

2006 – 2009 IMC Code Review

RBC304.1 CODES ADOPTED BY REFERENCE. There is hereby adopted by reference the International Mechanical Code of the International Code Council, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795, 2003 Edition. Three (3) copies of the Code are now filed in the office of the Clerk of the Jurisdiction and may be inspected during regular business hours. The above Code is being adopted as if set out at length, to include Appendix A, except the following sections which are declared to be inapplicable and are therefore expressly deleted:

1. Chapter 1, Administration
2. Chapter 7, Combustion Air, except Section 701
3. Chapter 13, Fuel Oil Piping and Storage
4. Chapter 14, Solar Systems
5. Appendix B, Recommended Permit Fee Schedule

Rebutal, it is not necessary to delete chapter 7, has been rewritten for 2009. Also need to adopt chapter 14, Solar Systems.

RBC304.3 PRODUCT CONVEYING DUCT. A product conveying duct is ducting used for conveying solid particulates, such as refuse, dust, fumes and smoke; liquid particulate matter, such as spray residue, mists and fogs; vapors, such as vapors from flammable or corrosive liquids; noxious and toxic gases; and air at temperatures exceeding 250°F (121°C).

Rebutal, it is not necessary to amend as a definition. Product conveying is covered under Hazardous Exhaust Systems in section 510 & 511.

RBC304.4 Section 303.3. ~~Exception 3. In the first sentence, delete "Section 703" and replace with "Section 304.6 of the International Fuel Gas Code, 2003 Edition". Delete exceptions 1,2,3 and replace with the following~~ **Exceptions:**

1. Direct-vent appliances installed in accordance with the conditions of its listing and the manufacturer's instructions.
2. Vented room heaters, wall furnaces, vented gas fireplaces, vented gas fireplace heaters and vented decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section 304.5 of the International Fuel Gas Code, 2006 edition.
3. Appliances installed in a room or space that opens only into a bedroom or bathroom, such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an approved self-closing device. All combustion air shall be taken directly from the outdoors in accordance with Section 304.6 of the International Fuel Gas Code, 2006 edition.

Rebutal, this section and the section from the IFGC are not worded the same. This mechanical code section makes reference to any type of fuel fired appliance. Propose deleting this section and replace with the corresponding amended fuel gas section 303.3 Prohibited Locations.

RBC304.5 Section 304.3. Add the following exception:

Exception: Appliances in a dedicated enclosure in which all combustion air is taken directly from the outdoors, in accordance with Section 304.6 of the International Fuel Gas Code, 2006 Edition. Access to this enclosure shall be through a solid door, weather stripped in accordance with the exterior door air leakage requirement of the International Energy Conservation Code and equipped with an approved self-closing device.

Rebutal, it is not necessary to amend this section. This amendment references combustion air and section 304.6 of the IFGC. It is addressed in the IFGC, no need to amend here.

RBC101.301 Section 304.4. Delete this section through 304.4.3.

Rebutal, this section has changed to 304.5 Hydrogen-generating and refueling operations. It is also denoted as being referenced to the IFGC. Not necessary to amend.

RBC101.411 Section 304.8. Add the following exception:

Exception: A floor-mounted doorstop, permanently attached to the building structure, may be used to maintain clearance to a combustible door.

Rebutal, it is necessary to change this amendment to correspond with section (304.9), the new section of the 2009 and keep amendment.

RBC101.4.14 Section 304.9. Equipment and appliances installed at grade level shall be supported on a level concrete slab or other approved materials extending a minimum of 3 inches (76.2 mm) above adjoining grade or shall be suspended a minimum of 6 inches (152.4 mm) above adjoining grade.

Rebutal, this section moves to 304.10 and has been rewritten for 2009. Amendment is not necessary.

RBC101.301 Section 305. Delete title and replace with the following:

SECTION 305 Piping and Appliance Support

Section 305.5. Delete the last sentence and replace with the following:

Protective shield plates shall be a minimum of 0.062 inch (1.6 mm) thick steel and shall cover the area of the pipe where the member is notched or bored.

