

New Changes in the 2018 International Code TAG Review Worksheet

Model Code: 2018 IBC

To be completed by Chair								To be completed by TAG members				
90.1 2019 Section	90.1 2016 Section- if different	Related IECC Section	Subject	Current Minnesota Amend	Description of Change	Safety & Health Value	Cost Impact	Recommendation A Accept R - Reject AM Amend or Comments	Recommendation A - Accept R - Reject AM - Amend	TAG Group Consensus	Stakeholder Consensus	Comments
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MR 1323	MN Energy Code Rule											
1323.0010 Subparts 1, 2 and 3			Mandatory Chapters	Y	Change of Model Code from IECC to ASHRAE 90.1			AM				
1323.0100	Subpart 2		Scope		Modify scope to rephrase from commercial to non-residential buildings, residential buildings more than three stories in height, and historical residential buildings less than three stories in height not classified as IRC-1, IRC-2, IRC-3, or IRC-4.			AM- GSM Revised language specific to Model Code Section 2 Scope. Criteria for historic buildings, alterations, and change of occupancy handled elsewhere. Accepted by TAG	AM			
1323.0100	Subpart 3		Additions, alterations, renovations, or repairs		Delete amendments and retain model code language similar and found in 5.1.3 exceptions.			AM-Renumber and modify this section. Add new amendments to include in Model Code Scoping Section 2. Incorporate detailed scoping into Section 4.1.1 Scope, 4.2 Compliance, and 5.1.3 Exceptions to Envelope Alterations. TAG recommends amending to delete.	AM			
1323.0100	Subpart 4		Change of occupancy or use		Add language to include historical buildings and preserving historic character.			AM-Renumber and modify this section. Add new amendments to include in Model Code Scoping Section 2. Incorporate detailed scoping into Section 4.1.1 Scope as 4.1.1.8 Change of Occupancy. TAG recommends amending to delete.	AM			
1323.0100	Subpart 5		Change in Space Conditioning		Modified to include requirements for semi-heated space conversions.			Repeal. Model code language is more applicable in Section 4.1.1.5	AM to Repeal			

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1323.0100	Subpart 6		Compliance		Language modified to exclude residential buildings three stories and fewer in height instead of all residential buildings.			Repeal and incorporate language into amended model code section 2 Scope.	AM to Repeal			
1323.0100	Subpart 7		Mixed Occupancy		Clarifying exactly which occupancy group portions of mixed occupancy buildings shall comply with MR 1322.			Repeal and incorporate language into amended model code section 2.6 and 4.1.1.6.	AM to Repeal			
1323.0100	Subpart 8		Compliance Materials		Repeal. This language is incorporated into the Duties and Powers of the Building Official found in Minnesota Rule 1300.0130, Subpart 2.			Repeal.	AM to Repeal			
1323.0100	Subpart 9		Already repealed									
1323.0100	Subpart 10		Information on Construction Documents		Renumber and incorporate into model code section 4.2.5.1.1 Information on Building Permit Application			AM- Amended to incorporate these specific submittal requirement items into the application criteria in 4.2.5.1.1.	AM			
Chapter 2 SCOPE												
2.2			Scoping		Modified to exclude IRC-1, IRC-2, IRC-3 and IRC-4 buildings as well as multi-family structures three stories or fewer in height (except historical buildings), manufactured houses, and buildings that don't use electricity or fossil fuels.			AM-Review Section 2 revised proposal clarifying incorporation of buildings using site generated energy. Accepted by TAG.	AM			
Chapter 3 DEFINITIONS												
			Building Entrance		Consider Amending to Clarify			Discussed to remove "Exit From." TAG opted to retain model code language as written.	R			
			Building Exit		Removed			A	A			
			Building Grounds Lighting		Removed			A	A			
			Building Service		Added			A	A			
			Building Service Equipment		Added			A	A			
			Ceiling Fan		Added			A	A			
			Coefficient of Performance		Modified			A	A			
			Commissioning		Modified			A	A			

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			Commissioning Provider		Added			A	A			
			Computer Room Energy		Deleted			A	A			
			Conductance		Deleted			A	A			
			Continuous Dimming		Added			A	A			
			Cooling Design Wet Bulb Temperature		Deleted			A	A			
			Daylight Area Under Skylights in Multi-story spaces		Added			A	A			
			Door		Modified- Added Sectional garage door			Discussed amending, but the actual definition of sectional garage door is adequate. Retain model code language as written.	A			
			Energy Recovery Ratio, Series (SEER)		Added			A	A			
			Energy Recovery, series		Added			A	A			
			Equipment		Modified- More specific			A	A			
			Fan Array		Added			A	A			
			Fan, Embedded		Added			A	A			
			Fan Energy Index (FEI)		Added			A	A			
			Fan Nameplate Electrical Input Power`		Added			A	A			
			Fan system electrical power		Added			A	A			
			Fenestration		Modified			A	A			
			Fixed		Deleted			A	A			
			Floor Area, Gross- Gross Building Envelope Floor Area		Deleted			A	A			
			Floor Area, Gross- Gross Semi-Heated Floor Area		Deleted			A	A			
			Functional Performance Testing		Added			A	A			
			Gross Conditioned Floor Area		Added			A	A			
			Humidistatic Controls		Modified			A	A			
			Metal Framing		Added			A	A			
			Multi-level Occupancy Sensor		Deleted			A	A			
			Multiscene control		Deleted			A	A			
			Non-metal framing		Added			A	A			
			non-renewable energy		Deleted			A	A			
			Non-transient		Added			A	A			

