



2022 Pipefitting Competition

FACT SHEET

Project Manager

Ronnie Balentine, S&B Engineers & Constructors

For questions related specifically to the pipefitting competition, contact Ronnie Balentine at rdbalentine@sbec.com. For all event questions, contact Jarrell Jackson, National Craft Championships Director, (202) 595-1789 or jackson@abc.org

Specific Competition Eligibility

The pipefitting competition has no competition-specific eligibility requirements. Please refer to overall eligibility requirements listed on page 3 of the guidebook.

Online Exam

Important news for 2022 - The online exam must be completed before competitors arrive on site. Exceptions will be made for extreme circumstances with prior approval of the NCC Director via email. If an exception is granted, the makeup exam will take place Tuesday, March 15, 8:30-11 a.m., and be proctored on site by NCCER. Only those competitors with prior approval from the NCC Director will be allowed to take the test on site. All competitors must sit for the online exam or face disqualification from the NCC. The online exam continues to make up 25% of one's overall competition score.

Competitors will complete the online exam at a local NCCER Accredited Training Sponsor or Assessment Center. It is the responsibility of the sponsor organization to schedule test sessions directly with NCCER by emailing a request to: NCCTest@nccer.org, with the subject line Schedule NCC Test.

NCCER will contact the sponsoring organization to provide access to the online test in NCCER's Testing System. Information on accessing the testing system will be provided, including requirements for the testing proctor.

All exams/tests are based on the standardized craft training process. In addition to the knowledge and skills required for each competition, all competitors should have completed the NCCER Core curriculum modules. A nonprogrammable calculator will be provided as part of the online exam, but no reference materials are permitted.

Practical Performance Test Description

Competitors will perform three tasks utilizing various skills within the NCCER Pipefitting curriculum. The tasks will be in the areas of threaded pipe fabrication, welded pipe fabrication and flanged pipe make-up.

Pipefitting Task: Threaded Pipe Fabrication

Each competitor will be given an isometric drawing from which to work and be required to calculate material take offs and cut lengths of pipe. The pipe will then be cut, threaded, and fabricated to the drawing. They will utilize pipe threading skills, math calculating skills and threaded pipe make-up skills to complete this project. Each project will have a time limit in which it must be completed.

Pipefitting Task: Welded Pipe Fabrication

Each competitor will be given an isometric drawing from which to work and be required to use

their math skills to calculate material take offs and cut lengths of pipe. There will be various types of fittings involved, such as welded fittings, socket weld fittings and slip-on fittings. The pipe will then be cut, cleaned, and fabricated to the drawing specifications. Various hand tools and power tools will be used for this project. The project will be tacked together utilizing a provided tack welder. Each project will have a time limit in which it must be completed.

Pipefitting Task: Flanged Make-Up

Each competitor will bolt their fabricated pipe spools into a fixture per the fabrication iso provided so that flange alignment and bolt up skills can be assessed. Each project will have a time limit in which it must be completed.

Knowledge and Skills Required

The knowledge and skills for this competition are based on all levels of the NCCER Pipefitting curriculum, with particular emphasis on the following modules:

- Pipefitting Hand Tools;
- Pipefitting Power Tools;
- Ladders and Scaffolds;
- Piping Systems;
- Drawings and Detail Sheets;
- Identifying and Installing Valves;
- Pipefitting Trade Math;
- Threaded Pipe Fabrication;
- Underground Pipe Installation;
- Rigging Equipment;
- Rigging Practices;
- Standards and Specifications;
- Advanced Trade Math;
- Introduction to Above-Ground Pipe Installation;
- Field Routing and Vessel Trim;
- Pipe Hangers and Supports;
- Testing Piping Systems and Equipment;
- Planning Work Activities;
- Advanced Pipe Fabrication;
- Stress Relieving and Aligning;
- Stream Traps;
- In-Line Specialties;
- Special Piping;
- Hot Taps;
- Maintaining Valves.

Tools Competitors Are Required to Bring

Each competitor should bring only the items listed below to the competition. Items will be examined prior to the Practical Performance Test and additional tools will be stored until the competition has concluded. If a tool necessary to complete the Practical Performance Test is not listed, the National Craft Championships Committee will provide it:

- Pencil
- Minimum of 12' measuring tape (25' is acceptable)
- Leather work gloves
- 2-hole pins
- Torpedo level
- Speed square
- 7/8" combo wrench
- 1-1/16" combo wrench
- Channel Locks
- Long-sleeve work shirt (for grinding and tacking)
- Non-programmable construction calculator (such as Calculated Industries available at Lowes or Home Depot. Note: **No Texas Instruments calculators will be allowed.**)

Tools that will be supplied by the National Craft Championship Committee

Welded Pipe Fabrication Project

- 24" level
- 24" framing square
- Wrap around
- Soap stone
- 4" grinder w/ 1/4" disc
- Bandsaw
- Face shield
- Ball peen hammer
- Tri-pod stand w/ chain vise
- Jack stand
- Welding leads/ground
- Tack welders to be shared by all competitors

Threaded Pipe Fabrication

- 14" Pipe wrench
- 14" chain wrench
- Tri-pod w/ yoke vise
- Jack stand
- Threading machine

Sample Score Sheet

The following sample score sheet is provided to give competitors an **example** of the criteria that may be included in the Practical Performance Test. **However, this score sheet is only a sample and not intended to act as a study guide in preparation or to imply specific criteria that will be judged during the actual Practical Performance Test.**

ABC National Craft Championships Pipefitting Sample Score Sheet

Judging Criteria	Competitor Identification Numbers					
	Maximum Points					
Flange Alignment						
Proper bolt-up						
Configuration						
Threaded engagement						
Dimension tolerance						
Mock-up bolt-up fit						
Bolt-hole orientation						
Pipe end preparation						
Butt-weld alignment						
Sequence of work						
Care and use of tools						
General – ability to follow directions, quality of workmanship, neatness, best use of time and completion						
Project disassembly						
SUBTOTAL:	160					
Safety – housekeeping						
Safety Task Analysis						
PPE usage						
Use of hand tools						
Use of power tools						
SUBTOTAL:	40					
GRAND TOTAL:	200					
Tie Breaker #1						
Tie Breaker #2						
Tie Breaker #3						
Tie Breaker #4						