



**U Value  
Insulation**

**Delivering Better Solutions**

**boardex**  
*exterior sheathing*



## Drywall Systems Exterior Wall System Manual

[www.uvalueinsulations.co.uk](http://www.uvalueinsulations.co.uk)



Boardex is a registered trademark of Dalsan Alçı A.Ş.

Boardex exterior drywall systems cause less carbon emissions than traditional walls.







## Drywall Systems

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# An Important Warning About the Profiles Used in Drywall Systems

In drywall system applications, the profiles used to form the frame are of vital importance, as are the boards used to ensure that the manufactured construction is sound and long-lasting. In different countries of the world, galvanized or wooden profiles are selected for use to ensure that the system is durable and does not lose its integrity.

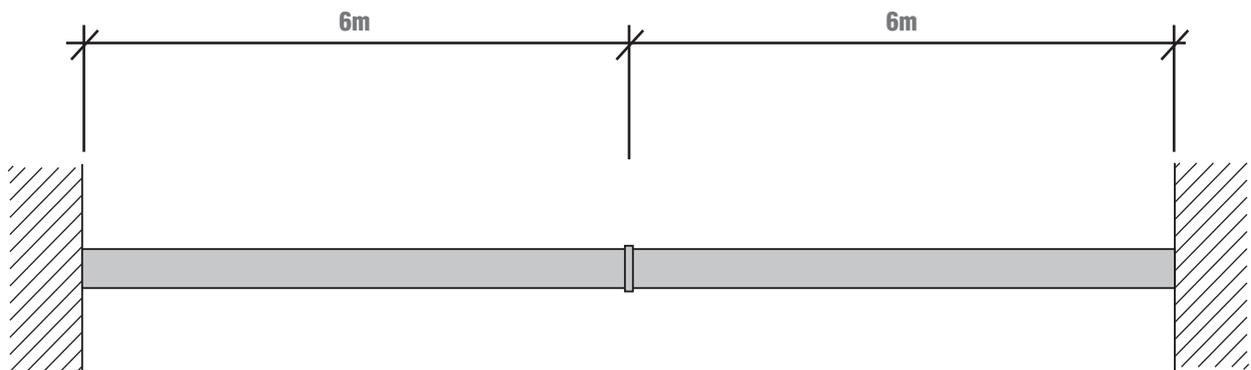
Although galvanized profiles are widely used in Turkey, it is also observed that in some applications box steel profiles are used which form a rigid system. These box profiles are much more affected by environmental temperature changes. Temperature differences - such as between summer and winter, day and night - cause these box profile frames to shrink and thus cause cracks in the joints of the material on the surface.

For example:

On a southern side that receives more sunlight, the amount of elongation due to temperature change is calculated below when the temperature difference between day and night is 20 °C and load bearing system is built out of 6,000 mm long box profile:

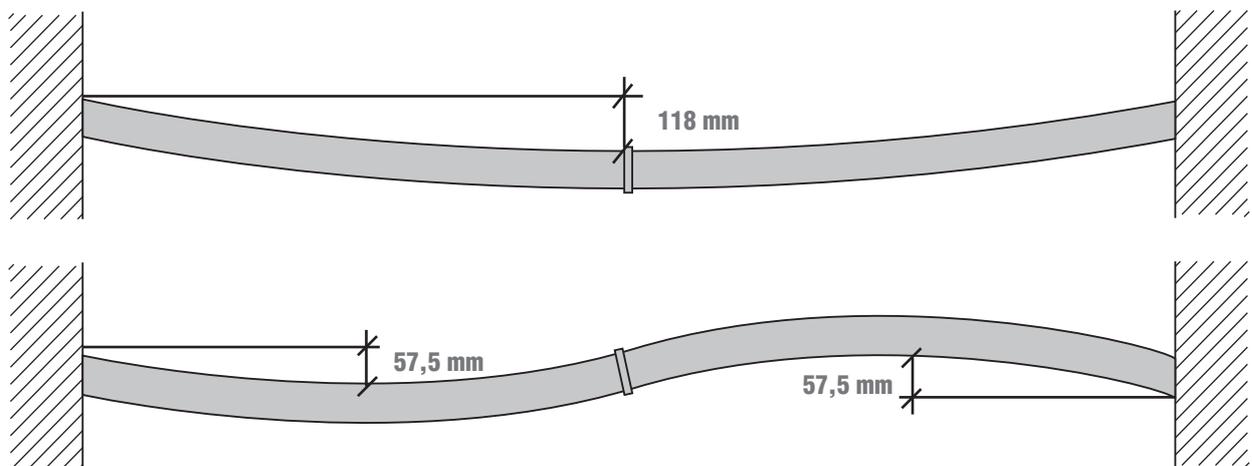
**Elongation amount (mm) = Elongation coefficient x Length x temperature difference**

$$\begin{aligned} &= 1.11 \times 10^{-5} \times 6000 \text{ mm} \times 20 \\ &= 1.32 \text{ mm} \end{aligned}$$



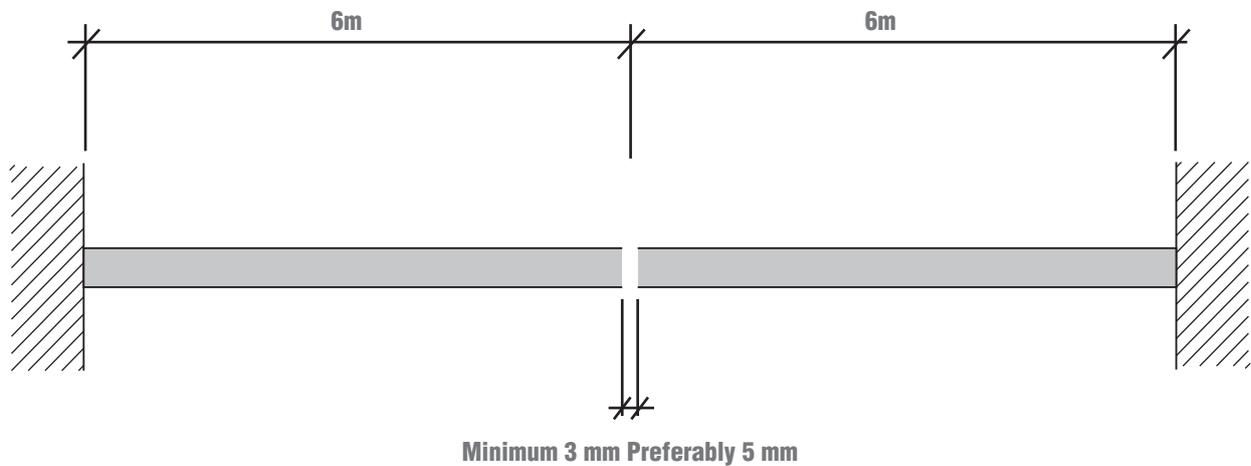
**Figure 1:** Welding of two box sheet metal profiles with 6 m length

Since the two box profiles with a length of 6000 mm are welded together without any space between them (**Figure 1**), as there is no space to accommodate the elongation the total expansion requirement of 2.64 mm will be compensated for by forcing the profile to bend inwards or outwards, and this bending is likely to cause cracks at the weak points, possibly at the joints of the material being screwed to the surface (**Figure 1**).



**Figure 2:** Inward or outward bending

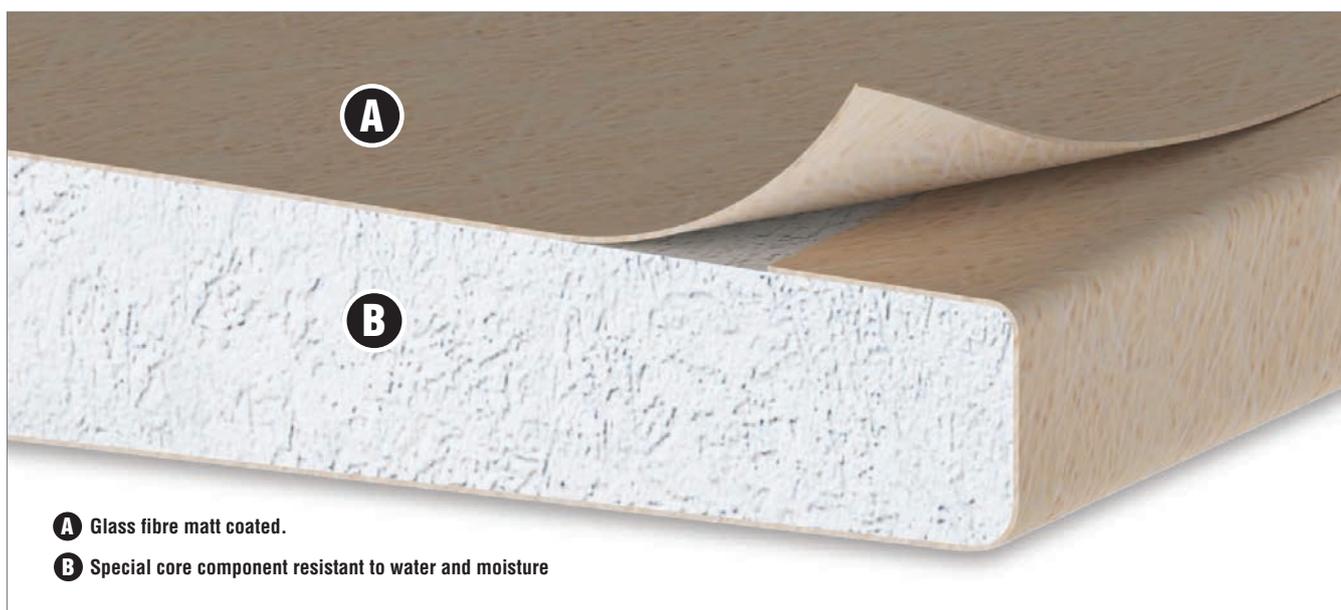
In the case where box profile has to be used due to the style of the application, a gap of at least 3 mm, but preferably 5 mm, should be left between the profiles to provide the necessary space for profile elongation or contraction **(Figure 3)**.



**Figure 3:** Leave space between box steel profiles

In galvanized steel sheet profiles, a flexible structure is created that can respond to the contraction-expansion movement since the system components pass through each other at almost any point and do not provide a rigid connection. When galvanized sheet metal profiles built out of separate parts are used, the energy is damped at every point and none of the components of the system cause any cracks on the other components that they come into contact with.

Another feature of steel sheet profiles compared to box profiles is the galvanizing itself. Normally, steel is easily affected by factors such as water, moisture and steam, and it rusts quickly. In the galvanizing process, the steel surface is covered with zinc (using the hot dipping method), so that the profiles are long-lasting and durable. Box profiles, which are not coated with zinc, are painted with primer to protect them from rusting. Priming is not as effective as galvanizing in protecting the steel. Over time, the screw holes will corrode as a direct result of condensation. For this reason, our company does not recommend the use of the box profiles commonly-used in our country. The use of durable, long-life galvanized steel sheet profiles in applications is vital for the drywall system to remain stable for a longer period of time.



**A** Glass fibre matt coated.

**B** Special core component resistant to water and moisture

## FEATURES

- **Boardex** is an excellent board used in external wall construction: it has a core strengthened against water and moisture, and a special orange-coloured glass fibre matt coated.
- **Boardex** is a high performance board with high strength because its glass matt coating is fully integrated onto the core of the board.
- **Boardex** is an A1 class noncombustible building material. Thanks to its glass matt coatings and special core components, it increases the fire resistance of the walls it is applied to.
- **Boardex**, does not allow any mold to grow on it due to its specially developed core.
- Flexural strength is very similar in both directions. This eliminates the need to fix **Boardex** either only horizontally or only vertically. It can be used, without requiring any other surface coating, in external weather conditions over 12 months.” In this way, buildings constructed with **Boardex** are protected from external conditions during their construction.
- **Boardex** can be applied in all kinds of weather conditions; even in high or low temperatures.
- **Boardex** is lightweight and easy to carry.
- **Boardex** is an indispensable board for wet indoor areas.
- High- speed hand tools that emit dust are not required for cutting **Boardex**; it can be cut using standard hand tools.
- Compared to wood-based, cement-based or wood chip / cellulose reinforced cement-based boards, **Boardex** is much more comfortable to handle.
- Compared to other panels used for exterior facades (such as cement-based boards or wood chip / cellulose reinforced cement boards), **Boardex** gives stronger performance with dimensional stability against water absorption and moisture, and does not absorb water from its surface.
- The dimensions of **Boardex** are 100% compatible with the dimensions of the gypsum board system, and it can be installed at 40 cm and 60 cm axis spacings.
- The structural gap created in **Boardex** exterior wall systems allows low-density mineral wools to be used for insulation.
- **Boardex** provides a smooth and a plumb surface. This type of surface is sought for all kinds of surface coating materials or for ventilated façade applications.
- On the surface of **Boardex**, Probase Render, thermal insulation board, grouting and base plaster can be applied, thus completing the first lining coat. A quality plaster can then be applied to the surface, and the wall is then ready for painting. (\*)
- The perfect **Boardex** surface provides a smooth underlayer for the application of insulation materials.
- An Energy Identity Certificate is required by Law for all buildings and establishes the energy performance class of each building from A to G. Exterior walls built using **Boardex** exterior facade systems achieve the highest values for the energy performance class in line with the system selected.”
- Exterior wall systems manufactured using **Boardex** are systems that enable buildings to reach Class A or Class B on energy identity certificates.
- In the exterior walls made with **Boardex**, the condensation analysis should be done according to the climate zone where the building is located.
- Where the night and day temperature difference is excessive, the thermal bridge should be reduced by affixing the profile polyethylene tape beneath the outwardly facing **Boardex** surface.

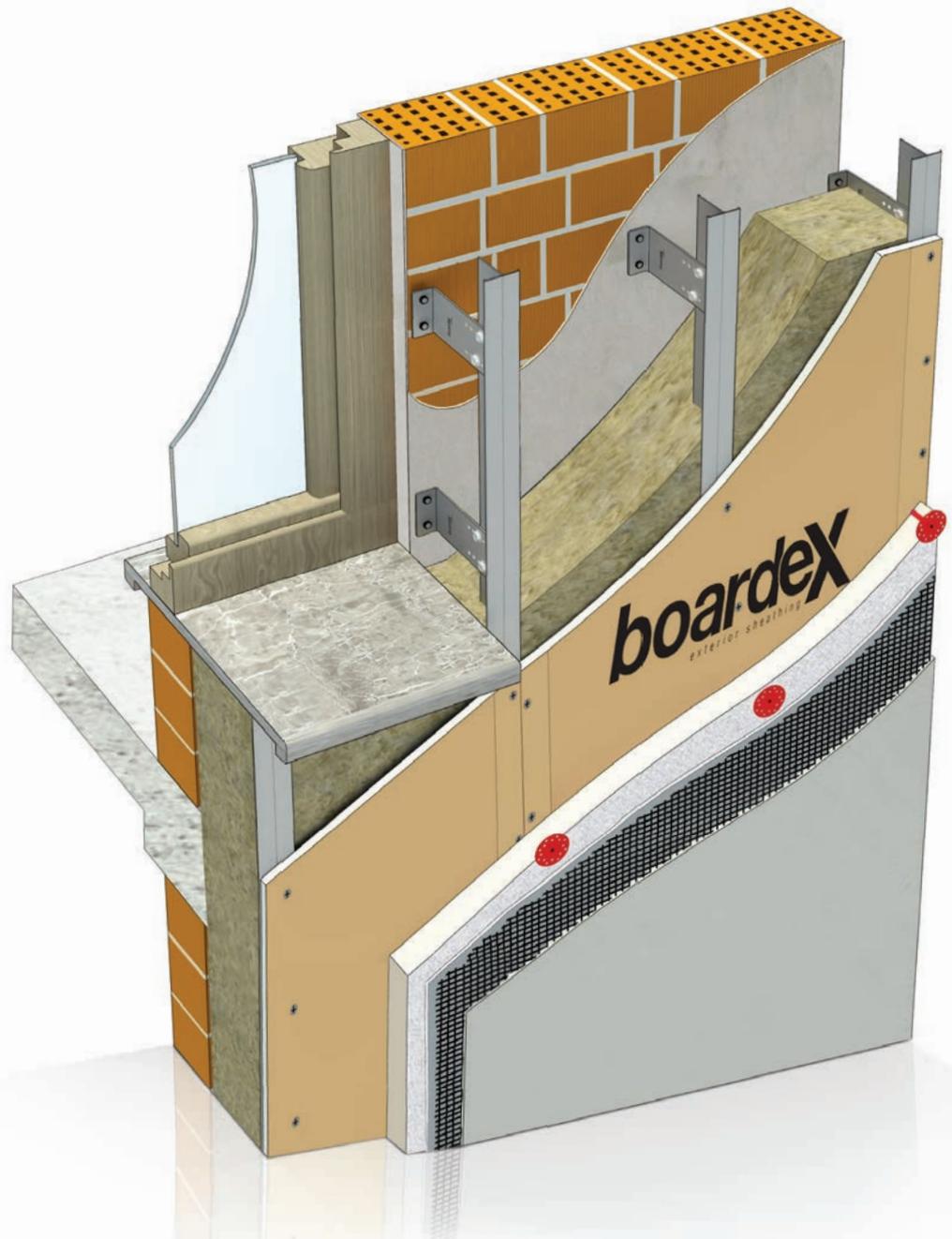
## USAGE AREAS

- In exterior wall systems;
- Under all kinds of cladding materials (metal cladding, weather-boarding, wood cladding, decorative brick veneer, etc.);
- In ventilated facade systems;
- Soffit applications;
- In wet areas.

**In this book, you can find exterior facade wall systems with 6 different performance and application types designed with Boardex exterior wall boards.**

(\*) Apply joint filler and primer coat with Probase Render by using alkali-resistant joint tape on the Boardex surface and alkali-resistant plaster mesh weighing 160g / m<sup>2</sup>.

If applying mineral plaster (PROBASE mineral) to this primer coat and paint to the mineral plaster, we recommend that the advice and suggestions of the plaster and paint producers be complied with and information about application conditions be obtained.



## **CEKETLEME Exterior Wall System**

**It allows use of thicker insulation materials.**

# CEKETLEME Exterior Wall System

■ **CEKETLEME** is a new exterior coating system.

■ **CEKETLEME** provides effective thermal insulation on the exterior facades of existing buildings using low-density mineral wool to fill the gap created by the system. It makes designing exterior walls of buildings required to achieve energy classification A or B especially simple.

■ On buildings covered with exterior glass mosaics, marble or tiles, the existing coating may need to be removed before the thermal insulation material is applied.

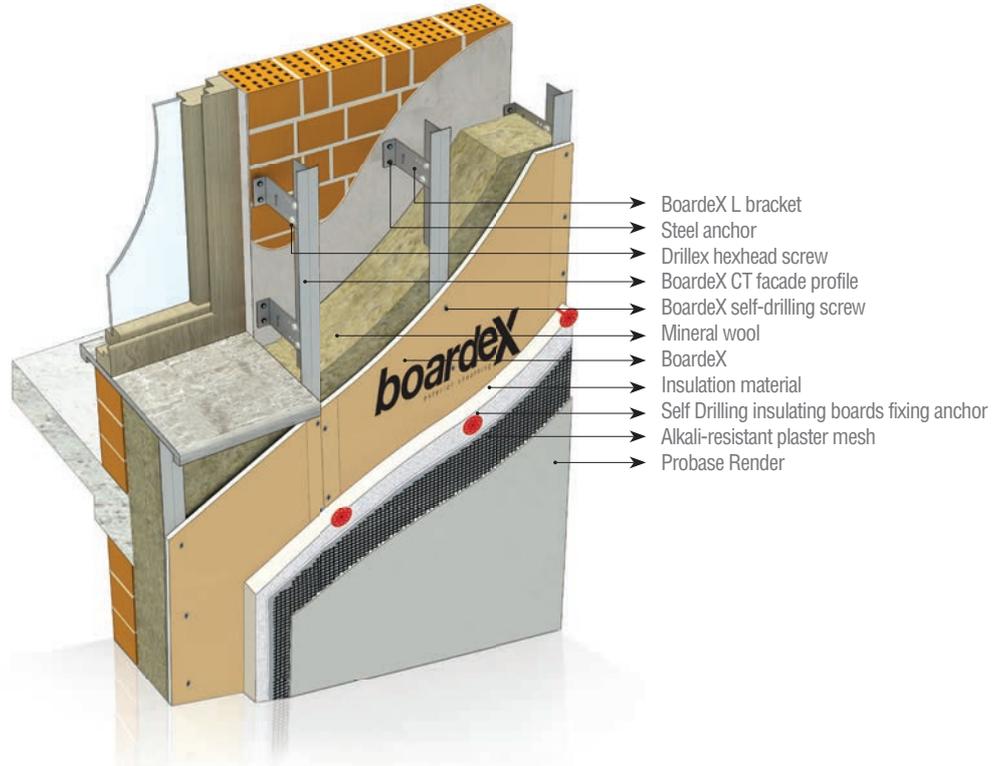
The process of removing the existing coating on the surface not only extends the duration of the work but also exposes people who live in the building to more noise. At the same time, transporting the waste removed from the surface creates a large amount of extra work.