Rebutal, the end result of this amendment is changing the shield plate coverage to the immediate affected area. The code would extend the coverage 2" above and below. Not necessary to amend for 2".

RBC101.4.14 Section 305.6. Insert a new section as follows:

305.6 Specific Provisions. Appliances and equipment shall be supported by substantial bases or hangers capable of supporting the loads to which they will be subjected as determined by the Commercial Building Code. Stationary equipment shall be fixed in position by substantial means which will prevent its incidental displacement. The restraint shall accommodate both of the vertical and lateral loads including, where applicable, wind, snow and seismic as required by the International Building Code. Piping, electrical conduit, ductwork, vents and the like shall not be used to provide support of restraint or equipment.

Where other portions of this Code or provisions of the International Building Code require non-combustible construction or supports, non-combustible materials shall also be used to meet the requirements of this section.

Rebutal, it is not necessary to insert a code section addressing the installation of equipment that is already discussed by the manufacturer's installation instructions. Should structural components be involved, it would be appropriate for the building plan reviewer and or inspector to address.

RBC101.301 Section 306.1. ~~After the second sentence insert the following:~~Add the following:

Unless otherwise specified, not less than 30 inches (762 mm) in depth, width and height of working space and platform shall be provided to service the appliance.

Rebutal, amendment not required, 2009 rewrite.

RBC304.4 Section 306.1.1. Exception. Delete and replace with the following:

Exception: Replacement appliances or air conditioning cooling coils may be installed in an existing compartment, alcove or room with lesser width and depth when approved by the Building Official and provided that the width and depth are adequate to service or replace the unit and are in compliance with conditions of listing.

Rebutal, this amendment makes reference to the Building Officials provision to make modifications at RBC 104.8. Amendment not needed.

RBC304.5 Section 306.4. ~~Add the following after the exception:~~Add exception 3

3. Access to appliances installed in under floor spaces shall not be through a garage unless the installation complies with Exception 3 of Section 303.3 of the International Mechanical Code, 2006 Edition.

Rebutal, needs to be reworded to correspond with IFGC as follows: Access to appliances in under floor spaces shall not be through a garage unless the access is provided with a solid weather-stripped door equipped with an approved self-closing device, and all combustion air is taken from outdoors.

RBC304.6 Section 307.2.3. ~~Add an exception as follows:~~ Add the following exceptions:

1. Fuel-fired appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.
2. A secondary or auxiliary drain pan is not required for a cooling or evaporative coil located above a non-rated suspended acoustical ceiling.

Rebutal, exception 1 is not needed, 2009 rewrite. Keep #2, add as item #5 and reword as follows:

5. A secondary or auxiliary drain pan is not required on equipment manufactured with primary and secondary drain connections. The equipment secondary drain (overflow) shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage to the primary drain.

RBC101.2.25 Section 401.4.1 Delete the last sentence and replace with the following:

Where a source of contaminant is located within 10 feet (3048 mm) horizontally of an intake opening, such opening shall be located 3 feet (610mm) below the contaminant source.

Rebutal, not needed 2009 rewrite.

RBC101.2.28 Section 403.2.1 Delete item 4.

Rebutal, in most cases the air exchange in these areas are 100%. In the likely hood this situation will occur, 10% recirculation is the maximum allowed. This amendment not necessary.

RBC304.7 Section 403.3. Add the following exception: **LEAVE THESE SECTIONS FOR 2009**

2. Ventilation rates may be calculated in accordance with the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Standard 62-2001, Addendum N when accompanied with the approved ASHRAE spreadsheet.

Rebutal, 2009 rewrite to ASHRAE Standards.

RBC304.7 Table 403.3. Insert a footnote to the end of the table as follows:

- h. For intermittent or variable occupancy, where peak occupancies of less than three (3) hours duration occur, the outdoor airflow rate may be determined on the basis of average occupancy for the spaces for the duration of operation of the system, provided the average occupancy used is not less than one half the maximum.

Rebutal, 2009 rewrite to ASHRAE Standards.

