

APPLICANT QUALIFICATIONS NECESSARY FOR.....

What does it take to be a good candidate
for an apprenticeship training program?



**REGISTERED
APPRENTICESHIP
& TRAINING PROGRAM**
MONTANA DEPARTMENT OF LABOR & INDUSTRY

www.apprenticeship.mt.gov

FORWARD:

The following presentation is intended to share what apprenticeship employers/sponsors look for when selecting a candidate for their training program. The statements that we will share with you today are based upon the Program staff's collective 40 plus years of experience in the field working hand and glove with the state's apprenticeship community, and direct input from employer sponsors.



We will also strive to dispel some of the myths about registered apprentice training such as:



FACT OR FICTION?

- ▶ All apprentice applicants are qualified for the program
- ▶ No special abilities are required for apprenticeship applicants
- ▶ Apprenticeship is a 'good fit' for anyone not heading to a 4 year school
- ▶ Apprenticeship is a good 'clearing house' for individuals with bad work histories
- ▶ Knowledge of today's high-end technologies is unimportant in the skilled trades
- ▶ Mediocre math and science skills are a non-issue in apprenticeship
- ▶ The apprentice isn't expected to know much

WHAT MONTANA'S APPRENTICESHIP EMPLOYER/SPONSORS HAVE TO SAY:



NUMBER 1 – HAVING A STRONG WORK ETHIC

Having a good work ethic can take you a long way in your career.

There are numerous references to the historical meaning of phrases like good work ethic but rather than getting bogged down in various interpretations of what it means, the reality is that employers tend to look favorably on workers who are considered to have a strong work ethic.

People often refer to someone as having a good work ethic when they work hard however there is a lot more to having a good work ethic than just this.

Showing your co-workers and supervisor that you care and have a good attitude with regards to your work can help you build a good reputation that carries you far.

Number 2 – HAVE A POSITIVE ATTITUDE

Having a good attitude goes hand in hand with having a good work ethic.

It can be easy to exceed the expectations of others simply by being someone who is reliable, diligent and professional. Conversely, having the opposite of these traits can be your quickest way to being seen as a lazy employee who is not held in high regard by others.

These days, many companies often get by with fewer employees doing more work so being seen as someone with a good work ethic can really help to distinguish you from others especially during periods of downsizing or conversely when it comes time to promote someone.

Having a good work ethic in a modern sense refers to being professional, diligent and caring about your work and the people you work with.

Completing your work on time, not wasting the time of your co-workers, offering your help to others when they require it, and maintaining a professional attitude and appearance are all hallmarks of people with a strong work ethic.

Number 3 – BE PREPARED TO LEARN AND WORK

Have a strong work ethic – It's a MUST!!

- . Show up on time – every day
- . Take personal responsibility, initiative, self-motivated and be accountable
- . Be properly dressed and equipped for the type of work
- . Make what the journeyman/mentor teaches you “happen”
- . Show that you have a high level of interest and a strong willingness to learn

Positive attitude

- . Professionalism, including ‘work professional’ appearance, self-presentation and proper tools and equipment
- . Make a good impression on the company and its customers
- . Be an asset to, and an ‘ambassador’ for, the company
- . Provide excellent customer service
- . Handle pressure well, meet deadlines, communicate effectively with customers, crew members and other works – verbally and in writing
- . Take pride in every aspect of the job

Number 4 - OTHER IMPORTANT QUALITIES

- . Educational level, including degrees, certificates and other credentials
- . Communications skills – verbal and written
- . Math skills, especially ability to work with decimals and fractions
- . Ability to read a tape measure and some familiarity with ‘tools of the trade’
- . Proactive learning is a necessity

Physical condition

Must be able to work in a physically demanding environment for extended periods of time in all weather conditions and be extremely safety conscious in all work.

