

Sto: Especialista em Fachadas para Passive House

- Eficiência, Estética e Inovação ao serviço da Arquitetura Sustentável

✔ Referência em sistemas de fachada com mais de 60 anos de experiência

🏠 Soluções certificadas para Passive House – continuidade térmica, estanquidade e durabilidade

🧱 Sistemas completos e integrados – isolamento, acabamentos, fixações, selagens e perfis técnicos

🌍 Liberdade arquitetónica – texturas, cores e formas para qualquer conceito de design

🌱 Compromisso com a sustentabilidade – soluções duráveis, recicláveis e com baixo impacto ambiental

🤝 Apoio técnico especializado – desde o projeto até à execução em obra



Apresentação Sto

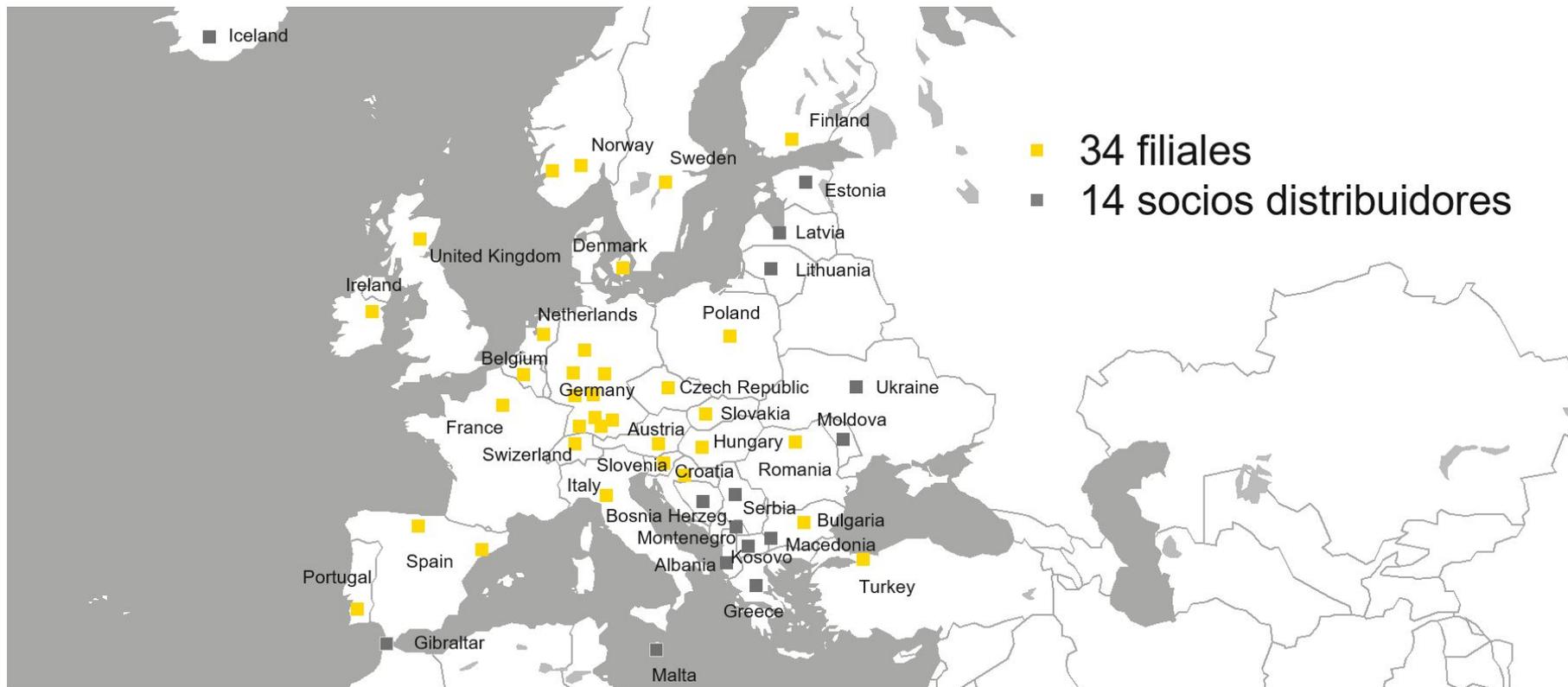
Empresa Alemanha

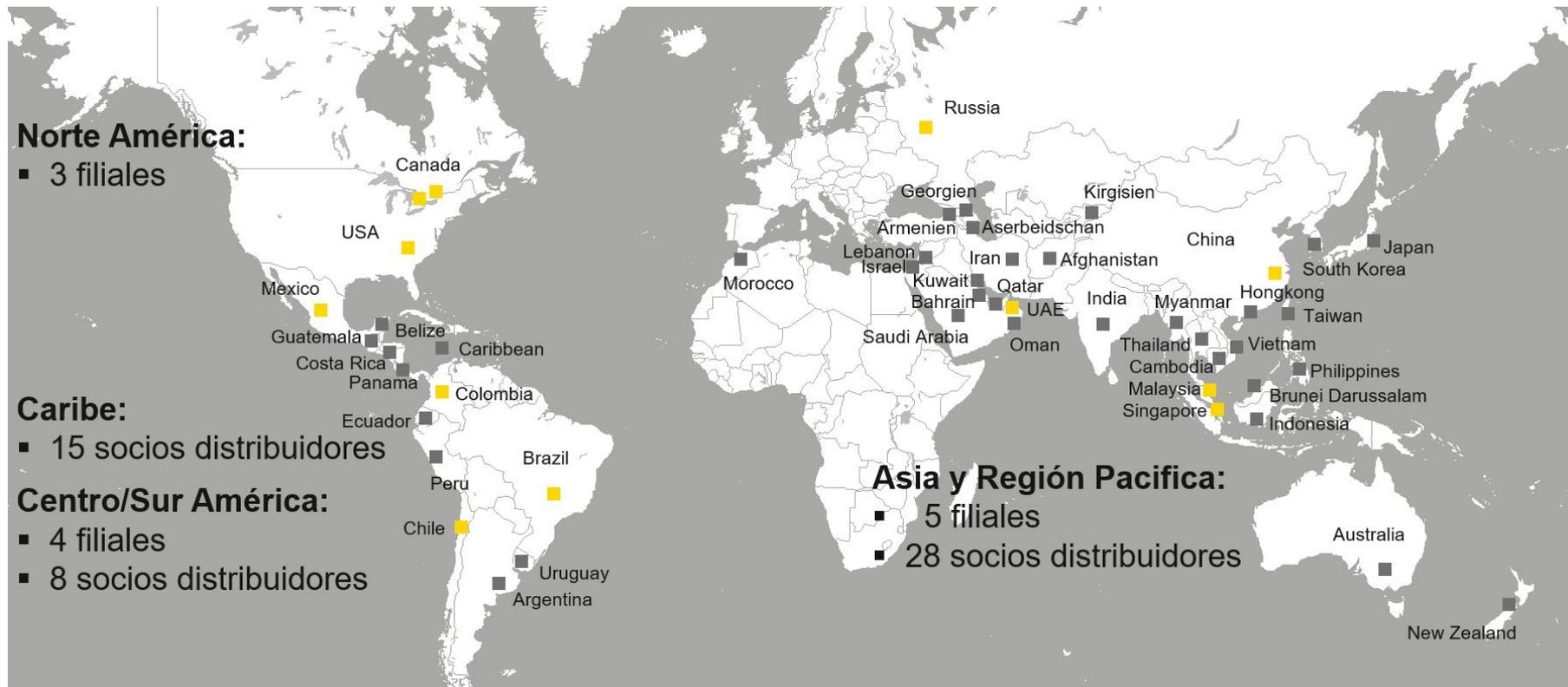


Presentación Sto

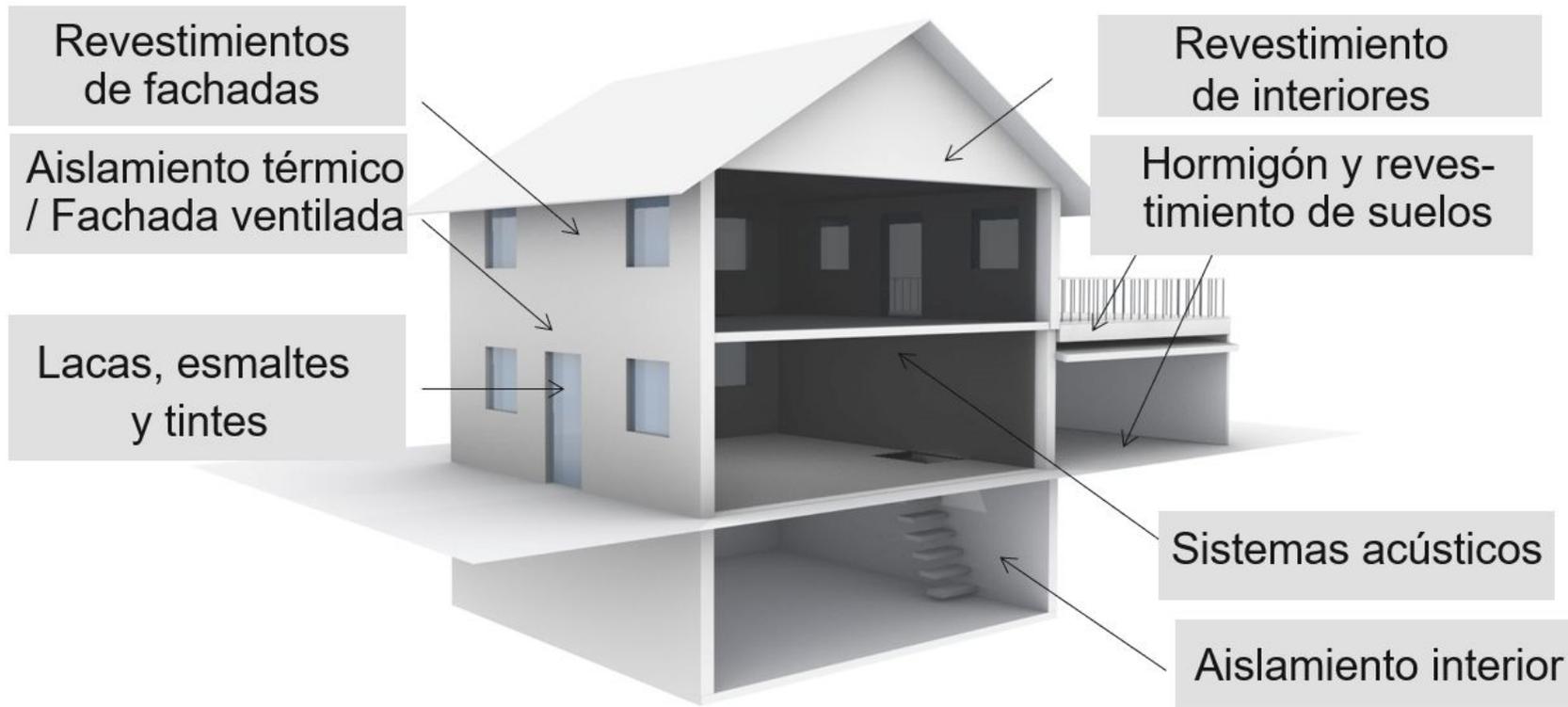
Empresa Alemana → líder en tecnología







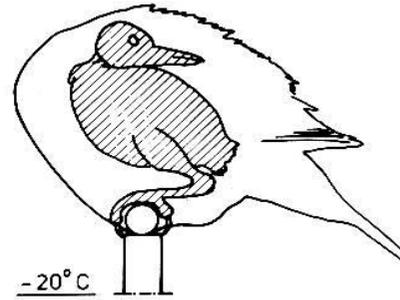
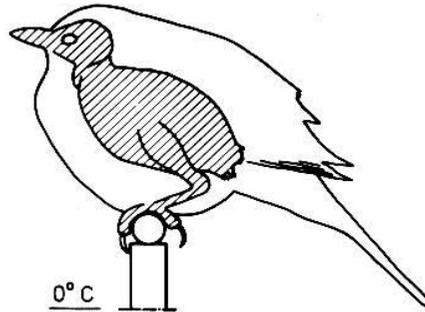
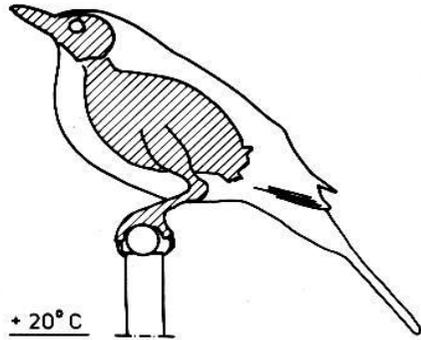