RBC304.8 Table 403.3. Apply footnote "h" to the following occupancy classifications:

Education – Auditoriums^h

Hotels, Motels, Resorts, Dormitories - Assembly rooms^h and Conference rooms^h

Offices - Conference rooms^h and Reception areas^h

Theaters - Lobbies^h and Stages, studios^h

Transportation - Waiting rooms^h

Rebutal, 2009 rewrite to ASHRAE Standards.

RBC304.9 Table 403.3. Delete "20" and replace with "15" under the "outdoor air" column for the following occupancy classifications:

Hotels, Motels, Resorts, Dormitories - Conference rooms

Offices - Conference rooms

Rebutal, 2009 rewrite to ASHRAE Standards.

RBC305 Table 403.3. Insert a new occupancy classification to the beginning of the table as follows:

Churches -

Activities unit ^h	120	15
Worship places ^h	120	15

Rebutal, 2009 rewrite to ASHRAE Standards.

RBC305.1 Section 403.3.2.1. Insert a new section as follows:

403.3.2.1 Enrichment. For multiple spaces served by a common space conditioning system or multiple systems interconnected by a common return air plenum, required outdoor air quantity delivered by the space conditioning system(s) may be determined by the sum of the required outdoor air flows to each space using the full occupant loading in Table 403.3 of the International Mechanical Code, 2003 Edition for each space provided:

1. The total amount of outdoor air delivered by the space conditioning system(s) to all spaces is at least as large as the sum of the space design quantities.
2. Each space always receives supply airflow, including re-circulated air and/or transfer air, no less than the calculated outdoor airflow.
3. When using transfer air, none of the spaces from which air is transferred can have any unusual sources of contaminants.

This section may not be used in conjunction with footnote "h" of Table 403.3 of the International Mechanical Code, 2003 Edition.

Rebutal, 2009 rewrite to ASHRAE Standards.

RBC305.2 Section 403.3.3.1. Insert a new section as follows:

403.3.3.1 outdoor air at any given time may vary from the flow required by Section 403.3 of the International Mechanical Code, 2003 Edition, provided that a CO₂ sensor in the main return air duct, located upstream of the outside air intake and after connection of all air inlets, maintains an indoor concentration of not greater than 800 PPM.

Exception: An engineered system designed to ensure the indoor CO₂ concentration is not greater than 700 PPM above the outdoor CO₂ concentration, provided that the system is equipped with a device to monitor the CO₂ concentration differential. **Sensors.** For constant or variable air volume systems, the flow of

Rebutal, 2009 rewrite to ASHRAE Standards.

RBC305.3 Section 403.3.4. Delete the last sentence and add the following:

Balancing shall be performed by a certified test and balance contractor and verify that the ventilation system is supplying the airflow rates required by Section 403 of the International Mechanical Code, 2003 Edition.

Rebutal, 2009 rewrite changes section to 403.7. Not necessary to amend for certified test & balance contractor. The approved method may be interpreted by the building official.

RBC305.4 Section 403.3.4. Add the following exception:

Exception: Dwelling units

Rebutal, 2009 rewrite changes section to 403.7. Duct design will delete this amendment.

RBC305.5 Section 501.2. Add the following:

Bathroom moisture exhaust ducts shall be insulated with a minimum insulating value of R-6 when located outside the building envelope and be limited to a maximum of 25 feet (7620 mm) in length.

Rebutal, amendment not needed. This is now covered in IECC section 403.2.

RBC101.2.34 Section 501.2.1. Delete items 1,2,3,4 and replace with the following:

1. For ducts conveying explosive or flammable vapors, fumes or dusts: 30 feet (9144mm) from property lines; 10 feet (3048 mm) horizontally from or 3 feet (914mm) above operable openings into buildings; 6 feet (1829mm) from exterior walls and roofs; 30 feet (9144mm) from

- combustible walls and operable openings into buildings which are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.
2. For other product- conveying outlets: 10 feet (3048 mm) from property lines; 3 feet (914mm) from exterior walls and roofs; 10 feet (3048 mm) horizontally from or 3 feet (914mm) above operable openings into buildings; 10 feet (3048 mm) above adjoining grade.
 3. For environmental air duct exhaust 3 feet (914mm) from property lines; 3 feet (914mm) from operable openings into buildings for all occupancies other than Group U.

