



# Modern Methods of Construction (MMC) Guide

**Let's do the right thing!**

**MEDITE<sup>®</sup>**  
**SMARTPLY<sup>®</sup>**  
INNOVATIVE TIMBER PRODUCTS







# AN INTRODUCTION TO **MEDITE SMARTPLY**

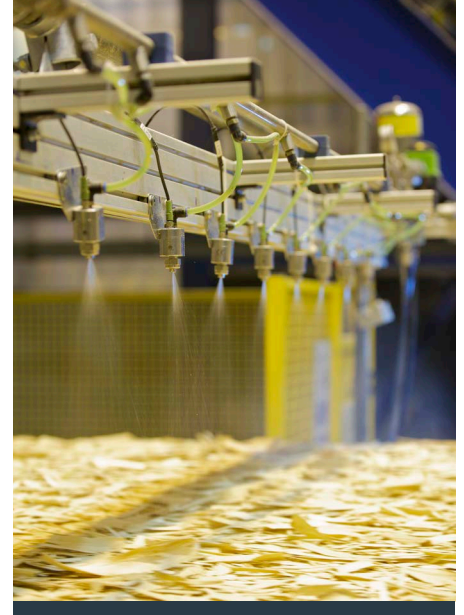
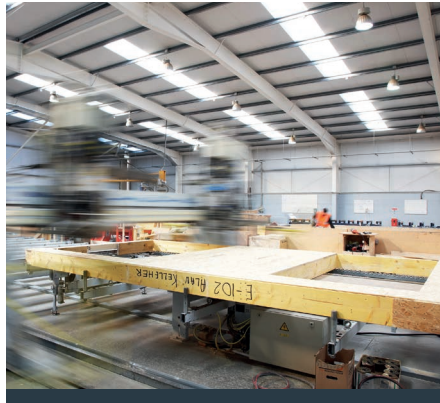
**MEDITE SMARTPLY** is a market leading manufacturer of sustainable timber construction panels. Our award-winning brands **MEDITE** and **SMARTPLY** are renowned for delivering the highest quality products, customer-led innovation and industry leading customer service.

Our manufacturing sites in Clonmel (**MEDITE**) and Waterford (**SMARTPLY**) in Ireland feature the latest production technology to deliver straighter, flatter and more consistent panels than ever before, in a range of sizes and thicknesses unparalleled within the industry. Constant progression and investment have allowed **MEDITE SMARTPLY** to enter new diverse markets and sectors, meaning that there is always a fresh pipeline of new products to address market demands.

As part of the Coillte Group, we pride ourselves on our sustainable supply chain and manufacturing processes, meaning our products are as environmentally conscious in their make up as they are in their applications.

We have become known for adapting products and services to suit end users' needs, while maintaining a consistent stance on sustainability and creating products that add value throughout the supply chain.





## A new standard

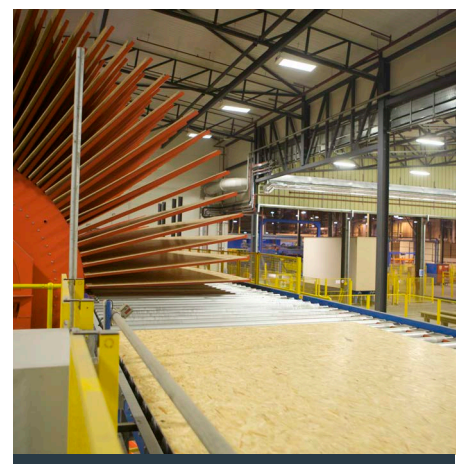
**MEDITE SMARTPLY** provides a diverse range of MDF and OSB panels with the aim of solving design and installation issues faced by the industry today.

With unrivalled quality and environmental certification, **SMARTPLY OSB** is one of the most environmentally efficient building materials on the market. Each panel is

made from sustainable, FSC® certified, fast-growing timber: the forest thinnings of new-growth pine and spruce.

**SMARTPLY OSB** panels are fully certified, approved for structural use, CE compliant, legal and sustainable alternatives to tropical plywood. We set the standard in fire performance, structural integrity and largescale projects.

Furthermore, all our OSB products are manufactured with no added formaldehyde as standard. This means that when working closely with our products, contractors can rest assured that each panel contains only the smallest possible level of formaldehyde that is naturally occurring in all wood products. This is also part of our aim to better enable the continued conscious creation of safe, healthy environments for building occupants.



