

Mechanical Inspection Memo

January 2006

The following information is provided as a public service and is intended to update procedures and clarify aspects of the code. This information does not change or replace the Pikes Peak Regional Building Code, adopted as law to provide minimum standards to protect the public health and safety. Reference the adopted Codes for exact standards.

Mechanical

GAS LINE INSTALLATIONS — All gas line installations permitted on or after Nov. 1, 2005 will be inspected to the 2003 International Fuel Gas Code (IFGC). All inspections will assume the system to be designed at a 0.5 inch water column pressure loss. If the gas pipe system is designed at a higher pressure loss, it must be noted at the time the inspection is requested. Due to different minimum operating pressures of appliance gas valves, any gas pipe system designed at or more than 3-inch water column pressure drop will need to be provided with a medium pressure service from the gas purveyor.

GAS SHUT OFF VALVE INSTALLATIONS — Section 409.5, IFGC, as amended by Section RBC305.4.51, 20005 Pikes Peak Regional Building Code (PPRBC), allows gas shut off valves to be installed inside the appliance. Furthermore, Section 411.1.2, IFGC, as amended by Section RBC305.4.56, PPRBC, allows a listed appliance fuel connector to be located inside the appliance.

CLARIFICATION OF SECTIONS RBC304.4.81 AND RBC305.4.103 — The requirements of these code sections apply only to water heaters installed in new construction; it does not apply to water heaters replaced in existing structures. This interpretation is a result of the Mechanical Committee's code workshop and meeting with the Regional Building Official.

RESIDENTIAL INSIDE GAS LINE INSTALLATIONS — As a reminder, inside-gas line installations will begin changing on March 1, 2006 when Colorado Springs Utilities (CSU) initiates the use of new gas riser brackets and meter bars for new home construction. Previously, inside-gas line installations had the pipe stubbed out to the exterior and tested to that point. The new bracket and meter bar will require the gas pipe to be run to the exterior and then extended with elbows and additional piping for proper connection to the meter bar terminal. This will be verified at the time of the RBD inside gas-line inspection. The new bracket and meter bar will eventually be installed on all new residential construction, but may not include all new homes in March. For more information or to ascertain if a specific residential site will receive the new meter, please call Bryan Gagnon of CSU at 668-7308.

PIKES PEAK REGIONAL BUILDING DEPARTMENT

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February 2006

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Mechanical

CONDENSATE DRAIN DISCHARGE — The condensate drain for a 90 percent Category IV furnace is not considered potable water, and therefore may discharge into the drainage system via an air break, (Section 307, 2003 International Mechanical Code and Section 801.6, 2000 Uniform Plumbing Code).

AIR CONDITIONING CONDENSING UNIT REPLACEMENT — When replacing an existing AC condensing unit, a 110 volt outlet is not required to be installed. The outlet is required for installations of new AC condensing units. (2005 National Electrical Code).

WATER HEATER DRAIN PAN — Manufacturers limit the depth of the drain pan in which the water heater is placed. If the depth of the pan exceeds the manufacturer's installation instructions, the water heater must be elevated using water resistive material.

BATH EXHAUSTS — Bathroom moisture exhausts are to be insulated with a minimum of R-6 insulation and limited to a maximum 25 feet in length when located outside of the building envelope (Section RBC304.4.38, 2005 Pikes Peak Regional Building Code). Bath exhausts, located in the attic on top of the bottom chord of roof trusses, are considered as outside the building envelope.

Exception: Bath exhausts covered with batt insulation.

Plumbing

BUILDING DRAIN DIAMETER — All building drains must be a minimum 4 inches in diameter for at least 3 feet inside the structure, (Section RBC306.4.26, 2005 Pikes Peak Regional Building Code).

FLOOR DRAINS FOR FURNACES, BOILERS, WATER HEATERS, BACK-FLOW PREVENTERS — Floor drains are required for these and all equipment that generate liquid by-products, (Section RBC306.4.9, 2005 Pikes Peak Regional Building Code). A floor drain is also required for any furnace located in a crawl space, this new code provision rescinds the Mechanical Committee decision of June 2000.

Exception: A floor drain is not required for a furnace located in an attic because of potential freezing.

DRAIN PIPE & WATER LINE INSTALLATIONS — Waste and water drain pipes cannot be located outside of the structure, (Section 313.6, 2000 Uniform Plumbing Code). "Outside of the structure" is interpreted as being located outside of the building envelope.

