

Construction Code Communicator



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Kim Guadagno, Lt. Governor

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ADA, BFSC, and Swimming Pools: A Brief Explanation

It has come to the Department's attention that there is information being disseminated by the Department of Health and Senior Services (DHSS) concerning the requirements from the Americans with Disabilities Act (ADA) that public swimming pools be accessible. The guidance from DHSS states that the Department of Community Affairs (DCA) is responsible for enforcing this Federal retrofit requirement. This is not the case. A brief explanation could be helpful.

















The ADA is Federal civil rights law. As such, it requires that people with disabilities have access to public accommodations and to State and local governments' "programs, services, and activities." On September 15, 2011, the Department of Justice (DOJ) adopted a rule requiring swimming pools that are public accommodations or owned by a public entity be accessible to people with disabilities. This is a retrofit requirement. Swimming pools that are not accessible are required to be made accessible. The original effective date for this requirement was March 15, 2012; the DOJ has recently extended the effective date to May 19, 2012. The ADA is enforced by DOJ. It does not provide for the delegation of enforcement authority to State or local governments, so code enforcement officials are not "deputized" to enforce these requirements.

That said, since 1986, the Barrier Free Subcode (BFSC) has required that public or common use swimming pools be accessible. Therefore, public or common use swimming pools in New Jersey built after 1986 should comply with the accessibility requirement.

In addition, when the ADA was passed in 1990 and the Americans with Disabilities Act Accessibility Guidelines (ADAAG) were published in 1991, there was a requirement for Title II entities (State and Local Governments) that all "programs, services, and activities" be available to all citizens. At that time, to comply with the broad brush requirements of the ADA, many swimming pools owned and operated by local governments that had not been accessible were made accessible through municipal initiatives. Similarly, the ADA required that entities subject to Title III (Public Accommodations and Commercial Facilities) improve accessibility insofar as doing so was "readily

See ADA, BFSC & Pools -page 2

In This Issue

In This Issue			
ADA, BFSC, and Swimming Pools 	1	Hot Aisle/Cold Aisle Containment Systems 	12
A Note About E-mails from the Licensing and Education Units	16	Local Planning Services	9
Ceiling Height Oversight 	5	Rehab and Energy Subcode Update    	3
Census Item Numbers	11	Residential Heating and Cooling Load Calculation Requirements 	10
Chimney Verification, UCC-F370, Q&A    	9	Single Means of Fire Alarm Transmission 	2
Construction Highlights	4	UCCARS Users Be Aware	2
Energy Subcode-compliant 2x4 Walls for Zone 5 	5	Unvented Attic Assemblies 	14
Group R-5 Buildings, Independent Means of Egress 	5		

ADA, BFSC & Pools*continued from page 1*

achievable.” Again, accessibility to swimming pools was one of the “readily achievable” improvements undertaken by many public accommodations in response to their ADA obligation.

State law preceded Federal law in requiring accessible swimming pools. The statement by DHSS that these accessibility requirements of the ADA are enforceable by the code enforcement officials is inaccurate. Code officials enforce the Barrier Free Subcode. The ADA is enforced by complaint; questions about the complaint process should be addressed to the DOJ in Washington, D.C.

Please do not hesitate to contact me at (609) 984-7609 if you have questions on the scoping requirements of the BFSC; questions on the technical requirements of the BFSC should be addressed to the Code Assistance Unit at the same telephone number.

Source: Emily W. Templeton
Division of Codes and Standards

Single Means (Sole Path) Fire Alarm Transmission

Recently, the Department received phone calls about contractors installing single means (sole path) communications equipment for fire alarm transmission. The most common question is: Can a fire alarm signal be transmitted by a single means (sole path)? The answer is: Yes.

National Fire Protection Association (NFPA) 72/2007, Section 8.6.4, “Other Transmission Technologies,” allows for the installation of means other than those that the standard covers. These other technologies must meet the requirements of Section 8.6.4.4, “Communication Integrity.” The following is a list of the items that must be verified when a single transmission means (sole path) is used:

- (1) Any failure shall be annunciated at the supervising station within 5 minutes of the failure.
- (2) If communications cannot be established with the supervising station, an indication of this failure to communicate shall be annunciated at the protected premises.
- (3) If a portion of the communications path cannot be monitored for integrity, a redundant communications path shall be provided.
- (4) Provision shall be made to monitor the integrity of the redundant communications path.

See Fire Alarm Transmission at right

Fire Alarm Transmission*Continued from left*

(5) Failure of both the primary and redundant communications paths shall be annunciated at the supervising station within not more than 24 hours of the failure.

(6) System units at the supervising station shall be restored to service within 30 minutes of a failure.

(7) The transmission technology shall be designed so that, upon failure of a transmission channel serving a system unit at the supervising station, the loss of the ability to monitor shall not affect more than 3000 transmitters.

Single means (Sole Path) communications is typically found in Radio Frequency (RF) and Internet Protocol (IP) Fire Alarm Communications Equipment; however any listed fire communications equipment that meets the performance criteria of NFPA 72 can be used as Single Means (Sole Path).

Code Officials should pay particular attention to the UL864 listing of communications equipment to ensure that the equipment is installed, configured and used in accordance with its listing, including, but not limited to, sole path communications.

Source: Michael E. Whalen
Code Assistance Unit

UCCARS Users Be Aware

A few offices are still using the original DOS-based UCCARS program for managing construction permits and there are many more offices that keep UCCARS for the purposes of looking up historical data.

These offices need to know that the original UCCARS program is a “16 Bit, DOS-Based Program.” The “64 Bit, Windows 7” operating system does not support 16 Bit, DOS-Based Programs, so UCCARS will not run on a computer running the “64 Bit, Windows 7” operating system.

If your office needs to purchase new equipment to run UCCARS, you need to specify on your computer purchase order, or to your municipal IT staff, that your new computer must be set up with the “32 Bit, Windows 7” operating system, which will support a “16 Bit, DOS Based Program.”

Questions may be directed to Richard Byrne at (609) 292-7899.

Source: Richard Byrne
Division of Codes and Standards

Rehab and Energy Subcode Update

The first provisions of the Energy Subcode entered the Rehabilitation Subcode on May 7, 2007. A *Construction Code Communicator* article was published in the Spring, 2007 edition on how to apply these provisions; until now, it has provided definitive guidance.