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				Y or N		N=None, L=Low M=Med, H=High	A		Y or N	Y or N		
			Occupied Stand-by mode		Added			A	A			
			Off-mode power consumption		Added			A	A			
			on-site electricity generation systems		Added			A	A			
			PEI _{CL}		Added			A	A			
			PEI _{VL}		Added			A	A			
			PER _{CL}		Added			A	A			
			PER _{STD}		Added			A	A			
			PER _{VL}		Added			A	A			
			Primary Side-lighted Area		Added			A	A			
			Process Application		Added			A	A			
			Power Usage Effectiveness (PUE)		Deleted			A	A			
			Process Energy		Modified			A	A			
			Pump System Power		Deleted			A	A			
			Pump		Added			A	A			
			Pump- Clean Water Pump		Added			A	A			
			Pump- End Suction Closed Coupled (ESCC) pump		Added			A	A			
			Pump- End suction frame-mounted/own-bearnings (ESFM) pump		Added			A	A			
			Pump- inline pump		Added			A	A			
			Pump- Radially split, multistage, vertical inline diffuser casing (RSV) pump		Added			A	A			
			Pump- Submersible turbine (ST) pump		Added			A	A			
			Sensible Cooling Panel		Deleted			A	A			
			Service		Deleted			A	A			
			Service Equipment		Deleted			A	A			
			Simulation Program		Modified			A	A			
			Standby Power Mode Consumption		Added			A	A			
			Unitary cooling equipment		Deleted			A	A			
			Unitary Air Conditioners		Same definition as Unitary Cooling Eq.			A	A			
			Verification and Testing Provider		Added			A	A			
			Vertical Fenestration		Modified			A	A			
Chapter 4												
4.1.1.2			Additions to Existing Buildings		Modified to include defined terms: Additions, and Existing Buildings			Accept model code.	A			
4.1.1.6			Mixed Occupancy Buildings		Integrate clarified requirements for mixed occupancy buildings into the model code.			AM-Modified to clarify treatment of mixed occupancy buildings. Accepted by TAG	AM			

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4.1.1.7		C401.3	Heating of public commercial parking facilities prohibited		Carry-over of existing amendment from state statute 216C.20, Subdivision 3.			AM- Modified to integrate into Section Change to Chapter 6. GSM to look into Statutory language for final scoping application provisions and will discuss again.				
4.1.1.8		1323.0100, Subp 4	Change of Occupancy		Integrate clarified requirements for change of occupancy buildings and parts of buildings into the model code.			Repeal.	Amend to Repeal			
4.2.1.3		C402.2.1.2	Compliance Paths- Alterations to Existing Buildings		Adding an exception for historical buildings to eliminate requirements for elements deemed historically significant rather than carte blanc exemption.			AM TAG accepted as written.	AM			
4.2.1.5.1.1		1323.0100, Subp 10	Information on Bulding Permit Application		Incorporate current application documentation requirements into the model code language.			AM TAG accepted as Modified.	AM			
4.2.5			Verification, Testing and Commissioning		Modified- Greatly expanded.			A	A			
Chapter 5												
5.1.2		1323.0100, Subp 5	Space Conditioning		Adding language to require Builidng Official approval to sprinkle a semi-heated building and posted signage for semi-heated buildings.			AM	AM			
5.1.3		1323.0100, Subp 3	Envelope Alterations		Modify exceptions by: Deleting exception for partial window replacement, Adding exceptions for roof replacement and historical buildings.			AM	AM			
5.2.1			Compliance Paths- Requirements for All Compliance Paths		Reformatted with no material change.			A	A			
5.4.3			Air Leakage		Charging language added to clarify requirements. No material change.			A	A			
5.4.3.1			Air Tightness		Increased air tightness requirements for new buildings.			AM				
5.4.3.1.1	5.4.3.1.3		Whole Building Air Leakage		Reformatted and slightly relocated section. Essentially requires a blower door test for buildings with conditioned and semi-conditioned space to ensure an air leakage rate of 0.40 cfm/ft ² or less. Exception allows an air leakage rate of up to 0.60 0.40 cfm/ft ² with tracing and strategic sealing...no follow up test. Deleted the design option of just providing air resistant materials and not dealing with the connections.			A	A			
5.4.3.1.2	5.4.3.1		Continuous Air Barrier Design and Installation		Refomatted with no material change.			A	A			
5.4.3.3			Vestibules and Revolving Doors		Reformatted with no material change for our climate zones. Note: The definition of <i>Building Entrance</i> is different than the IECC and results in a more restrictive application than IECC.			AM- Amend to delete exceptions from this section and relocate them to 5.4.3.3.1	AM			

