

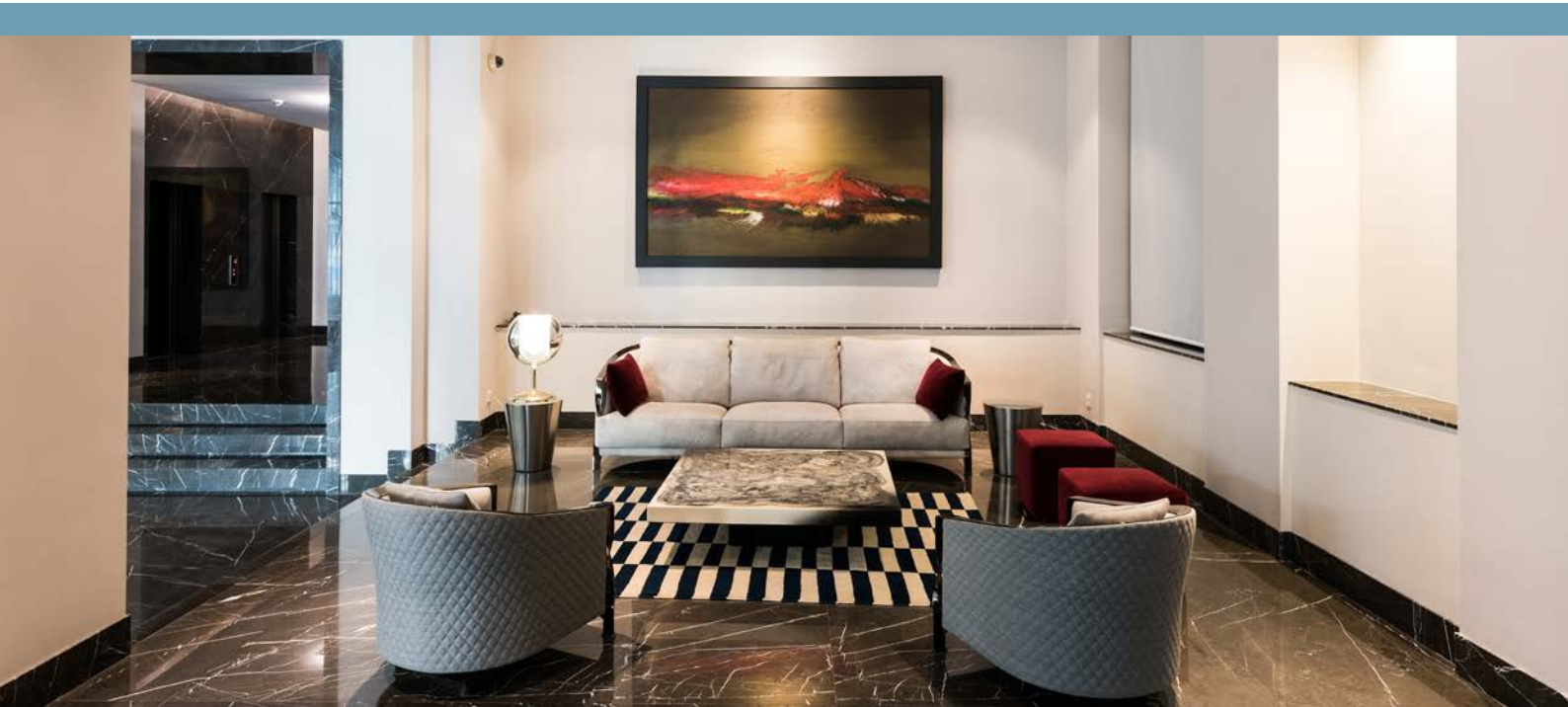


K+ Drywall Systems

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Interior Partition Walls | Suspended Ceilings | Wall Lining Systems | Fire Protection Solutions



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1. Introduction of Drywall Systems

By World War II, gypsum was considered the most common material for the interior finish and decoration of houses, offices and many other types of buildings in Europe. At that time, the term “dry” was used for wall coating materials which required no gypsum finish. After the WW II, the application of drywall systems was quickly expanded due to gypsum mortar finish problems (such as the need for specialized labor, more weight, penetration of moisture to the underlying structure, lower speed and time for drying before painting).