- ▶ Eating right – be ‘nutritional savvy’, i.e. for physically demanding occupations
- ▶ Hydration for best performance on both hot and cold days
- ▶ Develop and maintain good overall physical conditioning
- ▶ Maintain good flexibility and agility to enhance performance and prevent injury

- . A good apprentice possesses aptitude for the trade/occupation and some work history.
- . Has documented experience doing construction, production, or other comparable work with transferable skills.
- . Has proven potential to be a good worker. Any continuous employment or training with a good attendance record can indicate this, even if not related to the trade/occupation.
- . Be willing to apply aptitude in order to enhance work skills and work performance
- . Employers, counselors and workforce partners need to assess a potential apprentice's aptitude for employment and training in highly skilled occupations:

- ▶ Employers expect a good, steady (and sometimes very demanding) pace all day long. Be a “self-starter” – don’t wait for someone to tell you what to do next
- ▶ Utilize proper attire and work gear; be prepared for all types of weather conditions

Drug free

Must be drug free and able to pass drug/alcohol tests that may be given randomly.

- ▶ Safety issue for self, other workers and possibly customers
- ▶ A DUI conviction is hugely detrimental to any apprenticeship training program
- ▶ You can either take advantage of an apprenticeship training opportunity or do drugs but.....you most certainly cannot do both

Driver’s License

Valid Montana driver’s license and a good driving record. Have reliable transportation.

- ▶ A driver’s license along with a clean driving record is essential for most all apprenticeship training programs

- ▶ Employers cannot and will not tolerate having to pay excessive insurance costs due to employees bad driving records
- ▶ It all comes down to “job security”can't drive?.....CAN'T WORK



Language skills

Good verbal and written comprehension for successful learning on the job and in school.

- ▶ Must be able to listen, speak and write effectively
- ▶ Strong reading comprehension is important
- ▶ Must have an ability to absorb, understand and transfer/communicate Information
- ▶ Must learn and utilize the terminology of the trade/occupation, i.e. trade-specific terms and concepts; be able to accurately interpret the 'industry language'
- ▶ Be direct and accurate in all communication on the job; provide clear, concise directions
- ▶ Check for understanding; ask the journey worker/mentor questions as needed
- ▶ Good language skills lead to effective planning, problem solving, coordination with co-workers and others
- ▶ Unprofessional or abusive language is unacceptable

Education

High School diploma or GED

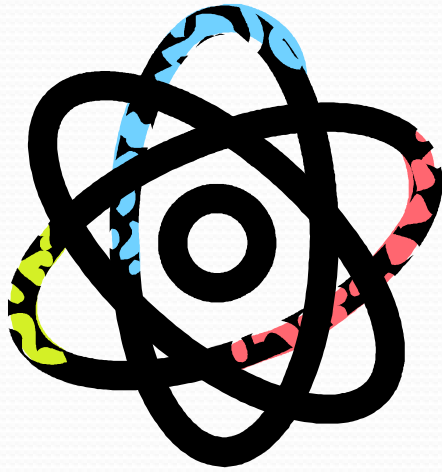
- ▶ Be consistently willing to learn and accept new challenges
- ▶ Be prepared for life-long learning

**DUE TO CONSTANT
AND RAPIDLY
CHANGING
TECHNOLOGIES,
CONTINUOUS
UPGRADING OF
SKILLS AND
EDUCATION IS NO
LONGER OPTIONAL....
IT'S MANDATORY**

