



ORI®

a Composite Company

ORIGRID

PRODUCT CATALOGUE

The ORI group was founded in 1983 and has since risen to become one of Asia's leading manufacturers and fabrications of corrosion resistant fiberglass product. With advanced facilities at several sites in Indonesia, the ORI Group remains dedicated to being at the forefront in the world of Fiber Reinforced Plastics.

ORI Group offers an extensive range of Fiber Reinforced Plastic composite products incorporating many advantages compared to other alternative materials in terms of strength quality control. The ability to deliver on spec, on time and on budget has positioned ORI Group as manufacturer, not only of the highest quality products, but also of top quality results.

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Introduction

ORIGRID is an FRP grating system from Ori Group Composites that provides an efficient and cost effective solution for all flooring, walkways and decking areas requiring long term performance in aggressive and corrosive environments. Constructed from glass reinforced thermo-set resin, OriGRID is designed and manufactured with pultrusion process which provides structural integrity commonly associated with steel and aluminum, but with a greater advantage in corrosive situations.

Advantage

Chemical and Corrosion Resistance-ORIGRID uses premium grade resins containing a UV retardant agent and is reinforced with high strength continuous glass strands topped by surfacing tissue for optimum protection against corrosion and weathering. ORIGRID resists a wide range of aggressive acids, salts, alkalis and other chemical environments (see corrosion guide for further information).

High Strength to Weight Ratio

ORIGRID has a superior strength to weight ratio compared with steel or aluminum systems. It is highly resistant to fatigue, creep or permanent deformation. The highly efficient engineered load bearing bars are mechanically locked together, yielded into highly stable and high strength grating panels. Engineered in the shape of the load bar, ORIGRID offers higher loading capacity compared with molded type fiberglass grating systems.

Lightweight and Manageable

The pultruded fiberglass used in ORIGRID has a specific gravity one-fourth of steel and two-thirds of aluminum, which considerably simplifies the installation and handling process. Unlike metallic grating, ORIGRID grating can be easily cut on site by using handy tools.

Transparent To Radio Frequencies

ORIGRID does not interfere with electromagnetic and radio frequency transmissions, and therefore can be safely applied in towers and other structures without blocking radio signal transmissions.

Non-Conductive

ORIGRID can be safely used in electrical work areas or conditions where electrical shock may become an issue.

Fire Retardant

ORIGRID meets Class-1 Fire Resistance ASTM E-84 test methods suitable to be applied in hazardous areas.

Non-Skid Surface

ORIGRID has a tough profile that provides good skid-resistance in service. Silica quartz epoxy on its surface finish ensures the maximum skid-resistance for safety even in wet environments.

No more Maintenance

With its chemical & UV resistance properties and integrated color, ORIGRID significantly reduces long- term costs of maintenance.

CORROSION RESISTANCE GUIDE

The general guidelines presented in this table take into consideration the normal applications of OriGRID where exposure to harsh chemicals is limited to fumes or vapors and occasional splashes at ambient temperatures. This information is provided as a guide only since it is impossible to anticipate every conceivable application. For specific applications, which may fall outside the scope of these guidelines, it is recommended that the factory be consulted directly. Special applications may require a screening test of material samples in the chemical environment of interest.

Notes:

NR – indicates not recommended for use.

Chemical Environment	%wt	Temp °C		Chemical Environment	%wt	Temp °C	
		ISO	VINYL			ISO	VINYL
Acetic Acid	10	24 – 66		Kerosene		24	NR
Acetic Acid	50	24	66	Lactic Acid		24 – 66	NR
Acetic Acid	Glacial	NR	NR	Lime Slurry	Sat'd	24 – 66	NR
Acetone	Sat'd		24	Lithium Chloride	Sat'd	24 – 66	NR
Aluminium Chloride	Sat'd	24 – 66		Magnesium Salt		24 – 66	
Aluminium Hydroxide	Sat'd	24	66	Mercuric Chloride		24 – 66	
Aluminium Potassium Sulphate		24	66	Mercurous Chloride		24 – 66	
Aluminium Sulphate		24	66	Mercury		24 – 66	
Ammonia, Dry Gas			24 – 66	Methyl Alcohol		24	NR
Ammonia, Liquid		NR	NR	Methyl Ethyl Ketone		NR	NR
Ammonium Chloride	Sat'd	24	66	Mineral Oils		24	66
Ammonium Hydroxide	20	NR	66	Naptha		24	66
Ammonium Nitrate	Sat'd		24 – 66	Nickel Salt		24 – 66	
Ammonium Sulphate	Sat'd	24	66	Nitric Acid	0 – 10	NR	24 – 66
Amyl Alcohol		NR	66	Nitric Acid	> 10	NR	NR
Benzene		24	NR	Oleic Acid		24 – 66	
Benzene Sulfonic Acid	30	24	NR	Oxalic Acid		24 – 66	
Benzoic Acid	Sat'd	24 – 66		Perchloroethylene		24 – 66	
Butyl Alcohol		NR	24	Phenol	0 – 2	NR	24
Calcium Salts		24	66	Phenol	> 2	NR	NR