**CEKETLEME** eliminates the need to completely remove all the surface coatings from buildings.

■ The **CEKETLEME** system allows a low-density mineral wool at a thickness of up to 15 cm to be applied in the gap between the **BoardeX** and the existing wall.

■ On the **CEKETLEME** surface obtained, sheathing can be applied over the required thickness of insulating material to create an increase in thermal insulation.

■ When applying extra thermal insulation on to **CEKETLEME**, the principles recommended by IZODER should be taken into account.



- BoardeX L bracket
- Steel anchor
- Drillex hexhead screw
- BoardeX CT facade profile
- BoardeX self-drilling screw
- Mineral wool
- BoardeX
- Insulation material
- Self Drilling insulating boards fixing anchor
- Alkali-resistant plaster mesh
- Probase Render

■ All kinds of claddings (metal cladding, weatherboarding, wood cladding, decorative brick veneer, etc.) can be applied as a finish on the smooth surface.

■ The **CEKETLEME** surface provides a perfect finish for all types of ventilated facades. (\*) The ventilated facade system applied to the surface should weigh no more than 25 kg/m<sup>2</sup>.

■ If no coating material is to be applied onto the **BoardeX**, the first primer layer is completed by applying **Probase Render**, joint filler and base plaster. A quality plaster can then be applied to the surface and the wall is then ready for painting. (\*\*)

■ The **CEKETLEME** system is designed to withstand a wind speed of 150 km/h at heights above 100 m depending on the selected profile axis spacing.

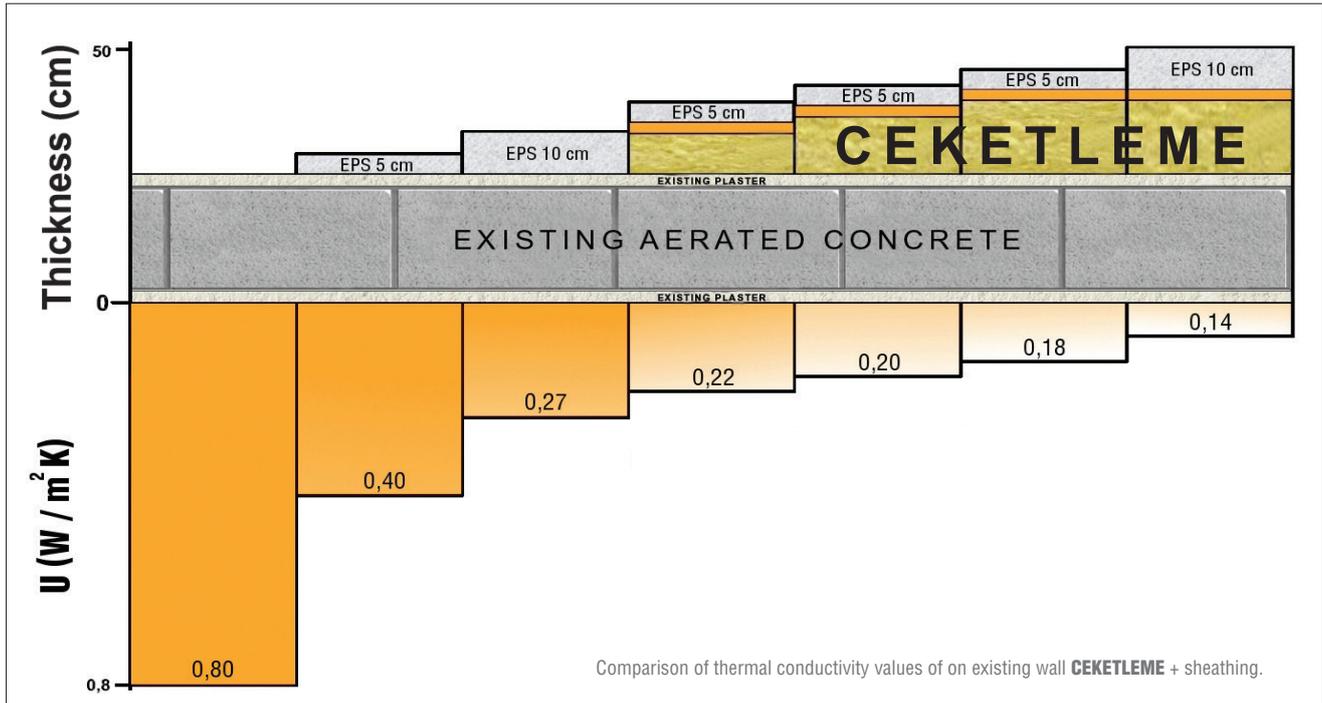
■ The **CEKETLEME** surface created is a smooth surface at the correct plumbness for the desired application.

■ Visit [www.ceketle.com](http://www.ceketle.com) to watch the animation related to the **CEKETLEME** system.

Please check the table on page 37 for detailed information.



(\*) Manufacturers' application recommendations should be followed for ventilated facade applications. (\*\*) Apply joint filler and primer coat with Probase Render by using alkali-resistant joint tape on the BoardeX surface and alkali-resistant plaster mesh weighing min. 160 g/m<sup>2</sup>. If applying mineral plaster (PROBASE mineral) to this primer coat and paint to the mineral plaster, we recommend that the advice and suggestions of the plaster and paint manufacturers be complied with and information about application conditions be obtained.



### System features

Thickness (cm)			Profile type	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness (cm)	EPS thickness (cm)	U value (W/m <sup>2</sup> .K*)
CEKETLEME thickness	Insulation material thickness	Total thickness						
11	5	16	L bracket 75 + CT profile	1 piece 12.5 mm <b>Boardex</b>	20	10	5	0,31
			Fix T 75 + CT profile					0,27
14	5	19	L bracket 100 + CT profile					0,27
			Fix T 100 + CT profile					0,23
16	5	21	L bracket 125 + CT profile					0,24
			Fix T 125 + CT profile					0,21
16	10	26	L bracket 125 + CT profile					0,18
			Fix T 125 + CT profile					0,16

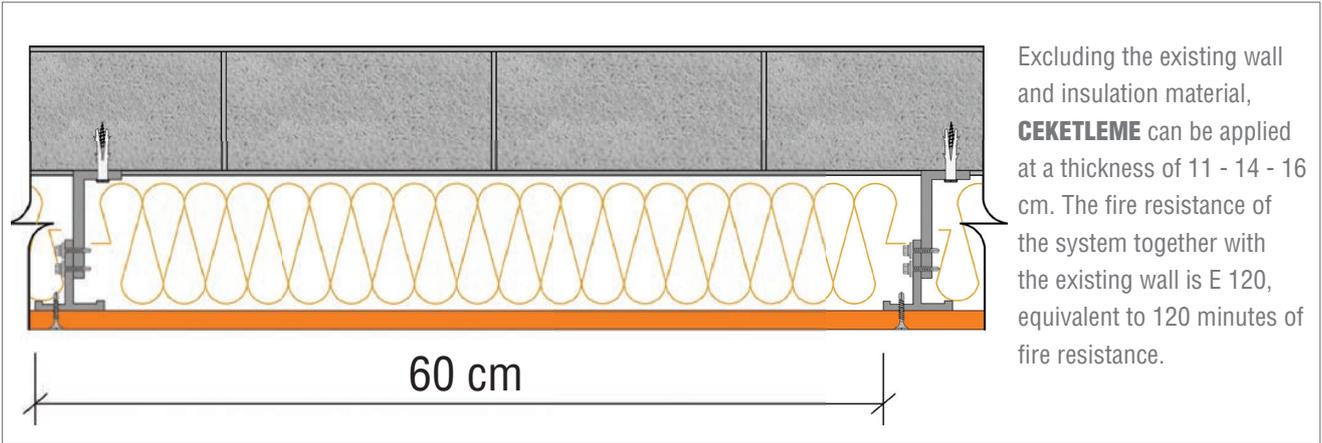
### U values on the existing wall

Thickness (cm)			Existing wall (26cm) U value		Existing wall + CEKETLEME + Insulation U value*			
CEKETLEME thickness	Insulation material thickness	Total thickness	Vertically perforated bricks + Plaster (internal + external)	Aerated concrete 400 kg/m <sup>3</sup> (mortared) + Plaster (internal + external)	Vertically perforated brick + Plaster (internal + external) L bracket	Vertically perforated brick + Plaster (internal + external) Fix T	Aerated concrete 400 kg/m <sup>3</sup> (mortar) + Plaster (internal + external)	
					L bracket	Fix T	L bracket	Fix T
11	5	16	1,22	0,80	0,25	0,22	0,22	0,20
14	5	19			0,22	0,19	0,20	0,18
16	5	21			0,20	0,18	0,18	0,17
16	10	26			0,15	0,14	0,14	0,13

(\*) The (λ) value of the mineral wool used is 0.040 W/m<sup>2</sup>.K, The (λ) value of the insulation material is 0.040 W/m<sup>2</sup>.K. When calculating the Heat transfer coefficient of the system, thermal bridges through the metal have been included in the calculation. When calculating the weight per m<sup>2</sup> of **CEKETLEME**, the mineral wool and the insulation material have been taken into account as 40 kg/m<sup>3</sup> and 16 kg/m<sup>3</sup> respectively.

Continues on the next page. >>>

# CEKETLEME Exterior Wall System

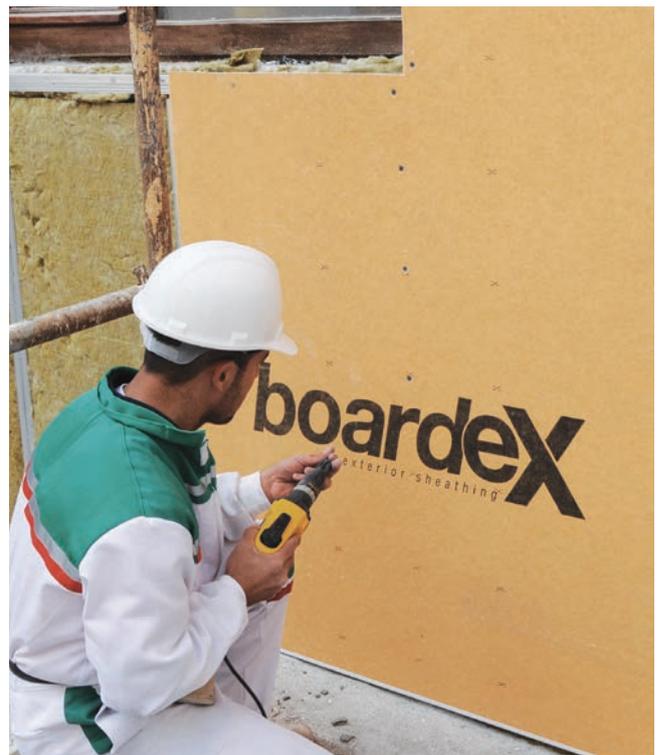


## Material analysis

Name of the material	Consumption	Consumption
	✕=60 cm	✕=40 cm
BoardeX	1,05 m <sup>2</sup>	
BoardeX CT (50x50; 0.9 mm; Z275)	1,90 m	2,80 m
BoardeX L 75/100/125/150 bracket (30x75/100/125/150; 3 mm) or BoardeX Fix T 75/100/125 (86X75/100/125; 10 mm)	3,40 pcs	4,90 pcs
Self Drilling insulating boards fixing anchor (with 20 cm intervals)	15 pcs	20 pcs
Steel anchor	6,8 pcs	3,60 pcs
Special dowel – screw for existing wall	2,90 pcs	4,2 pcs
Drilllex hexhead screw	5,4 pcs	7,8 pcs
Mineral Wool (low density)	1,05 m <sup>2</sup>	
Starter Track	Varies according to the base circumference	

✕=60 indicates that the CT spaces is 60 cm.

!!! The area of the wall for which the material analysis has been calculated is 10 m x 3 m = 30 m<sup>2</sup>, and 5% tolerance has been included in the calculations.



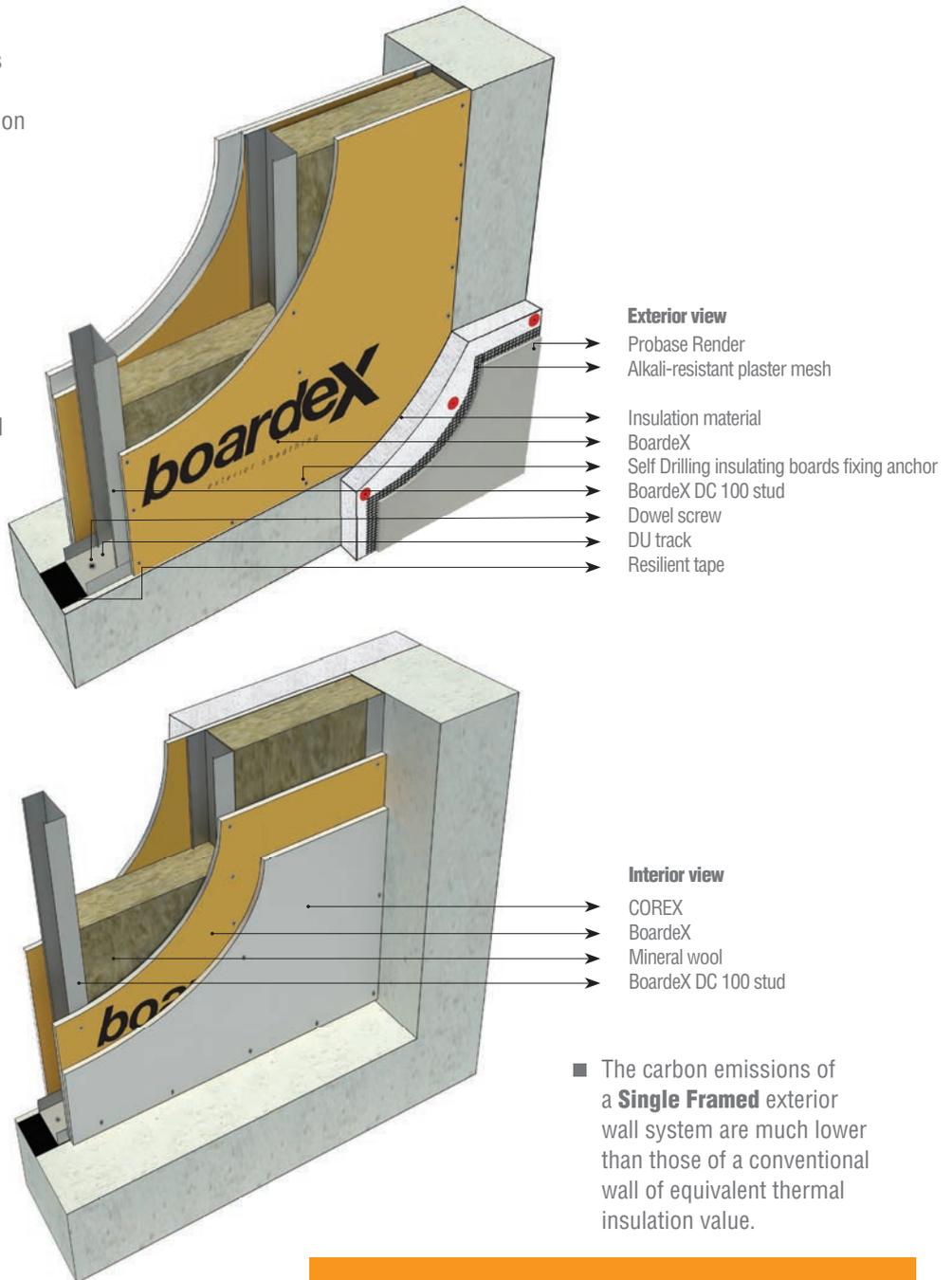


## Single Framed External Wall System

**It is practical and increases construction speed.**

# Single Framed External Wall System

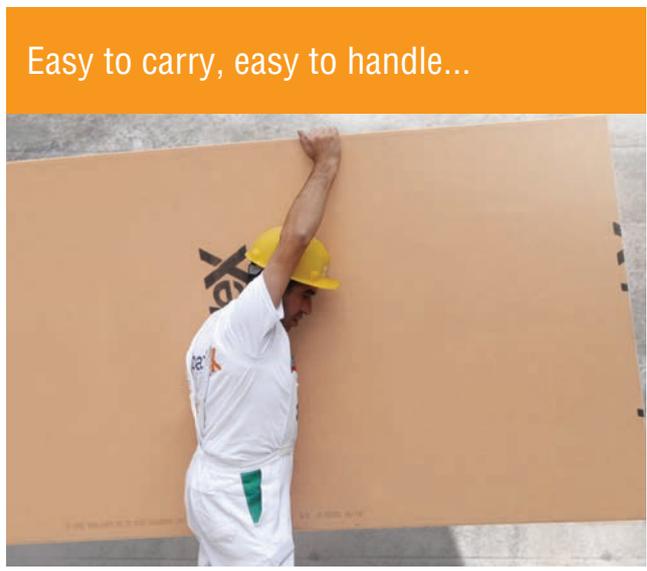
- The **Single Framed** exterior wall system is used on external walls of reinforced concrete or steel buildings where rapid construction is required.
- The sheathing can be applied over the required thickness of insulating material to increase thermal insulation and to maintain its durability. When applying sheathing, the principles recommended by IZODER (Association of thermal insulation, waterproofing, sound insulation and fireproofing material producers, suppliers and applicators) should be taken into account.
- The smooth surface obtained can be finished by fixing all kinds of coatings (metal coating, weather-boarding, wood cladding, decorative brick veneer, etc.).
- If no coating material is to be applied in steel buildings on **BoardeX**, the first primer layer is completed by applying **Probase Render**. A quality plaster is then applied to the surface, and the wall is then ready for painting. (\*)
- Because of the narrow cross-section of walls made using the Single Framed exterior wall system, buildings that use the system have a greater available floor area. For interior finishing, all wet applications such as screed and plaster can be applied on the floor before the gypsum board plaster is fixed as the final layer on the wall. The wall surface is then completed by fixing the gypsum board as a final layer onto the **BoardeX**.
- Walls manufactured with the **Single Framed** exterior wall system have the same axis system as gypsum plaster boards.
- Building walls with the **Single Framed** exterior wall system increases the speed of construction of the building.



- The carbon emissions of a **Single Framed** exterior wall system are much lower than those of a conventional wall of equivalent thermal insulation value.

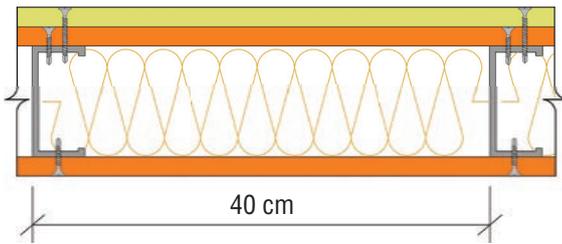
- The Single Framed exterior wall system has been designed to withstand a wind speed of 166 km/h on buildings over 100 m high when the DC 100 stud with 0.9 mm wall thickness is used with 40 cm axis spacing, and a wind speed of 150 km/h when the same profile is used with 60 cm axis spacing.

**Please check the table on page 37 for detailed information.**



Easy to carry, easy to handle...