# We define the standard of OSB.



# WHAT ARE MODERN METHODS OF CONSTRUCTION AND WHY ARE THEY IMPORTANT?

‘Modern Methods of Construction’ (MMC) is a collective term for a range of non-traditional building systems. These include offsite and modular construction units fully fitted out off-site, and panelised systems, such as timber or light steel frames – amongst others. However, these are the systems where our expertise brings value.

For decades, the UK has not built enough homes to meet demand, leading to rising housing costs. The government has set the target of building 300,000 new homes every year by the mid-2020s, but a shortage of skilled workers, amongst other constraints, means this will not be achieved unless a significant portion of these homes are built using MMC.

The 2017 government whitepaper ‘Fixing Our Broken Housing Market’<sup>1</sup> supported the contribution and achievement that MMC is expected to make towards solving the UK housing crisis. In particular, it pointed to the potential for a 30% improvement in the speed of construction of new homes, with a possible 25% cost reduction and potential for improving home quality and energy efficiency.

MMC is not just unlocking potential for private homes, but increasingly we’re seeing a rise in demand for these techniques in healthcare, education and social housing.

For example, healthcare buildings, such as the permanent emergency nightingale ward at the Wrightington, Wigan<sup>[1][1]</sup> are an exceptional example of the contribution MMC can make to erecting buildings quickly and safely to meet a critical need.

In broader terms, MMC also has the potential to significantly contribute to the UK’s climate target of reaching net-zero by 2050 and plays an important part of the government’s strategy in this. The construction sector currently comprises only 6% of the UK economy<sup>2</sup> but directly accounts for 10% of emissions<sup>3</sup>, while the wider built environment contributes around 40% of the UK’s total carbon footprint.<sup>4</sup> MMC, specifically offsite construction, can be a key player in driving emissions down through reducing the transportation of components to and from site, limiting production of landfill waste, limiting embodied emissions and delivering more sustainable structures across their lifecycles.

<sup>1</sup> Fixing our broken housing market. Ministry of Housing, Communities & Local Government. 2017: [gov.uk/government/publications/fixing-our-broken-housing-market](https://www.gov.uk/government/publications/fixing-our-broken-housing-market)

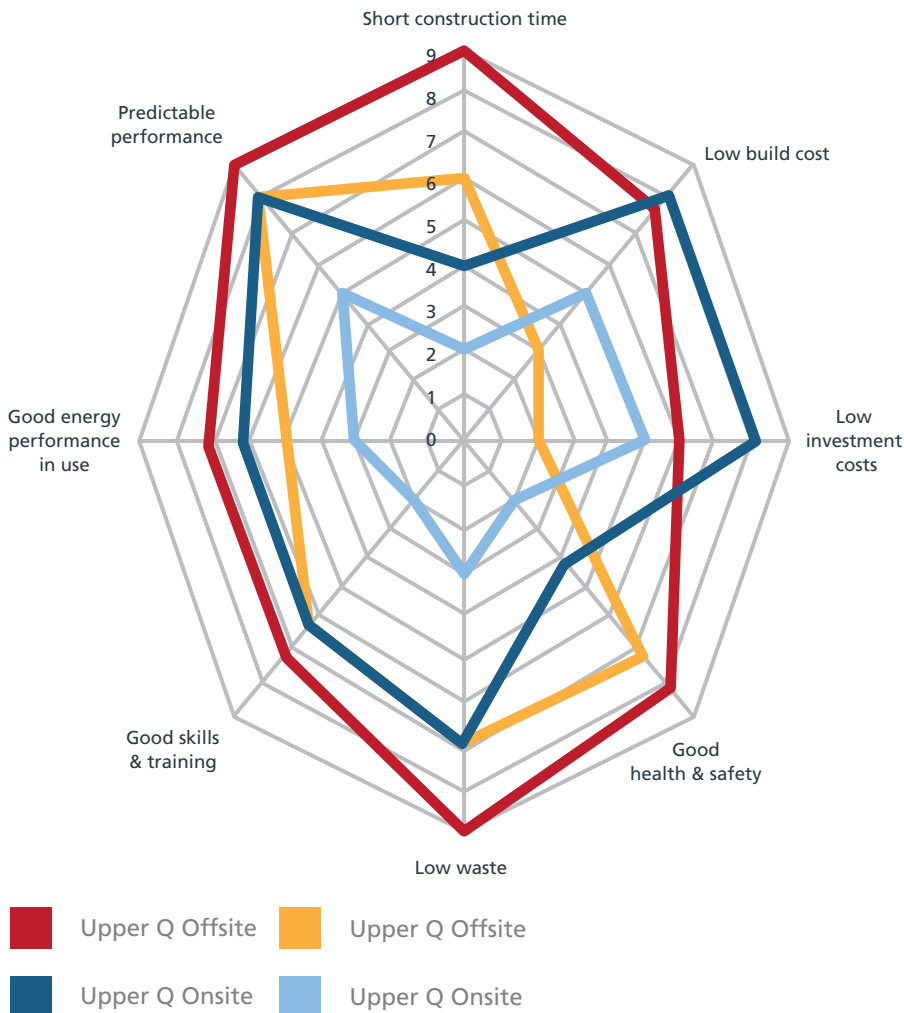
<sup>[2][1]</sup> <https://www.pbctoday.co.uk/news/modular-construction-news/mmc-for-healthcare-education/84689/>