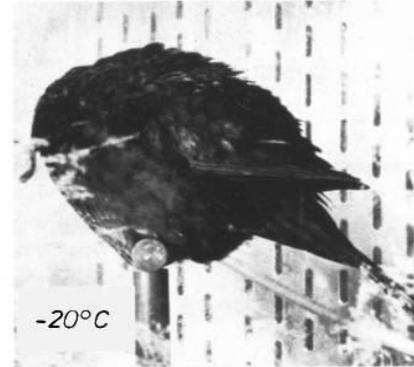
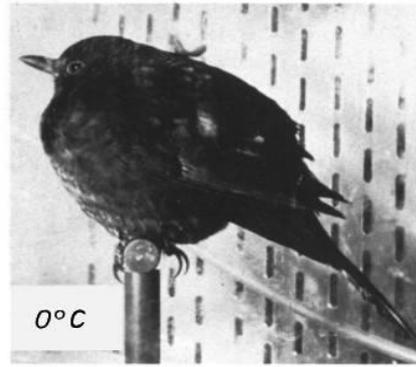
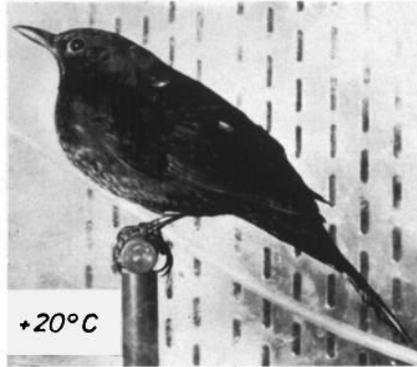
- 
- 57 Filiales
 - 30 Centros de producción
 - 51 Socios
 - Más de 5.000 empleados



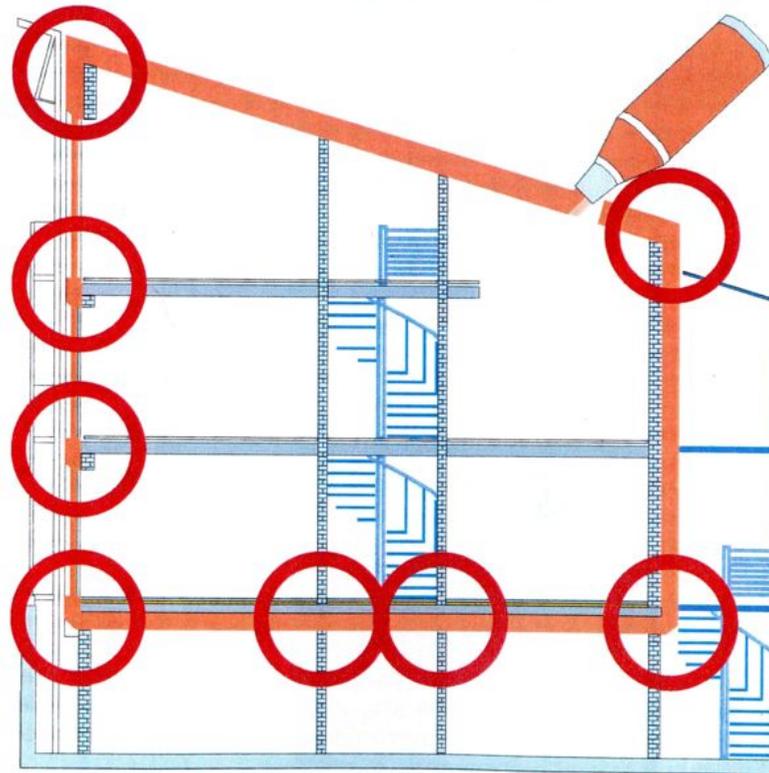
Bom isolamento térmico e compatibilidade	Revestimento exterior $U \leq 0,15 \text{ W}/(\text{m}^2\text{K})$ sem pontes térmicas
Orientação sul e ausencia de sombras	Aproveitamento passivo da energia solar
Vidros e caixilharia super isolantes	$U_w \leq 0,8 \text{ W}/(\text{m}^2\text{K})$ valor E aproximado de 50 %
Estanqueidade ao ar	$n_{50} \leq 0,6 \text{ h}^{-1}$
Recuperação do calor do ar de saída	Nível de recuperação do calor $\geq 75\%$
Aparelhos de poupança energética	Eletrodomésticos de baixo consumo e de grande eficiencia
Aquecimento regenerativo da agua de consumo	Colector solar ou bomba de calor

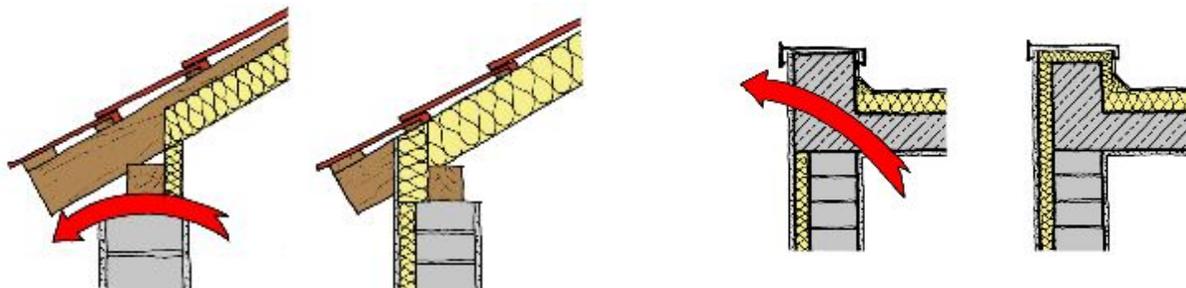
© Copyright Passivhausinstitut Darmstadt

Aprendendo com a natureza e observando a arquitetura tradicional da região.