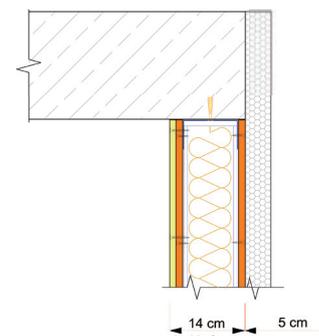
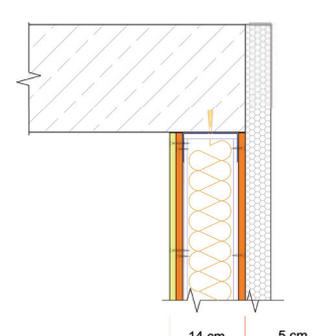
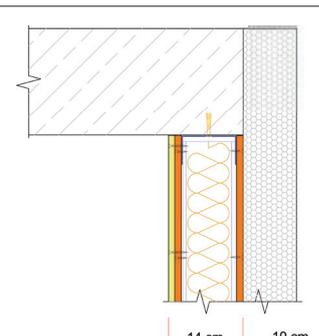
(\*) Apply joint filler and primer coat with Probase Render by using alkali-resistant joint tape on the BoardeX surface and alkali-resistant plaster mesh weighing min. 160g/m<sup>2</sup>. If applying mineral plaster (PROBASE mineral) to this primer coat and paint to the mineral plaster, we recommend that the advice and suggestions of the plaster and paint manufacturers be complied with and information about application conditions be obtained.



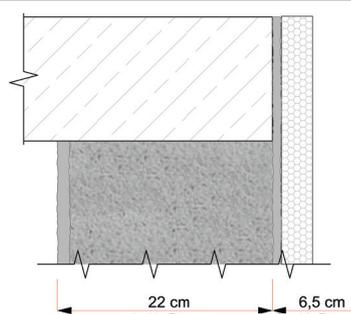
### Using the Boardex Single Framed

exterior wall system, one can build an external wall 14 cm thick (excluding the insulation material that will be applied). The fire resistance of the system is E90, and it can resist fire for up to 90 minutes.

### System Features

Diagram	Profile type	Profile axis spacing (cm)	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness (cm)	U value* (W/m <sup>2</sup> K)	
						With extra insulation 5 cm	Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )
	DC100	60	1 pcs 12,5mm COREX + 2 pcs 12,5mm Boardex	41	10	0,76	0,36
						24,32	28,89
	DC100	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm Boardex	43	10	0,86	0,37
						27,11	31,68
	DC100	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm Boardex	44	10	0,81	0,27
						27,11	36,25

### Performance comparison of traditional exterior walls and Boardex Single Framed exterior wall system

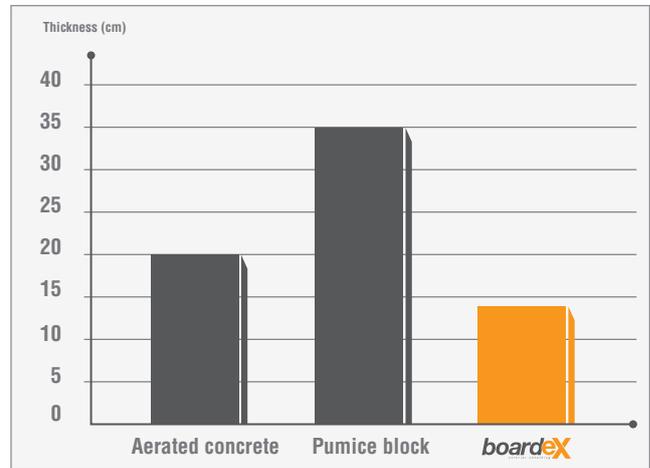
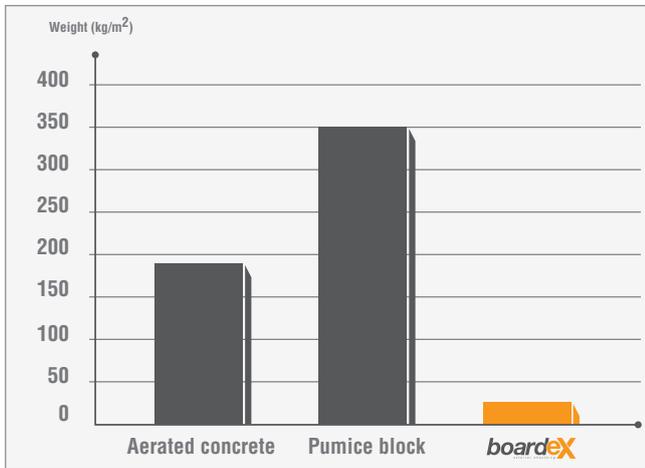
Diagram	Wall type	Weight (kg/m <sup>2</sup> )	U value* (W/m <sup>2</sup> K)	
	<b>Aerated concrete wall</b> <b>Thickness: 20 cm</b> <b>Interior: 2 cm gypsum plaster</b> <b>Exterior: 1.5 cm cement-based plaster</b>	173	0,77	0,39

# Single Framed Exterior Wall System

	Wall type	Weight (kg/m <sup>2</sup> )	U value* (W/m <sup>2</sup> K)	
	<b>Aerated concrete wall</b> <b>Thickness: 35 cm</b> <b>Interior: 2 cm gypsum plaster</b> <b>Exterior: 3 cm cement-based plaster</b>		0,70	Insulated
				5 cm
			0,37	

(\*) The ( $\lambda$ ) value of the mineral wool used is 0.040 W/m<sup>2</sup>.K, The ( $\lambda$ ) value of the insulation material is 0.040 W/m<sup>2</sup>.K. When calculating the Heat transfer coefficient of the system, thermal bridges through the metal are included in the calculation. When calculating the weight per m<sup>2</sup> of the wall, the densities of mineral wool and heat insulation material have been included in the calculation as being 40 kg/m<sup>3</sup> and 16 kg/m<sup>3</sup> respectively. When calculating the values of heat permeability, TS 825 has been taken into consideration. Articles 7.3.2.6 and 7.5.1.1.2.2 have been complied with for aerated concrete and pumice block respectively.

For external walls with the same U (W/m<sup>2</sup>K) values, comparison of **weight** and **floor area**.

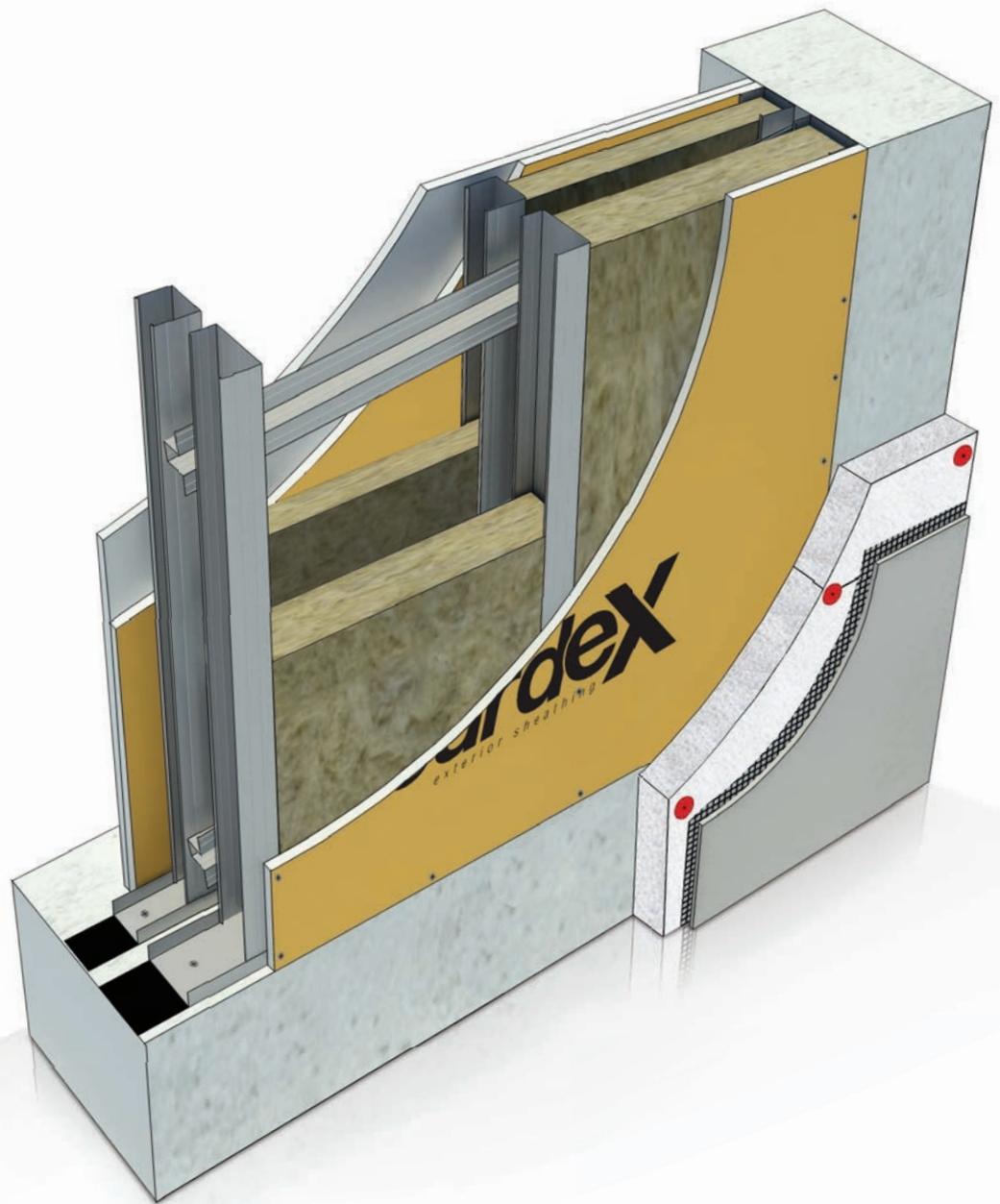


## Material analysis

Name of the material	Consumption	
	✕=40 cm	✕=60 cm
BoardeX	2,10 m <sup>2</sup>	
COREX	1,05 m <sup>2</sup>	
BoardeX DC 100 stud (47x47; 0.9 mm; Z275)	2,90 m	2,10 m
DU stud (38 x 38; 0.6 mm; Z100)	0,84 mt	
Self Drilling insulating boards fixing anchor (with interior 40 cm, exterior 20 cm intervals)	37 pcs	23 pcs
Self-drilling screw 35 (with 30 cm intervals)	16 pcs	12 pcs
Dowel-screw	2,94 pcs	
Resilient tape 100	1,50 m	
Joint tape or paper tape	1,80 m	
DERZTEK Jointing Compound	0,40 kg	
Mineral wool (low density)	1,05 m <sup>2</sup>	
Starter Track	varies according to the base circumference	

✕=40 indicates that the DC stud spaces is 40 cm.

!!! The area of the wall for which the material analysis has been calculated is 4m x 2.5 m = 10 m<sup>2</sup>, and 5% tolerance has been included in the calculations.

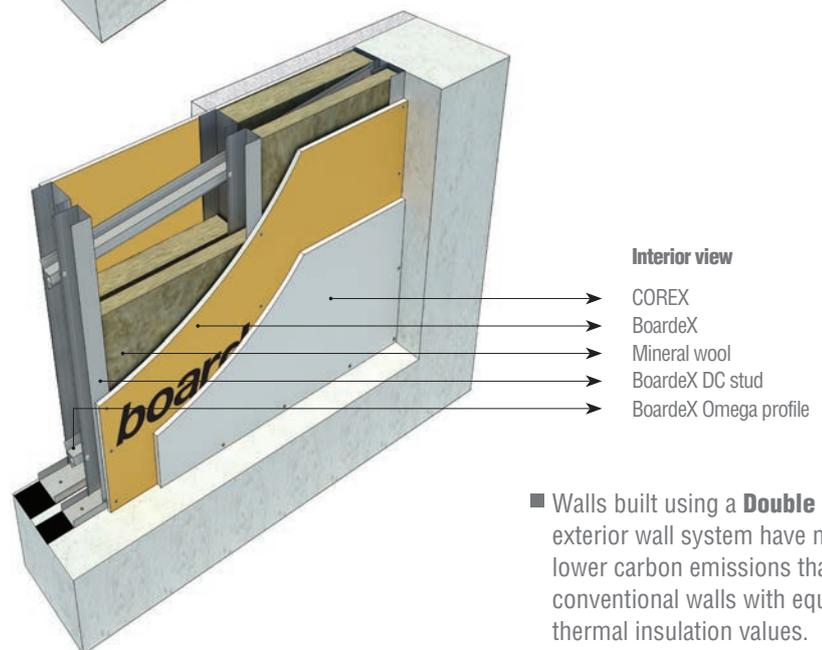
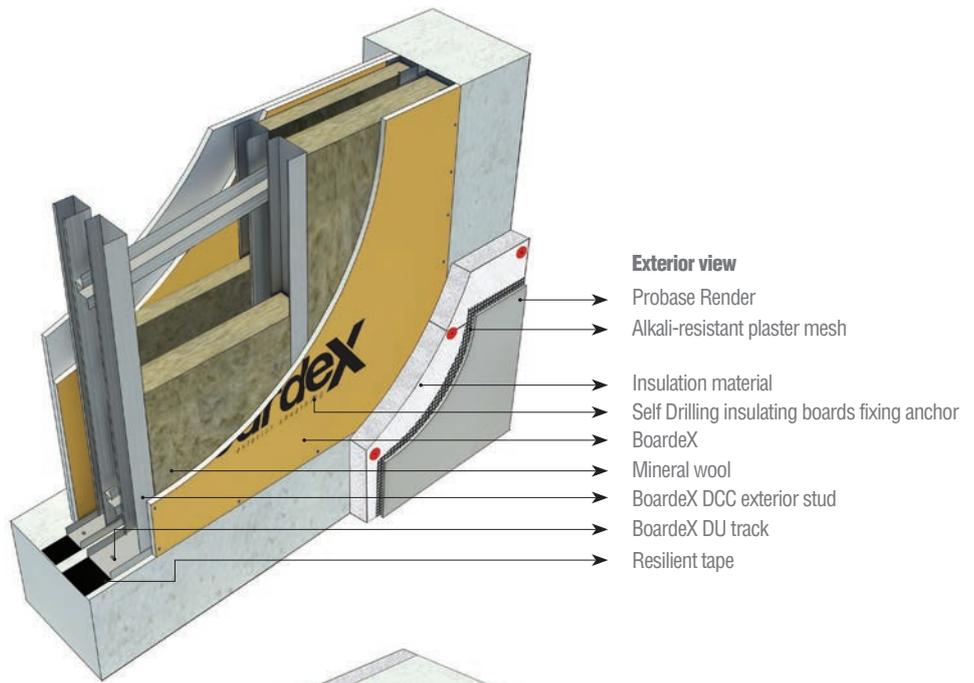


## Double Framed Exterior Wall System

**Performance in multi-storey  
buildings**

# Double Framed External Wall System

- The **Double Framed** exterior wall system offers better heat and sound insulation and fire resistance than the Single Framed wall system in reinforced concrete and steel structures.
- Sheathing can be applied by introducing the required thickness of insulating material on the surface to improve heat insulation and to maintain its durability. Sheathing should be applied in accordance with the principles recommended by IZODER.
- The smooth surface obtained can be finished by fixing all kinds of claddings (metal claddings, weather-boarding, wood cladding, decorative brick veneer, etc.).
- If no coating material is to be applied in steel buildings on **BoardeX**, the first primer layer is completed by applying **Probase Render**. A quality plaster is then applied to the surface, and the wall is then ready for painting. (\*)
- Because of the narrow cross-section of walls made using the Double Framed exterior wall system, buildings that use the system have a greater available floor area



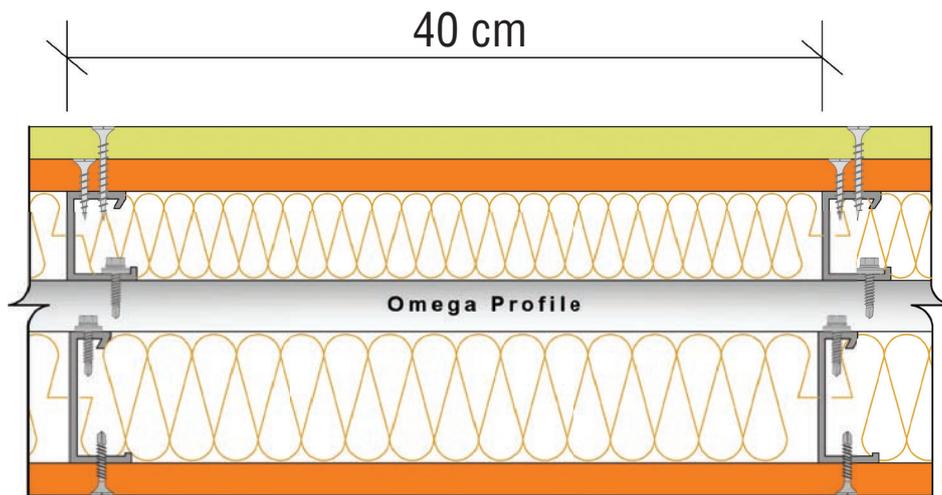
■ Walls built using a **Double Framed** exterior wall system have much lower carbon emissions than conventional walls with equivalent thermal insulation values.

- For interior finishing, all wet finishes such as screed and plaster can be applied on the floor before the gypsum board is fixed as the final layer on the wall. The wall surface is then completed by fixing the gypsum board as a final layer onto the **BoardeX**
- Building walls using the **Double Framed** exterior wall system increases the speed of construction of buildings.
- The **Double Framed** exterior wall system is designed to withstand wind speeds of 166 km/h on buildings over 100 m high depending on the selected profile size and at 40 cm axis spacing.

**Please check the table on page 37 for detailed information.**



(\*)Apply joint filler and primer coat with Probase Render by using alkali-resistant joint tape on the BoardeX surface and alkali-resistant plaster mesh weighing min. 160g/m<sup>2</sup>. If applying mineral plaster (PROBASE mineral) to this primer coat and paint to the mineral plaster, we recommend that the advice and suggestions of the plaster and paint manufacturers be complied with and information about application conditions be obtained.

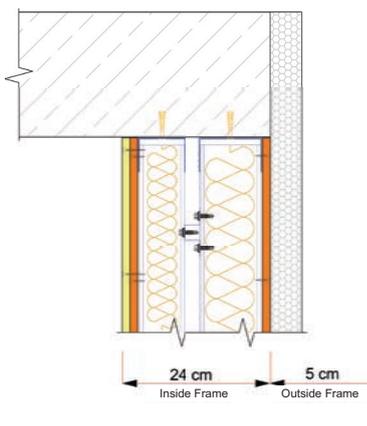
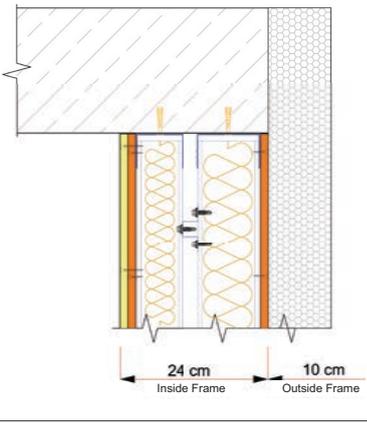


Using the **BoardeX Double Framed** exterior wall system, one can build 19 - 21 - 24 cm thick exterior walls (excluding the insulation material that will be applied). The fire resistance of the system is EI 90, equivalent to up to 90 minutes of fire resistance.

