

Instructions:

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**Course: 6946 "INTERNET" TESTPEX72**

**This course is valid for these credentials:**

<b>Credential Description</b>	<b>Cred Code</b>	<b>Credit Hours</b>
Commercial Plumbing Inspector	CPI	6.0
Journeyman Plumber	PJ	6.0
Journeyman Plumber-Restricted Appliance	PJRA	6.0
Master Plumber	PM	6.0
Master Plumber-Restricted Appliance	PMRA	6.0
Master Plumber-Restricted Service	PMRS	6.0
UDC-Plumbing Inspector	UPI	6.0

**Course outline**

**Aquapex Installation guide is available by mail or on my internet site.**

**Manual's site: <http://garyklinka.com/pex.pdf>**

**72 quiz questions on the Aquapex Installation Guide.**

**Course is totally about water distribution.**

1. PEX is an acronym for crosslinked \_\_\_\_\_.
  - a) polyethylene
  - b) polyvinyl chloride
  - c) polyvinylidene
  - d) PVC
2. Wirsbo Aquapex has Standard Grade Hydrostatic Stress and Pressure Ratings in accordance with all four temperatures and pressures listed in table 1 of \_\_\_\_\_.
  - a) ASTM F877
  - b) ASTM F866
  - c) ASTM F876
  - d) ASTM F788
3. An approved grade hydrostatic rating allowed by the above table (question #2) would be?
  - a) 73.4° at 160 psi
  - b) 76.4° at 160 psi
  - c) 76.4° at 130 psi
  - d) 73.4° at 130 psi
4. The standard specification for crosslinked polyethylene (PEX) plastic hot and cold water distribution systems would be?
  - a) ASTM F876
  - b) ASTM F877
  - c) ASTM F1960

- d) ASTM F2080
5. Wirsbo Aquapex is listed with the following agencies:
- ANSI/NSF 14 and 61
  - ICC ESR-1099
  - Neither a or b
  - Both a & b
6. Wirsbo's Aquapex listed to ASTM F876 and ASTM F877 is approved for the following model code:
- International Plumbing Code
  - Uniform Plumbing Code
  - National standard Plumbing Code
  - All of the above
7. The labeling on 1/2" Wirsbo Aquapex tubing includes ASTM F876/F877/F2023.
- True
  - false
8. The print stream on the tubing ASTM F1960/F1807/F2098/F2080 is associated with the fitting standards listed by \_\_\_\_\_?
- CSA
  - NSF
  - PPI
  - All of the above
9. UL design No. \_\_\_\_\_ rating applies to 1/2" to 1 1/2" Aquapex tubing, fittings, and manifolds installed in a one hour wood stud/gypsum.
- L557
  - K913
  - V444
  - U372
10. Installation Options and Applications for the Structured Plumbing Installation method would include:
- Manifolds are located near fixture groups.
  - Close-end manifolds are located near fixture groupings.
  - Central Manifold(s) distribute water to point of use.
  - This method is the same method as used for configuring rigid plumbing systems (copper or cpvc)
11. Installation Options and Applications for the Run and Branch Installation method would include:
- Manifolds are located near fixture groups.
  - Close-end manifolds are located near fixture groupings.
  - Central Manifold(s) distribute water to point of use.
  - This method is the same method as used for configuring rigid plumbing systems (copper or cpvc)
12. Installation Options and Applications for the Home Run Installation method would include:
- Manifolds are located near fixture groups.

- b) Close-end manifolds are located near fixture groupings.
- c) Central Manifold(s) distribute water to point of use.
- d) This method is the same method as used for configuring rigid plumbing systems (copper or cpvc)

13. Installation Options and Applications for the Remote Manifold method would include:

- a) Manifolds are located near fixture groups.
- b) Close-end manifolds are located near fixture groupings.
- c) Central Manifold(s) distribute water to point of use.
- d) This method is the same method as used for configuring rigid plumbing systems (copper or cpvc)

14. The Aquapex tubing is marked with the following designation as required by ASTM F876-03: PEX 0006. Is this tubing in compliance with ASTM 876 for chlorine-resistance testing?

- a) Yes
- b) No

15. When storing and handling PEX tubing:

- a) Do not store PEX tubing outdoors
- b) Keep Pex tubing in the original packaging until time of installation
- c) Ensure that exposure to sunlight during installation does not exceed the maximum recommended UV exposure of 30 days.
- d) All of the above.