Water lines in attics must be installed on the house side of the insulation, (Section 313.6, 2000 Uniform Plumbing Code). These provisions are consistent with the practice of installing washing machine drains and water lines on an outside wall. (*Refer to 2002 Inspection Memo for more information*)

Definitions

BUILDING ENVELOPE — Chapter 2, 2003 International Energy Conservation Code.

BATHROOM — Chapter 2, 2003 International Mechanical Code

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March 2006

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Mechanical

INSULATION SHIELDS — At the Heating Rough Inspection, insulation shields are checked for compliance with Section 502.4, 2003 International Fuel Gas Code (IFGC). The insulation shield requirements include:

- a) Extend at least 2 inches above the attic insulation from which the vent is to be protected;
- b) Be constructed of not less than 26 gage sheet metal; and
- c) Clearance to the insulation complies with the vent manufacturer's instructions for clearance to combustibles.

REPLACEMENT AC CONDENSING UNIT — A 110 volt outlet is not required for replacement of an existing AC condensing unit — it is required for new installations of AC condensing units. (This applies to both residential and commercial occupancy classifications.)

VENTS & INSULATION — Section 502.4, 2003 IFGC, requires an insulation shield ONLY when a vent passes through an insulated assembly that is interpreted as the building envelope as defined by the 2003 IECC. When a vent passes through a floor/floor level, a sheet metal pan/flashing of no less than 26 gage is required. The pan/flashing must begin within 1/16 inch of the vent and extend horizontally beyond the hole in the floor.

WATER HEATER DRAIN PAN — The requirement for water heater pans only applies to new construction. Replacement of an existing water heater does not require a pan to drain to an approved location unless the manufacturer's installation instructions state that requirement. (Also see Jan. 18 notes: The requirement of Sections RBC304.4.81 and RBC305.4.103, 2005 PPRBC, applies only to water heaters installed in new construction; it does not apply to water heaters replaced in existing structures. This interpretation is a result of the Mechanical Committee's code workshop and meeting with the Regional Building Official.)

WATER HEATER REPLACEMENT IN CRAWL SPACE — If a full height water heater is used to replace an existing "stubby" or "low boy" in a crawl space, a pit is required and must conform to Section 303.7, 2003 International Fuel Gas Code.

Plumbing

VENT CONNECTIONS — Vents may be connected to the vertical stub of a water closet below the closet flange through a wye or wye-1/8 bend combination fitting. Note:

- Dry vents must rise vertically to 6 inches above the flood level rim of the water closet before a horizontal offset.
- Wet Vents must comply with standard wet venting rule.

WET VENTING — Checked for compliance with Section 908, 2000 UPC, as amended by RBC306.4.35 - RBC306.4.37, 2005 Pikes Peak Regional Building Code.

WATER HEATER REPLACEMENT IN CRAWL SPACE — A floor drain/sump is required per Section RBC306.4.9, 2005 Pikes Peak Regional Building Code.

WELD-ON 794 CEMENT — Weld-On 794 cement is used at the transition from the building drain to the building sewer when one system is ABS and other is PVC. It is not to be indiscriminately used as a universal type of glue for joining dissimilar materials.

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Mechanical

HEATED VERSUS UNHEATED STORAGE ROOM— Any finished room more than 70 square feet is considered as “habitable” by the Building Inspection Division even if the room is labeled “storage” on plans. Habitable rooms must be provided with heat and ventilation per Sections 309.1 and 401.2 of the 2003 International Mechanical, respectively.

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Mechanical & Plumbing Inspection Memo

May 2006

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Mechanical

B VENT & DIRECT VENT PIPING TO FIREPLACES — Dented or creased B Vent piping may be damaged enough to void its listing, therefore requiring its replacement. Yet, similar type of damage to a direct vent pipe may not cause it to malfunction because of increased spacing around the interior vent liner.

BOILER, LOW WATER CUTOFF DEVICE — A low water cut off device is required for all boilers, residential and commercial use, (Section 1007.1, 2003 International Mechanical Code (IMC) as amended by Section RBC304.4.86, 2005 Pikes Peak Regional Building Code (PPRBC). EXCEPTION: Tube type boilers with a flow switch in R-3 occupancies (single family home).