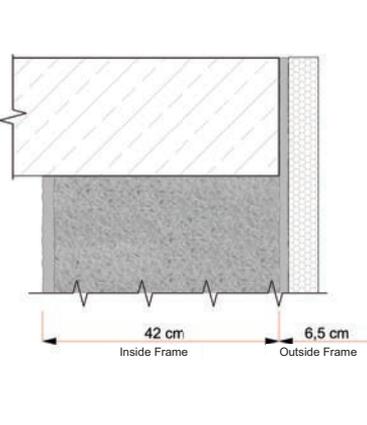
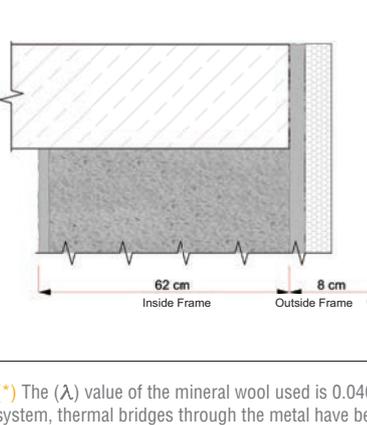
### System features

Diagram	Profile type	Profile axis spacing (cm)	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness (cm)	U value* (W/m <sup>2</sup> K)	
						With extra insulation 5 cm	Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )
	DC50 + omega + DCC75	40	1 pcs 12,5mm COREX + 2 adet 12,5mm BoardeX	47	12,5	0,53	0,31
						Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )	
						34,08	38,66
	DC50 + omega + DCC100	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	50	15	0,49	0,29
						Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )	
						35,34	39,91
	DC75 + omega + DCC75	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	48	15	0,46	0,29
						Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )	
						36,33	40,90

# Double Framed Exterior Wall System

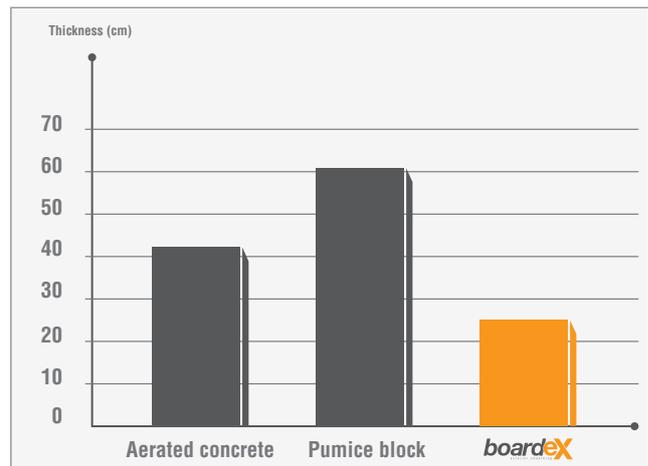
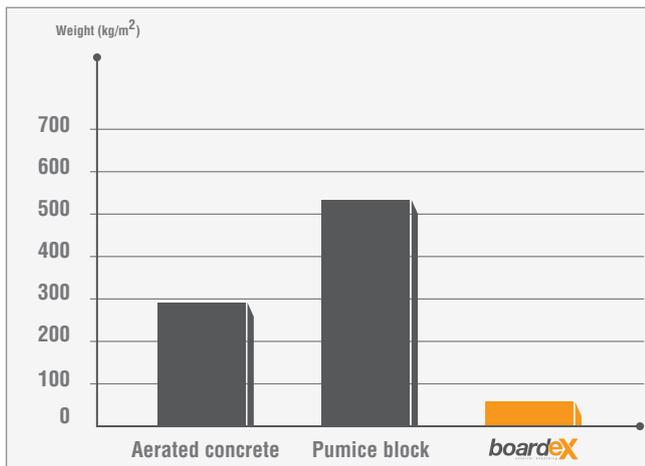
	Profile type	Profile axis spacing (cm)	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness(cm)	U value* (W/m <sup>2</sup> K)	
	DC75 + omega + DCC100	40	1 pcs 12,5mm COREX + 2 adet 12,5mm BoardeX	49	17,5	0,46	With extra insulation 5 cm
						Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )	
						39,05	43,63
	Profile type	Profile axis spacing (cm)	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness(cm)	U value* (W/m <sup>2</sup> K)	
	DC75 + omega + DCC100	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	50	17,5	0,45	With extra insulation 10 cm
						Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )	
						39,05	48,20

## Performance comparison of traditional exterior walls and BoardeX Double framed exterior wall system

	Wall type	Weight (kg/m <sup>2</sup> )	* U (W/m <sup>2</sup> K)	
	<b>Aerated concrete wall</b> <b>Thickness: 40 cm</b> <b>Interior: 2 cm gypsum plaster</b> <b>Exterior: 1.5 cm cement-based plaster</b>	293	0,43	Insulated 5 cm
	Wall type	Weight (kg/m <sup>2</sup> )	* U (W/m <sup>2</sup> K)	
	<b>Pumice block wall</b> <b>Thickness: 60 cm</b> <b>Interior: 2 cm gypsum plaster</b> <b>Exterior: 3 cm cement-based plaster</b>	520	0,44	Insulated 5 cm

(\*) The (λ) value of the mineral wool used is 0.040 W/m<sup>2</sup>.K. The (λ) value of the insulation material is 0.040 W/m<sup>2</sup>.K. When calculating the Heat transfer coefficient of the system, thermal bridges through the metal have been included in the calculation. When calculating the weight per m<sup>2</sup> of the wall, the densities of the mineral wool and the insulation material have been taken into account as being 40 kg/m<sup>3</sup> and 16 kg/m<sup>3</sup> respectively. When calculating the values of heat permeability, TS 825 has been taken into consideration. Articles 7.3.2.6 and 7.5.1.1.2.2 have been complied with for aerated concrete and pumice block respectively.

For exterior walls with the same U (W/m<sup>2</sup>K) values, comparison of **weight** and **floor area**.



### Material analysis

Name of the material	Consumption
	✕=40 cm
BoardeX	2,10 m <sup>2</sup>
COREX	1,05 m <sup>2</sup>
BoardeX DC 50/75 stud (53x42; 0.6 mm; Z100)	2,90 mt
BoardeX DCC 75/100 stud (45x30; 0.9 mm; Z275)	2,90 mt
DU 50/75 track (38x38; 0.6 mm; Z100)	0,84 mt
DU 75/100 track (38x38; 0.6 mm; Z100)	0,84 mt
BoardeX Omega profile (26x25; 0.5mm; Z100) (at every 70cm)	1,60 mt
Self Drilling insulating boards fixing anchor (with 20 cm intervals)	24 pcs
BoardeX self tapping screw (with 40 cm intervals)	14 pcs
Drilllex hexhead screw	12,5 pcs
Self tapping screw 38 (with 30 cm intervals)	16 pcs
Dowel-screw	5,90 pcs
Resilient tape	2,90 mt
Joint tape or paper tape	1,80 mt
Mineral wool interior (low density)	1,05 m <sup>2</sup>
Mineral wool exterior (low density)	1,05 m <sup>2</sup>
DERZTEK jointing compound	0,40 kg
Starter Track	varies according to the base circumference

✕=40 indicates that the DC stud spaces is 40 cm.

!!! The area of the wall for which the material analysis has been calculated is 4 m x 2.5 m = 10 m<sup>2</sup>, and 5% tolerance has been included in the calculations.

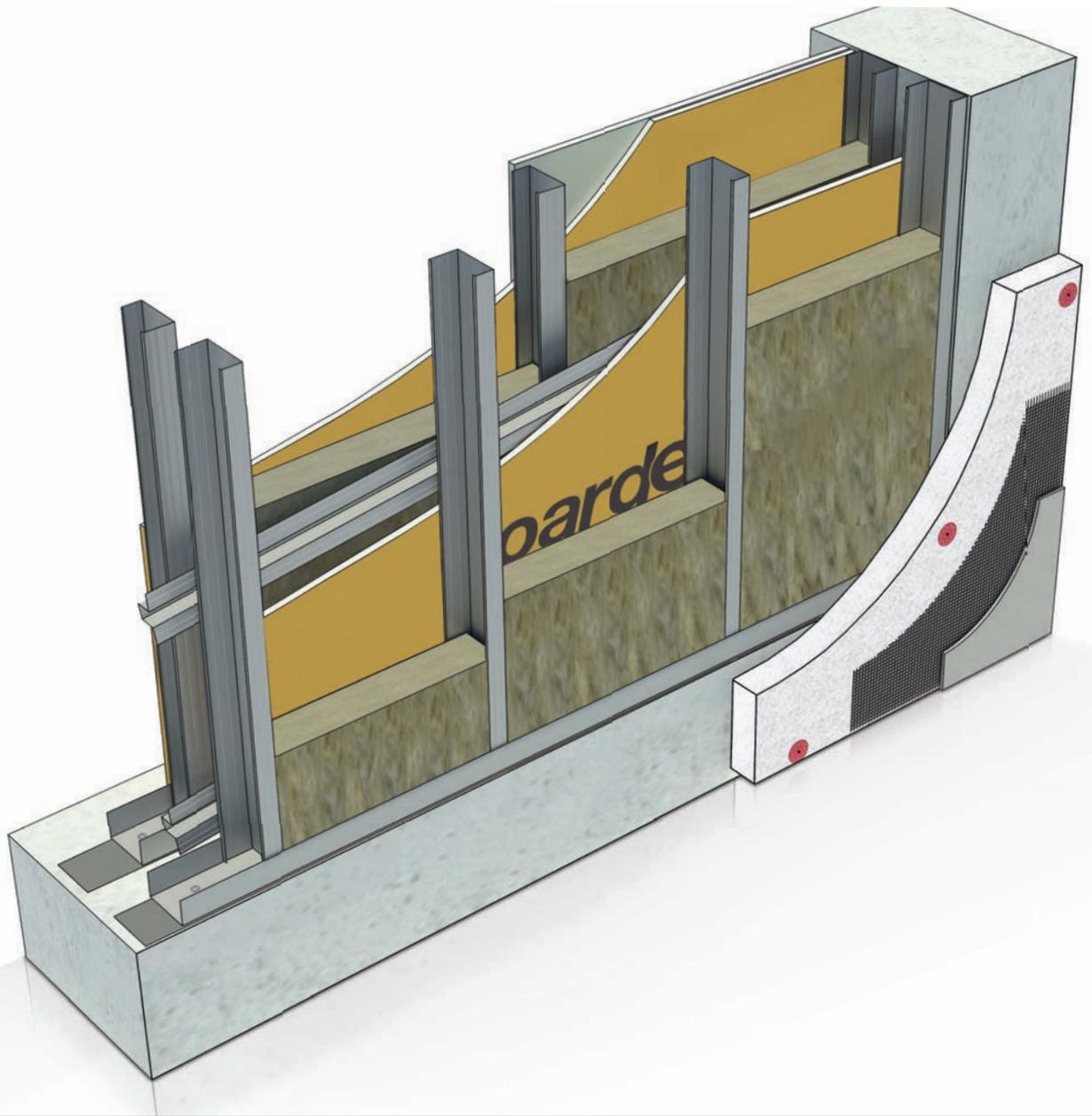
You can access the step-by-step application guide for this system through the BoardeX Exterior Drywall System manual or via [www.boardex.com.tr](http://www.boardex.com.tr).

Thanks to its special core, which does not cause mold on the surface.



Indispensable board for all indoor applications where there is a risk of mold formation.





## Omega Exterior Wall System

**Provides a dry wall solution without scaffolding.**

# Omega Exterior Wall System

■ It allows construction of the exterior wall to be started from inside the building without the need for scaffolding while the construction of concrete on the upper floors is still going on. The scaffolding is required only when the application of the insulation to the exterior wall is about to start.

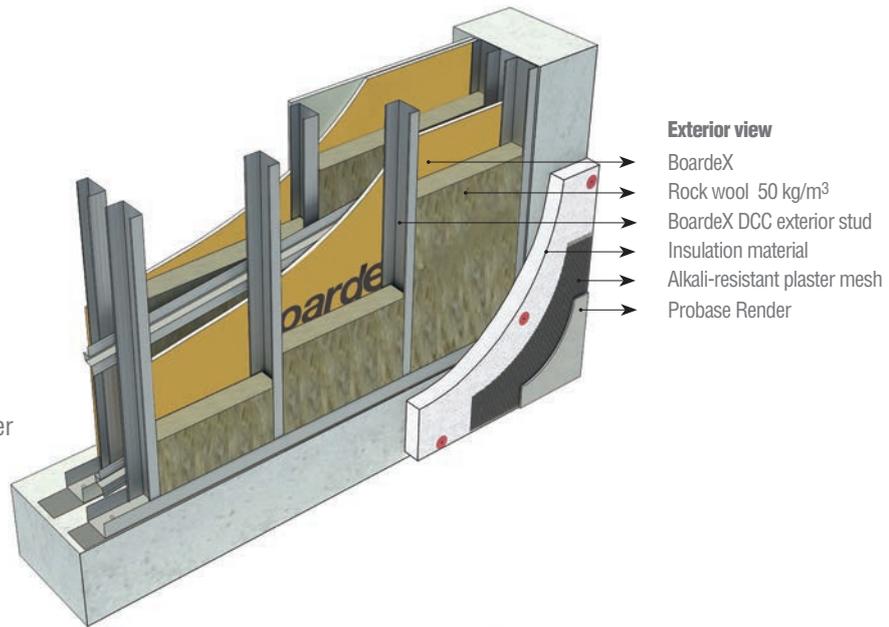
■ The **Omega** exterior wall system is a high performance exterior wall system that is installed faster than traditional exterior walls.

■ Low-density mineral wool is placed inside the profile gap in the outer part of the wall. Sheathing can be applied with an insulating material at the required thickness to create an increase in thermal insulation and to maintain its durability. Any sheathing should be applied in accordance with the principles recommended by IZODER.

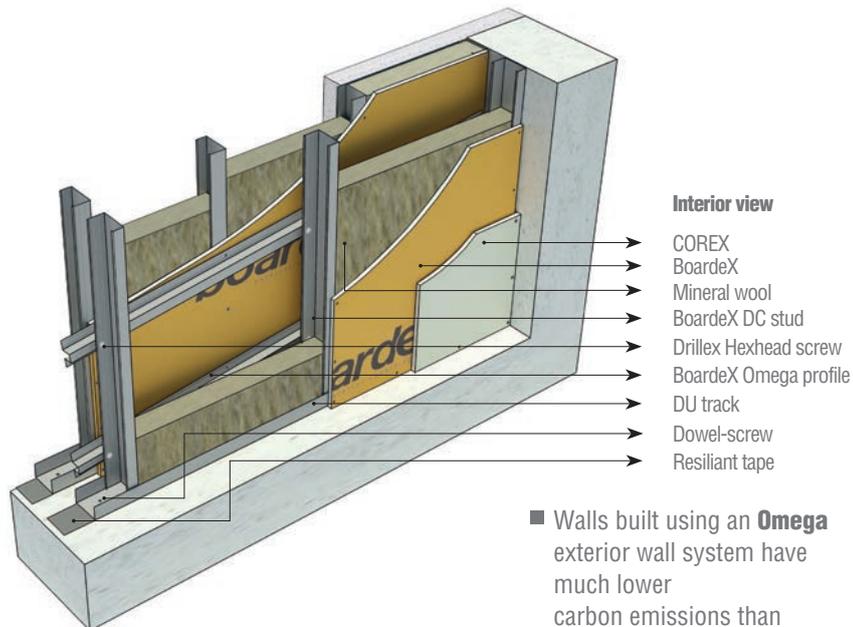
■ Because of the narrow cross-section of walls made using the Omega exterior wall system, buildings that use the system have a greater available floor area.

■ For the interior finishing, all wet applications such as screed and plaster can be completed on the floor before the gypsum board is fixed as the last layer on the wall. Following these applications, the wall surface is completed by fixing the final layer gypsum board on **BoardeX**. Thus, while materials on site and floors are protected from outside weather conditions, a comfortable working environment is provided.

■ Building walls with the **Omega** exterior wall system increases the speed of construction of the building.



- Exterior view**
- BoardeX
  - Rock wool 50 kg/m<sup>3</sup>
  - BoardeX DCC exterior stud
  - Insulation material
  - Alkali-resistant plaster mesh
  - Probase Render



- Interior view**
- COREX
  - BoardeX
  - Mineral wool
  - BoardeX DC stud
  - Drilllex Hexhead screw
  - BoardeX Omega profile
  - DU track
  - Dowel-screw
  - Resilient tape

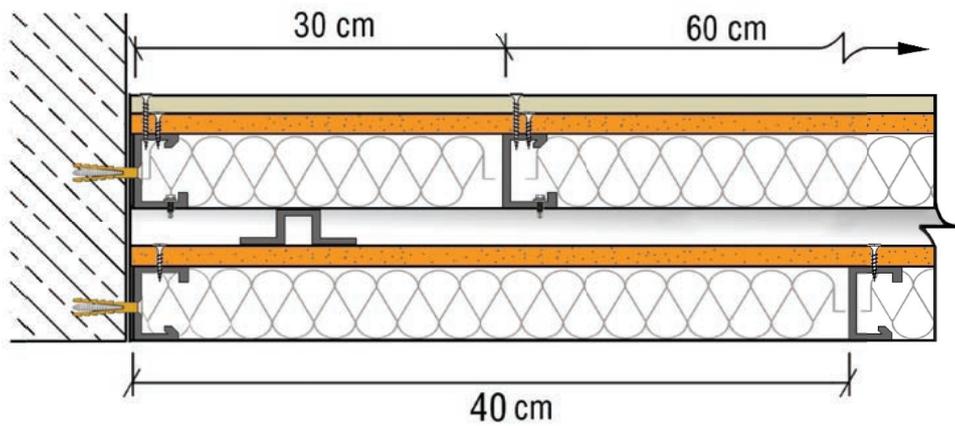
■ Walls built using an **Omega** exterior wall system have much lower carbon emissions than traditional walls with the same thermal insulation values.

■ The **Omega** exterior wall system is designed to withstand a wind speed of 150 km/h at heights above 100 m depending on the profile type selected.

Please check the table on page 37 for detailed information.

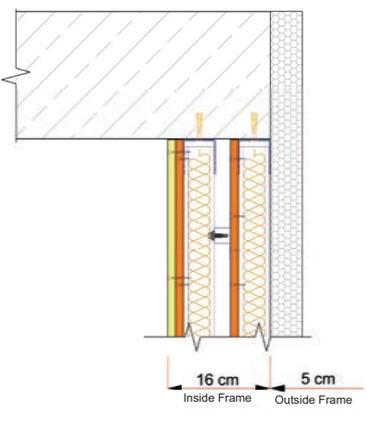
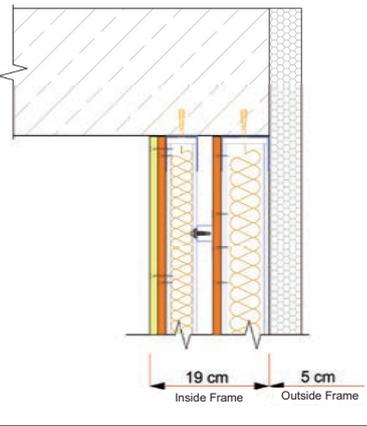
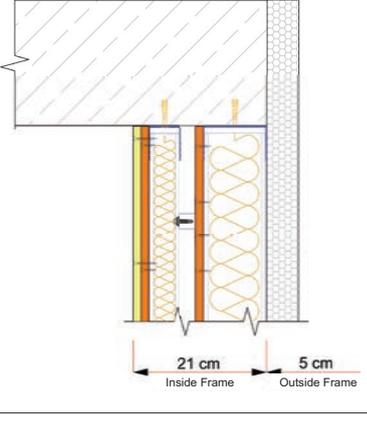
BoardeX exterior wall systems provide comfortable working environment for the employees inside construction sites where the front facade of the construction has been closed.



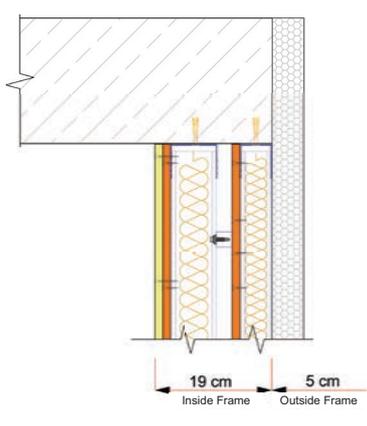
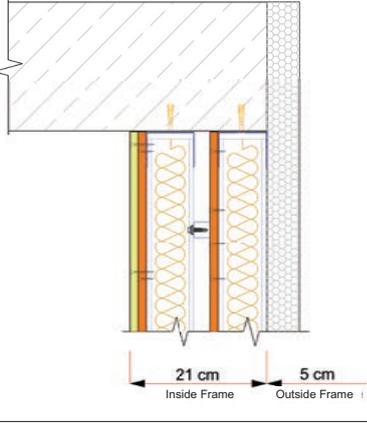
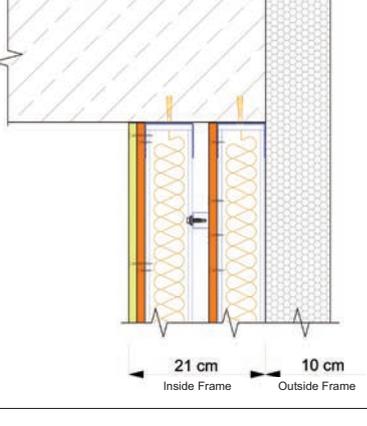
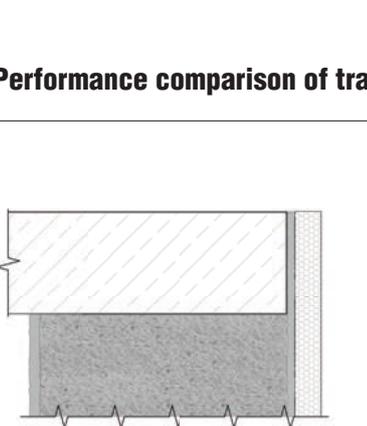


Using the **Boardex Omega** exterior wall system, one can build 16-19-21-24 cm thick exterior walls (excluding the insulation material that will be applied). The fire resistance of the system is E90, and it can resist fire up to for 90 minutes.

