

Readyflor Technical Specifications & Tests

Fire Ratings

Effective 1st May 2006, the Building Code of Australia (BCA) - Class 2 - 9 Buildings, calls for specific requirements regarding Fire Ratings of floor coverings that supercede the requirements of AS/NZS 1530.3. The new testing regime is referred to as:

AS/ISO 9239-1: 2003 Reaction to fire tests for floorings - Part 1: Determination of the burning behaviour using a radiant heat source.

This Standard calls for samples to undergo a series of controlled simulative tests, including the Critical Heat Flux Test / Critical Radiant Flux Test. In addition, the Specification sets a maximum limit of 750%-min for smoke generation in occupancies not fitted with sprinkler systems that comply with Specification E1.5 of the BCA Specification.

Product Tested	Critical Heat Flux Mean	Smoke Development Rate
Readyflor Uniclic with SRT Coating	6.5 kW/m ²	13%-min

With these results, it is believed that Readyflor Uniclic with SRT Coating can be used in an Class 2-9 Building in terms of Fire Rating Requirements. Copies of test reports or information on the Smoke Developed, Spread of Flame, Heat Evolved or Ignitability Indices is available by contacting your local Premium Floors Office.

The information provided above has been simplified for easier understanding. Information regarding specific requirements for any use and regulations should be sought from the services of an appropriate professional.

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Slip Resistance

Slip Resistance is becoming a more important factor when deciding on which floorcovering to install, particularly in commercial environments. The current standard for dry slip resistance is AS/NZS 4586:1999. Readyflor with SRT coating has been tested by certified laboratories to comply with this standard.

The Test Method

In basic terms, a sample of the nominated flooring material, in this case Readyflor with SRT Coating, is laid onto a flat surface. A calibrated, battery operated device fitted with a rubber base, called a tortoise, is placed onto the sample and allowed to travel along the surface. As the tortoise moves along the sample, it measures the resistance of the product against its forward movement. In effect, Slip Resistance equals applied force to push the device along the sample divided into the mass of the device on the surface.

Interpreting the Results

Results are expressed as either an F or G rating. If a product has a co-efficient of friction less than 0.4 it is given a G rating. If the product achieves a co-efficient of friction greater than 0.4 it is afforded an F rating. In broad terms, an F is considered as a pass and a G is considered a fail to meet the standards. In addition, an actual co-efficient of friction value, generally between 0 and 1 is offered, upon completion of the testing. The higher the co-efficient of friction figure, the greater the slip resistance of that product.

How Readyflor Performed

Readyflor achieved an F rating for dry co-efficient of friction. As discussed above, in terms of AS/NZS 4586: 1999 (Appendix B) is concerned, this is the highest rating achievable for slip resistance classification of new pedestrian surface materials. Test results are available on request from your local Premium Floors Office.

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Thermal Resistance - ("R" Rating)

The "R" Rating is a measure of thermal resistance. In the instance of flooring, it is the measure of the floor system's ability to resist temperature load from one side of the panel and/or underlay, to the other.

This information is of benefit when assessing the performance of in-floor heating systems. The measure is commonly required when evaluating a building's all round energy efficiency.

The "R" Ratings for Readyflor with both Standard Combi-Lay and Quiet Step Combi-Lay Underlays are:

Readyflor 14mm on Premium Combi-Lay R = 0.17

Readyflor 14mm on Quiet Step Combi-Lay R = 0.19

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Acoustics - Impact Isolation Class (IIC)

Impact Isolation Class (IIC) is, in basic terms, a measure of sound heard in one room from an impact made on a floor in the space directly above. This issue is commonly raised when installing floorcoverings in multi-storey residential apartments. Both the Strata Titles Act and the Building Code of Australia now raise this issue, setting requirements that need to be followed when installing floorcoverings in multi-storey apartments.

A Complex Issue

The Impact Isolation Class of a floor is tested using highly technical tapping machines (used in the testing room) and listening devices (used in the receiving room below). This work is carried out by specialised acoustic engineers. Results of testing are then entered into complex mathematical equations to determine an Impact Isolation Class or the new acoustic results of $L_{n,w} + C1$.

How the Testing is Carried Out

By measuring the sound transferred by the tapping machine through a floor across a wide range of frequencies, a series of data is collected. This data is then inserted into complicated mathematical formulas to determine the Impact Isolation Class (IIC) and the $L_{n,w} + C1$. While an Impact Isolation Class can only really be determined in a laboratory, field tests are carried out on various installations in service. These tests are recorded as Field Impact Isolation Class (FIIC) tests.