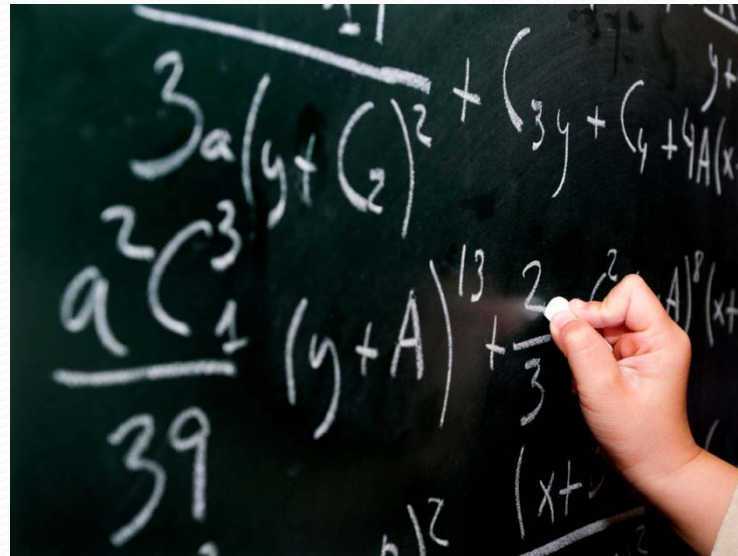


Additional skills

Better than average math and science skills are a plus.



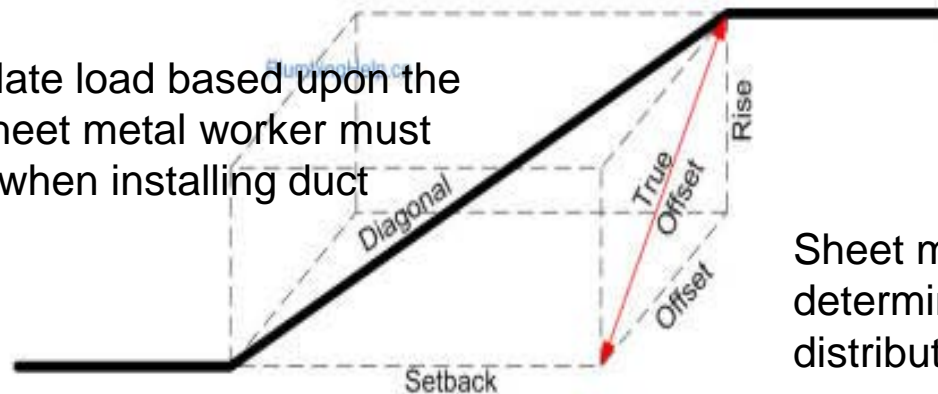
**IN TODAY'S SKILLED
OCCUPATIONS HAVING
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MATH AND SCIENCE
SKILLS ARE ESSENTIAL
FOR DAILY PROBLEM
SOLVING IN THE
WORKPLACE**



How to Calculate Rolling Offsets – A commonly used formula used in the Pipe trade occupation

A rolling offset in a plumbing system is when a pipe changes in both the horizontal and vertical planes. To visualize the travel of the pipe, imagine a three dimensional box with the pipe entering at one corner and exiting at the farthest diagonal corner. – All skilled trades require math solving.

Electricians must calculate load based upon the Diameter of wire and sheet metal worker must Determine air capacity when installing duct Systems.

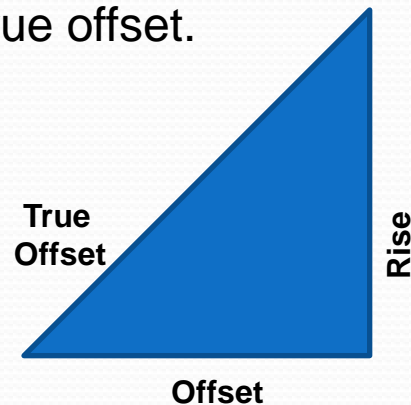


Sheet metal workers must determine air capacity distribution in duct systems

Carpenters commonly need to determine rise and Run when building a stair case. The examples are many and apply to all skilled occupations.

Step 1 - Calculating the True Offset

The first number you need to find when calculating a rolling offset is the "true offset" which is found using Pythagoras' theorem. This simply means that the offset squared plus the rise squared will equal the true offset squared. You then need to take the square root of the result to get the true offset.



$$\text{True offset} = \sqrt{\text{Offset}^2 + \text{Rise}^2}$$

Step 2 - Finding the Setback and Diagonal

Once you know the true offset you can use a table to determine the setback and diagonal center to center measurements. See the table below for the most common fitting constants.

If you're studying for a plumbing exam, you will need to remember the 45° constants.