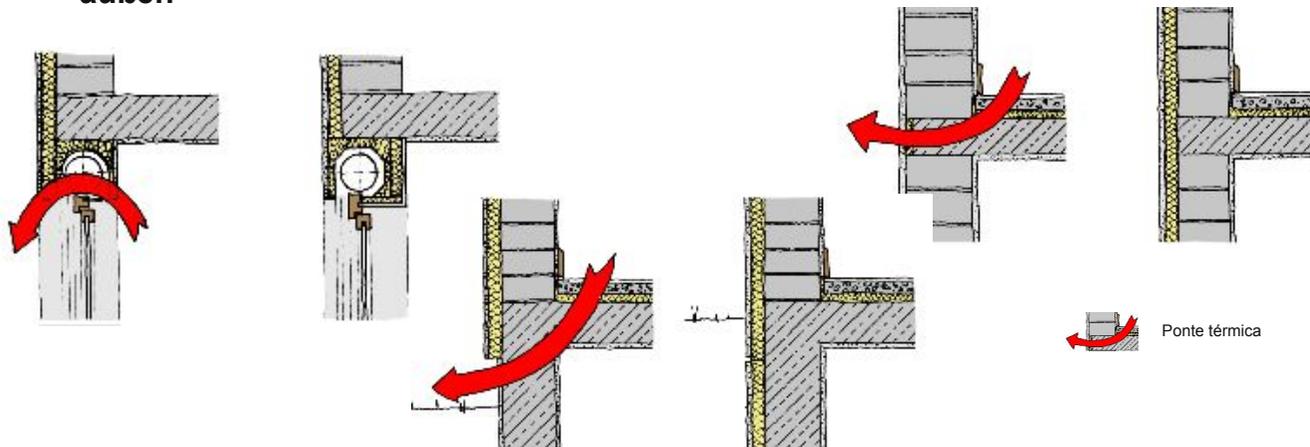


Conceito Passivhaus



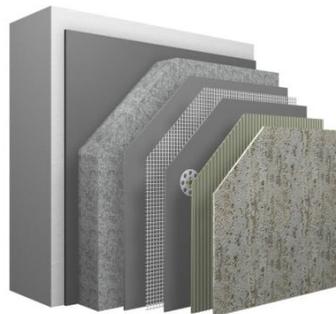


$\Psi_{\text{au\ss en}} \leq 0,01 \text{ W/(mK)}$ para todos os encontros standard

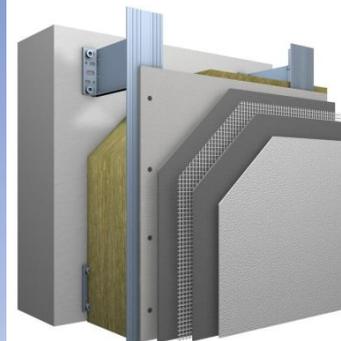


ITE ou fachada ventilada?

