

To be completed by Chair										To be completed by TAG members			
Item No.	Minnesota Code Section	"I" Code Section	Subject	Current Minnesota Amend	Description of Change	Safety & Health Value	Cost Impact	Recommendation: A - Accept R - Reject AM - Amend Comments	Recommendation A - Accept R - Reject AM - Amend	TAG Group Consensus	Stakeholder Consensus	Comments	
				Y or N		N None, L=Low M Med, H=High	Y or N			Y or N			
<b>COLOR KEY:</b>													
RED Item = Items that need to be revisited.													
PURPLE item = Code change proposal submitted.													
<b>CHAPTER 4</b>													
SECTION R401 GENERAL													
<a href="#">Go to End of List</a>													
401-1	R401.1	R401.1	Scope.	N	No change.	N	N	A - Adopt as written	A	Y	Y	This could replace language in MR 1322.0100 Subp. 2 "Scope".	
401-2	R401.2	R401.2	Application/ Compliance.	N	Different language in 2021 IECC. With the new paths in the '21, plus the "Existing Buildings" content, the language needs updating.			A - Adopt as written	A	Y	Y		
401-3	NA	R401.2.1	Prescriptive option.	N	This and the following sections provide guidance to understand which subsequent sections must be used depending on the compliance path chosen. This guides the user to R401 General, R402 Building Thermal Envelope, R403 Systems, and R404 Electrical Power and Lighting.				A	Y	Y		
401-4	NA	R401.2.2	Total building performance option.	N	This path guides the user to R405 Total Building Performance.				A	Y	Y		
401-5	NA	R401.2.3	Energy Rating Index (ERI) option.	N	This path guides the user to R406 ERI Compliance Alternative.				A	Y	Y		
401-6	NA	R401.2.4	Tropical climate region option.	N	This path guides the user to R407 Tropical Climate Region Compliance Path. No relevance to MN as we are not tropical.	N	N	AM - Delete section.	AM	Y	Y		
401-7 (Code Change Submitted - RE-5)	NA	R401.2.5	Additional energy efficiency.	N	This section identifies additional items that must be adhered to based on which compliance path is selected.				A	Y	Y		
401-8	R401.3	R401.3	Certificate.	Y	Similar language between MN & '21 text, suggest combining to take the best of both sections and remove irrelevant content. Maintain numbered format as it reads better.			AM - Combine relevant and best language between MRE & IECC.				DLI will study to see if we need the amended language.	
SECTION R402 BUILDING THERMAL ENVELOPE													
402-1	R402.1	R402.1	General.	N	The leading paragraph includes the addition of a reference to R402.1.5 due to differences in the content and layout of the codes in R402.1.1 - 402.1.5.		M		A	Y	Y		
402-2	NA	R402.1.1	Vapor retarder.	N	Provides a pointer to the IRC or IBC as applicable, where vapor retarders are addressed.	N	N	A - Adopt as written	AM	Y	Y	Add: An equivalent vapor retarder shall be provided on the warm-in-winter side of assemblies where part of the building thermal envelope.	
402-3	R402.1.1	R402.1.2	Insulation and fenestration criteria.	Y	In MN code, waterproofing is also addressed in this section due to statutory durability requirements. U-factor and SHGC are also noted with a reference to Table R402.1.2.			AM - Include waterproofing content from MRE.	AM	Y	Y	Relocate amended language to foundation walls section and retain model code language here. Insert amended language into 402.2.8 and 402.2.10.	

402-4 (Code Change Submitted - RE-12)	Table R402.1.3	Table R402.1.2	Maximum assembly U-factors and fenestration requirements.	N	U-factor table is now located earlier in the IECC, it is one section later in the MRE. Comparing the tables, the IECC is slightly more efficient and fenestration U-factor decreases from .32 to .30. Skylights are unchanged. Ceiling U-factor reduces from .026 to .024. Mass walls, floors, basement walls and crawl space walls did not change in zones 5-8.  Suggest deleting zones 0-4, as well as climate zones marine 4 and 8. MN will now need Zone 5 for SE MN.	L	M	AM - Delete zones 0-4, as well as climate zones marine 4 and 8. Only leave zones 5-7. Footnotes: Delete references to zones other than 5-7 in b. Delete c, e, & f (highest point in MN is 2,301ft above sea level). Delete exception in d.					Revisit with submitted code change proposal. Topic tabled.
