

lightweight composite panels

SUBDUE



Pyrotek[®]

SOUNDPROOFING SOLUTIONS FOR ALL INDUSTRIES
pyroteknc.com





SUBDUE - CREATING QUIETER SOLUTIONS

Pyrotek's innovative engineering and material process uses a unique combination of viscoelastic cores, lamination technology and outer layer materials to produce high performing composite panels

Subdue® is a lightweight multi-layered panel offering exceptional acoustic properties. The outer layers of the sandwich panel are constructed from a choice of lightweight but rigid and strong high-quality materials, such as plywood, glass-reinforced plastic or metals, with a range of sound insulating materials as inner cores.

at lower weights. An improvement over conventional manufacturing techniques, these panels now maximise noise reduction (STC or Rw rating) and effectively reduce the transfer of vibration (dB/sec decay rating) throughout the structure.

Subdue was developed to meet noise reduction requirements in marine, rail, industrial and OEM markets. The panels are specially designed to optimise acoustic solutions at lower weights and are an ideal choice in weight-sensitive applications where strength and good sound insulation properties are required. The panels can be supplied in

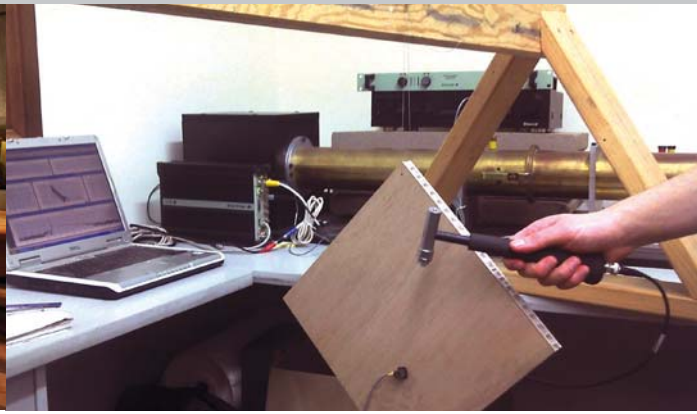
standard or custom-designed modular sizes for ease of installation, offering labour and time savings.

APPLICATIONS

- Marine – bulkhead, deck heads and flooring systems
- Mass transport and recreational vehicles – lightweight floors and partitions
- Architectural fit-out panels
- Used in conjunction with an isolation mount to create floating wall, floor and ceiling systems
- Lightweight cabinetry panels, tables and speaker boxes
- Fabrication of acoustic doors
- Machinery and other enclosures
- Suitable for exterior end use
- Acoustic partitions

BENEFITS

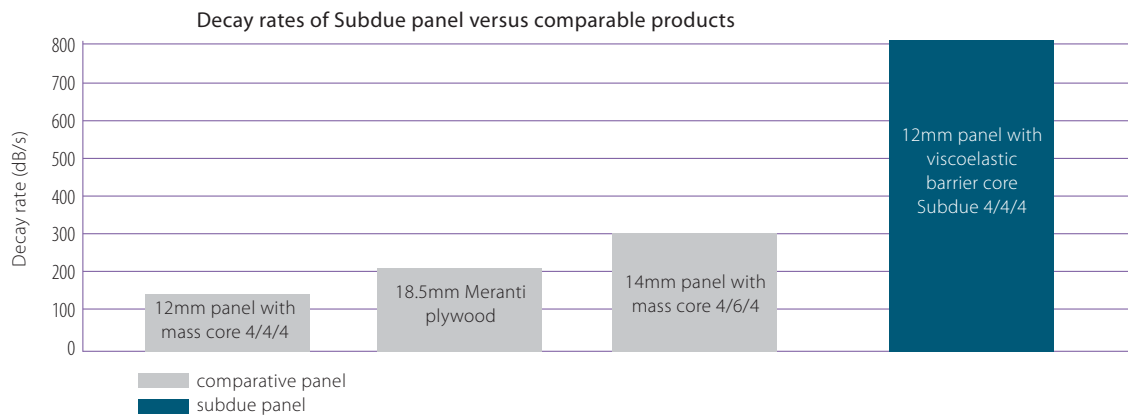
- Available in a range of lightweight marine grade plywood tested to BS1088.
- Tested to EN717-2 for formaldehyde emission achieving results well below class E-1.
- Thin and lightweight panels offering economical performance - fuel, cost and labour efficient.
- High strength to weight ratio with superior transmission loss performance.
- Tested and proven superior damping properties to standard plywood and similar panels.
- Improved thermal conductivity compared to standard plywood.
- Bonded using water-resistant glues, Weather and Boil Proof (WBP) according to BS1088.
- Simple to saw-cut, fabricate using conventional woodworking tools.
- Quick and easy to install.
- Custom-designed parts, including curved panels for modular designs.
- Wide range of decorative finishes.