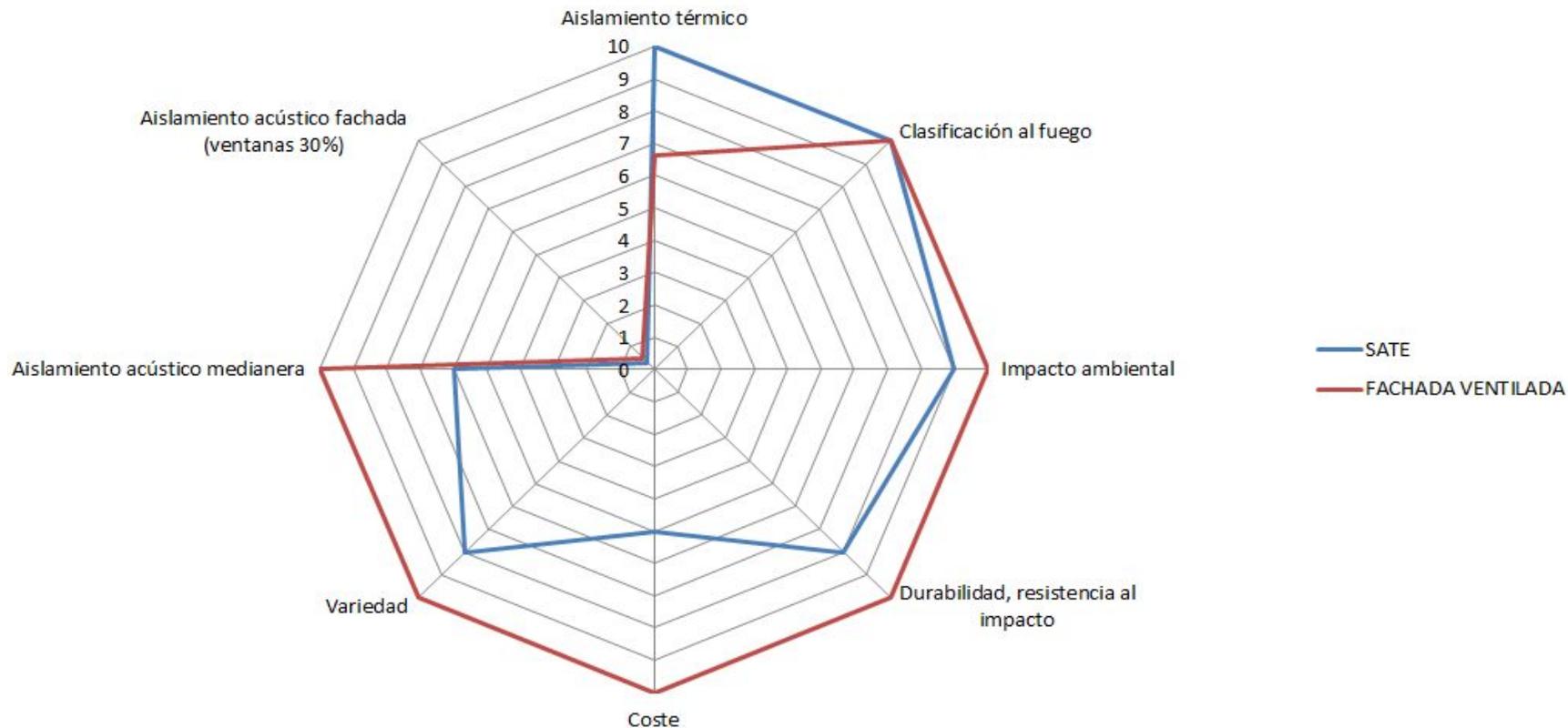
ITE

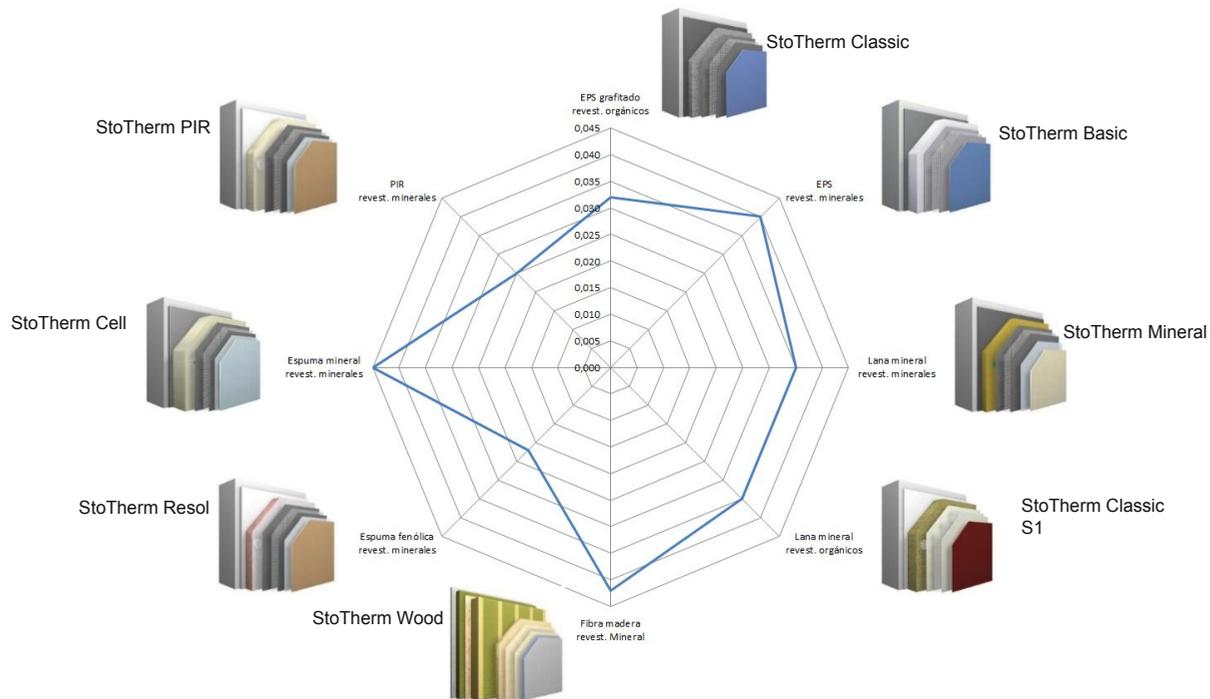


FACHADA VENTILADA

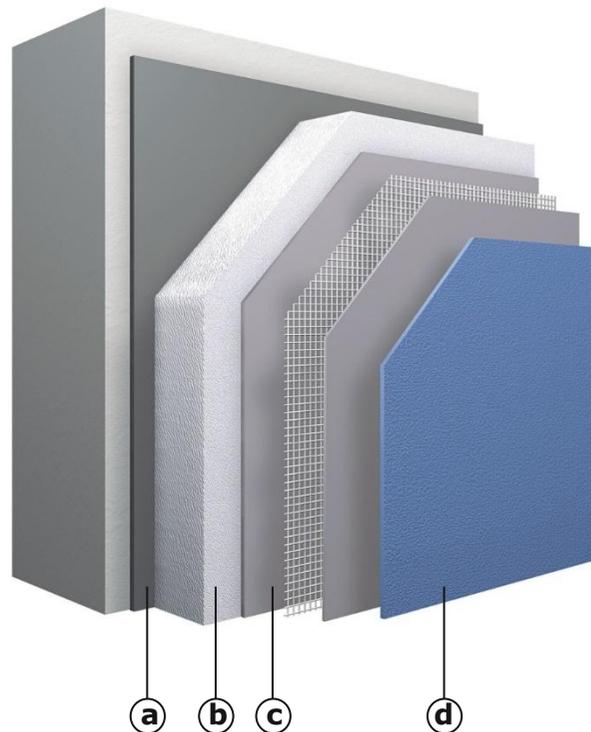


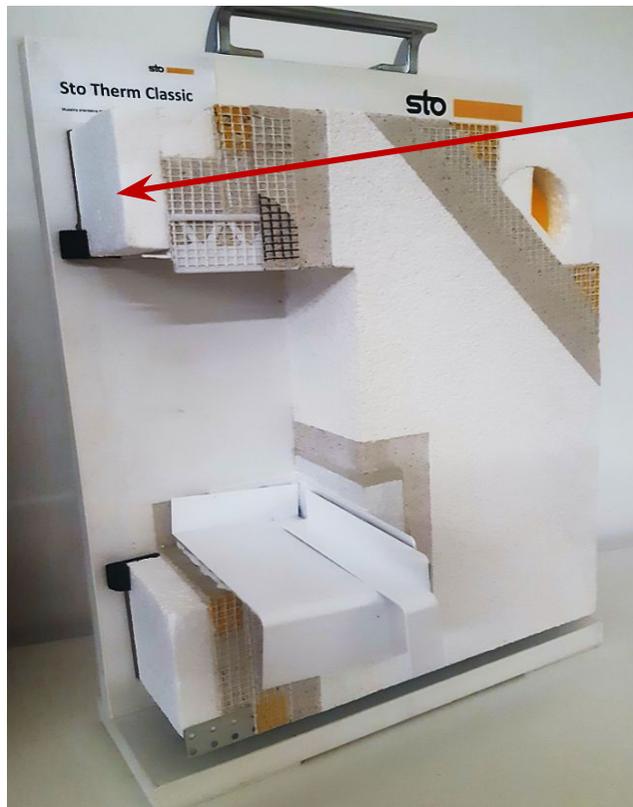
ITE ou fachada ventilada?





- a. Colagem e fixação
- b. Isolamento
- c. Barramento armado
- d. Acabamento
- e. Acessórios





- Aislamiento Térmico:





- Argamassa de reforço + malha de fibra de vidro:
- Orgânica (isenta de cimento)
- Mineral (à base de cimento)

Componente **CHAVE**** do ETICS (Sistema de Isolamento Térmico pelo Exterior):**

Não se vê, mas é o que faz a diferença em termos de qualidade e durabilidade do sistema.



Argamassa de reforço



Orgânicos

15 Julios de impacto

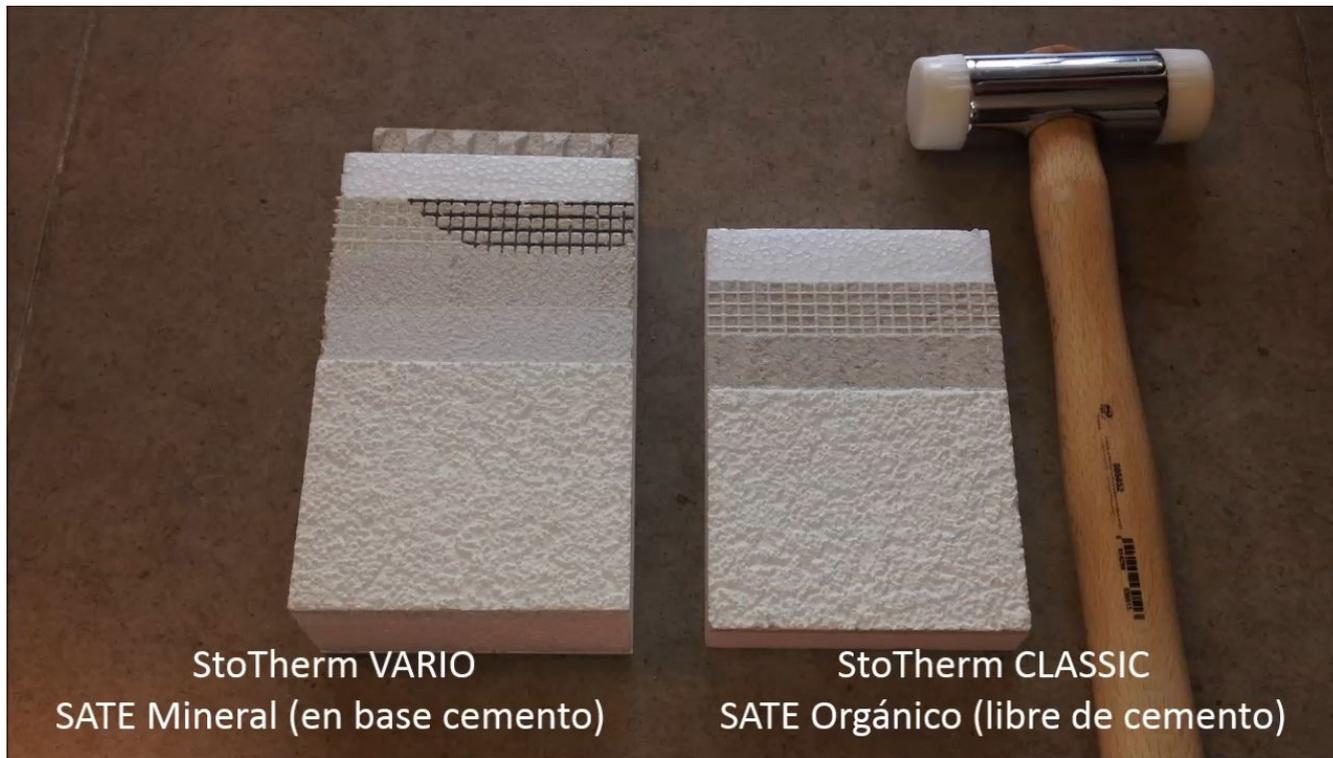


Minerais

3 a 5 Julios de impacto



Sistemas SATE StoTherm: Argamassa de reforço



StoTherm VARIO
SATE Mineral (en base cemento)

StoTherm CLASSIC
SATE Orgánico (libre de cemento)

Argamassa de reforço



Sistemas SATE StoTherm: Argamassa de reforço



Argamassa de reforço





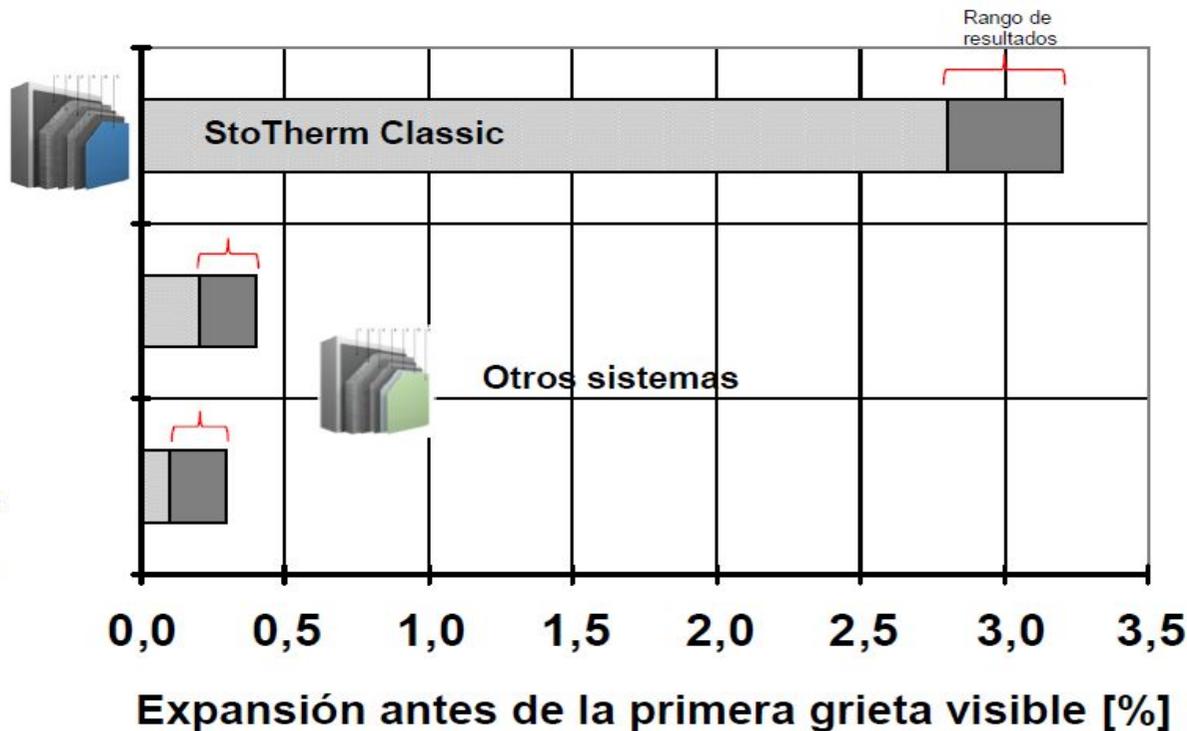
Sistemas SATE StoTherm: Argamassa de reforço



