



**BUILD YOUR
CAREER IN
CONSTRUCTION**

5th Edition 2019

WELCOME TO THE CONSTRUCTION INDUSTRY!



TABLE OF CONTENTS

Welcome	2	Operating Engineers	13
Boilermakers	3	Operative Plasterers and Cement Masons	14
Trowel Craftworkers	4	Pipe Trades	15
Carpenters	5	Roofers	17
Electricians	6	Sheet Metal Workers	18
Elevator Constructors	7	Sprinkler Fitters	19
Finishing Trades	8	Tile, Marble and Terrazzo Setters	20
HVAC and Refrigeration Servicing	9	Climbing the Construction Career Ladder	21
Insulators	10	Community Colleges	22
Ironworkers	11	Degree-Related Programs	23
Craft Laborers	12	NJBCTC/Notes.....	25

The secret is out: the construction industry gives you the skills and tools for a successful career. Maybe college isn't for you. Maybe you're interested in college, but you can't seem to find the right major. Maybe you're ready for a career change all together. If you're even a little bit interested in what the construction industry has to offer, you're in the right place.

With a career in construction you could be part of building the schools, hotels, hospitals, roads and bridges around you. If you are on your way toward obtaining a degree, there are majors and programs that can lead you to management in the construction industry. If you choose the path of a trade, you start as an apprentice, doing work alongside someone with experience who can help you learn the skills you need to master your craft. You earn while you learn, and you come out ready to advance in your trade.

This reference guide will help you along the path toward building a professional career in construction. It provides information on New Jersey's construction apprenticeship programs, plus the community colleges and four-year colleges and universities offering degree-related programs in New Jersey, New York and Pennsylvania.

Now that you know the secret, don't wait to start your career in construction!

Let's start with apprenticeship...



BOILERMAKERS

The U.S. Marines refer to themselves as the "Few and the Proud." In the construction field, boilermakers can make the same claim. Boilermakers are construction professionals whose highly skilled craftsmanship and determined attitude set them apart from most other occupations.

The boilermaker profession dates back to the 19th century, when steam powered the Industrial Revolution and opened up new horizons through the train and steam locomotive. Boilermakers built these locomotives, ushering in the Industrial Age.

Boilers are the systems that generate high pressure steam that drive the turbines for power plants, nuclear reactors, oil and gas refineries, factories, chemical and pharmaceutical manufacturing facilities, and even breweries. Boilermakers also build the massive containers that hold gases and liquids such as oil and chemicals.

Boilers are fired in furnaces, fireboxes or big burners that heat a series of tubes filled with water. Through a very complex system of heating exchanges, saturated steam is produced. The high-pressure steam turns massive turbines, providing electricity.

Boilermakers also install and maintain the large pressure vessels in oil refineries that process the crude oil into different petroleum products. First and foremost, to build these systems, boilermakers must be master riggers, welders and tube fitters. They must employ a variety of sophisticated welding techniques to connect the tubes in the boiler. The components of the boiler must be impervious to cracks, which requires a level of welding skill that takes years to hone. Other skills boilermakers master are gouging steel (burning grooves in steel), beveling and rolling steel tubes.

Every project begins with blueprints. Boilermakers must be able to read a designer's plans precisely for the project to be completed properly.

From there, boilermakers erect the cranes that are needed to hoist large pieces of the boiler in place or remove old pieces that are being replaced. Often these cranes are quite large. As a matter of fact, you may have been fortunate enough to see Big Blue, which has been used on a few projects in New Jersey. Big Blue is the world's largest crane, with a

main boom 400-feet long and the capacity to lift and move 704 tons at a time. Boilermakers also become very skilled at rigging and hoisting materials with the help of these large cranes (though they don't actually operate the cranes).

Boilermakers then go about crafting and assembling the tubes and tanks that make up boilers. Because projects - boilers, dams, power generation plants, storage tanks, and pressure vessels - are usually of such mammoth size, a significant portion of boilermaker work is performed at great heights, often from 200 to 1,000 feet above the ground.

Most of the projects are repairing, updating and replacing existing units. This involves removing old, damaged components before replacing them with boiler equipment.

Boilermakers will readily admit their profession is not for everyone. They're dispatched to projects in all corners of the state. Their work is demanding and must often be done in tough conditions. It requires a dedicated person who seeks challenges.

However, the people who can do the work are compensated very well and earn the satisfaction of being part of an elite group of professionals.

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TROWEL CRAFTWORKERS



The clean, straight lines of a brick facade...intricate mosaics composed of colorful tile...the distinctive appeal of a stone walkway.

These are the most noticeable works of bricklayers and stone masons, the men and women who give a structure its lasting character. The bricklayer and stone mason profession is time honored, as their work lasts for centuries. The cathedrals in metropolitan cities, major public buildings, even famous bridges all are testimony to the work of masons throughout the ages.

Today's bricklayers and stone masons carry on this tradition. These talented men and women display a variety of skills and are part of a profession known as Trowel Craftworkers.

Trowel Craftworkers work with a variety of materials including tile, stone, marble, granite, plaster, concrete and much more. Some of the material bricklayers and stone masons work with are quite expensive - as much as \$30 per foot.

All of the work requires precision, making sure each brick, tile or block fits perfectly. This is the part of the building process that everyone will see for a long time to come, so everything must be perfect. Though there are various branches of the trowel craft profession, the two most prevalent are bricklayers and stone masons.

Bricklayers repair walls, floors, partitions, fireplaces, chimneys and other structures with brick. They also specialize in installing firebrick linings in industrial furnaces.

Stone masons build stone walls, as well as set stone exterior and floors. They work with two types of stone: natural cut (marble, granite and limestone) and artificial stone, most often made from concrete.



This profession is sometimes referred to as the trowel trade, which refers to the basic tool of the craft. Most people are familiar with the trowel - smooth, flat tools used to shape and form the cement that holds brick and stone in place. Aside from the trowel, the trade requires proficiency with a variety of hand and power tools. They not only lay the brick and stone, these professionals must cut the materials to precise sizes as to form a perfect fit. At times this cutting requires a hammer and chisel and at other times a saw with a diamond blade is needed. During cutting, precision is essential because the wrong cut can waste expensive material.

The trowel craft profession is the ideal career choice for men and women who have a desire to create work with lasting aesthetic value, who are creative and have the patience to be precise in everything they do.

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CARPENTERS

Carpentry is one of the oldest and most respected trades in the world. No home... no office... no factory... no sports stadium can be built without the expertise of experienced carpenters.

Generally when people think of carpenters, they think of working with wood, erecting frames for structures. However, anyone with the impression that carpenters spend most of their time hammering nails into wood is mistaken. While much of their work is still done with wood, carpenters also frame with metal studs, install gypsum wallboard, install tile and carpet, insulate, install ceilings and weld all types of materials.