This system is a modern method for construction of non-load bearing partitions and suspended ceilings using prefabricated components which create a framework for plaster boards to be mounted on. For interior wet room applications or exterior walls, cement boards are generally used instead of plaster boards due to their superior resistance to water and changing weather conditions. The main framework is made of galvanized steel profiles with C, U, and L cross-sections whereas in some countries, plywood is also used for framework. The main frame is considered for installing and fixing plaster boards and has no structural role in the building.

The boards are connected to the framework by special screws and the joint between them is sealed by approved filling materials to provide a monolithic and integrated surface finish. This method of modular construction is preferred at building sites due to possibility of precise planning, quick fabrication, and industrialization.

2. Presence of K+ in Iran

The presence of K+ in Iran began with acquisition of Rookesh Gatch Iran Co. (formerly known as Wallboard Co.) in 1995. The name was changed to Kplus Pars PJSC then the name was changed to K+ later. This company is currently considered the first and largest manufacturer of drywall system components in Iran with a production capacity of more than 39,000,000 square meters of plaster board per year. In addition to supplying the domestic market demand, K+ has exported its products to neighboring countries and has been selected 3 times as the national exemplary exporter.

Subsidiaries of K+

Currently the products of Kanyar Gatch Novin company as the main subsidiary of K+ are supplied to the market. Kanyar Gatch Novin is active in the field of producing all types of hand and machine applied gypsum plaster powders as well as basic cement based materials (such as tile adhesives, bonding materials, etc.)



3. System Components

Gypsum Plaster Boards

These boards have a gypsum core while their surface and longitudinal edges are coated with a special paper. Plaster board are available in 4 common types of Regular (RG) for dry applications, Moisture Resistant (MR) for moderately wet areas, Fire Resistant (FR) for the areas where there is a need for fire resistance (such as encasements of columns & steel beams) and finally Fire and Moisture Resistant (FM) for fire protection in wet and humid areas (e.g. MEP/HVAC ducts). K+ Plaster board are manufactured in accordance with EN520 standard and National ISIRI Standard Number 14818.

RG Regular Plaster Board (Type A)

RG is a lightweight board that provides higher sound insulation than conventional building materials. K+ standard plaster boards are generally used in partition walls, dry lining, all drywall systems with a skim coat and ceilings.

Thickness: 9.5, 12.5, 15 and 18 mm

Length: 2400 up to 3000 mm

Width: 1200 mm

FR Fire Resistant Plaster Board (Type A)

FR is used to fulfill high fire protection requirements. Fiber Glass is used as an additive in gypsum slurry to improve the fire rating values of this board. K+ standard FR boards are generally used in partition walls, dry lining, all drywall systems with a skim coat and ceilings that are located in fire zone.

Thickness: 12.5, 15 and 18 mm

Length: 2400 up to 3000 mm

Width: 1200 mm

MR Moisture Resistant Plaster Board (Type H1, H2 and H3)

In addition to the feature of the RG board, the MR board contains hydrophilizing agents that make it moisture-resistant. It can be used in all moist rooms and humid environments.

Thickness: 12.5, 15 and 18 mm

Length: 2400 up to 3000 mm

Width: 1200 mm





FM Fire & Moisture Resistant Plaster Board

Fire and moisture resistant board incorporates the common features of both FR and MR plaster boards. It passes both moisture and fire-resistant Properties.

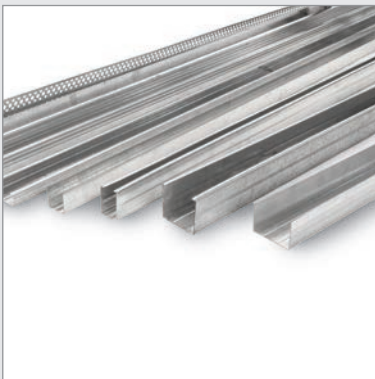
Thickness: 12.5, 15 and 18 mm
Length: 2400 up to 3000 mm
Width: 1200 mm



Acoustic Plaster Boards

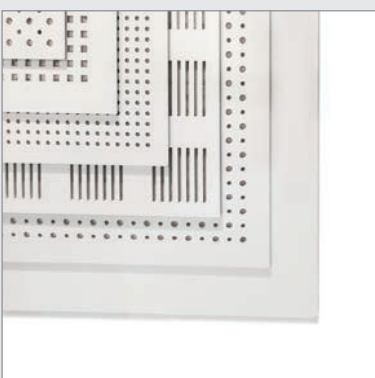
Acoustic plaster boards are designed to absorb sound energy. The gaps and holes in these boards allow noise to pass through but its path is disrupted, taking energy out on its return and reducing echoes in a room.

