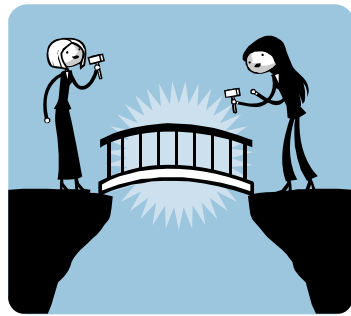


# Highway & Bridge Design, Construction, and Maintenance Career Day

## Southwestern PA Career Day

Meet Southwestern PA's  
Skilled Tradespersons &  
Professional Engineering  
Consultants. Practice  
hands-on skills.  
Prizes! Prizes! Prizes!



Southwestern PA  
**CAREER DAY/JOB FAIR**  
Highway and Bridge Design, Construction & Maintenance  
'09

## Building Your Career Pathway

Learn more about:

- Apprenticeship Programs
- University Level Construction & Engineering Programs
- Hands-on Activities



**Western Area Career &  
Technology Center**

688 Western Avenue  
Canonsburg, PA 15317

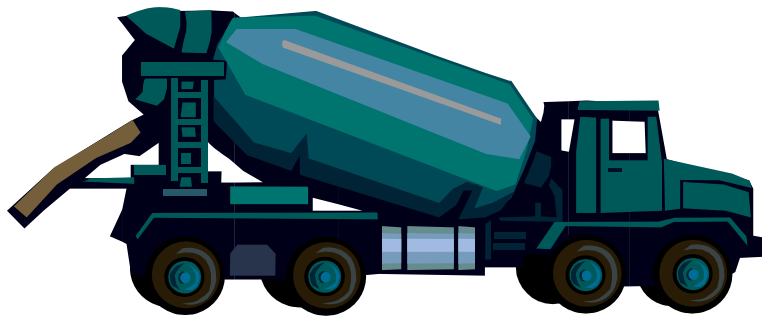
Sponsored by: Southwestern PA Workforce Development Committee for  
Highway & Bridge Design, Construction, and Maintenance.

# Schedule & Group Rotation



Check your hardhat color to see which group you are assigned to be in. You are expected to be at the following locations at the times designated.

Times	Employment & Education Exhibits	Outside: Equipment	Shops: Hands-On Activities	Lunch
9:00 to 9:30	Group Arrival & Orientation	Group Arrival & Orientation	Group Arrival & Orientation	*****
9:30 to 10:25	GROUP 1	GROUP 2	GROUP 3	*****
10:25 to 11:20	GROUP 2	GROUP 3	Lunch & Network	GROUP 1
11:20 to 12:15	GROUP 3	Lunch & Network	GROUP 1	GROUP 2
12:15 to 1:10	Lunch & Network	GROUP 1	GROUP 2	GROUP 3
1:10 to 1:30	Group Departure	Group Departure	Group Departure	*****



# Career Exhibits

## *Area 1: Employment & Education Exhibits (Inside)*

Check out universities, colleges and apprenticeship programs. Ask local professionals about how they reached their current career.



## *Area 2: Equipment (Outside)*

See some of the equipment used by those that work on highways and bridges.

## *Area 3: Shops—Hands-On Activities (Inside)*

Try-out the tools of the design, construction and maintenance trades.



# Career Portfolio Information

**Attention Future Workforce:**  
The job market needs **YOU!**

According to the National Center for Construction Education and Research,

- Construction is one of the nation's largest industries
- There are 6.9 million Americans in construction
- By 2012, there will be one million new jobs available in construction
- The construction industry is among the economy's top 10 largest sources of growth
- There are 240,000 jobs available each year in construction
- Opportunities to own your own firm is better in construction than any other industry

To be a part of the workforce, it is necessary to get your high school diploma. Afterwards, whether you want to pursue on-the-job training or a degree from a 2 year technical school or a 4 year university is up to you. No matter what you decide, there are jobs out there waiting for you. Make sure you're ready for them!

**Insert this information into your Career Portfolio!**  
**Check out the career information in this booklet!**



# WELCOME!

## Welcome to the Highway & Bridge Design, Construction and Maintenance Career Day!

You will have an opportunity to review three main areas: 1) Outside Heavy Highway Equipment, 2) Inside Hands-on Activities, and the 3) Employment and Education Resource Room. You will observe and hear from men and women who have taken steps throughout their lives to develop careers in the field of transportation. You will also be able to talk to people who can guide you in the development of your career pathway.