402-5	NA	R402.1.3	R-value alternative.		The '21 IECC takes a slightly different angle in that it lists the U-factor approach and table before the R-value approach and table. This section simply allows the use use of R-values and points the user to the R-value table (R402.1.3) in lieu of using U-factors. IECC Table R402.1.3 is Table R402.1.1 in the MRE.	N	N	A - Adopt as written					Table for review of code change proposal next meeting.
402-6 (Code Change Submitted - RE-6)	Table R402.1.1	Table R402.1.3	Insulation Minimum R-values and Fenestration Requirements by Component.	Y	Table has been retitled and updated with greater efficiencies for components. MN will need Zone 5 for SE MN. U-factors have been copied over from U-factor table, however there is a mistake in the SHGC. The intention is that the SHGC is not required in Zone 5, but the table states zone 5 is to meet 0.40, but states NR in Table 402.1.2. This will be fixed in the '24 IECC-R. We could consider removing the U-factor columns from the R-value table altogether and leaving U-factors in the Table 402.1.2.  Regarding R-values, ceiling has increased from 49 to 60, wood frame walls increase and add additional CI options: 20 + 5ci, 13 + 10ci, or 0 + 20. 30 is added in the erratum.  Note there are other Erratum to this section to consider.	L	H	AM - Delete exception to footnote b, and delete footnotes e, f, and i as it does not pertain to MN. Consider deleting U-factor content. Change SHGC in Zone 5 to NR.					Table for review of code change proposal next meeting.
402-7	R402.1.2	R402.1.4	R-value computation.	N	This section exists in the MRE for the most part, but is expanded and clarified in the IECC. The point of the section is that the user cannot just add up the R values of multiple components. Rather, the components must be summed based on the relative location in the assembly.	L	L	A - Adopt as written	A	Y	Y		
402-8	R402.1.4	R402.1.5	Total UA alternative.	N	Expands on content in MRE. Adds instruction that calculation must be in accord with ASHRAE Handbook of Fundamentals.	L	L	A - Adopt as written	A	Y	y		May need to readdress if U-value tables adjusted for fenestration.
402-9	R402.2	R402.2	Specific insulation requirements.	N	The word "(Prescriptive)" was removed in the IECC.	N	N	A - Adopt as written	A	Y	Y		
402-10	R402.2.1	R402.2.1	Ceilings with attic spaces.	N	This section reads essentially the same as in the MRE, except the R values are increased to parallel those in Table R402.1.3. Allows a reduced insulation value where a uniform thickness of insulation can be accommodated due to an adequately tall energy heel.  Suggest deleting first sentence, as R-49 only applies to Zone 3 and south. Zones 5-7 all require the same attic R-value. Leaving the first sentence leads to confusion as to what the actual attic requirements are, as users do not realize the MN edition stems from model code language.	L	M	AM - Delete first sentence.	AM	Y	Y		Amend to delete first sentence. Delete "with attics."

402-11	R402.2.2	R402.2.2	Ceilings without attic spaces.	N	These sections are nearly identical in both codes. There are minor changes to the exact language in the IECC. The overall application is the same.	N	N	A - Adopt as written		AM	Y	Y	Amend to delete section.
402-12	R402.2.3	R402.2.3	Eave baffle	N	The IECC has added content in this section to further clarify the intent. The overall outcome is the same.			A - Adopt as written		Table			Modify title to read "Wind wash prevention". Add to end: Wind wash baffle shall be provided to separate air permeable insulation from the ventilation intake space. John Smith will research to develop language
402-13 (Code Change Submitted - CCP RE-16)	R402.2.4	R402.2.4	Access hatches and doors.	N	Similar language to the MRE. Two exceptions are added. Recommend deleting the second exception as it does not pertain to MN climate zones.	N	N	AM - Delete second exception.		AM			Amend to delete exceptions. DLI to write.
402-14	NA	R402.2.4.1	Access hatches and door insulation installation and retention.	N	Similar language to the MRE with revisions.	N	N	A - Adopt as written					Amend to delete exceptions. DLI to write.