<sup>2</sup> Construction Industry: Statistics and Policy. House of Commons Library, Briefing Paper, 01432, 16.12.2019, p. 4

<sup>3</sup> Carbon Dioxide in Construction. Designing Buildings Wiki, 17.09.2020: [designingbuildings.co.uk/wiki/Carbon\\_dioxide\\_in\\_construction](https://designingbuildings.co.uk/wiki/Carbon_dioxide_in_construction)

<sup>4</sup> Climate Change. UK Green Building Council: [ukgbc.org/climate-change/](https://ukgbc.org/climate-change/)

# CHARACTERISTICS OF OFFSITE AND TIMBER FRAME CONSTRUCTION



Source: The Housing Forum. Making Places with MMC Webinar | 30 June 2020 Insight Report.

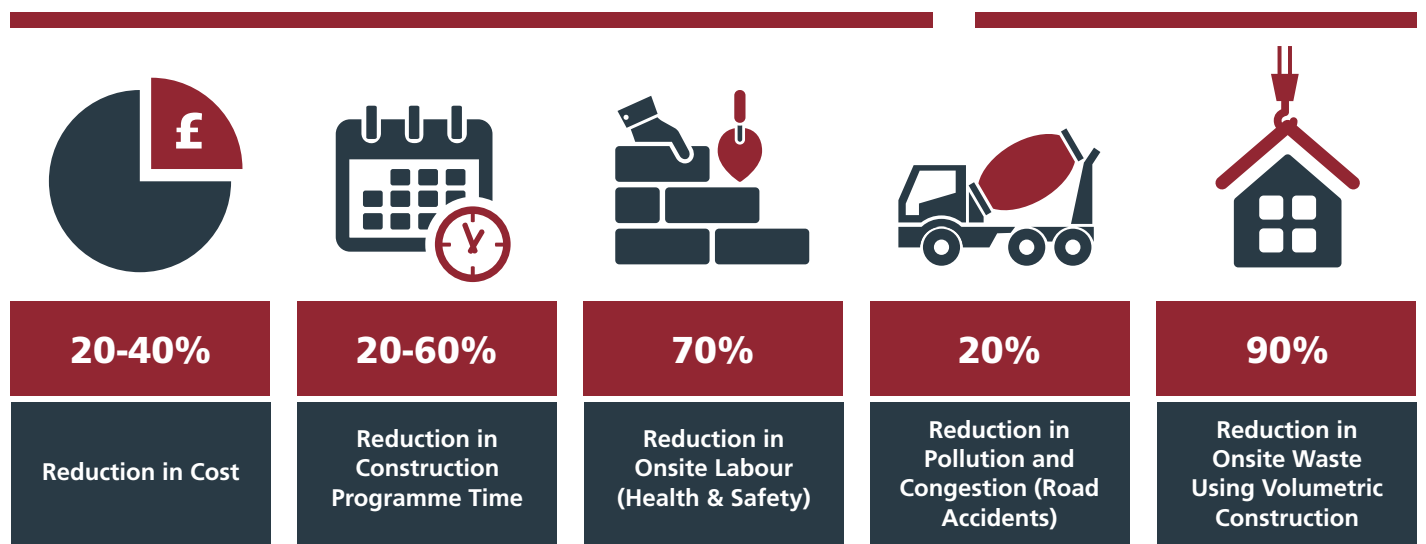
<sup>5</sup> Construction Waste. Science Direct, Mohamed Osmani, 2011: sciencedirect.com/topics/earth-and-planetary-sciences/construction-waste

Studies show that the characteristics of offsite, by its nature, meet a number of the Construction Leadership Council aspirations.

Offsite construction approaches the design and construction of buildings and infrastructure with a manufacturing mindset. This inherently brings a level of cost certainty – often between 20-40% lower than traditional building – that may not be achieved with traditional building.

But cost is not the only plus: factory production eliminates room for human error (while also reducing risks to worker safety) and produces components much less likely to feature defects, with predictable performance. In some cases, up to a 60% reduction in construction programme time, with a general reduced risk of delays and greater time certainty can also be enjoyed.