Orgánico

Mineral altamente modificado

Mineral ligeramente modificado



Argamassa de reforço



StoSignature



StoEcoShape



StoCleyer W

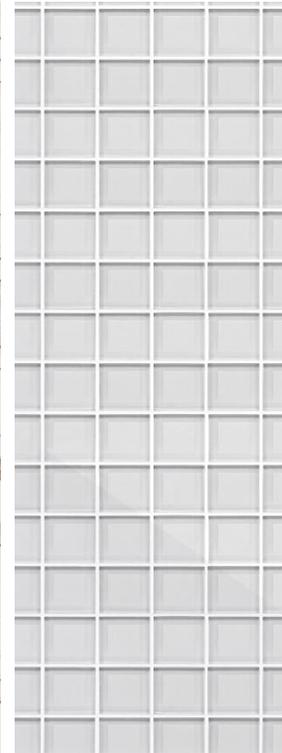
StoCleyer B



StoBrick



StoStone

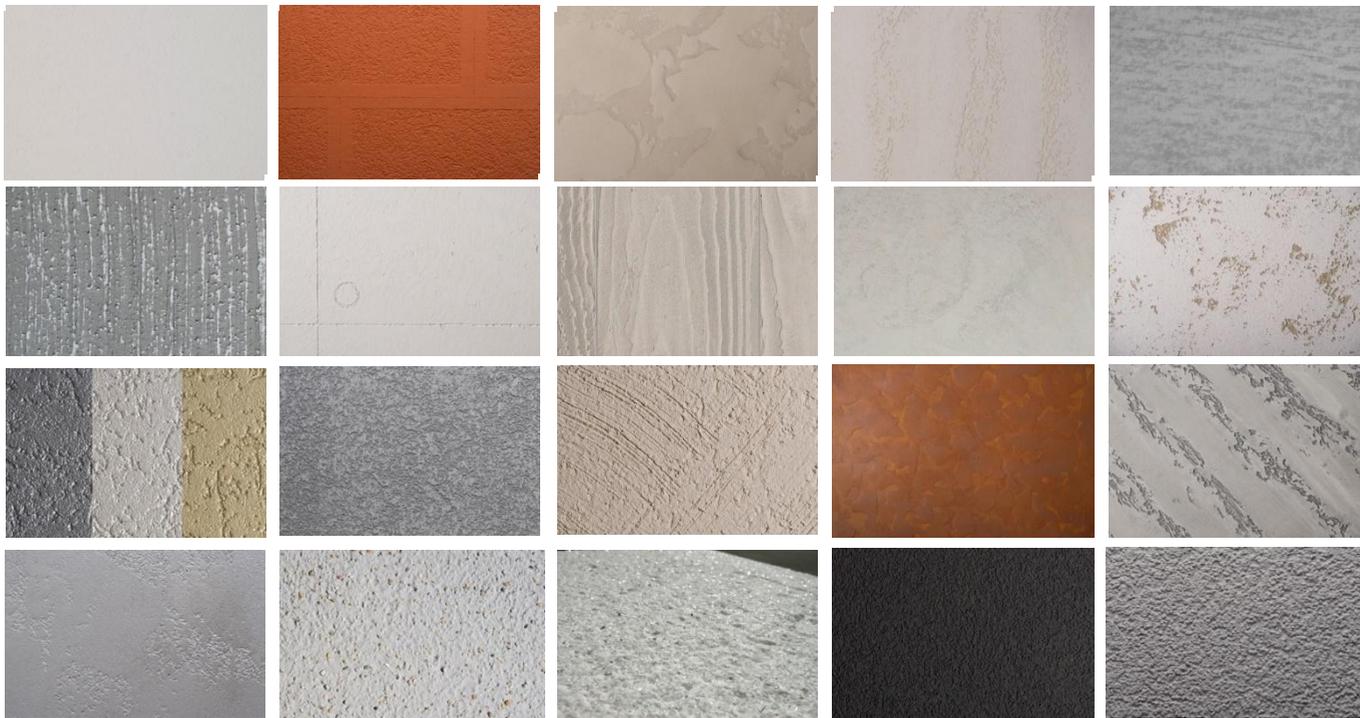


StoGlass Mosaic



StoDeco

Algumas opções de acabamentos





Sistemas SATE StoTherm: Acabado com reboco StoSilco® Blue



StoSignature



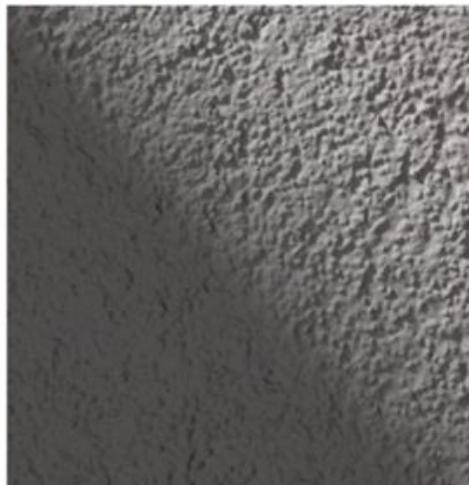


Sistemas SATE StoTherm: Acabado con revoco StoSilco® Blue





StoSignature



Textura Rugosa (K)



Textura Acanalada (R)



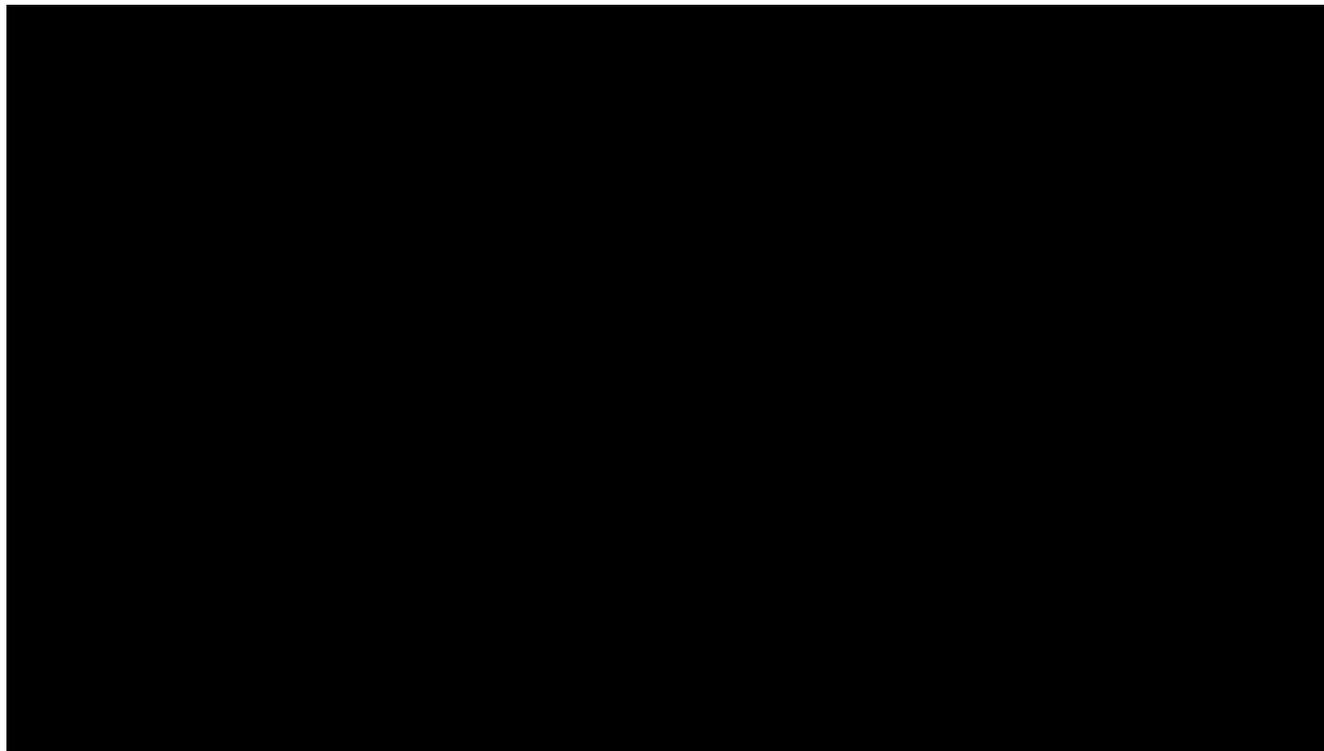
Textura Modelada (MP y Milano)



Sistemas SATE StoTherm: Acabado con revoco

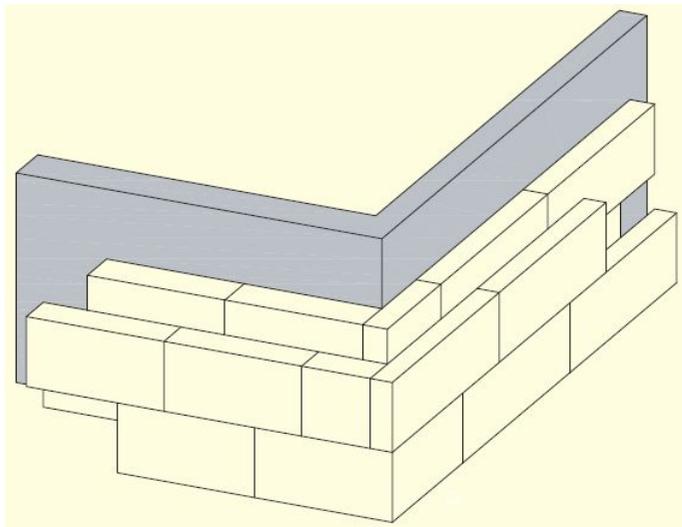


StoSignature



Soluções construtivas ITE-PH

Esquina exterior e dupla placa

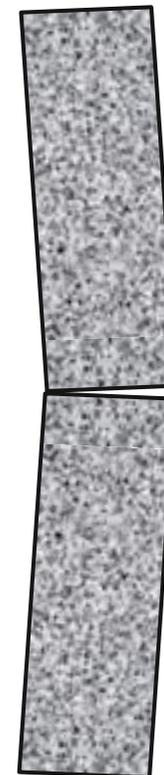


Normen-Download-Beuth-STO SDF IBERICA SLU-KdNr.7584017-L.Nr.5347046001-2011-05-25 13:32

