CONSTRUCTION MANAGEMENT SERVICES

1700 North Broadway • Suite 128
Rochester, MN 55906
507-282-8206 • FAX 281-0391

TO: City/Township/County Administrator

FROM: Jay Kruger JK

DATE: May 28, 2009

RE: Energy Code Compliance

Effective June 1, 2009, CMS will enforce the new State Energy Codes. The attached form "New Construction Energy Code Compliance Certificate" **must be submitted with application for plan review.** (Please make copies from original)

This will pertain to the following projects:

1. New construction of residential dwellings
   (Moved in dwellings: Compliance will be determined at pre-inspect stage)
2. New construction of residential additions
3. Residential remodel projects

DO NOT SUBMIT APPLICATION WITHOUT COMPLETED COMPLIANCE CERTIFICATE.

USEFUL REFERENCE: DEPT OF LABOR AND INDUSTRY/CONTRUCTION CODES AND LICENSING:

www.dli.mn.gov - Chapter 1322

Note: Completion of energy compliance is in addition to the required mechanical calculations.

Note: Replacement of windows (same size) will now require a building permit due to the energy code change except vinyl insert units that are installed in existing frames.

REMINDERS:
Effective 6-01-09 any Master Plans on file are null & void. Contractor will have to submit new plan indicating if it is to be mastered.

MISC:
If you fax application to CMS, do not send original. If applicant is not starting project immediately, mail original to CMS.

Do not give permission for projects to start prior to checking with CMS.

Call if you have any questions.

(k:\b&s\2009\misc\miscltr\memos_5-28-09)

N1101.8 Certificate Builders Name/ Company	Date: _____ Site Address: _____ Contractor Name: _____ License Number: _____

Location	*Type of Insulation*	*Installed R-Value*			*Type*	*Location*	*Size*
				Makeup Air			
Roof/Ceiling							
				Combustion Air			
Walls							
				Water Heating			
Slab-on-Grade							
					Manufacturer	*Model*	
Floor							
				Ducts Outside of Conditioned Spaces			
Rim Joist							
		Interior, Exterior or Integral			*Location*	*R-Value*	
Foundation Wall							
		Interior, Exterior or Integral					

	Average U-Factor	*SHGC (solar heat gain coefficient)*			*Passive*	*Active*
Fenestration				**Radon Control**	☐	☐

	Type	*Input Rating*	*AFUE*	*Manufacturer*	*Model*	*Calculated Heat Loss*
Heating System						

	Type	*Output Rating*	*SEER*	*Manufacturer*	*Model*	*Cooling Load/Heat Gain*
Cooling System						

	Type	*Location*	*Continuous Ventilation*	*Total Ventilation*
Mechanical Ventilation				

MINNESOTA ENERGY CODE REQUREMENTS FOR FOUNDATION INSULATION

EXTERIOR FOUNDATION INSULATION – *GENERAL REQUIREMENTS*	INTERIOR FOUNDATION INSULATION – *GENERAL REQUIREMENTS*

• Must be of water resistant materials manufactured for its intended use.
• Must be installed according to the manufacturer's specifications.
• Must comply with ASTM C578 (rigid), C1621 (semi-rigid), C1029 (spray-applied), or C1289 (rigid), as applicable.
• Must have a rigid, opaque and weather resistant protective covering to prevent the degradation of the insulation's thermal performance.
  o The protective cover must cover the exposed exterior insulation and extend a minimum of 6-inches below grade.
  o The insulation and protective covering must be flashed with corrosion resistant flashing applied in such manner as to prevent entry of water into the wall cavity or penetration of water into the building structural frame components.
	• Masonry foundation walls must be drained through the masonry block cores to an approved interior drainage system.
	• If a frame wall is installed it must NOT be in direct contact with the foundation wall, unless the INTERIOR side of the foundation has been WATERPROOFED.
	• Must meet the requirements for rigid interior insulation, spray-applied interior insulation, semi-rigid interior insulation, or unfaced fiberglass batt interior insulation.
	• Must comply with the following interior air barrier requirements:
	  o Air barrier to be installed on warm-in-winter side of thermal insulation.
	  o Areas of potential leakage in the building thermal envelope shall be caulked, gasketed, weather-stripped, or otherwise sealed with an air barrier material, suitable film or solid material to form an effective barrier between conditioned and unconditioned spaces. The integrity of all air barriers must be maintained. Sealing methods between dissimilar materials must allow for expansion and contraction.