Further to this, it's been recognised that the waste generated on traditional method construction sites is at least 10% of all materials delivered. This could actually be up to 30% of the total weight of building materials delivered to a building site in some cases.<sup>5</sup> Overall waste generation is much reduced with offsite construction as sections of each building are produced to precise requirements.



Source: RIBA Plan of Work 2013. Designing for Manufacture and Assembly (2016).

# DESIGN PROCESS

## A well designed place

MMC contributes greatly to planning and placemaking in the efficient use of resources. MMC demands designing to standard dimensions, for example, and through this, creating distinctive, social places that will work alongside the existing surrounding area.

Areas where there are currently challenges and opportunities are integrating volumetric construction into areas with heritage considerations and local character, and working alongside the full range of building types and mixed uses—for example, entertainment or civic buildings.

In many cases however, the positives vastly outweigh the negatives. Many of these are detailed in the figure opposite. At the precipice of a construction revolution, we are faced with the opportunity to explore the

potential of offsite and wider MMC to integrate with areas of existing character and heritage, provide legacy buildings, and make processes serve outcomes as smoothly as possible.



Source: RIBA Plan of Work 2013.  
Designing for Manufacture and Assembly (2016).

Below are three system types within offsite construction which regularly use OSB such as ours to achieve project goals.

1

PRE-MANUFACTURING  
(3D PRIMARY  
STRUCTURAL SYSTEMS)

This systemised approach is based on volumetric construction involving the production of three-dimensional units in controlled factory conditions prior to final installation. Units can be brought to site in various of forms, ranging from basic structures to ones with all internal and external finishes and services fitted, ready for installation.

2

PRE-MANUFACTURING  
(2D PRIMARY  
STRUCTURAL SYSTEMS)

This approach uses flat panel units used for basic floor, wall and roof structures of varying materials, which are factory produced and assembled onsite to create a final three-dimensional structure. The most common approach is to use open panels, or frames, which consist of a skeletal structure only. Services, insulation, external cladding and internal finishing are usually installed onsite.

3

PRE-MANUFACTURING  
(NON STRUCTURAL  
ASSEMBLIES &  
SUB-ASSEMBLIES)

This is a series of different pre-manufacturing approaches that includes unitised non-structural walling systems, roofing finish cassettes or assemblies (where they are not part of a wider structural building system), non-load bearing mini-volumetric units (sometimes referred to as 'pods') used for highly serviced, more repeatable areas such as kitchens and bathrooms, as well as utility cupboards, risers and plant rooms.



# WHAT DOES MEDITE SMARTPLY BRING TO MODERN METHODS OF CONSTRUCTION?

MMC has been tipped as a game changer for the industry, and this is especially relevant after the events of 2020. So, where do our products add value?

Aligning with the cost, speed and sustainability potential of offsite construction, **MEDITE SMARTPLY's** extensive range of **SMARTPLY** OSB/3 and OSB/4 panels are developed to meet the most demanding of applications. Furthermore, they can be easily produced to the largescale size requirements often demanded by offsite and timber frame construction, thanks to Controll® manufacturing; the continuous pressing of wood strands into panels.

When properly managed, timber is the only 100% sustainable construction material. We have pioneered the sustainable timber industry in Europe, with all our specialised timber panels produced essentially as by-products of the sustainable forest management of

the 7% of Ireland's forests now owned by Coillte. Producing all of our **SMARTPLY OSB** from this source guarantees the sustainable production of our entire product range.

On top of this, **SMARTPLY OSB** is renowned for its insight and skill in developing individual products that meet specific, technically specialised sets of criteria.

**SMARTPLY ULTIMA OSB/4**, for example, has been developed especially for the offsite industry and sets the standard for racking strength, load-bearing capacity, moisture resistance and rigidity in OSB/4.