402-15	R402.2.5	R402.2.5	Mass walls.	N	Similar language to the MRE with revisions. Added an empirical specification regarding walls with a heat capacity greater than or equal to 6 Btu/SF x degrees F.	N	N	A - Adopt as written					
402-16	R402.2.6	R402.2.6	Steel-frame ceilings, walls and floors.	N	Same content in MRE, just updated the reference to Table R402.1.2 for U-factors.	N	N	A - Adopt as written					
402-17	Table R402.2.6	Table R402.2.6	Steel-frame ceiling, wall and floor insulation R-values.	N	Some of the R-values have been updated in the IECC. MN does not often frame houses in steel, so this content has little impact.	N	N	A - Adopt as written					
402-18	R402.2.7	R402.2.7	Floors.	N	This section has been updated to differentiate among 3 potential prescriptive ways to install the insulation: 1). It is in contact with the bottom of the subfloor. 2). It is contact with top of the ceiling below, with airspace between the top of the insulation and the bottom of the subfloor. Requires the outer perimeter to have full depth insulation so the rim area is not left uninsulated. 3). The third is like option #2, but incorporates continuous insulation.  I see no problem with the outcome of this section, but suggest considering changing the language to make it more clear, or adding pictures as it is confusing to read.	L	L	AM - Consider adjusting to make easier to understand.					
402-19	R402.2.8	R402.2.8	Basement walls.	Y	For the prescriptive path, the MRE requires a minimum of R-10 to be on the exterior of the wall, whereas the IECC does not specify which side of the wall the insulation must be. The content in the MRE was based on building science research and may need to be evaluated again based on statute.  The charging language in the IECC requires all basements to be insulated, then gives an exception where 6 items must be met. In the MRE, the requirements only apply to conditioned basements. The IECC is more restrictive in that the exceptions limit the ability to have an unconditioned basement. This is largely irrelevant in MN as we rarely see unconditioned basements.	M	L	Comment: May be subject to building science research.					

402-20	R402.2.8	R402.2.8.1	Basement wall insulation installation.	Y	This section addresses how far the insulation must be installed down the wall. The IECC requires it to go to the top of the floor, whereas the MRE requires it to go to the top of the footing. Some if this depends if the insulation is installed on the interior or exterior of the wall. Given most foundation insulation is installed on the exterior in MN, the MRE is slightly more restrictive. The sections are very similar. The content may change based on building science research.	L	L	Comment: May be subject to building science research.					
402-21	R402.2.9	R402.2.9	Slab-on-grade floors.	N	The IECC and MRE essentially have the same content, except that the IECC divides the content into two main sections like the basement insulation content: main requirement including an exception, then how it must be done.	N	N	A - Adopt as written					
402-22	R402.2.9	R402.2.9.1	Slab-on-grade floor insulation installation.	N	Merely restructures same content that is in MRE.	N	N	A - Adopt as written					
402-23	R402.2.10	R402.2.10	Crawl space walls.	N	The IECC and MRE essentially have the same content, except that the IECC divides the content into two main sections like the basement insulation content: main requirement including an exception, then how it must be done.  The issue with this section in the MRE is that it was never amended to align with the basement provisions. A conditioned crawl space is essentially just a short basement. Therefore, it seems to make sense to parallel foundation insulation requirements for conditioned crawl spaces with those of conditioned basements.	N	N	AM - Amend to parallel language for conditioned basements. May be subject to building science research.					
402-24	R402.2.10	R402.2.10.1	Crawl space wall insulation installations.	N	See comments for R402.2.10 directly above.	N	N	See comments for R402.2.10 directly above.					
402-25	R402.2.11	R402.2.11	Masonry veneer.	N	No changes.	N	N	A - Adopt as written					
402-26	R402.2.12	R402.2.12	Sunroom and heated garage insulation.	N	Thermal envelope provisions for garages are now specifically addressed in the energy code. The exceptions and R-values given for thermally isolated sunrooms are the same as in the MRE, and now also apply to garages.	N	N	A - Adopt as written					
402-27	R402.3	R402.3	Fenestration.	N	The content is the same as the MRE, except that reference to R402.3.6 (Replacement fenestration) has been removed as the section is no longer located here.	N	N	A - Adopt as written					
402-28	R402.3.1	R402.3.1	U-factor.	N	No changes.	N	N	A - Adopt as written					
402-29	R402.3.2	R402.3.2	Glazed fenestration SHGC.	N	Same content in MRE, but added section regarding dynamic glazing. Serves no purpose in MN as we do not regulate SHGC.	N	N	A - Adopt as written, could also be deleted.					
