Single family house in Trimmis, Switzerland, 2006 | All exterior walls were realised with Misapor Concrete. The concrete was dyed in a warm hue. The surface was lightly sand-blasted, and no water-repellent finishing was applied. In combination with the fine cavities at regular intervals, an elegant appearance is achieved, reminiscent of tuff and travertine.

Double family house in La Neuveville, Switzerland, 2005 | Not just the side walls, but also the flat roof was realised with Misapor Concrete. False bottoms and interior walls were made with normal concrete. The combination of the two materials proved unproblematic. Water-repellent finishing was applied to the building envelope.

Holiday home in Sent, Switzerland, 2005 | All exterior walls of the distinctive cube consist of Misapor Concrete. This was made with white cement. Due to the excellent insulating properties of Misapor Concrete, there was no need for additional jamb insulation at any of the windows, despite the extreme winter temperatures in the Engadin region.

Single family house in Widnau, Switzerland, 2005 | This striking building essentially comprises two closed exterior walls made of Misapor Concrete and an extensively overhanging flat roof. Roof, intermediate ceiling, interior walls, and foundation slab were realised with normal concrete. Two sides of the exterior were implemented purely as window facades.

New apartment building "Hemetli", Herisau, Switzerland, 2006 | This senior citizens' residence is the first apartment building to be realised with Misapor insulating concrete. The two spacious building complexes built into the slope, one behind the other, provide apartments and an infrastructure for 80 residents. – This property was implemented with the LC 8/9 standard mix and type 2 formwork.

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THE CONCRETE REVOLUTION

MISAPOR
CONCRETE

FIRST CHOICE FOR TECHNICIANS AND DESIGNERS

Misapor, the incredible construction material, has long been the first choice for perfect insulations and lasting lightweight aggregates. But Misapor is now also used in the manufacture of a high quality insulating structural concrete: Misapor Concrete, which has already been used in the realisation of countless buildings. And this without any problems at all, because in terms of processing, Misapor Concrete differs only slightly from conventional concrete.

Single family house in Trimmis, Switzerland | 2006 | Architecture: Lost, Basel

Single family house in Widnau, Switzerland | 2005 | Architect: Frei, Widnau

THIS CONCRETE HAS WHAT IT TAKES!

Misapor Concrete has all the positive properties of a good structural concrete: it is lasting, pressure-resistant, structurally sound, watertight, and frost-resistant. And as if that weren't enough, even in the insulation mix it achieves a strength class of LC 8/9, and that with a dry density of only around 1000kg/m^3! Thermal building simulation calculations realised by EMPA with the program "Helios" show that with Misapor Concrete, depending on the construction type, the heat requirement limits can be adhered to with a construction thickness of as little as 40cm. With these insulation properties, which are unique for a concrete, completely new design possibilities present themselves: finally, it is possible to realise monolithic exposed concrete structures without additional insulation. Absolutely free of thermal bridges, of course, because just one homogenous construction material is used – and indeed, one which has what it takes!

In practice, the insulation is so good that even insulated jambs are unnecessary.
Window installation (interior, central rabbet).

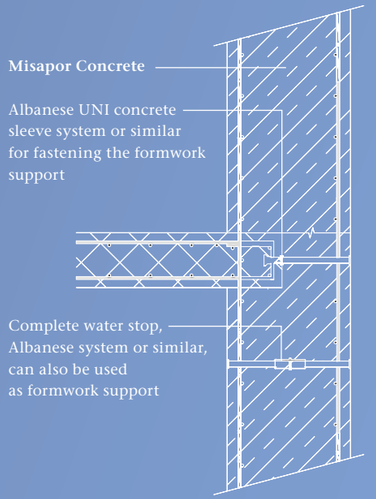
INSULATION SENSATION!

Unlike with other building materials, the insulation performance of Misapor Concrete depends not only on the lambda value. It is influenced by the entire building mass. In a monolithic construction, the high phase shift of 16-18 hours and the excellent amplitude attenuation of Misapor Concrete really make a difference. Naturally, this reduces heating costs – after all, no-one has any objections to making considerable energy savings. By the way, the pleasant, stable interior climate doesn't cost a cent.

Holiday home in Sent, Switzerland | 2006 | Architect: Fries, Zurich

Double family house in La Neuveville, Switzerland | 2005 | Architecture: GLS, Biel

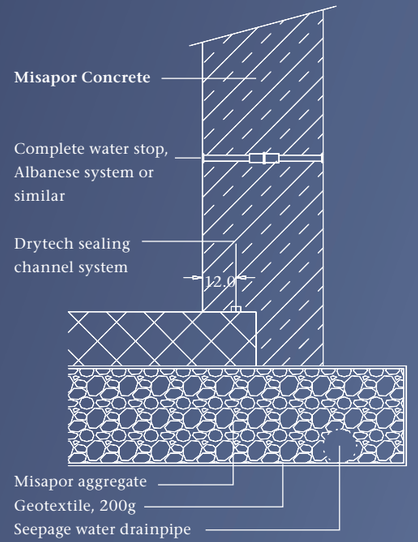
The transition from the ceiling to the Misapor Concrete wall can be realised as a force-closed joint, or with a separation layer.



GREAT COMBINATION!

Misapor Concrete is also compatible with conventional construction materials. Intermediate floor slabs are often implemented with normal concrete and simply bear on the Misapor Concrete exterior walls. In practice, due to the excellent insulation and storage properties of Misapor Concrete, no additional edge insulation is needed. – And the roof? That can also be realised with Misapor Concrete. The material is ideal and the processing is the same as with conventional watertight concrete – just the job!

