



Hearing is believing

Ensign cast iron is the first UK drainage system to be certified to the new waste water noise measurement standard BS EN 14366:2004

What's all the noise about?

The debate about the comparative sound absorbing qualities of various materials for soil, waste and rainwater systems has become noisier and noisier. So much so that it's now reached a level where it is probably second in importance to fire safety.

But judging the acoustic performance of different materials is difficult enough for an acoustic engineer, let alone an architect, specifier or installer. Which has allowed many materials to promote themselves as the best acoustic choice even with little or no comparable data for anyone to make an informed choice.

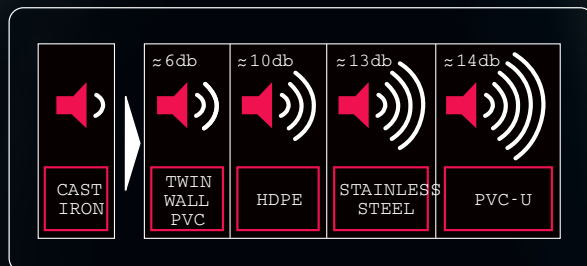
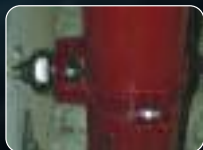
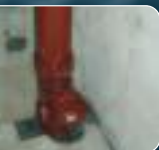
Building regulations Document E offers guidelines on separating walls and floors but not much on the drainage pipework that passes through them. But now a new European standard promises to put a stop to the confusion once and for all. Its definitive testing schedule will ensure that all materials can now be tested to the same criteria for genuinely comparable results.

BS EN 14366:2004 proves there's nothing **quiet** like cast iron

Saint-Gobain Pipelines submitted its Ensign cast iron system to be tested at an independent laboratory to the new standard to demonstrate unquestionably that Ensign is the quietest system.

The Ensign system installed with ductile iron fixing brackets incorporating an acoustic dampener proved to be much lower in noise level than the claims of other materials, in excess of 10dB quieter than HDPE 'Silent' and more than 6dB quieter than twin wall PVC. As acoustic engineers will appreciate, a 6dB difference equates to noise x 2, or in terms taken from a plaster board supplier: "In order to increase sound insulation of a solid partition wall by 4 to 5dB, the mass must be doubled."

Other independent tests carried out by acoustic engineers in Australia compared cast iron to PVC and stainless steel and identified cast iron as up to 14dB quieter. So cast iron wins wherever it's put to the test.



Cast iron scores a double whammy

It's the second time that Ensign cast iron has come out on top. Its proven performance in fire safety was highlighted back in 2004 when it became the only material to successfully answer the famous Burning Question. In independent tests, it demonstrated its non-combustible superiority over plastic-based and HDPE systems by being the only pipe system to remain intact after testing – despite temperatures that reached in excess of 1000 degrees Centigrade.

There can only be one conclusion: Ensign cast iron is not only the safest drainage material to specify in case of fire for any industrial, commercial or public building and multi-storey buildings in particular, it's also the quietest solution too.



What exactly is plumbing noise?

The evacuation of waste, soil and rainwater generates structure-borne and airborne sound between rooms and usually occurs as the result of a mixed flow, when the pipe is filled with water and air. In such circumstances a pipe will radiate noise outwards and transfer it to any lightweight ceilings, cupboards and similar areas wherever it makes contact.

What do the regulations say?

UK building regulations for noise control in buildings only provide guidelines for noise control in respect of residential dwelling-houses, flats and buildings. The UK requirement for separating walls, separating floors and stairs with a separating function stipulate an Airborne Sound Insulation value of <43-45dB.

More significant is BS8233:1999, the code of practice applied in the UK for governing acoustics within buildings. However, it only suggests limits for the different situations and building types and doesn't specifically cover the requirements for waste water systems.