CRIMP JOINTS IN RESIDENTIAL ROUND METAL DUCTS — Three screws evenly spaced are required for crimp joints in residential round metal ducts; refer to SMACNA HVAC Duct Constructor Standards under Section 603.9, 2003 IMC.

GAS PRESSURE REGULATORS — Gas pressure regulators serving medium to low pressure do not have to be installed when performing the required pressure test associated with the inside or outside gas inspections per Section 406.3.3, 2003 International Fuel Gas Code (IFGC). Installations of the regulators are verified at final inspection as well as checking for leaks, (Section 406.5.1, 2003 IFGC)

GAS PRESSURE TESTS FOR SYSTEMS — The test is 10# for 15 minutes for systems of 14 inches of water column and less. The test is 60# for 30 minutes for systems greater than 14 inches of water column. Refer to Section RBC305.4.48, 2005 PPRBC.

HEATED VERSUS UNHEATED STORAGE ROOM—Any finished room more than 70 square feet is considered as "habitable" by the Building Inspection Division even if the room is labeled "storage" on plans. Habitable rooms must be provided with heat and ventilation. Refer to Sections 309.1 and 401.2, 2003 IMC, respectively.

HYDRONIC PIPING INSULATION — Insulation for hydronic piping, at temperatures greater than 125 degrees, is required only in the equipment room per Section 503.3.3.1, 2003 International Energy Conservation Code as amended by Section RBC308.4.16, 2005 PPRBC.

MASONRY CHIMNEY LINING — All masonry chimneys are to be properly lined unless serving two or more draft hood appliances only, (Section 503.5.3, 2003 IMC as amended by Section RBC305.4.66, 2005 PPRBC).

REFRIGERATION PIPING PRESSURE TEST — The minimum pressure test for field erected refrigeration piping must be based on the lower side of the condensing unit, (Section 1108.1, 2003 IMC). If no condenser is installed in a residential system "rough," the test pressure must be 300#.

RETURN AIR OPENING LOCATION — Return air openings must be a minimum of 10 feet away from a gas burning appliance, and applies to all installations, (Section 618.5, 2003 IFGC as amended by Section RBC305.4.100, 2003 PPRBC).

RETURN AIR OPENING NET FREE AREA — Net free area of return air openings located in an enclosed basement cannot exceed the net free area of all supply airs in the same place, applicable to all installations, (Section 618.2, 2003 IFGC as amended by Section RBC305.4.99, PPRBC. EXCEPTION: Duct systems designed in accordance with ACCA Manual D.

VENT PIPE JOINTS FOR CATEGORY IV APPLIANCE — ABS, PVC or CPVC vent pipe joints serving a category IV appliance must be installed per the manufacturer's instructions, (Section 503.3, 2003 IFGC). Inspection of the installation of the vent system is to verify joint integrity.

New Products in Mechanical Division

GASTITE COUPLER FITTING — Gastite Division has a new IAPMO listed coupler fitting for use on underground polyethylene gas piping. This fitting uses a stab-lok installation without the fusion weld process, and is approved in this jurisdiction.

FLUE SENTINEL ELECTRONIC DAMPER — Flue Sentinel Inc. has a new CSA listed electronic damper that is used in a gas log fireplace vent installation, it is approved for use in this jurisdiction.

Plumbing

CLEANOUTS, RESIDENTIAL — Because residential end-of-line cleanouts are rarely used when drain cleaning is required, only the 3" stacks are now required to have accessible cleanouts. The cap/plug access to the drain line must reside within the wall thickness — not behind the wall. Cleanouts that are required to be accessible are to be noted in the inspection report at the time of the Plumbing Top Out (PTO) inspection.

DISHWASHER HOOKUP TO INLET OF GARBAGE DISPOSAL — It is not regulated under the Uniform Plumbing Code, and therefore considered acceptable. Note: An approved air gap fitting is necessary prior to connection, see Section 807.4, 2000 Uniform Plumbing Code (UPC).

DRAINS/RECEPTORS SIZING — The Mechanical Committee reviewed the issue of floor drains or floor sinks to accommodate multiple appliances that have a condensate or overflow drain which requires indirect waste receptors. Contractors are to provide adequate sized drains/receptors in compliance with Section 413.10, 2000 UPC.