The Rehabilitation Subcode was updated on November 7, 2011; this update included an expansion of the provisions of the Energy Subcode. In this article, I would like to call attention to some of these amendments:

- Definitions – N.J.A.C. 5:23-6.3
 - "Commercial energy code" means the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) standard 90.1 adopted at N.J.A.C. 5:23-3.18 and applicable to all buildings other than residential buildings as defined at "residential energy code."
 - "Residential energy code" means the International Energy Conservation Code adopted at N.J.A.C. 5:23-3.18 and applicable to residential buildings, defined as R-3 and R-5 buildings, as well as R-2 and R-4 buildings three stories or less in height above grade.
- Renovation – N.J.A.C. 5:23-6.5(e)9 through 12;
- Alteration – N.J.A.C. 5:23-6.6(e)15 through 18;
- Reconstruction – N.J.A.C. 5:23-6.7(e)11 through 14;
- Materials and Methods – N.J.A.C. 5:23-6.8(l); and
- New Building Elements – N.J.A.C. 5:23-6.9(a)26 through 37

Taking the most extensive project, a reconstruction project, the following would apply to a building subject to the residential or commercial energy code:

1. Work that creates or exposes the roof decking/sheathing or the framing of any wall, floor, ceiling, or roof assembly that is part of the building thermal envelope (encloses conditioned space) is required to have any accessible voids in insulation filled using insulation meeting the minimum R-values in Table 402.1.1 of the residential energy code for wood framing and Table 402.2.5 of the residential energy code for metal framing equivalents or Table 5.5-4 or 5.5-5 of the commercial energy code, as applicable. However, if insulation meeting the R-values above cannot be installed due to space constraints, insulation that fills the cavities of the framed assembly must be installed instead.

Update

Continued from left

2. Newly installed and replacement fenestration (windows, skylights or doors) is required to meet the maximum U-factor in Table 402.1.1 of the residential energy code or of Table 5.5-4 or 5.5-5 of the commercial energy code, as applicable.
3. Newly installed and replacement ducts must be insulated to meet the minimum R-values of Section 403.2.1 of the residential energy code or Section 6.4.4.1.2 of the commercial energy code, as applicable.
4. Unless exempted by Section 9.2.2.3 of the commercial energy code, the total replacement of a building lighting system or a newly installed building lighting system must meet the following sections of the commercial energy code, as applicable: Section 9.4.1 for controls and Sections 9.5 and 9.6 for lighting power densities. (A "lighting system" is defined by the commercial energy code as "a group of luminaires circuited or controlled to perform a specific function.") The exception to this is the replacement of a lighting system within a room, space, or tenancy, which is then only required to meet Sections 9.4.1.2 and 9.4.1.4a, b, e, and f for controls and Section 9.6 for lighting power densities.

If the building owner decides to install new building elements in a building subject to the residential or commercial energy code, the following applies regardless of whether the project is a reconstruction:

1. Newly created access hatches and doors from conditioned spaces to unconditioned spaces (for example, attics and crawl spaces) are required in accordance with Section 402.2.3 of the residential energy code. For commercial buildings, newly created access hatches and doors are required to have a minimum R-value equivalent to that of the assembly penetrated and they must meet Sections 5.4.3.1 and 5.8.1.7.1 of the commercial energy code.
2. Newly created thermally isolated sunrooms are required to meet the minimum R-value and maximum U-factor requirements of Sections 402.2.11 and 402.3.5 of the residential energy code.
3. Newly installed wood burning fire places are required to meet Section 402.4.3 of the residential energy code or Section 5.4.3.1 of the commercial energy code and Section 2111.13 of the building subcode, as applicable, with regard to sealing the building thermal envelope.
4. Newly installed forced-air furnace heating systems are required to have controls meeting Section 403.1 of the residential energy code.

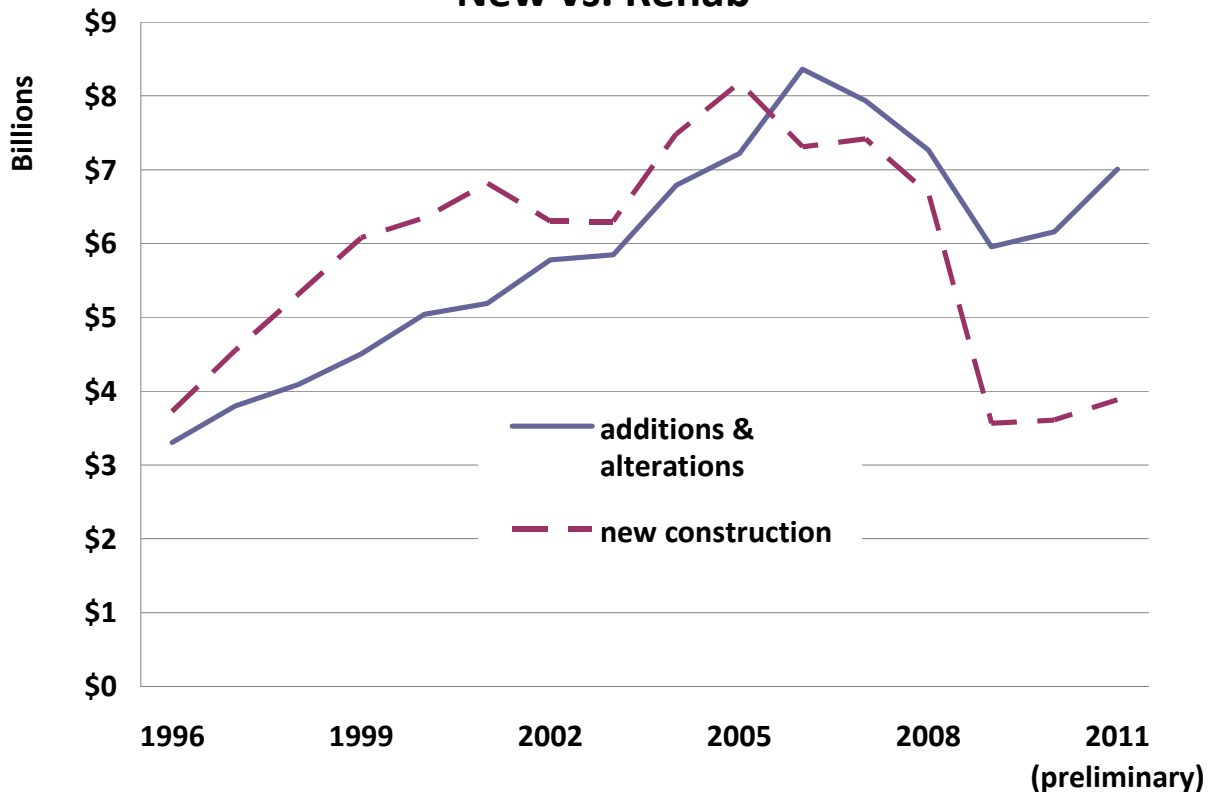
December 2011 Construction Highlights

- 1,329 new houses were authorized by building permits in December. This is the highest level of production in forty months.
- Much of the new housing was apartments. Hackensack in Bergen County had 225 new dwellings in December, more than any other locality. A new apartment complex, Avalon Bay, accounted for all of this development.
- Jersey City in Hudson County had 153 authorized units. A large urban renewal development broke ground on Warren and York streets with 139 rental units. Jersey City had \$40 million of work in December, more than any other municipality.
- Authorized construction for the entire State was \$768.8 million. New homes and housing rehab accounted for \$403.1 million (52.4 percent). Office, retail, and other nonresidential work were \$365.5 million (47.6 percent).
- 562 of New Jersey's 566 municipalities reported.