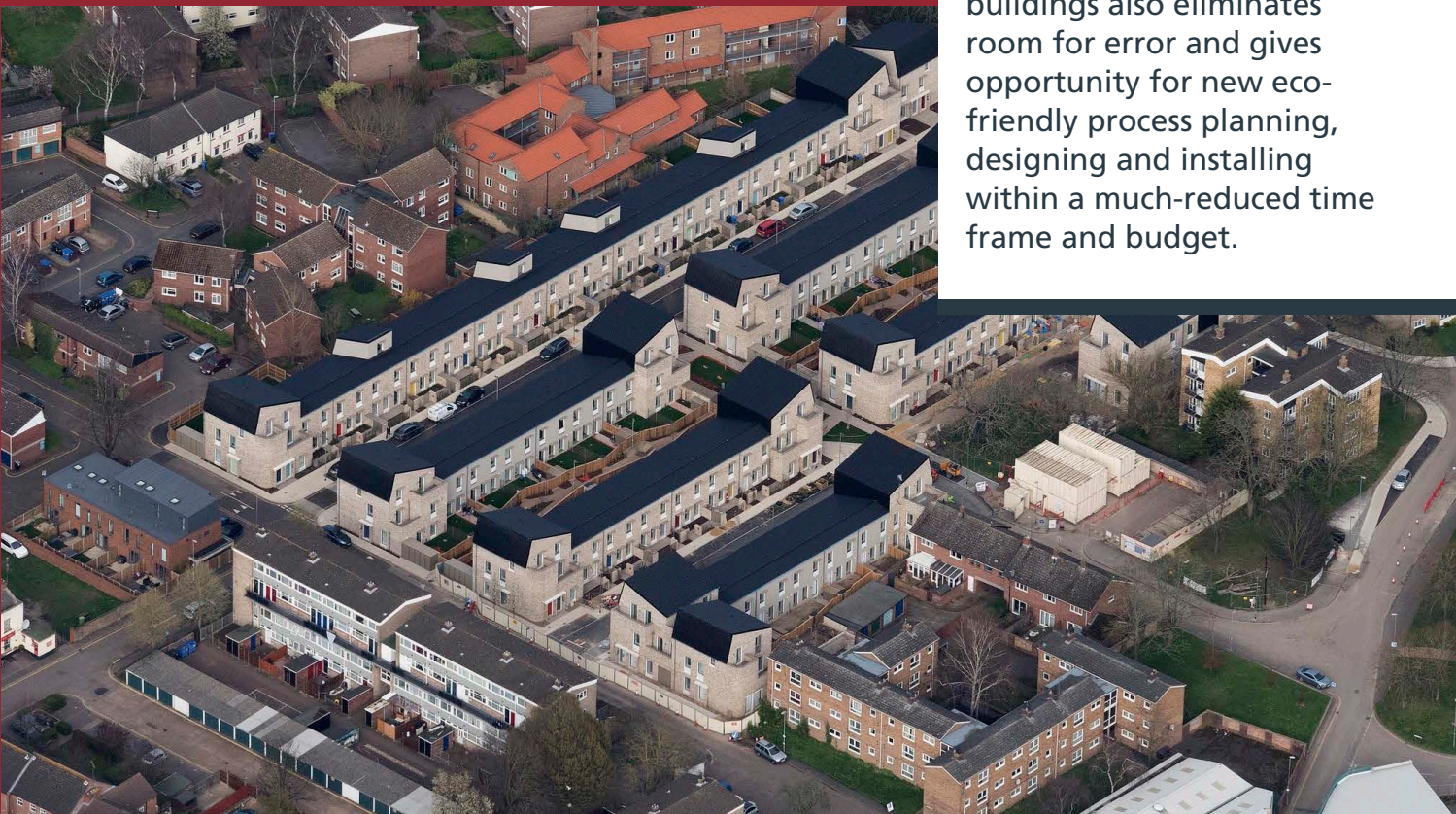
Manufactured in panels of up to 2.8-metres wide and up to 7.5-metres-long, in a maximum thickness of

40mm, **SMARTPLY ULTIMA** is ideal for offsite construction, whereby entire sides of an apartment, home or school can be sheathed offsite in a controlled environment, and delivered to site and craned into place.

Similarly, the brand-new **SMARTPLY MAX FR B OSB/3** also caters to offsite construction with the addition of integral Euroclass B standard flame retardance, due to its treatment with flame retardant solution during manufacture.

These products are just two out of many that can be part ideal systems for hotel and chalet accommodation projects, school buildings, low- and medium-rise housing and apartment blocks, using offsite construction methods.

Offsite's controlled approach to planning and constructing buildings also eliminates room for error and gives opportunity for new eco-friendly process planning, designing and installing within a much-reduced time frame and budget.



# IT'S ALL GO WITH MEDITE SMARTPLY

In a £3.6 million regeneration project, 4000m<sup>2</sup> of **SMARTPLY ULTIMA** OSB/4 panels were used for the construction of 11 new barn-style houses in Solihull, UK. Using offsite construction methods to manufacture the sides and roofs of each building, **SMARTPLY ULTIMA** was favoured for its strength and reliability.

'Home Farm' is a new housing development project that has transformed a derelict farmyard into much needed modern residential spaces. Eleven barns on the site presented large sides and high ceilings, meaning heavy duty, structural, large scale timber panels were required for sheathing and ensuring structural integrity. The perfect application for **SMARTPLY ULTIMA** OSB/4.