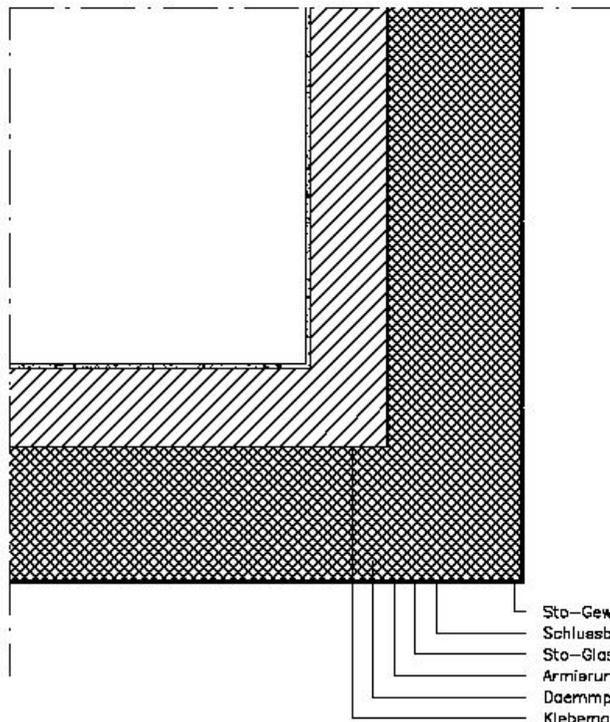
Table 3 — Permitted flatness deviations

Column	1	2	3	4	5	6
Group	Deviations applicable to	Permitted position deviations, in mm, for distances between measuring points, in m, up to				
		0,1	1 ^a	4 ^a	10 ^a	15 ^{a b}
1	unfinished upper surfaces of floors, subfloors and concrete bases	10	15	20	25	30
2	unfinished upper surfaces of floors, subfloors and concrete bases subject to more stringent requirements (e.g. to receive floating screed, industrial floors, tile flooring and bonded screed), and finished surfaces for minor purposes (e.g. in storerooms or basements)	5	8	12	15	20
3	finished floors (e.g. screed as wearing courses or screed to receive a flooring, tiled floorings, trowelled or bonded floorings)	2	4	10	12	15
4	as for group 3, but subject to more stringent requirements	1	3	9	12	15
5	unfinished walls and unfinished ceilings	5	10	15	25	30
6	finished walls and soffits (e.g. plastered walls, wall claddings and linings, suspended ceilings)	3	5	10	20	25
7	as for group 6, but subject to more stringent requirements	2	3	8	15	20

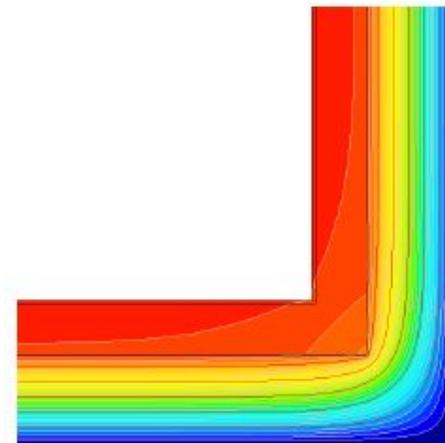
^a Intermediate values shall be taken from figures 4 and 5, and shall be given to the nearest millimetre.
^b The values in this column also apply to distances between measuring points of over 15 m.



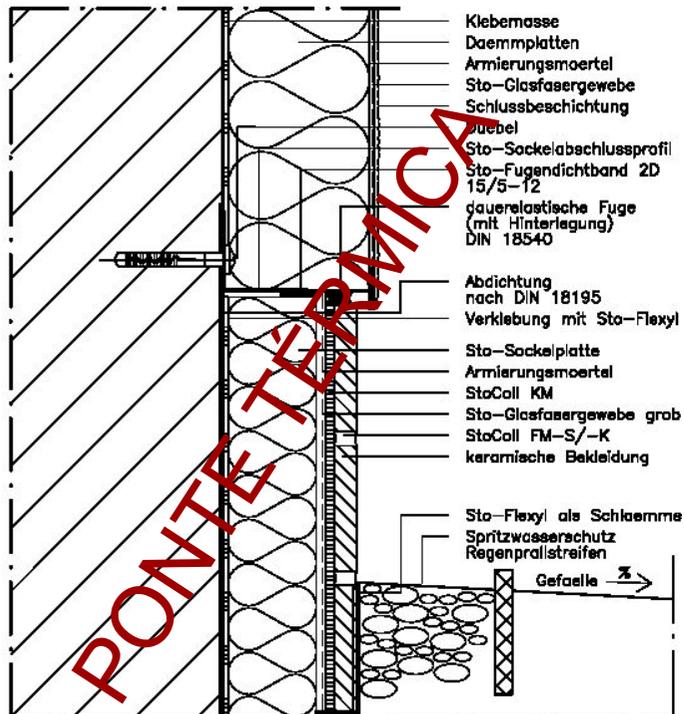
Esquina exterior



$\Delta\Theta$	30			K
	040 / 300	035 / 300	032 / 200	
Ψ_a	-0.063	-0.055	-0.053	W/(mK)
Θ_{min}	18.7	18.9	18.4	°C
	ja	ja	ja	
f_{Rsi}	0.96	0.96	0.95	-



Arranque com perfil de alumínio



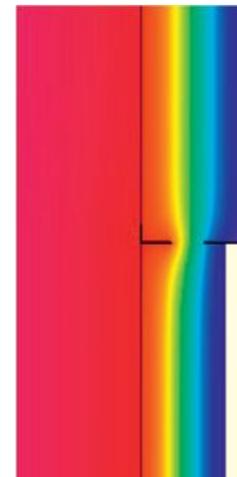
StoPerfil de arranque

Arranque sem ponte térmica (Perfil de arranque em pvc)

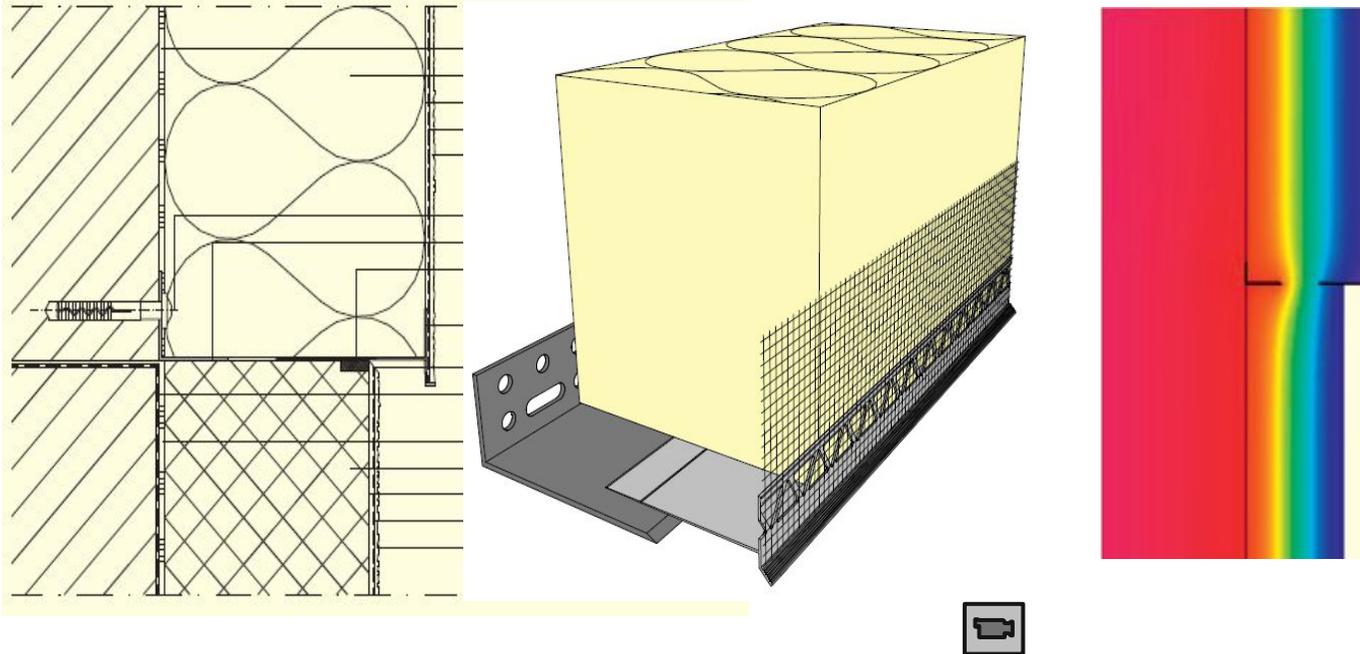


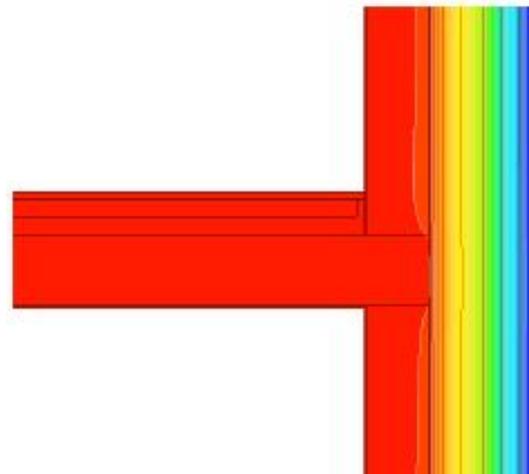
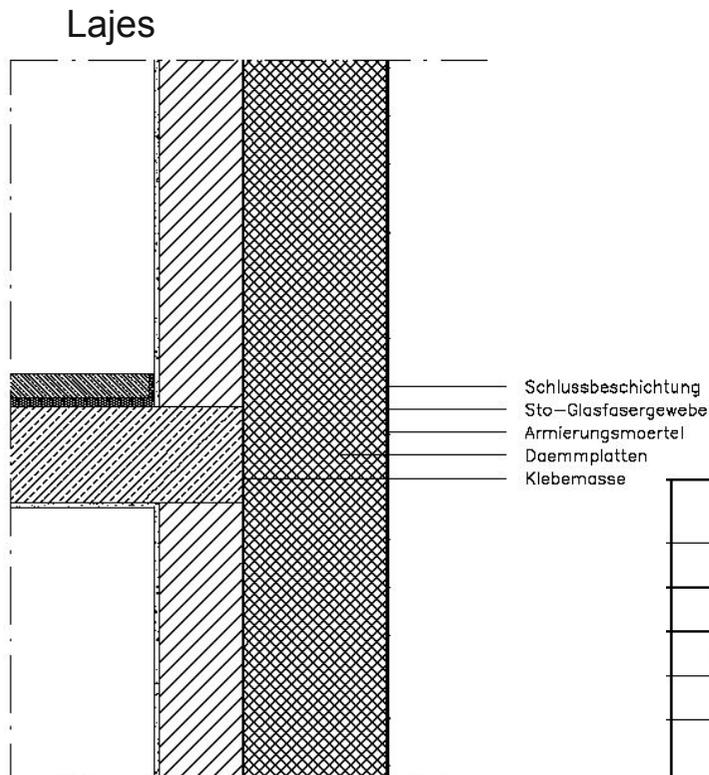
Resultados

