

PLUMBING/2 (180 Hours)

Course No.: 71-45-80

COMPETENCY CHECKLIST

Student Name _____

Teacher Name _____ School Site _____

Start Date _____ Completion Date _____ Certificate Date _____

Teacher Signature _____ Student Signature _____

(Signatures verify completion of course competencies)

A. ORIENTATION AND SAFETY (5 hrs)

- _____ 1. Scope and purpose of course
- _____ 2. Course content as part of Linked Learning
- _____ 3. Classroom policies and procedures
- _____ 4. Class/workplace first aid & emergency
- _____ 5. Jobs in building trades/impact on plumbers
- _____ 6. Promoting gender equity and non-trad hiring
- _____ 7. Legislation that impacts plumbing trade
- _____ 8. Cal/OSHA laws governing plumbers
- _____ 9. EPA legislation on building industry practices
- _____ 10. Hazardous materials removal/EPA standards
- _____ 11. Use of MSDS as it applies to plumbing
- _____ 12. Role of LEED in green building practices
- _____ 13. CA Title 24/building trades & construction
- _____ 14. Pass the safety test with 100% accuracy

B. RESOURCE MANAGEMENT REVIEW (2 hrs)

- _____ 1. Define listed terms related to topic
- _____ 2. Management of resources in plumbing
- _____ 3. CPM impact on project development
- _____ 4. Examples of effective resource management
- _____ 5. Benefits of effective resource management
- _____ 6. Economic/environmental benefits/liabilities

C. TRADE MATHEMATICS REVIEW (5 hrs)

- _____ 1. Application of math in plumbing
- _____ 2. Problem-solving involving whole numbers
- _____ 3. Problem-solving involving fractions
- _____ 4. Problem-solving involving decimals
- _____ 5. Changing fractions to decimals
- _____ 6. Changing decimals to fractions
- _____ 7. English system of measuring length
- _____ 8. English system of measuring weight
- _____ 9. English system: measuring volume/capacity

- _____ 10. English/metric problem-solving for measuring
- _____ 11. Measuring using tools common to trade
- _____ 12. Metric: ascending & descending powers of ten
- _____ 13. Convert English numbering system to metric
- _____ 14. Convert metric system to English numbering
- _____ 15. Calculate square roots of English numbers
- _____ 16. Problem-solving for geometric problems
- _____ 17. Problem-solving for algebraic problems
- _____ 18. Problem-solving using percentages
- _____ 19. Techniques for interpreting graphs
- _____ 20. Techniques for using a calculator

D. SIZING WATER SUPPLY PIPING (10 hrs)

- _____ 1. Current code for sizing water piping
- _____ 2. Minimum sizes for sanitary drainage/venting

E. WATER SUPPLY PROTECTION (20 hrs)

- _____ 1. Identify listed terms related to topic
- _____ 2. Identify causes of listed items
- _____ 3. Define listed practices/procedures
- _____ 4. Requirements of backflow prevention devices
- _____ 5. Impact of using LEED materials/practices
- _____ 6. Backflow devices w/integral check valves
- _____ 7. Safe Drinking Water Act of 1974
- _____ 8. Current code for potable water supply

F. FIXTURES AND APPLIANCES (40 hrs)

- _____ 1. Fixture/appliance/fixture trim
- _____ 2. Differences between fixture and appliance
- _____ 3. LEED impact on fixtures and appliances
- _____ 4. Function of water closet or toilet
- _____ 5. Water closet components
- _____ 6. General operation of water closets
- _____ 7. Types of water closets
- _____ 8. Effect of Energy Policy Act of 1992