"We chose to use **SMARTPLY ULTIMA** as an alternative to plywood as we needed something really strong and reliable for these roofs," said Chris Watson, Quantity Surveyor for Nobles Construction, the contractor for the project.

**SMARTPLY ULTIMA**, manufactured by **MEDITE SMARTPLY**, is an extremely high-performance engineered OSB/4 wood panel developed for the most demanding structural

applications, including those in offsite manufacturing and construction.

"One of **SMARTPLY ULTIMA**'s features that we appreciated the most is the fact that it is a high performance yet cost-effective solution in humid and high-load structural applications. We chose this panel as opposed to plywood for these reasons.

"I would definitely recommend using **SMARTPLY ULTIMA**. Not only are they FSC® Certified, but they are also ideal for timber frame and construction projects with large spans," Chris explains.

"We have really felt the benefit of **SMARTPLY ULTIMA**'s high load-bearing capacity and overall improved rigidity. They are both invaluable for this type of project."

"This is my first time working on a project using MEDITE SMARTPLY products and it has been a very satisfying experience. I will definitely specify the company's products in the future."

Chris Watson,  
Quantity Surveyor for  
Nobles Construction,  
the contractor for the project.



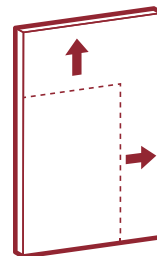
Recognised  
as a suitable  
alternative  
to plywood

Features no knots or inconsistencies. OSB/4 certified for use in heavy-duty load bearing applications.

O

No added  
formaldehyde

No formaldehyde manufacturing process ensures only naturally occurring, base-level formaldehyde.



Larger  
panels

Cover more meterage in less time; ideal for offsite manufacturing.



# MEDITE AND SMARTPLY

## THE RIGHT MMC SOLUTION

With six structural **SMARTPLY OSB** solutions catering to the MMC, **MEDITE SMARTPLY** has sought to ensure the core qualities of strength, versatility and sustainable manufacturing are present throughout, while offering customers the choice of OSB/3 or OSB/4, moisture resistance, fire protection and largescale sizing, depending on project needs.

As timber panel manufacturers who pride ourselves on innovation and consistently catering to the needs of those who will actually use our products, you won't ever find a **MEDITE SMARTPLY** panel that only

does one thing. While each has its specialisation, be it moisture resistance or a superior reaction to fire, we understand that other qualities, while they may not be front line, are also extremely important and necessary.

Use the table below to clearly see which properties each product holds, and find their full specification sheet further on in the brochure.

### Applications

PRODUCT	Moisture Resistance	Flame Retardance	No added formaldehyde	Suitable for structural applications
SMARTPLY ULTIMA	●		●	●
SMARTPLY MAX	●		●	●
SMARTPLY MAX FR	●	●	●	●
SMARTPLY PROPASSIV	●		●	● *
MEDITE VENT	●		●	● *

\*high racking strength

# SMARTPLY ULTIMA SPECIFICATION



**SMARTPLY ULTIMA** is an extremely high-performance engineered wood panel (OSB/4) suitable for the most demanding structural applications including in offsite manufacturing and construction.

**SMARTPLY ULTIMA** is manufactured using state of the art ContiRoll® technology consisting of moisture resistant and formaldehyde-free bonding of wood strands, precision strand orientation and continuous pressing to produce large panels up to 2.8m wide by 7.5m long and to a maximum thickness of 40mm.

It is a cost-effective alternative in humid and high-load structural applications when compared to a similar performing structural plywood.

## Features/ Benefits:

- FSC® Certified.
- A highly engineered OSB/4 panel.
- Ideal for timber frame and construction projects with large spans.
- High load-bearing capacity.
- Enhanced moisture resistance compared to OSB/3.
- Improved rigidity.
- Suitable For LEED And BREEAM Projects.

## Thicknesses and sizes

Available Thicknesses	18mm	22mm
Standard Sizes	1220 x 2440 1250 x 2500	1197 x 2397

## Suitability

**SMARTPLY ULTIMA** is for use in demanding structural applications such as: offsite construction systems, commercial and industrial buildings and site-based timberframe construction.

For more technical information or certification please visit [www.mdfosb.com](http://www.mdfosb.com) or contact your Technical Sales Manager.



**Suitable for demanding structural applications**

Ideal for timber frame and construction projects with large spans.



**Higher moisture resistance**

Improved for superior quality and versatility.



**High load-bearing capacity**

For the ultimate in structural applications.