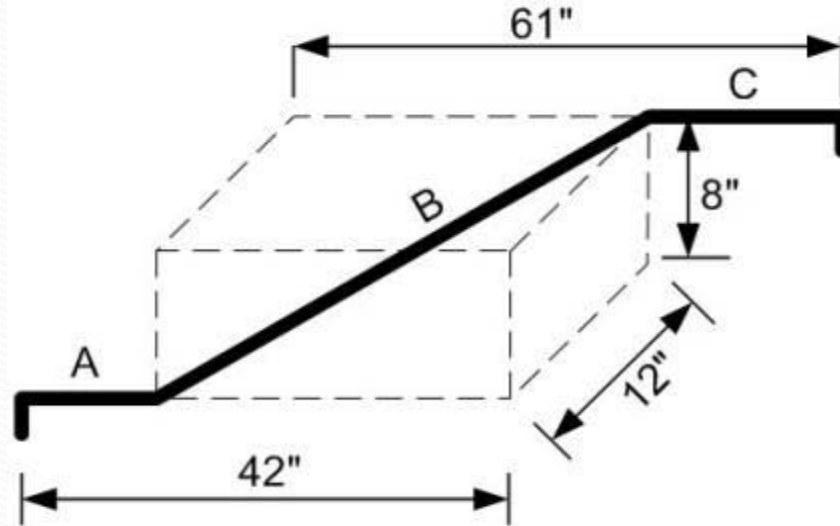
Fitting angle	60°	45°	22½°
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Diagonal = true offset X	1.155	1.414	2.613
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Setback = true offset X	0.577	1.000	2.414
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Practice Question

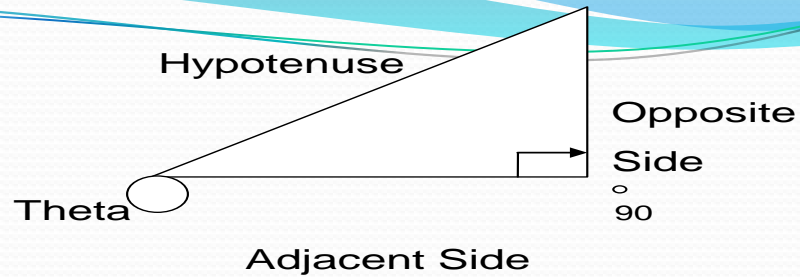
Solve for pipes A, B, and C in the image below using 45 degree fittings and again using 22.5 degree fittings. The measurements are shown in imperial but all the constants are the same for metric.



Solve for...	22.5 Degree fitting	45 Degree fitting
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True offset	14.42"	14.42"
Setback	34.81"	14.42"
Pipe A	$42'' - \text{setback} = 7.19''$	27.58"
Pipe B	37.68"	20.39"
Pipe C	$61'' - \text{setback} = 26.19''$	46.58"

Right Triangle



Hypotenuse: The side of a right triangle that is opposite the right angle.

Adjacent Side: The side of the right triangle that is next to the right angle.

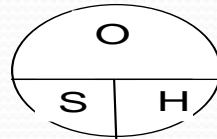
Opposite Side: The side of the right triangle that is across from the Theta.

Theta: The reference angle for the triangle.

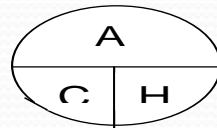
All three angles together equal 180 degrees.

Area: Base x Height x $\frac{1}{2}$

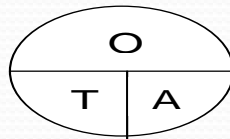
$$\text{Sine} = \frac{\text{Opposite Side}}{\text{Hypotenuse}}$$



