of houses, both previously owned and newly built, sitting unsold.

Instead, civil engineers are gearing up for road projects, mainly because two of the area's municipalities with the roads in the worst condition — Rockford and Machesney Park — have passed sales-tax referendums in the past year to fund massive repairs.

While the area may be losing some industrial engineers and staying steady on civil engineers, Fadden thinks the long-term outlook for bringing in engineers is stronger than state projections because of the region's deep reserve of aerospace companies.

"When Northern Illinois University did a study on the aerospace industry, they found that this area has a number of advantages in attracting engineers," Fadden said.

Specifically, the study found the average wage paid by the area's engineering firms is slightly below the national average in aerospace, but that is offset by Rock River Valley's historically low-cost housing market.

Also, the area's aerospace companies, like the entire industry, are in a growth mode.

Hamilton Sundstrand — which makes electric power-generation, distribution and control systems, fuel and special fluid pumps, and propeller and engine control systems for the military and the world's two major airplane builders, Boeing and Airbus — is recruiting 150 more engineers to join about 1,000 engineers in its 2,300-employee Rockford staff.

Woodward Governor, which makes engine control systems for companies such as Caterpillar and General Electric, boosted its payroll in 2006 and 2007 to about 1,400 workers at its operations in Loves Park and Rockton. Almost 220 of those workers are in the company's engineering department, and about 60 percent of those are degreed engineers.

GE Aviation in Loves Park has 180 employees and is also looking for more. It makes components and systems for aircraft makers such as Brazil's Embraer.

And Ingenium of Rockford, the newcomer on the block, has grown from its founding by four former Hamilton Sundstrand executives in 2000 to more than 200 workers providing specialized engineering services through three companies, Ingenium Technologies, Ingenium Aerospace and Ingenium Testing.

Looking to youth for the future

But with so many aerospace companies growing here and around the world, the competition for engineers is intense.

Bill Kroll, director of systems and engineering at Hamilton Sundstrand, and Bill Gissal, human resources manager, said the company has expanded the number of colleges it visits at career fairs, is offering signing bonuses for prospective workers and even bonuses for workers who alert the company to candidates it hires.

Kroll said it's the level of technology the company is developing that draws many workers to the company. Aviation Week & Space Technology ranked Hamilton Sundstrand as the No. 2 aerospace company in the nation in terms of technologically challenging jobs.

"That's a draw for us. The people that come here know they are going to be working on cutting-edgetechnologies," Kroll said.

Still, Gissal said the company is sometimes outbid by aerospace companies in larger markets when recruiting.

"We can get pretty close, but we can't always match what they'll get elsewhere," Gissal said. "Theydon't always take into account the cost of living."

Miki Leombruni, senior human resource consultant at Woodward Governor, said sometimes it's an even more uncontrollable factor that keeps engineers from choosing the Rock River Valley.

"We'll get resumes from California and Florida, but then they'll go online and look at the weatherhere, and we never hear from them again," she said.

Woodward has expanded the number of career fairs it visits as well, hitting many of the **Midwestern colleges with engineering programs** — University of Wisconsin-Platteville, Northern Illinois and the University of Illinois. But they'll look as far as Georgia Tech.

Woodward and Hamilton Sundstrand search far and wide for engineers because the numbers coming out of United States colleges are slowly declining, while engineers coming from countries such as India are increasing at shocking rates. While U.S. colleges will turn out about 75,000 engineers this year, India alone will graduate 750,000, according to industry estimates.

There are a few programs at the elementary and secondary levels aimed at increasing the interest inengineering careers. The Rockford Chapter of the Illinois Society of Professional Engineers has been organizing a Mathcounts competition for the past 25 years. This year, it drew sixth-, seventh- and eighth-graders from 10 area schools, including Belvidere Central Middle School, Concordia Lutheranin Machesney Park, West Middle School in Rockford and Winnebago Middle School.

At the high school level, Northern Illinois and Rock Valley College co-sponsor an annual bridge bulding competition where teams of four students each design and assemble a small-scale bridge using Balsa wood and glue.

And Woodward and Hamilton Sundstrand, along with companies such as Exelon Nuclear, Haldex Hydraulics and Freeport's Honeywell Micro Switch division, are financial sponsors of the area's four robotics programs, in which students work withengineers and machinists to build a robot suited for a specific task.

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