Variables that Influence Test Results

Many variables can influence the IIC or acoustic performance of a floor or floorcovering. Subfloor type (timber or concrete), subfloor thickness, subfloor density, subfloor construction method, frequency of subfloor supports or beams, the presence of a suspended ceiling, the floorcovering itself and underlay used in the testing room and background noises can all have a bearing on the acoustic rating achieved. Whether a receiving room is furnished can also have a bearing on the result. In most cases however, three main factors are looked at to draw broad comparisons. The thickness of the subfloor, the floorcovering used and the underlay used seem to have the most significant bearing on results achieved. To this end, Readyflor has been tested using different underlays on concrete subfloors of varying thicknesses.

Complying with Standards

The Strata Titles Act does not ask that a specific Impact Isolation Class be achieved. It simply states that "peaceful enjoyment" be afforded to the occupant below. This subjective terminology has created the need for acoustic engineers across Australia to apportion an IIC that affords "peaceful enjoyment". In terms of Readyflor, we tend to follow the requirements of the largest apartment developers in Australia, whose acoustic engineers require a product to meet an FIIC55. Early in 2004, the Building Code of Australia introduced acoustic requirements stating that multi-storey apartments achieve a rating no greater than $L_{n,w} + C1$ 62. It is important to understand that with Field Impact Isolation Class (FIIC) results, the higher the figure, the better the result. Conversely, with $L_{n,w} + C1$ testing, the lower the result, the better the acoustic rating.

How Readyflor Performs

As discussed earlier, many FIIC tests have been carried out on Readyflor over the years. The fact that Readyflor is the most commonly used floating floor in apartment living across Australia stands as a testament to the outstanding results achieved in terms of Field Impact Isolation Class. Our test results follow:

Readyflor Installed on Standard 2mm Foam Underlay
Tested on 180mm Concrete Subfloor Result = FIIC 56

Tested on 180mm Concrete Subfloor Result = $L_n, w+C1=55$

Tested on 250mm Concrete Subfloor Result = $L_n, w+C1 = 51$

Readyflor Installed on 2mm Quiet Step Underlay
Tested on 180mm Concrete Subfloor Result = FIIC 57

Tested on 280mm Concrete Subfloor Result = $L_n, w+C1 = 49$

Tested on 280mm Concrete Subfloor Result = FIIC 60

In summary, the field of Impact Isolation Class is incredibly complex. The combination of so many variables and the subjective nature of the governing legislation has been the cause of many disputes in recent years. Premium Floors have tended to rely on our own experience, the advice of acoustic engineers commissioned to undertake our testing and the acoustic engineers contracted by the largest apartment builders in Australia for information, testing and guidelines regarding an acceptable Impact Isolation Class. In short, Readyflor has been installed in many multi-storey apartments across Australia with very few complaints at all! Please feel free to contact your local Premium Floors office should you require more information on this complex subject.

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Indentation Resistance

Indentation resistance of Readyflor varies between the different hardwood top layers, some hardwoods being more indentation resistant than others. In Australia, we use the Janka Hardness Rating. To conduct a Janka Hardness Test, a steel ball, 10mm. in diameter is pressed into a sample of hardwood until it has penetrated the sample 5mm. The force applied to the ball to create the indentation is then reported in kiloNewtons (kN). Obviously, the higher the result, the greater the indentation resistance and the better that timber will withstand indentations caused by stiletto heels etc. It is important to note however that we are usually only comparing degrees of resistance in that almost all timbers will show an indentation after being subjected to a falling heavy object. Some timbers will simply show deeper indentations than others, the difference in some cases being incredibly small.

The Readyflor Range

Below is a list of indentation resistance results for the timbers in the Readyflor Range. As the Janka Ratings have only been conducted on some overseas species, some results have been listed as approximate results. These approximate results have been ascertained using a combination of years of comparative experience, foreign standards and technical data collected on individual species.

Readyflor American Oak	6.0
Readyflor Kempas	Approx. 7.0
Readyflor Tasmanian Oak	Ave. 5.6
Readyflor Merbau	8.6
Readyflor Blackbutt	Approx. 9.1
Readyflor Northern Box	Approx. 5.2
Readyflor Walnut	4.5
Readyflor Jarrah	8.5
Readyflor Southern Box	Approx. 5.6
Readyflor Spotted Gum	11
Readyflor Red Ironwood	Approx. 10.5

The moral of the story is that, like all testing mentioned in this section, indentation resistance is only one aspect of evaluating which timber to select.