Diferença a respeito da temperatura de referência e do coeficiente de convecção	$\Sigma\Theta$	30			K
Valor de condutividade térmica /Potência do isolamento		040 / 300	035 / 300	032 / 200	
Coefficiente de convexão linear	Ψ_a	0,000	0,000	0,002	W/ (m·k)
Temperatura interior mínima a -10°C	Θ_{min}	19,6	19,6	19,4	°C
¿livre de pontes térmicas?		si	si	si	
proporção dimensional de diferença da temperatura	frSI	0,99	0,99	0,99	-

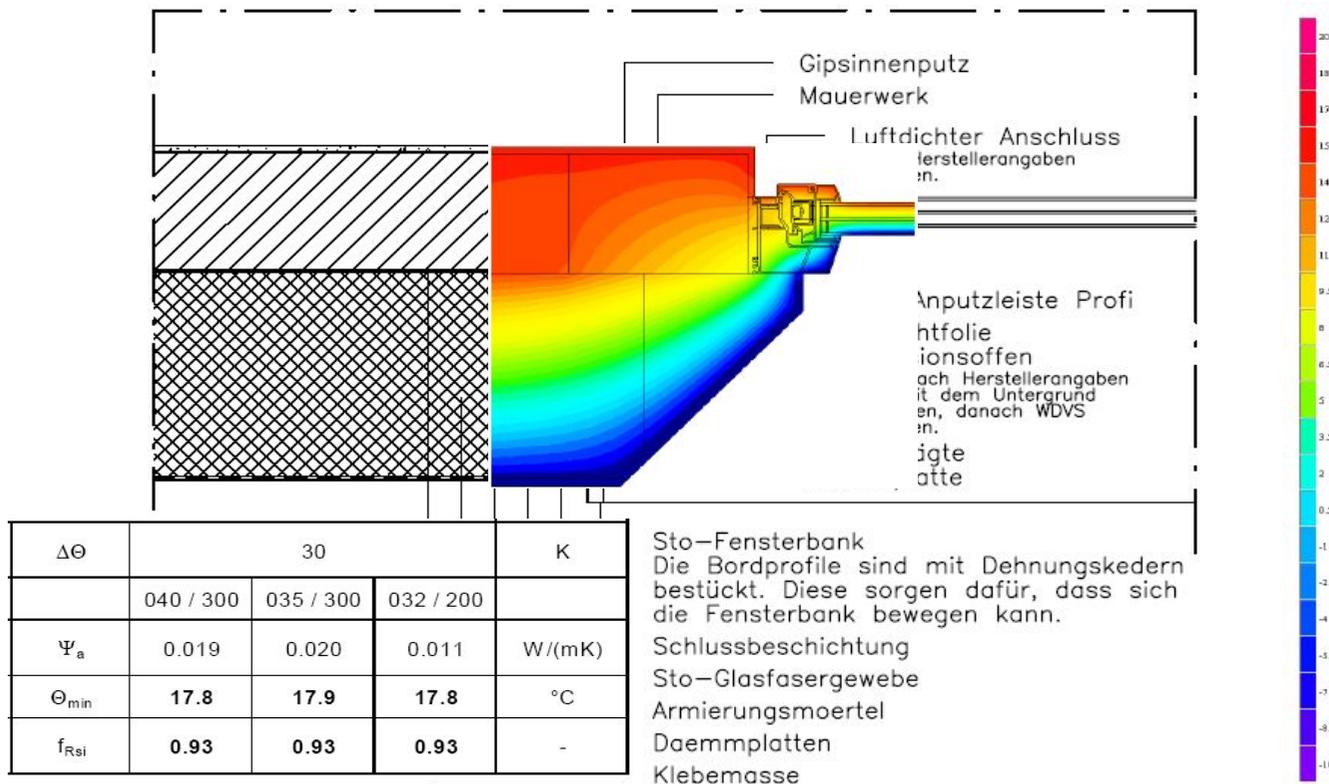


Arranque sem ponte térmica





$\Delta\Theta$	30			K
	040 / 300	035 / 300	032 / 200	
Ψ_a	0.000	0.000	0.000	W/(mK)
Θ_{min}	19.4	19.5	19.3	°C
	ja	ja	ja	
f_{Rsi}	0.98	0.98	0.98	-



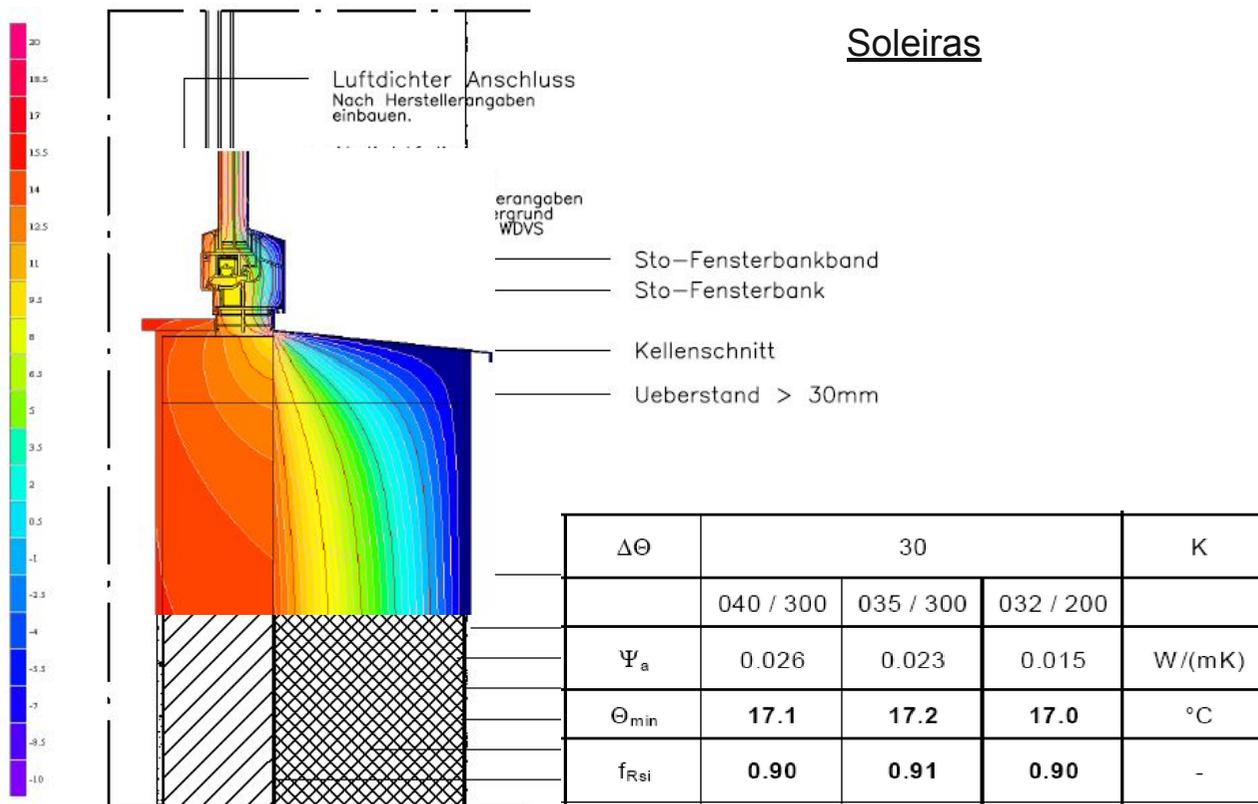
Soluções construtivas ITE-PH



Soluções construtivas ITE-PH

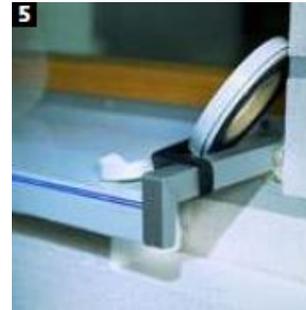
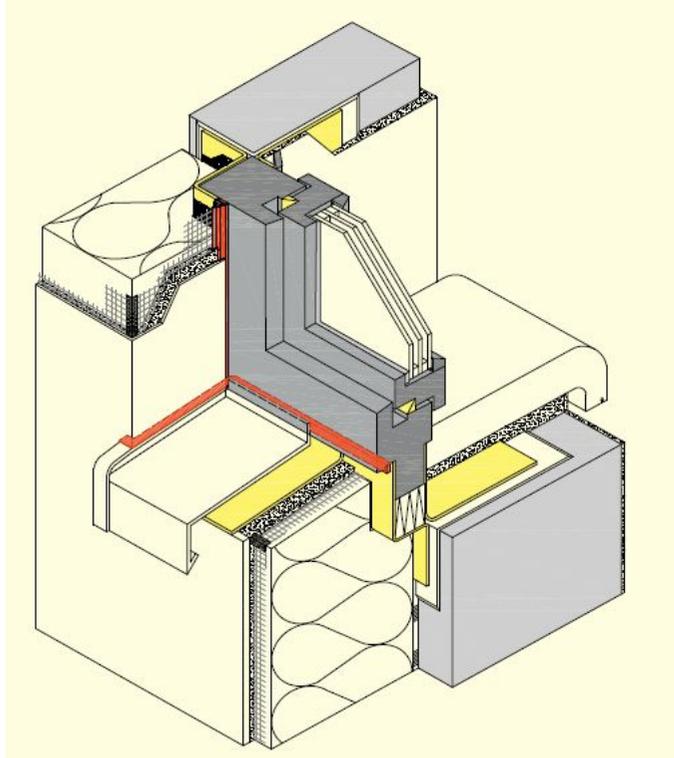
Selagem perimetral de janelas





