STATE OF SOUTH DAKOTA
SUMMARY REPORT

2025 Building Codes Review

SOUTH DAKOTA
DEPT. OF LABOR
& REGULATION

Board of Technical Professions
Rapid City, South Dakota

As Prepared By:
Model Building Code Workgroup of the Board of Technical Professions

October 2025

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Introduction

This report has been prepared for the people of the great State of South Dakota and is intended to be a guide to updating relevant codes that may be adopted by communities. The information contained in this report has been reviewed and prepared by a workgroup as established by the South Dakota Board of Technical Professions pursuant to SDCL 11-10-13. The statute tasked the workgroup with the following:

Beginning in the year 2024, and every three years thereafter, the Board of Technical Professions created under § 36-18A-14 shall convene a workgroup to review the latest edition of the model national codes referenced in this chapter. The workgroup shall consist of two local building code officials, one person engaged in the business of constructing multi-family housing, one person engaged in the business of constructing single-family housing, one person engaged in the business of constructing commercial buildings, one licensed architect, and one licensed professional engineer. The workgroup shall identify any significant revisions to the current edition of each model code and evaluate the impact of the revisions on the quality, safety, and cost of construction in the state. The workgroup may recommend amendments to this chapter, including updates to the current edition of any model code referenced in this chapter and alternatives and exceptions to such codes. The workgroup shall report its findings and recommendations to the Board of Technical Professions within six months from the date of the workgroup's first meeting, and the Board shall publish the report on its website. The workgroup shall dissolve and cease to exist upon the completion of its report to the Board.

The specific codes referenced in Title 11, Chapter 10 are:

- 11-10-5 2021 Edition of the International Building Code
- 11-10-7 2009 Edition of the International Energy Conservation Code
- 11-10-11 2021 Edition of the International Property Maintenance Code
- 11-10-12 2021 Edition of the International Residential Code

Workgroup Direction:

1. Identify any significant revisions to the current edition of each model code.
2. Evaluate the impact of the revisions on the quality, safety, and cost of construction in the state
    a. The value of cost implications is completely dependent upon the individual projects and their various levels of complexity. The intent of this review is to advise on the cost implications, not to assess the actual value. For reference, the entire changes report as published by the International Code Council is included in Appendix C.
    b. Appendix D includes a Home Builders Association publication that does provide some cost guidance per specific types of residential structures.
3. Recommend amendments, including updates to the current edition of any model code referenced in this chapter (11) and alternatives and exceptions to such codes.
4. The Workgroup will report findings and recommendations to the SDBoTP.

2024 Workgroup Members:

<u>Two Local Building Code Officials</u>

Mr. Neil King
Sioux Falls Building Official
Sioux Falls, SD

Mr. Trent Mohr
Deadwood Building Official

Multi-Family Housing

Mr. Andy Pulford
Lloyd Companies Construction

Single Family Housing

Mr. Joel Ingle
C-Lemme Companies, LLC

Commercial Buildings

Mr. Neal Schlottman, PE
SECO Construction (retired)

Architect

Mr. Jeffrey Nelson, AIA NCARB
Falls Architecture Studio, LLC

Engineer

Mr. Rob Maher, PE
Structural Engineering Associates, Inc.

Department of Labor and Regulation

Ms. Jodi Aumer
Director of Professional Licensing

The workgroup established a monthly meeting schedule to review appropriate information as related to each of the referenced codes. Sessions have been scheduled as follows:

First meeting of the Workgroup:	**April 9, 2025**
Subsequent meetings:	**May 14, 2025** **June 11, 2025** **July 9, 2025** **August 13, 2025** **September 24, 2025** **October 8, 2025**

The information presented in this report will be presented in the order in which it is referenced in Title 11, Chapter 10.

2021 Edition of the International Building Code

Updated to

2024 Edition of the International Building Code

Every three years, the International Conference of Building Officials provides revisions and updates to the previous code publication year. The information below is items within the code that, in the eyes of the committee, have cost implications with regard to revisions from the 2021 International Building Code to the 2024 International Building Code.

The value of cost implications is completely dependent upon the individual projects and their various levels of complexity. It is the intent of this review only to advise that there are cost implications and not the actual value. For reference, the entire changes report as published by the International Code Council is included in Appendix A.

Code Section	Code Change	Explanation	Cost Implications
423.4.2	Location	Established a maximum travel distance to a storm shelter. This only pertains to critical operation buildings or campuses Increase cost may occur depending on the distances. This may require multiple storm shelters depending on circumstances. A cost of construction to critical emergency operation buildings, by requiring more than one storm shelter on larger campuses.	**YES**
		Reasoning Statement - Due to the time-sensitive nature of the potential hazard, the distance individuals must travel to reach a protected space must be limited.	

Code Section	Code Change	Explanation	Cost Implications
903.2.2.2	Laboratories involving testing, research, and development	This was added in this code cycle because these types of areas may have an increased risk of fire. This will increase construction costs. The code points out when testing research and development of lithium-ion or lithium-metal batteries is being conducted in a Type B occupancy.	**YES**
		Reasoning Statement - To effectively address the risk of fire resulting from thermal runaway in lithium-ion or lithium-metal batteries, early detection, a mitigation strategy, and suppression measures are essential. This proposal specifically focuses on the suppression component of that response framework.	

Code Section	Code Change	Explanation	Cost Implications
903.2.4	Sprinkler Requirements for a Group F-11, research and development	This was added this code cycle because these types of areas may have an increased risk of fire. This will increase construction costs. The code points out when testing research and development of lithium-ion or lithium-metal batteries is being conducted in a Type B occupancy.	**YES**
		Reasoning Statement - To effectively address the risk of fire resulting from thermal runaway in lithium-ion or lithium-metal batteries, early detection, a mitigation strategy, and suppression measures are essential. This proposal specifically focuses on the suppression component of that response framework.	