This year we want to make special mention of **“nontraditional jobs”** in careers related to transportation. These jobs can be found in all aspects of transportation but especially in highway and bridge design, construction and maintenance. A nontraditional career is defined as a career where more than 75 percent of the workforce is of the opposite gender or race. Also, nontraditional occupations are defined by the U.S. Department of Labor as jobs in which 25 percent or less of the workforce is female. Similarly, nontraditional jobs for minorities are defined as those jobs where 25 percent or less of the workforce is African-American or Hispanic, in origin.

Some women and minority workers are “pioneers” in the advancement of equal rights, equal pay and equal opportunities for all workers. As a result of their boldness, there are many more opportunities today in nontraditional jobs for females and minorities; however, **you** must have the courage to develop a career focus, believe in yourself and be determined to succeed. Your success will come from being disciplined to study new information, to learn new skills, and to show up ready to work consistently over time. Your reward will be jobs that pay family-sustaining wages and have career pathways that lead to advancement and exciting career opportunities.

Women and minorities are underrepresented in many occupations, including those in the trades, technology and science fields, which typically pay well. Many workers in nontraditional jobs earn higher wages than they would have in traditional occupations.



According to the U.S. Department of Labor, here are some of the occupations that are considered nontraditional for women ("[Quick Facts on Nontraditional Occupations for Women.](#)" U.S. Department of Labor Women's Bureau): heavy equipment operators, construction managers, architects, chefs, engineers, computer and office machine repairers, construction and building inspectors, railroad conductors, machinists, truck drivers, fire fighters, aircraft pilots, all construction occupations, and mechanics. Before you choose not to consider any of these nontraditional jobs, get more information about the type of skills required for the job. Sometimes our first impressions are not based on facts, especially with today's technological advances in computers and electronics. Find out what a typical day is like for individuals who choose these jobs and try to talk to someone in the field. You may be surprised at what you learn!

We hope that you will be inspired, motivated and encouraged by your hosts today. To support you in your career exploration, use this booklet to make notes and to keep information about people that you might like to contact in the near future. Be sure to use your resources while in high school, including teachers, guidance counselors, business representatives, parents, and mentors who know something about the career pathways that you want to explore. Ask yourself "What seems interesting to me now and in what ways might I learn more about this career today?" Also, begin to see how academic subjects - especially Math and English - are applied in each job position.

We challenge you to be bold while you learn, not to face danger, but to face your dreams. Be bold enough to shape your future; be bold enough to learn new disciplines; be bold enough to plan and start along your career pathway; be bold enough to meet and talk to someone in your chosen career choice; be bold enough to consider new and different career choices. Be bold enough to begin . . .

Good luck on your career adventure!

The Committee for the Highway and Bridge, Design, Construction and Maintenance Career Day



6

# Employment & Education Exhibits

List your favorite careers that you learned about at this station:

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_



List 2 careers that you could see yourself doing:

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_

**Choose 1 Career to answer the following questions about:**

What are the skills required for this career? \_\_\_\_\_

What are the educational requirements for this career?  
\_\_\_\_\_

How long does the program take to complete? \_\_\_\_\_

What degree or certification would you earn as a result of completing the program?  
\_\_\_\_\_

What types of jobs would you be qualified to do as a result of the program?

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_



Describe what you find most interesting about this career:  
\_\_\_\_\_  
\_\_\_\_\_

# Equipment

List your favorite careers that you learned about at this station:

1)

---

2)

---

3)

---

4)

---

List 2 careers that you could see yourself doing:

1)

---

2)

---



**Choose 1 Career to answer the following questions about:**

What are the skills required for this career? \_\_\_\_\_

---

What are the educational requirements for this career?

---

What types of problems does the exhibitor solve?

---

Apply your knowledge of this career to other professionals you met today. Who is most likely to work with this exhibitor? \_\_\_\_\_



What are some of the duties the exhibitor does in a typical day?