Carpenters must be able to read an architect's blueprint and turn the diagrams and instructions on those blueprints into a finished structure. Using the blueprints, carpenters do the layout - measuring, marking, and arranging materials. Then, using their skills with a variety of hand and power tools, they cut and shape the building materials. Then the carpenter assembles the materials with nails, screws, staples, or adhesives.

Throughout the work, the carpenter must check the accuracy of the work with levels, rules, plumb bobs, and framing squares



using basic mathematics, geometry and common sense. This important step - attention to detail and ensuring the quality of the product - reflects their skill and training and sets the professional carpenter apart from others.

Among the specific jobs a carpenter may perform are framing walls and partitions with metal and wood, installing gypsum wallboard, lathing, installing acoustical ceilings, installing doors and windows, building stairs, laying hardwood floors, and hanging kitchen cabinets. They also set forms for concrete construction, perform finish work, such as installing interior and exterior trim and install traditional and electronic hardware.

There are also specialties within the carpenter trade an individual can pursue. These are: Millwright, Cabinetmaker/Millworker, Floorlayer, Residential Carpenter and Dockbuilder.

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ELECTRICIANS



The electrician profession is one of the most widely recognized of all the construction trades. Whether wiring a home or office, repairing transmission wires or installing the latest in telecommunications infrastructure - electricians are everywhere.

The opportunities in the electrician profession are extensive. The International Brotherhood of Electrical Workers (IBEW) and the National Electrical Contractors Association (NECA) have identified 59 separate career paths for electricians. These career paths cover a wide array of industries from aeronautics and nuclear energy to residential construction.

Generally, the electrician trade can be broken down into four segments: outside lineman, inside wireman, telecommunications technician and residential electrician. Following is a brief explanation of each.

Outside Lineman: Work with specialized high-voltage cabling and equipment for utilities. They build and connect the lines that bring power from power generation facilities to homes, businesses, schools, sports facilities and every other type of structure that requires electricity. They also work with low-voltage cabling and equipment for long-distance communications.

Inside Wireman: Work with standard electrical installation and maintenance for office buildings, hospitals, power generation facilities, retail stores, manufacturing plants, malls and similar structures.

Telecommunications: Specializing in the installation, maintenance and troubleshooting of voice, data and video systems for IoT utilizing standards-based curriculum in structured wiring, including Cat 6A cabling systems, fiber optic applications and wireless technology.

Residential: These men and women specialize in installing all of the electrical systems in single-family and multi-family houses, apartments and condominiums.



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ELEVATOR CONSTRUCTORS

The next time you're gazing at the majestic skyscrapers that make up a city skyline or have the opportunity to admire the view from the upper windows of these architectural marvels, realize their existence wouldn't be possible without elevators.

Millions of people every day use elevators to ascend and descend tall structures, taking for granted the skill and hard work that goes into building and maintaining today's state-of-the-art elevator systems. Elevator mechanics are the men and women who build these systems and keep them running safely and reliably.

Though forms of the elevator have been around since the Egyptian Empire, they weren't widely used for people moving until the middle of the 19th century when the innovations of Elisha Otis made them safe for routine use.

Elevator constructors must have a firm grasp of hydraulics, electricity and computer electronics. They also must understand the physics that make the smooth ascent and descent of an elevator possible.

Installing a new elevator requires a combination of sophisticated skills and hard work. Using blueprints as their guide, elevator construction mechanics determine the equipment needed to install rails, machinery, car enclosures, motors, pumps, cylinders, and plunger foundations. Once this has been done, the building begins. Mechanics bolt or weld steel rails to the walls of the shaft to guide the elevator.

They then insert electrical wires and controls by running tubing for

electrical wire between floors. After that, they install electrical components and related devices required at each floor and at the main control panel in the machine room. Installers then erect the steel frame of an elevator car at the bottom of the shaft; install the car's platform, walls, and doors; and, attach guide shoes and rollers to minimize the

lateral motion of the car as it travels up and down the shaft. They also install the outer doors and doorframes at the elevator entrances on each floor.

Once the shaft, cars and electrical operating system are in place, it is fine-tuned to ensure it moves at a desired speed and stops correctly at each floor.

Elevator construction professionals also install and maintain escalators, dumbwaiters, moving walkways, and similar equipment in new and old buildings.

The elevator constructor's craft is highly challenging because technological innovations are constantly creating new ways to keep up with the need for higher speed in concert with the construction of taller buildings.

A series of diverse, innovative technological developments have been achieved - such as more powerful traction machine motors and more sophisticated drive control equipment.

Once the elevator is complete and running, proper service and

maintenance is critical for its continued safe operation. Service mechanics are responsible for routine servicing and repair.



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FINISHING TRADES

Painters, Drywall Finishers, Glaziers

When a structure is completed - whether it is a home, factory, office building, bridge, sports arena or shopping mall - one of the very last stages of construction is the painting. This is why painters are considered "finishers."

Two other categories that fall under the finishing trades profession in New Jersey are drywall finishers and glaziers. In

completing the construction process, the skill of professionals in each of these three trades determines how the final product looks.

The invaluable contribution of finishers can be seen everywhere. The smooth texture of walls and the perfect color scheme make a world of difference in any building or structure. Rows of

sunlight-bearing windows and glass

doors give an office building, retail mall or hotel a distinguished, polished appearance.

Painters: Quality painting requires intensive training. There are too many variables involved to trust a job to painters who've never been properly trained. This is why highly trained painters are considered essential on any building project.

Painters must know the various application techniques and choose the correct one for each respective project. The right tools for each job not only expedite the painter's work but also produce the most attractive surface.

They must understand color harmony - how different colors or tints will look when they are adjacent to one another. They must know how surfaces respond to the various types of coatings. They must know how to read blueprints and how to properly prepare a surface for painting.

Drywall Finishers: Before paint or other covering can be applied, the drywall must be completely smooth and this is the responsibility of the drywall finisher - otherwise known as a tapers.

Drywall finishers go to work immediately after the drywall is put up. To create a seamless finish, tapers fill joints between

panels with a joint compound. Using the wide, flat tip of a special trowel, they spread the compound into and along each side of the joint with brush-like strokes. Then, they apply a paper tape - used to reinforce the drywall and to hide imperfections - into the wet compound. Nail and screw depressions also are covered with this compound, as are imperfections caused by the installation of air-conditioning vents and other fixtures. On large commercial projects, finishers may use automatic taping tools that apply the joint compound and tape in one step.

When a professionally trained drywall finisher is through with his or her task, it is virtually impossible to see where two pieces of drywall meet. They also fill any holes, cracks or imperfections in the drywall so that painters have a perfect surface on which to complete the job.