Code Section	Code Change	Explanation	Cost Implications
907.5.2.1.3	Audible alarms	Group I-1 are now added to the occupancies that require 520-Hz low-frequency alarms. Cost will increase in new construction as the new alarms are more expensive. ICC estimates $57 per sleeping room if an emergency voice alarm communication (EVAC) system is not required and $107 in the units required to have an EVAC.	**YES**
		Reasoning Statement - This Proposal seeks to enhance the ability of residents in and I-1 Occupancies to be awakened by the fire alarm system or smoke alarm by requiring the 520 Hz low-frequency audible alarm signal. It is needed because residents in I-1 Occupancies do not rely on trained staff to wake them, and they are able to self-evacuate the building (e.g., assisted living facilities, halfway houses, group homes).	

Code Section	Code Change	Explanation	Cost Implications
917.2	Mass Notification System	This is a new section that requires an analysis for mass notification risk for Group E occupancies with an occupant load greater than 500. This is an additional cost for the analysis and the possible addition of the notification system. This change is to address injuries in schools resulting from a range of emergencies, including active shooter incidents.	**YES**
		Reasoning Statement – This proposal is intended to reduce injuries and fatalities in newly constructed schools by addressing a wide range of emergencies, including fires, human-caused incidents (both accidental and intentional), hazardous situations, accidents, and natural disasters. This proposal is necessary to enhance public life safety in Group E occupancies from all emergencies, but most importantly from a significant increase in human-caused incidents in recent years.	

Code Section	Code Change	Explanation	Cost Implications
1023.7, 1023.7.1 and 1023.7.2	Interior Exit Stairway, Exterior Walls, and Roof Assemblies	This is a code modification with new sections added to address situations where non-rated walls are adjacent to non-rated roof assemblies. This requires rating of roof assemblies and openings next to interior exit stairways with unrated exterior walls.	**YES**
		Reasoning Statement - This code change is needed to address designs where non-rated exterior walls of an interior exit stairway or ramp are adjacent to non-rated roof assemblies, which may also have unprotected openings within 10 feet of the exterior walls of the stairway or ramp. In the attached illustration, the unrated glazed exterior wall of the interior exit stairway is directly adjacent to an unprotected skylight in the roof of a lobby below. The designer agreed to protect the stairway's exterior wall for 10 feet above the skylight, although the current code does not require this protection. This proposal provides more comprehensive protection for one of the most important egress elements in Chapter 10, interior exit stairways and ramps.	

Code Section	Code Change	Explanation	Cost Implications
1110.4, 1110.4.1, 1110.4.2, 1110.4.3 and 1110.4.4	Adult Changing Stations	These sections were added during this code cycle. It is now required to provide an adult changing station in certain occupancies, outlining the requirements of the room, travel distance, and prohibited locations. This will require either adding an extra toilet room or creating larger rooms to accommodate the station.	**YES**
		Reasoning Statement - An adult changing station contains a changing table large enough to accommodate an adult-sized person located in proximity to sanitary facilities, such as lavatories and trash disposal. Without such facilities, severely disabled people who cannot use toilets because of their disability suffer from severe isolation because they and their caregivers must return home to be changed. This lack of access has a profound impact not only on the person with a disability but also on their caregivers, who are often their immediate family members. Normal activities outside the home, such as shopping, entertainment, and travel, must be curtailed because of a lack of safe and sanitary places to change. On occasion, caregivers report they have no option other than to change the adults for whom they care on restroom floors. Aside from the obvious sanitation concerns, which are far from minimal, this practice raises serious questions about how we as a community afford people with significant disabilities a measure of human dignity and protect their right to privacy.	

Code Section	Code Change	Explanation	Cost Implications
1110.14, 1110.14.1, 1110.14.2 and 1110.14.3	Seating and Standing Spaces at Dining Surfaces and Work Surfaces	This section was revised to simplify the code by reducing potential confusion. There were two sections of the code prior to this, one for assembly areas and one for dining areas. This will result in increased costs due to the additional space required to meet enhanced accessibility standards.	**YES**
		Reasoning Statement - This proposal cross-references the main section for tables in this section, as they both require 5% of seating to be accessible; dispersion within the space; and location on levels served by accessible routes. The requirements for dispersion in 1014.1 are slightly more specific regarding the dispersion of accessible tables “among similar elements” in the facility. This proposal contains two major parts: first, Section 1110.14 would apply the scoping to both fixed and movable tables that are provided for the consumption of food or drink. New Section 1110.14.2 would ensure that seating at an appropriate height for persons who are semi-ambulatory is provided in addition to the wheelchair spaces.	

Code Section	Code Change	Explanation	Cost Implications
1404.15.2	Installation over foam plastic insulating sheathing	This coordinates the IBC with provisions in the IRC. Foam sheathing may be applied directly to studs when alternative wall bracing methods are used in place of traditional structural wood panels (such as plywood or OSB). However, this approach requires vinyl siding materials to meet higher performance standards, necessitating the use of more costly materials.	**YES**
		Reasoning Statement - This proposal coordinates the IBC with provisions already in the IRC (Section R703.11.2) and in ASTM D3679 for the specification of vinyl siding. For buildings meeting criteria for Type V construction (where vinyl siding is permissible in the IBC), this proposal provides needed wind load pressure rating requirements for vinyl siding installed on walls that also use foam sheathing as continuous insulation for energy code compliance	

Code Section	Code Change	Explanation	Cost Implications
1511.9 and subsections	Raised-deck systems installed over a roof assembly	This is a new section of the code to provide specific design and installation guidance for raised-deck systems. This requirement is essentially a noncombustible fire-blocking provision on the edge of raised deck systems to prevent fire from entering from the perimeter.	**YES**
		Reasoning Statement - Currently, the IBC does not have any specific provisions for the design and installation of raised-deck systems. These provisions should be a subsection to Section 1511 because these systems are a roof structure over a roof assembly. A definition of “raised deck systems” is needed to ensure the correct application of new requirements for these systems. Fundamentally, the concerns were to clarify necessary roof drainage and roof structure support, while not adversely impacting fire safety.	