---



---

# Hands-on Activities

List your favorite careers that you learned about at this station:

1)

---

2)

---

3)

---

4)

---

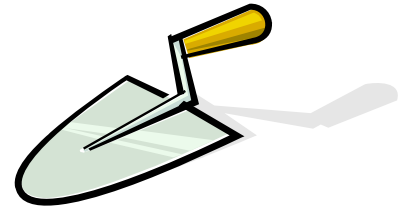
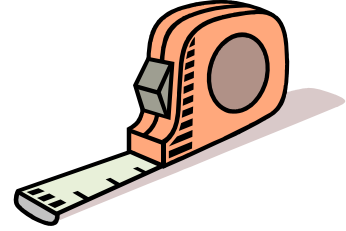
List 2 careers that you could see yourself doing:

1)

---

2)

---



**Choose 1 Career to answer the following questions about:**

What are the skills required for this career? \_\_\_\_\_

---

What are the educational requirements for this career?

---



What types of problems does the exhibitor solve?

---

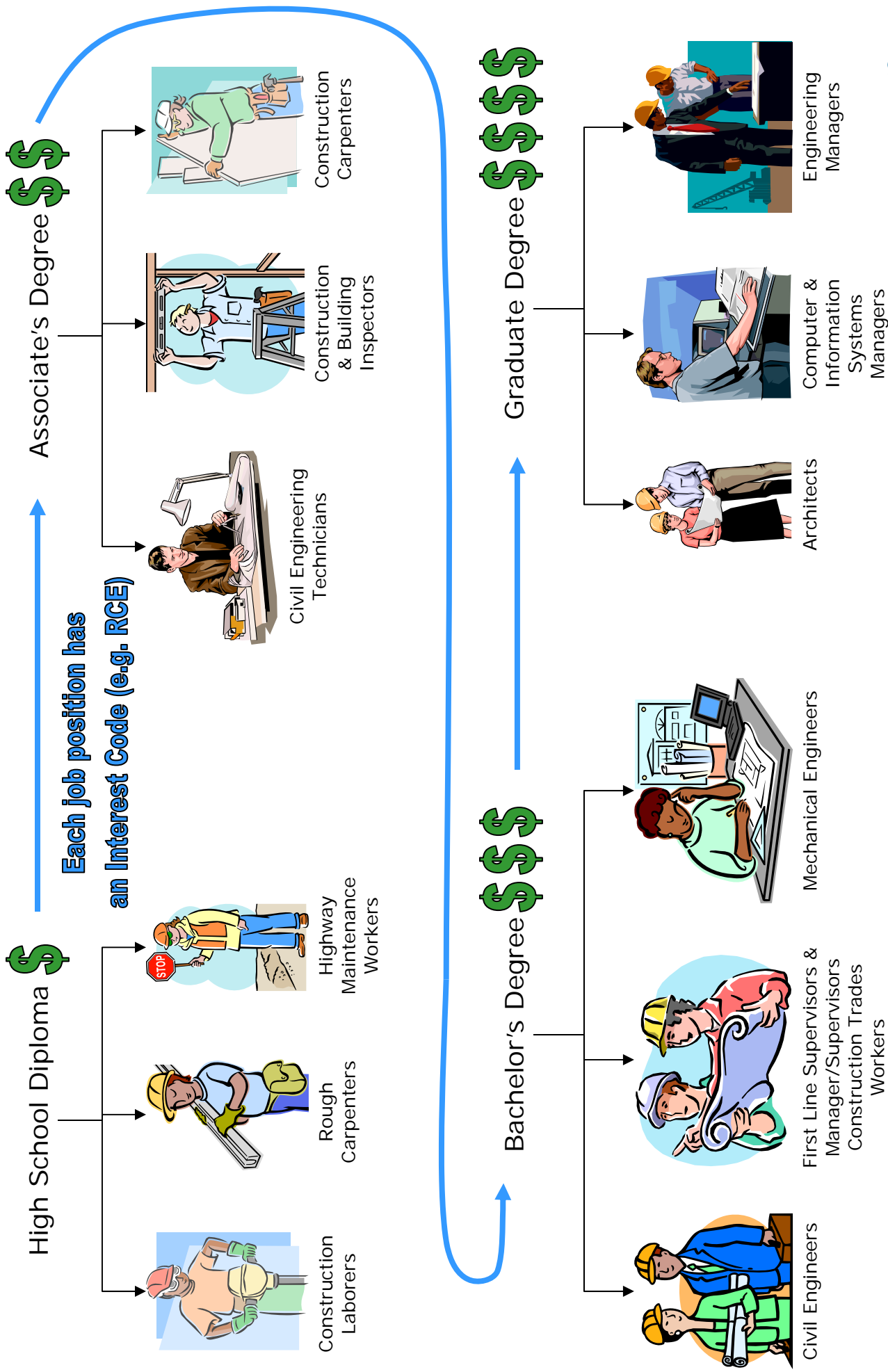
Apply your knowledge of this career to other professionals you met today. Who is most likely to work with this exhibitor? \_\_\_\_\_

---

What are some of the duties the exhibitor does in a typical day?