Glaziers: Glaziers install windows, mirrors and glass doors; install and repair architectural aluminum window and door frames, such as those in storefronts; install and repair automatic doors like the ones used in every supermarket; and install plastic exterior panels - such as those used for backlit signs. Once glaziers have the glass in place, they secure it with mastic, putty, or other paste-like cement, or with bolts, rubber gaskets, glazing compound, metal clips, or metal or wood moldings. When they secure glass using a rubber gasket - a thick, molded rubber half-tube with a split running its length - they first secure the gasket around the perimeter within the opening, then set the glass into the split side of the gasket, causing it to clamp to the edges and hold the glass firmly in place.

Glaziers most often work in teams of two or three in order to lift and set large panes of doors and storefront glass.



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HVAC AND REFRIGERATION SERVICING

Commercial and industrial climate control systems - such as freezers and coolers in a supermarket or the heating, ventilation and air conditioning (HVAC) in a large office building - are technologically advanced machines that require constant calibration and maintenance. Not only is it essential that this equipment keep working, but the high cost of energy requires they operate as efficiently as possible.

The professionals who service these large refrigeration and climate control systems are HVAC/R technicians who are specialized members of the pipe trades.

HVAC/R service technicians repair and maintain the refrigeration systems in supermarkets, restaurants and convenience stores, as well as the industrial heating, ventilation and air conditioning systems in office buildings, manufacturing facilities, hospitals and other large structures. They also install and maintain the special climate systems for computer rooms, where a constant cool temperature and humidity control is necessary to keep these machines running smoothly.

The systems they work on can be quite large, such as the 20,000-ton centrifugal system that keeps Newark Liberty International Airport at a comfortable temperature. Or the 60,000 tons of process refrigeration at New Jersey's Squibb Pharmaceutical Plants.

Most of an HVAC/R technician's work is spent repairing and maintaining systems. They do not install or repair the ducts that

circulate the air coming from heating and air conditioning equipment. The systems they work on are becoming more technically involved at a rapid pace. Advanced electrical circuits and state-of-the-art software programs control the systems of pipes, valves, furnaces and mechanical compressors that circulate the liquids and gases used for cooling and heating. For this reason, a growing portion of a technician's time is spent on computers, which control the latest climate control systems.



Electric circuitry and physics also are a routine part of a technician's job. HVAC and refrigeration technicians are experts on how an interior climate is affected by external forces. They understand the dynamics of airflow and how it can be used

to help climate systems work more efficiently to conserve energy costs. For instance, vents that open and close according to the outside temperature can reduce the workload on air conditioners. Using their skilled precision in calibrating the equipment that operate these vent systems, HVAC and refrigeration technicians can help an office building, retail store or manufacturer save thousands of dollars per month on its electric bill.

Ever-evolving technology constantly challenges HVAC and refrigeration technicians to hone their knowledge and skills, but it also ensures they will always be in high demand.

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INSULATORS

Conserving energy continues to grow in importance, as prudent homeowners routinely look for ways to reduce the amount of their utility bills and managers of major commercial buildings and industrial plants must always control their energy costs, which amount to millions of dollars per year in their companies' bottom lines.

Not only does conserving energy save money, it preserves vital natural resources and contributes to cleaner air and water.

For these reasons, insulation has become a vital part of every building project - whether commercial, industrial or residential. It is why insulators have become such sought after professionals.

Insulation professionals - known as mechanics - primarily install and maintain the material that prevents loss of warm inside air on cold days and the cool inside air on warm days. This reduces the workload of air conditioning, heating and refrigeration equipment.

Insulation is installed in ceilings, around boilers, tanks and refrigeration units, and pipes that carry water and gas. Essentially, insulation is used anywhere it's necessary to maintain a certain climate or temperature.

When people think of insulation, what often comes to mind are the cushiony fiberglass blankets (known as Batts) that are laid on attic floors. However, in the past two decades, few construction materials have undergone more changes than thermal insulation, and few



products have been so well adapted to fit the needs of commercial, industrial and residential users. Insulation is now crafted using advanced materials and is installed using a variety

of methods such as pasting, wiring, taping and spraying. Among the most advanced materials insulation professionals currently use are calcium silicate, cellular glass, polyurethane and organic foam.

Insulation mechanics don't only know how to install the high-tech materials; they understand thermodynamics - the physics of temperature transfer. By knowing the fundamentals of thermodynamics, they can achieve the best results for each individual project.

For instance, foam insulation - which is sprayed using special equipment - has replaced fiberglass Batts as the most effective way to insulate a building.

For pipes, boilers and other equipment, sheets of insulation must be fitted precisely to ensure optimum thermal effectiveness. The insulation mechanic must measure, cut and fasten it around the piping or equipment. Depending on the situation, fastening can be accomplished using tape, wire or cement. Sometimes they must sew a cover of plastic

or canvas to properly secure the insulation or may encase pipes in sheet metal for protection against moisture.

Insulation mechanics also install materials that prevent fire and smoke from penetrating walls and ceilings. With these materials in place, fires that begin in one part of a building can be stopped from spreading throughout the entire structure.

The tools of the trade include power saws, compressors, trowels and sewing equipment.

Aside from installing new insulation, these professionals often must remove old materials, which includes asbestos. There are those in the trade who specialize in the



removal of asbestos - which was widely used from the 19th century until the mid-20th century when it was found to be a severe health hazard. When removing old material, the latest safety equipment - including coveralls and masks - are required and offer ample protection.

Insulation mechanics also install acoustical control material that keeps sound from emanating outside a room. Acoustical control is used in theaters, recording studios and locations where it's important to keep sound waves from escaping an enclosed area.

Still, the majority of work is for climate control purposes and the insulation profession will continue to grow as energy consumption continues to become a greater concern for businesses and homeowners. New and more effective insulation products will require insulation mechanics that are highly skilled and knowledgeable, making it a very promising career choice.

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IRONWORKERS

When a major structure is built, the first part of the project people see from miles around is the steel skeleton rising into the sky.

Ironworkers are the men and women who erect the steel columns and beams that are the hallmark of every major building project.

However, this is just part of an ironworker's craft. Before the steel goes up, ironworkers actually are involved in building the foundation. And, once the structural steel is in place, they enclose the structure in aluminum, and glass, or pre-cast stone. Finally, they install steel stairways, handrails, parts of elevators and many other components that make a project complete.

The ironworker's craft is also displayed in the elaborate webs of steel that support bridge spans. They even assemble roller coasters and major pieces of equipment like commercial printing presses. Name the structure and you can be assured ironworkers played a major role in its creation.

The public is well acquainted with the image of the hearty ironworker walking beams hundreds of feet off the ground. This image perpetuates the ironworker's dynamic reputation, but it also gives the impression that the work is dangerous, which causes some people to shy away from this rewarding career.

In truth, while the typical ironworker possesses the heart of an extreme athlete, ironworkers are protected by rigorous safety standards and are trained to handle working off the ground when erecting tall buildings or bridges.