$$\text{Cosine} = \frac{\text{Adjacent Side}}{\text{Hypotenuse}}$$



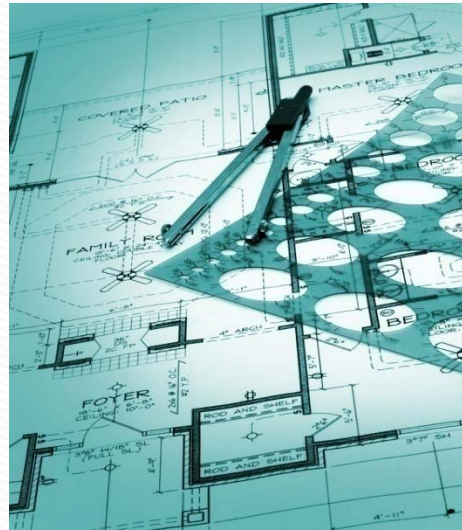
$$\text{Tangent} = \frac{\text{Opposite Side}}{\text{Adjacent Side}}$$



To use these charts, simply place your finger over the factor that you wish to find.

Either divide or multiply as indicated by the chart

LEARNING SKILLS TODAY TO MEET THE CHALLENGES OF TOMORROW



What do Montana's apprenticeship training directors & employer/sponsors look for in a potential apprentice?

Dale Carpenter, Training Director, Joint Labor and Management Statewide Sheet Metal Apprenticeship Program: “The number 1 work performance ability needed by an apprentice is work ethic. As a rule Montanans have good work ethic, I have two apprentices working in South Dakota right now and their employers constantly talk about their high level of work ethic.”

Regarding education:

“Apprentice applicants should have a good understanding of basic math and in the Sheet Metal trades, a working understanding of geometry “.

(Average Journeyman wage: \$20.82 Per hour)

Mitch Hagmen, Training Director, NECA/IBEW Montana Electrical Joint Apprenticeship and Training Program: In work performance, an apprentice represents his employer and himself. The apprentice should be able to demonstrate a high degree of professionalism in appearance, in quality of work and in customer service.”

Regarding education: In the electrical trade, having a good understanding of algebra is very important and as equally important reading comprehension.

Understanding electrical code requires a good level of reading comprehension.

(Average Journeyman wage: \$ 28.26 Per hour)

David De Fur, Training Director, Montana Statewide Carpenters Training Program: “In work performance, a worker shouldn’t stand around with his hands in his pockets waiting for someone to tell him what to do.” Apprentices need to embrace the fact that these jobs require hard physical work and they need to have the motivation to become skilled carpenters”.

Regarding education: “Apprentice applicants should have a good basic understanding of math, especially decimals and fractions. “
(Average Journeyman wage: \$21.00 Per hour)

Con Sullivan, Training Director Plumbers & Pipefitters Local Union 41: Concerning performance abilities Con states, “The number one qualification is work ethic”. This means, show up for work on time, show an interest in learning, take the training seriously, be dedicated to craftsmanship and mechanical skills are important but not as important as a good attitude.”
(Average Journeyman wage: \$28.50 Per hour)

Concerning qualities required for apprenticeship education, Basic math skills are really important, especially decimals and fractions, the ability to learn how to read blueprints and having a general interest in science.

“It seems like the trades have been the dumping grounds for the last 15 years for people that barely made it through high school and can’t go anywhere else. The trades tend to give these folks a chance, but it’s time consuming and costly in getting them up to the required speed, we shouldn’t be the last resort for someone’s career choice.” **Anonymous long - time training director.**

Yellowstone Valley Electric CO-OP: **Terry Holzer**

Performance ability: Number one is Loyalty and longevity, someone that is going to be there for the long haul. We are looking for aptitudes in mechanical, math, and communication. They need to enjoy working outside and like the challenges of the job and working in adverse weather conditions. Working as a team member and working well with their peers. They need to have a good work ethic, determination and the desire to make this a lifelong career. We want someone that’s seeks advancement and demonstrates leadership qualities, ability to take orders, directions and give their input on solving problems. The candidate needs to be self motivated and perform to the best of his or her abilities and be the one that the company can depend on. This company prefers to recruit for local people that are grounded in the community.