# SMARTPLY MAX SPECIFICATION



**SMARTPLY MAX** is a strong, versatile board suitable for structural use in humid conditions (service Class 1 and 2), ideal for applications as diverse as roofing, flooring and wall sheathing etc.

**SMARTPLY MAX** is a highly engineered, moisture resistant load-bearing panel designed for use in humid conditions and is therefore ideal for many structural and non-structural applications in both internal and protected external environments.

Manufactured in accordance with EN 300 performance standard, it is the perfect choice for roofing, flooring, wall sheathing and many other applications where strength and moisture resistance are paramount.

## Features/ Benefits:

- FSC® Certified
- Durable
- Versatile
- Sustainable
- Zero Added Formaldehyde
- Excellent Load-Bearing
- CE Certification

## Thicknesses and sizes

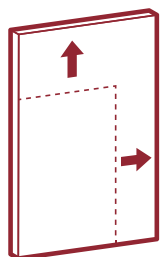
Standard Sizes	1197 x 2397	1220 x 2440	1250 x 2500	1197 x 2697	1197 x 2997
Available Thicknesses	9mm, 11mm, 15mm, 18mm	9mm, 11mm, 15mm, 18mm	9mm, 11mm, 15mm, 18mm	9mm, 11mm, 15mm, 18mm	9mm, 11mm, 15mm

\*other dimensions available and T&G

## Suitability

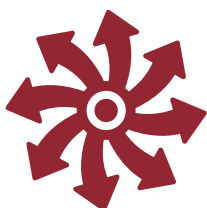
It is versatile, strong and cost-effective. Manufactured with exterior resins, **SMARTPLY MAX** is suitable for both interior and exterior structural applications such as roofing, flooring and wall sheathing.

For more technical information or certification please visit [www.mdfosb.com](http://www.mdfosb.com) or contact your Technical Sales Manager.



**Larger panels**

Cover more meterage in less time.



**Versatile**

Suitable for a wide range of applications, offering quality and peace of mind.



**Excellent load-bearing**

For the ultimate in structural applications.

# SMARTPLY MAX FR B SPECIFICATION



**SMARTPLY MAX FR B** is a structural, moisture resistant OSB/3 panel with reliable reaction to fire properties.

Ideal for use where strength, moisture resistance and Euroclass B flame retardance are paramount, the OSB3 panel complies with the European reaction to fire class B-s2, d0, and Bfl-s1 (flooring) in accordance with EN13501-1

**SMARTPLY MAX FR** offers the same quality and structural strength as all OSB/3 manufactured by **SMARTPLY** in accordance with the requirements of European Standards EN 300 and EN 13986.

### Features/ Benefits:

- FSC® Certified Timber.
- Flame Retardant.
- Easy To Cut And Install.
- High Racking Strength.
- No Added Formaldehyde.
- CE Certification.
- Sustainable.
- Suitable For LEED And BREEAM Projects.

### Thicknesses and sizes

Available Thicknesses	11,15 & 18 mm	15 & 18mm T&G
Standard Sizes	1197 x 2397	1197 x 2397*

\*other dimensions available and T&G

### Suitability

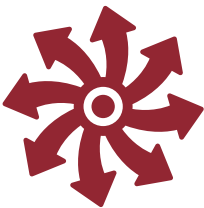
**SMARTPLY MAX FR** is suitable for a wide variety of applications where a predictable reaction to fire class is the highest priority as required by Building Regulations or health & safety legislation.

For more technical information or certification please visit [www.mdfosb.com](http://www.mdfosb.com) or contact your Technical Sales Manager.



**Flame  
retardancy  
built-in**

Individual wood chips treated before manufacture into each board making flame retardancy integral.



**Versatile**

Suitable for a wide range of applications, offering quality and peace of mind.



**Suitable for  
demanding  
structural  
applications**

Ideal for timber frame and construction projects with large spans.



# SMARTPLY PATTRESS PLUS SPECIFICATION



**SMARTPLY PATTRESS PLUS** is an engineered OSB/3 panel incorporating a continuous recess, designed to accommodate 'C' shaped metal studs used in the construction of plasterboard partitions.

**SMARTPLY PATTRESS PLUS** is tested to the relevant sections of BS 5234-2 demonstrating high pull out strength, and meets the severe heavy duty rating for pattering. It is suitable for use in public access areas including corridors and stairwells, contributing to higher levels of impact

resistance. It has no added formaldehyde and therefore may also be useful in environmentally sensitive interior applications where formaldehyde emissions need to be kept to a minimum such as hospitals, laboratories, museums and schools.