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5.4.3.3.1			Vestibule Locations		Amend to clarify vestibule requirements and relocate exceptions from 5.4.3.3 to 5.4.3.3.1			AM- Modify language to clarify where vestibules are required. Relocate exceptions from 5.4.3.3 to here for clarity.	AM			
5.4.3.3.2			Vestibule Size		New section introduces size (area) limits and configuration so that doors are not required to be opened at the same time.			A	A			
5.5.1			Exerior Building Envelope		Modified to include a requirement that the exterior surfaces of a conditioned vestibule shall comply with the building envelope requiriments of a conditioned space.			A	A			
5.5.3.1			Roof Insulation (Curbs)		Language revised to required minimum R-10 at skylight curbs and other roof curbs.			AM				
5.5.3.2			Above Grade Wall Insulation		Eliminating non-applicable conditions and requiring that buidling wall insulation shall be either exterior or integral to the wall and not on the interior side.			AM				
5.5.3.3			Below Grade Wall Insulation		Adding language to require insulation to either be located on the exterior side of the wall or integral to the wall, eliminating the option for interior insulation.			AM				
5.5.3.5			Slab-on-Grade Floor Insulation		Adding language to require insulation to be located on the exterior side of the foundation. Adding requirement for minimum R-5 continuous insulation under slabs at conditioned spaces.			AM				
5.5.3.7			Below Grade Slab-on-Ground Insulation		Adding language to require continuous insulation below all slabs-on-grade whether located at ground level or below ground level.			AM				
5.7			Submittals		Substantially reformatted into requirements for plan review (permit application) and closeout (Completion). Permit application requirements are materially the same. Completion requirements are new.			A	A			
5.8.1.2 Exception			Mfg Installation Instr.		Modified to clarify requirements for pre-engineered metal building insulation installation.			A	A			
5.8.1.11			Insulation Installation Documentation		New section added to require an affidavit from the installer certifying that the insulation was installed in accordance with its listing.			A	A			
5.8.2.5			Exception Added		Exception criteria added for tubular daylighting devices.			A	A			
5.8.3			Air Leakage		New section			A	A			
5.9.1	5.9.2		Building Envelope Performance Verification		Relocated section			A	A			
5.9.2			Commissioning		New: Commissioning of the building envelope now required with report provided.			A	A			

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6.1.1.3.6			Alterations to Existing Buildings- Rooftop HVACR		Add section to require curb replacement when rooftop equipment is changed and the existing roof curbs do not permit installation of roof insulation to current code required thicknesses.			AM- TAG Approved as modified.	AM			
6.1.1.5			Prohibition of once-through water use		Continuing forward the state amendment to prohibit once-through water use for building cooling. Renumbering.			AM- TAG Approved as modified.	AM			
6.2.1			Requirements for all compliance paths		Modified for clarity with no material change. Parts of the previous version's section migrated to 6.2.2.			A	A			
6.2.2			Additional Requirements to comply with Section 6		Deleted referece to Energy Cost Budget Method in Section 11. Modified to expand on the previous version's section 6.2.1 to provide more clarity.			TAG Rejected.	R			
			Exception 6.2.2(a)		Added as part of modification ot 6.2.1, no material change.			A	A			
			Exception 6.2.2(b)		New exception in this section for HVAC systems serving computer rooms > 10KW of equipment power.			A	A			
6.3.2			Simplified Approach Criteria		Item r: added compliance with occupied-standby controls in Section 6.5.3.8.			A	A			
6.4.1.1			Mandatory Provisions- Minimum Equipment Efficiencies		Expanded section scoping range from (6.8.1-1 through 6.8.1-16) to (6.8.1-1 through 6.8.1-20)			A	A			
			Item h Deleted		Deleted: "Table 6.8.1-8 Heat transfer equipment"			A	A			
			Item h Relocated		Relocated from Item J			A	A			
			Item I Modified		Added: Applied Heat Pumps to combine Item I with previous Item j.			A	A			
			Item j		Moved to Item h.			A	A			
			Item j		Previously Item k: Modified to specifically address floor mounted air conditioners.			A	A			
			Item K		Relocated to Item J			A	A			
			Item K		Previously Item L: Modified with no material change.			A	A			
			Item L		Deleted: "Table 6.8.1-12 "commercial refrigerator and freezers minimum efficiency"			A	A			
			Item L		Relocated from Item N- Vapor compression based indoor pool dehumidifiers.			A	A			
			Item m		Previous Item m Deleted: "Table 6.8.1-13 Commercial Refrigeration- minimum efficiency requirements"			A	A			
			Item m		Relocated from Item O			A	A			
			Item n		Relocated to item L			A	A			
			Item n		Relocated from item P			A	A			
			Item O		Relocated to Item m			A	A			
			Item O		New section: Table 6.8.1-15 Electrically Operated Water-source Heat Pumps- minimum efficiency requirements			A	A			
			Item P		Relocated to Item n			A	A			
			Item P		New Section: Table 6.8.1-16Heat Pump and Heat Recovery Chlller packagtes- minimum efficiency requirements			A	A			