Year to Date

- Construction data for the year are still preliminary, as not all reports are in. The dollar amount for 2011 thus far is \$10.9 billion. This is \$1.1 billion more than last year.
- Nearly 65 cents of every dollar of construction was for existing structures. Additions and alterations, either tenant fit ups or renovations to existing houses and commercial buildings, was over \$7 billion. The estimated dollar amount of work for new buildings was \$3.9 billion.
- The number of new homes authorized by building permits is about what it was last year. There were 11,822 new dwellings authorized between January and December 2011. In 2010, there were 11,885.

Dollar Amount of Authorized Construction: New vs. Rehab



Ceiling Height Oversight

At N.J.A.C. 5:23-3.14(b)10iii, ceiling height for the general means of egress in the International Building Code/2009 (IBC/2009), Section 1003.2 is amended from "7 feet 6 inches (2286 mm)" dimension to "7 feet (2134 mm)".

There is a correlating section that is not referenced directly that should also have been amended upon adoption of the IBC/2009 for consistency: The minimum ceiling heights within the interior space dimensions at Section 1208.2 should have included the same change and the "7 feet 6 inches (2286 mm)" dimension should be "7 feet (2134 mm)" for occupiable spaces, habitable spaces, and corridors (also a means of egress component like Section 1003.2).

These sections should have been reconciled when the original modification was made. The Department recommends that local construction officials allow for the smaller dimension for components listed in Section 1208.2; a variation should not be required.

In the upcoming proposal to adopt the IBC/2012, Section 1208.2 will be proposed for amendment to match the amendment to Section 1003.2.

If you have any questions, please contact the Code Assistance Unit at (609) 98407609.

Source: Code Assistance Unit

Independent Means of Egress for Group R-5 Buildings

The Department has received numerous inquiries regarding the means of egress requirements for Group R-5 buildings.

Specifically, the question that arises is: "Can a detached two-family dwelling with a shared common entry foyer as its only means of egress be a Group R-5 occupancy constructed in accordance with the one- and two-family dwelling subcode?"

The answer is: No. If the detached two-family dwelling has a shared common entry foyer as its only means of egress, the occupancy classification is Group R-3; it must comply with the building subcode (N.J.A.C. 5:23-3.14).

In accordance with N.J.A.C. 5:23-3.21(b), the provisions of the one- and two-family dwelling subcode apply to Group R-5 occupancies that are not more than three stories in height. In Section 310.1 of the 2009 International Building Code (New Jersey Edition), entitled "Residential Group R", a Group R-5 building is

See Egress at right

Energy Subcode-compliant 2x4 Walls for Zone 5

(Reprinted courtesy of the U.S. Department of Energy's Building Energy Codes Program, <http://www.energycodes.gov/help/notes.stm>)

1 – Background

Using 2x4 studs in an exterior wall has gotten more challenging for Zone 5 in New Jersey. The 2009 International Energy Conservation Code (IECC) does not permit trade-offs for installing high-efficiency HVAC equipment. The more permanent building insulation and sealing features now take precedence. However, there still remain optional strategies allowing 2x4 exterior stud walls.

2a – Prescriptive Compliance Approach

Insulation Requirements

IECC Section 402.1.1 and Table 402.1.1 establish insulation and fenestration requirements by component, based on the climate zone specified in Chapter 3, for prescriptive compliance with the residential energy code. The table specifically accommodates 2x4 studs in wood frame walls in Zone 5 by footnote "h" which allows compliance by R-13 cavity insulation layered with R-5 insulative sheathing. The following prescriptive compliance approaches for 2x4 stud frame exterior walls are allowed in the code.

- For Zone 5, the IECC requires R-20 or "13+5" wood frame walls. The "13+5" means R-13 stud cavity insulation plus R-5 insulating sheathing (see below)
 - If structural sheathing covers 25 percent (25%) or less of exterior, insulating sheathing is not required where structural sheathing is used (R-5 insulating sheathing is required where structural sheathing is not used)
 - If structural sheathing covers more than 25%, structural sheathing shall be supplemented with insulated sheathing of at least R-2.

See Zone 5 Walls -page 15

Egress

Continued from left

defined as "Detached one- and two-family dwellings not more than three stories in height *with a separate means of egress* and multiple single-family townhouses not more than three stories in height *with a separate means of egress* designed **and** constructed in accordance with the one- and two-family dwelling subcode." (emphasis added)

Therefore, in order to be a Group R-5 occupancy, each dwelling unit must be provided with an egress door directly to the exterior of the building.

If you have any questions, please direct your calls to me at (609) 984-7609.

Source: Marcel Iglesias
Code Assistance Unit

Construction Highlights

continued from page 4

- Office construction is down by 11 percent, and new retail space declined by 25 percent.
- Jersey City had the most construction. The City also issued permits for 700 new houses, more than any other locality. The dollar amount of all construction was \$246.3 million, and about 38 percent was for new houses. Jersey City has led the State with the most new housing in eight of the past 11 years.
- Newark in Essex County had \$209.2 million of construction. This was the second highest total among municipalities. Newark had 180 new dwellings in 2011 (13th among all localities) and several big, nonresidential developments, including a new police precinct building and a Marriott Courtyard hotel.
- Atlantic City in Atlantic County had \$198.1 million of work. Much of this was for Revel Entertainment's casino-hotel-parking complex. Other big projects were a new school and renovations at the Golden Nugget casino.

