



# WALCOOM

Walcoom Corporation



## DECORATIVE EXPANDED METAL

[www.walcoom.com](http://www.walcoom.com)



## HOW IS EXPANDED METAL MANUFACTURED?

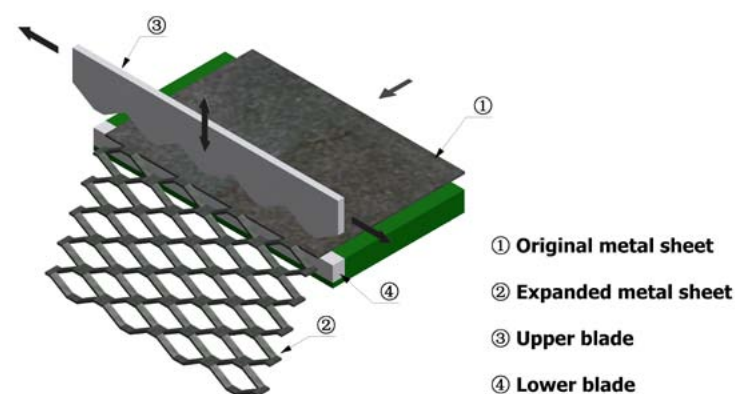
Expanded metal mesh is manufactured from solid sheets/coils of stainless steel, aluminum, carbon steel or other alloys that can be expanded.

The sheets/coils are fed into the expanding machine, and the precision die cuts and stretches the metal in a single operation. Then the material is sheared and stretched into a particular pattern with uniform opening sizes.

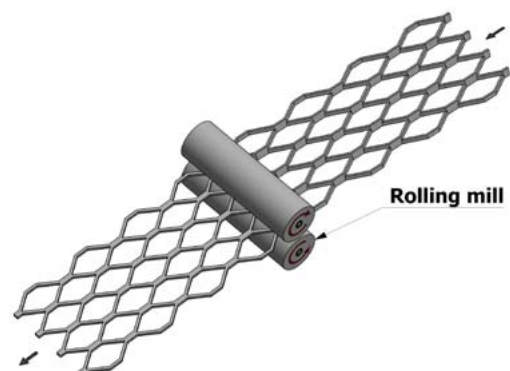
The metal sheet can be expanded up to ten times its original width, and the final product is lighter per meter and stronger per kilogram than its original sheet. No material is lost in the manufacturing process. The expanded metal mesh won't unravel because of its strong material properties. Even if the finished metal sheet is cut at one or more points, the remaining strand intersections can hold the sheet together.

## Five steps for the manufacturing process

1. The metal sheet advances between the blades one strand width beyond the lower.
2. The upper blade descends to form one half of the diamond design.
3. The upper blade ascends to its original starting and transverses shift one half of diamond to the side as the metal sheet advances another strand width passing the edge of the lower blade.
4. The upper blade descends again to form another row of half diamonds to complete a full diamond pattern.
5. The upper blade ascends again to its original starting position, and the cycle continues until the sheet of expanded metal is complete.



**Manufacturing process - raised expanded metal**



**Roll flattening - flattened expanded metal**

# DECORATIVE EXPANDED METAL

## EXPANDED METAL TERMINOLOGY

### Raised expanded metal

Also named standard expanded metal. It is a finished product as it comes from the press. The raised configuration adds rigidity and anti-slip resistance to the mesh.

### Flattened expanded metal

Flattened expanded metal is manufactured by passing the standard expanded metal through a cold roll reducing mill, providing a flattened surface and reducing thickness.

### Short way of design (SWD)

The length of short diamond diagonal from one pitch point center to another pitch point center.

### Long way of design (LWD)

The length of long diamond diagonal from one pitch point center to another pitch point center.

### Short way of opening (SWO)

The length of short diamond diagonal.

### Long way of opening (LWO)

The length of long diamond diagonal.

### Strands

The sides of expanded metal design.

### Bond

The solid intersection of two strands.

### Strand thickness

Thickness of the metal that to be expanded.