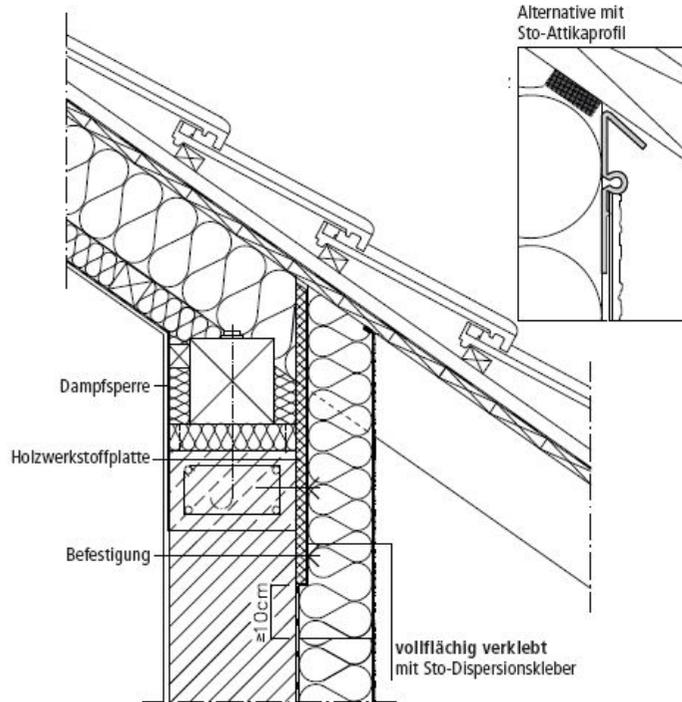
Soluções construtivas ITE-PH

Selagem perimetral em redor das soleiras

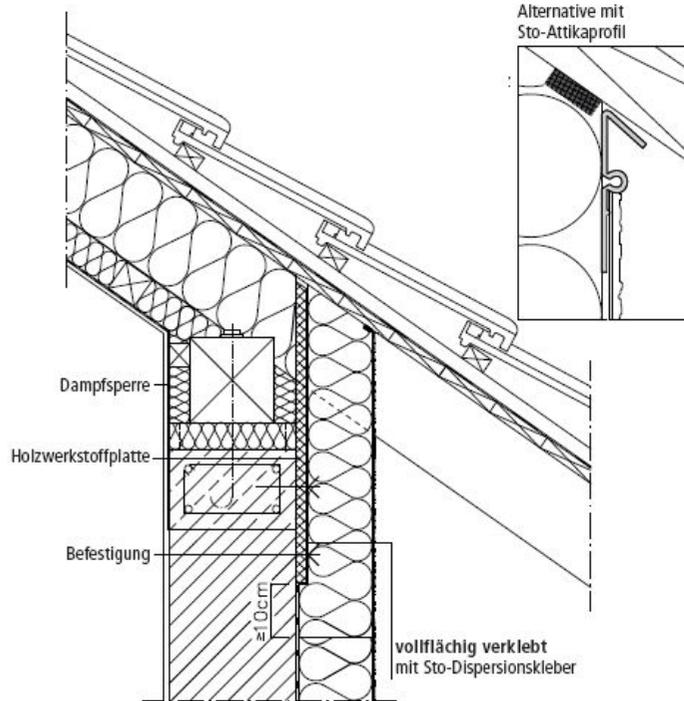


Soluções construtivas ITE-PH

Encontro com cobertura



Encontro com cobertura



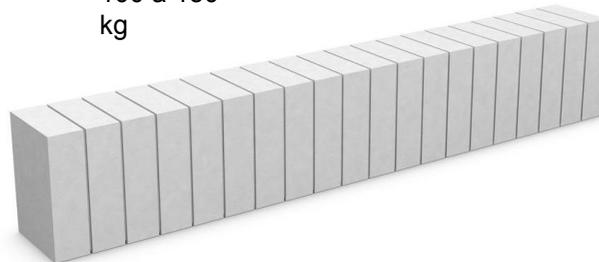
Detalhe 3

ITE

- StoFix Quader
- StoFix Trawik
- StoFix Rondel
- StoFix Zirillo

(Capacidade dada a cargas com gravidade)

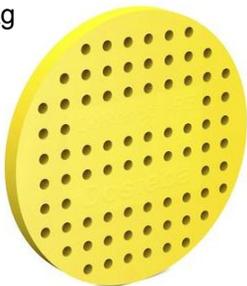
100 a 150
kg



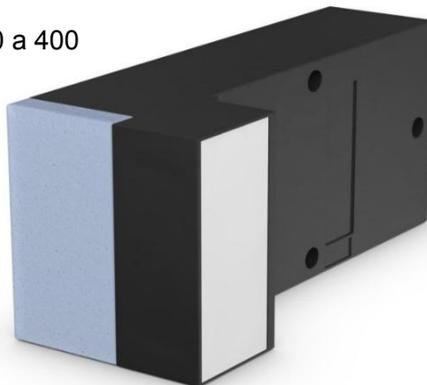
15 a 80 kg



30 kg



150 a 400
kg



400 a 900
kg



REFERÊNCIAS



brig

¿SATE o FACHADA VENTILADA?

✓ **FACHADA VENTILADA**

Hotel Boutique Briig

Arquitecto: Studio 180

Localización: Split, Croacia

Sistema: StoVentec R

Acabado: StoSignature Fine 10 + StoColor Dryonic





¿SATE o FACHADA VENTILADA?

✓ **FACHADA VENTILADA**

Museo de la minería

Arquitecto: Bethem Crouwel GmbH

Localización: Bochum, Alemania

Sistema: StoVentec R

Acabado: StoSignature Rough 10 +Effect: Granulate 30





¿SATE o FACHADA VENTILADA?

✓ **SATE**

Bikini House

Arquitecto: Big B. Bau Berlin

Localización: Berlin, Alemania

Sistema: StoTherm Vario y StoTherm Mineral

Acabado: StoSuperlit





¿SATE o FACHADA VENTILADA?

✓ **FACHADA VENTILADA**

Torre en Zagreb

Arquitecto: PROARH d.o.o. Zagreb

Localización: Zagreb, Croacia

Sistema: StoVentec R

Acabado: StoSignature Rough 1 + StoColor Dryonic



sto



Construir con conciencia.

¿SATE o FACHADA VENTILADA?

✓ **FACHADA VENTILADA**

Edificio Residencial en Zurich

Arquitecto: Huggen_Berger GmbH

Localización: Zurich, Suiza

Sistema: StoVentec C

Acabado: Aplacado cerámico

Referências



Referências





¿SATE o FACHADA VENTILADA?

✓ **SATE**



Arquitecto: i2G Arquitectos

Localización: Huesca, España

Sistema: StoTherm Classic

Acabado: StoSignature Stolit R + MP * StoColor Metallic



¿SATE o FACHADA VENTILADA?

✓ SATE

Arquitecto: Herzog & de Meuron

Localización: Weil am Rhein, Alemania

Sistema: StoTherm Classic

Acabado: StoSignature



¿SATE o FACHADA VENTILADA?



✓ **SATE**



Arquitecto: Powerhouse Company

Localización: Combertault, Francia

Sistema: StoTherm Classic

Acabado: StoSignature Rough 1 + Effect: Granulate 30







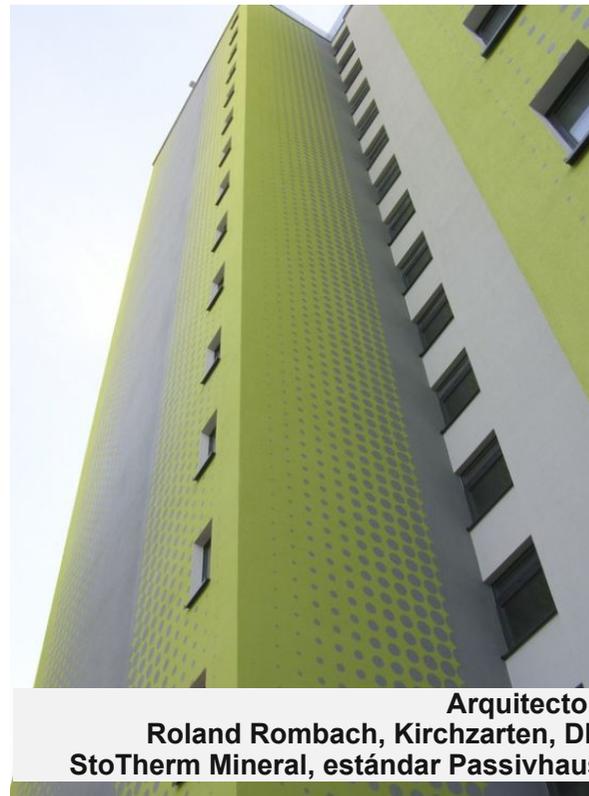






Referências





Arquiteto |
Roland Rombach, Kirchzarten, DE
StoTherm Mineral, estándar Passivhaus

Referências



▪ **Obrigado**

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Email: r.bento@sto.com