Major Construction Indicators, New Jersey				
December Year-to-Date Figures Compared to Annual Totals				
Period	Estimated Cost of Construction	Authorized Housing Units	Authorized Office Space (square feet)	Authorized Retail Space (square feet)
Year-to-Date Figures (January to December)				
Jan-Dec 2011	\$10,890,224,961	11,822	4,889,841	1,649,925
Jan-Dec 2010	\$9,657,851,990	11,578	5,192,205	2,135,558
Jan-Dec 2009	\$9,454,767,714	11,067	4,035,812	2,417,629
Jan-Dec 2008	\$13,834,284,685	16,203	7,869,822	5,459,374
Jan-Dec 2007	\$14,907,746,308	25,472	8,875,968	4,993,848
Annual Figures				
2010	\$9,768,642,343	11,885	5,496,579	2,192,231
2009	\$9,517,725,396	11,145	4,253,888	2,248,935
2008	13,944,534,578	16,338	7,962,998	5,557,101
2007	15,356,572,820	25,948	9,569,501	5,423,889
2006	15,675,107,955	32,050	11,113,555	5,186,662
2005	15,397,507,147	39,688	11,038,132	5,965,258
2004	14,274,331,850	39,254	12,219,068	4,911,257
2003	12,148,747,807	35,171	9,744,146	6,038,428
2002	12,079,942,099	34,589	9,261,054	7,560,913
2001	12,007,456,630	35,680	19,134,533	7,244,833
2000	11,387,683,514	38,065	15,531,039	6,063,412
Jan-Dec 2010 vs. 2009 & 2008				
Jan-Dec 2011 vs. 2010	\$1,121,582,618	-63	-606,738	-542,306
Percent Change	11.5%	-0.5%	-11.0%	-24.7%
Jan-Dec 2011 vs. 2009	\$1,372,499,565	677	635,953	-599,010
Percent Change	14.4%	6.1%	14.9%	-26.6%

Source: N.J. Department of Community Affairs, 2/8/12

Construction Highlights

continued from page 6

- State Buildings includes permits to New Jersey State agencies and their instrumentalities. The estimated cost of work authorized by building permits was \$339.9 million. Public colleges and universities accounted for much of this. Major developments were a new medical college for Rowan University and renovations and new construction for Montclair State University. The figure also includes a new terminal for Atlantic City International Airport.

Authorized Housing in Newark and Jersey City, 2001-2011(preliminary)					
Year	Newark		Jersey City		All New Jersey
	Authorized Units	Rank	Authorized Units	Rank	Authorized Units
2001	1,066	2	2,009	1	35,680
2002	1,223	1	907	2	34,589
2003	1,730	1	969	2	35,171
2004	1,702	2	2,156	1	39,254
2005	2,611	2	3,778	1	39,688
2006	2,125	2	2,578	1	31,709
2007	927	2	2,765	1	25,948
2008	289	6	1,468	1	16,338
2009	285	4	1,132	1	11,145
2010	169	18	249	11	11,885
2011 (preliminary)	180	13	700	1	11,822

Source: N.J. Department of Community Affairs, 2/8/12

- Three of the top six municipalities with the most work in 2011 are in Hudson County: Jersey City (\$246.3 million); Secaucus (\$157.2 million); and Hoboken (\$131.3 million).
- These three municipalities also had nearly 10 percent of all the new dwellings in the State.

Dollar Amount of Authorized Construction					
Top Performers, 2011(preliminary)					
Municipality	County	Estimated Cost of Construction (dollars)	Authorized Housing Units	Authorized Office Space (square feet)	Authorized Retail Space (square feet)
Jersey City	Hudson	\$246,347,233	700	43,159	28,712
Newark City	Essex	209,235,098	180	11,703	100,735
Atlantic City	Atlantic	198,080,732	26	0	0
Secaucus Town	Hudson	157,226,724	128	3,750	0
Toms River	Ocean	156,093,065	122	157,578	137,409
Hoboken City	Hudson	131,323,633	308	0	0
Livingston	Essex	127,648,866	25	6,478	0
Franklin	Somerset	122,513,488	156	42,403	17,125
Woodbridge	Middlesex	122,213,704	45	13,498	31,184
East Hanover	Morris	120,215,814	5	681,602	2,880
State Buildings		\$339,889,844	0	59,524	0
New Jersey		\$10,890,224,961	11,822	4,889,841	1,649,925

Source: N.J. Department of Community Affairs, 2/8/12

See Construction Highlights -page 8

Construction Highlights

continued from page 7

New Home Prices

- New home prices dropped at the end of 2011.
- A total of 1,478 new houses began enrollment in a new home warranty program in October, November, and December 2011. Half of these houses cost more than \$394,688. This was 5.3 percent lower than the median sales price in the third quarter of 2011.
- Essex and Bergen Counties had the most expensive new houses. The median sales price in Essex was \$696,693. The median sales price in Bergen County was \$630,931.

New House Prices			
Period	Number of New Houses	Median Sales Price	Percent Change in Sales Price
1996	20,903	\$183,300	
1997	21,640	\$190,000	3.7%
1998	23,884	\$209,980	10.5%
1999	24,479	\$224,496	6.9%
2000	25,058	\$231,728	3.2%
2001	23,372	\$253,670	9.5%
2002	23,647	\$274,705	8.3%
2003	22,226	\$307,168	11.8%
2004	23,844	\$349,900	13.9%
2005	24,571	\$378,992	8.3%
2006	22,697	\$413,825	9.2%
2007	18,397	\$424,570	2.6%
2008	13,841	\$425,000	0.1%
2009	9,161	\$368,512	-13.3%
2010	8,712	\$384,899	4.4%
1 st Quarter 2010	1,820	\$378,442	
2 nd Quarter 2010	2,811	\$380,360	0.5%
3 rd Quarter 2010	2,105	\$395,000	3.8%
4 th Quarter 2010	1,976	\$383,642	-2.9%
1 st QTR 2011 (p)	1,198	\$372,425	-2.9%
2 nd QTR 2011 (p)	1,644	\$406,485	9.1%
3 rd QTR 2011 (p)	1,473	\$416,825	2.5%
4 th QTR 2011 (p)	1,478	\$394,688	-5.3%

Note: (p) means preliminary

Source: N.J. Department of Community Affairs, 2/8/12



Chimney Verification, UCC-F370 Questions and Answers

As you should be aware, the new UCC F370 Form (rev.01/12), "Chimney Verification for Replacement of Fuel-Fired Equipment," is now on the Division's website and can be downloaded and used. The updated form has additional information for the contractor to fill out. It replaces the Chimney Certification form and is used for replacement equipment only.

Many code officials suggested that additional information be included when the old form was updated; this expanded and revised form incorporates those suggestions.

N.J.A.C. 5:23-2.20 (d) states:

"In lieu of requiring the removal and reinstallation of the chimney vent connector for purposes of inspection of the chimney or vent as per N.J.A.C. 5:23-2:18, the construction official may accept a Chimney Verification for Replacement of Fuel-Fired Equipment (Form F-370), signed by the contractor who installed the replacement fuel-fired equipment. Verification from homeowners shall not be accepted in lieu of the required inspection.

1. A permit application using the Chimney Verification for Replacement of Fuel-Fired Equipment Form (Form F-370) for minor or emergency work must provide this form along with the permit application."

