Published by SAM

THE TRUTH ABOUT MDF

To help you make an informed decision when choosing between MDF or timber.

Contents

1

Introduction

THE TRUTH ABOUT MDF

Medium density fibreboard (referred to as MDF hereafter) has been in the public domain since the 1980s. It has been given a hard time by a lot of media outlets and ‘experts’ who seem to have a vendetta against its use, yet MDF can be found in all shapes and sizes inside and outside of your home, office, hotel suite, supermarket or hospital.

This eBook has been designed to give you the facts about MDF, so that you can make an informed decision when choosing or advising on products for a particular building project.

2

What is MDF?

MDF is an engineered wood product manufactured by grinding softwood chips into fibres, binding them with synthetic resin and wax and pressing them into flat panels under high heat and pressure.

It is a versatile product used in many home and professional projects, such as furniture, cabinetry, flooring, internal mouldings and packaging material due to its smooth finish, machinability, strength and consistency.

3

Grades of MDF

ARE THERE DIFFERENT GRADES OF MDF?

YES, is the straight forward answer to this question. There are many grades of MDF to suit multiple projects, from ultra-light boards to industrial or exterior boards. However, we will focus on the three most common grades.

- Standard Grade (ST)
- Moisture Resistant (MR)
- Flame Retardant (FR)

Standard Grade (ST)

For interior applications only. Suitable for general purpose joinery such as shopfitting, exhibitions, stage design and caravans. Also used for picture framing.

Moisture Resistant (MR)

For interior applications only. Provides good stability in damp conditions and is therefore suitable for high humidity environments – kitchens, bathrooms and wall panelling.

*Moisture resistant MDF is sometimes identified with a green colour / dye, however, this is not an industry pre-requisite.

Flame Retardant (FR)

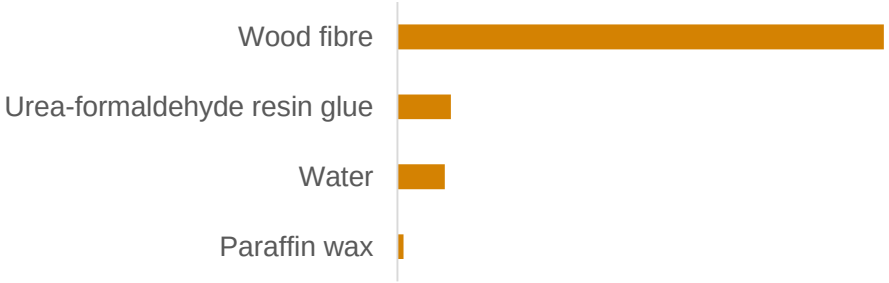
For interior applications only. Classified as Euro Class B or Euro Class C in accordance with BS EN13501-1. Suppresses the spread of fire and offers certified fire resistance for up to 60 minutes. Typical applications include public buildings such as restaurants and bars. The fire performance required for higher risk areas such as fire escape routes and staircases is Euro Class B.

*Flame retardant MDF is usually identified using a red colour / dye, however, this is not an industry pre-requisite.

4

Physical Properties of MDF

MDF is typically made up of the following ingredients:



MDF has a typical density of 620-750 kg/m^3 (this varies depending on the grade).

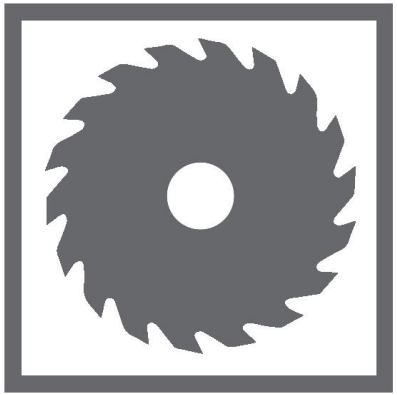
5

When MDF is right for your project

There are many uses for MDF but no product or material is 100% suitable for every project and there will be specific applications where some products will work better over others.

We take a look at why people choose to use MDF, and why it may not be suitable for certain projects.

Why choose MDF?



It is easy to cut and install

MDF can be supplied in long lengths up to 5.49m, which not only reduces wastage but also means you won't see any joints for applications such as skirting and architrave.

It is much easier to cut MDF and get a clean edge than with timber. There are no knots to cut out of MDF either.

Finally, MDF bends easily for bespoke applications such as panelling for a curved wall.

There is very little wastage

If you buy 1000m of MDF product you can use 1000m of MDF product. With timber, you always have to allow for a certain percentage of wastage due to defects. How much you throw away will depend on the quality of the wood.