Moreover, not all ironwork is performed at heights. Ironworkers do much of their work at ground level, such as reinforcing the foundations, assembling guardrails on roads and highways, erecting fences, and moving and placing machinery. Ironworkers perform a variety of tasks. Much of the work involves setting columns and beams in place and then bolting or welding them together. Other tasks include

setting the iron bars (known as rebar) that reinforce concrete foundations and floors. Ornamental ironworkers install stairs, handrails, eye-appealing column closures and other ornamentation pieces after the structure of the building has been completed.

Ironworkers are people who like to be challenged both physically and mentally. Some of these professionals like the excitement of working at heights and others stay close to the ground. All of these men and women are highly trained and are constantly improving their skill.



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CRAFT LABORERS

Construction craft laborers are the most diverse and versatile trade professionals in the construction industry. Construction craft laborers are able to perform a number of skills and take part in every type of project. All other trade professionals depend on laborers for their multifaceted array of skills.

By learning these all-around skills as an apprentice and applying them on the job, the construction craft laborer becomes part of a fraternity of indispensable professionals who make even the most difficult and complex projects possible.



The term laborer belies the complex and critical functions they perform and their skill with high-tech equipment. For instance, they operate pipe-laying machinery and use computers and other high-tech input devices such as lasers and transits.

Craft laborers are also experts at demolition and excavation. Using special equipment such as tunnel boring machines, craft laborers clear the way for tunnels, highways and new structures.

Their work is separated into three categories:

- **Building Construction**
- **Heavy Highway and Utility Construction**
- **Environmental Remediation**

Among the critical work functions performed by construction craft laborers are:

- Build structures and infrastructures such as buildings, houses, bridges, dams, tunnels, utilities and roads
- Demolish and/or disassemble and remove structures and buildings



- Prepare and layout sites for construction activities
- Abate all types of environmental hazards
- Move, store and supply construction and building materials for all types of construction activities
- Recognize and mitigate safety hazards including hazardous materials, environmental hazards and accident conditions at any type of construction site
- Maintain and supply hand tools, power tools, and equipment for all types of tasks

These are just some of the skills and duties of the construction craft laborer. Some laborers choose to specialize in a particular skill, mainly critical functions such as demolition or environmental remediation. Others remain generalists, building all-around skills that allow them to work on a wide range of projects.

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OPERATING ENGINEERS

Operating engineers run the iron behemoths that excavate the terrain and transport heavy material around building sites. They are behind the controls of the cranes that raise and move large steel beams. They operate the machines used in every stage of road, tunnel and bridge construction - from flattening and grading to paving and sealing. Bulldozers, cranes, front-end loaders, pile drivers and other large machines are the tools of their profession.

Operating engineers not only know how to control the equipment, they must learn how it works so they know its capabilities. Operating engineers must also maintain and repair their equipment. When a piece of machinery breaks down, the operating engineer has to get it working again quickly so work can continue.

The profession is also taking advantage of technology through such tools as the Electronic Total Station and computer software using coordinate geometry applied to field engineering. Operating engineers can learn how to use technology to enhance accuracy and safety of their performance.

Throughout their careers, operating engineers can continually enhance their skills in operating

equipment, diesel mechanics, field engineering and hazardous material. Through this ongoing commitment to education, these men and women can ensure career advancement.

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OPERATIVE PLASTERERS AND CEMENT MASONS

Plastering and cement masonry are among the oldest trades in the construction industry, dating back centuries. Their work can be seen in historic buildings as well as structures being developed today.



These professionals are truly artisans. Along with creating extremely durable interior walls and ceilings, their work is marked by ornate designs that give the finished product special grandeur.

Walking through older buildings, their work manifests itself in elaborate ornamental plaster work on walls and ceilings.

Today, most of their work entails making walls and ceilings flat and strong to achieve a finished product much more durable than basic sheetrock. Aside from its resistance to nicks and gouges, plaster walls can also be given texture to provide a decorative finish. Another advantage of plaster is that it is also more fire resistant than other interior wall materials. It also contains sound better and is used when acoustical factors must be taken into account.

Plasterers first apply a brown coat of thick gypsum plaster that provides a base, followed by a finish coat that is a mixture of lime, plaster of Paris and water. This second coat, called the "white coat," sets very quickly and produces a very smooth, durable finish.

Though demand for plasterers was once in decline, that trend has reversed. Builders more and more are using plaster again for interior walls and ceilings. The reason for this trend is an appreciation for the superior durability of plaster. Thin-coat plastering - or veneering - in particular is gaining wide acceptance as more builders recognize its ease of application, durability, quality of finish, and fire-retardant qualities.

Cement masons use concrete - a mixture of Portland cement, sand, gravel, and water - to finish concrete walls and floors for high-rise buildings, stadiums and a host of other commercial and multi-dwelling structures. Most of today's high-rise buildings are made entirely of

steel reinforced concrete and cement masons are the men and women who create the walls, floors, ceilings and exterior.

There is much more to the cement mason's work than laying cement. They must make sure it is precisely aligned with other parts of the structure and that it is perfectly smooth. As a cement mason, you will learn screeding, the process of cutting off excess concrete to bring the top surface of a slab to proper grade, and floating, creating a smooth surface. Properly trained cement masons are able to create a durable surface that is both aesthetically pleasing and resistant to cracking.

Contact

Vincent Frantantoni, Jr.

Operative Plasterers & Cement Masons Local No. 29

130 Central Avenue, Jersey City, NJ 07306 • (201) 653-2065

www.opcmialocal29.org



PIPE TRADES

Plumbers and Pipe Fitters

Most people can recall when their household had to call in a plumber to unclog pipes or repair appliances. Every building has a network of pipes that carries water.

However, this is only the tip of the iceberg of the pipe trades profession.

Professionals in the pipe trades build and repair all of the complex systems that rely on the circulation of liquid, steam or gas. Plumbers and steamfitters are involved in a variety of high-tech construction projects from nuclear power plants to energy refineries to manufacturing facilities.

Plumbers are even an integral part of the nation's space program.



Contact

Mercer, Monmouth, Middlesex, Hunterdon and parts of Burlington and Ocean Counties:

Timothy Fox, Plumbers & Pipefitters, Local No. 9
450 Route 33 & Iron Ore Road, Englishtown, NJ 07726
(732) 446-1550

Atlantic, Camden, Cape May, Cumberland, Gloucester and Salem Counties and parts of Burlington and Ocean Counties:

Jeffrey Berger, Plumbers & Pipefitters, Local No. 322
534 South Route 73, Winslow, NJ 08095
(609) 567-3322 Ext. 4

Bergen, Hudson, Morris, Passaic, Sussex and Warren Counties:

Scott Dowling, Training Coordinator
Pipefitters, Local No. 274
1000 Hendricks Causeway, Ridgefield, NJ 07657
(201) 941-0341
dowling475@gmail.com

Essex, Union and Somerset Counties and parts of Middlesex, Morris, Warren and Hunterdon Counties:

Chris Hamler, Education Coordinator
Plumbers, Local No. 24/Local No. 14
150 Main Street, Lodi, NJ 07644
(973) 473-5544

Robert Sherlock, Training Coordinator
Steamfitters, Local No. 475
136 Mt. Bethel Road, Warren, NJ 07059
(908) 754-8994

They assemble and maintain industrial refrigeration and climate control systems. They even install the sophisticated sprinkler systems that extinguish fires in buildings and factories.