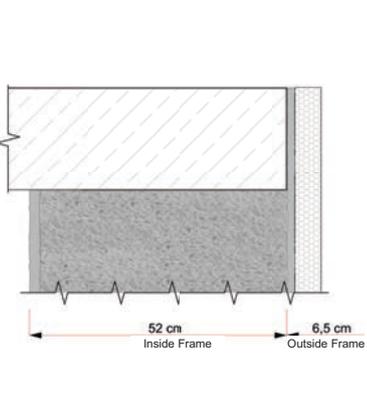
### System Features

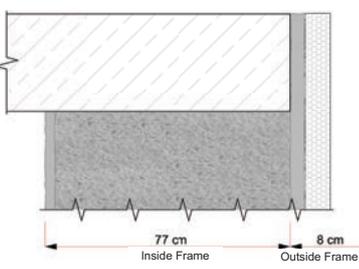
Diagram	Profile type	Profile axis spacing (cm)	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness(cm)	U value* (W/m <sup>2</sup> K)	
						With extra insulation 5 cm	Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )
	DC50 + omega + DCC50	EXTERIOR 40 INTERIOR 60	1 pcs 12,5mm COREX + 2 pcs 12,5mm Boardex	44	10	0,54	0,30
							37,09
	DC50 + omega + DCC75	EXTERIOR 40 INTERIOR 60	1 pcs 12,5mm COREX + 2 pcs 12,5mm Boardex	46	12,5	0,50	0,27
							39,51
	DC50 + omega + DCC100	EXTERIOR 40 INTERIOR 60	1 pcs 12,5mm COREX + 2 pcs 12,5mm Boardex	47	15	0,45	0,25
							41,93

# Omega Exterior Wall System

	Profile type	Profile axis spacing (cm)	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness(cm)	U value* (W/m <sup>2</sup> K)	
						With extra insulation 5 cm	Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )
	DC75 + omega + DCC50	EXTERIOR 40 INTERIOR 60	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	45	12,5	0,46	0,27
	DC75 + omega + DCC75	EXTERIOR 40 INTERIOR 60	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	47	15	0,42	0,25
	DC75 + omega + DCC75	EXTERIOR 40 INTERIOR 60	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	48	15	0,42	0,19
							39,51
							41,76
							46,33

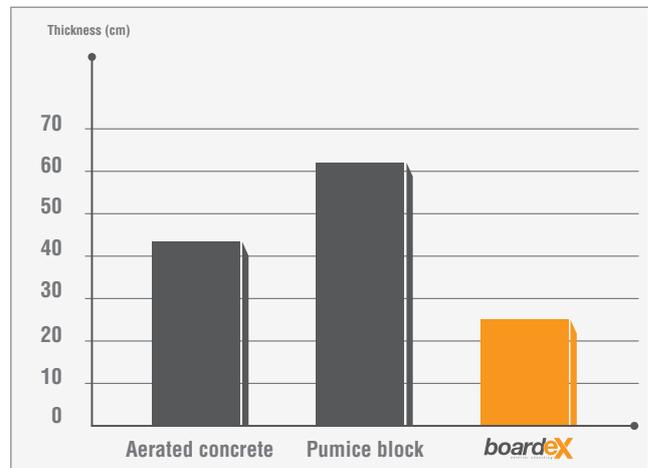
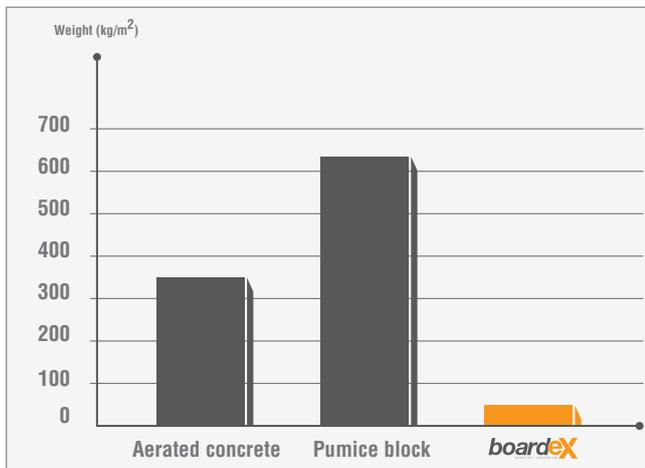
## Performance comparison of traditional exterior walls and Omega exterior wall system

	Wall type	Weight (kg/m <sup>2</sup> )	* U (W/m <sup>2</sup> K)	
			Insulated 5 cm	Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )
	<b>Aerated concrete wall</b> <b>Thickness: 50 cm</b> <b>Interior: 2 cm gypsum plaster</b> <b>Exterior: 1.5 cm cement-based plaster</b>	353	0,39	0,24

	<b>Wall type</b>	<b>Weight (kg/m<sup>2</sup>)</b>	<b>* U (W/m<sup>2</sup>K)</b>		
	<b>Pumice block wall</b> <b>Thickness: 77 cm</b> <b>Interior: 2 cm gypsum plaster</b> <b>Exterior: 3 cm cement-based plaster</b>		 630	0,36	0,25
				<b>Insulated</b> <b>5 cm</b>	0,25

(\*) The ( $\lambda$ ) value of the mineral wool used is 0.040 W/m<sup>2</sup>.K, The ( $\lambda$ ) value of the insulation material is 0.040 W/m<sup>2</sup>.K. When calculating the Heat transfer coefficient of the system, thermal bridges through the metal have been included in the calculation. When calculating the weight per m<sup>2</sup> of the wall, the densities of the mineral wool and the insulation material have been taken into account as being 40 kg/m<sup>3</sup> and 16 kg/m<sup>3</sup> respectively. When calculating the values of heat permeability, TS 825 has been taken into consideration. Articles 7.3.2.6 and 7.5.1.1.2.2 have been complied with for aerated concrete and pumice block respectively.

For external walls with the same U (W/m<sup>2</sup>K) values, comparison of **weight** and **floor area** values.



### Material analysis

Name of the material	Consumption
	For DCC profile $\times=60$ cm ; for DC profile $\times=40$ cm
BoardeX	2,10 m <sup>2</sup>
COREX	1,05 m <sup>2</sup>
BoardeX DCC 50/75/100 stud (45x30; 0.9 mm; Z275)	2,90 m
BoardeX DC 50/75 stud (53x42; 0.6 mm; Z100)	1,90 m
DU 50/75/100 track (38x38; 0.6 mm; Z100)	0,84 m
DU 50/75 track (38x38; 0.6 mm; Z100)	0,84 m
BoardeX omega profile (26x25; 0.5mm; Z100) (at every 70cm)	1,60 m
Self Drilling insulating boards fixing anchor (with 20 cm intervals)	26 pcs
BoardeX self tapping screw (with 40 cm intervals)	11 pcs
Drilllex hexhead screw	3,5 pcs
Self tapping screw 38 (with 30 cm intervals)	13 pcs
Dowel-screw	5,90 pcs
Resiliant tape	2,90 m
Joint tape or paper tape	1,80 m
Starter Track	Varies according to the base circumference
DERZTEK jointing compound	0,40 kg
Mineral wool interior (low density)	1,05 m <sup>2</sup>
Rock wool 50 kg/m <sup>3</sup>	1,05 m <sup>2</sup>

$\times=60$  indicates that the DCC profile stud spaces is 60 cm, indicates that the profile axis spacing is 40 cm.

!!! The area of the wall for which the material analysis has been calculated is 4 m x 2.5 m = 10 m<sup>2</sup>, and 5% tolerance has been included in the calculations.

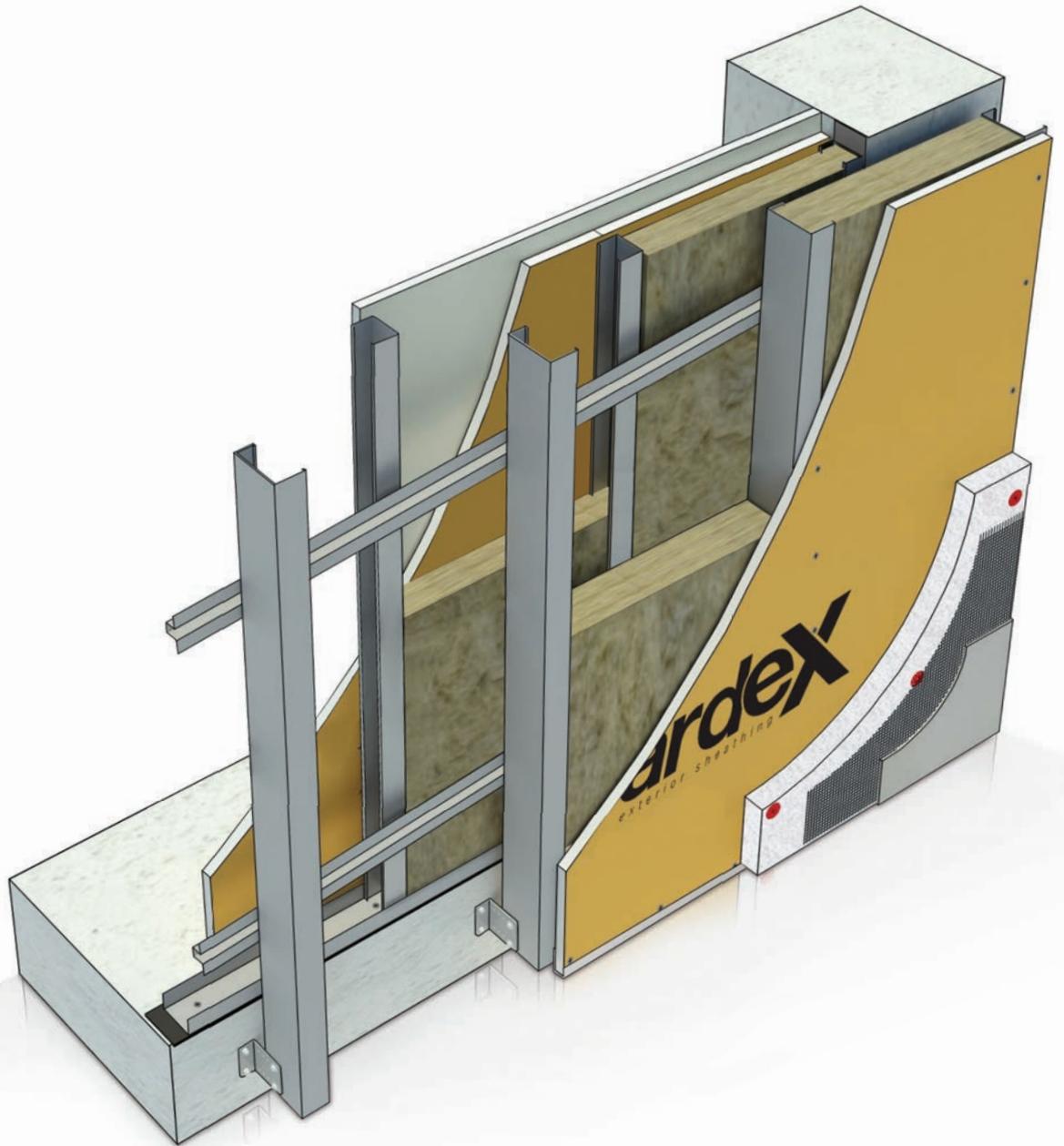
You can access the step-by-step application guide for this system through the BoardeX Exterior Drywall System manual or via [www.boardex.com.tr](http://www.boardex.com.tr).

smooth surface for the materials...  
materials...



...to be applied onto a smooth surface.





## Ceket Omega Exterior Wall System

**More floor area is gained.**

# Ceket Omega Exterior Wall System

■ The **Ceket Omega** exterior wall system is a system used in the design of external walls with quality insulation.

■ It assists, to some extent, with the correction of plumbness and any misalignment caused by workmanship errors in the reinforced concrete frame.

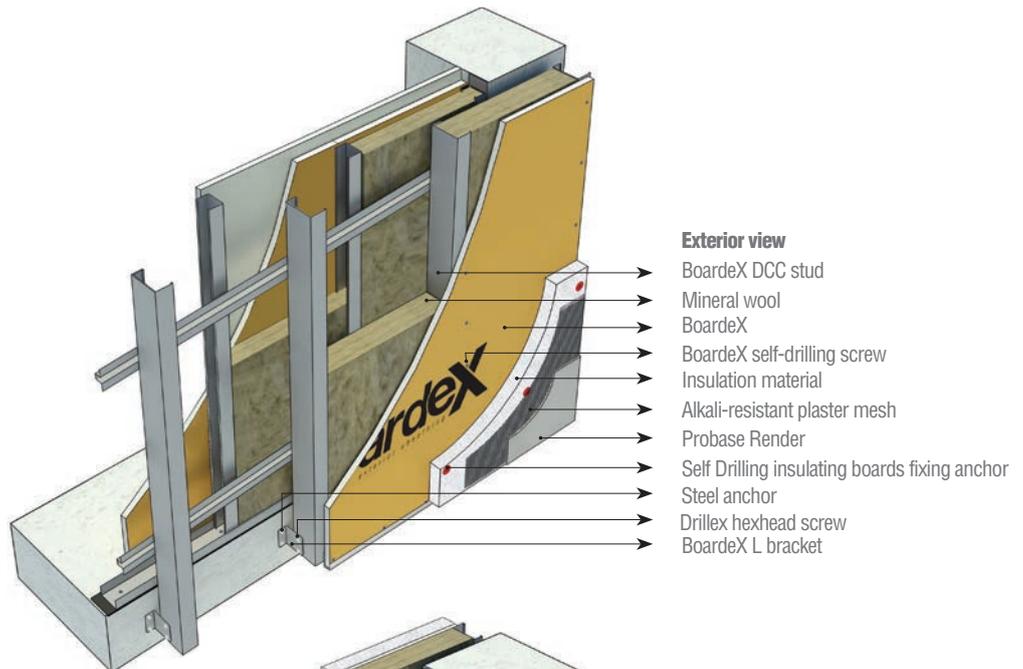
■ The **Ceket Omega** exterior wall system creates a smooth surface for any coating material to be applied to it.

■ The smooth surface obtained can be finished by fixing all kinds of claddings (metal cladding, weatherboarding, wood cladding, decorative brick veneer, etc.)

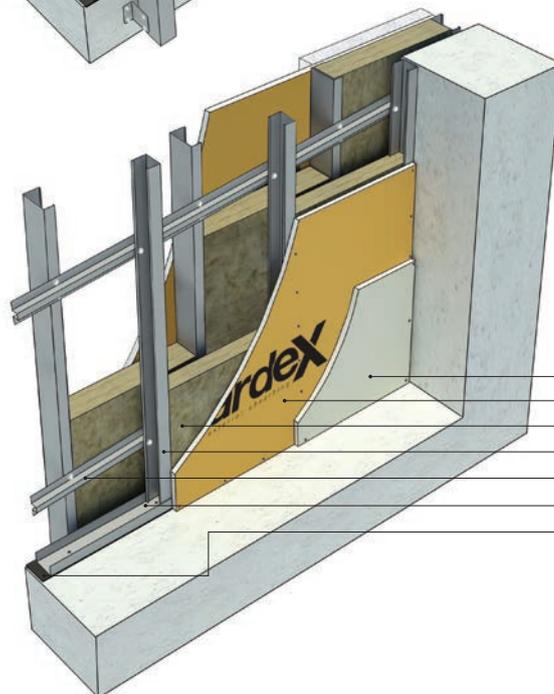
■ Sheathing can be applied by using an insulating material at the required thickness on **BoardeX** to create an increase in thermal insulation and to maintain its durability. Where sheathing is applied the principles recommended by IZODER should be taken into account.

■ A **Ceket Omega** exterior wall system provides a perfect finish for all types of ventilated walls. The ventilated facade system to be applied on the system should weigh no more than 25 kg/m<sup>2</sup>. (\*)

■ For interior finishing, all wet finishes such as screed and plaster can be applied on the floor before the gypsum board is fixed as the final layer on the wall. The wall surface is then completed by fixing the gypsum board as a final layer onto the **BoardeX**.



- Exterior view**
- BoardeX DCC stud
  - Mineral wool
  - BoardeX
  - BoardeX self-drilling screw
  - Insulation material
  - Alkali-resistant plaster mesh
  - Probase Render
  - Self Drilling insulating boards fixing anchor
  - Steel anchor
  - Drillex hexhead screw
  - BoardeX L bracket



- Interior view**
- COREX
  - BoardeX
  - Mineral wool
  - BoardeX DC stud
  - BoardeX Omega profile
  - DU track
  - Resilient tape

■ Because of the narrow cross-section of walls made using the **Ceket Omega** exterior wall system, buildings that use the system have a greater available floor area a space of maximum 12.5 cm is created within the carcass.

■ The **Ceket Omega** exterior wall system is designed to withstand 150 km/h wind speeds up to a height of 100 m, depending on the selected profile size and axis range.

■ Walls built using the **Ceket Omega** exterior wall system have much lower carbon emissions than traditional walls with equivalent thermal insulation values.

The BoardeX surface can be exposed to air without any overcoating for 1 year.

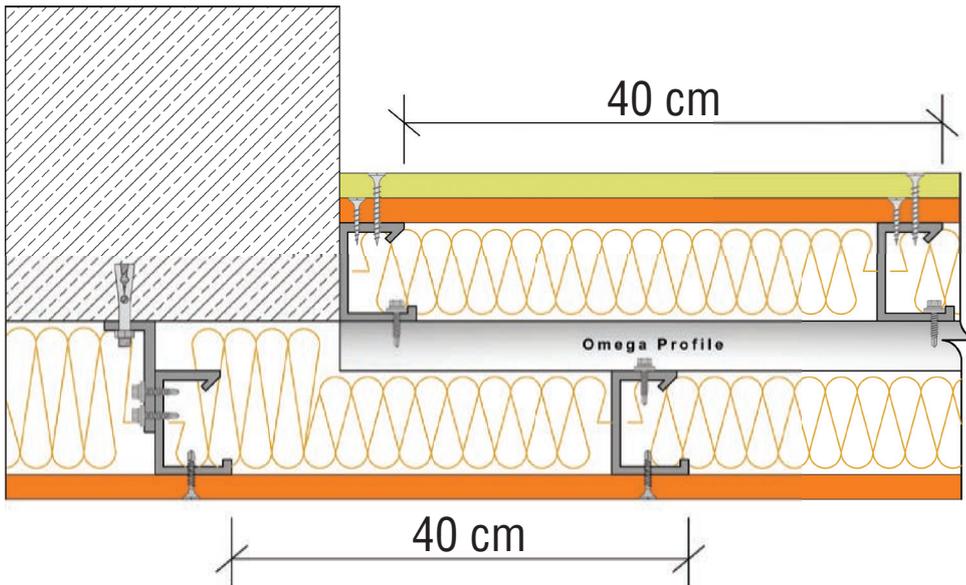


Please check the table on page 37 for detailed information.