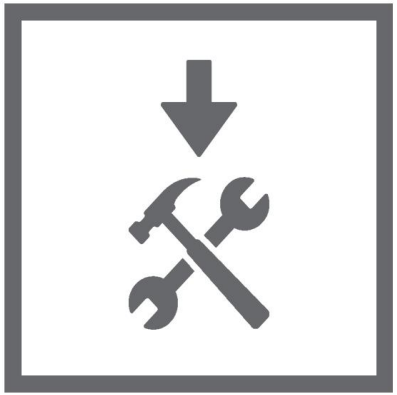
MDF doesn't have knots, it doesn't warp or twist and you won't see any shakes or splits as you would with timber.

It provides a great finish

MDF delivers a smooth finish, which looks great – especially when painted. Other materials, such as timber, would not be as smooth.

You have so much choice

MDF can be custom profiled so that you get precisely the design that you want. It can also be wrapped in hundreds of types of real wood veneer, paper or PVC, it is available fully finished or you can get it primed so that it can be painted any colour.



It requires low maintenance

MDF can be supplied as moisture resistant, which means you wouldn’t have to treat it so that it resists moisture as you would with timber (otherwise it would rot in interior, high humidity conditions).

It is stable

MDF doesn’t warp or twist when exposed to fluctuating temperatures, which can lead to gaps appearing at the joints (you also wouldn’t need to worry about splinters when working with the product).

It is affordable

MDF is competitively priced against softwood and hardwood timber, but the fact that it is easier to use, achieves a quality finish and has less wastage means it is even better value than you might think.

Why MDF might not suit your project?

If it’s being used in extreme wet environments or outside

Moisture resistant MDF is ideal in humid areas such as kitchens and bathrooms when primed and painted. If your project requires a material that can perform in extreme wet environments, such as a swimming pool, then MDF would not be the right choice.

Standard grade or moisture resistant MDF should not be used for exterior applications. External grade MDF or MEDITE TRICOYA EXTREME would be more suitable in these cases.

It is heavy

MDF is a heavier material than timber due to its density. It weighs approximately 620-750kg/m^3 compared to timber at approximately 500kg/m^3.

It doesn’t have a woodgrain when stained

In its natural state, MDF does not have a woodgrain and therefore would not give you that wood texture or appearance when stained. If you aren’t too concerned about having the wood texture, you could opt for a veneer or paper wrapped MDF. There are hundreds of wood species available and it can be ordered pre-lacquered meaning you won’t have the hassle of applying a top finish coat once installed.

If used incorrectly, it can split

If you are using screws, a pilot hole must be drilled and you must use a countersink of an appropriate size to make sure the screw head is recessed. If using nails, ensure the nail head is punched below the surface. The surface will require sanding and filler. Using an instant grab adhesive is sometimes a better option.

It produces fine dust

Sawing MDF board produces a finer dust than timber. It is best to cut MDF in a well ventilated area and if you are using a chop saw to cut MDF, you must have mechanical extraction and / or an appropriate dust mask for protection (FFP3 is recommended).

6

MDF Myths

We have all heard the comments people make about MDF concerning health and quality and they just aren't true, so we decided to set the record straight.

MYTH: MDF is carcinogenic due to formaldehyde levels

FACT: There is actually more formaldehyde in a tomato!

Many people are concerned about using MDF because they believe the formaldehyde used in the resin that glues MDF particles together can cause cancer. MDF boards manufactured in Europe for construction purposes must meet the appropriate European standards. There are two European formaldehyde classes, E1 and E2, depending on levels of formaldehyde emission measured. The release of formaldehyde from E1 boards is less than 0.1 ppm (parts per million) and for E2 boards it is between 0.1 ppm and 0.3 ppm (conversion: 0.1 ppm = 0.1 mg/kg).

The Wood Panel Industries Federation has said that formaldehyde is used in the production of many everyday items including paints, varnishes and cosmetics. In a document produced by the World Health Organisation, it states that formaldehyde occurs naturally in foods, for example, fruits and vegetables typically contain 3-60mg/kg. It is estimated that the average adult has a daily formaldehyde intake in the range of 1.5-14mg per day. That's at least 15 times the amount of formaldehyde found in Class E1 MDF.

MYTH: MDF is a poor quality material

FACT: MDF performs well for many high-end applications

Many people associate MDF with what they consider as ‘cheap, flat-pack’ furniture material, but MDF performs very well for many high-end, bespoke applications such as interior panelling, mouldings and kitchen cabinets. In fact, Many joiners would say they prefer to work with MDF than timber because of its versatility, durability and quality of finish.

Additional Resource

Online

http://www.euro.who.int/
http://www.hse.gov.uk/woodworking
http://www.kronospan-worldwide.com/
https://mdfosb.com/en/
http://norbord.co.uk/
http://www.samonline.co.uk
https://www.woodsolutions.com.au/

Offline

WHO Regional Publications, European Series, No. 91
(Air Quality Guidelines for Europe, Second Edition)

For more information on MDF, or the products and services available from SAM, please get in touch:

T: +44 (0)28 9442 8288
E: team@samonline.co.uk
W: www.samonline.co.uk