



2004 State Competition

FFA Agricultural Mechanics Contest

University of Missouri

50 points

Contestant # _____

Contestant Name _____

Chapter _____

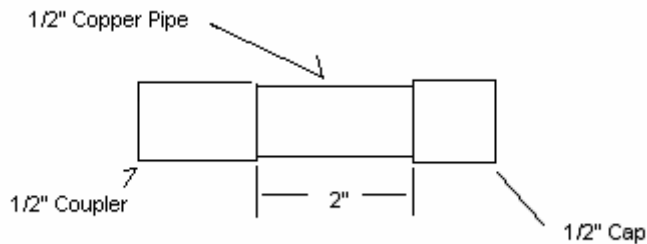
Concrete & Plumbing

Plumbing -Skill: Assembling and sweating copper tubing

Materials needed: Copper tubing, 1/2" cap, 1/2" coupler, copper tubing cutter, propane torch, striker, solder, flux, wet rag.

Directions:

1. Secure a 1/2" copper coupler.
2. Cut a piece of 1/2" copper tubing so that it extends 2" as indicated below.
3. Place the coupler on the tubing and use the propane torch to sweat solder the coupler in place.
4. Cut the 1/2" Cap on the end of the 2" Piece and solder into place.
5. Put your name on the project with tape and hand into instructor.



	Points	
	Possible	Earned
1. Neatness, Appearance	5pts.	___
2. Passes 50 psi air test	6pts.	___
3. Correct length	7pts.	___
4. Safety	2pts.	___
Total from problem solving	20pts.	___

Use the following table to answer questions 4 and 5.

Kind of Job	Approx. PSI	Min Bags / yd³	Gallons / Bag	Water-cement Ratio
Flatwork: (maximum aggregate size 1 – ½ in.)				
Severe exposure: (above ground bunker silos, floors in dairy plant)	4500	7	5	044
Normal exposure : (feedlots, floors, drives, sidewalks)	3500	6	6	053
Mile exposure (building footings)	2500	5	7	062
Formed work: (maximum aggregate size ¾ in.)				
Severe exposure: (feedbunks, slat, manure storage tanks)	4500	7 – ¾	5	044
Normal exposure : (reinforced walls, open top or ventilated manure tanks)	3500	6 – ½	6	053
Mile exposure (foundations)	2500	5 – ½	7	062

4. Approximately how strong (pounds/inches²) does the concrete need to be? (2pts)

5. What is the minimum number of bags of cement needed to construct the feed bunks for this barn? (3pts)

Concrete tool I.D. (15 pts):

Identify the correct names of the tools, and match them with the description that best fits the tool. Use the following list of tool names and descriptions to complete this activity.

Tools:

- a. Edger
- b. Wooden Trowel
- c. Jointer
- d. Slump cone
- e. Pointing Trowel

Tool Descriptions:

- f. Fills voids and levels ridges in concrete. Gives surface a smooth finish.
- g. Creates control joints or decorative lines in wet concrete.
- h. Used to fill and finish masonry joints with mortar or cement.
- i. Used after floating to finish the concrete surface as it dries, and apply the desired degree of smoothness and density to the concrete.
- j. Used to put a finish on the concrete that would be acceptable for livestock
- k. Device that determines how much water is in the concrete
- l. Produces a smooth rounded edge on a slab of concrete.
- m. Produces a smooth edge between concrete blocks
- n. None of the above are correct- write in the correct answer in the blank

	<u>Name (2pts)</u>	<u>Description (1pt)</u>
1.)	_____	_____
2.)	_____	_____
3.)	_____	_____
4.)	_____	_____
5.)	_____	_____

Diagram of Concrete Feed Bunk