## Features/ Benefits:

- Ready prepared modular panels.
- Fully certified alternative to plywood.
- No added formaldehyde.
- Provides secure anchorage for fixtures and fitting as tested to BS 5234-2.
- Versatile.
- Solid core.
- Does not add to finished partition thickness.
- Provides a robust partition structure.
- Manufactured from FSC® timber from **MEDITE SMARTPLY's** own forests-assured supply of sustainable raw material.
- Suitable For LEED And BREEAM Projects.

## Thicknesses and sizes

Available Thicknesses	15mm	18mm
Standard Sizes	397 x 1250, 397 x 2397 597 x 1250, 597 x 2397	397 x 1250, 397 x 2397 597 x 1250, 597 x 2397

## Suitability

**SMARTPLY PATTRESS PLUS** is designed for use in non-structural metal frame drywall partition applications where the in-service climatic conditions and ambient relative humidity (RH) levels are similar to those expected in dry, sheltered construction environments.



**Pre-cut and pre-rebated off-site**

Delivered to your project ready to use, saving time and labour.



**Fits perfectly between the stud wall**

All available sizes correspond with leading plasterboard partition specifications.



**Two sizes and thicknesses available, allowing a safe one-person lift**

Two sizes and thicknesses available for adaptability.

# SMARTPLY PROPASSIV SPECIFICATION



**SMARTPLY PROPASSIV** is a structural OSB panel with integrated vapour control and air barrier properties for use as structural sheathing in timber frame structures.

Airtightness is engineered into the OSB panel substrate, whilst SMARTPLY's in-house speciality surfacing technology provides an integrated vapour barrier with consistently high vapour resistance over the entire surface.

**SMARTPLY PROPASSIV** meets all the requirements of EN 300 for the production of OSB/3 panels and therefore can be installed as any other OSB/3 panel.

## Features/ Benefits:

- PHI certified
- Airtight OSB3 panel
- For use in Passivhaus buildings
- High performance coating
- Integrated vapour control
- No added formaldehyde
- FSC® Certified

## Thicknesses and sizes

Available Thicknesses	12.5mm
Standard Sizes	2397 x 1197mm 2697 x 1197

## Suitability

**SMARTPLY PROPASSIV** is an airtight OSB panel, certified by the PassivHaus Institute, designed to create robust airtight layers for passive and low energy buildings. The integrated vapour control layer makes it the perfect solution for application in MMC projects.



**Airtight  
OSB panel**

Allows passive heating of the structure with full heat retention.



**Integrated  
vapour control**

Consistently high vapour resistance.



**No added  
formaldehyde**

No formaldehyde manufacturing process ensures only naturally occurring formaldehyde.



# MEDITE VENT SPECIFICATION



**MEDITE VENT** is a high performance breathable sheathing panel suitable for use in all types of timber frame structures.

Combining high racking strength in excess of Category 1 requirements, with high vapour permeability, it is the perfect choice for the outer sheathing layer in 'diffusion open' breathable timber frame walls.

**MEDITE VENT** MDF is a high performance breathable external sheathing panel suitable for use in all types of

timber frame structures. Combining high racking strength in excess of Category 1 requirements, with excellent vapour permeability and high weather resistance (with recommended breather membrane on top). **MEDITE VENT** is an ideal choice for the outer layer in 'diffusion open' wall and roofing applications.

## Features/ Benefits:

- Breathable MDF
- Perfect for use in Passivhaus buildings
- Works well with SMARTPLY PROPASSIV
- Smooth surface
- Consistent quality and thickness
- FSC® certified

## Thicknesses and sizes

Available Thicknesses	12mm
Standard Sizes	1197 x 2397mm

## Suitability

**MEDITE VENT** is a breathable sheathing panel suited to diffusion open systems with a very low water vapour diffusion factor to prevent condensation. It has zero added formaldehyde, contributing to healthy environments.



**Breathable  
MDF**

Suitable for use in service class 2 conditions.



**Perfect  
for use in  
Passivhaus  
buildings**

Energy efficient and environmentally sound, healthy buildings.



**Suitable for  
demanding  
structural  
applications**

Combining high racking strength in excess of Category 1 requirements.





13054

F104 Fromm Looi

protect

FCM750

protect

FCM750

protect

FCM750

protect

FCM750

2054  
x  
1200



To request a sample, visit:  
[www.mdfosb.com/smartply/request-samples](http://www.mdfosb.com/smartply/request-samples)

To find out how we are setting new  
standards in timber panel engineering, go to:  
[www.mdfosb.com](http://www.mdfosb.com)

**Let's do the right thing!**



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**SMARTPLY®**   
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