16. The minimum bending radius of Aquapex tubing is \_\_\_\_\_ times the outside diameter.

- a) 4
- b) 5
- c) 6
- d) 7

17. Bend supports are available in 3/8", 1/2", 3/4", and 1" Aquapex, and may be used to facilitate \_\_\_\_\_ degree rigid bends.

- a) 22.5
- b) 45
- c) 60
- d) 90

18. When reforming kinked tubing heat the kinked area to approximately 265° F with a \_\_\_\_\_.

- a) Open flame
- b) Heat gun
- c) Oven
- d) Both a & b

19. After heating, let the repair Aquapex cool undisturbed to room temperature. When the tubing returns to its opaque appearance, the repair is complete.

- a) True
- b) False

20. When heating Aquapex tubing the temperature must not exceed \_\_\_\_\_ ° F.

- a) 265

- b) 285
- c) 338
- d) 365

21. Aquapex tubing can be weld or repaired with adhesives.

- a) True
- b) False

22. Adhesive tapes can be use on Aquapex tubing for permanent labeling.

- a) True
- b) False

23. Aquapex is expandable and is extremely resistant to freeze damage.

- a) True
- b) False

24. Do not install Aquapex tubing within \_\_\_ inches of any gas appliance vents, with the exception of a double wall B-vents, which have a minimum clearance of 1 inch.

- a) 2
- b) 6
- c) 12
- d) 18

25. Do not install Aquapex tubing within \_\_\_ inches of any recessed light fixtures, unless the Aquapex is protected with suitable insulation.

- a) 2
- b) 6
- c) 12
- d) 18

26. Do not solder within \_\_\_ inches of Aquapex tubing in the same water line. Sweat connections must be made prior to making the ProPex connection.

- a) 2
- b) 6
- c) 12
- d) 18

27. Do not install Aquapex tubing between the tub/shower valve and the tub spout.

- a) True
- b) False

28. Wirsbo ProPex fitting are manufactured to which standard?

- a) ASTM F876
- b) ASTM F877
- c) ASTM F1690
- d) ASTM F1960

29. ProPex fittings come with a \_\_\_ year warranty when installed by a Wirsbo-trained installer.

- a) 10
- b) 23
- c) 30

d) 15

30. Wirsbo offers ProPex fittings made from engineered plastic (EP) or brass. Both are \_\_\_\_\_ certified.

- a) NSF-14
- b) NSF-61
- c) NSF-251
- d) Both a & b

31. The Wirsbo Expander tool is \_\_\_\_\_ operated.

- a) Battery
- b) Air
- c) Hand
- d) All of the above

32. Aquapex tubing must be \_\_\_\_\_ perpendicular to the length and remove all excess material or burrs that might affect the fitting connection.

- a) Miter sawed
- b) Hack sawed
- c) Square cut
- d) All of the above

33. When installing the ProPex ring over the end of the tubing, extend the end of the ring over the end of the tubing no more than \_\_\_\_ of an inch.

- a) 1/16
- b) 1/8
- c) 1/4
- d) 3/16

34. When using the ProPex air or battery Expander tool the tubing should be rotated a \_\_\_\_ turn after each expansion.

- a) 1/16
- b) 1/8
- c) 1/4
- d) 1/2

35. Recommended number of expansions for 1/2" Aquapex tubing is?

- a) 3
- b) 4
- c) 5
- d) Both a & b

36. Recommended number of manual expansions for 3/4" Aquapex tubing is?

- a) 3-4
- b) 4-5
- c) 7-9
- d) 6-7

37. After expanding the Aquapex tubing, immediately insert the fitting into the tubing, and

- a) \_\_\_\_\_.
- a) some resistance should be felt
- b) no resistance should be felt

38. To avoid over expanding, do not hold the tubing in the expanded position.

- a) True
- b) False

39. It is acceptable to have up to 1/16" between the ring and the shoulder of the fitting.

- a) True
- b) False

40. The 3/8" ProPex ring must be expanded \_\_\_\_\_ to properly fit over the tubing.

- a) once before installing
- b) once from each side
- c) 4-5 times
- d) repeatedly