Code Section	Code Change	Explanation	Cost Implications
1603.1.4	Wind and Tornado Design Data	Design requirements have been updated to incorporate additional considerations for buildings located in areas prone to tornadoes. Recent code changes require designers to consider additional factors when constructing buildings in tornado-prone areas. These updates will increase construction costs for Type III and IV buildings, which typically include critical infrastructure, emergency management facilities, hospitals, and large assembly spaces (300+ occupants). The intent is not to design for the rare, high-damage tornado events that often make headlines, but rather to address the more frequent, lower-intensity tornadoes. While less dramatic, these smaller storms contribute to greater cumulative damage over time	**YES**
		Reasoning Statement - Tornado hazards have not previously been considered in the design of conventional buildings, even though tornadoes and tornadic storms cause more fatalities than hurricanes and earthquakes combined (NIST 2014) and more catastrophe insured losses than hurricanes and tropical storms combined (Insurance Information Institute 2021). This gap is addressed for the first time in ASCE 7-22, which now includes requirements for tornado loads. The tornado hazard maps and load methodology are based on a decade of research and development led by the National Institute of Standards and Technology (NIST), in collaboration with ASCE, following the record 2011 tornado season (1,691 tornadoes causing 553 fatalities). ASCE 7-22 requirements for tornado loads apply to Risk Category III and IV buildings and other structures sited in the tornado-prone region, which is approximately equal to the area of the U.S. east of the Continental Divide.	

Code Section	Code Change	Explanation	Cost Implications
1604.5	Risk Category	All Group I-2 and most Group I-3 occupancies have now been relocated to a Risk Category IV. This will apply higher standards to group I-2 (ex., Hospitals) and group I-3 (Jail and detention centers)	**YES**
		Reasoning Statement - The code change addresses the intent of the IBC as well as ASCE 7, whereby the codes will provide more protection for buildings with a high concentration of occupants and certain large buildings that, in total, have 5,000 or more occupants. ASCE 7 intends to improve protection for “Buildings and other structures, the failure of which could pose a substantial risk to human life”.	

Code Section	Code Change	Explanation	Cost Implications
Section 1608	Snow Loads	This section was completely revised to address the changes made in ASCE-7-22 Minimum Design Loads and Associated Criteria for Buildings. Previous editions used data for snowfall from 1952 to 1992, and this new document is based on 30 years of additional snow load data Snow accumulation data has changed in areas across the state. The code has now become address point specific when dealing with snow loads in the IBC. The factor is found using the ASCE-7 hazard tool	**YES**
		Reasoning Statement - This proposal is complementary to the proposed changes for metal building systems in Chapter 22. Metal building systems are generally highly optimized structures heavily dependent on bracing components to work per the design intent. The bracing components often consist of materials that aren't considered to be “structural steel,” and therefore, inspection of the completed installation of those critical components is often overlooked.	

Code Section	Code Change	Explanation	Cost Implications
1705.2.6	Metal Building Systems	This is a new section that requires special inspections for a metal building system. This provision will require the hiring of a special inspector when constructing a pre-engineered metal building system. It is a periodic inspection, meaning they don’t have to be on site watching the actual install, but will be required to review certain areas that may be covered up as construction progresses. The inspection will most likely be a spot check and inspection of each connection and component.	**YES**
		Reasoning Statement - This proposal is complementary to the proposed changes for metal building systems in Chapter 22. Metal building systems are generally highly optimized structures that are heavily dependent on bracing components to work per the design intent. The bracing components often consist of materials that aren't considered to be “structural steel,” and therefore inspection of the completed installation of those critical components are often overlooked.	

Code Section	Code Change	Explanation	Cost Implications
1809.14	Grade Beams	This is a new section to add the same grade beam provisions contained in the Deep Foundation Section. This will increase the cost of construction, if the geotechnical report (which is required now) shows the soils aren't capable of support, grade beams now have design criteria for design.	**YES**
		Reasoning Statement - The code change proposal will not, in general, increase or decrease the overall cost of construction. These provisions provide alternatives and options for the designer to select the most economical approach. The designer may choose between ductile detailing (hoops and ties) or, perhaps, detail a larger foundation or more longitudinal reinforcement. For grade beams in deep foundations, this proposal limits the use of the exception to certain soil conditions, which may have a slight cost impact.	

Code Section	Code Change	Explanation	Cost Implications
2308.2.7	Hillside light-frame construction	This is added to provide correlation between the IBC and the IRC, along with a modification made by ASCE/SEI 7-22. This will increase the number of buildings requiring engineering for building on moderately steep to very steep sites.	**YES**
		Reasoning Statement - This proposal provides a correlation between the prescriptive provisions of IBC Section 2308 and the provisions of IRC Section R301.2.2.6 Item 8, added in the 2021 IRC, with the intent of improving the seismic performance of wood-light-frame hillside buildings. A related modification has been made in ASCE/SEI 7-22 to provide additional guidance to engineers designing wood light-frame hillside buildings.	

