Laser, Transit & Building Level Syllabus

Time: 40 hours

Maximum Class Size: 12

Prerequisites: None

Course Description: Laborers must be familiar with layout instruments used to measure distances and angles and used to determine elevation and grade. This course will introduce the participant to the basic parts of two important layout instruments, the level and the transit. The participant will learn standard tools and equipment used for site layout, the purpose of each and will demonstrate their use. In addition, the participant will be required to complete a project from start to finish using the tools and equipment addressed in this course.

Goals/Objectives/Student Learning Outcomes:

- Read engineers grade rod, linker rod, and tape measure.
- Read and correctly perform tasks on reference stakes.
- Drive stakes, tie string line, and check and check for errors prior to the start of work.
- Set up tripod at correct location.
- Calculate survey math
- Utilize levels to calibrate flow-liners
- Set batter boards, reference stakes and hubs
- Complete 9 hands on Team Projects

Standards

- 29 CFR 1926.28 Personal Protective Equipment (P.P.E)
- 29 CFR 1926.20 General Safety and Health Requirements
- 29 CFR 1926.21 Safety Training and Education
- 29 CFR 1926.52 Occupational Noise Exposure

Classroom Rules and Procedures

- All classes begin at 6:30 am and end at 3:00 pm
- Upon entering classroom, all participants must sign in and be seated by 6:30 am
- Class will consist of a combination of lecture, video, demonstration, coached group exercises, individual exercises and assessment.
- Students are required to report to class ready to work and maintain the provided PPE

Laser, Transit & Building Level Syllabus

Textbooks/Readings/Materials

- Handouts: *9 Team Project sheets, Build a Story Pole, Standard to Decimal Conversion Table, Instrument, Grading & Drainage packet, Engineers Ruler & Grade Pole*
- Midweek Classroom Exercise
- DVDs: Measuring Linear Distance, TBA

Tools/Equipment/Other Materials

- Barricades and signs
- Cones & delineation
- K-Rail & beacons
- Eye protection, ear pro
- Laser level
- Builders Level
- Grade Rod
- 100' steel chain tape measure
- 100' nylon tape measure
- Rolling wheel tape measure
- Spikes for hard ground (6" or 8")
- Hubs (6 "wood)
- Reference Stakes (wood lath 4" long)
- Upside down orange marking paint
- Transit

Personal Protective Equipment

- 12 pairs of gloves
- 12 pairs of Safety Glasses
- 20 pairs of Ear plugs
- 12 hard hats
- 12 Safety Vests

Course Requirements

To receive credit for the course, participants must:

- Be present for full forty hours
- Participate in all classroom exercises
- Pass a written exam

Laser, Transit & Building Level Syllabus

- Pass a hands-on exam

Course Policies

- Participants must be on-time and ready to work.
- Participants must return from breaks on-time.
- Participants must participate in each exercise and assignment
- Participants who are on “light duty” are not allowed to take this course due to the physically demanding requirements.

Assessment and Grading

Participants will be assessed on the following:

- All written exams must be passed with a score of 80% or above.
- All hands-on exercises are graded on performance and participation. They are pass/fail and must be passed with a score of 80% or above.

Safety

Failure to maintain and use PPE may result in dismissal from the course.