

TECHNICAL ADVISORY T1-23

CODE and SECTION: IRC 2021- SECTION R301.2.2.1

COMMON NAME: Residential Seismic Design Category

Date: **March 29, 2023**

Name of Requestor: **Mr. Rusty Christensen**

Title and edition of the model code and code section(s) to be considered for the Technical Advisory. **2021 IRC**

Question One of One: 2021 IRC section 610.2 - States applicability limits for SIP Panels in seismic category A,B,C are held to the provisions of this section.

March 3,2022 State Plan Reviewer Colin Thomas advised me that all of Butte Silver Bow County is Seismic Category D

Would this mean any SIP panel building in BSB County need to be engineer designed?

Answer (Question One of One): No, buildings built in accordance with the 2021 International Residential Code (IRC) will not need to be engineer designed. (IRC) Sec. R301.2.2.1 states:

Buildings shall be assigned a seismic design category in accordance with Figures R301.2.2.1(1) through R301.2.2.1(6).

According to Figure R301.2.2.1(4) in the 2021 IRC, the majority of BSB county is in Seismic Design Category C. There is a small portion of the easternmost part of the county that is Seismic Design Category D. SIP panel buildings located in Seismic Design Category C are permitted to be designed in accordance with 2021 IRC Sec. 610.

Although the majority of BSB county is in Seismic Design Category C as determined by the 2021 IRC, nearly all of BSB county is located in Seismic Design Category D as determined by the 2021 International Building Code (IBC), for risk category II buildings using a default soil condition. The difference in Seismic Design Category is due to the different calculation methods in each code. The 2021 IBC Sec. 1613.1 states:

The seismic design category for a structure is permitted to be determined in accordance with Section 1613 or ASCE 7.

When calculating Seismic Design Category in accordance with the 2021 IBC, both short-period response acceleration and 1-second response acceleration must be calculated and the higher Seismic Design Category produced from these calculations must be used. The 2021 IBC Sec. 1613.2.5 states:

Each building and structure shall be assigned to the more severe seismic design category in accordance with Table 1613.2.5(1) or 1613.2.5(2)



The 2021 IRC is only applicable to one and two family dwellings and townhouses. Buildings constructed in accordance with the 2021 IRC that are located in the Seismic Design Category C portions of BSB county may be designed in accordance with 2021 IRC Sec. 610.

This Code Technical Advisory is produced by the Building and Commercial Measurements Bureau of the Montana Department of Labor and industry by Colin Thomas, Plan Reviewer.

Eric Copeland

Eric Copeland, Bureau Chief
Building and Commercial Measurements Bureau
Department of Labor and Industry
State of Montana
ecopeland@mt.gov
406-841-2053

Colin Thomas

Colin Thomas, Plan Reviewer
Building and Commercial Measurements Bureau
Department of Labor and Industry
State of Montana
colin.thomas@mt.gov
406-841-2055

Cc: Rusty Christensen, requestor, via email
Certified Cities (Local Building Code Jurisdictions in Montana) via email