---

# Career Pathway Examples from Architecture & Construction Career Cluster



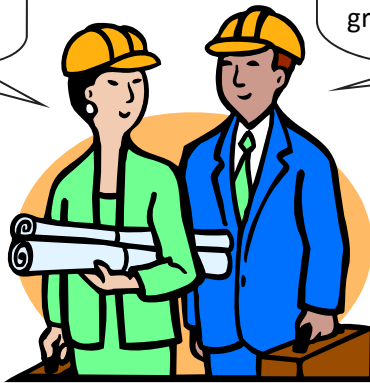
**Success = Education/Training + Experience**

# Construction Managers

*Example of a career within the Architecture & Construction Career Cluster*

In 2000, employment in the United States for Construction Managers was 487,077,000.

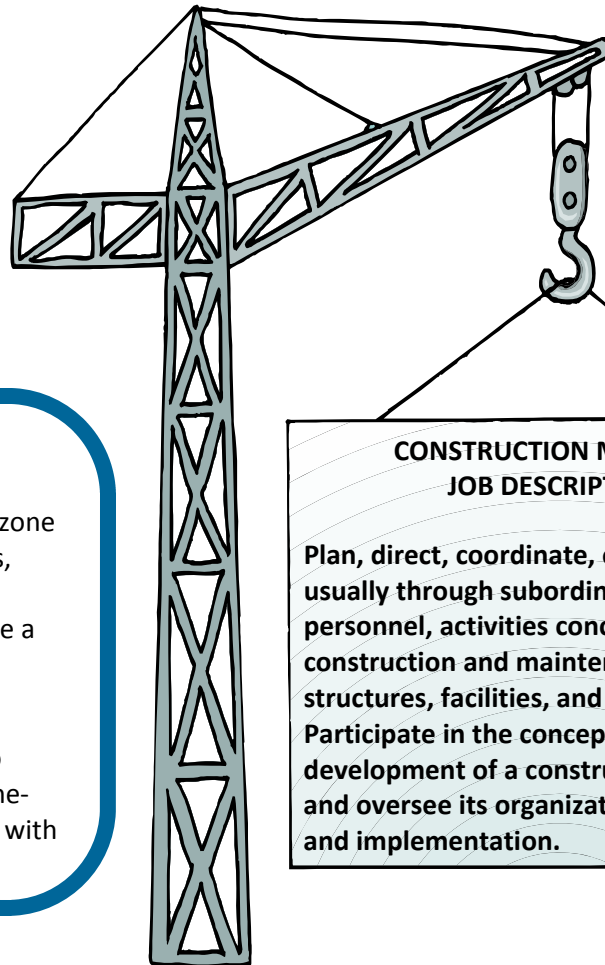
It is projected by the year 2010 employment in this occupation will increase by 15.7%, an increase of 76,471,089 positions. In addition 44,158,000 openings (9% of current positions) will become available due to growth and net replacements.



*National median annual wages for Construction Managers is about \$70,770.*

## EDUCATION / JOB TRAINING:

- **Education:** Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.
- **Job Training:** Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.



## CONSTRUCTION MANAGER JOB DESCRIPTION:

Plan, direct, coordinate, or budget, usually through subordinate supervisory personnel, activities concerned with the construction and maintenance of structures, facilities, and systems. Participate in the conceptual development of a construction project and oversee its organization, scheduling, and implementation.