Note: Shallow floor drains with large area grates are available and reasonably priced. The grates are screwed to the bowl and can be drilled to provide access for indirectly drained appliances with minimal chance of floor damage by spillage (acceptable as a receptor), and having sufficient remaining area to allow the receiver to be considered a floor drain.

FLOOR DRAINS — Floor drains are to be suitably flanged to provide a water tight seal to the floor, Section 412.1, 2000 UPC. This code provision will be checked at the final inspection.

FOOT BATHS — Foot baths must meet backflow prevention requirements of Sections 603.3.5, 603.4.7 and 603.4.8, 2000 UPC.

PLUMBING BASE INSPECTION CLARIFICATION — The plumbing base inspection technically starts from 2 feet outside the building to the interior per code. RBD inspects to the 2000 UPC as amended by the 2005 Pikes Peak Regional Building Code. Utility providers serving jurisdictions in El Paso County have received clarification that RBD's inspection procedures have not changed.

SHOWER HEAD & LOCATION CLARIFICATION — Shower heads that spray straight down, do not spray at doors. Angle shower heads can be turned so that bathers can adjust the water flow without entering the spray, therefore protecting themselves from potential scalding. For more information, please refer to Section 412.11, 2000 UPC.

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June 2006

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Plumbing

WASTE PIPING BENEATH FIXTURES — The use of 20 gauge brass is acceptable for continuous waste piping under fixtures per Section 405.3, 2000 Uniform Plumbing Code (UPC).

WASTE RECEPTORS — When utilizing indirect waste receptors as the termination point for a pumped fixture, refer to Section 702 and Table 704, 2000 UPC. The receptor must be properly sized to handle the load. When using direct connect, use two (2) fixture units per gallons per minute (gpm) as stated in the paragraph beneath Table 704

TOILET CLEARANCE — When measuring the 2 feet clearance from the front of a toilet, there must be a 2 feet vertical column at the front of the toilet. For example, the lavatory of a powder room cannot intrude into this measured spaced. Refer to Section 408.6, UPC 2000.

CLEANOUTS UNDER FLOOR — Under floor cleanouts must be within 20' of access per Section 707.10 UPC 2000, so cleanouts must be within 20' of the crawl space access.

NON-POTABLE WATER LABEL — Non-potable water must be labeled per Section 601.2.2, 2000 UPC.

New Products in Plumbing Inspection Division

BRASSCRAFT BWB SERIES WATER HEATER CONNECTORS — BrassCraft “BWB Speedi Plumb Plus Engineered Polymer Braid” series of water heater connectors to the water supply are designed certified to ANSI/ASME A112.18.6 standard and UL listed, and approved for use in this jurisdiction.

Mechanical

No inspection, code or new product information this month.

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Mechanical

BATH EXHAUST TERMINATIONS — The Mechanical Committee amended and placed on the Consent Calendar variance requests to allow a bathroom fan to terminate within 36" but not less than 1" of an opening into a single family residence, Section 502.7.3.6, #3, 2003 International Mechanical Code (IMC).

CRAWL SPACE VENTILATION — Per Section 406.1, 2003 IMC, when ventilated by mechanical means, the supply air openings in such spaces must have a means to balance air and the opening be fixed to deliver the correct cfm. Return openings located in this space maybe equal to the supply, or provide a return air path.

GAS PIPE LABELING FOR MEDIUM & HIGH PRESSURE SYSTEMS — All medium and high pressure gas piping systems shall be plainly marked every six feet by a permanent label with the words "Medium Pressure Fuel Gas" or "High Pressure Fuel Gas", accordingly. Please refer to Section 401.5, 2003 International Fuel Gas Code (IFGC) as amended by the 2005 Pikes Peak Regional Building Code (PPRBC).

GAS PIPING UNDERGROUND — The Mechanical Committee approved as an alternative method for underground gas piping: Underground gas piping installed in a conduit with both ends terminating inside the building and unsealed.

PIPING SUPPORTS — Piping supports or installations causing galvanic reaction are unacceptable, Section 305.2, 2003 IMC.

REGISTERS, GRILLS & DIFFUSERS WITH BALANCING DAMPERS — Are not required at the mechanical final inspection.

RETURN AIR OPENING — Return air openings cannot be within 10 feet of a firebox or draft hood, 2003 IFGC Section 618.5, Exception: Buildings constructed prior to Nov. 1, 2005. See also Section RBC305.4.100, 2005 PPRBC.

RINNAI TANKLESS WATER HEATERS — The Mechanical Committee approved as an alternate method and material: Rinnai tank-less water heaters without the installation of a pressure relief valve due to IAPMO testing.

Plumbing

FLOOR DRAINS — Floor drains need to be visible for inspection per Section 1006, 2000 UPC, including floor drains under clothes washers. Floor drains must be within 10 feet of a furnace per RBC413.10. It is the responsibility of the plumbing contractor to install a functioning floor drain even in crawl spaces, and to make certain the piping has sufficient fall and is properly located.

DRAIN DIAMETER — The first 3' of a building drain inside the building needs to be 4" in diameter per RBC306.4.25, 2005 PPRBC. This is not in conflict with Section 904.1, UPC 2000, that requires the vent to be sized according to the required building drain size per Table 7-5.

AIR ADMITTANCE VALVES — Air admittance valves on remotely located basement bar sinks are acceptable per RBC306.4.34, 2005 PPRBC. "Remotely located" does not apply to new construction because every fixture (other than the kitchen sink which has its own special exemption) can be properly vented through the roof as the house is being built.

PTO INSPECTIONS & TESTING OF TUB TRAPS & DRAINAGE FITTINGS — Tub traps and drainage fittings used for the waste and overflows are included in the testing process at the PTO inspection if the tub is installed. Tubs are expected to be installed at the time of the PTO Inspection unless they are very expensive or on back order.

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August 2006

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Mechanical

LOCATION OF OUTSIDE AIR INTAKE OPENINGS — When addressing “Intake openings for outside air”, there is no distinction between ventilation and combustion. Outdoor air intake openings must be located a minimum of 10’ from any hazardous or noxious contaminant, (Section 401.5.1, 2003 IMC).

RESIDENTIAL AIR DUCT EXHAUST OPENINGS — Not considered hazardous or toxic are bath and dryer exhaust for group R-3 (includes single family dwelling). Bath and dryer exhaust is considered environmental exhaust, and code allows the air duct exhaust openings to be located 3 feet from an opening into the residential structure, (Section 502.7.3.6, 2003 IMC, item #3).

RESIDENTIAL GARAGE HEAT LOSS CALCULATIONS — Heat loss and design calculations are not required for a residential garage if it is not designed primarily for human occupancy and does not fit in the classifications in Section 101.2 of the 2003 International Energy Conservation Code.

GAS PIPE LABELING — Labeling is required for lines delivering elevated pressure. In addition to the product labeling, flexible stainless steel piping should be labeled as CSST, TRAC PIPE, etc.

DUCT PENETRATIONS IN RESIDENTIAL GARAGE — Ducts, which penetrate the walls or ceiling that separate the garage from the dwelling, do not have to be fire dampered or enclosed in a shaft if the duct construction is minimum 26 gage and there are duct no openings in the garage area. This applies only to single family dwellings. (Section R309.1.1 of the 2003 International Residential Code).

Plumbing

CONTRACTOR NOTICE REGARDING NOTCHES AND BORES IN BEAMS & STUDS — Notching and boring in bearing beams and studs in violation of the Code, and have been noticed by inspectors after the framing inspection. Inspections may not pass if there is evidence of piping holes that are too large relative to the dimension of the material penetrated and/or in 2x4 bearing studs. In addition, the Code does not allow drain waste and vent piping to penetrate any bearing 2x4 construction. Code accepts 1 ½” and 2” diameter piping only when FHA straps are used to support the 2x4 in non-bearing wall situations.

COMMERCIAL KITCHEN REQUIREMENTS BY DEPARTMENTS —

El Paso County Health Department is responsible for ensuring that all the correct appliances are contained in the commercial kitchen. In addition, the health department requires interior grease traps to be flush with the floor and sealed. Water heater sizing is determined by the health department.

Colorado Springs Utilities (CSU) is responsible for determining the type and size of grease traps/interceptors needed. Per CSU, all plumbing fixtures within the kitchen area and any fixtures potentially used as kitchen equipment (i.e. hand sinks adjacent to the kitchen) must drain through the proper traps /interceptors. Any trap/interceptor must be at least 25’ from the last plumbing fixture.

Pikes Peak Regional Building Department is responsible for verifying proper installation and connection to the correct drain lines of piping for fixtures required by the County Health Department. In addition, RBD is responsible for verification of properly sized water piping.

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Plumbing

PEX WATER PIPE EMBEDMENT — Requirements:

PEX tubing is laid in a “snake” formation on the bottom of a flat trench that is without hollows, lumps or rocks greater than 1/2 inch. (To meet this requirement, 6” of backfill material may be necessary.) The trench must be deep enough so that the pipe is buried at least 5 feet beneath ground soil. Because the pipe is plastic, it must be buried with 18 gauge wire in order to locate the pipe in future years.

The trench will have a minimum depth of 6” backfill over the pipe. Sand or gravel smaller than 1/2” in size is acceptable for backfill and embedment materials. Unacceptable are clay, silt and organic materials.

Pipe must be pressurized to 50# or normal operating pressure during embedment and until inspection is complete.

Manufacturer approved fittings are acceptable for underground use unless the trench contains acidic or chemically contaminated soil.

Installation meets the manufacturer's instructions.

SHARKBITE FITTINGS — The Mechanical Committee approved “Sharkbite” fittings as an alternate method and material to comply with Section 606, 2000 UPC. Sharkbite fittings are IAPMO listed and acceptable when installed underground, beneath concrete, and in locations that are not readily visible. If embedded in concrete, the fitting needs to be wrapped with non-acidic materials to prevent degradation from contact with the concrete.

SUB DRAINS INTO EJECTOR PITS/PUMPS — The Mechanical Committee approved sub drains into ejector pits/pumps as part of the base plumbing, and can have unvented floor drains connected to them.

THERMOSTATIC OR PRESSURE BALANCING TUB/SHOWER VALVES — Temperature sensing devices attached to shower arms before the shower head are not approved for use as thermostatic or pressure balancing tub/shower or shower valves as required by Section 420, 2000 Uniform Plumbing Code (UPC).

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September 2006

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Mechanical

ATTIC FURNACE/AIR HANDLER INSPECTIONS — A means of access (ladder) is required for inspections of new and replacement attic furnace/air handler installations in compliance with Section RBC109.2, 2005 Pikes Peak Regional Building Code. (This includes final inspections.)

BATH EXHAUST DUCTS — Basement finish bath exhaust ducts may be installed by the general contractor.

DRAIN LINES TERMINATING AT FLOOR DRAIN — When terminating at a floor drain, the drain lines (condensate or equipment) are situated so that the effluent will flow onto the strainer. This may be accomplished by zip tying the drain line to the edge of the strainer without damaging or impairing its function.

DRYER VENT & BATH EXHAUST DUCT ROOF TERMINATIONS — These terminations will now be inspected to comply with the manufacturers' installation instructions for the roof cap. The change to follow manufacturers instructions will affect the penetration hole size, length of duct above the roof line, and discontinued use of sealant at the roof deck.

HRR INSPECTION CLARIFICATION — The Heating Residential Rough (HRR) inspection does not include the insulation envelope. The HRR inspection includes duct work designed to be external of the insulation envelope, and must be insulated at the time of this inspection.

RETURN AIR PLENUMS — Materials exposed within plenums such as electrical wiring ordinarily require 25/50 rated materials (refer to Section 602.2.1, 2003 International Mechanical Code). Because the code has exempted one and two family dwellings, wiring in plenums in these residential occupancies will be handled by the Electrical Inspection Division.

RETURN AIR IN RESIDENTIAL BASEMENT — In a residential basement, return air:

Cannot be within 10' of the firebox or draft diverter of a gas-fired appliance per Section RBC305.4.100, 2005 Pikes Peak Regional Building Code, (EXCEPTION: Basements constructed before November 1, 2005);

Cannot be greater than the square inches of supply air delivered to a finished or unfinished basement per Section RBC305.4.99, 2005 PPRBC;

Is not required in unfinished basements;

If return air is not installed in a finished basement, then it should be provided with a path of low resistance in size equivalent to 200 square inches, (RBD Mechanical Division interpretation of codes).

WATER HEATER INSPECTIONS — In new construction, the Mechanical Inspection Division inspects the gas and vent piping; (the plumbing work is inspected by the Plumbing Inspection Division). Replacement water heaters are solely inspected by the Mechanical Inspection Division, including the relief drain termination installed with a minimum 1" air gap.

Plumbing

FLOOR DRAIN STRAINER — In floor drain strainers, the total area of the holes should equal the cross-sectional area of the tailpiece served by the strainer per Section 412.1, 2003 Uniform Plumbing Code (UPC). This requirement also applies to concrete floors where several devices may have drain pipes, but they should not block this required area.

INDIRECT WASTE RECEPTORS — It will be noted on the plans when accessible indirect waste receptors are required to comply with Sections 804 and 1006, 2000 Uniform Plumbing Code. As a reminder, indirect waste receptors must be visible and accessible.

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Plumbing

HOLES IN METAL STUDS — Holes in metal studs can have a maximum width of 1.5 “ in weight bearing situations. This effectively precludes any drainage piping passing through metal studs. Non-bearing studs can have holes up to 3.25 “ wide as long as the two metal outside bands are left intact. Nail protection is still required whenever piping is within 1” of the stud surface.

INSULATION IN GARAGE CEILINGS — At the plumbing top out inspection, inspectors will verify 4" clearance to sheetrock for insulation in garage ceilings to provide proper freeze protection for plumbing piping.

PRESSURE RELIEF VALVE IN LIEU OF EXPANSION TANK — When a valve with pressure relieving capacity is installed in lieu of an expansion tank, the drain line may be terminated per the valve’s listing into the water heater pan (if used) provided that the water heater is supported by bricks or other materials unaffected by water and above the outlet height of the pan drain. This will prevent corrosion of the legs or bottom of the water heater. This pan is not an approved disposal location for other condensates or drainages.

T & P DRAIN MATERIALS — Materials are restricted to galvanized steel, hard drawn copper, CPVC or other listed relief drain tube per Section 608.5, 2003 UPC.

T & P FREEZE PROTECTION & DRAINAGE — The T & P is to be protected from potential freezing which would make it inoperable per Sections 603.3.8 and 608.5, 2003 UPC. However, the option in Section 608.5 that allows the T & P to drain to the outside is not viable. The “other approved locations” include:

Concrete floors within 10 feet of a floor drain or floor sink;

Directly over a floor drain or floor sink (within 10 feet and in the same room if new construction);

Into a water heater pan which allows for disposal;

Into a sump pit with 3.2 gpm pump as an acceptable alternate method and material for existing construction (not an option for new construction).

NOTE: The T & P terminates into its receiver via an approved air gap of at least two diameters of the T & P drain size.

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Mechanical

GAS PURVEYOR METER SETS & POLICIES

Meter Banks — Grouped meters that each serve a unit in a building (apartment buildings). A brass tag must be affixed to the fuel gas pipe indicating the address served. These must be in place before releasing the gas meter set to the gas purveyor. In addition, meter bank installations must be verified for gas delivery to each unit by the gas purveyor before the inspection is considered complete.

Multiple Meters — Individual meter that serves a unit and is not grouped with other meters (condominium or tenant finishes). A brass tag must be affixed to the fuel gas pipe that indicates the address served, and must be in place before releasing the gas meter set to the gas purveyor.

GAS FIRED APPLIANCE LOCATIONS — Section 303.3, Exception 2, 2003 International Mechanical Code (IMC), is amended by 2005 Pikes Peak Regional Building Code, to allow gas-fired appliances to be installed in locations when the criteria for an “unconfined space” is met. “Unconfined Space” is defined in Chapter 2 of the 2003 IMC.

WATER HEATER INSTALLATIONS IN NEW CONSTRUCTION — If you have incurred problems of water heater thefts, you may call Jim Vernon, RBD Mechanical Field Inspections Supervisor, to request approval for a rough inspection without the water heater installation. Approval is required prior to the rough inspection.

Plumbing

PROTECTION OF WATER LINES THROUGH CONCRETE WALLS — Waterlines through concrete walls must be encased in a minimum of 1.25 inch diameter sleeves. The sleeve can be 1.25 inch Armaflex or similar insulation with the interior hole to accommodate 3/4 inch ID water pipe centered in the material. However, where the pipe rests on concrete, it is unacceptable for the sleeve to consist only of caulk or foam. To protect the piping from concrete, there is to be a minimum of 1/4 inch annular cushion around the pipe for the entire depth of the wall. In addition, the hole in the concrete is to be smooth to avoid pipe damage and potential corrosion.