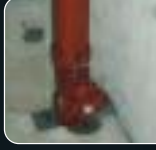
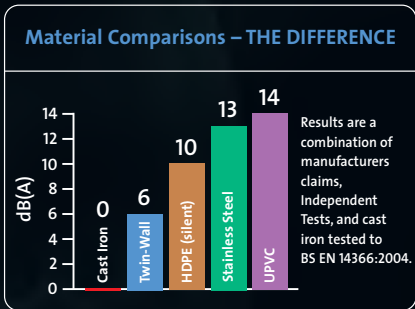
Setting up BS EN 14366: 2004

Accepting the urgent need for a testing method that covered a cross section of materials and offered accurate comparisons, the CEN/TC 126 working party was set up to develop simplistic testing criteria – ie number of brackets and no seal in the floor. In this way all materials and systems could be tested in the same fashion and to the same standard. As a result, a new European Standard BS EN 14366:2004 has been introduced which specifies a method for accurate and comparative laboratory testing.

Cast iron has the final say

Ensign cast iron was the first UK drainage system to be certified to BS EN 14366:2004 after being submitted by Saint-Gobain Pipelines installed using various bracket fixings within its standard range. When using the acoustic dampener with the ductile iron brackets the levels recorded for structure-borne noise were as low as 11dB (A) at a flow rate of 4 litres per second generated through the pipe system. A full report will be available detailing the results.

Waste water system "ENSIGN" (manufacturer SAINT-GOBAIN) with different brackets				
	Airborne sound pressure level $L_{p,A}$ [dB(A)] '1'		Structure-borne sound characteristic level $L_{sc,A}$ [dB(A)] '1'	
Flow rate [l/s]	2,0	4,0	2,0	4,0
Ductile cast iron brackets with Separate	45	47	5	11



When comparing the costs of drainage materials, architects, specifiers and installers need to factor in total installed costs. If acoustic performance is high on the specification, then other materials need expensive insulation to match the performance of Ensign. They also need more bracketry as listed in BS EN 12056:2000, which means more fixing time. Plastic-based systems also need fire collars too – again more fixing time and cost. So the subsequent cost of keeping quiet as cast iron just keeps on growing.

Ensign cast iron is undoubtedly the safest option for fire resistance, its longevity is unrivalled and it has now been proved to be the quietest system on the market. Effectively it is twice as quiet as the best of the rest. There really is nothing quiet like cast iron and hearing is most definitely believing!

To find out more about BS EN 14366:2004, Ensign and other cast iron drainage systems from Saint-Gobain, please call our brochure hotline 0800 028 2134 or visit our website www.saint-gobain-pipelines.co.uk.



Ensign Features

- The Only cast iron system Kitemarked to the product standard BS EN 877:1999
- Wide variety of couplings with high performance
 - Ductile Iron couplings (50-150mm diameter) capable of withstanding up to 5 bar – suitably restrained
 - Stainless steel couplings (100-150mm) capable of withstanding in excess of 5 bar unrestrained
- Pipes and fittings available in diameters 50mm to 600mm
- Extensive range of access fittings
- New long tail branches double and single at 88 degrees with swept radius entry and options of up to 2x50mm waste connections
- Extensive range of waste connections
- Pipes with superior tensile strength and crush resistance.



Ensign Benefits

- Superior sound deadening qualities
 - The quietest material
 - The quietest cast iron system–tested to BS EN 14366:2004
- Super Fire resistance
 - Non-combustible
 - Will not emit toxic fumes (main killer in any fire)
 - Safe
- No hidden costs
 - Less Brackets (see guidelines BS EN 12056:2000)
 - No insulation – for acoustic
 - No fire collars
 - No expensive rail system to mount brackets
 - No special tools (purchase or hire)
 - No thermal limiters and expansion joints.
- Longevity – unrivalled
- 100% recyclable – made from virtually 100% recycled scrap
- Superior strength and minimal maintenance.

If you would like more information about the many benefits of cast iron, please call our Technical Advisory Hotline 01952 262 581, our Brochure Hotline 0800 028 2134 or visit our website: www.saint-gobain-pipelines.co.uk

Ensign



Timesaver

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