- _____ 9. Use/operation of types of flushing devices
- _____ 10. Features/functions of flushometer valves
- _____ 11. Installation of water closets
- _____ 12. Specification of water closet seats
- _____ 13. Feature/functions of types of urinals
- _____ 14. Installation of urinals
- _____ 15. Feature/function of lavatory faucets/fittings
- _____ 16. Installation of lavatories w/faucets & drains
- _____ 17. Features/functions bathtub types & fittings
- _____ 18. Installation of bathtubs w/faucets & drains
- _____ 19. Function of a shower
- _____ 20. Components of a shower
- _____ 21. Installation of showers w/faucets & drains
- _____ 22. Features/functions of types of kitchen sinks
- _____ 23. Install kitchen sinks w/faucets & drain
- _____ 24. Features/functions of fixtures/appliances
- _____ 25. Installation of fixtures/appliances
- _____ 26. Installation of floor drains and sinks
- _____ 27. Identify drinking fountain/water cooler
- _____ 28. Sanitary features: drinking fountains/coolers
- _____ 29. Install drinking fountains/water coolers
- _____ 30. Feature/function of service sinks/mop basin
- _____ 31. Install service sinks/mop basins w/drains
- _____ 32. Water softener/automatic water softener
- _____ 33. Function of zeolite in water softener
- _____ 34. Water softening process
- _____ 35. Advantages/disadvantages of soft water
- _____ 36. Installation of automatic water softeners
- _____ 37. Features/functions of water filtering systems
- _____ 38. Advantages/disadvantages of water filters
- _____ 39. Installation of water filters
- _____ 40. Features/function of a water heater
- _____ 41. Features of a gas water heater
- _____ 42. Function of a thermocouple
- _____ 43. Features of an electric water heater
- _____ 44. Function of an immersion element
- _____ 45. Danger: superheated steam/water hammer
- _____ 46. Relief valve/ T&P relief valve/arrestor
- _____ 47. Rough-in installation vs. finishing installation
- _____ 48. Current code for plumbing fixtures & fittings
- _____ 49. ADA & its relation to fixtures and appliances
- _____ 50. Specifications for ADA-compliant fixtures
- _____ 51. Current code for disability accommodation

G. TESTING AND INSPECTION (35 hrs)

- _____ 1. Testing sequence for plumbing systems
- _____ 2. Define listed tests & equipment
- _____ 3. Testing various piping/plumbing systems
- _____ 4. Procedure for performing listed tests
- _____ 5. Current code: test water supply/distribution

H. PLUMBING A HOUSE (55 hrs)

- _____ 1. Areas of dwelling that require piping/fixtures
- _____ 2. Define listed terms related to topic
- _____ 3. Obtaining a plumbing permit
- _____ 4. Factors to consider before installing a sewer
- _____ 5. Demo various listed calculations/installations
- _____ 6. Current code for listed piping procedures
- _____ 7. Features/functions of installation steps
- _____ 8. Process of preparing DWV piping
- _____ 9. Layout of fixtures on different floors
- _____ 10. Layout of building drain trench
- _____ 11. Demo installation of building drain
- _____ 12. Current code procedures for sanitary drainage
- _____ 13. Demo various listed installations
- _____ 14. Water supply rough-in for listed fixtures
- _____ 15. Roof jacket installation
- _____ 16. Demo listed water supply distribution piping
- _____ 17. Hydrostatic and final air tests
- _____ 18. Current code procedures for plumbing fixtures
- _____ 19. Final clean up procedures

I. EMPLOYABILITY SKILLS REVIEW (5 hrs)

- _____ 1. Employer requirements in employee
- _____ 2. Potential employers through internet sources
- _____ 3. Electronic social networking in job search
- _____ 4. Finalize sample resumes and cover letters
- _____ 5. Filling out job application legibly/accurately
- _____ 6. Complete sample job application correctly
- _____ 7. Enthusiasm on a job
- _____ 8. Appearance on a job
- _____ 9. Continuous upgrading of job skills
- _____ 10. Customer service to build business
- _____ 11. Demo interview techniques
- _____ 12. Info/materials for a successful interview
- _____ 13. Design sample follow-up letters
- _____ 14. Demo appropriate follow-up procedures

J. ENTREPRENEURIAL SKILLS (4 hrs)

- _____ 1. Define entrepreneurship
- _____ 2. Characteristics of successful entrepreneurs
- _____ 3. Entrepreneurs in plumbing industry
- _____ 4. Purpose and components of a business plan
- _____ 5. Personal goals prior to starting a business
- _____ 6. Money investment in business opportunity
- _____ 7. Licensing requirements in plumbing business
- _____ 8. Scenario: student as business owner
- _____ 9. LEED business practices vs. standard