The following are some examples of projects with direction as to who is responsible for completing this form:

1. When a contractor applies for a permit to replace a water heater or furnace or boiler connected to an existing chimney, Chimney Verification Form F370 must be filled out and signed by the contractor doing the work and submitted to the code official.
2. When a contractor applies for a permit to replace a water heater or furnace or boiler and a new chimney liner is to be installed by the same contractor, Chimney Verification Form F370 must be filled out and signed by the contractor doing the work and submitted to the code official.
3. When a contractor applies for a permit to replace a water heater or furnace or boiler and a chimney liner is being installed by another contractor under a separate permit, a Chimney Verification Form is not required to be submitted by the contractor who is replacing the equipment. (NOTE: See #4 below for replacement of the chimney liner.)

See Chimney Verification at right

Chimney Verification

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4. When a contractor applies for a permit for a chimney liner only and no equipment is being replaced by this contractor, no Chimney Verification Form F370 is required. The chimney liner contractor is required to submit, with the permit application, all the necessary information about the liner: material, size, calculations, and BTU/HR of all the equipment connected to the new chimney liner. A code official may require a separate form with the information needed for a proper review. This would not be Form F370.

It is important to note that the contractor also has the option of signing the form stating that he chooses not to submit verification and acknowledging that he will be required to be present for the inspection to remove and reinstall the chimney vent connector.

If you have questions, please contact me at (609) 984-7609 and I will try to address your concerns.

Source: Thomas C. Pitcherello
Code Assistance Unit

Local Planning Services

In the summer of 2011, the Christie administration eliminated the Council on Affordable Housing (COAH) and replaced it with Local Planning Services in the New Jersey Department of Community Affairs. The aim was to re-write affordable housing rules, reduce the span between statewide housing policy and local enforcement, and simplify and make faster the process by which local housing plans and development fees are approved and administered.

Local Planning Services proposed new rules on how need is measured, met, and paid for. In March 2012, the Appellate Division of the Superior Court of New Jersey overturned the Governor's reorganization plan and ruled only the Legislature could eliminate COAH. While affordable housing rules are in flux, technical assistants and construction officials should remember:

1. New Jersey's commitment to fair housing is constant. Municipalities must have and enforce land-use and development rules that are fair and provide realistic opportunities for everyone.
2. No municipality may assess or collect fees on nonresidential development. Don't collect the fee; don't do the paperwork. This moratorium extends through July 1, 2013. More about this is on the Governor's website:
<http://www.state.nj.us/governor/news/news/552011/approved/2011824a.html>.

See Local Planning Services -page 12

Update

continued from page 3

5. Newly installed heating, cooling and ventilation systems are required to have controls meeting Sections 6.4.3, 6.5, 7.4.1, 7.4.4 and 7.4.6 of the commercial energy code, as applicable. Systems include, but are not limited to, the heating and cooling of air or liquids and the ventilation or exhausting of spaces.
6. Newly installed systems that include piping carrying fluids are required to have insulation meeting Sections 403.3 and 403.4 of the residential energy code or Sections 6.4.4.1.3 or Section 7.4.3 of the commercial energy code and Section 1204 of the mechanical subcode, as applicable.
7. Newly installed mechanical ventilation is required to have dampers meeting Section 403.5 of the residential energy code.
8. Newly installed heating and cooling equipment is required to be sized in accordance with Section 403.6 of the residential energy code or Section 6.4.2 and 7.4.1 of the commercial energy code, as applicable.
9. Newly installed snow and ice melting systems are required to be installed in accordance with Section 403.8 of the residential energy code or Section 6.4.3.8 of the commercial energy code, as applicable.
10. Newly installed pool heaters are required to meet Section 403.9 of the residential energy code or Section 7.4.5 of the commercial energy code, as applicable.
11. Newly installed recessed equipment and lighting is required to meet Section 5.8.1.6 of the commercial energy code with regard to maintaining insulation thickness.

Currently, N.J.A.C. 5:23-2.15(f)1vi requires energy subcode compliance documentation only for brand new buildings and additions. However, per N.J.A.C. 5:23-2.15(f)1vii, engineering details may be required for calculating the light power densities for a new lighting system. For this, the lighting portion of COMcheck for the building or space could be used.

If you have any questions, please contact me at (609) 984-7609.

Source: Rob Austin
Code Assistance Unit



Residential Heating and Cooling Load Calculation Requirements

(Reprinted courtesy of the U.S. Department of Energy's Building Energy Codes Program, <http://www.energycodes.gov/help/notes.stm>)

Mechanical systems in residential construction are commonly oversized, which increases installation costs, wastes energy, and reduces comfort and moisture control. Properly sized equipment will last longer, provide greater comfort, reduce noise, and save homeowners money. Yet builders and code officials are uncertain as to how to evaluate such calculations to make sure they meet the intent of the code and the sizing methodology approved in the Air Conditioning Contractors of America (ACCA) Manual J (or equivalent).

The 2009 International Energy Code (IECC) require sizing calculations be performed on every home by referencing Section M1401.3 of the 2009 International Residential Code (IRC). Section M1401.3 requires heating and cooling systems be sized to ACCA Manual J - Eighth Edition- or other approved heating and cooling load calculations. The ACCA sizing methodology has sufficient built-in safety factors to accommodate most conditioning needs. Therefore, it is important to follow all instructions in Manual J, use precise area measurements, and specific data.

Heating and cooling loads can be determined using a whole-house approach, or by performing a room-by-room load calculation. The room-by-room approach provides the information needed to determine the number of cubic feet per minute (cfm) of conditioned air needed to satisfy the heating and cooling load for the room. This information can then be used to determine the duct size necessary to deliver heating and cooling for the space.

The 2009 IECC regulates the indoor design temperature for use in performing load calculations. The IECC specifies that the maximum heating indoor temperature shall be 72°F, and the minimum cooling temperature shall be 75°F per Section 302.1.

Table IA, Outdoor Design Conditions, of ACCA Manual J (see below) requires that the outdoor winter and summer design temperatures be based on the 99 percent (99%) value for winter, and 1 percent (1%) value for summer. To select the appropriate system,

Census Item Numbers

Construction officials and technical assistants report monthly permit and certificate activity to the New Jersey Department of Community Affairs. You also report residential building permit data to the U.S. Bureau of the Census. For most of you, these requirements occur behind the scenes. The computer software takes care of them. Still, you need to know what the U.S. Census Bureau is looking for. Here is a summary that may be helpful to have next to your computers.

IF Group	AND Permit Type	AND Number of Dwellings	THEN Census Item Number Is:
R-3	New	1	101
R-4	New	1	101
R-5	New	1	101
R-3	New	2 (duplex)	103
R-4	New	2 (duplex)	103
R-2	New	0 (college dormitory)	999
R-2	New	3 or 4	104
R-2	New	5 or more units	105
I-2 (assisted living)	New	5 or more units	105*
Residential	Alteration or Additions		999
All other groups	New, Addition, Alteration, or Demolition	Does not matter, but record dwellings in mixed-use buildings	999 (off item to the Census Bureau)

* Note: If the assisted living facility has both nursing homes and apartments, count only the apartments as dwelling units.

