Table 1 Characteristics of common insulation materials

Insulation Material	R/in. (RSI/m)	Appearance	Advantages / Disadvantages
Batt-Type			
Fibreglass	3.0 – 3.7 (21 – 26)	All batts come in plastic-wrapped bales. The products are like fibrous blankets, about 1.2 m (48 in.) long and wide enough to fit snugly between wall studs.	Readily available.
Mineral wool	2.8 – 3.7 (19 – 26)	Same as fibreglass.	Somewhat better fire resistance and soundproofing qualities than fibreglass.
Cotton	3.0 – 3.7 (21 – 26)		Not readily available.
Loose-Fill All loose-fill insulations typically require a professional installer.			
Fibreglass	3.0 – 3.7 (21 – 26)	A very light fibrous fill, usually pink or yellow.	Can be affected by air movement in attics.
Mineral fibre	2.8 – 3.7 (19 – 26)	A very light fibrous fill, usually brown.	
Cellulose fibre	3.0 – 3.7 (21 – 26)	Fine particles usually grey in colour, denser than glass or mineral fibre.	Provides more resistance to air movement than other loose fill insulations. Can have settlement problems if not installed properly.
Board-Stock			
Type I and II (expanded) polystyrene or EPS	3.6 – 4.4 (25 – 31)	White board of small — about 8 mm (0.3 in.) in diameter — foam beads pressed together.	Typically HCs used in production. Must be covered.
Type III and IV (extruded) polystyrene or XPS	4.5 – 5.0 (31 – 35)	Commonly blue or pink foam board.	Works well in wet conditions, can act as a vapour retarder. HFC usually used in production. Must be covered.

Rigid fibreglass	4.2 – 4.5 (29 – 31)	A dense mat of fibres, typically less rigid than polystyrene.	Drains water away. Sometimes hard to find.
Rigid mineral fibre	4.2 – 4.5 (29 – 31)	See “Rigid fibreglass” above.	Drains water away.
Polyisocyanurate	5.6 – 6.7 (39 – 46)	Foil-faced rigid foam.	HFC usually used in production.
Spray-Applied All spray-applied insulations fill cavities very well. They must be applied by a specialized contractor.			
Wet-spray cellulose	3.0 – 3.7 (21 – 26)	Fine particles held in place by a binder.	
Open-cell light density polyurethane	3.6 (25)	A soft, compressible spray foam that expands into the cavity.	Can act as the air barrier if combined with another material. Must be covered with a vapour barrier.
Closed cell medium density polyurethane	5.5 – 6.0 (38 – 42)	A rigid spray foam that expands into the cavity and sets up fairly rigid.	Can act as the air barrier and vapour retarder. HFC used in production. Must be covered.
Note: All values are approximate and for general comparison only. Some insulations may be irritants or hazardous during installation. Consult manufacturers’ recommendations and insulation packaging for proper respiratory, eye and skin protection.			