

DESIGN CHECKLIST

PROJECT NAME _____

DISCIPLINE _____ DATE _____ TYPE REVIEW _____

REVIEWER _____ DRAWINGS REVIEWED _____

EVERY ITEM WILL BE REVIEWED AND NOTED FOR COMPLIANCE (C),
OR NON-APPLICABILITY (NA).

MECHANICAL ENGINEERING – PLUMBING

A. GENERAL

<u>ITEM NO.</u>	<u>CHECK</u>	<u>ITEM</u>
1.	___	Pipe Concealment spaces, furring, or chases are adequately sized and coordinated with Architect.
2.	___	Isometrics riser diagrams are provided for each plumbing and compressed air system, etc.
3.	___	The distance from vent to fixture trap conforms to Design Instructions Manual and the International Plumbing Code.
4.	___	The water heater design data schedule on the plans agrees with the design analysis and that it includes the storage capacity and hourly recovery.
5.	___	An air gap or indirect waste is provided on all food service equipment as required by the International Plumbing Code.
6.	___	Hose faucets around the outside of the facility are provided as required by the Technical Manual for Plumbing. Verify the wall hydrants are not specified when hose faucets are intended.

7. ___ The grades of all drain lines are accurately calculated and that the invert elevations are established and indicated on the drawings.
8. ___ Electrical drawings indicate power to pumps and water heaters. All power characteristics should be shown on mechanical plans.
9. ___ Equipment schedules indicate the necessary units, capacities, types, sizes, special notes, etc.
10. ___ When specifications phrases such as “show on plans” or “as indicated” are used, the requirement is shown on plans.
11. ___ Water hammer arresters for fixtures are provided for groups of about four fixtures instead of at each faucet, control valve, or flush valve except where quick-acting valves are installed. See special note in back of applicable guide specification about when these may be left out.
12. ___ The types and sizes of drinking water dispenses are coordinated with the Architect. Drinking water dispensers are sized in accordance with the Technical Manual for Plumbing and that the type and size are placed in the equipment schedule. Note that the size does not refer to the physical dimensions but to the cooling water capacity. Provide sufficient numbers of water dispensers or coolers to service the needs of the proposed number of building occupants and so that the occupants do not have to travel more than the specified number of feet to reach a dispenser.
13. ___ Water heaters greater than 20 gallons in capacity should have a dual type heating element. Designs having a single heating element and lesser capacity require a tailor-made specification.
14. ___ Under Certain Conditions vacuum relief valves are specified for the cold water connection to electric water heaters. A check valve is unacceptable. Location of relief valves should be in accordance with the International Plumbing Code.

15. ___ Vapor barrier or other protective jacket and the insulation are specified for insulated hot and cold water pipes. Insulation of cold water piping may not be required for some sites if the water temperature is high. A/E should determine whether insulation is needed based on water temperature and ambient air temperature.
16. ___ In buildings taller than two stories or where the total stack height is greater than 35 feet, extra heavy soil pipe, not service weight pipe, is used.
17. ___ Flow diagrams agree with the actual piping and equipment arrangements shown on the plan drawings.
18. ___ Verify that adequate space is available for piping in kitchens and bathrooms.
19. ___ Separate drawings are provided for drain –waste-vent piping, domestic waste piping, and mechanical process piping.
20. ___ Non-potable water is not provided to interior domestic water piping, and food preparation and bathing areas.
21. ___ A complete legend and list of abbreviations for plumbing is provided.
22. ___ Electric heating elements in food warming tables have automatic shutoffs to prevent element failure when low water situations occur.
23. ___ Shop floors slope away from equipment and hydraulic lift shafts and toward floor drains which are adequate in size.
24. ___ Air and water are available for vehicle use external to shops and maintenance bays in order to avoid using the bays for checking water in radiators or air in tires.
25. ___ Water sources and/or waste and water piping should not be located above (or on the floor above) electrical switch gear or transformer rooms.
26. ___ Floor drains are provided in rooms and areas with fire pumps.

27. ___ When applying self closing valves verify that the available minimum water pressure will be capable of closing the valve.
28. ___ In facilities subject to shock, water storage tanks should be provided with a flexible PVC liner in lieu of coatings.
29. ___ Verify that plumbing access panels have been included and specified.
30. ___ Verify that the specifications do not allow the usage of polybutylene piping.
31. ___ The design incorporates seismic requirements based on the seismic zone for the project location.
32. ___ For projects in Qatar, provide a 3-day domestic water storage at each facility for compliance with local Qatari code.

B. SPECIAL NOTES

1. ___ Coordinate plumbing plans with exterior site plans and with exterior utilities.
2. ___ When no central water softening system is available, check water analysis for hardness. If required, provide water softeners in accordance with applicable technical manuals. Coordinate with civil engineer; as appropriate.
3. ___ Check minutes of all conferences to ensure that all comments have been complied with.
4. ___ Check preliminary review comments for compliance.
5. ___ Check to see that the instructions have been complied with in respect to listing Government furnished equipment.
6. ___ Check project criteria for instructions concerning plumbing requirements.

7. _____ For all items, compare specifications to be used with the International Plumbing Code.

C. PROPRIETARY MATERIALS AND EQUIPMENT

INITIAL

_____ To the best of my knowledge, the specifications and drawings do not include any proprietary or sole source materials or equipment except for the following approved items: