Memorandum

To: Maureen Guttman, Chair **Date:** 3/29/18
Pennsylvania U.C.C. Review and Advisory Council

From: John E. Kampmeyer, Subcommittee Chair
International Residential Code - Plumbing

Re: Subcommittee Recommendation

Madam Chair,

As Chair of the International IRC - Plumbing Code review subcommittee, I respectfully pass along the subcommittee's recommendation as follows.

There were seven proposed changes to the IRC - Plumbing which the subcommittee reviewed as follows.

1. Modify P2502 -

Under "minor additions, alterations, renovations and repairs…" include a clarification statement that "such work does not require that the existing building sewers be internally examined." In large commercial buildings, such "minor" work is an ongoing activity.

The proponent indicated the wrong code since he referenced the IPC and the section is in the IRC plumbing section. It does not appear in the IPC. His comment is concerning large building systems which are not referenced in the IRC.

The section P2502.2 in the IRC is *Additions, alterations or repairs*. The section referred to by the proponent, *Minor additions, alterations, renovations and repairs* is P2502.1. This section only applies where the entire sanitary drainage system of an existing building is replaced. The subcommittee's opinion is that this extensive work is being performed, internal examination of the existing underground and under concrete building drains and sewers is warranted.

The Sub-Committee was unanimous to reject

RECOMMENDATION - REJECT

2. Do Not Adopt P2502.1

This code section limits the inspection of existing plumbing to one option. In addition, it requires verification of items that are difficult or impossible to address by the method required. By eliminating other options this change will generate costs not necessary to incur.

This section only applies where the entire sanitary drainage system of an existing building is replaced. The subcommittee's opinion is that this extensive work is being performed, internal examination of the existing underground and under concrete building drains and sewers is warranted.
Unfortunately the proposer did not propose other methods for verifying the viability of the underground mains that the subcommittee could evaluate.

The Sub-Committee was unanimous to reject

RECOMMENDATION - REJECT

3. Do Not Adopt P3005.2.5

This code section introduces access requirements similar to electrical service equipment. While electric equipment requires access for control , repair and modification, Cleanouts possess no similar need. In addition, electrical equipment is general grouped in utility areas the same cannot be said for cleanouts. Cleanouts are located at the base of stacks and at the ends of long horizontal runs. By requiring clearance for cleanouts restrooms kitchens and basements may require redesigning or additional space.

The reference to code section, P3005.2.5, Cleanout size, is the wrong code section reference based on the detailed description noted on the recommendation form. The correct sections would be P3005.2.9, Required clearance and P3005.2.10 , Cleanout access. There is not a significant change for clearances when it comes to Residential applications. The 2009 IRC states the minimum clearance in front of cleanouts shall be 18" on 3" and larger pipes. The 2015 IRC has the same clearance requirements, however, the change is for 3" and smaller piping which goes from 12" to 18" which is not significant. . The minimum 36" clearance added in the 2015 IRC is for 8" and larger piping that would not become an issue in one and two-family dwellings and townhouses.

The Sub-Committee was unanimous to reject

RECOMMENDATION - REJECT

4. Do Not Adopt P3201.2

This code section adds several options for assuring trap seals. However, it does not allow a common and inexpensive local method. By adding condensate to floor drains no water or expense is incurred. In addition, the use of deep seal traps is not included.

The proponent indicates this limits the methods and proposes that condensate should be added for use in priming traps. The committee agreed that there is no assurance that condensate is always available for priming traps. It will depend on the source of the condensate. Air conditioner condensate is only available at certain times of the year for example.

The Sub-Committee was unanimous to reject

RECOMMENDATION - REJECT

5. Do Not Adopt P3201.4

This code section prohibits house traps. While the need for house traps is not well understood, many local sanitary authorities require them. Allegheny County has been given permission to require these traps and many local plumbers and designers include them.

The following is the section from the 2009 IPC..

P3201.4 Building traps. Building traps shall not be installed, except in special cases where sewer gases are extremely corrosive or noxious, as directed by the building official.

The concern has been that building (house) traps have been an obstruction to flow. The reasoning given for the 2009 edition was as follows:

Reason: This revised language was approved for the 2009 IPC. The only remaining purpose identified for the installation of a building trap is to keep rats out of the building. However, super rats can swim through the building trap. Hence, the building trap serves no useful purpose. The problem with building traps is that they create a major obstruction to the flow of sewage. As a result, they often cause stoppages. Since the 1960's, it has been recognized that building traps should be eliminated. The code needs to recognize this by deleting the wording requested by certain major cities. These cities should eliminate their requirements for building traps since they are an obstruction to the flow.

According to the Act 36, A modification shall meet or exceed the standards of the section in effect or being reviewed and shall be within the standards under review. If this proposal is accepted, the language would revert back to the 2009 edition which still prohibits them except where local conditions are extremely corrosive which is basically the same as the 2015 code.

The Sub-Committee was unanimous to reject

RECOMMENDATION - REJECT

6. Do Not Adopt P2502.3

The testing of plastic DWV piping systems with air is a viable method for cold climates and in areas where water sources are not readily available. Considering the long history that has been established of using air to test DWV systems in the IRC. The air testing of DWV systems should continue to be permitted per section 2503.5.1 of the 2009 IRC.

The 2009 Edition allowed air testing without restriction to the type of pipe. The 2015 Edition added the restriction that air testing could not be used on plastic piping. This was done because of the concern that air is a compressible fluid and should the plastic piping fail, there is a possibility that shards of the plastic could be dangerous. Air testing can still be used on other types of pipe.

The Sub-Committee was unanimous to reject

RECOMMENDATION - REJECT

7. Do Not Adopt P3103.2

This code section does not apply to Pennsylvania but is frequently enforced. Adding a requirement that all frost closure piping be increased to 3" within the thermal envelop this change is effectively requiring all attic vent piping to be 3" and all transitions to be made in 2X6 walls because a 3" coupling will not fit in a 2X4 wall.

The following is the section from the 2009 IRC..

P3103.2 Frost closure. Where the 97.5-percent value for outside design temperature is 0°F (-18°C) or less, every vent extension through a roof or wall shall be a minimum of 3 inches (76 mm) in diameter. Any increase in the size of the vent shall be made inside the structure a minimum of 1 foot (305 mm) below the roof or inside the wall.

If this comment were adopted, the language would revert back to the 2009 Code. Comparing the two code sections yields the following:

2009 reads: *P3103.2 Frost closure. Where the 97.5-percent value for outside design temperature is 0°F (-18°C) or less, every vent extension through a roof or wall shall be a minimum of 3 inches (76 mm) in diameter. Any increase in the size of the vent shall be made inside the structure a minimum of 1 foot (305 mm) below the roof or inside the wall..*

2015 reads: *P3103.2 Frost closure. Where the 97.5-percent value for outside design temperature is 0°F (-18°C) or less, vent extensions through a roof or wall shall be not less than 3 inches (76 mm) in diameter. Any increase in the size of the vent shall be made not less than 1 foot (304.8 mm) inside the thermal envelope of the building.*

Thus the only change was in the last sentence of the section to clarify that the size change is to be made in an area not subject to outside temperature. The reference to the 0^{o} temperature and the increasing of the vent size are the same in both codes. Thus, reverting back to the 2009 code would not achieve the result desired by the proposer.

Additionally, the 2015 IRC refers to the Climatic Design Tables in the 2013 ASHRAE Handbook of Fundamentals.. The only location in Pennsylvania where the ASHRAE design temperature is below 0^{o} is Bradford which is as follows:

BRADFORD RGNL, PA, USA WMO#: **725266**

Lat: **41.80N** Long: **78.64W** Elev: **2149** StdP: **13.59** Time Zone: **-5 (NAE)** Period: **86-10** WBAN: **4751**

Annual Heating and Humidification Design Conditions

Coldest Month	Heating DB		Humidification DP/MCDB and HR						Coldest month WS/MCDB				MCWS/PCWD to 99.6% DB	
	99.6%	99%	99.6%			99%			0.4%		1%			
			DP	HR	MCDB	DP	HR	MCDB	WS	MCDB	WS	MCDB	MCWS	PCWD
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)
1	-1.3	3.2	-8.1	3.8	0.5	-3.6	4.9	5.8	23.2	19.8	20.3	18.7	6.7	270

The 2009 IRC refers to the Climatic Design Tables in the 2005 ASHRAE Handbook of Fundamentals.. The tables are not in the 2005 edition and it is necessary to refer back to the 2001 Edition Again,the only location in Pennsylvania where the ASHRAE design temperature is below 0^{o} is Bradford which is as follows:The tables from the 2013 Edition do not refer to 97.5% design conditions, but to 99% and 99.6% conditions. 97.5% conditions would be more stringent.

Table 1A Heating and Wind Design Conditions—United States

Station	WMO#	Lat.	Long.	Elev., ft	StdP, psia	Dates	Heating Dry Bulb 99.6%	Heating Dry Bulb 99%	Extreme Wind Speed, mph 1%	2.5%	5%	Coldest Month 0.4% WS	0.4% MDB	1% WS	1% MDB	MWS/PWD to DB 99.6% MWS	99.6% PWD	0.4% MWS	0.4% PWD	Extr. Annual Daily Mean DB Mes.	Mean DB Min.	StdD DB Max.	StdD DB Min.
1a	1b	1c	1d	1e	1f	1g	2a	2b	3a	3b	3c	4a	4b	4c	4d	5a	5b	5c	5d	6a	6b	6c	6d
PENNSYLVANIA																							
Allentown	725170	40.65	75.43	384	14.493	6193	5	10	27	23	21	28	26	25	24	9	270	11	240	95	−2	2.8	5.2
Bradford	725266	41.80	78.63	2142	13.593	6193	−6	−1	19	18	16	22	22	19	21	7	270	9	240	87	−15	2.8	5.0
Erie	725260	42.08	80.18	738	14.308	6193	2	7	27	24	22	29	28	26	28	14	200	12	250	90	−4	3.1	6.4
Harrisburg	725115	40.20	76.77	308	14.532	6193	9	13	22	20	18	24	29	22	29	8	270	10	250	97	2	3.3	5.7
Philadelphia, Intl Airport	724080	39.88	75.25	30	14.680	6193	11	15	24	21	19	26	31	23	30	12	290	11	230	96	5	2.8	5.6
Philadelphia, Northeast A	724085	40.08	75.02	121	14.631	8293	11	15	21	19	17	22	30	19	29	10	300	10	260	97	3	2.5	6.1
Philadelphia, Willow Gr NAS	724086	40.20	75.15	361	14.505	8293	10	14	18	15	13	19	30	16	30	5	300	6	250	99	2	5.4	5.8
Pittsburgh, Allegheny Co. A	725205	40.35	79.93	1253	14.042	8293	4	11	21	19	17	23	24	21	24	11	250	11	240	94	−4	3.1	9.4
Pittsburgh, Intl Airport	725200	40.50	80.22	1224	14.057	6193	2	7	25	21	19	26	24	23	25	10	260	11	230	93	−6	3.1	6.7
Wilkes-Barre/Scranton	725130	41.33	75.73	948	14.199	6193	2	7	20	18	16	21	26	19	25	8	230	11	220	92	−5	2.8	4.9
Williamsport	725140	41.25	76.92	525	14.419	6193	2	7	23	20	18	24	23	21	25	8	270	10	250	94	−6	3.1	5.9

The ASHRAE Handbook section on Residential Heating and Cooling Calculations recommends the following: *Depending on the application and system type, the designer should consider using the 99.6% value or the mean minimum extreme as the heating design temperature.*

Therefore the code section does apply to Pennsylvania. It should be noted, that the -6 degree design temperature in the 2009 IRC is more stringent than the -1.6 degree temperature in the 2015 IRC.

This is the only comment where the Sub-Committee was divided:

Kampmeyer	-	REJECT
Maynard		REJECT
Nice		ACCEPT
Schneider		REJECT
Swann		REJECT
Wojaczyk		REJECT

RECOMMENDATION - REJECT

8. Adopt NFPA 750 - Standard on Water Mist Fire Protection Systems

Act 1 of 2011 precludes the installation of mandatory sprinkler systems, but (2) states that:

> **(2) A builder of a one-family or two-family dwelling subject to the International Residential Code shall, at or before the time of entering into the purchase contract, do all of the following:**
> **(i) Offer to a buyer the option to install or equip, at the buyer's expense, an automatic fire sprinkler system in the building or dwelling unit designed and installed in accordance with the provisions of section R313.2.1 (relating to design and installation) of the International Residential Code (2009 edition).**

1. Presently water mist systems have not been recognized in the IRC and are also not recognized in the 2018 IRC. They are a recent development and have been used for oil rigs, etc. and for protection of cooking hoods which was referenced in the 2015 IFC and was adopted when we reviewed the 2015 codes previously.
2. NFPA did not include residences in NFPA 750 until the 2015 edition after much research. It is in use in the UK, but there are relatively few if any companies offering it for homes as yet here.
3. The proponent did not provide a section number to change which is required in the instructions.
4. According to Act 1 of 2011, R313.2 - ONE- AND TWO-FAMILY DWELLINGS AUTOMATIC FIRE SYSTEMS. was removed from the UCC. This also removed R313.2.1 since it is a sub-section of R313.2. Act 1 then directs builders to use R313.2.1 for the design of sprinkler systems should the customer want them. Since R313.2.1 is only mentioned in legislation, it would take legislation to add anything to it.

The Sub-Committee was unanimous to reject

RECOMMENDATION - REJECT

Respectfully submitted,

John E. Kampmeyer, P.E., F.NSPE, F.ASHRAE

Sub-committee members: John Kampmeyer, Kevin Maynard, David Nice, Walter G.M. Schneider, III , E Mitchell Swann , Matthew J. Wojaczyk