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			Item Q		New section: 6.8.1-17 Ceiling mounted computer room air conditioners- minimum efficiency requirements.			A	A			
			Item R		New Section: Table 6.8.1-18 Walk-in Cooler and Freezer Display Door Efficiency Requirements.			A	A			
			Item S		New Section: Table 6.8.1-19 Walk-in Cooler and Freezer nondisplay door efficiency requirements			A	A			
			Item T		New Section: Table 6.8.1-20 Walk-in Cooler and freezer refrigeration system efficiency requirements.			A	A			
6.4.1.3			Ceiling Fans		New Section and subsections providing criteria for large diameter ceiling fans			A	A			
6.4.1.5			Verification of Equipment Efficiencies		Deleted verification method f: "Requirements for plate-type liquid-to-liquid heat exchangers are listed in Table 6.8.1-8."			A	A			
6.4.2.1			Load Calculations/ Weather Design Conditions		Incorporate specific climatic data design conditions into the model code. Current MN Energy Code establishes the indoor temperature for heating at 72F and for cooling at 75F. [C302.1] Climatic Data Design Conditions are currently included in C403.1.1. Proposed climatic data is unchanged from the 2020 Minnesota Energy Code criteria.			Discussed and Tabled.				
6.4.3.3.5.1			Guest Room HVAC Set-Point Control		Reformatted. Reset time changed to 20 minutes in lieu of 30 minute. Reformatted for clarity with no other material changes.			A	A			
			Exception Added		Cooling for humidity control shall be permitted during rented and unoccupied or unrented and unoccupied periods.			A	A			
6.4.3.3.5.2			Guest Room Ventilation Control		Setback period changed from 30 minutes to 20 minutes.			A	A			
6.4.3.4.2 Exceptions		C403.7.7	Ventilation System- Shutoff Damper Controls		Need to discuss if an exception for buildings three stories or less in height is acceptable for any size damper. This is most of our buildings. ASHRAE limits this exception to Climate Zone 3 and lower. Consider keeping our exception 2 and adding it to the list in ASHRAE as Exception 6. exhaust ducts 8" and smaller may have spring-loaded backdraft dampers with weather hoods.			John Smith to draft code change proposal for future discussion.				
Table 6.4.3.4.3			Maximum Damper Leakage		Table modified allowing for nonmotorized dampers where the capacity is 300 cfm or less for outdoor air intake for all buildings and for exhaust/relief on buildings three or more stories in height.			John Smith to draft code change proposal for future discussion.				
6.4.3.6			Humidification and dehumidification control		Section modified to set the bottom dew point limit for dehumidification at 55F. No other material change.			A	A			

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6.4.4.2.1		C403.11	Duct Insulation and Sealing		MN Amended the IECC related section C403.11 extensively to address sealing requirements for low pressure, medium pressure, and high pressure ductwork. Discuss if this is relevant to move forward into the new code.			John Smith to draft code change proposal for future discussion. Chris Rosival looking to add insulating exhaust duct for some locations. Chris Rosival to work with John to craft a code change proposal.				
6.4.5			Walk-in Coolers & Freezers		Item m added to requirements: Doors shall meet the requirements of Tables 6.8.1-18 and 6.8.1-19. Systems except for walk-in process cooling refrigeration systems as defined in 10 CFR 431.302 shall meet the requirements of Table 6.8.1-20.			A	A			
6.4.7			Liquid-to-liquid Heat Exchangers		Section ADDED. Plate exchangers shall be rated according to AHRI 400.			A	A			
6.4.8			DX- Dedicated Outdoor Air Systems		Change definition to require a dedicated system, including air distribution when 100% OA. Systems will typically include energy recovery unless the air is used as make-up air for exhausts that do not permit energy recovery. System controls cycle off the fans when there is no call for heating or cooling.			AM- Review entire proposal and discuss. Verify M Occupancy applications. Verify if I-4 should be included with E. Why are A-4 and A-5 excluded rather than just swimming pools?				
6.5.1.1.4			Air Economizer Dampers		Return Air dampers requirement modified to comply with 6.4.3.4.3 without specific reference to requirements for motorized dampers only. Non-motorized dampers will now be allowed to meet those requirements. The result is less restrictive. (Air Damper Leakage)			John Smith to Review and provide future comment.				
6.5.2.1			Exception 1 Zone Controls		Deleted: b. The outdoor airflow rate required to meet the ventilation requirements of ASHRAE Standard 62.1 for the Zone.			A	A			
6.5.2.1			Exception 1 Zone Controls		Added: b. For systems with DDC, the minimum primary airflow rate required to meet the Simplified Procedure ventilation requirements of ASHRAE Standard 62.1 for the zone, permitted to be the average airflow rate as allowed by ASHRAE Standard 62.1.			A	A			
6.5.2.1			Exception 2 Zone Controls		Exception 2 applies to Zones with DDC that comply with all of the following: Deleted: Under Item a- Subitems (1) and (2) are deleted. (1) Twenty percent of the zone design peak supply rate. (2) The outdoor airflow rate required to meet the ventilation requirements fo ASHRAE Standard 62.1 for the zone.			A	A			