■ If no coating material is to be applied onto the **BoardeX**, the primer layer is completed by applying **Probase Render**. A quality plaster can then be applied to the surface, and the wall is then ready for painting. (\*\*)

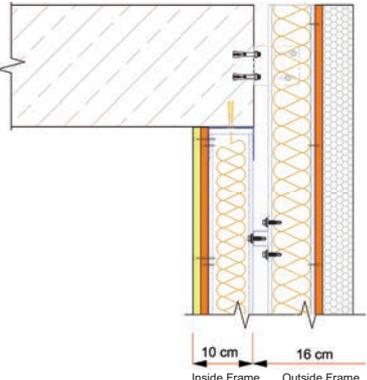
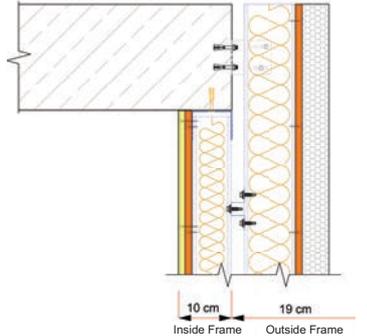
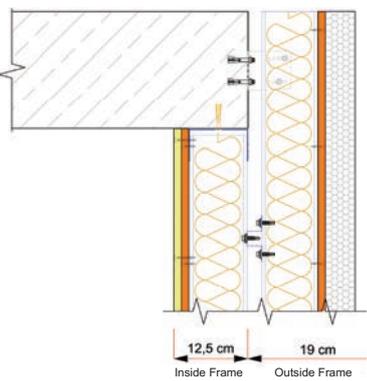
(\*) Apply joint filler and primer coat with Probase Render by using alkali-resistant joint tape on the BoardeX surface and alkali-resistant plaster mesh weighing min.

(\*\*) 160g/m<sup>2</sup>. If applying mineral plaster (PROBASE mineral) to this primer coat and paint to the mineral plaster, we recommend that the advice and suggestions of the plaster and paint manufacturers be complied with and information about application conditions be obtained.

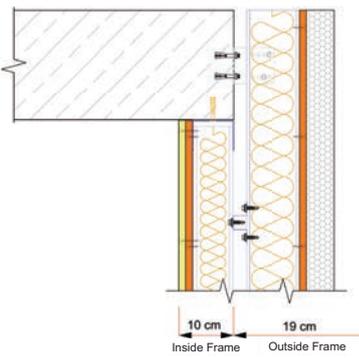
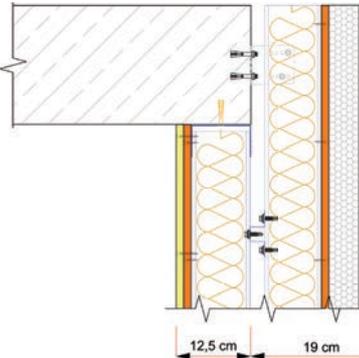
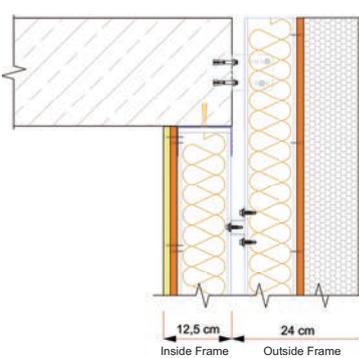


Using a **BoardeX Omega** exterior wall system, one can build 19 - 21 - 24 cm thick exterior walls (excluding the insulation material that will be applied). The fire resistance of the system is E90, and it can resist fire for up to 90 minutes.

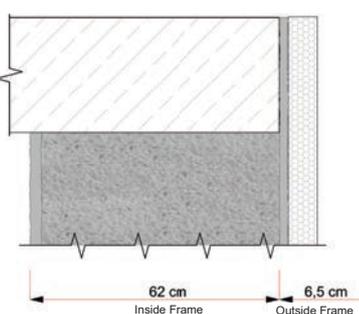
### System Features

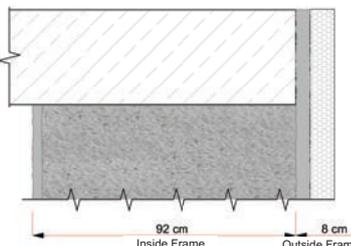
Profile type	Profile axis spacing (cm)	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness (cm)	U value* (W/m <sup>2</sup> K)	
					With extra insulation 5 cm	Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )
 DC75 + omega + DCC75	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	46	15	0,41	0,27
					35,11	39,69
 DC75 + omega + DCC100	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	48	17,5	0,37	0,25
					37,39	41,97
 DC100 + omega + DCC100	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	49	20	0,34	0,24
					42,99	47,57

# Ceket Omega Exterior Wall System

Profile type	Profile axis spacing (cm)	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness(cm)	U value* (W/m <sup>2</sup> K)	
						With extra insulation 5 cm
 DC75 + omega + DCC100	60	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	46	17,5	0,31	0,22
					Carbon emission (kg. CO <sub>2</sub> /m <sup>2</sup> )	
					34,24	38,81
 DC100 + omega + DCC100	60	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	47	20	0,28	0,21
					Carbon emission (kg. CO <sub>2</sub> /m <sup>2</sup> )	
					37,35	41,93
 DC100 + omega + DCC100	60	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	48	20	0,28	0,17
					Carbon emission (kg. CO <sub>2</sub> /m <sup>2</sup> )	
					37,35	46,50

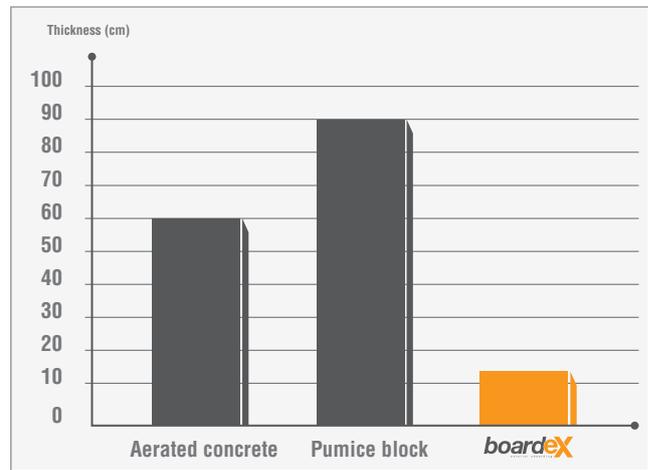
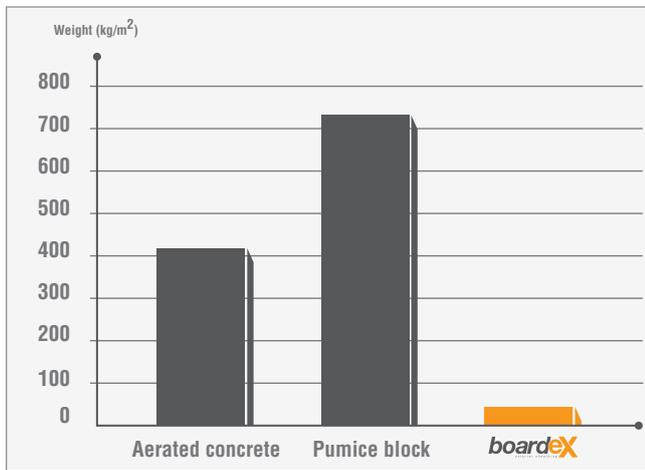
## Performance comparison of traditional exterior walls and BoardeX Ceket Omega exterior wall system

Wall type	Weight (kg/m <sup>2</sup> )	Heat transfer coefficient * U (W/m <sup>2</sup> K)	
		Insulated 5 cm	
 <b>Aerated concrete wall</b> <b>Thickness: 60 cm</b> <b>Interior: 2 cm gypsum plaster</b> <b>Exterior: 1.5 cm cement-based plaster</b>	413	0,29	0,21

	Wall type	Weight (kg/m <sup>2</sup> )	U value* (W/m <sup>2</sup> K)	
				Insulated
	<b>Pumice block wall</b> <b>Thickness: 90 cm</b> <b>Interior: 2 cm gypsum plaster</b> <b>Exterior: 3 cm cement-based plaster</b>	 <b>735</b>	0,30	<b>5 cm</b>  0,22

(\*) The ( $\lambda$ ) value of the mineral wool used is 0.040 W/m<sup>2</sup>.K, The ( $\lambda$ ) value of the insulation material is 0.040 W/m<sup>2</sup>.K. When calculating the Heat transfer coefficient of the system, thermal bridges through the metal have been included in the calculation. When calculating the weight per m<sup>2</sup> of the wall, the densities of the mineral wool and the insulation material have been taken into account as being 40 kg/m<sup>3</sup> and 16 kg/m<sup>3</sup> respectively. When calculating the values of heat permeability, TS 825 has been taken into consideration. Articles 7.3.2.6 and 7.5.1.1.2.2 have been complied with for aerated concrete and pumice block respectively.

For external walls with the same U (W/m<sup>2</sup>K) values, comparison of **weight** and **floor area** values.



### Material analysis

Name of the material	Consumption	
	⌘=60 cm	⌘=40 cm
BoardeX		2,10 m <sup>2</sup>
COREX		1,05 m <sup>2</sup>
BoardeX DC 75/100 stud (53x42; 0.6 mm; Z100)	2,10 m	2,90 m
BoardeX DCC 75/1100 stud (45x30; 0.9 mm; Z275)	2,10 m	2,90 m
DU 75/100 track (38x38; 0.6 mm; Z100)		0,84 m
BoardeX Omega profile (26x25; 0.5mm; Z100)		1,60 m
BoardeX L 75/100/125/150 bracket (30x75/100/125; 2 mm;/150;3 mm)	1,70 m	2,4 pcs
Self Drilling insulating boards fixing anchor (with 20 cm intervals)	18 pcs	24 pcs
BoardeX self tapping screw (with 40 cm intervals)	13 pcs	14 pcs
Drilllex hexhead screw	9 pcs	13 pcs
Self tapping screw 38 (with 30 cm intervals)	13 pcs	16 pcs
Dowel-screw		3 pcs
Steel anchor	3,4 pcs	4,8 pcs
Resilient tape		1,40 m
Joint tape or paper tape		1,80 m
Starter Track	Varies according to the base circumference	
DERZTEK jointing compound		0,40 kg
Mineral wool interior (low density)		1,05 m <sup>2</sup>
Mineral wool exterior (low density)		1,05 m <sup>2</sup>

⌘=60, indicates that the DCC profile axis spacing is 60 cm.

!!! The area of the wall for which the material analysis has been calculated is 4 m x 2.5 m = 10 m<sup>2</sup>, and 5% tolerance has been included in the calculations.

You can access the step-by-step application guide for this system through the BoardeX Exterior Drywall System manual or via the [www.boardex.com.tr](http://www.boardex.com.tr).

# Boardex ventilated facades and

A smooth surface for **Boardex**, ventilated facades and all kinds of cladding material (Metal cladding, weather boarding, wooden cladding, decorative brick veneer, etc.)...



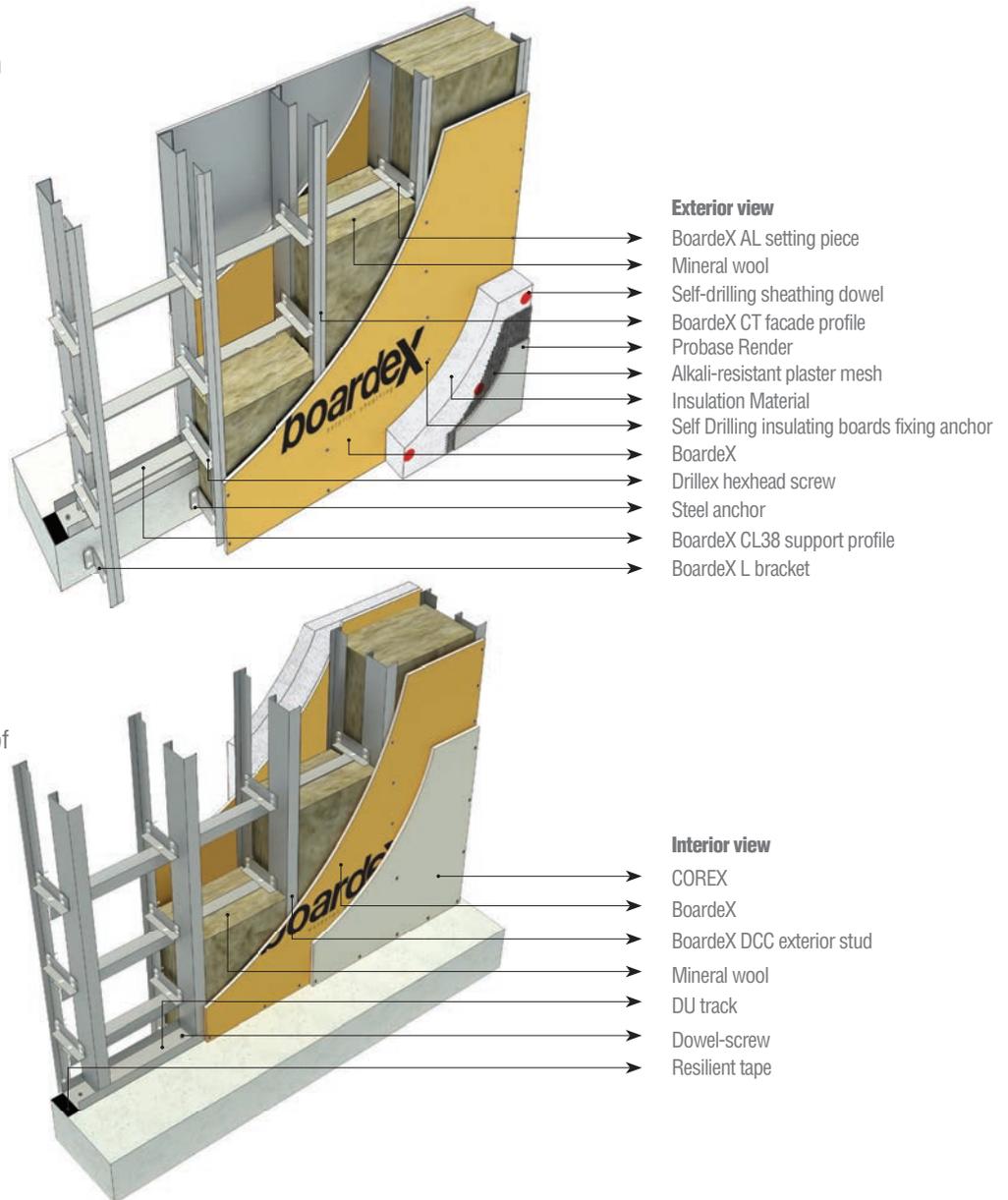


## CeketMAX Exterior Wall System

**It corrects the level and plumpness of the wall.**

# CeketMAX Exterior Wall System

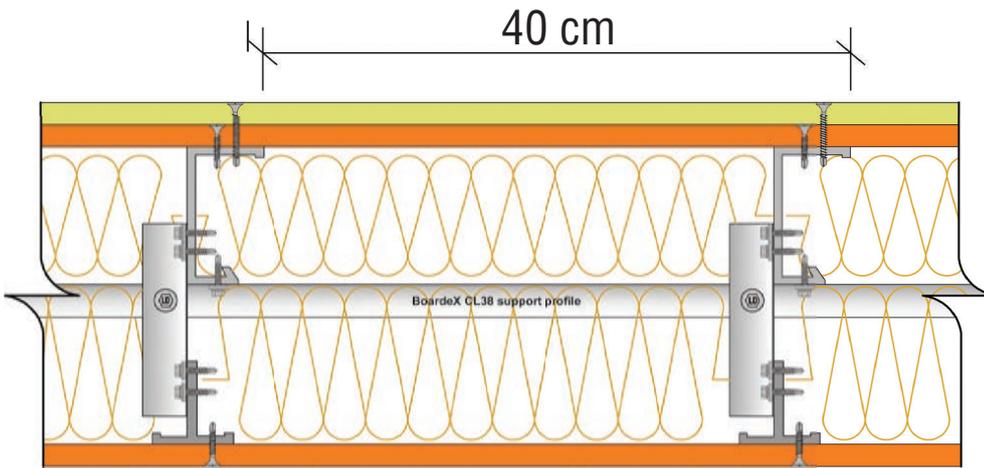
- The **CeketMAX** exterior wall system is a top quality system with energy class rating A. It is used in external wall applications of buildings and in passive house designs where the highest level of energy rating is required.
- With the **CeketMAX** exterior wall system, construction of the external wall can be started within the frame of the building. Wall construction does not require scaffolding to be erected outside from the start.
- It assists, to some extent, with the correction of the plumbness and any misalignment caused by workmanship errors in the reinforced concrete skeleton of the building.
- The smooth surface obtained can be finished by fixing all kinds of cladding (metal cladding, weather boarding, wooden cladding, decorative brick veneer, etc.)
- A space of maximum 12.5 cm is created within the carcass.
- Because of the narrow cross-section of walls made using the **CeketMAX** exterior wall system, buildings that use the system have a greater available floor area.
- Building walls with the **CeketMAX** exterior wall system increases the speed of construction of the building.
- In the interior areas of construction sites where external walls are coated with **BoardeX**, the system allows all types of applications. Thus, construction sites and materials are protected from external weather conditions and a more comfortable working environment is provided for employees.



- For interior finishing, all wet applications such as screed and plaster can be applied on the floor before the gypsum board plaster is fixed as the final layer on the wall. The wall surface is then completed by fixing the gypsum board as a final layer onto the **BoardeX**.
- Sheathing can be applied by using an insulating material on **BoardeX** at the required thickness in order to create an increase in thermal insulation. When applying sheathing, the principles recommended by IZODER should be taken into account
- A **CeketMAX** exterior wall system provides a perfect finish for all types of ventilated facades. The ventilated facade system to be applied on the surface should weigh no more than 25 kg/m<sup>2</sup>. (\*)
- If no coating material is to be applied in steel buildings on **BoardeX**, the first primer layer is completed by applying **Probase Render**. A quality plaster can then be applied to the surface, and the wall is then ready for painting. (\*\*)
- Walls built using the **CeketMAX** exterior wall system have much lower carbon emissions are than conventional walls with equivalent thermal insulation values.
- The **CeketMAX** exterior wall system is designed to withstand wind speeds of 166 km/h on buildings over 100 m high, depending on the profile size and axis spacing selected.

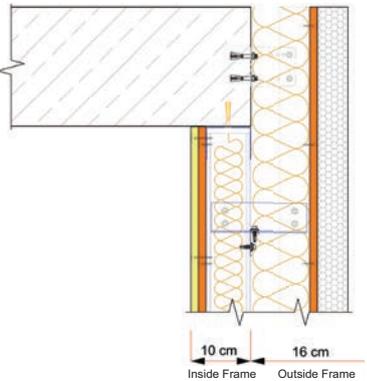
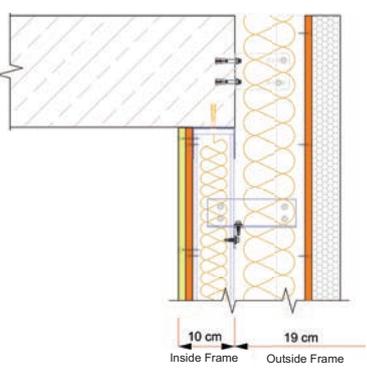
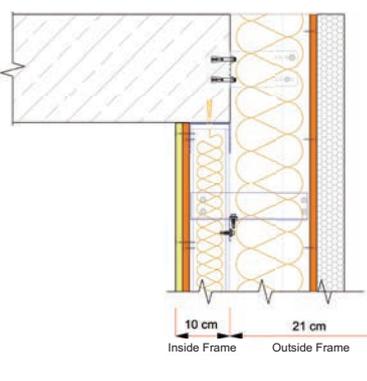
Please check the table on page 37 for detailed information.

(\*) Manufacturer's application principles should be followed for ventilated facade applications. (\*\*) Apply joint filler and primer coat with **Probase Render** by using alkali-resistant joint tape on the **BoardeX** surface and alkali-resistant plaster mesh weighing min. 160g/m<sup>2</sup>. If applying mineral plaster (**PROBASE** mineral) to this primer coat and paint to the mineral plaster, we recommend that the advice and suggestions of the plaster and paint manufacturers be complied with and information about application conditions be obtained.