Misapor Concrete is also quite suitable for use in the cellar.



SIMPLY FUNDAMENTAL

Misapor Concrete allows a monolithic approach to construction: the supporting structure and insulation consist of one material. And that's from the cellar to the roof because the insulating concrete can be set in the ground without problems, for example in combination with a Misapor insulating aggregate. Misapor Concrete is resistant to frost and deicing salt, and is also waterproof (in accordance with Swiss standard SIA 262/1).

Single family house in Chur, Switzerland | 2003 | Architecture: Schlegel, Malix

A GLIMPSE BEHIND THE SCENES

How is Misapor Concrete produced? – In a crushing and screening plant, Misapor foam glass is reduced to small pieces and screened in different particle sizes. The insulating concrete granulate is made from these particles according to specific requirements, and the unique Misapor Concrete is then manufactured in a licensed concrete factory.

Due to the high air pore content, Misapor Concrete surfaces exhibit shrinking cavities which characterise this construction material. However, this does not inhibit functionality or durability.

Single family house in Fläsch,
Switzerland | 2001 | Bearth + Deplazes

CONCRETE WITH CERTIFICATE & SUPPORT

Misapor Concrete was developed by Misapor AG over a number of years and further optimised in practice. Countless buildings have already been realised: from the simple residential building to the sophisticated building complex. The new construction material was tested in laboratory conditions and these tests confirmed what practice had already made evident long before: Misapor Concrete meets all the requirements of the Swiss Construction Products Law. The manufacture was certified by the Swiss Association for Surveillance of Aggregates and Concretes (SASA). Thus, Misapor Concrete meets all the requirements of SN EN 206-1:2000A1:2004.

Any questions? – The Misapor Concrete professionals guarantee comprehensive support and competent advice in all construction phases: from planning and tendering, right through to the concrete implementation, you will be supported by experts standing at your side.

Text for tenders: Concrete according to SN EN 206-1:2000, Concrete according to properties

Strength class	LC8/9	Chloride content class	CL 0.10
Exposure class	XC4(CH) XF1(CH) XD1(CH) XD2(CH)	Consistency class	C3/C2
Largest particle size	D_{max} 32	Bulk density class	D1.0/1.2

Misapor Concrete at a glance – Properties according to SN EN 206-1:2000/A1:2004

General requirements	Standard	Section	Values	Requirements
Exposure classes	EN 206-1	4.1	XC4(CH) XF1(CH)	XC4(CH) XF1(CH)
			XD1(CH) XD2(CH)	XD1(CH) XD2(CH)
Consistency class (compacting factor)	EN 12350-4	4.2	C3/C2	C3/C2
Largest particle size Dmax	EN 12620	4.2.2	D_{max} 32	D_{max} 32
Compressive strength class	EN 12390-3	4.3.1	LC8/9	LC8/9
Bulk density class (for lightweight concretes)	EN 12350-6	4.3.2	D1.0/1.2	D1.0/1.2
Cement	EN 197-1	5.1.2		certified
Lightweight aggregate	EN 13055-1	5.2.3	100% foam glass	certified
Alkali-silica reaction performance test	NF P 18-454 LCPC	NA 5.2.3.4	-0.0015 ‰	0.02 %
Fly ash (admixture type II)	EN 450-1	5.2.5		certified
Admixtures	EN 934-2	5.2.6	FM+LP	certified
Chloride content class	EN 206-1	5.2.7	CL 0.01	CL 0.10
max w / zeq		NA 3.1.47	0.45	≥ 0.5
Minimum cement content		NA 5.3.4	400	≥ 300
Water conductivity	SIA 262/1 Appendix A	NA 5.3.4	q_w 7.42 g/(m²/h)	≤ 10.0 g/m²/h
Chloride resistance	SIA 262/1 Appendix B	NA 5.3.4	D_{CL} 9.8 $^{-12}$	-
Frost / de-icing salt resistance	SIA 262/1 Appendix C	NA 5.3.4	Δm_{28} = 44 g/m²	≤ 200 g/m² (high resistance)
Modulus of elasticity	SIA 262/1 Appendix G		E_{cm} 5'900 N/mm² - 8000 N/mm²	
Flexural strengths	SN EN 12390-5		f_{ct} 1.6 N/mm²	
Shrinkage	SIA 262/1 Appendix F		$\varepsilon_{cs,28}$ -0.44 ‰	
			$\varepsilon_{cs,56}$ -0.52 ‰	
Creep	SIA 262/1 Appendix F	Elastic length change	$\varepsilon_{c,el}$ -0.55 ‰	
		Length change due to creep	$\varepsilon_{cc,56}$ -0.22 ‰	
		Creep coefficient	$\varphi_{(56,28)}$ 0.4	

SPECIAL PROPERTIES	STANDARD	VALUES	BUILDING ELEMENT THICKNESS
Misapor Concrete as facade component:			
Assessed building sound insulation level	exterior / interior	R'_w = 57 dB	d = 45 cm Rg = 1'100 kg/m³
Misapor Concrete as edge component:			
Assessed building sound insulation level	exterior / interior	R'_w = 59 dB	d = 40 cm Rg = 1'000 kg/m³
Assessed standard impact noise level		$L'_{n,w}$ = 49 dB	d = 40 cm Rg = 1'000 kg/m³
Assessed edge insulation level		$R\,L'_w$ = 67 dB	d = 50 cm Rg = 1'100 kg/m³

This information is accurate to the best of our knowledge at time of printing and solely applies to MISAPOR CONCRETE. Please check whether these specifications correspond to the current situation.