The range of options for pipe trades professionals is vast and the opportunities continue to grow with each technological advance.

The genus of this profession was not with water, as



software to create intricate systems for highly sophisticated industrial and commercial projects.

When the project is finished, they must check to make sure every section is leak free - particularly critical for systems that carry toxic materials.

Though professionals in both branches of the trade focus on assembling and maintaining systems that rely on pipes to transport materials, plumbers and pipe fitters differ in the type of systems on which they can work.

some may assume, but rather with gas. In the days before electricity, homes were lit by gas lamps. When the lights went out, people called a pipe fitter. With the advent of indoor water, waste and climate control systems, the trade expanded to what it is today. As a pipe trade professional, you would work on a host of different projects including schools, hospitals, pharmaceutical manufacturing facilities, oil refineries and chemical plants.

Tools of the trade include wrenches, soldering and welding equipment, and heavy cutting equipment.

Pipe trades professionals are required to interpret plans and blueprints, measure and cut sections of piping to exact specifications and install the system of pipes, valves, pumps and backflow prevention equipment. They connect sections of pipe by welding, soldering or brazing them together. They often must cut sections of pipe using a variety of techniques - from simple manual pipe cutters to heavy saws or oxy-acetylene for the thickest materials.

The trade involves more than simply connecting pipes and valves. Pipe trade professionals must understand the physics of how liquids and gases flow, and they often use computer aided design (CAD)



Plumbers: Plumbers work with pipes that carry water and gas. They are separated into two categories - commercial plumbers and residential plumbers. Residential plumbers, as you would expect, work on the indoor plumbing in homes, apartments and small commercial properties. Commercial plumbers work on commercial and industrial buildings larger than three stories, and they install the water and gas systems in large multipurpose dwellings such as apartment buildings or major nursing and assisted living homes. Their work in hospitals is particularly important, as they install the systems that distribute oxygen and other essential medical gases to operating, recovery and patient rooms.



Steamfitters/Pipe Fitters: Pipe fitters are commonly known as steamfitters, as they install and maintain the pipes that carry hot water, steam, air or other liquids or gases needed for manufacturing or other industrial purposes. Steamfitters work only on commercial and industrial projects. For example, they install ammonia carrying pipelines in refrigeration plants, complex pipe systems in oil refineries and chemical and food processing plants and pipelines for carrying compressed air and industrial gases in many types of industrial establishments.

Steamfitters also work in the defense industry and aerospace industry, assembling and maintaining the pipes that are essential components of missile launching and testing sites. Steamfitters do not work with pipes that carry potable water or natural gas. (See the *HVAC and Refrigeration Servicing and the Sprinkler Fitters* sections.)



ROOFERS

Since roofers work on top of buildings, you rarely get a good look at what they do, but their work is critical to the durability of a building and the protection of everything inside.

No matter how structurally sound a building is constructed or how good it looks, you do not want rain to come through the top. Rainwater may look harmless but it can have devastating effects on the interior of a building. The integrity of a roof is more important now than ever because of the expensive computer and telecommunications equipment in most of today's office buildings.

Roofers don't build the top of a building, which is called the roof deck. They install the protective covering that protects the roof deck from wear and weather damage and ensures moisture doesn't penetrate through to the inside of the building. Most roofs also offer a layer of insulation to help maintain a comfortable climate inside the building.

There are a variety of roofing systems from the very simple to the complex. The type of roof used on a building depends on several factors such as weather conditions, the type of building and how long the designers expect a roof to last before replacement or repair.

A roof can have as many as three sections on top of the deck - vapor retardant, insulation and the membrane. Vapor retardant keeps moisture from passing from the inside and is used only for special conditions. Most projects call for an insulation and membrane. Some projects only require a membrane.

The most common type of system is the built-up roof (BUR), in which layers of felt are soaked in hot bitumen (tar or asphalt) and laid over insulation boards. Another type of roof is the modified bitumen system, which adds polymers to the tar or asphalt to enhance strength, flexibility and UV protection. The felt layers are then applied using high-intensity propane torches that reach temperatures of 1,200 degrees Fahrenheit.

As with all building trades, advances in materials create new options. An increasing number of flat roofs are covered with a single-ply

membrane of waterproof rubber, treated metal or spray foam. Rubber roofs involve placing sheets over the roof's insulation and then sealing them with adhesive, mechanical fasteners, or stone ballasts to hold the sheets in place.

Roofers work on four types of projects: new construction, re-roofing, recovering, tear off, and waterproofing. Re-roofing and recovering involve placing new layers over older roofs. Tear offs are the complete replacement of deteriorated roofs.

With tear offs, roofers totally remove the old roof system by using a machine commonly called a power rhino, which cuts through and lifts the old surface. Apprentices then dispose of the material into wheelbarrows, allowing roofing mechanics to lay a new roofing system onto the bare roof deck. Whatever is removed must be replaced the same day because roof decks can never be exposed bare to the elements.

Roofers also must ensure water drains properly off a roof. Water puddles that remain on a rooftop for as little as 24 hours can seriously diminish the durability of the membrane. Experienced roofers know how to build the surface so water flows to gutters and drains quickly and unhindered. Proper roof drainage is often written into a building's design, which requires roofers to possess the ability to read blueprints and expertly carry out those plans.

Contact

Robert Venturi, Roofers, Local No. 8
12-11 43rd Avenue, Long Island City, NY 11101 • (718) 361-0145

Bergen and Passaic Counties:
Richard Silva, Roofers, Local No. 10
321 Mason Avenue, Haledon, NJ 07508 • (973) 595-5562

Northern and Central New Jersey including Monmouth and Middlesex Counties:
William Millea, Roofers, Local No. 4
848 King George's Road, Fords, NJ 08863 (732) 661-2010
app4@verizon.net

Nick LoDise, Roofers, Local No. 30, 2751 Juniata Street,
Philadelphia, PA 19137 (215) 288-8005

SHEET METAL WORKERS

The next time you're sitting comfortably in a climate-controlled office or classroom, think of the maze of duct lines carrying the cooled or heated air around the building. Then, think of the men and women who designed, crafted and installed this ductwork. They are sheet metal professionals also known as journeypersons.