Thickness: 12.5
Types: 12/20/35R, 12/20/66R, 8/18Q



Light-gauge Galvanized Steel Sections (Profiles)

K+ profiles are made of galvanized steel sheets by cold rolling method and are used for creating framing in a variety of drywall systems. The steel molding components of K+ structures are produced according to EN14195 and national ISIRI standard Number 13035.



Gypsum Tiles

Gypsum tiles are used in grid suspended ceiling applications. Such ceilings are composed of grid T-bar framing attached to the main ceiling by adjustable suspenders and the ceiling tiles which are placed within the grid. By using of this system, you can access to the space behind of suspended ceiling.





T- Profiles for Grid Ceilings

These profiles are used for application of all types of grid suspended ceilings. The profiles are T-shaped, made of galvanized steel and are produced in 3 standard lengths of 3600, 1200, 600 mm. These profiles are currently produced in white color (outer surface). Other colors can be produced upon customer's request and volume.



Plaster Products

Plaster products are widely used in dry construction and K+ produces a variety of plaster-based products according to the requirements of the construction industry to facilitate the rapid and efficient construction. Gypsum based joint filling compound for drywall systems (Fugenfuller), thin coat finishing plaster (Mastik), polished polymer plaster (Skimlite), lightweight hand-painted plaster (Izogips) sprayed polymer plasters (MP Base and MP Ultra).



Fixing and Connecting Accessories

Including all types of screws, rawplugs, special hollow member braces as well as insulation foam tape, painting primer, tile adhesive, self-adhesive separating tape (Trenn-fix), joint tapes, etc.





Waterproofing Insulation

K+ Blue waterproofing insulation is used for insulating walls and floors of wet areas such as kitchens, toilets, and bathrooms. This type of insulation is an alternative to traditional moisture insulators such as bitumen. The specific advantages of this product are low membrane thickness, high elasticity and flexibility, resistance to the cracks caused by deformations of building, perfect adhesion, applicability on floors and walls, easy and fast application.



Access Panels

K+ access Panels are available in different types and dimensions for installation and use in various drywall systems (ceiling and wall). Access panels can facilitate easy access to MEP facilities inside the wall or behind the ceiling.



Installation Tools

K+ tools include a wide range of applications. These tools have been designed specifically for transportation, cutting, installation and jointing and increase the work efficiency while enhancing installation quality in drywall systems.



4. Systems



Partition Systems

K+ partition systems are non-load bearing walls used for dividing the interior spaces of the building. These walls are composed of light-gauge steel profiles with U & C sections and the plaster board are installed in one or more layers to the framing by special screws. The joints between these boards are filled and covered by a special joint filler compound and tape providing a monolithic and integrated surface. The final surface, after being finished by K+ Mastik compound, can be painted, covered by wallpaper, and have ceramic tiles and other finishes. The cavity inside the wall provides possibility of using various types of thermal and acoustic insulation. Thus, it allows selection and access to the quantities related to building physics (such as acoustic performance, thermal performance, and fire resistance).



Lining Systems

K+ lining systems are a quick and efficient way of rebuilding the worn-out walls (without causing any damage), the lining of new masonry walls (thinning), and for building thermal and acoustic renovations. K+ lining systems can be applied in two types of with or without structures. In the non-structure type, a gypsum plate or composite board (gypsum plates with insulation layer) are directly attached to the background wall by a special adhesive called Boardfix.

In structured lining walls, gypsum plates are screwed on a metal substrate (connected to the wall or independent of it). The joints between the boards are filled by a special tape and joint filling compound providing a joint free and integrated final surface which is ready to be painted or being covered by wallpaper, tiles, and other finishes.