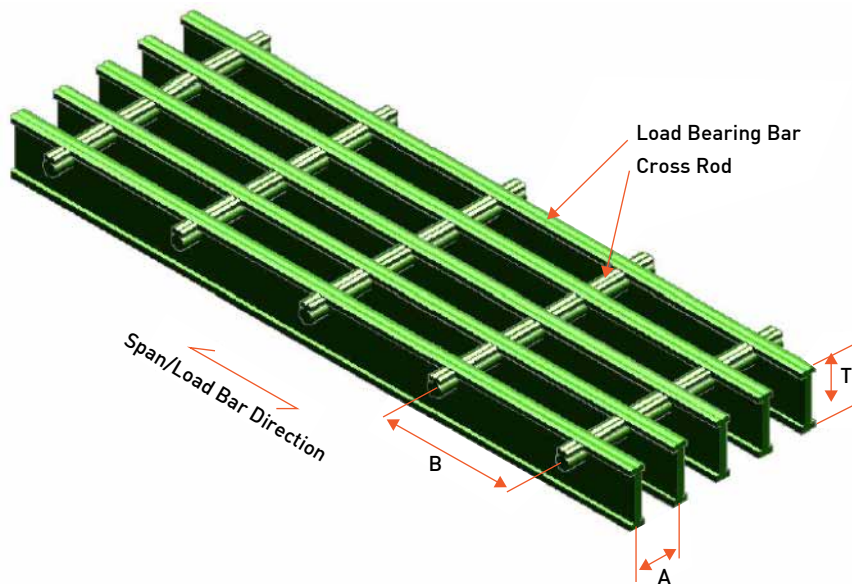
Chemical Environment	%wt	Temp °C		Chemical Environment	%wt	Temp °C	
		ISO	VINYL			ISO	VINYL
Carbon Disulfide		NR	NR	Phosphoric Acid		24 - 66	
Carbonic Acid	Sat'd	24	NR	Potassium Carbonate	0 - 15		24 - 66
Carbon Tetrachloride		24	66	Potassium Carbonate	15 Sat'd	NR	NR
Chlorine, Dry Gas			24 - 66	Potassium Hydroxide		NR	24
Chlorine, Wet Gas			24 - 66	Potassium Permanganate		24	66
Chlorine Dioxide			24 - 66	Potassium Persulfate		NR	24
Chlorine Water		24	NR	Potassium Salts		24 - 66	
Chlorobenzene		NR	NR	Silver Nitrate		24 - 66	
Chromic Acid		NR	24 - 66	Sodium Bicarbonate		24	66
Citric Acid	5	24	66	Sodium Bisulfate		24	66
Copper Sulfate	Sat'd	24	66	Sodium Carbonate		24	66
Crude Oil, Sour		24	66	Sodium Chloride		24 - 66	
Diesel Fuel		24	66	Sodium Dichromate		24	66
Ethyl Alcohol		NR	NR	Sodium Hydroxide		NR	24 - 66
Ethylene Glycol		24	66	Sodium Hypochlorite		24	66
Fatty Acids		24	66	Sodium Hypochlorite	0 - 5	NR	24
Ferric Acids		24 - 66		Sodium Hypochlorite	5 - 10	NR	24
Ferric Salts		24 - 66		Sodium Nitrate	→ 10	NR	24 - 66
Ferrous Sulfate		24 - 66		Sodium Silicate		24	66
Fluoboric Acid		24	66	Sodium Sulfate	← 6	24	66
Fluosilicic Acid	Sat'd	NR	24 - 66	Sodium Sulfide		NR	24 - 66
Formic Acid, Vapour	35	24 - 66	NR	Sodium Thiosulfate		NR	24
Fuel Oil		24 - 66		Styrene		NR	NR
Gasoline		NR	24	Sulfure Dioxide		NR	24 - 66
Glycerine		24	66	Sulfuric Acid, Vapor		24 - 66	
Hydrochloric Acid		24	66	Sulfurous Acid		NR	24
Hydrochloric Acid	0 - 10	NR	24 - 66	Tannic Acid		24 - 66	
Hydrofluoric Acid	10-36	NR	24	Tartaric Acid		24 - 66	
Hydrogen Chloride		24	66	Toluene		NR	NR
Hydrogen Peroxide		NR	24	Trisodium Phosphate		24	66
Hydrogen Sulfide		NR	24 - 66	Water, City		24 - 66	