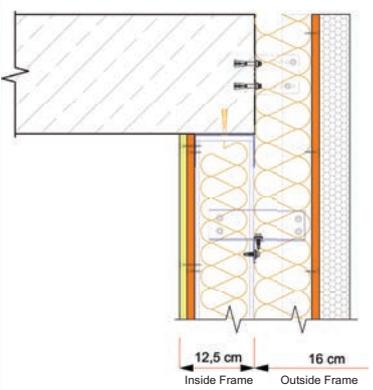
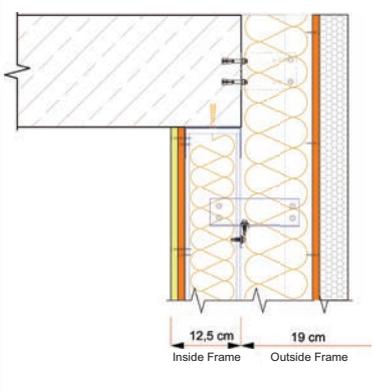
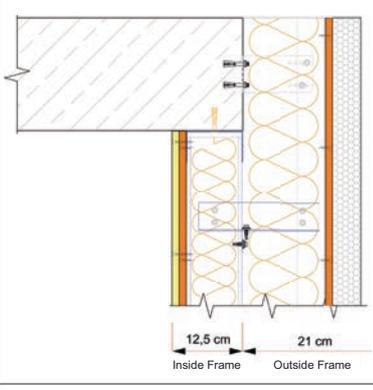
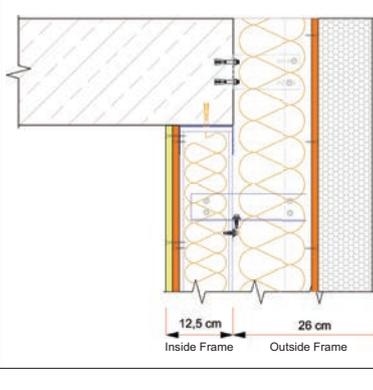


Using a **Boardex CeketMAX** exterior wall system, one can build 21 -24 -26-28 cm thick exterior walls (excluding the insulation material that will be applied). Fire resistance system is E90; E160, and in terms of keeping its integrity, this is equivalent up to 90 minutes of fire resistance.

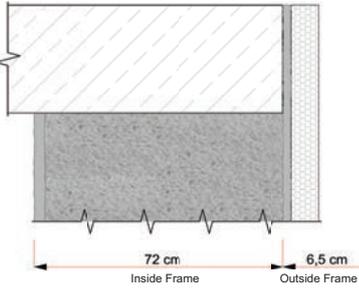
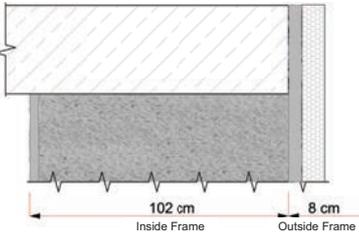
### System Features

Profile Type	Profile axis spacing (cm)	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness(cm)	U value* (W/m <sup>2</sup> K)	
					With extra insulation 5 cm	Carbon emission (kg.CO <sub>2</sub> /m <sup>2</sup> )
 <p>DCC75 + AL160 + L75 + CT50</p> <p>10 cm Inside Frame    16 cm Outside Frame</p>	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm Boardex	50	17,5	0,36	0,25
					38,95	43,52
 <p>DCC75 + AL160 + L100 + CT50</p> <p>10 cm Inside Frame    19 cm Outside Frame</p>	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm Boardex	52	20	0,31	0,22
					40,13	44,71
 <p>DCC75 + AL210 + L125 + CT50</p> <p>10 cm Inside Frame    21 cm Outside Frame</p>	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm Boardex	53	22,5	0,27	0,20
					41,62	46,20

# CeketMAX Exterior Wall System

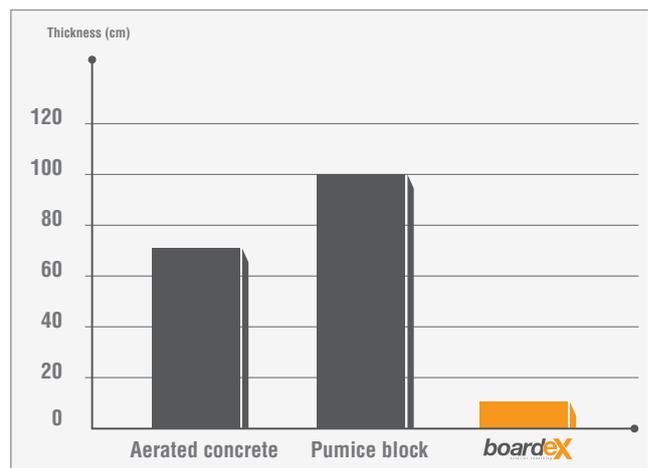
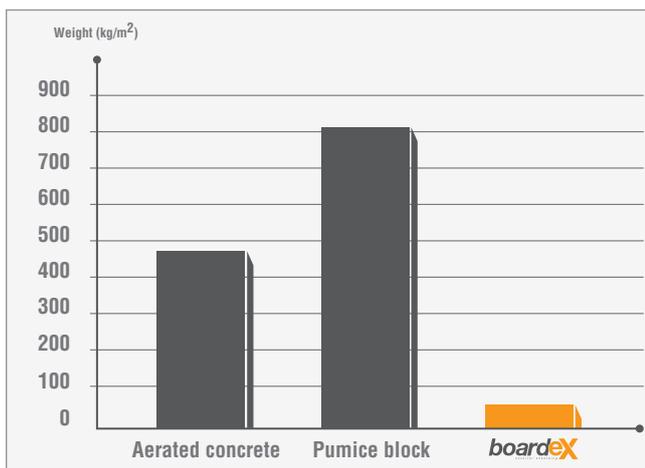
	Profile Type	Profile axis spacing (cm)	Number of boards used thickness / type	Weight (kg/m <sup>2</sup> )	Total mineral wool thickness(cm)	U value* (W/m <sup>2</sup> K)	
						Carbon emission (kg. CO <sub>2</sub> /m <sup>2</sup> )	With extra insulation
	DCC100 + AL160 + L75 + CT50	40	1 pcs 12,5mm COREX + 2 pcs12,5mm BoardeX	<b>51</b>	20	0,34	0,23
						Carbon emission (kg. CO <sub>2</sub> /m <sup>2</sup> )	
						42,30	46,87
	DCC100 + AL160 + L100 + CT50	40	1pcs 12,5mm COREX + 2 pcs12,5mm BoardeX	<b>53</b>	22,5	0,29	0,21
						Carbon emission (kg. CO <sub>2</sub> /m <sup>2</sup> )	
						43,49	48,07
	DCC100 + AL210 + L125 + CT50	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	<b>54</b>	25	0,26	0,19
						Carbon emission (kg. CO <sub>2</sub> /m <sup>2</sup> )	
						44,33	48,91
	DCC100 + AL210 + L125 + CT50	40	1 pcs 12,5mm COREX + 2 pcs 12,5mm BoardeX	<b>55</b>	25	0,26	0,16
						Carbon emission (kg. CO <sub>2</sub> /m <sup>2</sup> )	
						44,33	53,48

## Performance comparison of traditional exterior walls and Boardex CeketMAX exterior wall system

	Wall type	Weight (kg/m <sup>2</sup> )	* U (W/m <sup>2</sup> K)	
	<b>Aerated concrete wall</b> <b>Thickness: 70 cm</b> <b>Interior: 2 cm gypsum plaster</b> <b>Exterior: 1.5 cm cement-based plaster</b>	473	0,25	Insulated 5 cm
	Wall type	Weight (kg/m <sup>2</sup> )	* U (W/m <sup>2</sup> K)	
	<b>Pumice block wall</b> <b>Thickness: 100 cm</b> <b>Interior: 2 cm gypsum plaster</b> <b>Exterior: 1.5 cm cement-based plaster</b>	810	0,27	Insulated 5 cm

(\*) The ( $\lambda$ ) value of the mineral wool used is 0.040 W/m<sup>2</sup>.K, The ( $\lambda$ ) value of the insulation material is 0.040 W/m<sup>2</sup>.K. When calculating the Heat transfer coefficient of the system, thermal bridges through the metal have been included in the calculation. When calculating the weight per m<sup>2</sup> of the wall, the densities of the mineral wool and the insulation material have been taken into account as being 40 kg/m<sup>3</sup> and 16 kg/m<sup>3</sup> respectively. When calculating the values of heat permeability, TS 825 has been taken into consideration. Articles 7.3.2.6 and 7.5.1.1.2.2 have been complied with for aerated concrete and pumice block respectively.

For external walls with the same U (W/m<sup>2</sup>K) values, comparison of **weight** and **floor area** values.



Continues on the next page. >>>

## Material analysis

Name of the material:	Consumption
	✕=40 cm
BoardeX	2,10 m <sup>2</sup>
COREX	1,05 m <sup>2</sup>
BoardeX DCC 75/100 stud (45x30; 0.9 mm; Z275)	2,90 m
DU 75/100 track (38x38; 0.6 mm; Z100)	0,84 m
BoardeX CT facade profile (50x50; 0.9 mm; Z275)	2,90 m
BoardeX CL38 support piece (38X15; 0.6 mm; Z100)	1,50 m
BoardeX AL 160/210 adjustment piece (50x30; 1.2 mm; Z275)	3,40 pcs
BoardeX L 75/100/125/150 bracket (30x75/100/150; 2 mm)	2,4 pcs
Self Drilling insulating boards fixing anchor (with interior - exterior 20 cm intervals)	44 pcs
Drilllex hexhead screw	22 pcs
Self-drilling screw 35 (with 30 cm intervals)	16 pcs
Dowel-screw	2,90 pcs
Steel anchor	4,8 pcs
Resilient tape	1,40 m
Joint tape or paper tape	1,80 m
DERZTEK jointing compound	0,40 kg
Starter Track	Varies according to the base circumference
Mineral wool interior (low density)	1,05 m <sup>2</sup>
Mineral wool exterior (low density)	1,05 m <sup>2</sup>

✕=40 indicates that the CT and DCC spaces are 40 cm.

!!! The area of the wall for which the material analysis has been calculated is 4 m x 2.5 m = 10 m<sup>2</sup>, and 5% tolerance has been included in the calculations.

You can access the step-by-step application guide for this system through the BoardeX Exterior Drywall System manual or via [www.boardex.com.tr](http://www.boardex.com.tr).



# Exterior Wall Systems Performance Table

Wind speed and building height	System name	Profile type	Profile axis spacing EXTERIOR - INTERIOR (cm)	U value (W/m <sup>2</sup> K)	U value (W/m <sup>2</sup> K) + 5 cm EPS	Wall thickness			Weight kg/m <sup>2</sup>	
						Inside frame (cm)	Outside frame (cm) YM included	Total (cm)		
130 km/h	9 - 20 m	Ceket Omega	DC 75-Ω-DCC 75	40-40	0,41	0,27	10	16	26	46
			DC 75-Ω-DCC 100	60-60	0,31	0,22	10	19	29	46
			DC 100-Ω-DCC 100	60-60	0,28	0,21	12,5	19	31,5	47
	Omega	DC 50-Ω-DCC 50	40-60	0,54	0,3	16	5	21	44	
		DC 50-Ω-DCC 75	40-60	0,5	0,27	19	5	24	46	
		DC 50-Ω-DCC 100	40-60	0,45	0,25	21	5	26	47	
		DC 75-Ω-DCC 50	40-60	0,46	0,27	19	5	24	45	
		DC 75-Ω-DCC 75	40-60	0,42	0,25	21	5	26	47	
150 km/h	21 - 100 m	Single Framed	DC 100	60	0,76	0,36	14	5	19	41
		Ceket Omega	DC 75-Ω-DCC 100	40-40	0,37	0,25	10	19	29	48
			DC 100-Ω-DCC 100	40-40	0,34	0,24	12,5	19	31,5	49
	CeketMAX	DCC 75 - AL 160 - CT 50 - L 75	40-40	0,36	0,25	10	16	26	50	
		DCC 75 - AL 160 - CT 50 - L 100	40-40	0,31	0,22	10	19	29	52	
		DCC 75-AL 210-CT 50 - L 125	40-40	0,27	0,2	10	21	31	53	
166 km/h	> 100 m	Single Framed	DC 100	40	0,86	0,37	14	5	19	43
		Double Framed	DC 50-Ω-DCC 75	40-40	0,53	0,31	19	5	24	47
			DC 50-Ω-DCC 100	40-40	0,49	0,29	21	5	26	49
			DC 75-Ω-DCC 75	40-40	0,46	0,29	21	5	26	48
			DC 75-Ω-DCC 100	40-40	0,46	0,28	24	5	29	50
	CeketMAX	DCC 100-AL 160-CT 50 - L 75	40-40	0,34	0,23	12,5	16	28,5	50	
		DCC 100-AL 160-CT 50 - L 100	40-40	0,29	0,21	12,5	19	31,5	51	
		DCC 100-AL 210-CT 50 - L 125	40-40	0,26	0,19	12,5	21	33,5	51,5	

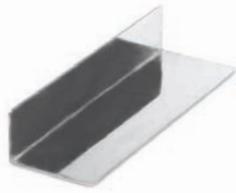
Wind speed and building height	Frame type	Axis spacing (cm)	U values (w/m <sup>2</sup> K)	U values (w/m <sup>2</sup> K) + 5cm EPS	System thickness			
					CEKETLEME thickness (cm)	Insulation material (cm)	Total thickness (cm)	
150 km/h	21 - 100 m	L Bracket 75 + CT profile	60	0,50	0,31	11	5	16
		Fix T 75 + CT profile	60	0,42	0,27	11	5	16
		L Bracket 100 + CT profile	60	0,39	0,27	14	5	19
		Fix T 100 + CT profile	60	0,34	0,23	14	5	19
		L Bracket 125 + CT profile	60	0,32	0,24	16	5	21
		Fix T 125 + CT profile	60	0,28	0,21	16	5	21
166 km/h	> 100 m	L Bracket 75 + CT profile	40	0,56	0,32	11	5	16
		Fix T 75 + CT profile	40	0,44	0,28	11	5	16
		L Bracket 100 + CT profile	40	0,43	0,27	14	5	19
		Fix T 100 + CT profile	40	0,35	0,24	14	5	19
		L Bracket 125 + CT profile	40	0,35	0,24	16	5	21
		Fix T 125 + CT profile	40	0,29	0,21	16	5	21

!!! Selection of system elements and sizing has been calculated on the basis of the standard TS 498, "Calculation of load values to be used in the sizing of building elements."

# BoardeX System Products

- **BoardeX** system products are the products to use for the exterior wall systems presented in this book.
- The cross-sections and thicknesses of the profiles to use in the products that will be used in the carrier system are determined by the calculations based on the principle that the wind load on the wall surfaces and the thermal bridges in the system would be minimised and calculated as a direct result of tests.
- The profiles used in the part facing the outer surface of the wall must have a galvanizing weight of 275 g/m<sup>2</sup>.
- **BoardeX**, should be fixed onto the profiles by using corrosion-resistant Drillex screws with 20 cm intervals, and alkali-resistant joint tape should be used at the board joints.
- The thermal insulation board, joint grouting and base plaster to be used should be **Probase Render** and the primer coat should be formed with 160 g/m<sup>2</sup> alkali-resistant plaster mesh. If applying quality plaster and for subsequent application of paint on this primer surface, the plaster and paint manufacturers' recommendations and suggestions should be followed.

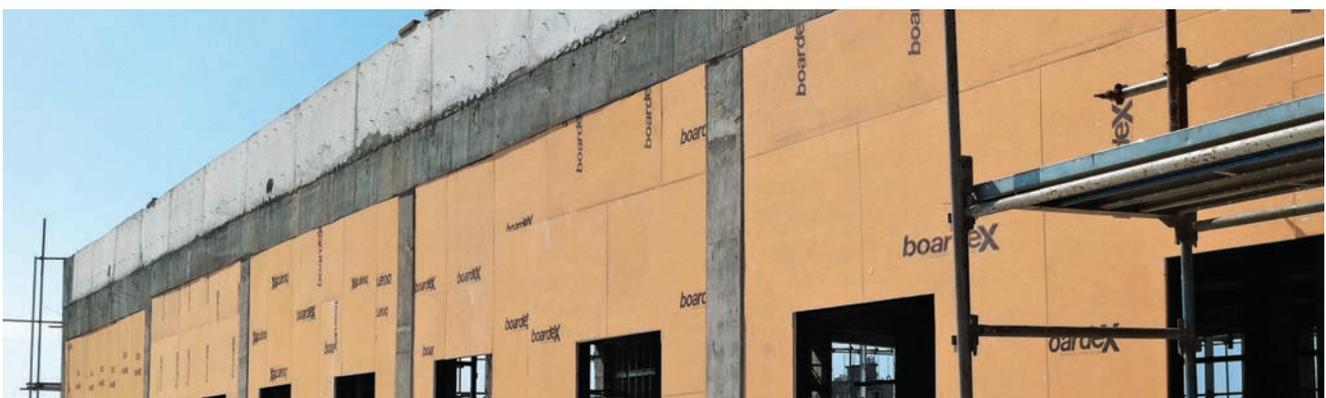
<h2>BoardeX</h2>		<p>BoardeX is an exterior sheathing board used in exterior wall, with its reinforced core against humidity and special orange fiberglass mats.</p>
<h2>BoardeX DC 50-75-100</h2> <p>stud 53x42 mm</p>		<p>BoardeX DC (50-75-100) stud is a weight of 100 g/m<sup>2</sup> galvanised profile with a thickness of 0.6 mm, 53 x 42 mm wing height, and is used in external drywall construction.</p>
<h2>BoardeX DC 100</h2> <p>stud 47x47</p>		<p>BoardeX DC 100 stud is a weight of 275 g/m<sup>2</sup> galvanised profile, 0.90 mm thick, with 47 x 47 mm flange height which is used in external drywall construction.</p>
<h2>BoardeX DCC 50-75-100</h2> <p>stud, 45x30 mm</p>		<p>BoardeX DC (50-75-100) stud is a galvanised profile with thickness of 0.9 mm, 45 x 30 mm flange and weight of 275 g/m<sup>2</sup>, used in external drywall construction.</p>
<h2>DU 50-75-100</h2> <p>track 38x38 mm</p>		<p>DU (50-75-100) BoardeX is a weight of 100 g/m<sup>2</sup> galvanised profile with a thickness of 0.6 mm, 38 x 38 mm flange height and used in external drywall construction.</p>
<h2>BoardeX Omega</h2> <p>profile 26x25x26 mm</p>		<p>It is a weight of 100 g/m<sup>2</sup> galvanised profile with a thickness of 0.5 mm and which enables the system to work in integrated form by securing two DC profiles to each other in Double Framed, Ceket Omega and Omega systems.</p>

<p><b>Boardex</b> <b>AL 160-210</b> adjustment piece 50x30 mm</p>		<p>It is a weighing 275 g/m<sup>2</sup>, galvanised piece in the CeketMAX system, with a wall thickness of 1.2 mm and 16 - 21 cm in length, and which enables the use of thicker mineral wool in the facade.</p>
<p><b>Boardex</b> <b>CL 38</b> support profile 38x15 mm</p>		<p>It is a weighing 100 g/m<sup>2</sup> galvanised support profile in the CeketMAX system, with 0.60 mm thickness, and on which AL 160 or AL 210 adjustment pieces may be fixed.</p>
<p><b>Boardex</b> <b>CT</b> facade profile 50x50 mm</p>		<p>It is a weighing 275 g/m<sup>2</sup> galvanised facade profile in the CEKETLEME and CeketMAX systems, which is 0.9 mm thick, and on which Boardex is fixed.</p>
<p><b>Boardex</b> <b>DKC</b> corner profile 30x30 mm</p>		<p>It is a weighs 275 g/m<sup>2</sup> galvanised corner profile, which is 0.5 mm thick and that is used by screwing inside to increase the impact strength of the corners in Boardex exterior drywall systems.</p>
<p><b>Boardex</b> <b>L brakat</b> 50-75-100-125-150</p>		<p>In CEKETLEME, Ceket Omega and CeketMAX systems this bracket allows use of thicker insulation materials and also to give plumbness to the facade. It is <b>2 mm</b> thick. The L bracket is manufactured from special steel with a low thermal conductivity coefficient. L bracket 150 is <b>3 mm</b> thick.</p>
<p><b>Boardex</b> <b>Fix T</b> 75-100-125</p>		<p>It is a Fix T fitting with a low thermal conductivity and a length of 75 – 100 - 125 mm, made from special hard composite material, which is used to minimize heat bridges forming on the wall surface especially in the CEKETLEME system.</p>
<p><b>Dübel-vida</b></p>		<p>This dowel-screw is used to fix the DU track and, when necessary, the DC stud onto the reinforced concrete.</p>