Suspended Ceiling

K+ suspended ceiling systems are available in two main types like below:

- Grid False Ceiling

K+ grid false ceiling is made of a grid of T-profile framings and gypsum or metal tiles. The above-mentioned grid is connected to the main ceiling by adjustable suspenders and the tiles are installed within this grid. Quick installation, easy access to the space behind the suspended ceiling and easy maintenance are among the properties of this system. This type of ceiling can be installed alone or in combination with a flat suspended ceiling system.



- Flat Suspended Ceiling

K+ flat suspended ceilings are lightweight ceilings that have standard technical specifications due to their industrial production and are a perfect alternative to non-standard false ceilings made by expanded metal lath and gypsum. The system is made of a lightweight steel framing (connected to the main ceiling) with plaster board in one or more layers fastened to the framing profiles by special screws. The joints between the boards are filled and covered by a special joint filler compound and reinforced with a tape which provides a monolithic surface ready to be painted. The open space behind the suspended ceiling allows the use of different types of thermal and acoustic insulation and makes it possible for accessing MEP facilities. The other advantages of this ceiling system include high architectural flexibility and construction of decorative suspended ceilings and the lack of need for advance forecast of hanging elements (similar to suspended ceilings with traditional masonry).



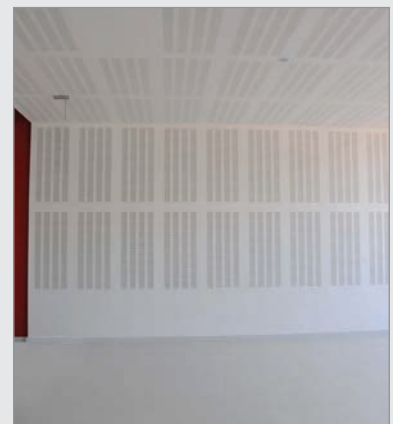
Fire Protection of Structural Members

One of the main weaknesses of steel structures is their low resistance against fire. Therefore, soon after the fire is set, these structures may become completely unstable and then collapse. According to national building regulations and standards, steel structures should be fireproof for a certain period of time. One of the functions of K+ fire resistant plasterboards (FR) and other boards like K+ fire and moisture proof (FM) is the protection of steel structures by coating beams and columns. In this structure, a lightweight steel structure is implemented around the beams and columns where plaster board are fixed onto the structure. In this way, a coating of fire resistant plasterboard surrounds the structure components which can create a resistance to 120 minutes for beams and 180 minutes for columns.



Acoustic Interior System

In order to design a comfortable place, it must have high acoustic values. Constructions designed with acoustic plaster board provide a comfortable environment with high acoustic values. Perforated design of acoustic plaster board improves the acoustic of the place with its high sound absorption value. In this way, acoustic plaster board controls the noise and echo duration in the environment. Therefore, talking in the environment becomes more clear to understand, individuals efficiency increases and their concentrations positively influenced.



5. Advantages of K+ systems

- Lightweight
- Speedy installation and ease of use
- Appropriate seismic performance
- Achieving of building physics requirements (such as acoustic, thermal performance, and fire resistance)
- Increasing the carpet area inside the building.
- Very high architectural flexibility
- Reducing structural costs due to the reduced dead load of building
- Assuring that the quality is achieved with the possibility of step by step monitoring
- Installation with high accuracy
- Low wastage
- Easy repair and renovation
- Easy access and maintenance of MEP facilities
- Implementing large areas with minimum materials (lower logistic costs)
- Easy and cheap transportation

- Standards & Technical Certification

K+ products and systems are fully in adherence to national technical standards e.g. ISIRI, technical approval of the Building and Housing Research Center and international standards such as TS, JIS, BS, ASTM, NF, DIN, EN. These standards and certificates can be provided upon the request of customers and can be also downloaded from our website.