Typical Mechanical Properties of Bearing Bars

Properties	Test Method	Unit	Value
Tensile Strength	ASTM D 638	Mpa	400~500
Tensile Modulus	ASTM D 638	Mpa	16,000~18,000
Flexural Strength	ASTM D 790	Mpa	400~450
Flexural Modulus	ASTM D 790	Mpa	16,000~19,000
Compressive Strength	ASTM D 695	Mpa	300~350
Izod Impact Notch	ASTM D 256	J/m	2,700~2,900
Hardness (minimum)	ASTM D 2583	Barcol	45
Specific Gravity	ASTM D 792	kg/dm3	1.9~2.0
Water Absorption	ASTM D 570	%	0.8 (max)

OriGRID Grating Physical Properties

SERIES	GRATING Thickness, T (mm)	Load Bar Pitch, A (mm)	Cross Rod Pitch, B (mm)	Open Area (%)	Unit Weight (kg/m ²)
G-2500	25	30	150	30	11
G-4000	40	30	150	30	18
G-5000	50	30	150	30	22



Standard panel sizes:
900W x 5850L
990W x 5850L

OriGRID G-2500

Span (mm)	UNIFORM LOAD (kg/m ²)																		
	100	150	200	300	400	500	600	800	900	1000	1200	1400	1600	2000	3000	4000	5000	8000	9000
	DEFLECTION δ (mm)																		
250	0.003	0.005	0.006	0.009	0.012	0.015	0.018	0.024	0.027	0.029	0.035	0.041	0.047	0.059	0.088	0.117	0.146	0.234	0.263
500	0.052	0.075	0.098	0.145	0.192	0.239	0.285	0.379	0.425	0.472	0.565	0.659	0.752	0.939	1.406	1.872	2.339	3.740	4.206
750	0.262	0.380	0.499	0.735	0.971	1.208	1.444	1.917	2.153	2.389	2.862	3.335	3.807	4.753					
1000	0.829	1.203	1.576	2.323	3.070	3.817	4.564	6.057											
1250	2.024	2.936	3.848	5.671	7.495														
1500	4.197	6.088	7.978																
1750	7.776																		

Span (mm)	UNIFORM LOAD (kg)																		
	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500
	DEFLECTION δ (mm)																		
250	0.04	0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19	0.21	0.22	0.24	0.26	0.28	0.30	0.32	0.34	0.36	0.37
500	0.15	0.23	0.30	0.38	0.45	0.53	0.60	0.68	0.75	0.83	0.90	0.98	1.05	1.13	1.20	1.27	1.35	1.42	1.50
750	0.36	0.53	0.70	0.87	1.03	1.20	1.37	1.54	1.71	1.87	2.04	2.21	2.38	2.55	2.71	2.88	3.05	3.22	3.39
1000	0.68	0.98	1.28	1.58	1.87	2.17	2.47	2.77	3.07	3.37	3.67	3.97	4.26	4.56	4.86	5.16	5.46	5.76	6.06
1250	1.13	1.60	2.07	2.53	3.00	3.47	3.94	4.40	4.87	5.34	5.80	6.27	6.74						
1500	1.76	2.43	3.10	3.78	4.45	5.12	5.79	6.47											
1750	2.60	3.52	4.43	5.35	6.26														