41. ProPex brass fittings can be concealed in walls, ceilings, and floors.

- a) True
- b) False

42. ProPex brass fittings can be reused and the APR or EP fittings cannot be reused.

- a) True
- b) False

43. When using the expander tool and the expansion is difficult:

- a) Make sure the internal driver cone is not damaged or bent.
- b) Make sure the internal cone is properly greased.
- c) Make sure the expander head is securely screwed onto the tool.
- d) All of the above

44. In cold weather more expansion are necessary.

- a) True
- b) False

45. Proper expander tool and head maintenance include applying the lubricant weekly if used regularly.

- a) True
- b) False

46. When using APR brass fittings, the minimum distance between the two fittings in line is \_\_\_\_\_ inches from the shoulder of one fitting to the shoulder of the other fitting.

- a) 4
- b) 6
- c) 10
- d) 18

47. Linear expansion rate for Aquapex tubing is approximately \_\_\_\_ inch per 10° F temperature change for every 100 feet of tubing.
- a) .8
  - b) .9
  - c) 1.1
  - d) 1.3
48. When installing Aquapex tubing runs allow \_\_\_\_\_ longitudinal clearance per foot of run to accommodate thermal expansion.
- a) 1/4" to 5/16"
  - b) 1/8" to 3/16"
  - c) 1/32" to 1/8"
  - d) 3/16" to 1/4"
49. Aquapex tube should be rigidly anchored to supports with enough slack between supports for expansion.
- a) True
  - b) False
50. Along horizontal runs, install supports every \_\_\_\_ inches for 3/8", 1/2", 3/4" and 1" for Aquapex tubing.
- a) 30
  - b) 32
  - c) 36
  - d) 48
51. If horizontal runs are continuously supported (truss to truss), place tubing supports at \_\_\_\_ foot intervals.
- a) 4
  - b) 4.5
  - c) 6
  - d) 8
52. Bends within 6 inches of a connection require a tube talon or bend support for \_\_\_\_ Aquapex tubing.
- a) 3/8"
  - b) 1/2"
  - c) 3/4"
  - d) Both a and b
53. For \_\_\_\_ tubing, support is required for bends within 10 inches of a ProPex connection.
- a) 3/4"
  - b) 1"
  - c) 1/2"
  - d) Both a and b
54. \_\_\_\_\_ provide a rigid, connection free, 90 degree exit from a standard 2" x 4", or larger, stud wall or floor.
- a) Drop Ear Bend Supports
  - b) Bend Supports
  - c) Drop Ear Elbows

d) A & C

55. \_\_\_\_\_ provide a rigid 90 degree bend and the ability to secure 3/8" or 1/2" Aquapex tubing where it exits a stud wall or connection to a showerhead.

- a) Drop Ear Bend Supports
- b) Bend Supports
- c) Drop Ear Elbows
- d) A & C

56. Aquapex tubing will dampen sound \_\_\_\_\_ times more than metallic pipe.

- a) 5
- b) 6
- c) 7
- d) 8

57. Water hammer arrestors are not required when using Aquapex tubing.

- a) True
- b) False

58. When pressure testing Aquapex tubing do not exceed \_\_\_\_\_ psi.

- a) 60
- b) 80
- c) 90
- d) 100

59. The valves on the Aquacenter valve manifold must be closed and reopened individually after applying pressure during the pressure test.

- a) True
- b) False

60. Do not heat Aquapex risers to remove kinks.

- a) True
- b) False

61. Aquapex tubing has the same outside diameter as standard copper tubing.

- a) True
- b) False

62. When using a compression fitting with Aquapex tubing, initially tighten the fitting and wait \_\_\_\_\_ minutes to allow the tubing to relax, and then retighten each fitting.

- a) 10
- b) 20
- c) 30
- d) 40

63. Aquapex APR copper manifolds are required to be accessible.

- a) True
- b) False



64. Provisions must be made to support the tubing runs as they exit the Aquacenter valved manifold. Any bend within \_\_\_ inches of a ProPex connection to 3/8" and 1/2" tubing require a tube talon, bend support or stud.

- a) 4
- b) 5
- c) 6
- d) 10

65. Provisions must be made to support the tubing runs as they exit the Aquacenter valved manifold. For 3/4" and 1" tubing, support is required for bends within \_\_\_ inches of a ProPex connection.