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6.5.2.1			Exception 2 Zone Controls		Exception 2 applies to Zones with DDC that comply with all of the following: Added: Under Item a is new Subitem (1) The minimum primary airflow rate required to meet the Siplified Procedure ventilation requiriemetns of ASHRAE Standard 62.1 for the zone, permitted to be the average airflow rate as allowed by ASHRAE Standard 62.1.			A	A			
6.5.3.1.2			Fan Motor Selection		Section modified with no material change to the charging language when considered with the first two exceptions of the previous code. Added new exception 1 "Motors equipped with electronic speed control devices to vary the fan airflow as a function of load." And, exception 4 "Fans iwth a fan nameplate electrical input power of less than 0.89 kW.			A	A			
6.5.3.1.3			Fan Efficiency		Section modified. Need to review/discuss. Scoping and exceptions changed.			Tabled for next meeting.				
6.5.3.5			Supply Air Temperature Reset Controls		Exceptions 1 thourgh 3 completely rewritten.			A	A			
6.5.3.5.1			Dehumidification Control Interaction		New section only applicable to Zones OA through 3A.			A	A			
6.5.3.6			Fan Efficacy Requirements		Add fan efficacy requirements for typically smaller fans not covered by Section 6.5.3.6.			Tabled for next meeting.				
6.5.3.8			Ventilation Design		Renumbered from 6.5.3.7, Include criteria for low-powered fans.			Tabled for next meeting.				
6.5.3.8			Occupied-Standby Controls		New Section for review. Potentially renumber to 6.5.3.9 dependent upon previous section.			A	A			
6.5.4.8			Buildings with High-Capacity Space-Heating Gas Boiler Systems		New section affecting new buildings with boiler capacities between 1,000,000 Btu/h and 10,000,000 Btu/h. Includes new subsections 6.5.4.8.1 Boiler Efficiency and 6.5.4.8.2 Hot-Water Distribution System Design.			A	A			
6.5.6			Exhaust Air Recovery		New Sections inserted			A	A			
6.5.6.1.2 Exception 6			Exhaust Air Recovery-Exception 6 Loophole		Discuss modifying exception 6 to eliminate the loophole allowing circumventing of energy recovery for nearly every project.			AM- Discuss				
Tables 6.5.6.1.2-1 and 6.5.6.1.2-2		Table C403.7	Exhaust Energy Recovery Tables		MN Amended previous table. Sonar includes discussion regarding low efficacy at very cold temperatures and outdoor ventilation air < 30%. Discuss modifying the ASHRAE Tables or not.			Tabled for next meeting.				
6.5.6.1.1			Non-transient dwelling units		New section added. Requires energy enthalpy recovery for exhausted heat at efficiencies of 60% or greater.			A	A			
6.5.6.1.2			Other than Non-transient Dwelling Units		Modified from previous language found in 6.5.6.1 to include new reference to Table 6.5.6.1.2-1 for ventilation systems operating at more than 8,000 hours per year. (Note: 8760 hours in a year) Discuss major loophole in Exception 6.			Tabled for next meeting. John Smith to research and provide feedback for review.				

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				Y or N		N=None, L=Low M=Med, H=High	Y or N			Y or N		
			Exceptions modified		Exceptions 4 and 5 changed "heating energy recovery" and "cooling energy recovery" to Enthalpy Energy Recovery. Exception 9 added for indoor pool dehumidifiers complaint with Section 6.5.6.4			Tabled for next meeting. John Smith to research and provide feedback for review.				
6.5.6.3			Heat Recovery for Space Conditioning		New Section: Specific to only inpatient hospitals in Climate Zone 6A.			A	A			
6.5.6.4			Indoor Pool Dehumidifier Energy Recovery		New section requires enthalpy recovery for swimming pool exhaust where the pool is over 500 square feet unless 60% or more of the space conditioning energy is from on-site renewable resources.			A	A			
6.6.1			Alternative Compliance Path-Computer Rooms Systems		Section significantly modified and condensed. Application revised to computer rooms with IT equipment loads exceeding 10 kW			A	A			
Old 6.7.2.4			System Commissioning		Section relocated to 6.9 and modified.			A	A			
6.9.1			Verification and Testing		Section rewritten to cross reference to other sections. Exception for instructions deleted. Cross reference eliminates the requirement for commissioning for buildings under 10,000 sf. 4.2.5.2 Exception 1			A	A			
Table 6.8.1-1			Electrically Operated Unitary Air Conditioners and Condensing Units		Minimum efficiencies generally increased and incrementally increased again as of 1/1/23.			A	A			
Table 6.8.1-2			Electrically Operated Air-Cooled Unitary Heat Pumps		Minimum efficiencies generally increased and incrementally increased again as of 1/1/23.			A	A			
Table 6.8.1-3			Water Chilling Packages		No Change			A	A			
Table 6.8.1-4			Electrically Operated Packaged Terminal Air Conditioners, Packaged Terminal Heat Pumps, Single-Package Vertical Air Conditioners, Single-Package Vertical Heat Pumps, Room Air Conditioners, and Room Air Conditioner Heat Pumps.		Table reconfigured. Review.			DISCUSS	A			
Table 6.8.1-5			Warm-Air Furnaces and Combination Warm Air Furnaces/Air Conditioning Units, Warm Air Duct Furnaces, and Unit Heaters		Minimum efficiencies generally increased and some incrementally increased again as of 1/1/23.			A	A			
Table 6.8.1-6			Gas and Oil-Fired Boilers		No Change			A	A			
Table 6.8.1-7			Performance Requirements for Heat Rejection Equipment		Propeller or axial fan dry coolers (air-cooled fluid coolers) added. Subcategory or rating condition modified for Propeller or Axial Fan evaporative condensers.			A	A			
Old Table 6.8.1-8			Heat Transfer Equipment		Table deleted. Note: Section added to narrative.			A	A			
Table 6.8.1-8			Electrically Operated Variable Refrigerant Flow Air Conditioners		No Change			A	A			