OriGRID G-4000

Span (mm)	UNIFORM LOAD (kg/m ²)																		
	100	150	200	300	400	500	600	800	900	1000	1200	1400	1600	2000	3000	4000	5000	8000	9000
	DEFLECTION δ (mm)																		
250	0.003	0.004	0.005	0.007	0.009	0.011	0.013	0.018	0.020	0.022	0.027	0.031	0.035	0.044	0.066	0.088	0.109	0.175	0.197
500	0.041	0.059	0.076	0.111	0.146	0.181	0.216	0.285	0.320	0.355	0.425	0.495	0.565	0.704	1.053	1.402	1.751	2.798	3.147
750	0.208	0.297	0.385	0.562	0.739	0.915	1.092	1.445	1.622	1.799	2.152	2.505	2.895	3.565					
1000	0.659	0.938	1.217	1.776	2.334	2.892	3.451	4.568											
1250	1.609	2.290	2.972	4.335	5.698														
1500	3.336	4.749	6.162																
1750	6.180																		

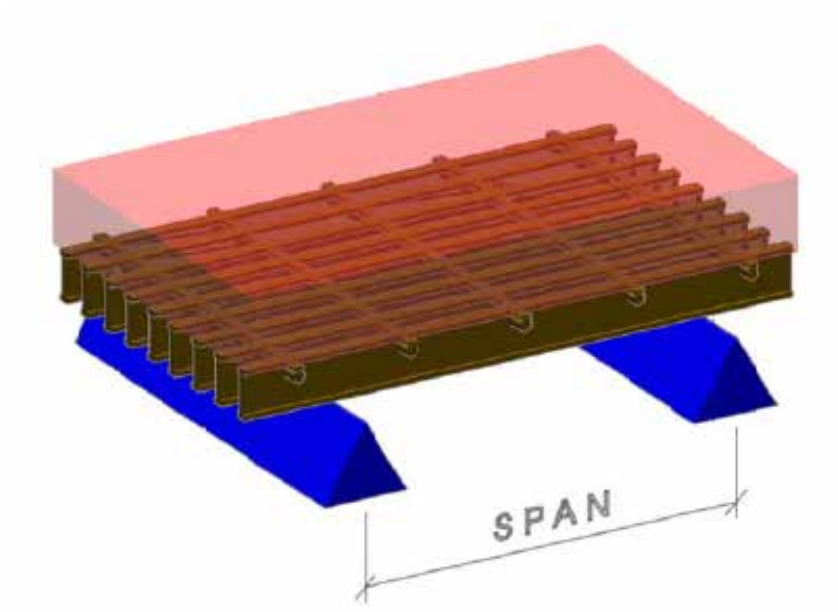
Span (mm)	UNIFORM LOAD (kg)																		
	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500
	DEFLECTION δ (mm)																		
250	0.03	0.04	0.06	0.07	0.08	0.10	0.11	0.13	0.14	0.15	0.17	0.18	0.20	0.21	0.22	0.24	0.25	0.27	0.28
500	0.12	0.17	0.23	0.29	0.34	0.40	0.45	0.51	0.56	0.62	0.68	0.73	0.79	0.84	0.90	0.96	1.01	1.07	1.12
750	0.28	0.41	0.53	0.66	0.79	0.91	1.04	1.16	1.29	1.41	1.54	1.67	1.79	1.92	2.04	2.17	2.29	2.42	2.54
1000	0.55	0.77	0.99	1.22	1.44	1.66	1.89	2.11	2.33	2.56	2.78	3.00	3.23	3.45	3.67	3.90	4.12	4.34	4.57
1250	0.94	1.29	1.64	1.99	2.34	2.69	3.04	3.39	3.74	4.08	4.43	4.78	5.13						
1500	1.51	2.02	2.52	3.02	3.52	4.03	4.53	5.03											
1750	2.31	2.99	3.68	4.36	5.05														