The U.S. Census Bureau classifies construction with three-digit item numbers. They are concerned only with new, privately owned residential work, the number of new dwellings authorized by building permits, and their estimated cost. The housing units can be either for sale or rent.

Census item number 101 is used for single-family houses that can be either detached or attached to one or more other dwellings. An attached townhouse or row house is classified as a 101 if it is separated by a wall that extends from ground to roof, no other dwelling is above or below it, and it has a separate utility meter and heating system. If you use the item number 101, the Census Bureau expects to see one and only one new dwelling unit gained. If more than one is recorded, expect a phone call.

Census item number 102 is no longer used. It was used to distinguish new, single-family detached houses from attached ones. Today, if you issue a permit for a new house attached to another, call it a 101, unless, of course, it is not really independent from the other dwellings. Attached housing is covered by the other item numbers: 103, 104, and 105, which are discussed next.

A 103 is a new, privately owned residential building that has two units. These are duplexes. When you use item number 103, the U.S. Census expects to see two dwellings gained. They can both be rental units. They can both be for sale. One can be for sale and the other for rent, but there are only two dwellings.

A 104 is a privately owned, new residential building with either three or four new dwellings. If you know one of these units will be for sale and two will be rented, indicate this by entering in one for-sale unit and two for rent. These might be new, garden apartments or condominiums.

Census item number 105 is for new, privately owned residential buildings that will have at least five dwellings. If you report a 105 and indicate fewer than five new apartment or condominium units, expect a call from the Census Bureau asking for an explanation.

Local Planning Services

continued from page 9

3. Development fees on new homes may still be collected, as long as the ordinances for them were approved by either COAH or Local Planning Services.

Stay tuned and keep an eye on the Department of Community Affairs website (<http://www.nj.gov/dca>) for more details.

Source: John Lago
Division of Codes and Standards



Census

continued from page 11

The Census Bureau only wants to know about new houses or apartments. They do not track demolitions. They are no longer interested in most nonresidential buildings. The exception is assisted living buildings, which may fall into building use I-2. Both the Census Bureau and the Department of Community Affairs recognize that these buildings are places where people live. The number of dwellings units in the assisted living facilities should be counted and recorded on the building permit. Keep in mind that, if the assisted living facility also has a wing for nursing home or hospital beds, only the assisted living units should be counted as dwellings. The hospital and nursing home beds are NOT counted as dwellings. In most instances, the appropriate census item number for assisted living facilities will be 105.

They also don't care about housing rehab work and conversions, even if it results in new housing. Building permits issued for alteration work in an existing apartment building, say deck repairs, should be classified as "999." So should the conversion of a building that was once a bank or some other commercial use into new housing.

Don't misunderstand. Although the Census Bureau is only interested in new, residential construction, we at the Department of Community Affairs still do want you to report on all types of work. The only item numbers you have to remember, as far as the U.S. Census is concerned, however, are: 101, 103, 104, and 105. Everything else is a 999 or an "off item," to the Census Bureau.

If you have questions, you can call the Census Bureau directly at the toll free number: 1-800-845-8244. You also can call or e-mail me with questions.

Source: John Lago
jlago@dca.state.nj.us
NJ Department of Community Affairs
609-292-7898

Hot Aisle/Cold Aisle Containment Systems in Data Rack Storage Configurations

The Division of Codes and Standards has received several inquiries about hot aisle/cold aisle containment systems installed within data center rack configurations. These systems can best be described as physical barriers that eliminate or reduce the mixing of cold supply air and hot exhaust air from a data center rack configuration. The installation of these systems can provide a data center operator with a reduced energy expense.

When a hot aisle/cold aisle containment system is installed, a UCC permit must be obtained. These systems could be part of a new construction project, however most of the installations we have been made aware of are within existing buildings. Additionally, it is possible that existing Information Technology Equipment (ITE) rack configurations may be modified shortly after they have been installed because of ever-evolving technology. It is imperative that UCC enforcing agencies recognize that these systems may create physical barriers to fire protection systems within the building that these barriers are not always taken into account by design professionals.

Several hot aisle/cold aisle containment systems use plastic strips that closely resemble plastic curtains. These curtains are hung from the ceiling and create a containment area between the top of the rack configuration and the ceiling. Depending upon the Group classification, the International Building Code (IBC) may require this material to meet the flame propagation criteria of NFPA 701. Some of these systems use fusible heat links to drop the plastic strips; however, the systems themselves have not been tested as an assembly to show that the heat links will release properly so as not to obstruct the sprinkler head spray pattern in protected areas. There does not appear to be any UL certification for these systems. In addition, the UL 33 standard used to investigate fusible links is not relevant because it is not clear how the standard applies to this product.

When hot aisle/cold aisle containment systems are installed, automatic detection, automatic sprinklers, or alternative automatic fire extinguishing systems may be impacted. Typical impacts to these systems can include but are not limited to obstructing discharge patterns of fire sprinklers, limiting the distribution of alternative agents, and limiting the performance of automatic initiating devices such as smoke detectors. The

Residential Heating and Cooling

continued from page 10

based on the heating and cooling load calculations, Section M1401.3 of the 2009 IRC requires that ACCA Manual S be used to size equipment. Excessively oversized equipment causes short-cycling, and creates unnecessary stress on the equipment. Also, larger systems require larger duct sizes, increasing the installation cost. In areas where humidity is an issue, an oversized system will degrade the humidity control. A properly sized system will run almost continuously at design conditions, and provide the proper level of dehumidification during the cooling season.

Municipality ^a	Winter – Heating 99% Dry Bulb	Summer – Cooling 1% Dry Bulb
Atlantic City	13	88
Long Branch	13	90
Millville	15	89
Newark	14	90
New Brunswick	10	89
Paterson	10	91
Phillipsburg	6	89
Teterboro	14	89
Trenton, McQuire AFB	15	90
Vineland	11	89
<i>a – In the event your municipality is not listed, please use the next closest.</i>		

If you have questions about the enforcement of the Energy Subcode, please contact me at (609) 984-7609.

Source: Robert Austin
Code Assistance



Containment Systems

continued from page 12

Containment Systems

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temperature in hot aisle containment areas can increase to the point where it approaches the temperature limits of the automatic detection equipment, which could affect the performance of fire protection systems. The installation of these containment systems in no case can obstruct the flow of gaseous agent systems or water spray systems and each containment system must be evaluated on a case by case basis.