Code Section	Code Change	Explanation	Cost Implications
2308.11.4 and Table 2308.11.4	Wind Uplift	This was added to update the roof-to-wall connection loads to comply with the IBC-referenced standard ASCE 7-16. A new exception was added to allow the truss-to-wall connection to be designed using either the loads on the truss design drawings or the construction documents. This will be a cost increase in areas with higher basic wind speeds, and the previous charts were incorrect.	**YES**
		Reasoning Statement - The reason for this code change is to update the roof-to-wall connection loads to comply with the IBC-referenced wind design standard, ASCE 7-16. The current loads are based on an older version of ASCE 7 that uses outdated terminology (V-ASD). ASD wind loads have not been used since ASCE 7-10. The wind uplift loads need to be updated to the Ultimate Wind Speeds (now Basic Design Wind Speeds) used in ASCE 7-16 (and ASCE 7-22). That way, the wind speeds will match the required Basic Design Wind speeds of Figures 1609.3(1) through 1609.3(12).	

Code Section	Code Change	Explanation	Cost Implications
2406.1	Human Impact Loads	This is to clarify that all panes of glazing in a multi-pane glass assembly shall be safety glazing, not just the outer panes. An example of a cost increase is a window close to a shower, only the interior pane is required to be safety-glazed; with this provision, both the interior and exterior pane in a double-hung window are now required.	**YES**
		Reasoning Statement – In recent months, the glass industry has received reports of multi-pane glass assemblies imported from outside the United States, where the outermost panes are marked as safety glazing, but the center pane(s) in these multi-pane assemblies are annealed glass, which breaks dangerously when broken by human impact. Nothing in either safety glazing standard, specifically CPSC 16 CFR 1201 and ANSI Z97.1, prohibits this since they establish acceptance criteria ONLY for individual glass panes, not for multi-panel glass assemblies. Accordingly, the adoption of this proposal is critical to ensure that multi-pane glass assemblies installed in hazardous locations are safe in the event of human impact and to ensure potentially dangerous annealed panes of glass are not intermingled with safety glazing in multi-pane glass assemblies.	

2009 Edition of the International Energy Conservation Code

Updated to

2024 Edition of the International Energy Conservation Code

Industry standards and practices have moved toward high-level energy efficiency and the health and quality of our indoor environment since the early 2000s. Energy efficiency standards and practices are primarily related to equipment and product manufacturers transitioning their available product lines toward high-end energy efficiency and Energy Star-rated systems.

Regardless of which year or version of the IECC is chosen for compliance, the industry standards of practice and equipment are already largely compliant with the most recent versions of the IECC codes.

For this reason, we recommend continuing on a voluntary compliance basis with the 2009 IECC code to avoid significant cost increases due to increased mandatory design, testing, and compliance enforcement measures that would be included by updating to the 2024 Edition of the IECC.

For the purpose of this report, the sections referenced below relate to changes from the 2021 IECC and are a small part of the entire list of changes to the 2024 Edition of the International Energy Conservation Code. For reference, the entire changes report as published by the International Code Council is included in Appendix B.

Page 4 Added Section Code Compliance Agency - This creates a new jurisdictional department for implementation, administration, and enforcement of the IECC

Referenced Section	Cost Implications
SECTION C103 **CODE COMPLIANCE AGENCY** **C103.1 Creation of enforcement agency.** The **[INSERT NAME OF DEPARTMENT]** is hereby created, and the official in charge thereof shall be known as the authority having jurisdiction (AHJ). The function of the agency shall be the implementation, administration, and enforcement of the provisions of this code. **C103.2 Appointment.** The AHJ shall be appointed by the chief appointing authority of the jurisdiction. **C103.3 Deputies.** In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the AHJ shall have the authority to appoint a deputy AHJ, other related technical officers, inspectors, and other employees. Such employees shall have powers as delegated by the AHJ.	**YES**

Page 5 and 6 Creates construction documents that shall be prepared by a registered design professional.

Referenced Section	Cost Implications
SECTION C105 **CONSTRUCTION DOCUMENTS** **C105.1** The code official is authorized to require necessary construction documents to be prepared by a registered design professional.	**YES**
C105.2 Electronic media documents are permitted to be submitted where approved by the code official. Construction documents shall be of sufficient clarity to "indicate the location, nature, and extent of the work proposed, and show in sufficient detail pertinent data and features of the building systems and equipment as herein governed. Details shall include, but are not limited to, the following as applicable: 1. Energy compliance path. 2. Insulation materials and their R-values. 3. Fenestration U-factors and solar heat gain coefficients (SHGC). 4. Area-weighted U-factor and solar heat gain coefficient (SHGC)calculations. 5. Air barrier and air sealing details, including the location of the air barrier." 6. Thermal bridges as identified in Section C402.6. 7. Mechanical system design criteria. 8. Mechanical and service water-heating systems and equipment types, sizes, and efficiencies. 9. Economizer description. 10. Equipment and system controls. 11. Fan motor horsepower (hp) and controls. 12. Duct sealing, duct and pipe insulation, and location. 13. Lighting fixture schedule with wattage and control narrative. 14. Location of daylight zones on floor plans. 15. Location of pathways for routing of raceways or cable from the on-site renewable energy system to the electrical distribution equipment. 16. Air barrier and air sealing details, including the location of the air barrier. Location reserved for inverters metering equipment and energy storage systems (ESS), and a pathway reserved for routing of raceways or conduit from the renewable energy system to the point of interconnection with the electrical service and the ESS. 17. Location and layout of a designated area for ESS. 18. Rated energy capacity and rated power capacity of the installed or planned ESS.	**YES**

Page 8 Defines the valuation of the work

Referenced Section	Cost Implications
C106.3 Valuation of work. The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at the time of application. Such estimated valuations shall include the total value of the work, including materials and labor. Where, in the opinion of the code official, the valuation is underestimated, the permit shall be denied unless the applicant can show detailed estimates acceptable to the code official. The final valuation shall be approved by the code official.	**YES**

Page 62 This discusses air barrier design. This references critical inspection items and documents that are required.