OriGRID G-5000

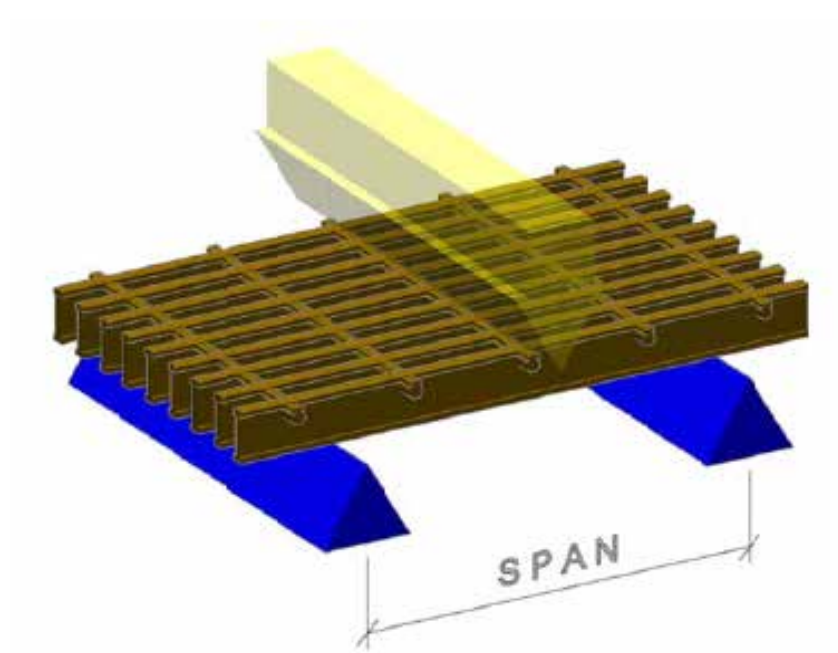
Span (mm)	UNIFORM LOAD (kg/m ²)																		
	100	150	200	300	400	500	600	800	900	1000	1200	1400	1600	2000	3000	4000	5000	8000	9000
	DEFLECTION δ (mm)																		
250	0.003	0.004	0.005	0.007	0.009	0.011	0.013	0.017	0.019	0.021	0.025	0.029	0.033	0.042	0.062	0.083	0.104	0.166	0.186
500	0.040	0.057	0.073	0.106	0.139	0.172	0.205	0.217	0.305	0.338	0.404	0.470	0.536	0.668	0.998	1.328	1.659	2.649	2.980
750	0.204	0.288	0.371	0.538	0.706	0.873	1.040	1.374	1.542	1.709	2.043	2.378	2.712	3.381					
1000	0.645	0.909	1.173	1.702	2.230	2.758	3.287	4.344											
1250	1.574	2.219	2.864	4.154	5.444														
1500	3.264	4.601	5.939																
1750	6.046																		

Span (mm)	UNIFORM LOAD (kg)																		
	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500
	DEFLECTION δ (mm)																		
250	0.03	0.04	0.05	0.07	0.08	0.09	0.11	0.12	0.13	0.15	0.16	0.17	0.19	0.20	0.21	0.23	0.24	0.25	0.26
500	0.11	0.17	0.22	0.27	0.32	0.38	0.43	0.48	0.54	0.59	0.64	0.69	0.75	0.80	0.85	0.91	0.96	1.01	1.06
750	0.27	0.39	0.51	0.63	0.75	0.87	0.99	1.11	1.23	1.34	1.46	1.58	1.70	1.82	1.94	2.06	2.18	2.03	2.41
1000	0.54	0.75	0.96	1.17	1.38	1.60	1.81	2.02	2.23	2.44	2.65	2.86	3.08	3.29	3.50	3.17	3.92	4.13	4.34
1250	0.94	1.27	1.60	1.94	2.27	2.60	2.93	3.26	3.59	3.92	4.25	4.58	4.91						
1500	1.54	2.02	2.49	2.97	3.44	3.92	4.39	4.87											
1750	2.38	3.03	3.68	4.33	4.97														