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Table 6.8.1-9			Electrically Operated Variable Refrigerant Flow and Applied Heat Pumps		No Change			A	A			
Table 6.8.1-10			Floor Mounted Air Conditioners and Condensing Units Serving Computer Rooms		Table reconfigured. Review.			A				
Table 6.8.1-11			Commercial Refrigerators and Freezers		Table reconfigured. Review.			A				
Table 6.8.1-12			Vapor Compression Based Indoor Pool Dehumidifiers		No Change			A				
Table 6.8.1-13			Electrically Operated DX-DOAS Units, Single-Package and Remote Condenser, without Energy Recovery		No Change			A				
Table 6.8.1-14			Electrically Operated DX-DOAS Units, Single-Package and Remote Condenser, with Energy Recovery		No Change			A				
Table 6.8.1-15			Electrically operated Water-Source Heat Pumps		New Table			A				
Table 6.8.1-16			Heat-Pump and Heat Recovery Chiller Packages		New Table			A				
Table 6.8.1-17			Ceiling Mounted Computer Room Air Conditioners		New Table			A				
Table 6.8.1-18			Walk-In Cooler and Freezer Display Door		New Table			A				
Table 6.8.1-19			Walk-in Cooler and Freezer-nondisplay door		New Table			A				
Table 6.8.1-20			Walk-in Cooler and freezer Refrigeration System		New Table			A				
Table 6.8.2			Minimum Duct Insulation R-value		Indirectly conditioned space model code differs from amended IECC. ASHRAE R-1.9, IECC R-3. Amend to keep R-3, or make indirectly conditioned the same as unconditioned?			DISCUSS				
Table 6.8.3-1			Minimum Piping Insulation Thickness Heating and hot water systems		No Change			A				
Table 6.8.3-2			Minimum Piping Insulation Thickness Cooling Systems		No Change			A				
Chapter 7 Service Water Heating												
7.1.1.3			Alterations- Heat Trap		Add language to require installation of heat traps when water heaters are replaced, and to insulate exposed hot water piping where it is accessible in proximity to the water heater.			AM- Discuss				
7.2			Compliance Paths		Reformatted. No material change			A				

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7.5.3			High Capacity Service Water Heating Systems		Increase UEF from 0.90 to 0.92 for gas water heating systems with an input capacity of 1,000,000 Btu/h or greater. Proposed would be consistent with 2021 IECC requirements.			AM- Discuss				
7.7			Submittals		Section largely expanded rather than referring to Section 4.2.2. No material change.			A				
7.9			Verification, Testing, and Commissioning		New Section.							
Table 7.8			Performance Requirements for Water Heating Equipment		1. Added Electric Instantaneous Water Heaters. 2. Performance requirements modified and metric changed. Need to discuss if this is a material change or not.			Discuss				
Chapter 8 Power												
8.2.1 Exception			Requirements for all compliance paths		Exception added for power distribution systems and equipment serving only computer rooms with > 10kW IT Loads.							
8.4.2			Automatic Receptacle Control		This expensive requirement is frequently and readily circumvented with extension cords introducing a more dangerous condition. May no longer be necessary with sub-metering requirements for outlets and some additional education of building occupants.			AM to Delete section. Discuss.				
8.4.4			Energy Monitoring		Add monitoring for lighting used for plant growth and maintenance.			AM- Discuss				
8.4.5			Electric Hybrid Water Heater Readiness		Add language to require fossil fuel burning water heaters to include space and power for a future hybrid electric water heater as a replacement.			AM- Discuss. During the 6-month heating season, isnt the heat for the water heater coming from space heat?				
8.4.6			Electric Infrastructure for Residential Uses		Add language to require conduit and electrical capacity in Residential uses where combustion appliances are used for comfort heat, cooking, and clothes drying.			AM- Discuss. Increase in construction cost, why limited to residential, gas fireplaces would all require ability to convert to an electric heating appliance of equal capacity?				
8.4.7			Electric Infrastructure for Other Combustion Equipment		Require increase in panel capacity and conduits to equipment locations in order to convert all combustion equipment to electric power.			AM- Discuss. Increase in construction cost, no limit to types of equipment.				
8.61			Alternative Compliance Path- Computer Rooms		New section added specific to computer rooms with IT power load greater than 10 kW.			A				
8.9			Verification, Testing, and Commissioning		New section.			A				
Chapter 9 Lighting												
9.1.4			Interior and Exterior Luminaire Wattage		Model code adds item e regarding DC low voltage lighting systems that use plug-in connections for lighting to consider the maximum wattage for the power supply to be the wattage for the system since the number of fixtures is indetermant..			A				