(Average Journeyman wage: \$33.00 Per hour)

Yellowstone Valley Electric CO-OP: Terry Holzer

Education: Must have a H.S. diploma and they prefer some schooling in the trade, but it's not required. They want to see that the candidate can complete an obligation and they are motivated to a career and not just a job. They have to know that careers are highly competitive and they need to prepare if they want to stand out from the rest. The last position for an apprentice generated over 200 applications for one position.

Other: Safety is huge and they need to all ways have a focus on being safe and responsible.

Big Horn County Electric CO-OP: Monte Russell

Performance ability: Must have a good work ethic and put in an honest day's work. Loyalty to the company is very important and after 4 years of training the company wants someone that is going to remain with the company.

Big Horn County Electric CO-OP: **Monte Russell**

Education: Requires a High School diploma, with math and communication skills. They are looking for someone that has the aptitude for the job. They need not know anything about the position as long as they are trainable.

Other: Big Horn Electric CO-OP prefers to hire people that are from the local area and who have demonstrated a reputation for a good work ethic and relates with the local area. The company is looking for a person that would be a good fit and that would work well with their peers. The company's employees are encouraged to add their input to the selection of a good candidate and who they think they would like to work with.

(Average Journeyman wage: \$33.00 Per hour)

Mountain Electric: **Tom Dunn**

Performance ability: Someone that is willing to do quality work and is driven to achieve his/her best. Put their heart & soul in their work. The apprentice should show up early and ready to work and committed and focused to perform at a high level. *(Average Journeyman wage: \$27.00 Per hour)*

Mountain Electric: **Tom Dunn**

Education: Someone that will learn and retain the working knowledge and it is very important that the journeyman does not have to retrain on the same tasks. Pay attention to job and safety! We are looking for someone that demonstrates good common sense.

DJ'S Electric - Hamilton (DJ, Owner, & Tammy Lengyel, Office Manager)

- neat appearance
- extreme willingness to work
- "can do" attitude
- healthy
- outward confidence, but not cockiness
- ability to work well with other employees and customers
- eager to learn

We don't necessarily look for someone with electrical (in fact, preferably not, as we want to teach them our way of doing things) or construction experience.
(Average Journeyman wage: \$27.00 Per hour)

Jackson Contractor Group – Missoula (Keith Ferguson)

First off, we try to offer our training program to employees that have been with the company a year or more. We seem to get a better commitment out of those that have put in that time. Work attendance, how much time do they miss if any, are they always sick. We are always looking for individuals that show some initiative, get to work a bit early to see what's up for the day, take on a work assignment and don't complain about what they are doing. Want to work and improve themselves and their skill sets. Have some sort of safety knowledge or at least they think a bit about safety before they take on a work task, anyone that tries can be taught the proper safety for the work activity. Is this really what they want to do? Because if it's not, everyone's time is wasted. *Average Journeyman wage: \$19.88*

Rattlesnake Electric – Missoula (Jim Pelger, Owner)

- 1) Strong work history.
- 2) Experience working with tools.
- 3) Strong work history.
- 4) Experience working with tools.
- 5) Problem Solver
- 6) Self - Starter
- 7) Gets along well with others
- 8) Strong communication skills
- 9) Not easily frustrated.
- 10) Appreciation for what a opportunity an apprenticeship is very important.

Average Journeyman wage: \$25.20 per hour

Justin Mills – Rocky Mountain Electric (*Average Journeyman wage: \$25.31 Per hour*)

Having a strong work ethic and a positive attitude are paramount.

Must be willing to ask questions and learn from the answers given them.

As soon as sufficient experience has been attained, working efficiently is key.

Learn to minimize mistakes – get it right the first time.

Doing your part to make the company profitable will help you to remain employed.



Let's summarize what qualities employers say are most important to them

1. Strong work ethic
2. Willingness to learn
3. Natural abilities
4. Better than average communication skills
5. Be a self-starter with a positive “can-do” attitude
6. Meet all programs requirements according to schedule
7. Professional appearance and good customer service skills
8. Have a genuine appreciation for the apprenticeship training experience
9. Reliability.....show up for work every day and on time
10. Safety awareness for yourself and others at all times