INTERNAL DAMPING OF SUBDUE PANELS

To prevent vibration within the structure from spreading throughout the assembly, all Subdue products achieve over 600dB/sec. Subdue's unique construction provides very high internal damping. Testing has shown that Pyrotek's panels outperform similar products.

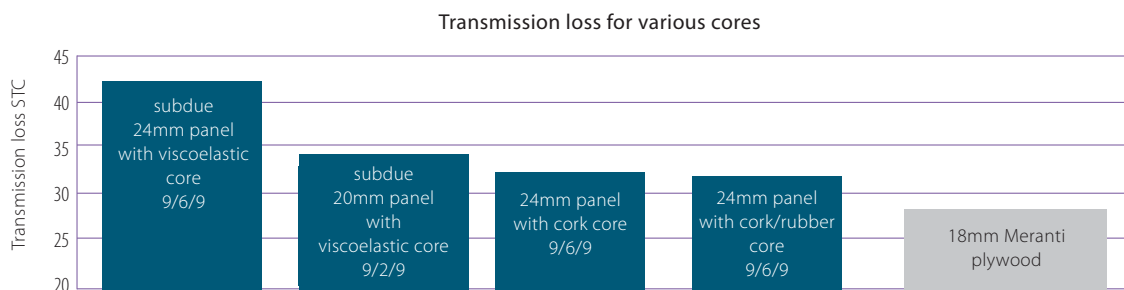
Using a well-damped product will result in maximum noise reduction in terms of vibrational energy being converted to airborne noise. This is critical in many applications where structure-borne vibration from machinery or other noise sources is present.



TRANSMISSION LOSS OF SUBDUE PANELS

As shown in the graph below, our viscoelastic core gives superior acoustic performance over lighter cores or standard plywood of similar thickness. When designing solutions requiring high transmission losses our range of subdue panels with a viscoelastic core is recommended.

(Refer to our website www.pyroteknc.com or consult our Pyrotek representative for our full range of Subdue panels)

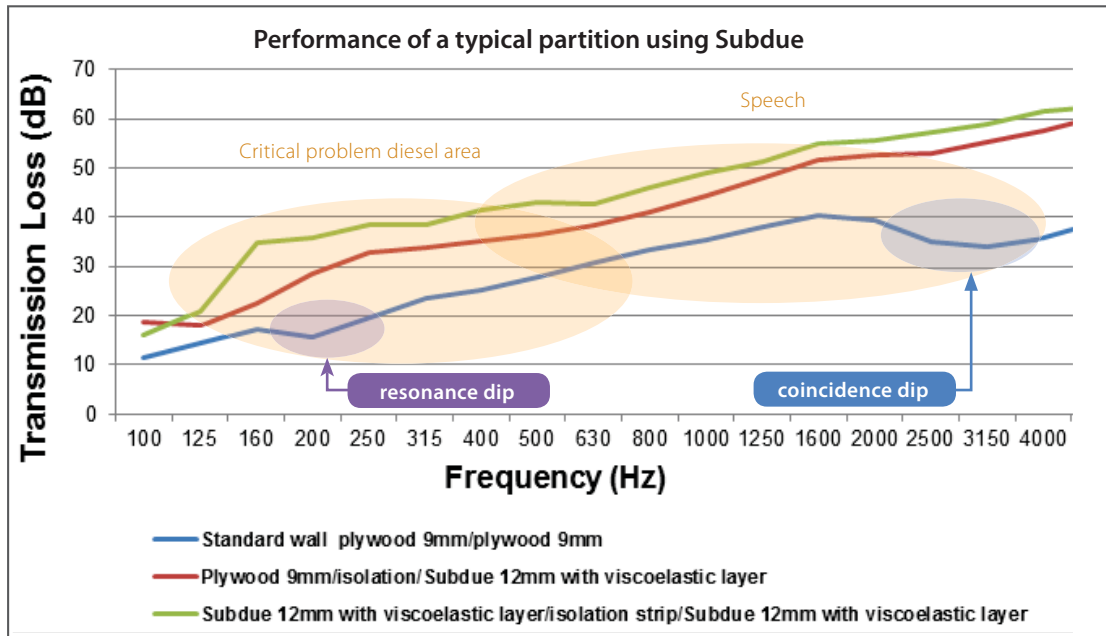


TESTING

The Subdue brand not only represents quality and leading edge technology, but also performance that is backed up by an extensive testing program undertaken at the University of Auckland and Canterbury, New Zealand. Our quality construction and materials will ensure that our noise control products will offer a long-life solution. In addition to superior acoustic performance, all our Subdue panels are tested for mechanical properties such as flexural and compressive strength.