- Usage in All Types of Buildings

Today's, the numerous advantages of drywall systems have made them being widely used in different projects and replaced by old-fashioned construction methods. These systems can be used in the projects with the following functions:

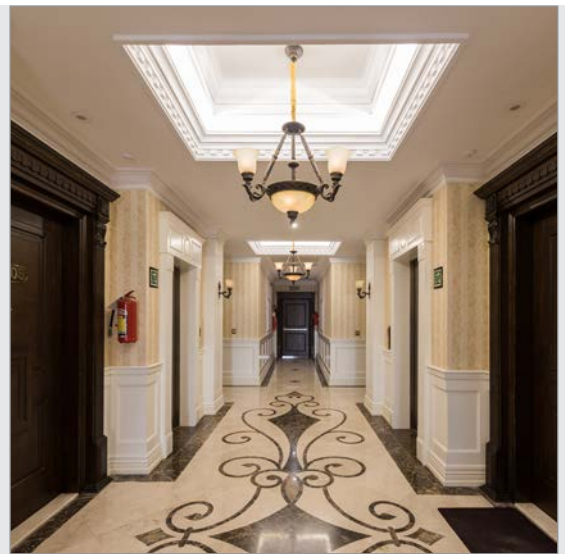
- Residential buildings
- Medical buildings
- Public and multipurpose buildings
- Business - office buildings
- Educational buildings
- Others



6. Technical Data Sheet

Technical Properties	Unit	RG				MR(H1)		
		9.5 mm	12.5 mm	15 mm	18 mm	12.5 mm	15 mm	18 mm
Type of board		GKB A				GKBI H1		
Dimension	Width	1200				2400 - 3000		
	Length	2400 - 3000						
Thermal conductivity (λ)	W/(m.k)							
Thermal resistance	(m ² .k)/w	0.04	0.05	0.06	0.07	0.05	0.06	0.07
Density	kg/m ³	770	625	800	810	690	800	810
Board weight	kg/m ²	7.30	7.80	12.00	14.60	8.60	12.00	14.60
Flexural breaking load (Longitudinal direction)	N	≥400	≥520	≥650	≥774	≥550	≥650	≥774
Water absorbtion	%	30 - 50				≤5		
Surface hardness	mm	-	19	-	-	19	-	-
Width dimensional tolerance		+0 / -4 mm				+0 / -4 mm		
Length dimensional tolerance		+0 / -5 mm				+0 / -5 mm		
Thickness dimensional tolerance		+0.5 / -0.5 mm				+0.5 / -0.5 mm		
Angularity dimensional tolerance		≤ 2.5 mm per m board width				≤ 2.5 mm per m board width		

MR(H2)			MR(H3)	FR			FM			Related standard
12.5 mm	15 mm	18 mm	12.5 mm	12.5 mm	15 mm	18 mm	12.5 mm	15 mm	18 mm	
GKBI H2			GKBI H3	GKF F			GKFI FH2			DIN 18180 EN 520 ISIRI 14818
1200 2400 - 3000			2400 3000	1200 2400 - 3000			1200 2400 - 3000			
0.25										ISIRI 14818
0.05	0.06	0.07	0.05	0.05	0.06	0.07	0.05	0.06	0.07	
690	800	810	625	810	800	810	800	800	810	EN 520 / ISIRI 14818
8.60	12.00	14.60	7.80	10.10	12.00	14.60	10.00	12.00	14.60	
≥550	≥650	≥774	≥550	≥550	≥650	≥774	≥550	≥650	≥774	
≤10			≤25							
18	-	-	18	16	-	-	15.50 mm	-	-	
+0 / -4 mm			+0 / -4 mm	+0 / -4 mm			+0 / -4 mm			EN 520
+0 / -5 mm			+0 / -5 mm	+0 / -5 mm			+0 / -5 mm			
+0.5 / -0.5 mm			+0.5 / -0.5 mm	+0.5 / -0.5 mm			+0.5 / -0.5 mm			
≤ 2.5 mm per m board width			≤ 2.5 mm per m board width	≤ 2.5 mm per m board width			≤ 2.5 mm per m board width			









The information included in this manual is based on the technical knowledge on the standards, tests, and conditions at the time of publication. The policy of KPlus Pars PJSC has always been in line with research and development and quality development of products. In this regard, the company reserves the right for itself to change the technical information of its products at any time. This manual is the most valid technical book in its field and therefore using its earlier versions is impossible. It should be noted that the latest version of technical manuals is always available on the website of the company and can be received by contacting the technical support unit. The information in this manual cannot be changed. In other words, any technical or legal comment by any natural or legal person for the correction or modification its contents are rejected, unless its written approval is already approved by the technical support unit of the KPlus Pars PJSC. All products of KPlus Pars PJSC are produced for a specific purpose and any interpretation or use of these products as well as inappropriate performance will not be in responsibility of this company.

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