# Construction Managers

## Tasks:

- Investigate damage, accidents, or delays at construction sites, to ensure that proper procedures are being carried out.
- Interpret and explain plans and contract terms to administrative staff, workers, and clients, representing the owner or developer.
- Inspect and review projects to monitor compliance with building and safety codes, and other regulations.
- Prepare and submit budget estimates and progress and cost tracking reports.
- Develop and implement quality control programs.
- Schedule the project in logical steps and budget time required to meet deadlines.
- Direct and supervise workers.
- Obtain all necessary permits and licenses.
- Select, contract, and oversee workers who complete specific pieces of the project, such as painting or plumbing.
- Requisition supplies and materials to complete construction projects.
- Confer with supervisory personnel, owners, contractors, and design professionals to discuss and resolve matters such as work procedures, complaints, and construction problems.
- Prepare contracts and negotiate revisions, changes and additions to contractual agreements with architects, consultants, clients, suppliers and subcontractors.
- Evaluate construction methods and determine cost-effectiveness of plans, using computers.
- Determine labor requirements and dispatch workers to construction sites.
- Take actions to deal with the results of delays, bad weather, or emergencies at construction site.
- Plan, organize, and direct activities concerned with the construction and maintenance of structures, facilities, and systems.
- Study job specifications to determine appropriate construction methods.
- Direct acquisition of land for construction projects.



# Eye Safety

Personal protective equipment (PPE) for the eyes and face is designed to prevent or lessen the severity of injuries to workers.



## Safety Spectacles

Safety spectacles are intended to shield the wearer's eyes from impact hazards such as flying fragments, objects, large chips, and particles.

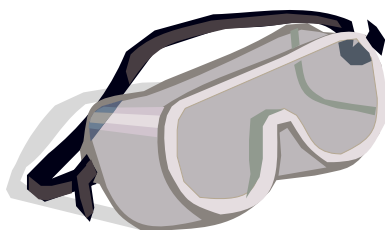
Workers are required to use eye safety spectacles with side shields when there is a hazard from flying objects. Non-side shield spectacles are not acceptable eye protection for impact hazards.



## Safety Goggles

Safety goggles are intended to shield the wearer's eyes from impact hazards such as flying fragments, objects, large chips, and particles. Goggles fit the face immediately surrounding the eyes and form a protective seal around the eyes. This prevents objects from entering under or around the goggles.

Safety goggles may incorporate prescription lenses mounted behind protective lenses for individuals requiring vision correction. Take time to consider specific lens, frame, and ventilation options when selecting safety goggles.

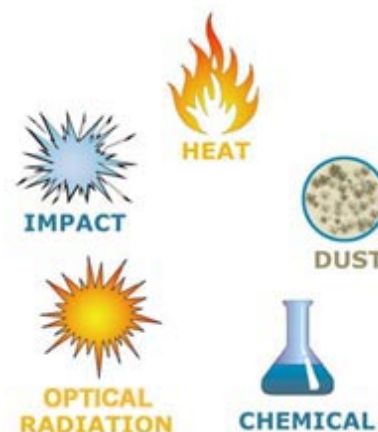


## Eye Safety Facts

- Approximately 60 percent of workers sustaining eye injuries were not wearing proper protective eyewear, according to the Bureau of Labor Statistics. "I didn't think I needed them" should never be the answer as to why safety glasses were not worn.
- Each day, about 2,000 U.S. workers sustain job-related eye injuries that require medical treatment, according to the U.S. Centers for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH).
- Workers who wear prescription glasses must also wear required eye protection.
- Protective eyewear must be properly fitted to be effective. Don't let lack of comfort be a barrier to full-time safety eyewear use.
- Occupational Safety and Health Administration (OSHA) standards require employers to ensure workers have suitable eye protection.
- The American Optometric Association recommends that supervisory officials in the workplace, in schools, and at recreational events should mandate wear of eye protection in all activities in which a risk of eye injury exists.

# Eye Safety

Hazard Assessment		
Hazard type	Examples of Hazard	Common Related Tasks
<b>Impact</b>	Flying objects such as large chips, fragments, particles, sand, and dirt.	Chipping, grinding, machining, masonry work, wood working, sawing, drilling, chiseling, powered fastening, riveting, and sanding.
<b>Heat</b>	Anything emitting extreme heat.	Furnace operations, pouring, casting, hot dipping, and welding.
<b>Chemicals</b>	Splash, fumes, vapors, and irritating mists.	Acid and chemical handling, degreasing, plating, and working with blood.
<b>Dust</b>	Harmful Dust.	Woodworking, buffing, and general dusty conditions.
<b>Optical Radiation</b>	Radiant energy, glare, and intense light	Welding, torch-cutting, brazing, soldering, and laser work.



# Safe Lifting



1. Stand close to the load with your feet spread apart about shoulder width, with one foot slightly in front of the other for balance.