402-30	R402.3.3	R402.3.3	Glazed fenestration exemption.	N	The language is slightly different in the IECC, but the outcome is essentially the same. The SHGC content will not affect MN. Interesting use of the word "shall" vs. "may" in terms of applying the exemption.	N	N	Comment: Either adopt as written, or amend to use language in MRE.					
402-31	R402.3.4	R402.3.4	Opaque door exemption.	N	The language is slightly different in the IECC, but the outcome is essentially the same. Interesting use of the word "shall" vs. "may" in terms of applying the exemption.								

402-32	R402.3.5	R402.3.5	Sunroom and heated garage fenestration.	N	Section clarifies its application to sunrooms as well as heated garages. Heated garages are presently not explicitly addressed in the MRE. The exception to allow reduced U-factor remains the same in MN climate zones. The section adds clarification for new fenestration separating sunrooms or heated garages.	N	N	A - Adopt as written					
402-33	R402.4	R402.4	Air leakage.	N	Same provision in the MRE, but now includes reference to the additional section of R402.4.5. The additional section stems from adding R402.4.4 "Rooms containing fuel-burning appliances".	N	N	A - Adopt as written					
402-34	R402.4.1	R402.4.1	Building thermal envelope.	N	Same provision in the MRE, but now includes reference to the additional section of R402.4.1.3 "Leakage rate".	N	N	A - Adopt as written					
402-35	R402.4.1.1	R402.4.1.1	Installation.	N	Same language as the MRE.	N	N	A - Adopt as written					
402-36	Table R402.4.1.1	Table R402.4.1.1	Air barrier, air sealing and insulation installation.	N	The table is very similar to the MRE, with minor updates and clarifications.	L	L	A - Adopt as written					
402-37	R402.4.1.2	R402.4.1.2	Testing.	N	In the '21, more specific testing backstops were moved to R402.4.1.3 "Leakage rate". Additionally, an option is added to calculate the leakage based on CFM leakage per area of the enclosure. The latter change will help smaller dwellings pass the test due to challenges resulting from lower volumes of air. An exception is added for two situations whereby the requirement is reduced to .30 CUFT/Min per SF of enclosure area.	L	L	A - Adopt as written					
402-38 (Code Change Submitted - RE-4)	NA	R402.4.1.3	Leakage Rate.	N	This section provides the allowable leakage rate based on climate zone when following the prescriptive compliance option. Other compliance paths allow tradeoffs for leakage.								
402-39	R402.4.2	R402.4.2	Fireplaces.	N	The first sentence is the same, but the '21 adds content regarding the doors for factory built fireplaces listed to UL 127.	L	L	A - Adopt as written					
402-40	R402.4.3	R402.4.3	Fenestration air leakage.	N	Same language as the MRE.	L	L	A - Adopt as written					
402-41	NA	R402.4.4	Rooms containing fuel-burning appliances.	N	New provision in '21.	L	M	Merits discussion					
402-42	R402.4.4	R402.4.5	Recessed lighting.	N	Minor changes in text, same net requirement and outcome.	L	L	A - Adopt as written					
402-43	NA	R402.4.6	Electrical and communication outlet boxes (air-sealed boxes).	N	Provides specifications for boxes installed in the thermal envelope. Air sealed boxes are required in the MRE in Table R402.4.1.1.	L	L	A - Adopt as written					
402-44	R402.5	R402.5	Maximum fenestration U-factor and SHGC.	N	Same net outcome as in MRE. Exception is added in '21 for storm shelters.	L	L	AM - Delete content not pertaining to MN Climate zones.					