Rebutal, amending these types of discharges to 3' are life safety issues. Delete amendment.

RBC305.5 Section 504.3. Delete.

Rebutal, is not necessary to delete. Code commentary indicates the connector is adequate as a cleanout.

RBC305.6 Section 504.6.1. Delete and replace with the following:

Maximum Length. The maximum length of a clothes dryer exhaust duct shall not exceed 35 feet (10668 mm) from the dryer location to the outlet terminal. The maximum length of the duct shall be reduced 2 ½ feet (762 mm) for each 45 degree (0.79 rad) bend and 5 feet (1524 mm) for each 90 degree (1.6 rad) bend. The maximum length of the exhaust duct does not include the transition duct.

Rebutal, 2009 rewrite, not needed.

RBC305.7 504.6.4.2 Manufacturer's instructions. The maximum length of the exhaust duct shall be determined by the dryer manufacturer's installation instructions. The code official shall be provided with a copy of the installation instructions for the make and model of the dryer. Where the exhaust duct is to be concealed, the installation instructions shall be provided to the code official prior to the concealment inspection. In the absence of fitting equivalent length calculations from the clothes dryer manufacturer, Table 504.6.4.1 shall be used.

Rebutal, this item was deleted previously. The 2009 rewrite increases the maximum vent length to 35'. Using mfg instructions will put us all over the map on dryer vent lengths. Delete this code section.

RBC305.8 504.6.5 Length identification. Where the exhaust duct is concealed within the building construction, the equivalent length of the exhaust duct shall be identified on a permanent label or tag. The label or tag shall be located within 6 feet (1829 mm) of the exhaust duct connection.

Rebutal, by deleting 504.6.4.2, length identification will not be necessary. Delete this code section.

RBC305.9 Section 506.3.8.1. Delete the first sentence and replace with the following:

Where ductwork exceeds 9 square feet (8,361 cm²) in cross-sectional area, and the least dimension is 36 inches (914.4 mm) or greater, not less than one approved or listed opening have dimensions not less than 20 inches (508 mm) shall be provided in horizontal sections and in the top of vertical risers.

Rebutal, 2009 rewrite, amendment not needed.

RBC303 Section 506.3.10. Delete the last two sentences and replace with the following:

Clearance from the duct to the interior surface of enclosures of noncombustible construction or gypsum wall board attached to noncombustible structures shall be not less than 3 inches (76 mm). The interior dimensions of the duct enclosure shall not be increased more than 6 inches (152 mm) on each side, the duct enclosure shall only serve a single grease exhaust duct system and shall not contain any other ducts, piping, wiring or systems.

Rebutal, 2009 rewrite, amendment not needed.

RBC303.1 Section 506.3.10. Delete Exception 3.

Rebutal, 2009 rewrite, amendment not needed.

RBC303.2 ~~Section 507.2.2.~~ Add an exception as follows:

~~3—Non-grease or smoke producing cooking appliances that do not exceed 20,000 BTU (5,860 W) input.~~

Rebutal, need to reestablish this amendment. It is necessary to regulate countertop cooking appliances in restaurants.

RBC303.2 Section 507.3. Delete and replace with the following:

507.3 Fuel-burning appliances. Vented fuel-burning and vented wood-burning appliances shall not be located in the same room or space with a Type I or Type II hood.

Exception: This section shall not apply to any of the following appliances:

1. Direct vent appliances that obtain all combustion air directly from the outdoors;
2. Fuel -burning appliances provided that the room is not a confined space and the building is not of unusually tight construction; or
3. Fuel-burning appliances installed in a dedicated enclosure in which all combustion air is taken directly from the outdoors, in accordance with Section 304.6 of the International Fuel Gas Code, 2006 Edition. Access to this enclosure shall be through a solid door, weather-stripped in accordance with the exterior door air leakage requirements of the International Energy Conservation Code and equipped with an approved self-closing device.

Rebutal, the 2009 code section discusses the necessity to make provisions for appliances in these areas. Amendment is not necessary.