UNIFORM LOAD



CONCENTRATED LOAD

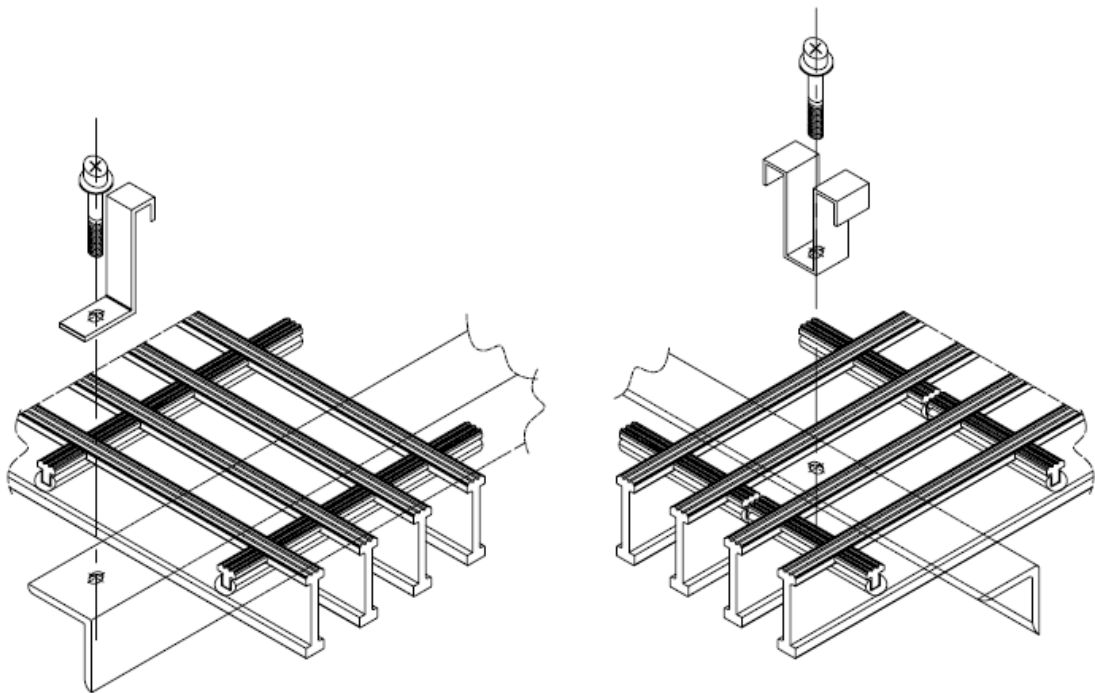


The Fasteners:

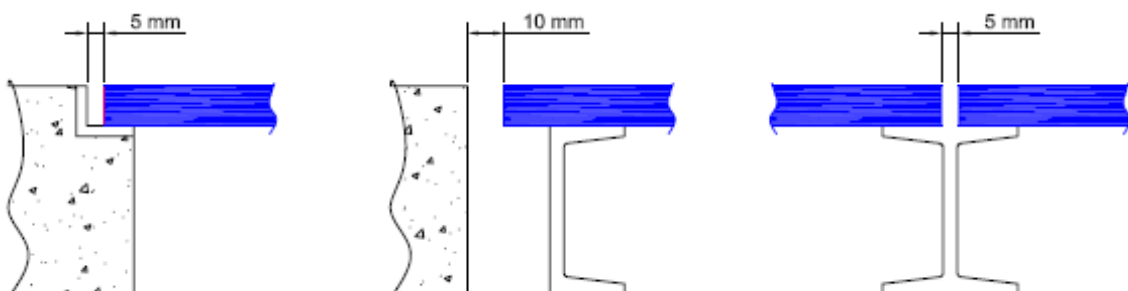
All fasteners are stainless steel SUS 304 grade.

Type L – typical used for moderate load.

Type M – typical used for restraint movement in any direction and also could be used to fix two panel.



Recommended Clearances in installation:



The range of applications of **ORIGRID** products is very versatile, due to their comprehensive range of advantages.

Industry

- Food and beverage industry
- Paper and wood pulp industry
- Pharmaceutical industry
- Vehicle and aeronautical construction
- Synthetic and rubber industry
- Offshore plants
- Plants for drinking and waste water conditioning
- Naval and shipyards
- Transportation
- Textile fibre and textile paper industry
- Pickling and galvanizing plants
- Food processing industry
- And many others

Application areas

- Platforms, landing and walkways
- Stair treads
- Ramps
- Channels, pists and shaft coverings
- Production and transfer streets
- Gutter covering
- Shielding of danger areas
- Sewage works
- Carwash
- Chloride, bleaching and filter rooms
- Storage of chemical raw materials
- Kitchens
- And many others