TRAP GUARD PRIMER DEVICE — Trap Guard primer devices, manufactured by ProSet Systems Inc., have been recommended by the Mechanical Committee as an acceptable alternate method and material for trap primers. This recommendation was approved by Board of Review on Oct. 18, 2006.

Mechanical & Plumbing Inspection Memo

November - December 2006

The following information is provided as a public service and is intended to update procedures and clarify aspects of the code. This information does not change or replace the Pikes Peak Regional Building Code, adopted as law to provide minimum standards to protect the public health and safety. Reference the adopted Codes for exact standards.

Mechanical

COMBUSTION AIR FOR APPLIANCES IN PROHIBITED LOCATIONS — Exceptions are deleted Section 303.3, 2003 International Fuel Gas Code (IFGC), are replaced with Section RBC303.4.5, 2005 Pikes Peak Regional Building Code (PPRBC), that states:

Exceptions. Appliances may be located in the areas listed above provided they comply with the following conditions:

1. Direct vent appliances;
2. Vented fuel gas-fired appliances, provided that the room meets the required volume criteria of Section 304.5, 2003 IFGC;
3. Appliances installed in a dedicated enclosure in which all combustion air taken directly from the outdoors in accordance with Section 304.6, 2003 IFGC. Access to the enclosure shall be through a solid door, weather stripped in accordance with the exterior door air leakage requires of the International Energy Conservation Code (IECC) and equipped with an approved self-closing device.

Exception 2 references rooms communicating directly with the space in which the appliances are installed - including openings that are furnished with doors, and combustion air openings sized and located in compliance with Section 304.5.3 (transfer grilles). Therefore, Section RBC303.4.5 allows gas-fired appliance to obtain combustion air from spaces prohibited under Section 303.3, 2003 IFGC. In addition, the Mechanical Committee determined that transfer air grilles cannot be used, and that the acceptable options are use of louvered doors or no doors at all.

CHIMNEY LINERS — This is a code interpretation of Section 503.5.3, 2003 International Fuel Gas Code, as amended by Section RBC305.4.66, 2005 Pikes Peak Regional Building Code. When a listed chimney liner cannot be installed at a close radius right angle, a B vent elbow may need to be installed to transition the liner at the entry to the chimney. If the liner instructions are on site and a B vent transition has been installed, RBD does not require an additional external liner identification label.

CRAWL SPACE VENTILATION — R408, 2003 International Residential Code (IRC), allows the following methods for crawl space ventilation:

- a) Ventilate the space naturally with outside air per Section R408.2, (also see Section 406, 2003 IMC);
- b) Ventilate the space mechanically with outside air per Section R408.2, Exception 2;
- c) Condition the space through fixed openings connected directly to a conditioned space per Section 408.2, Exception 1;
- d) Condition the space mechanically with conditioned air per Section 408.2, Exceptions 3 & 5.*

*Code interpretation: This can be accomplished with a supply air duct and return air path/duct both located in the space. Because the Code neither implies nor specifies the arrangement of the duct openings, there is no requirement for a distinct separation between the supply and return air openings. However, the amount of air supplied to the space needs to be controlled by a damper, register or by design.

TEMPORARY GAS LINES & RELATED EQUIPMENT — Temporary gas lines and equipment are not considered as “portable equipment and fuel sources” which are exempt from permits and inspections per RBC105.2.1, 2005 Pikes Peak Regional Building Code. Because temporary gas lines and related equipment (usually leased) are not exempt and cannot be assumed to be in safe condition, these installations are viewed the same as a permanent installations.

Code interpretation: A permit and inspections are required for temporary installations of gas lines and equipment in the same manner as permanent installations. Temporary gas lines are subject to appropriate testing under Section 406, 2003 International Fuel Gas Code, and will include 10 lbs for low pressure and 60 lbs for medium pressure. The temporary heating equipment are also checked for flame safety devices.

Plumbing

WATER HEATER EXPANSION TANK/PRESSURE RELIEF DEVICE — If the expansion tank or pressure relief device was part of the original installation, it should be maintained. The tank or device is required at the time of inspection for any water heater designated as “commercial” and with storage capacity greater than two gallons. Commercial is defined as a water heater installed to service any occupancy other than a single family dwelling (R-3), this includes “point of use” water heaters. Refer to Section 608.3, 2000 Uniform Plumbing Code.