TYPICAL PARTITION WALL CONSTRUCTION



Subdue's unique viscoelastic core significantly increases the performance of a partition and raises the *coincidence dip* to a frequency where the effect is reduced. The *resonance dip* is also flattened due to the unique construction of Subdue.

Typical partition wall comparisons			
Wall system	STC rating*	Rating difference	Performance (normal speech)
9mm plywood, 40mm timber frame, 9mm plywood, no cavity infill	28	-	Clearly audible
9mm plywood, 40mm timber frame, 9mm plywood, with cavity infill	33	5	Audible
9mm Plywood, 40mm timber frame, Subdue X12/2000, with cavity infill	40	12	Just audible
9mm Plywood, 40mm timber frame, Subdue X12/2000, with cavity infill and vibration isolation on one side	42	14	Barely audible
Subdue X12/2000, 20mm timber frame, vibration isolation, 20mm timber frame, Subdue X12/2000, with cavity infill	44	16	Not audible

* R_w values are available on request



Fig 1
 Standard wall (top view), total thickness 58mm
 Average performing STC 33

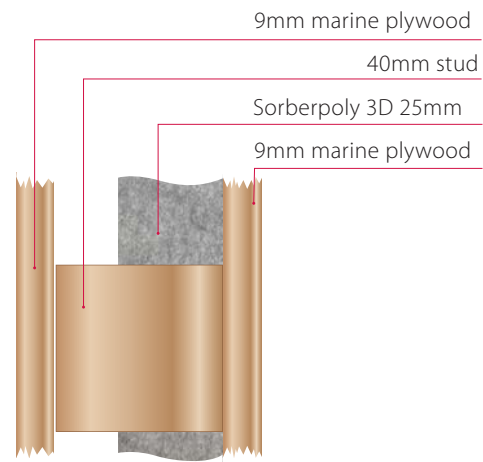


Fig 1

Fig 2
 Modified wall (top view), total thickness 61mm
 Good performing STC 40

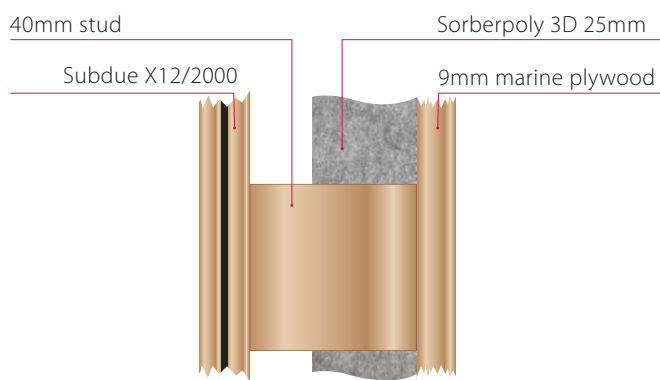


Fig 2

Fig 3
 Modified wall (top view), total thickness 67mm
 Better performing STC 42

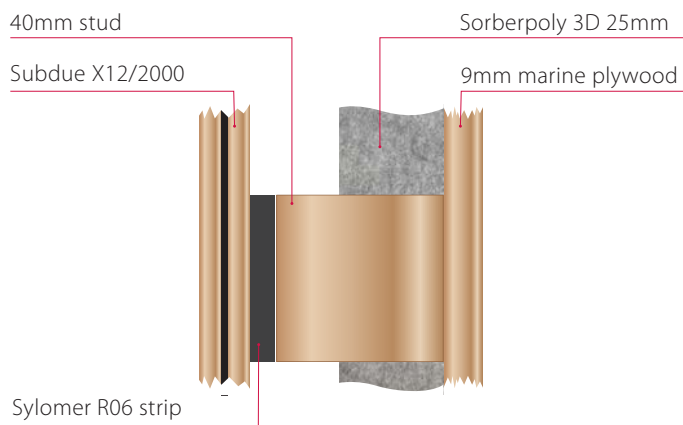


Fig 3

Fig 4
 Modified wall (top view), total thickness 70mm
 Best performing STC 44

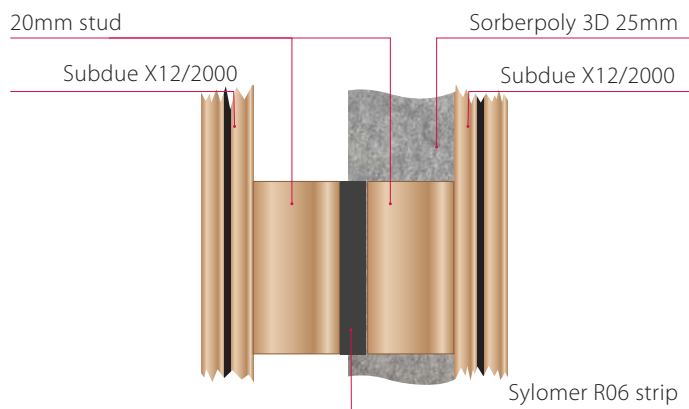


Fig 4



Subdue X_/2000



Subdue L_/250



Subdue L_/650

SUBDUE RANGE

Subdue panels are supplied in a range of cores, core densities and outer layers with varying thicknesses depending on acoustic and construction requirements. Subdue panels are offered under product categories 'L', 'M' and 'X' based on varying inner core densities ranging from 60kg/m³ up to 2400kg/m³.

Surface Finishes

A wide selection of decorative finishes: colours, patterns, high pressure laminates and natural veneers based on outer face material. Standard panels can be treated with standard paints, lacquers, varnishes and protection treatments applicable to plywood.

Availability

Dimensions:

2440mm x 1220mm (untrimmed) standard, 2400mm x 1200mm (trimmed) available upon order.
Panel thickness will vary from 10mm to 100mm.



INSTALLATION



Subdue is supplied as a ready-to-use panel and can be installed the same way as standard plywood, with no special requirements or precautions, using standard woodworking tools. Simple to cut and handle, Subdue is easily fixed or fastened, reducing build times.