While sheet metal professionals design, craft and install a wide variety of products — from aircraft and train components to architectural sheet metal work — the most common projects are heating ventilation and air conditioning (HVAC) systems.

Sheet Metal Master HVAC/R licensed contractors and/or professional technicians not only assemble these HVAC systems, they design the duct system, fabricate, install, test, adjust & balance (TAB) for optimum efficiency.

The process begins at a drafting table or a computer with CAD (computer aided design) software, where a sheet metal professional designs the duct system. The



detailer determines the size of the ducts and what route they will take to deliver air to each room of the building. CAD software enables the detailer to render his or hers plans in a three dimensional format known as Building Informational Modeling (BIM).

Using these detailed plans each component of the system is custom crafted in a sheet metal shop. Since each building is unique, the dimensions of each section must be precise; mass-manufactured components are rarely used. Utilizing special saws, shears and presses journeypersons cut, stamp, bend, and weld and fasten the sheet metal into the component necessary to fulfill the design.

After the components are delivered to the job site and installed, sheet metal professionals conduct what is known as TAB. Testing, adjusting and

balancing in the final stage of the process, sheet metal professionals ensure the system is functioning properly, adjust the system controls to provide the ideal level of heated or cooled airflow, and balance the system to ensure each building zone receives its specified share of airflow.

As the demand for more efficient and sophisticated HVAC systems and the constant evolution of technology increases, sheet metal professionals are always challenged to stay up to date on industry developments.

Sheet metal professionals specialize in Fire Life Safety (FLS), the installation of fire dampers, fire smoke dampers, stairwell air pressurized systems and inspections. In addition sheet metal professionals work hand-in-hand with the Green Building Technology striving to work and build safer, more efficient, and especially more environmentally conscious.

About 15% of the building of the industry involves architectural sheet metal work, which enhances a building's durability and attractiveness. The first priority of architectural sheet metal is to weather and waterproof buildings, particularly at the ground level, where moisture seepage through the floor can significantly erode the attractiveness and durability of a building. Architectural sheet metal also can add to the overall beauty of a building. Skilled sheet metal professionals can fabricate decorative accents and sculpture using various metal like copper, aluminum and stainless.

Sheet metal professionals also play a role in building interiors of chemical, energy and manufacturing plants. Sheet metal professionals don't construct the hulls of ships or fuselages of airplanes, but sheet metal is a significant part of the rest of the ship or aircraft (fuel tanks, galleys, restrooms, food service containers). Other industries that use sheet metal professionals include appliance and sign manufacturers.



Contact

Atlantic, Burlington, Cape May, Cumberland, Hunterdon, Mercer, Middlesex, Monmouth and Ocean Counties:

John Espinos, Sheet Metal Workers Local Union No. 27

P.O. Box 847, Farmingdale, NJ 07727 (732) 919-0945

Bergen, Essex, Hudson, Morris, Passaic, Somerset, Sussex and Union Counties:

Patrick Smith, Sheet Metal Workers Local Union No. 25

440 Barell Ave., Carlstadt, NJ 07072 (201) 507-0333, Ext. 133

Camden, Gloucester, Salem and Warren Counties:

Joseph S. Frick, Sheet Metal Workers Local No. 19

1301 Columbus Blvd., Philadelphia, PA 19147 (215) 952-1950

Morris, Somerset, Sussex and Union Counties:

Charles Beelitz, Sheet Metal Workers Local Union No. 22

P.O. Box 308, Cranford, NJ 07016 (908) 931-1798, Ext. 12 or 14





SPRINKLER FITTERS

Sprinkler fitters literally save lives through their work. Sprinkler fitters are pipe fitters that specialize in the installation and maintenance of fire protection systems.

If a fire emergency occurs in an office tower or industrial plant, it is critical for the automatic sprinkler system to work reliably. How important is a sprinkler fitter's work? Consider this fact: there has never been a case of multiple deaths due to fire in a building that had a professionally installed sprinkler system.

Fire protection systems range from the simple to the complex. Systems sometimes have to deal with freezing conditions, which makes it impossible to have water constantly flowing through pipes. Other systems must have additional safeguards to prevent false triggering, and in instances where grease or oil fires are likely, chemicals rather than water are used to extinguish the flames.

Fire protection systems begin with underground supply piping that is connected to an integrated overhead piping system inside the building. Sprinkler fittings are spaced along this overhead pipeline.

Each sprinkler head consists of a glass fuse that holds a seal in place. When the temperature reaches 165 degrees Fahrenheit, the glass fuse breaks. Without the fuse holding it in place, the seal drops, allowing the water to rush through the sprinkler head.

When sprinkler systems are hidden above a drop ceiling, a plate is put in place under each sprinkler head. These plates are attached to the ceiling with material that melts at 135 degrees Fahrenheit. When the temperature reaches that point, the plates drop, allowing water to flow

unimpeded a short while later when the heat triggers the sprinkler head.

A dry system is used in areas at risk from freezing temperatures. The dry system pipe network contains compressed air between the alarm valve and sprinkler head. This prevents the water from freezing in the pipelines. When the sprinkler head is engaged, the air flows out the sprinkler. As the air pressure holding back the water dissipates, the water can then flow through the pipes and to the flames.

With the advent of expensive computer and telecommunications equipment, pre-action systems have emerged. The "Pre-Action System" combines a fire detection system with a sprinkler system. The pre-action valve is opened by a signal from the detection system. This fills the pipe network with water, awaiting the operation of the sprinkler heads by the fire heat output. In this way, two modes of detection prevent accidental discharge.

Construction projects will range from residential to nuclear power plants. Except for underground supply piping, most sprinkler piping is installed at or near the roof deck. Most of the installation is performed while working on ladders, scaffolds or manlifts. In New Jersey, a law requires sprinklers in college dormitories and in all multi-family facilities.

Contact

Monmouth County to Passaic County

Gary Koenig

Sprinkler Fitters, Local No. 696

41-43 E. Willow St.

Millburn, NJ 07041

(973) 379-7446

TILE, MARBLE & TERRAZZO SETTERS

Tile, marble and terrazzo surfaces are aesthetic and highly durable. They are impervious to water and easy to clean - characteristics that have made them popular building materials in a wide array of commercial and industrial settings like hospitals, lobbies of buildings, bathrooms, and kitchens.

The men and women practicing this craft must have an artistic flair and an eye for precision. Tiles, such as those covering walls and floors in kitchens and bathrooms, or the large slabs of marble that cover the walls in hotel lobbies and office buildings, must be perfectly aligned. Designs crafted from tile and terrazzo require careful setting. These skills and others that make up the tile, marble and terrazzo trade are ingrained by years of training and experience.

In the northern part of New Jersey (considered everything above Route 33, which dissects the state through Mercer, Middlesex and Monmouth counties) a craftworker chooses to master one of the three materials and works with only that material. In the southern part of New Jersey, craftworkers work with all three materials.