SECTION R403 SYSTEMS													
403-1	R403.1	R403.1	Controls.	N	Same net outcome, slightly different language.	L	L	A - Adopt as written					
403-2	R403.1.1	R403.1.1	Programmable thermostat.	N	Similar requirement, but instead of applying exclusively to forced air furnaces, it now applies to the primary heating or cooling system.	L	L	A - Adopt as written					
403-3	R403.1.2	R403.1.2	Heat pump supplementary heat.	N	Identical provision.	L	L	A - Adopt as written					

403-4	NA	R403.2	Hot water boiler temperature reset.	N	New provision.  2021 IECC-R Commentary: "This section provides a requirement that gives each household with a hot water boiler an opportunity for energy savings by requiring a reset that will automatically adjust the temperature of the water based on ambient conditions. The exception for domestic hot water is included to allow the sale of boilers with integrated domestic hot water production. This section aligns the IECC with federal regulations CFR10 Part 430 Subpart C (e)(2), which were in effect at the time the 2021 IECC was being developed. All equipment manufactured for sale in the US is required to meet this standard. Federal appliance standards are subject to change."			A - Adopt as written					
403-5	R403.2	R403.3	Ducts.	N	Specifies sections for which ducts must comply.			A - Adopt as written					
403-6	R403.2.1	R403.3.1	Ducts located outside conditioned space.	Y	Addresses insulation of ducts outside conditioned space. In the MRE, this was largely located within Table R403.2.1. A distinction has been drawn for insulation levels on ducts above or below 3" in diameter.  Exhaust ducts are not addressed here as they are in the MRE. Section moves backwards from MRE. Need to review all of R403 against similar provisions of the MRE.			AM - Maintain backstops set in 2015 MRE, but using the IECC-R template as much as possible.					
403-7	R403.2.1	R403.3.2	Ducts located in conditioned space.	Y	This intent of this section is helpful to clarify what it means for ducts to be considered in conditioned space, however it is a step backwards from a past code opinion given by the state in the past on the topic by only requiring R19 between duct and unconditioned space. Installing a continuous air barrier below the duct could be problematic if a vapor barrier such as poly is installed on the cold side of the floor assembly to accomplish the requirement.			AM - Maintain backstops set in 2015 MRE, but using the IECC-R template as much as possible.					
403-8	R403.2.1	R403.3.3	Ducts buried within ceiling insulation.	Y	Details are provided here when ducts are partly or completely buried in ceiling insulation.  The section is a bit confusing when also reading R403.3.1. It could be read to indicate that ductwork in an attic area must be covered with insulation to R19...? Item #1 will be unnecessary if we maintain current backstop of R8, and item #3 has no relevance to MN.			AM - Review with the rest of R403 for possible changes.					
403-9	NA	R403.3.3.1	Effective R-value of deeply buried ducts.	N	Gives effective duct insulation value in ceilings if using Total Building Performance Option.	L	L	A - Adopt as written					
403-10	R403.2.2	R403.3.4	Sealing.	N	Same beginning language in both codes, however MRE includes exceptions not located in the IECC. Discuss appropriateness of maintaining exceptions. Exception #2 seems out of place to include in Energy code.	L	L	Discuss					
403-11	R403.2.2.1	R403.3.4.1	Sealed air handler.	N	Same language in both codes.	L	L	A - Adopt as written					
403-12	R403.2.2	R403.3.5	Duct testing.	N	Sets criteria for testing. Reference to ANSI/RESNET/ICC 380 or ASTM E1554 are not in the MRE.								

403-13		R403.3.6											
403-14		R403.3.7											
403-15		R403.4											
403-16		R403.4.1											
403-17		R403.5											
403-18		R403.5.1											
403-19		R403.5.1.1											
403-20		R403.5.1.1.1											
403-21		R403.5.1.2											
403-22		R403.5.2											
403-23		R403.5.3											
403-24		R403.6											
403-25	(Code Change Submitted - RE-7)	R403.6.1											
403-26		R403.6.2											
403-27		Table R403.6.2											
403-28		R403.6.3											
403-29		R403.7											
403-30		R403.8											
403-31		R403.9											
403-32		R403.10											
403-33		R403.10.1											
403-34		R403.10.2											
403-35		R403.10.3											
403-36		R403.11											
403-37		R403.12											
SECTION R404 ELECTRICAL POWER AND LIGHTING SYSTEMS													
(Code Change Submitted - RE-8,9,10,11,13)		R404.4											
SECTION R405 TOTAL BUILDING PERFORMANCE													
SECTION R406 ENERGY RATING INDEX COMPLIANCE ALTERNATIVE													
Discuss definitions: 202-45 ERI Reference Design 202-68 Rated design 202-70 Renewable Energy Certificate (REC)													
SECTION R407 TROPICAL CLIMATE REGION COMPLIANCE PATH													
SECTION R408 ADDITIONAL EFFICIENCY PACKAGE OPTIONS													
(Code Change Submitted - RE-14)													

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