The National Fire Protection Association (NFPA) Technical Committee has accepted new text, which will be added into NFPA 75, "Protection of Information Technology Equipment," to address these containment systems. These modifications will be included in the 2012 edition of NFPA 75 when it is published. Because the UCC does not have specific rules for the regulation of the installation of these systems, N.J.A.C. 5:23-3.6 or 3.7 can be used by the construction official and appropriate subcode officials to review these systems. The UCC does not reference NFPA 75, so a company that decides to install any type of hot or cold aisle containment system must supply all the applicable installation information showing compliance with this standard when they wish to use it.

The following are some of the factors to consider

when reviewing ITE proposed containment systems.

1. What type of material is the aisle containment system made of?
2. Will the installation effect the location and or type of the existing detection system?
3. Will the fire sprinkler or suppression system be affected?
4. Will the means of egress be affected (exit signs, emergency lighting or travel distance)
5. Will an additional fire extinguisher be required?

When a containment system is installed it must be treated as an obstruction, detection systems and suppression systems might need to be extended within the heat containment system enclosure.

If you have any questions, please feel free to contact Carmine Giangeruso, Office of Regulatory Affairs, at (609) 984-7672 or Michael E. Whalen, Code Assistance Unit, at (609) 984-7609.

Sources: Carmine Giangeruso, Office of Regulatory Affairs
Michael E. Whalen, Code Assistance Unit

See Containment Systems at right

Unvented Attic Assemblies

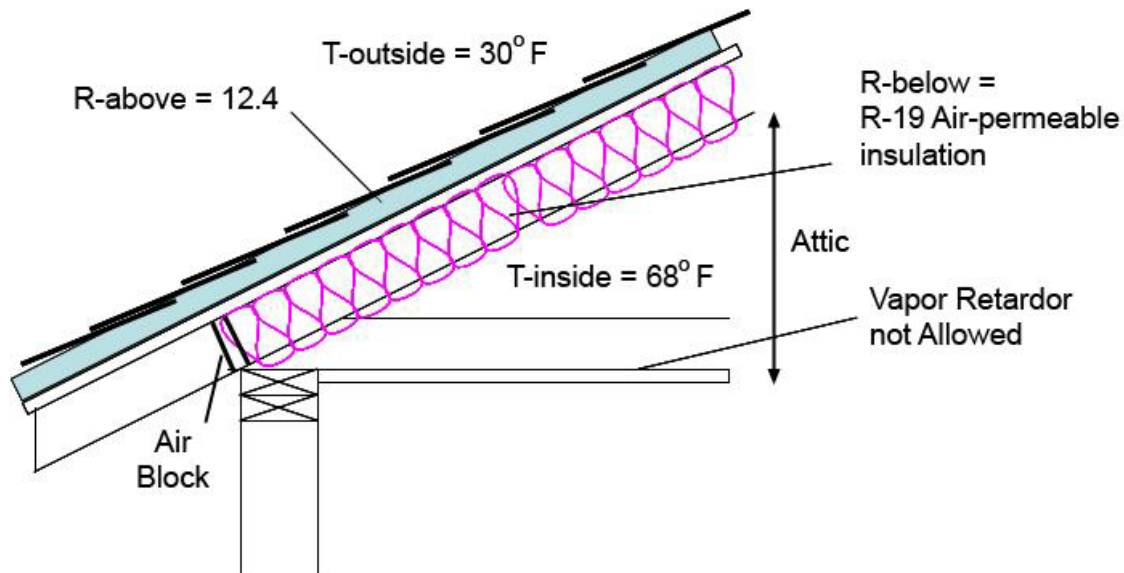
(Reprinted courtesy of the U.S. Department of Energy's Building Energy Codes Program, <http://www.energycodes.gov/help/notes.stm>)

Adequate attic ventilation is a long-standing requirement in building codes for moisture control. However, unvented attics can reduce residential energy needs, and are allowed by the code under certain conditions. Such assemblies are sometimes called cathedralized attics because, as with cathedral ceilings, the insulation is in the rafters and/or the roof deck. The primary benefit of cathedralized attics is the ability to locate HVAC ducts inside conditioned space, where duct leaks and heat losses or gains are not detrimental to the home's energy bill.

Section R806.4 of the 2009 International Residential Code (IRC) has five specific requirements for unvented (conditioned) attic assemblies; all criteria must be met. The overall insulation level in the roof assembly must meet the baseline requirements for energy efficiency as given in the 2009 International Energy Conservation Code (IECC), Section 402.

Additionally, there are requirements related to the arrangement of the insulation to prevent moisture condensation in the roof assembly. In New Jersey, the 2009 IRC requires air-impermeable insulation in direct contact with the underside of the roof deck. A combination of an air-impermeable insulation and air-permeable insulation directly below it is permitted.

Table R806.4 of the 2009 IRC sets the minimum requirements for minimum rigid board insulation (Zone 4 = R-15; Zone 5 = R-20) to be placed on top of the roof deck if air permeable insulation is installed in direct contact with the underside of the roof deck. The addition of the rigid board insulation will keep the monthly average condensing surface temperature at or above 45°F. Note that the additional rigid board insulation is not required if air impermeable insulation is installed in direct contact with the underside of the roof sheathing.



For example, the proposed building is located in Climate Zone 5. The minimum Ceiling R-value requirement based on Section 402.1.2 and Table 402.1.1 of the 2009 IECC is R-38. R-19 air impermeable insulation is proposed to be placed on the underside, and in direct contact, with the roof sheathing. Based on Table R806.4, R-20 rigid board insulation will be required to be placed on top of the roof deck to keep the condensing surface temperature at or above 45°F. The total insulation R-value for the assembly will be an R-39 (R-20 + R-19) which complies with the prescriptive requirements of the 2009 IECC.

attic floor of conditioned attics so that any moisture that may build up in the attic can dissipate into the house. If wood shingles or shakes are used, a ¼-inch air gap must be left above the roof sheathing, but below the shingles or shakes and roofing felt. Air-permeable insulation used in Climate Zone 5 shall be a vapor retarder, or shall have a vapor retarder installed in direct contact with the underside of the insulation.

If you have questions about the Energy Subcode, please contact me at (609) 984-7609.