Subdue Polypropylene Honey Comb Core



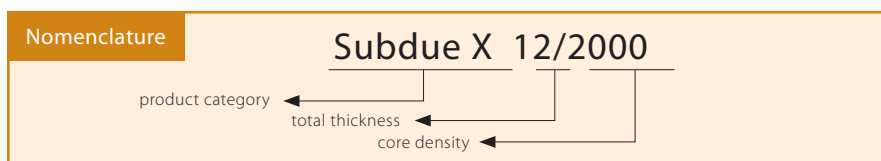
Subdue Polystyrene Foam



Subdue Cork

Core range	
Standard	Viscoelastic noise barrier
	Cork
	Cork and rubber
	Crumbed rubber
Extended	Honeycomb - Polypropylene, Aluminium, Paper
	Polystyrene foam
	Balsa
	PVC Foam

Outer layers range	
Marine BS1088 Plywood	Okoume
	Meranti
	Ultralight
Extended	Metals: Aluminium/Stainless Steel/Galvanised Steel
	GRP (or Fibreglass reinforced plastic)
	Fire-rated Calcium Silicate





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PYROTEK WORLDWIDE LOCATIONS

AUSTRALIA

CANADA

CHINA

CZECH REPUBLIC

HONG KONG

INDIA

INDONESIA

JAPAN

KOREA

MALAYSIA

SINGAPORE

NEW ZEALAND

TAIWAN

THAILAND

TURKEY

UNITED ARAB EMIRATES

UNITED KINGDOM

UNITED STATES OF AMERICA

VIETNAM

CONTACT DETAILS

for further information and
contact details, please visit
our website at pyroteknc.com

Pyrotek endorse forest sustainability and the preservation of natural environment. We procure the highest quality materials from suppliers who hold FSC (Forest Stewardship Council) Certification and PEFC (Programme for the Endorsement of Forestry Certification) amongst other certification programmes.

Caveats: Specifications are subject to change without notice. The data in this document are typical of average values based on tests by independent laboratories or by the manufacturer and are indicative only. Materials must be tested under intended service conditions to determine their suitability for purpose. The conclusions drawn from acoustic test results are as interpreted by qualified independent testing authorities. Nothing here releases the purchaser/user from responsibility to determine the suitability of the product for their project needs. Always seek the opinion of your acoustic or mechanical engineer on data presented by the manufacturer. Due to the wide variety of individual projects, Pyrotek NC is not responsible for differing outcomes from using their products. Pyrotek disclaims any liability for damages or consequential loss as a result of reliance solely on the information presented. No warranty is made that the use of this information or of the products, processes or equipment to which this Information Page refers will not infringe any third party's patents or rights. **DISCLAIMER:** This document is covered by Pyrotek standard Disclaimer, Warranty and © Copyright clauses. See www.pyroteknc.com/disclaimer.