Referenced Section	Cost Implications
C402.6.1.1 Air barrier design and documentation requirements. Design of the continuous air barrier shall be documented as follows: 1. Components comprising the continuous air barrier and their position within each building thermal envelope assembly shall be identified. 2. Joints, interconnections, and penetrations of the continuous air barrier components shall be detailed. 3. The continuity of the air barrier building element assemblies that enclose conditioned space or provide a boundary between conditioned space and unconditioned space shall be identified. 4. Documentation of the continuous air barrier shall detail methods of sealing the air barrier, such as wrapping, caulking, gasketing, taping, or other approved methods at the following locations: 4.1. Joints around fenestration and door frames. 4.2. Joints between walls and floors; between walls at building corners; between walls and roofs, including parapets and copings; where above-grade walls meet foundations; and at similar intersections. 4.3. Penetrations or attachments through the continuous air barrier. 4.4. Building assemblies used as ducts or plenums. 4.5. Changes in continuous air barrier materials and assemblies. 5. Identify where testing will or will not be performed in accordance with Section C402.6.2. Where testing will not be performed, a plan for field inspections required by Section C402.6.2.3 shall be provided that includes the following: 5.1. A schedule for periodic inspection. 5.2. The continuous air barrier scope of work. 5.3. A list of critical inspection items. 5.4. Inspection documentation requirements. 5.5. Provisions for corrective actions where needed.	**YES**

Page 70 Balconies and floor decks. It notes that they shall not penetrate the building's thermal envelope.

Referenced Section	Cost Implications
C402.7.1 Balconies and floor decks. Balconies and concrete floor decks shall not penetrate the building's thermal envelope. Such assemblies shall be separately supported or shall be supported by structural attachments or elements that minimize thermal bridging through the building's thermal envelope.	**YES**

Page 71 Structural Beams and columns shall be covered with not less than R5 insulation for not less than 2' beyond the interior or exterior surface of an insulation component within the building thermal envelope.

Referenced Section	Cost Implications
C402.7.3 Structural beams and columns. Structural steel and concrete beams and columns that project through the building thermal envelope shall be covered with not less than R-5 insulation for not less than two feet (610 mm) beyond the interior or exterior surface of an insulation component within the building thermal envelope.	**YES**

Pages 75 – 149 *References 2022 ASHRAE 90.1.*
Currently, South Dakota has not adopted ASHRAE 90.1. The 2009 IECC references the 2007 version of ASHRAE 90.1.

Page 180 This measure requires installation of efficient dehumidification technology, which may increase the initial equipment cost but saves operational energy and maintenance costs; it is a cost-effective code requirement.

Referenced Section	Cost Implications
C403.15 Dehumidification in spaces for plant growth and maintenance. Equipment that dehumidifies indoor grow and greenhouse spaces shall be one or more of the following: 1. Dehumidifiers tested in accordance with the test procedure listed in DOE 10 CFR 430 and DOE 10 CFR 430, Subpart B, Appendix X or X1. 2. An integrated HVAC system with on-site heat recovery designed to fulfill not less than 75 percent of the annual energy for dehumidification reheat. 3. A chilled water system with on-site heat recovery designed to fulfill not less than 75 percent of the annual energy for dehumidification reheat. 4. A solid or liquid desiccant dehumidification system for system designs that require a dewpoint of not more than 50°F (10°C).	**YES**

Page 192 The code is revised to require circulation pumps with thermostatic flow balancing valves and ECM motors. This increases construction costs but saves operating energy costs. The code change increases the stringency but is a cost-effective change.

Referenced Section	Cost Implications
C404.6.1 Circulation systems. Heated-water circulation systems shall be provided with a circulation pump. Gravity and thermo-syphon circulation systems shall be prohibited. The system return pipe shall be a dedicated return pipe. Controls must be configured to automatically shut off the pump when the circulation loop reaches the desired water temperature and there is no demand for hot water. Where a circulation pump serves multiple risers or piping zones, controls shall include self-actuating thermostatic balancing valves or another means of flow control to automatically balance the flow rate through each riser or piping zone.	**YES**

Page 194 This amendment adds four new space types to an existing space list requiring occupancy sensor lighting controls: a computer room, a data center, a medical supply room in a health care facility, a laundry/washer area, and a telemedicine room in a health care facility. This change may increase the construction cost by expanding the occupancy sensor requirements to new space types, but it is a cost-effective measure. Replaces the text “warehouse” with “warehouse storage areas” for clarity.

Referenced Section	Cost Implications
C405.2.1 Occupant sensor controls. Occupant sensor controls shall be installed to control lights in the following space types: 1. Classrooms/lecture/training rooms. 2. Computer room , data center. 3. Conference/meeting/multipurpose rooms. 4. Copy/print rooms. 5. Lounges/breakrooms. 6. Medical supply room in a health care facility. 7. Enclosed offices.	**YES**

Page 203 *Adds a new Section C405.2.10.*

Requires sleeping and dwelling units to be provided with lighting controls and switched receptacles, instead of occupancy sensor-based lighting and receptacle controls. This change simplifies the requirements for dwelling and sleeping units. This decreases the stringency.

Adds new subsection C405.2.10.1.

Requires a switched receptacle and occupant sensor lighting controls. Automatic shutoff is not required where captive key override controls all lighting and switched receptacles in units with five or fewer permanently installed lights and switched receptacles.

Adds new subsection C405.2.10.2.

Requires bathroom lighting to be controlled by an occupant sensor that automatically turns off the lights within 20 minutes of the space being unoccupied. Additionally, a manual control must be installed at the entrance of each unit to turn off all lighting and switched receptacles, except for those in bathrooms and kitchens.