RBC303.2 Section 507.16. Delete the second sentence and replace with the following:

The test shall be performed by a certified test and balance contractor and verify that the rate of exhaust air flow required by Section 507.13 of the International Mechanical Code, 2006 Edition, makeup airflow required by Section 508 of the International Mechanical Code, 2006 Edition, and proper operations as specified in this chapter. The permit holder or certified test and balance contractor shall furnish the necessary test equipment and device required to perform the tests

Rebutal, it is not necessary to amend and define a test and balance contractor here. This interpretation should be left to the Building Official.

RBC303.3 Section 508.1.1. Delete "10 °F (-12.2 °C)" and replace with "20 °F (-6.6 °C)".

Rebutal, is it necessary to amend for 10 degrees? Will there be much to gain by this amendment? Delete this amendment.

RBC303.5 Section 601.4 Add the following exception after the first paragraph:

Exception: Environmental air exhaust ducts may extend ~~into or~~ through ~~ducts or~~ plenums if they meet one of the following requirements:

1. The exhaust duct is constructed without joints; or
2. The exhaust duct is serving a fan rated at 150 cfm (2,124 L/m) or less.

Rebutal, rewrite and add as exception #2.

RBC303.6 Section 603.6.2. Delete.

Rebutal, not necessary to delete each occurrence for flexible air connectors, 603.6 takes care of this for the entire section.

RBC303.7 Section 603.6.3. Delete the words "and flexible air connectors."

Rebutal, not necessary to delete each occurrence for flexible air connectors, 603.6 takes care of this for the entire section.

RBC303.8 Section 603.6.4. Delete the words "and air connector(s)" in both the heading and the section.

Rebutal, not necessary to delete each occurrence for flexible air connectors, 603.6 takes care of this for the entire section.

RBC303.9 Section 603.12. Add an exception as follows:

Exception: Ducts located within dwelling units.

Rebutal, this amendment is not necessary. Many homes use outside air ducts to supplement combustion air or ventilation. It would be necessary to insulate these ducts for condensate control.

RBC303.10 Section 604.2. Delete "120 °F (48.9 °C)" and replace with "140 °F (60 °C)" in both locations.

Rebutal, amendment not needed. Today's standards for furnace controls do not allow significant heat gains in the heat exchanger before the fan is engaged. Without high temperatures, insulating ducts is not needed for high heat.

RBC303.11 Section 607.7. Delete the words "and air connector(s)" in both the heading and the section.

Rebutal, not necessary to delete each occurrence for flexible air connectors, 603.6 takes care of this for the entire section.

RBC303.12 Section 701. Delete and replace with the following:

701 Scope. The requirement for combustion and dilution air for fuel burning appliances shall be in accordance with Section 304 of the International Fuel Gas Code, 2006 Edition.

Rebutal, 2009 rewrite, not needed.

RBC303.15 Section 918.2. After the last sentence insert the following:

The net free area of return air openings located in an enclosed basement shall not exceed the net free area of all supply openings located in the same space.

Rebutal, this amendment not needed, duct design will regulate.

RBC303.16 Section 1002.1. Delete and replace with the following:

1002.1 General. The regulations of this chapter shall govern the construction, location and installation of water heaters heating potable water, together with all chimneys, vents and their connectors. The minimum capacity for water heaters shall be in accordance with the first hour rating listed in Table 1002.1 below. **The size/capacity of water heaters installed in commercial food processing establishments shall be determined by the El Paso County Health Department.** All design, construction and workmanship shall ~~be in conform with~~ to accepted engineering practices, manufacturer's installation instructions and applicable standards and shall be of such character as to secure the results sought to be obtained by this Code. No water heater shall be hereinafter installed which does not comply in all respects with the type and model of each size thereof approved by the Administrative Authority. The potable water connections and relief valves for all water heaters shall conform to the applicable requirements of Chapter 5 of the **International Plumbing Code, 2006** Edition. All water heaters shall be capable of being removed without first removing a permanent portion of a building structure or other installed equipment and appliances.

Rebutal, the International Codes do not regulate water heater sizing. Because of the change in the Plumbers license to allow water heater installations, we can now adopt the water heater section in the International Plumbing Code.