2. Squat down bending at the knees (not your waist). Tuck your chin while keeping your back as vertical as possible.



3. Get a firm grasp of the object before beginning the lift.



4. Begin slowly lifting with your LEGS by straightening them. Never twist your body during this step.



5. Once the lift is complete, keep the object as close to the body as possible. As the load's center of gravity moves away from the body, there is a dramatic increase in stress to the lumbar region of the back.



# Thank You!!

***Thank you to everyone involved in the planning & preparation for the 2009 Highway & Bridge Design, Construction and Maintenance Career Day! Also, thank you to all of the Exhibitors, Donors & Sponsors, and the Steering Committee! We appreciate all that you do!***

## Exhibitors:

All Crane Rental of Pennsylvania	PA Army National Guard
Brayman Construction	PA CareerLink Washington County
Bronder Technical Services	Penn Commercial Business/Technical School
Builders Guild of Western PA, Inc.	Penn Line Services, Inc.
Carpenters Joint Apprenticeship & Training Program	PennDOT
Cement Mason's Union Local #526	Pittsburgh Institute of Aeronautics—PIA
Construction Consultant Services, Inc.	Pittsburgh Technical Institute
Golden Triangle Construction Co, Inc.	Renaissance, III 2000, Inc.
Helmets to Hardhats	RJR Safety, Inc.
HRV, Inc.	Rosedale Technical Institute
Ironworkers Local #3	Safety Careers
Jeff Zell Consultants, Inc.	Swank Associated Companies, Inc
Mascaro Construction Company LP	Trumbull Corporation/ Lindy Paving
Mine Safety Appliances—MSA	W. PA Laborers' Education and Training Trust Fund
Operating Engineers Apprentice Program	

## Donors & Sponsors:

Allegheny Intermediate Unit 3  
 Associated Pennsylvania Constructors (APC)  
 Constructors Association of Western Pennsylvania (CAWP)  
 Southwest Training Services, Inc.  
 Western Area Career and Technology Center (WACTC)

# Thank You!!

## Steering Committee:

Jason Koss—Chairman, Constructors Association of Western Pennsylvania

David Adamson, Western Area Career and Technology Center

Harvey Bear, Pennsylvania Department of Transportation

Beth Demoratz, Job Training for Beaver County, Inc.

Russ Freed, PA Turnpike Commission

David Garnes, PA Department of Education

Ron Geist, Associated Pennsylvania Constructors

Nadra Gladman, Penn DOT District # 12

Johnnetta Jarrett, Trumbull Corporation

Matt Just, Cement Masons Local #526

James Kempinski, W. PA Laborers' Education and Training Trust Fund

Bill Kerney, Pennsylvania Department of Transportation

Ron Kubitz, Brayman Construction Corporation

Nancy Lohr, Western Area Career and Technology Center

Jennifer Murtha, Job Training for Beaver County, Inc.

Lisa Neil, Southwest Training Services, Inc.

Deb Newton, Job Training for Beaver County, Inc.

Daniel Paul, Allegheny Intermediate Unit 3

Heidi Petrosky, Westmoreland County Labor Management Committee

Kate Skoff-Hendrickson, Job Training for Beaver County, Inc.

Michael Stohr, Kimball

Aimee Trunzo, Southwest Training Services, Inc.

Jim Weaver, Jeff Zell Consultants



This booklet helps align the activities for this day with the following:

### Pennsylvania Department of Education Career Education and Work Standards

- 13.1.11.A. Relate careers to individual interests, abilities, and aptitudes.
- 13.1.11.B. Analyze career options based on personal interests, abilities, aptitudes, achievements and goals.
- 13.1.11.D. Evaluate school-based opportunities for career awareness/preparation
- 13.1.11.E. Justify the selection of a career
- 13.1.11.F. Analyze the relationship between career choices and career preparation opportunities

### Three Rivers Workforce Investment Board Essential Work Ready Competencies

- I. Reading Skills. Reading for a variety of learning related and real life work issues
- II. Listening. Interprets meaning of instruction and interaction accurately
- III. Writing. Writes for school-to-career purposes. Uses legible handwriting.
- IV. Job Seeking Skills. Conducts and records information for a job search.



For more information, please contact:  
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 Email: [daniel.paul@aiu3.net](mailto:daniel.paul@aiu3.net)

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- "Watch Your Back," Mine Safety and Health Administration.

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