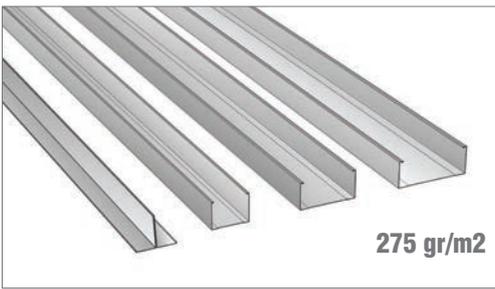
# BoardeX System Products

<p><b>Steel anchor</b></p>		<p>Steel anchors are used to fix the L brackets onto reinforced concrete surfaces.</p>
<p><b>Self tapping screw</b></p>		<p>Self tapping screws are used to fix the second layer of plasterboard onto profiles with 0.5 - 0.7 mm thickness inside the exterior walls.</p>
<p><b>Self-drilling screw 35</b></p>		<p>Used to fix the second layer of gypsum plasterboard to be applied to BoardeX onto profiles with 0.7 - 2.0 mm thickness inside the exterior walls.</p>
<p><b>BoardeX self tapping screw</b></p>		<p>A corrosion-resistant specially manufactured screw used to fix BoardeX exterior sheating board onto profiles with 0.5 - 0.7 mm thickness.</p>
<p><b>BoardeX self-drilling screw</b></p>		<p>A corrosion-resistant specially manufactured screw used to fix BoardeX exterior sheating board onto profiles with 0.7 - 2.0 mm thickness.</p>
<p><b>Drillex Hexhead screw</b></p>		<p>Hexhead screws are used in fixing two profiles together in CEKETLEME, Double Framed, CeketMax Omega, and Omega exterior wall systems. It is a hexagonal head, pan head self-drilling screw.</p>
<p><b>Resilient tape</b> 50-75-100</p>		<p>Resilient tape is fixed under the galvanized steel tracks in the construction of drywalls. Self-adhesive Resilient tape minimizes noise and thermal bridges.</p>

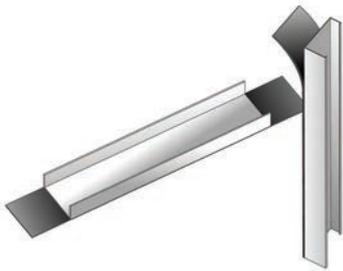
<p><b>Joint tape</b></p>		<p>It is a 5 cm wide and 90 m long fibre glass tape used together with DERZTEK jointing compound to avoid cracking in gypsum board joints.</p>
<p><b>Paper tape</b></p>		<p>It is a 5 cm wide and 150 m long paper tape used together with DERZTEK jointing compound, to avoid cracking in gypsum board joints.</p>
<p><b>JOINT TAPE</b> alkali resistant</p>		<p>To avoid cracking in BoardeX exterior board joints used together with <b>Probase Render</b>, use this self-adhesive, 7.5 cm wide, 45 m long alkali-resistant joint tape.</p>
<p><b>PLASTER MESH</b> alkali resistant 160 g/m<sup>2</sup></p>		<p>Fibre glass reinforcement mesh with high alkali resistance weighing 160 g/m<sup>2</sup>, which stops cracking by resisting the movement of cement-based plaster on the surface it is applied to. Mesh size is 4 x 4 mm.</p>
<p><b>Probase Render</b> joint filler and base plaster</p>		<p>Probase Render is a joint grouting filler and external wall primer base which is used in BoardeX exterior wall board joints and resistant joint tape and joint applications as a primer coat. Used with alkali-resistant plaster mesh on BoardeX surface, it has a weight of 160 g/m<sup>2</sup>.</p>
<p><b>Probase Mineral</b> Mineral-Based Decorative Coating</p>		<p>Probase Mineral is a finishing layer decorative wall cladding, which is used on Probase Render as the final layer. It has a mineral size of less than 2 mm, is grain textured, based on white cement, is single component with added polymer, which can also be applied with a trowel.</p>



# Points to Take into Consideration in BoardeX Applications



Metal profiles to be used in exterior wall construction should be galvanized at a weight of 275 g/m<sup>2</sup>.



Resilient tape should be applied under the DU tracks and DC studs which are fixed on ceilings and walls to stop the formation of heat and sound bridges.



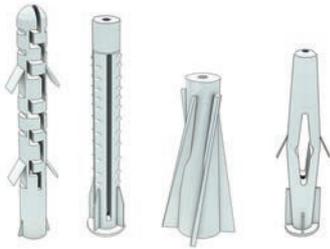
On the front surface of **BoardeX**, there are marks at 20 cm intervals indicating the screw entry points. These marks also indicate the horizontal axis spacings (40 or 60 cm) of profiles.



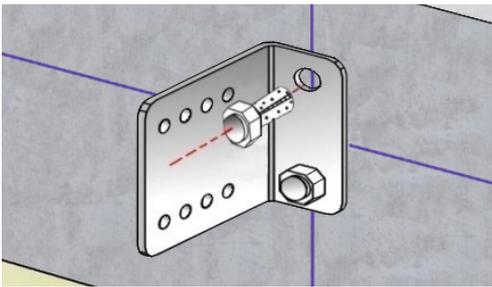
It can be used, without requiring any other surface coating, in external weather conditions over 12 months." In this way, buildings constructed with **BoardeX** are protected from external conditions during their construction.



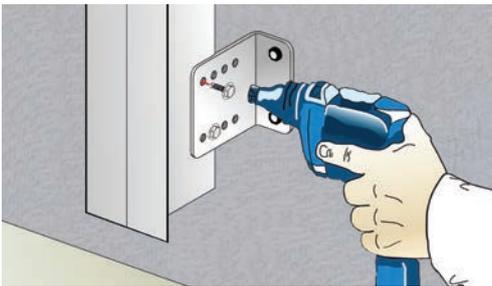
On the inside of the exterior walls constructed using **BoardeX**, wet applications such as screed and ceramic coating on the floor can be carried out before fixing the plasterboard on the wall. Following these wet applications on the floor, the wall surface is completed by fixing the gypsum board onto the **BoardeX**.



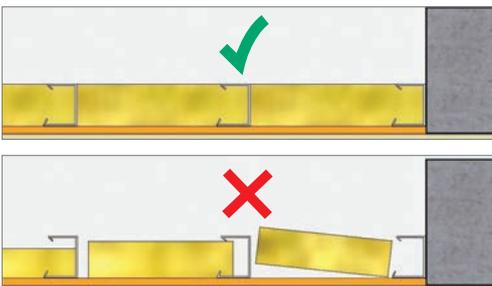
In the **CEKETLEME** system, the L brackets should be fixed to the existing wall from 2 points using dowels and screws suitable for the existing wall type (brick, aerated concrete, pumice block).



The L brackets should be fixed onto the reinforced concrete flooring by means of steel dowels from two points on a line determined by a guiding string.

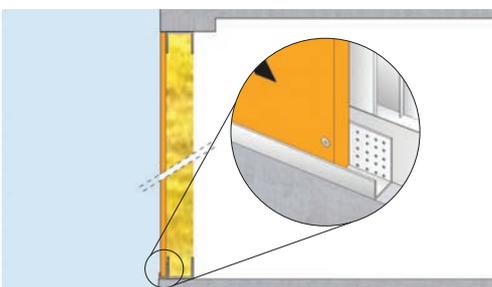


L brackets should be secured onto profiles from at least two points using Drilllex hexhead screws.



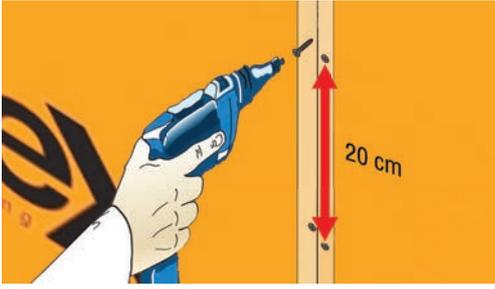
The mineral wool placed between the profiles should be placed in such a way that there are no gaps horizontally or vertically.

-  Right application
-  Wrong

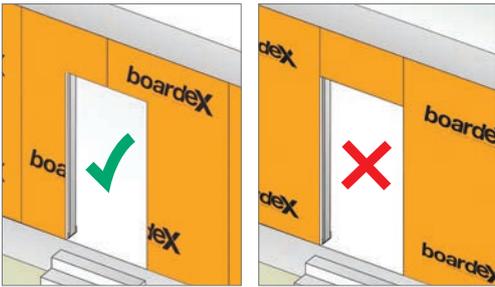


The first **BoardeX**, which corresponds to the floor, should be fitted to a PVC-based starter track so that the BoardeX has no contact with the floor.

# Points to Take into Consideration in Boardex Applications

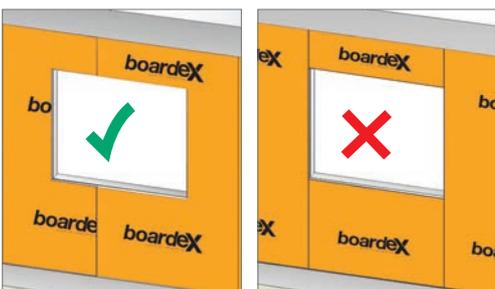


Boardex should be fixed onto profiles by using corrosion resistant **Boardex** screws with 20 cm spacing.



Around door cavities, **Boardex** joints should not be flush with the door edge profile, and the joints should be fixed to the profiles above or below the lintel.

- ✓ Right application
- ✗ Wrong



Around window cavity, **Boardex** joints should not be flush with the window edge profile, and the joints should be fixed to the profiles above or below the lintel.

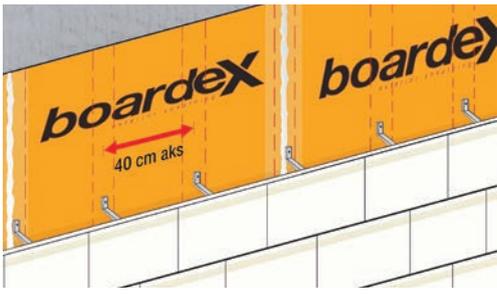
- ✓ Right application
- ✗ Wrong



To increase the impact strength of exterior corners, **Boardex** DKC corner profiles should be installed.

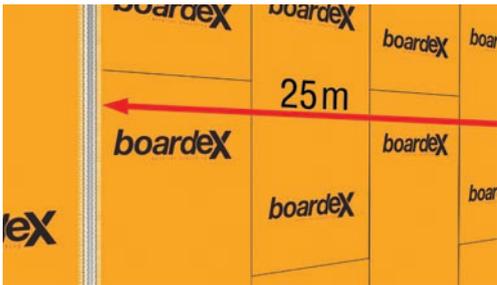


Before installing any cladding material (PVC siding, metal, wooden, decorative brick veneer, etc...) on a Boardex surface, an appropriate sealant should be used in the joints of **Boardex** to prevent air, moisture and water from penetrating into the system.



The carrier profiles of the ventilated wall systems are fixed onto the carrier profiles of the **Boardex** exterior wall systems within the range of the axis spacings determined by manufacturing firms, and hence are designed to carry systems weighing up to 25 kg/m<sup>2</sup>. Where ventilated wall systems are applied onto **Boardex** surfaces, the advice and application principles of the facade system manufacturers should be taken into consideration.

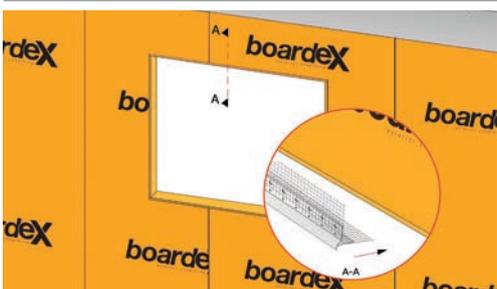
**If plaster is to be applied to the Boardex surface, the following steps should be carried out very carefully.**



If the **Boardex** surface is coated with plaster, a joint profile with a PVC-based mesh should be used horizontally every 25 metres to allow for dilatation.



If the **Boardex** surface is coated with plaster, a joint profile with a PVC-based mesh should be used vertically every 5-6 metres to allow for dilatation.

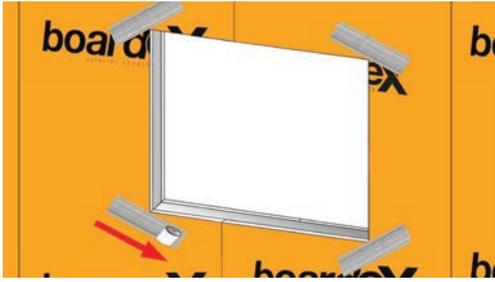


A PVC-based edging with mesh should be used in horizontal corners in areas such as soffits, doors and windows.



In order to reduce the risk of cracking in the corners of the door cavity, joint tape should be applied diagonally over the corners and be covered with **Probase Render**.

# Points to Take into Consideration in Boardex Applications



In order to reduce the risk of cracking in the corners of the window cavities, the joint tape should be applied diagonally and covered with **Probaser Render**.



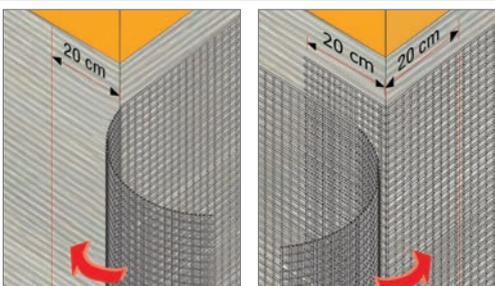
Before applying mineral plaster to **Boardex**, the joints should be finished using alkali-resistant joint tape and **Probaser Render**.



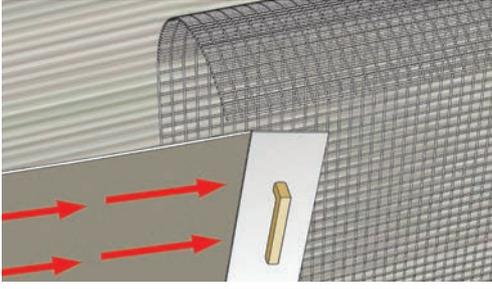
The primer coat (Probaser Render) should be applied at least 1 day after the joint application is completed.



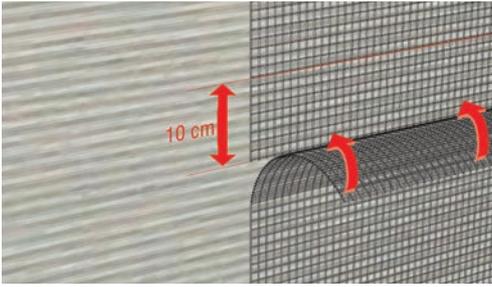
If the **Boardex** surface is coated with mineral plaster, a joint profile with a PVC-based corner profile with mesh should be used for the outside of the corner joints.



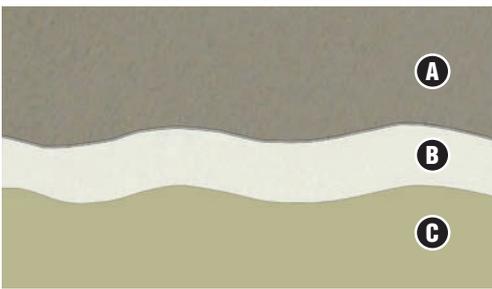
The plaster mesh to be used on the outside corners should be overlaid 20 cm on both sides.



**Probaser Render** is applied to the entire surface using a notched trowel. A 160 g/m<sup>2</sup> alkali-resistant plaster mesh is placed close to the surface and the prime coat is completed before the mineral plaster is applied.



Plaster mesh should be applied to the joints with overlaps of 10 cm.



After the primer coat is completed by **Probaser Render** in accordance with the instructions above, the advice and suggestions of the mineral plaster and paint manufacturers should be complied with and information about application conditions should be obtained before the mineral plaster is applied to this primer coat and/or paint applied to the mineral plaster.

- A** PROBASE Render
- B** PROBASE mineral
- C** Paint

**ALÇIDER**  
— TÜRKİYE ALÇI ÜRETİCİLERİ DERNEĞİ —

Regarding gypsum board applications, the advice of **ALÇIDER** should be followed.



Where extra insulation is to be applied to the **Boardex** surface, follow the advice of İZODER (the Heat, Water, Noise and Fire Insulation Association) on the application of insulating material to **Boardex** surfaces, and on the principles of application. [www.izoder.org.tr](http://www.izoder.org.tr)

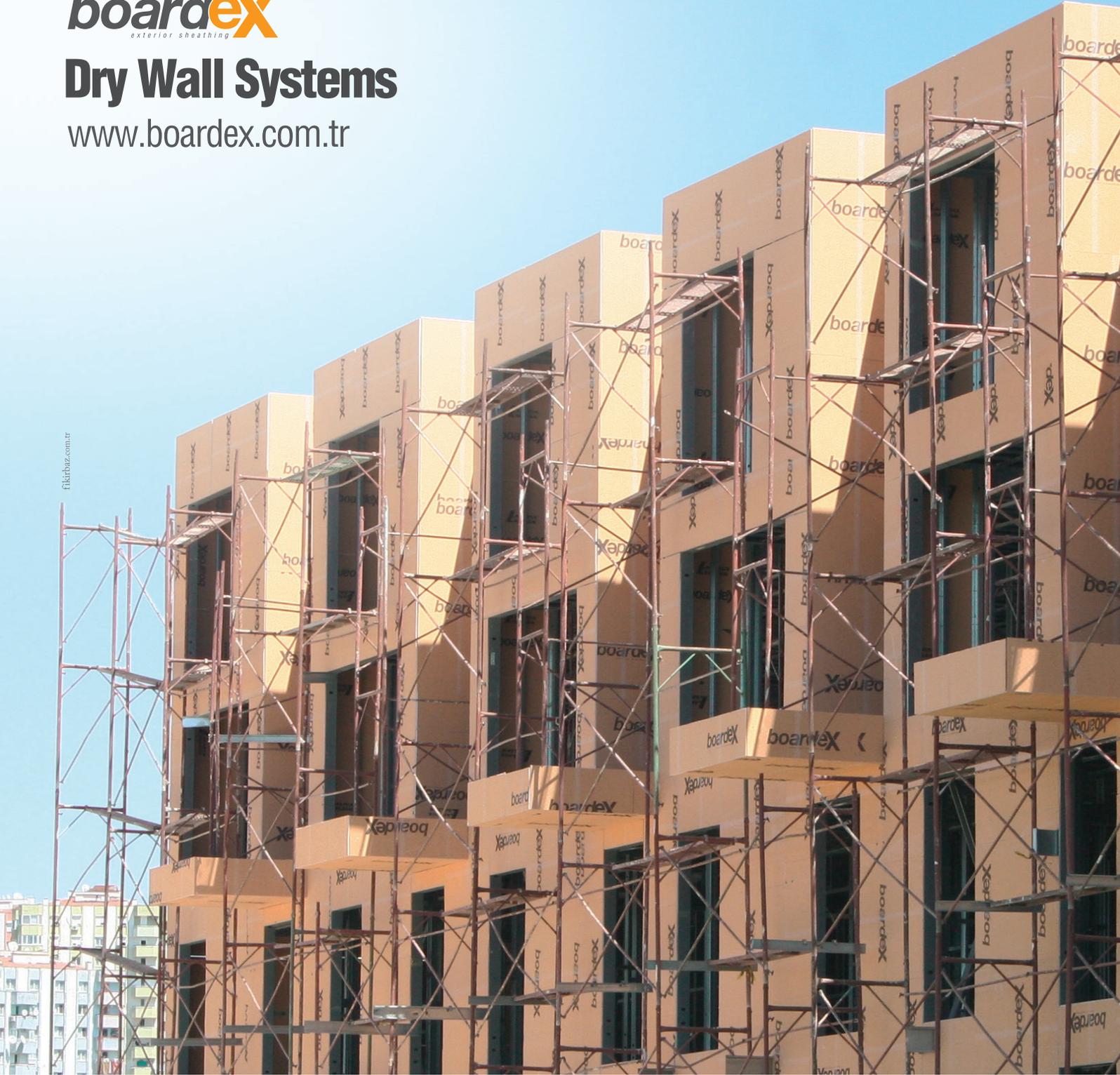




# Dry Wall Systems

[www.boardex.com.tr](http://www.boardex.com.tr)

[filekibaz.com.tr](http://filekibaz.com.tr)



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