Referenced Section	Cost Implications
C405.2.10 Sleeping unit and dwelling unit lighting and switched receptacle controls. Sleeping units and dwelling units shall be provided with lighting controls and switched receptacles as specified in Sections C405.2.10.1 and C405.2.10.2. C405.2.10.1 Sleeping units and dwelling units in hotels, motels, and vacation timeshare properties. Sleeping units and dwelling units in hotels, motels, and vacation timeshare properties shall be provided with the following: 1. Not less than two 125V, 15- and 20-amp switched receptacles in each room, except for bathrooms, kitchens, foyers, hallways, and closets. 2. Lighting controls that automatically turn off all lighting and switched receptacles within 20 minutes after all occupants have left the unit. Exception: Automatic shutoff is not required where captive key override controls all lighting and switched receptacles in units with five or fewer permanently installed lights and switched receptacles. C405.2.10.2 Sleeping units in congregate living facilities. Sleeping units in congregate living facilities shall be provided with the following controls: 1. Lighting in bathrooms shall be controlled by an occupant sensor control that automatically turns off lights within 20 minutes after all occupants have left the space. 2. Each unit shall have a manual control by the entrance that turns off all lighting and switched receptacles in the unit, except for lighting in bathrooms and kitchens. The manual control shall be marked to indicate its function.	**YES**

Page 218 It adds a new Section C405.9 by moving the provision from Section C405.1 and aligns the requirement with the ASHRAE Standard 90.4 for computer rooms. This change will increase the stringency of computer room requirements and hence the construction cost.

Referenced Section	Cost Implications
C405.9 Data centers and computer rooms. Electrical equipment in data centers and computer rooms shall comply with this section. C405.9.1 Data centers. Transformers, uninterruptible power supplies, motors, and electrical power processing equipment in data centers shall comply with Section 8 of ASHRAE 90.4 in addition to this code. C405.9.2 Computer rooms. Uninterruptible power supplies in computer rooms shall comply with the requirements in Tables 8.5 and 8.6 of ASHRAE 90.4 in addition to this code.	**YES**

Page 226 Adds a new Section C405.16. This change slightly increases stringency and the construction cost, but is cost-effective.

Term "may increase the stringency but is cost-effective" is used in many areas throughout the 2024 IECC.

Page 307 Renames the section title by adding the text “and receptacle.” Now, this section includes a functional testing requirement for receptacle controls. It slightly increases construction costs due to additional code verification efforts.

Revised Section C408.3.1.2 time-switch control requirements to include receptacle controls. It slightly increases construction costs due to additional code verification efforts.

Referenced Section	Cost Implications
C408.3 Functional testing of lighting and receptacle controls. Automatic lighting and receptacle controls required by this code shall comply with this section. C408.3.1 Functional testing. Prior to passing final inspection, the registered design professional or approved agency shall provide evidence that the lighting control systems have been tested to ensure that control hardware and software are calibrated, adjusted, programmed, and in proper working condition in accordance with the construction documents and manufacturer’s instructions. Functional testing shall be in accordance with Sections C408.3.1.1 through C408.3.1.3 for the applicable control type. C408.3.1.2 Time-switch controls. Where time-switch controls are provided, Items 1 through 5 shall be performed for all time-switch controls. For projects with more than seven spaces where lighting or receptacles are controlled by time-switch controls, not less than 10 percent of spaces, and in no case fewer than one space, shall be tested according to Items 6 and 7 unless the code official or registered design professional requires a higher percentage to be tested. Where 30 percent or more of the tested spaces fail any of the requirements in Items 6 and 7, all remaining spaces shall be tested.	**YES**

1. Confirm the time-switch control is programmed with accurate weekday, weekend, and holiday schedules. 2. Provide documentation to the owner of time-switch controls programming, including weekday, weekend, holiday schedules, and set-up and preference program settings. 3. Verify the correct time and date in the time switch. 4. Verify that any battery backup is installed and energized. 5. Verify that the override time limit is set to not more than 2 hours. 6. Simulate occupied condition. Verify and document the following: 6.1. All lights can be turned on and off by their respective area control switch. 6.2. The switch only operates lighting in the enclosed space in which the switch is located. 6.3. Receptacles in the space controlled by the time-switch controls turn on. 7. Simulate an unoccupied condition. Verify and document the following: 7.1. Nonexempt lighting turns off. 7.2. Manual override switch allows only the lights and receptacles controlled by the time-switch controls in the enclosed space where the override switch is located to turn on controlled lighting and receptacles for more than 2 hours. 7.3. Receptacles controlled by the time-switch controls turn off. 8. Additional testing as specified by the registered design professional.	

Page 308 *Adds new Section C408.3.1.4.* Lighting control verification requirement for High-end trim.
Adds new Section C408.3.1.5. This section is used with additional efficiency credits. It may slightly increase construction costs due to the additional verification and testing requirements.
Adds new Section C408.3.1.6. This section is used with additional efficiency credits. It may slightly increase construction costs due to the additional verification and testing requirements.

Referenced Section	Cost Implications
C408.3.1.4 High-end trim controls. Where lighting controls are configured for high-end trim, verify the following: 1. High-end trim maximum level has been set. 2. The calibration adjustment equipment is located for ready access only by authorized personnel. 3. Lighting controls with ready access for users cannot increase the lighting power above the maximum level established by the high-end trim controls. C408.3.1.5 High-end trim lighting control verification for L02 Additional Efficiency Credit. For the qualifying spaces associated with the project receiving the additional efficiency credits in Section C406.2.5.2, the following shall be documented while daylight responsive controls are not reducing lighting power: 1. The maximum setting for power or light output for each control group of general lighting luminaires. 2. The high-end trim setting for power or light output for each control group of general lighting luminaires. 3. For projects with seven or fewer claimed qualifying spaces, the reduction in light output or reduction in power due to high-end trim shall be tested in all spaces and shown to reduce the general lighting power or light output to not greater than 85 percent of full power or light output. For projects with more than seven claimed qualifying spaces, the reduction in light output or reduction in power due to high-end	**YES**

trim shall be tested in not less than 10 percent of spaces, and not less than seven spaces, and be shown to reduce general lighting power or light output to not greater than 85 percent of full power or light output. Where more than 30 percent of the tested spaces fail, the remaining qualifying spaces shall be tested. 4. Summarize the reduction in general lighting power or light output resulting from the high-end trim setting for each qualifying space and the floor area of each qualifying space. 5. Summarize the fraction of total floor area for spaces where high-end trim reduces general lighting power or light output to not greater than 85 percent of full power or light output. C408.3.1.6 Demand responsive lighting controls G01. For spaces associated with the project receiving renewable and load management credits in Section C406.3.2, the following procedures shall be performed: 1. Confirm the maximum set point upon receipt of the demand response signal has been established for each space. 2. For projects with seven or fewer spaces with controls, each space shall be tested. 3. For projects with more than seven spaces with controls, testing shall be done for each unique space type. Where multiple spaces of each space type exist, not less than 10 percent of each space type, and in no case fewer than one space, shall be tested unless the code official requires a higher percentage to be tested. Where 30 percent or more of the tested controls fail in a space type, all remaining identical space types shall be tested. 4. For demand-responsive controls to be tested, verify the following: 4.1. Where high-end trim controls are used, the high-end trim shall be set before testing. 4.2. Turn off all non-general lighting in the space. 4.3. Set general lighting to its maximum illumination level. Where high-end trim is set, this will be the maximum illumination level at the high-end trim set point. 4.4. An illumination measurement shall be taken in an area of the space that is not controlled by daylight-responsive controlled lighting. If there are no areas without daylight-responsive controls, the daylight-responsive controls shall be overridden from reducing the lighting level during the test. 4.5. Measure and document the maximum illumination level of the space. 5. Simulate a demand response signal and measure the illumination level at the same location as for the measurement in Section C408.3.1.6, Item 4.5. Verify the illumination level has been reduced to not greater than 80 percent of the maximum illumination level documented in Section C408.3.1.6, Item 4.5. 6. Simulate the end of a demand event by turning off the demand response signal; confirm controls automatically return to their normal operational settings at the end of the demand response event.	

2024 Edition of the International Property Maintenance Code

The 2024 Edition of the International Property Maintenance Code does not have any significant revisions on quality, safety and cost of construction.

2021 Edition of the International Residential Code

Updated to

2024 Edition of the International Residential Code

Every three years, the International Conference of Building Officials provides revisions and updates to the previous code publication year. The information listed below are items within the code that, in the eyes of the committee, have cost implications with regard to revisions from the 2021 International Residential Code to the 2024 International Residential Code.

The value of cost implications is dependent upon the individual projects and their various levels of complexity. It is the intent of this review only to advise that there are cost implications, and it is not the actual value. For reference, the entire changes report as published by the International Code Council is included in Appendix C. Appendix D includes a Home Builders Association publication that provides some cost guidance per specific types of residential structures.

Code Section	Code Change	Explanation	Cost Implications
Figure R301.2(3)	Allowable Stress Design Ground Snow Loads	This section was completely revised to address the changes made in ASCE-7-22 Minimum Design Loads and Associated Criteria for Buildings. Previous editions used data for snowfall from 1952 to 1992, and this new document is based on 30 years of additional snow load data. This is not a blanket increase. A more address-specific approach is used to determine snow loads now than the previous broader map. As an example, Sioux Falls will see an increase by going from 40 to 55 lbs., while Pierre stays the same, having no effect.	**YES**
		Reasoning Statement - The previous editions of ASCE 7 included mapped values for ground snow load, pg, (GSL) based on a statistical analysis using National Weather Service snowfall data from 1952 to 1992. This map was first included in the 1992 edition of ASCE 7 and was updated with additional information for the 1995 edition. It has remained essentially as it was in 1995 for each subsequent edition through 2016. Additionally, at the time that map was generated, the authors (researchers at the Cold Regions Research and Engineering Laboratory [CRREL] of the US Army Corps of Engineers) marked as Case Study or 'CS' several significant regions, encompassing large parts of eighteen states, where the statistical analysis had not been completed or the data were insufficient to perform the analysis. The CS regions place a significant burden on structural engineers to perform snow load hazard analyses yet offer minimal guidance on how to conduct these studies.	

Code Section	Code Change	Explanation	Cost Implications
R302.3.5	Vertically stacked duplexes	Non-sprinklered units will require smoke-tight construction and interlocking smoke alarms between the units. This will result in an increased cost of construction. Vertically stacked duplexes are at a higher risk of life safety in a fire event. Thus, a higher	**YES**

		standard of construction has been applied to these types of buildings.	
		Reasoning Statement - Section 302.3.5 has been added to recognize that stacked duplexes are inherently more hazardous than side-by-side duplexes, particularly with respect to the upper unit due to the tendency of smoke and flames to spread vertically, which increases the risk of charging the upper unit with smoke and cutting off the means of egress and the means of escape if/when fire vents through exterior doors or windows. Providing a smoke separation, in addition to the current requirement for a fire-rated separation, will delay smoke transmission to the upper unit. The proposed text related to the construction of the smoke separation is derived from the IBC definition of "smoke partition," which establishes the performance requirement "...is constructed to limit the transfer of smoke".	

Code Section	Code Change	Explanation	Cost Implications
R330.4	Energy Storage Systems Locations	This fills in the gaps for opening requirements in the envelope of fire-resistant walls. The cost increase is due to requirements now being applied to ESS systems installed in the home. Previously, these were rare, and now that they are becoming more common, the code needs to address the hazard they pose in a home.	**YES**
		Reasoning Statement - The energy storage system presents a fire hazard to the occupants of the dwelling. The code already requires a fire protective envelope around ESS, but the code has left holes in this envelope, including penetrations and the door. To reduce the chance of fire spread and allow its occupants an ample amount of time to evacuate the building, the envelope must be sealed. This can easily be done by requiring a fire-rated door or equivalent to seal any penetrations.	

Code Section	Code Change	Explanation	Cost Implications
R502.11 and subsections	Floor Framing Supporting Guards	This section was added to address the installation of guards and their attachments to the floor system. Increased requirements for Guard post floor framing supports. Also, not allowing I-joists or engineered trusses to be a part of the direct support. (This was supported by the truss manufacturing industry).	**YES**
		Reasoning Statement - By recommendation of the manufacturers of I-	

		joists and trusses and consensus of the entire task group, this proposal prohibits the use of I-joists and trusses as edge framing members supporting guards except where the effects of the guard loads are specifically considered in the design of the edge member. This is based upon the limited embedment of fasteners in the thickness of the joist and truss materials, open areas/voids, and surfaces where fasteners cannot be used that would weaken the component or connections between the truss/I-joist components.	

Code Section	Code Change	Explanation	Cost Implications
R507.2.4	Flashing	This adds language that self-adhered membranes shall comply with FGIA 711. If using a self-adhered membrane as flashing, it needs to be manufactured to the FGIA standard. This is a rise in the cost of the material used.	**YES**
		Reasoning Statement - Self-adhering membrane flashing is becoming more common. These new requirements align with what is required for self-adhering membrane flashings that have been commonly used for window installation for many years.	

Code Section	Code Change	Explanation	Cost Implications
R507.9.1.5, R507.9.1.6, R507.9.1.7 and R507.9.1.8	Ledger Flashing, Water-Resistive Barrier, Existing Walls, and Exterior Wall Coverings	A deck ledger to a house band joist depends on materials that are free from decay. It is critical to ensure the band joist of the house floor system does not decay. The IRC has long required deck ledgers to be flashed to prevent the entry of water. However, there was no guidance. This attempts to provide more details on how to be flashed correctly. If using a self-adhered membrane as flashing, it needs to be manufactured to the FGIA standard. This is a rise in the cost of the material used. There will be an increase in material and labor costs. Considering this change is directly related to decks, the cost may be minimal as most decks are not large in size.	**YES**
		Reasoning Statement - The primary goals of this proposal are: 1. Support the variety of flashing methods currently in use. 2. Recognize the different ledger fastening methods in Section 507: Fastened in contact with the sheathing/water-resistive barrier and fastened with 1/2-inch of stacked washer spacing the ledger off the sheathing/water-resistive barrier. 3. Recognize the different cladding materials and types of installations (drainage plane, back-vented) 4. Recognize the higher risk of cutting into an existing water-resistant barrier for a deck attachment. 5. Recognize that many houses do not have a water-resistant barrier. 6. Protect the house framing when cladding is replaced with a deck ledger.	

Code Section	Code Change	Explanation	Cost Implications
R602.10.6	Construction of Methods ABW, PFH, PFG, CSW-PF, and BV-WSP	This section was modified to remove confusion by users on where to locate the edge of a single portal frame. With the added note: Headers shall not extend over more than one opening. Cost will increase if multiple openings are close enough together so that one header could span multiple openings. By requiring extra studs for the additional king studs that would be required, this will add additional costs including the labor associated with the work.	**YES**
		Reasoning Statement - There has been ongoing confusion regarding how to determine the edge of a single portal frame when applying braced wall panel spacing rules under R602.10.2.2. Specifically, users disagree on whether spacing should be measured from the vertical sheathed portal at one end or from the end of the header. Given that the entire length of the header transfers shear loads from the top plate, and the spacing rules intend to prevent excessive load accumulation in the top plate, it is reasonable to interpret the edge of the portal as the end of the header.	

Code Section	Code Change	Explanation	Cost Implications
Section R704	Exterior Soffits and Fascia	This adds language on the installation for fascia. Add additional types of soffits to the list, which could require more blocking if installed on soffits wider than 24 inches.	**YES**
		Reasoning Statement - Over the past few cycles, the treatment of exterior wall coverings and soffits has become separated and addressed in different sections of the code. R704 is now an entire section of the code dedicated to soffit and now fascia. The construction methods for these parts of the exterior of the structure are unique, and prior to the last few cycles, were not addressed at all. This has been a noticeable area in need of requirements based on wind performance failures due to a lack of direction. With this change in definitions and changes in other areas of the code, it will help builders, installers, and building officials better understand how R704 applies and how R703 applies. These definitions create a clearer understanding of the application.	

Code Section	Code Change	Explanation	Cost Implications
Chapter 11	Energy Efficiency	With each code cycle, energy performance requirements continue to increase—driven in part by advancements in technology and improvements in building materials. Codified law 11-10-7 states the 2009 IECC as a voluntary standard. For this reason, we recommend continuing on a voluntary compliance basis with the 2009 IECC code to avoid significant cost increases due to increased mandatory design, testing, and compliance enforcement measures that would be included by updating to the 2024 Edition of the IECC.	**YES**

Executive Summary

Each of the codes listed under Title 11, Chapter 10, is continually reviewed and updated by the International Code Council. Their review is meant to keep codes current and relevant as times change across the globe. The review completed by this Workgroup is specific in its content to show how these codes affect the great State of South Dakota and its communities. If this document can be a guide to communities and their understanding and potential adoption of various codes, we have been successful.

The Workgroup has followed changes and updates in this code family in 2023 and 2024 and concluded with this report in 2025. We, the Workgroup, are proud to be part of the process in which South Dakota strives to protect the health, safety, and welfare of our residents and communities.

Bibliography:

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