Tile, marble and terrazzo each has a different quality and purpose, and each is installed using a moderately different method. On surfaces that are very uneven, "mud" (a compilation of sand and cement) is used to fill gaps and cavities so the material is applied to a level surface. Regardless of the material being set, there is always a two-person team working in tandem: however, the setting process varies for each of the three materials.

Tile: A tile setter is assisted by a tile finisher. The finisher prepares the work site, setting up the material for the setter. The tile setter (often referred to as a mechanic) then lays and sets the tile on the wall, using glue or a cement adhesive called "thin set."

Because tile varies in color, shape, and size, setters sometimes prearrange tiles on a dry floor according to a specified design. This allows mechanics to examine the pattern and make changes. In order to cover all exposed areas, including corners, and around pipes, tubs, and wash basins, tile setters cut tiles to fit with a machine saw or a special cutting tool.

After the tiles are laid out perfectly in place, the finisher applies the grout between the tiles.

Marble: For marble installation, the marble setter (also known as a mechanic) first cuts the marble to the right dimensions and then drills holes where high strength anchors will be inserted. When covering walls the marble finisher holds the heavy stone in place while the setter fastens the stone to the wall with the anchors, ensuring it is

even with the adjacent marble. For floors, the finisher helps lay the marble in place before it is aligned and anchored by the mechanic. Marble setters and finishers must learn rigging skills because of the size and weight of some marble pieces.

To maintain its lustrous appearance, marble requires attention from experienced marble polishers. Marble must be polished about every two weeks; however, in high traffic areas, it is done with more frequency. For example, the marble in casinos is polished almost every other day. Polishers also fix chips in the marble and restore marble that has fallen into disrepair due to lack of maintenance.

Terrazzo: Terrazzo is a decorative flooring material made up of stone chips set in a hard mortar mix. When setting terrazzo, the terrazzo setter first pours the cement mixture and in this cement sets metal strips that form the shapes in which the terrazzo will be set. This can be in squares or decorative designs. After the cement and strips are in place, the stone chips are poured. Once dried, a terrazzo grinder uses a machine to grind down the surface to a smooth polish. The grinder also assists the setter in other tasks, such as mixing the cement and preparing the work site.

Completing the job requires final touches such as stripping between the edge of a floor and the wall, sealing and waterproofing.



Contact

Tile Setters Local #7
Victor Desalzo
12-07 44th Avenue,
Long Island City, NY 11101
(718) 706-7229
www.baclocal7.com

CLIMBING THE CONSTRUCTION CAREER LADDER

First Step - Apprentice: If you are considering entering a career in the building trades, an apprenticeship may be the first stop in what could well be a long, varied adventure. Apprentices spend three to five years in training programs, during which they receive an in-depth education and hands-on training about their craft at no cost to them. While at the same time, earning wages and benefits.

Every well-paying profession requires expert training. The construction trades are one of the only professions where that education is free. Those entering the trade don't have to worry about securing financial aid or loans because the education programs for apprentices are paid in full by the training funds of the respective trade unions. New Jersey boasts some of the most advanced training centers in the nation, using facilities and training practices that are state-of-the-art.

Graduating to Journeyworker: Apprentices who successfully complete their training graduate to journeyworker status. Journeyworker is the term used to describe a trade professional who has completed full basic training in both the classroom and out in the field to become a skilled craftworker. Some individuals may be Journeyworkers throughout their entire career in the construction industry. However, through further training or excelling at their craft, individuals can advance their careers even further and elevate to supervisory positions, including foremen, general foremen and superintendents.

Moving up to Superintendent: Construction Journeyworkers who crave a career that allows them to showcase their leadership skills have the opportunity to advance into the superintendent position. The project superintendent is a contractor's representative at the construction site and is generally selected from among the foremen who demonstrate leadership and a working knowledge of the craft.

The superintendent directs and coordinates the site activities involving the building trades as well as communicating with and directing the foremen for the different trades. Responsibilities include making sure the work progresses according to schedule, construction documents are properly completed and processed, material and equipment are delivered to the site on time and the various trade activities are not in conflict with each other.

Being a Project Manager: The role of a project manager will depend on the company for which an individual works. The company's structure, volume of work and number of projects may have an impact on the Project Manager's responsibilities and workload. But, no matter the number of jobs under the Project Manager's leadership, they must be an individual with strong communication skills and capable of overall management responsibility for delivering a construction project from the beginning until the final product is up and running. Aspects of the Project Manager's job include estimating, start-up, scheduling, expediting, working with inspectors, quality control and total delivery of the project according to the construction specifications outlined at the start of the project.

Many Project Managers have years of experience as construction superintendents or assistant project managers. While many firms may hire project managers based on experience, others may be looking for college graduates, with a number of schools offering construction-related degrees, such as a bachelor of science in Construction Management combining construction procedures with administrative principles. Project Managers are typically considered top management and often become principal officers of construction firms and may even consider starting their own companies.



COMMUNITY COLLEGES

Each year, New Jersey's 19 county colleges serve more than 400,000 students of all ages in credit, non-credit and workforce training programs. Their mission is to provide high-quality transfer programs, occupational programs, continuing education courses, business support services, and community service programs at a reasonably low cost in response to local and statewide needs. From the detailed list of more than 1,700 programs available at the county colleges, the following is a guide to the construction-related degree programs offered. Please visit the New Jersey Council of County Colleges website for detailed information: www.njccc.org.

Atlantic Cape Community College

Technical Studies A.A.S.
Engineering A.S.

Bergen Community College

General Engineering Technology A.A.S.

Brookdale Community College

Architecture A.S.
Interior Design A.A.S.
Engineering A.S.
Technical Education A.A.S.
Electric Utility Technology, Overhead Lines, A.A.S.
Electric Utility Technology, Substation, A.A.S.

Rowan College at Burlington County

Construction Management A.S.
Engineering A.S.
Technical Studies A.A.S.

Camden County College

Engineering Science A.S.
Engineering Technology: Mechanical Engineering A.A.S.
Technical studies A.A.S.

Cumberland County College

Engineering A.S.
Engineering Technology A.A.S.
Technical Studies A.A.S.

Essex County College

Architectural Technology A.A.S.
Civil Engineering Technology A.A.S.
Engineering A.S.
Mechanical Engineering Technology A.A.S.
Technical Studies A.A.S.
Technical Studies: Uniform Construction Code Technology A.A.S.

Rowan College of Gloucester County

Civil Construction Engineering Technology (Professional Development Program)
Engineering Science A.S.
Environmental Science A.S.
Technical Studies A.A.S.

Hudson County Community College

Construction Management A.A.S.
Engineering Science A.S.
Environmental Studies A.S.
Technical Studies A.A.S.