- a) 4
- b) 5
- c) 6
- d) 10

66. When the Aquacenter valved manifold is mounted above the water heater, install a minimum of \_\_\_ inches of connecting tubing between the water heater and the Aquacenter valved manifold due to chance of heat stacking.

- a) 24
- b) 30
- c) 36
- d) 18

67. When the Aquacenter valved manifold is mounted beside the water heater and is connected with tubing incorporating a horizontal flow, connect with at least \_\_\_ inches of tubing.

- a) 24
- b) 30
- c) 36
- d) 18

68. When installing the Aquacenter a thread sealant should be used on the connections.

- a) True
- b) False

69. Aquapex recommends testing the system for a minimum of 15 minutes. During the test, system pressures should drop no more than \_\_\_ psi in a one hour period.

- a) 1
- b) 2
- c) 4
- d) 8

70. Do not over tighten connections by using tools. Tighten swivel nuts by hand until snug, plus a \_\_\_ to \_\_\_ turn.

- a) 1/8 to 3/16
- b) 1/4 to 1/2
- c) 3/4 to 1
- d) None of the above

71. Provide vertical support every \_\_\_ to \_\_\_ feet a mid-story guide placed between floors.

- a) 3 to 4

- b) 4 to 5
- c) 5 to 6
- d) None of the above

72. Aquapex fittings labeled \_\_\_\_\_ are suitable for burial.

- a) EP
- b) DZR
- c) APR
- d) A & B

**Testpex72 6946 Answer Sheet**

<u>1</u>	a b c d	<u>25</u>	a b c d	<u>49</u>	a b c d
<u>2</u>	a b c d	<u>26</u>	a b c d	<u>50</u>	a b c d
<u>3</u>	a b c d	<u>27</u>	a b c d	<u>51</u>	a b c d
<u>4</u>	a b c d	<u>28</u>	a b c d	<u>52</u>	a b c d
<u>5</u>	a b c d	<u>29</u>	a b c d	<u>53</u>	a b c d
<u>6</u>	a b c d	<u>30</u>	a b c d	<u>54</u>	a b c d
<u>7</u>	a b c d	<u>31</u>	a b c d	<u>55</u>	a b c d
<u>8</u>	a b c d	<u>32</u>	a b c d	<u>56</u>	a b c d
<u>9</u>	a b c d	<u>33</u>	a b c d	<u>57</u>	a b c d
<u>10</u>	a b c d	<u>34</u>	a b c d	<u>58</u>	a b c d
<u>11</u>	a b c d	<u>35</u>	a b c d	<u>59</u>	a b c d
<u>12</u>	a b c d	<u>36</u>	a b c d	<u>60</u>	a b c d
<u>13</u>	a b c d	<u>37</u>	a b c d	<u>61</u>	a b c d
<u>14</u>	a b c d	<u>38</u>	a b c d	<u>62</u>	a b c d
<u>15</u>	a b c d	<u>39</u>	a b c d	<u>63</u>	a b c d
<u>16</u>	a b c d	<u>40</u>	a b c d	<u>64</u>	a b c d
<u>17</u>	a b c d	<u>41</u>	a b c d	<u>65</u>	a b c d
<u>18</u>	a b c d	<u>42</u>	a b c d	<u>66</u>	a b c d
<u>19</u>	a b c d	<u>43</u>	a b c d	<u>67</u>	a b c d
<u>20</u>	a b c d	<u>44</u>	a b c d	<u>68</u>	a b c d
<u>21</u>	a b c d	<u>45</u>	a b c d	<u>69</u>	a b c d
<u>22</u>	a b c d	<u>46</u>	a b c d	<u>70</u>	a b c d
<u>23</u>	a b c d	<u>47</u>	a b c d	<u>71</u>	a b c d
<u>24</u>	a b c d	<u>48</u>	a b c d	<u>72</u>	a b c d

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Attendee's Name \_\_\_\_\_ Date \_\_\_\_\_

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Course Title and Name \_\_\_\_\_ Testpex72 \_\_\_\_\_

List each credential held by attendee \_\_\_\_\_

\_\_\_\_\_ Credited Hours 6 hrs **\$60.00**

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Attendee passed the course with a greater than 70% score on Date \_\_\_\_\_

Instructor Signature \_\_\_\_\_