BASEMENT FOUNDATIONS AND CRAWL SPACES – *GENERAL REQUIREMENTS*	**SLAB ON GRADE AND BASEMENT WALK OUT FOUNDATIONS – *GENERAL REQUIREMENTS***
• Must be installed to an R-10. Adding additional insulation to increase R-value or adding adding additional vapor retarder to foundation wall assemblies is prohibited, except for the installation of R-13 when using fiberglass batt insulation on the interior. • Must be insulated from the top of the foundation wall down to the top of the footing or from the top edge of the interior wall to the top of the slab if insulation is on the interior.	• Must be insulated to an R-10. Adding additional insulation to increase R-value or adding additional vapor retarder to foundation wall assemblies is prohibited, except for the installation of R-13 when using fiberglass batt insulation on the interior. • Insulation must extend to the designed frost line (60-inches here) or to the top of footing, whichever is less. • The top edge of the insulation installed between the exterior wall and the edge of the interior slab can be cut at a 45-degree angle away from the exterior wall.
LOCATIONS WHERE THE AIR BARRIER MUST BE SEALED: • Walls, floors, ceilings, overhangs, knee-walls, and floor rim joist areas separating conditioned from unconditioned spaces. • At all joints, seams and penetrations of the building thermal envelope. • At all electrical, plumbing, mechanical and other penetrations of the interior air barrier. • At all interconnections in the thermal envelope between concealed vertical and horizontal spaces such as soffits, drop ceilings, cove ceilings and similar locations.	**LOCATIONS WHERE THE AIR BARRIER MUST BE SEALED: (continued)** • In concealed spaces between stairs, fireplace framing, partition walls, chases, tubs and showers directly adjacent to the building thermal envelope. • At openings between framing members and window and door frames and jams

INTEGRAL FOUNDATION INSULATION	RIGID INTERIOR INSULATION	SPRAY APPLIED INTERIOR INSULATION	SEMI-RIGID INTERIOR INSULATION	UNFACED FIBERGLASS BATT INSULATION
Integral foundation insulation is an engineered poured wall system with a rigid foam core. Each manufacturer will have specific requirements which must be followed.	• Must comply with ASTM C578 or C1289. • Dampproofing, waterproofing, or a water repellant must be applied to the exposed above grade foundation walls or a layer of dampproofing or waterproofing must be installed on the entire inside surface of the foundation wall. Water repellant materials must comply with ASTM E514. • Must be in contact with the foundation wall surface. • Vertical edges must be sealed with acoustic sealant. • All interior joint, edges and penetrations must be sealed against air and water vapor penetration. • Horizontally continuous acoustic sealant must be installed between the foundation wall and the insulation at the top of the foundation wall. • Horizontally continuous acoustic sealant must be installed between the basement floor and the bottom insulation edge. • The insulation must not be penetrated by the placement of utilities or by fasteners or connectors used to install a frame wall.	**CLOSED CELL POLYURETHANE** • Must comply with ASTM 1029 with a permeance of not greater than 1. • Must be sprayed directly onto the foundation wall surface. • There must be a 1-inch minimum gap between the foundation wall surface and the framing. • The insulation must not be penetrated by the placement of utilities. • All through penetrations must be sealed. **½ LB. FREE RISE OPEN CELL FOAM** • Must be sprayed directly onto the foundation wall surface. • There must be a 1-inch minimum gap between the foundation wall surface and any framing. • The insulation must not be penetrated by the placement of utilities. • All through penetrations must be sealed.	• Must comply with ASTM C1621 with a maximum permeance of 1.1 per inch. • Must have a minimum density of 1.3 pcf and must have a fungal resistance per ASTM C1338. • Must be in contact with the foundation wall surface. • Vertical edges must be sealed with acoustic sealant. • All interior joints, edges and penetrations must be sealed against air and water vapor penetration. • Horizontally continuous acoustic sealant must be installed between the foundation wall and the insulation at the top of the foundation wall. • Horizontally continuous acoustic sealant must be installed between the basement floor and the bottom insulation edge.	• Waterproofing must be applied to the entire inside surface of the foundation wall. • The top and bottom plates must be air sealed to the foundation wall surface and the basement floor. • An air barrier material and vapor retarder material with a minimum permeance of at least 1 according to ASTM E96 to be installed in the following manner: 1) Must be air sealed to the framing with construction adhesive or equivalent at the top and bottom plates and where the adjacent wall is insulated; and 2) Must be air sealed to utility boxes and other penetrations; and 3) All seams must be overlapped at least 6-inches and sealed with compatible sealing tape or equivalent. **NOTE: This is the only application where exceeding R-10 foundation insulation is permitted. In this application, it is allowable to install up to an R-13 fiberglass batt.**

INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT [a]

	Fenestration U-Factor [b]	Skylight U-Factor	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value [f]	Floor R-Value	Foundation Wall & Rim Joist R-Value	Slab [c] R-Value & Depth	Crawl Space Wall R-Value
Northern Climate Zone	0.35	0.60	44	19	15	30 [d]	10	10, 5 feet	10
Southern Climate Zone	0.35	0.60	38	19 or 13 + 5 [e]	15	30 [d]	10	10, 3.5 feet	10

Footnotes: (a) R-values are minimums. U-factors are maximums. R-19 shall be permitted to be compressed into a 2 X 6 cavity.
(b) The fenestration U-factor column excludes skylights.
(c) R-5 must be added to the required slab edge R-values for heated slabs.
(d) Or insulation sufficient to fill framing cavity, R-19 minimum.
(e) N/A in Northern Climate
(f) When using log type construction for thermal mass walls, the following will apply: 1) A minimum of a 7-inch diameter log shall be used. 2) The U-value of the fenestration products must be 0.31 overall average, or better.