Source: Rob Austin
Code Assistance Unit

The 2009 IRC also prohibits a vapor retarder on the

Zone 5 Walls

continued from page 5

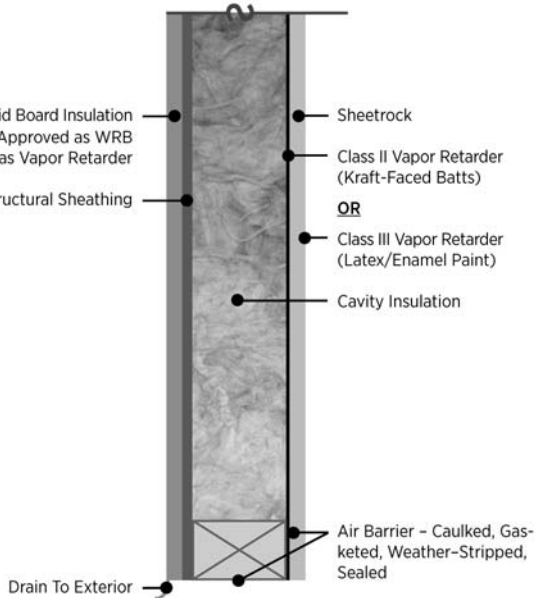
One of the properties typically associated with insulative sheathing is its high R-value per inch; rigid foam board is a good example. Different cell configurations, films, and other added features give the products specific characteristics that may allow the product to meet your needs for more than one function. However, one characteristic may be perfect for one application and totally unacceptable for another. Read the product data, carefully select the product for your application, and follow the manufacturer's installation instructions.

Vapor Retarder Requirements

The IRC requires a Class I or II vapor retarder on the interior side of frame walls in Zone 5, with the exception that a Class III vapor retarder is permitted if R-5 or higher sheathing is used.

Water-Resistive Barrier (WRB)

For Zone 5, the IRC requires exterior walls shall provide the building with a weather-resistant exterior wall envelope. This water-resistive barrier (WRB) can be one layer of No. 15 asphalt felt or other approved material (e.g., insulating sheathing approved as a WRB, house wraps) applied over studs or sheathing of all exterior walls. A properly installed and sealed closed-cell foam board sheathing typically is rated for use as a WRB, eliminating the expense of a dedicated water-resistive barrier product. WRB- approved products can be identified in the International Code Council-Evaluation Service (ICC-ES) Evaluation Reports (www.icc-es.org). Concrete or masonry walls designed in accordance with Chapter 6 and flashed according to Section R703.7 or 703.8 are the exception to this requirement.

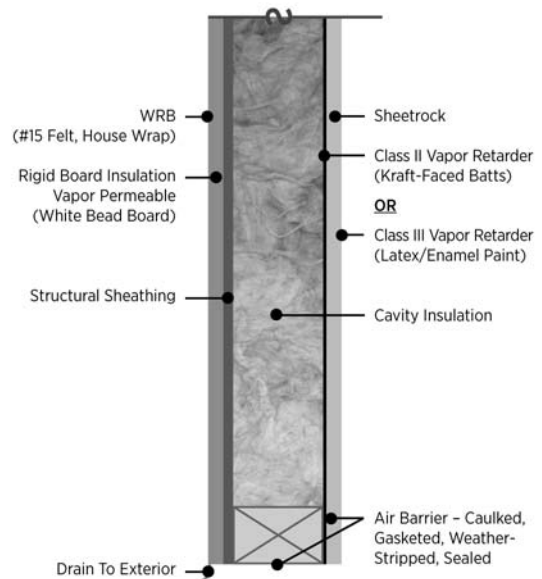


**2"X4" WALL SYSTEM
W/RIGID BOARD AS WRB**

See Zone 5 Walls at right

Zone 5 Walls

continued from left



**2"X4" WALL SYSTEM
W/VAPOR PERMEABLE,
RIGID BOARD AND WRB**

Air Sealing

For Zone 5, the air barrier should be the innermost surfaces--the interior wall, ceiling, floor, etc. The building thermal envelope shall be durably sealed to limit infiltration. All joints, seams, penetrations and other sources of infiltration shall be caulked, gasketed, weather-stripped, or otherwise sealed with an air barrier material, suitable film or solid material. Air tightness and insulation installation shall be demonstrated to comply with either a blower door test option--after rough in and after installation of penetrations of the building envelope for utilities, plumbing, electrical, ventilation, and combustion appliances option--or a visual inspection option--field inspection and verification of the air barrier and insulation (see Bulletin 11-1 for more information).

HVAC Equipment Efficiency

No requirement

2b – Performance Compliance Approach

The 2009 IECC Chapter 4 Section 405--Simulated Performance Alternative--provides the ability to "trade-off" lower levels of insulation in the building envelope for increased levels of efficiency in other areas of the building. This approach can be used to demonstrate

See Zone 5 Walls –page 16

Zone 5 Walls

continued from page 15

compliance using 2x4 stud walls in a house and trading off the lower efficiency with increased efficiencies in glazing, reduced air leakage in the building envelope or reduced leakage in the duct system. For example, a home being designed for construction in Climate Zone 5 using 2x4 walls with R-13 insulation can take credit for reducing the air leakage in the house down from the required 7 ACH 50 to an air leakage value that will offset the energy use of the reduced wall insulation. Under this example, the building envelope would need to be tested to ensure that it did not exceed the air leakage rate modeled in performance software. Documentation would need to be provided to the jurisdiction demonstrating that the envelope met the requirements. Also, ventilation may need to be added to the house based on the targeted air leakage rate.

3 – Application

As an alternative, foam-in-place polyurethane or other foamed-in or blown-in cavity fill strategies may achieve Frame Wall assemblies with U-factors equal to or lower than the Table 402.1.3 Frame Wall Equivalent values. However, a continuous layer of foam insulating sheathing reduces thermal bridging through the studs and maintains temperatures sufficiently high to avoid condensation on the stud and in the stud cavity. Resources are better managed; a properly installed and sealed closed-cell foam board sheathing typically is rated for use as a WRB, eliminating the expense of a dedicated water-resistive barrier product. If you have questions about the Energy Subcode, please contact me at (609) 984-7609.

Source: Rob Austin
Code Assistance Unit



A Note about e-Mail Messages from the Licensing and Education Units

As we move further into the electronic age, the need to communicate by e-mail has become an indispensable and invaluable tool to get information out to the code enforcement community faster and more effectively.

This is especially true for our office. We try to send notices of special training opportunities and advance copies of our semester and conference brochures by e-mail. For the most part, we have found this to be very successful. However, we get many emails returned as “undeliverable” or rejected by mail servers that categorize our messages as spam.

To alleviate this, we would like you to add our e-mail addresses, educationunit@dca.state.nj.us and codeslicensing@dca.state.nj.us, to your “safe senders list” or to your address book to be sure that our messages reach you.

If you have not received e-mails from us recently, that is likely the reason. If you want to be sure that we have your e-mail address, please feel free to send it to us, along with your name and license number; then add our e-mail addresses to your address book, as directed above.

If you have any questions, please feel free to contact us by e-mail or at (609) 984-7834.

Source: John Delesandro
Supervisor, Licensing & Education



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Please direct any comments or suggestions to the NJDCA, Division of Codes and Standards, Attention: Code Development Unit, PO Box 802, Trenton, NJ 08625-0802.

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