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9.2			Compliance Paths		Section and subsections rewritten. Modified to include a "Simplified Building Method Compliance Path."			A				
9.2.3.2			Exterior Lighting Power Allowance		New section added to compliance paths.			A				
Table 9.2.3.1			Table of Exceptions to Interior Lighting Power and Minimum control requirements		New table corresponding to 9.2.2.3 Exceptions. Added variations to required controls for many of the exceptions.			A				
9.3			Simplified Building Method Compliance Path		New section added as an option to the other compliance paths. The option of using this table is slightly more restrictive than the Building Area Method.			A				
9.4.1.1 e			Mandatory Interior Lighting Controls		Item e Modified characteristics 2 & 3 to require continuous dimming in daylight areas down to 20% and Item 3 now includes requirements for dimming in daylight areas that also have occupancy sensors such that the dimming modulates only to the limits of the unoccupied threshold when the space is unoccupied.			A				
			Exception 4 added		New exception for primarily side-lighted areas adjacent to vertical fenestration where there are qualifying external projections that function as shading devices to block direct sunlight.			A				
			Item F:		Significantly modified the requirements for top-lighting daylighting. Similar to side-lighting, dimming shall be down to 20%, Calibration shall be not higher than 11 feet, and the dimming shall be limited by unoccupied thresholds when the space is unoccupied.			A				
			Item j:		New Item for scheduled off during non-business hours.			A				
9.4.1.2			Parking Garage Lighting Control		1) Lighting power reduction to 50% within 10 minutes of no activity in lieu of 30% reduction after 20 minutes. 2) Daylighting transition area must go to the general lighting level of the garage from sunset to sunrise in lieu of just a reduced power level for this brighter area, 3) Daylighting controls for the garage lighting come into play at 24 square feet of wall opening in lieu of 40% of the exterior wall area open. Added exceptions to daylighting requirements.			A				
9.4.1.3			Special Applications Lighting		Reformatted. No material change.			A				
Table 9.4.2-2			Individual Lighting Power Allowances for Building Exteriors		Loading dock allowance adjusted down to 0.2 W/SF in Zones 2, 3, and 4. Outdoor sales areas not fronting on a street reduced to 0.2 W/SF in zones 3 and 4. Added section for areas not included elsewhere in the table.			A				
9.4.3			Functional Testing		Section deleted from the model code.			A				

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9.4.3			Dwelling Units		Renumbered section, adding an exception clarifying that hotel/motel guest rooms have requirements in Table 9.6.1 and Section 9.4.1.3(b)			A				
9.4.3			Horticultural Lighting		Establish Efficacy requirements for horticultural/agricultural lighting.			AM- Discuss				
9.4.4			Parking Lot Lighting		Continuing forward the state amendment coordinating lighting limits with MN DOT State Rule Chapter 8885 mandating minimum illumination efficacy of 70 lm/w			AM				
Table 9.5.1			Lighting Power Density Allowances- Building Area Method		Every allowance changed, most down.			A				
Table 9.6.1			Lighting Power Density Allowances- Space by Space Method		Nearly every allowance changed, most down.			A				
9.9			Verification, Testing, and Commissioning		New Section.			A				
Chapter 10 Other Equipment												
10.4.5			Air Curtains		New Section			A				
10.4.7			Pumps		New Section			A				
10.4.8			Electric Vehicle Charging Infrastructure		Require electric vehicle charging stations in parking lots associated with specific occupancies.			R- outside of the energy code work scope to require a non-building related energy expending item per DLI/CCLD Assistant Director.				
10.7			Submittals		New Section			A				
10.9			Verification, Testing, and Commissioning		New Section			A				
Table 10.8-6			Maximum Pump Energy Index (PEI)		New Table			A				
Chapter 11 Energy Cost Budget Method												
11.2			Compliance		Added compliance requirements d) Verification, Testing & Commissioning, and e) Proposed components and systems without criteria in the prescriptive requirements shall have verification or testing do document proper installation & operation.			A				
11.2			Compliance		Insert language for new buildings requireing compliance with the building envelope prescriptive requirements, or opting to limit the building envelope trade-off option to a 15% backstop for R-1, R-2, and I-1; and 7% for all other building types.			AM				