RBC303.17 Section 1002.5. Insert a new section as follows:

1002.5 Protection from Damage. All water heaters installed in areas where they may be subjected to mechanical damage shall be suitably guarded against damage by being installed behind adequate barriers or by being elevated or located out of the normal path of a vehicle using the garage.

1002.5.1 Support. A water heater supported from the ground shall rest on level concrete or other approved base extending not less than 3 inches (76.2 mm) above the adjoining ground level.

1002.5.2 Pans. When a water heater is located in an attic, attic-ceiling assembly, floor-ceiling assembly, floor- sub-floor assembly, or any wood floor where damage may result from a leaking water heater, a watertight pan of corrosion resistant materials shall be installed beneath the water heater with a minimum 1 ¼" diameter drain to an approved location.

Rebutal, because of the change in the Plumbers license to allow water heater installations, we can now adopt the water heater section in the International Plumbing Code.

RBC303.18 Section 1002.6. Insert a new section as follows:

1002.6. Access and Working Space. Every water heater installation shall be accessible for inspection, repair or replacement, in accordance with this Section and Section 306 of the International Mechanical Code, 2006 Edition. Every attic, roof, mezzanine, or platform more than 8 feet (2,438.4 mm) above the ground or floor level shall be made accessible by a stairway or ladder permanently fastened to the building. This ladder or stairway shall not be more than 18 feet (5,486.4 mm) in length between landings and not less than 14 inches (355.6 mm) in width. The ladder shall have rungs spaced not more than 14 inches (355.6 mm) on center and not less than 6 inches (152.4 mm) from the face of the wall. Each stile is to extend 30 inches (762 mm) above the surface to be reached, or as high as possible, if height is limited. Permanent ladders for water heater access need not be provided at parapets or walls less than 30 inches (762 mm) in height.

Exception: A permanent ladder is not required for water heaters 10 gallons (37.85 L) or less in size, or for water heaters located above a suspended acoustical ceiling when the water heater is supported from the structure above.

Rebutal, because of the change in the Plumbers license to allow water heater installations, we can now adopt the water heater section in the International Plumbing Code

RBC303.19 Section 1004.1. Add the following exception:

Exception: Listed and approved potable water heaters with a nominal capacity of less than 120 gallons (454 L) and having a heat input of less than 200,000 BTU/hr (58,600 W) used for hot water supply at pressure of less than 160 pounds per square inch (1.1 MPa) and at temperatures less than 210° F (98.8° C) as regulated by Section 1002 of the International Mechanical Code, 2003 Edition.

Rebutal, amendment not needed, this code section applies to boilers, not water heaters.

RBC303.2 Section 1006.6. Delete and replace with the following:

Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an air gap located in the same room as the water heater.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the air gap.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to an indirect waste receptor or to the outdoors. Where discharging to the outdoors in areas subject to freezing, discharge piping shall be first piped to an indirect waste receptor through an air gap located in a conditioned area.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Not terminate more than 6 inches (152 mm) above the floor or waste receptor.
11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 of the 2006 IPC, or materials tested, rated and approved for such use in accordance with ASME A112.4.1.

Rebutal, because of the change in the Plumbers license to allow water heater installations, we can now adopt the water heater section in the International Plumbing Code.

RBC303.20 Section 1101.10

Rebutal, this code section requires access to outdoor refrigeration maintenance ports to be fitted with locking caps. This code section will be eliminated for 2012. Propose this section be deleted.

RBC303.21 Section 1109.1. Delete.

Rebutal, this amendment is not needed. The code section gives interpretation to the Code Official.

RBC303.22 Section 1206.11. Add the following exception:

Exception: Piping located within a dwelling unit.

Rebutal, this amendment not needed. The code section applies to condensation for hydronic piping. Should a chiller be used in residential construction, it would be necessary to insulate piping.

RBC303.23 Section 1208.1.1. Delete the second sentence and replace with the following: **Except for a dwelling**, flow and pressure loss testing shall be performed by a certified test and balance contractor and the actual flow rates and pressure drops shall be compared to the calculated design values.

Rebutal, because of the climate conditions in this location, water test media can be difficult. Recommend adding air to the test requirements.