Mercer County Community College

Architecture A.S.
Heating Refrigeration/Air Conditioning A.A.S.
Civil Construction Engineering Technology A.A.S.
Engineering Science A.S.
Technical Studies A.A.S.

Middlesex County College

Civil Engineering Technology A.A.S.
Engineering Science A.S.
Mechanical Engineering Technology A.A.S.
Surveying Engineering Technology A.A.S.
Technical Studies A.A.S.

County College of Morris

Engineering Science A.S.
Environmental Science A.A.S.
Mechanical Engineering Technology A.A.S.
Technical Studies A.A.S.

Ocean County College

Engineering A.S.
Environmental Science A.S.
Technical Studies A.A.S.

Passaic County Community College

Engineering Science A.S.
Environmental Science A.S.
Technical Studies A.A.S.

Raritan Valley Community College

Environmental Science A.S.
Engineering A.S.
Technical Studies A.A.S.

Salem Community College

Technical Studies A.A.S.

Sussex County Community College

Studio Arts A.F.A. with a focus available in Architecture Design, Studio Design
Science Mathematics A.S. with a focus available in Engineering Science
Environmental Studies A.S.
Technical Studies A.A.S.

Union County College

Architecture A.S.
Engineering A.S.
Technical Studies A.A.S.

Warren County Community College

Environmental Studies A.S.
Technical Studies A.A.S.

DEGREE-RELATED PROGRAMS

While many colleges and universities around the country offer excellent programs for construction-related degrees, we have quite a few in our own backyard! Check out these institutions of higher learning located in New Jersey, New York and Pennsylvania. They are some of the best...and close to home.

Architects, engineers and project managers are a few of the more “notable” construction professions, but check out the unsung heroes like estimators and safety directors. They are an integral part of the construction process and deserve as much career consideration as their counterparts. Of course the Internet is a great resource to learn more about these rewarding professions.

Drexel University, College of Engineering, Philadelphia, PA

www.drexel.edu

<http://drexel.edu/engmgmt/cmgt/academics/overview/>

Dr. James Tsafos, Construction Management Program Manager & Advisor

215.895.6024 / tsafosjm@drexel.edu

Bachelor of Science degree in Construction Management

Master of Science degree in Construction Management

Undergraduate Certificates in Construction Management

Graduate Certificate in Construction Management

Graduate Certificate in Sustainability and Green Construction

Fairleigh Dickinson University,

Gildart Haase School of Computer Sciences and Engineering, Metropolitan Campus, Teaneck, NJ

www.fdu.edu

<http://view2.fdu.edu/academics/university-college/school-of-computer-sciences-and-engineering/>

Melvin Lewis, Professor & Program Coordinator, Engineering Technology

201.692.2348 or 201.692.2347 /

mlewis@fdu.edu

Bachelor of Science degree in Civil Engineering Technology

<http://staging2.fdu.edu/academics/university-college/school-of-computer-sciences-and-engineering/academic-programs/engineering-technology-programs/b-s-in-civil-engineering-technology/>

Bachelor of Science degree in Construction Engineering Technology

<http://staging2.fdu.edu/academics/university-college/school-of-computer-sciences-and-engineering/academic-programs/engineering-technology-programs/b-s-in-construction-engineering-technology/>

Undergraduate Certificate Programs in Civil Engineering Technology and Construction Management Technology

New Jersey Institute of Technology,

Newark, NJ

Newark College of Engineering, Department of Engineering Technology

www.njit.edu

<http://engineeringtech.njit.edu/academics>

John A. Wiggins, JD, PE – Professor

973.596.8193 / wiggins@njit.edu

Bachelor of Science degrees in Civil Engineering Technology, Construction Engineering Technology and Construction Management Technology

<https://appliedengineering.njit.edu/academics/cm t.php>

Online Master of Science degree in Civil Engineering

Ph.D. in Civil Engineering

Graduate Certificate Program in Construction Management

New York City College of Technology,

Brooklyn, NY

Department of Construction Management & Civil Engineering Technology

www.citytech.cuny.edu

www.citytech.cuny.edu/academics/deptsites/constructiontech

Gerarda M. Shields, Chair

718.260.5338 / GShields@citytech.cuny.edu

Certificate Program in Construction Management

Associate in Applied Science degrees in Construction Management Technology and Civil Engineering Technology

Bachelor of Technology in Construction Technology

New York University, Tandon School of Engineering,

Brooklyn, NY

Department of Civil and Urban Engineering

<http://engineering.nyu.edu/>

<http://engineering.nyu.edu/academics/programs/construction-management-bs>

Lawrence Chiarelli, Industry Professor for the Department of Civil and Urban Engineering, Program Director for Graduate Construction Management Degree Program

646.997.4040 / Ichiarelli@nyu.edu

Bachelor of Science in Civil Engineering

<http://engineering.nyu.edu/academics/programs/civil-engineering-bs>

Master of Science and Ph.D. in Civil Engineering

<http://engineering.nyu.edu/academics/programs/civil-engineering-ms>

Master of Science in Construction Management

<http://engineering.nyu.edu/academics/programs/construction-management-ms>

Pennsylvania College of Technology,

Williamsport, PA

www.pct.edu

www.pct.edu/academics/cdt

Carol Lugg, Dean

570.320.2400, ext. 7312 / cal7@pct.edu

Bachelor of Science degree in Construction Management

Bachelor of Science in Building Construction with three emphasis choices

Bachelor of Science in Civil Engineering Technology

Associate of Applied Science in Building Construction Technology with two emphasis choices

Associate of Applied Science in Civil Engineering Technology

Associate of Applied Science in Surveying Technology

Pratt Institute,

Brooklyn, NY

School of Construction and Facilities Management

www.pratt.edu

<https://www.pratt.edu/academics/architecture/construction-management/construction-degrees/>

Regina Ford Cahill, Chairperson, Construction/Facilities Management

212.647.7524 / rcahill8@pratt.edu

Associate in Applied Science degree in Building and Construction

Bachelor of Science degree in Construction Management

Bachelor of Professional Studies degree in Construction Management

Rutgers, The State University of New Jersey,

New Brunswick, NJ

School of Engineering, Department of Civil & Environmental Engineering, Piscataway, NJ

www.rutgers.edu

<https://cee.rutgers.edu/>

Dr. Nenad Gucunski, Chairman

848.445.2232 / gucunski@soe.rutgers.edu

Bachelor of Science Degree in Civil Engineering with concentration available in Construction Management

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Rominder Suri, Ph.D., Professor and Chair
Civil and Environmental Engineering

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Engineering Technology

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College of Engineering

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Shawn P. Gross, Associate Professor & Chair,
Department of Civil and Environmental

Engineering

610.519.4394 / shawn.gross@villanova.edu

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<http://www1.villanova.edu/villanova/engineering/undergrad/majors/civil.html>

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