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11.4.1			Simulation Program		Scope modified to include a direct reference to Section 11.4.5 Exceptional Calculation Methods when components can't be modeled by the simulation.			A				
11.4.1.1a			Simulation Program		Changed modeling hours from minimum of 1400 hours per year to 8700 hours per year. Note: 8760 hours in a year.			A				
11.4.1.4			Simulation Program		Test results reporting criteria added.			A				
11.4.2			Climatic Data		Added to the data under consideration/study includes solar radiation, wind speed, wind direction.			A				
11.4.3.1			On-site renewable Energy		Expands the options available for including on-site renewables that are leased in part or in whole, and includes limits on energy cost offsets.			A				
11.4.3.2			Annual Energy Costs		Added language to include guidance regarding on-site electricity generation from <u>other than</u> renewable resources and how to incorporate that into the calculation. (Co-generation)			A				
11.4.5			Exceptional Calculation Methods		Section substantially reconfigured and modified with no material change. Instructions give better guidance for more specific submittal requirements.			A				
11.5.1			Calculation of Design Energy Cost and Energy Cost Budget		Exception added to exclude energy used to recharge vehicles for off-site transportation.			A				
11.5.2 c			HVAC- Supply Fan Energy In Package Equipment		Section expanded to provide guidance where multiple HVAC zones are combined into a single thermal block. Limits Q to 760,000 Btu/h.			A				
11.5.2 d			Minimum Outdoor Air Ventilation Rate Exceptions		Two exceptions added			A				
11.5.2 g			HVAC- Supply Air Flow Rates		Clarification for relaxing set-point requirements to a maximum 20 degree differential			A				
11.5.2 g			Exceptions		Two exceptions added			A				
11.7.2			Permit Application Documentation		Many additional requirements. New are items b, c, e, f, g, h, l, k, m, and o.			A				
Table 11.5.1, Item 3			Space Use Classification		Exception added to clarify procedure when space types do not exist or are not designated in the design documents.			A				
Table 11.5.1, Item 4			Schedules		Temperature and Humidity Schedules as well as HVAC Fan Schedules and exceptions added.			A				
Table 11.5.1, Item 5			Building Envelope		Item d Skylights added to the Budget Building Design.			A				
Table 11.5.1, Item 6			Lighting		Proposed Design: Item d modified to include supplemental requirements for dwelling units and hotel/motel guest rooms. Item f inserted to incorporate the previous exception into affirmative language for clarity, Item g was previously Item f, and is modified for clarity with no material change.			A				

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Table 11.5.1, Item 6			Lighting		Budget Building Design: Item a is new and allows an existing lighting system to be the budget lighting system. Item b adds specificity to dwelling units establishing the lighting power density at 0.60 W/sf. Item c is new providing guidance where there is no lighting design submitted.			A				
Table 11.5.1, Item 7			Thermal Blocks		Exception Condition 1 modified to consider thermal blocks as similar if they have internal loads within 10 Btu/Ft2 of each other. Condition 4 is added to ensure that similar thermal blocks have load schedules that differ by 40 hours per week or less for full work load.			A				
Table 11.5.1, Item 9			Thermal Blocks- Multi-Family Residential		Modified for clarity with no material change. "Thermal Blocks" to "HVAC Zones"; "Space" to "Dwelling Unit"			A				
Table 11.5.1, Item 9			Proposed Design: Service Water Heating Systems		Modified to add the clarification: "Piping losses shall not be modeled."			A				
Table 11.5.1, Item 9			Budget Building Design: Service Water Heating Systems		Modified to add clarifications: Calculations shall be based upon the volume of service water heating required. Entering water temperatures shall be estimated and leaving water temperatures based on end-use requirements. Piping losses shall not be modeled.			A				
Table 11.5.1, Item 12			Proposed Design: Miscellaneous Loads		Removed refrigeration equipment from the calculation. Added clarifying subparts a and b pertaining to Power and Other Equipment sections. Where designs are provided, the designs shall comply with Sections 8 and 10 and the designs shall be used (which may be more efficient than required by Sections 8 or 10). Where no design is submitted, Sections 8 and 10 shall be used as the basis for determining compliance with no increase in efficiency in these areas beyond prescriptive limits.			A				
Table 11.5.1, Item 12			Budget Building Design: Miscellaneous Loads		Revised to read "Same as proposed design." No material change, except refrigeration equipment is also removed from the calculation.			A				
Table 11.5.1, Item 13			Refrigeration		New Section Added			A				
Table 11.5.1, Item 14			Modeling Exceptions		New Section Added			A				
Table 11.5.2-1			Budget System Descriptions		Footnotes b, d, and e modified. Review.			A				
Table 11.5.2-3			Water Chiller Types		Electric Chiller Type for capacities 100 Tons and less changed to "Scroll" from "Reciprocating"			A				
Table 11.5.2-5			Cooling Tower Leaving Water Temperature		New Table- Review			A				
Appendix G												

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G1.2.1			Mandatory Provisions		Provide trade-off backstops to the building envelope requiring either prescriptive building envelope or not more than 15% trade off for R-1, R-2, and I-1; and not more than 7% for other occupancy groups.			AM- Discuss				
Table Annex 1-1	Table Annex 1-1		Amend Climate Zones	Y	Modify existing climate zone map to change Becker, Clay, Grant, Kanabec, Mille Lacs, Otter Tail, and Wiklin Counties from Climate Zone 7 to Climate Zone 6A. Retain Fillmore, Houston, and Winona Counties in Climate Zone 6A.			AM- Discuss				