### Strand width

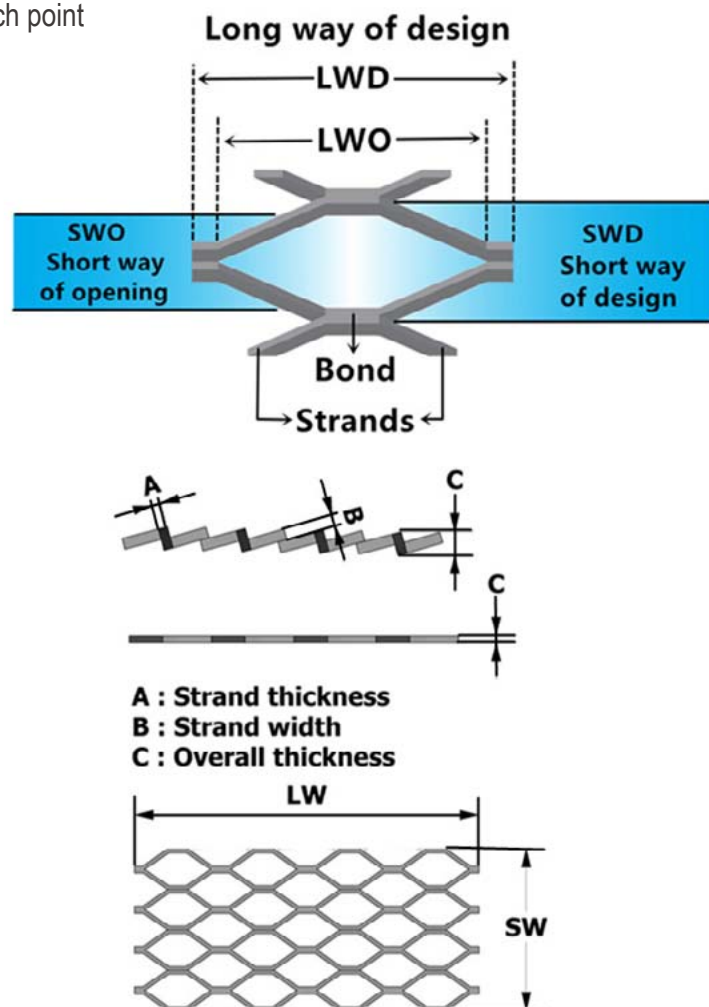
Metal plate length for making one strand.

### LW

Long way of expanded metal sheet.

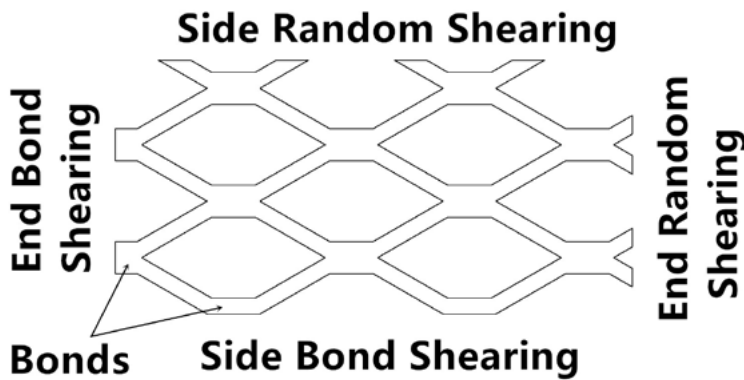
### SW

Short way of expanded metal sheet.



# DECORATIVE EXPANDED METAL

## SHEARING METHODS



### END SHEARING

- End bond shearing

One end is cut on the bond parallel to the SWD, the other end usually has open diamonds.

- End random shearing

The shearing direction is parallel to the SWD.

The end random cut normally leaves open diamonds at the ends.

### SIDE SHEARING

- Side bond shearing

Side bond cut is made along the length of the metal sheet on the center line of the bond over the specific width.

- Side random shearing

Side random shearing is cut that is parallel to the LWD dimension of the metal sheet, leaving opening diamonds.

## ORDERING PROCEDURE

Give complete style specifications to avoid possible error when ordering expanded metals.

### When Ordering Expanded Metals Please State:

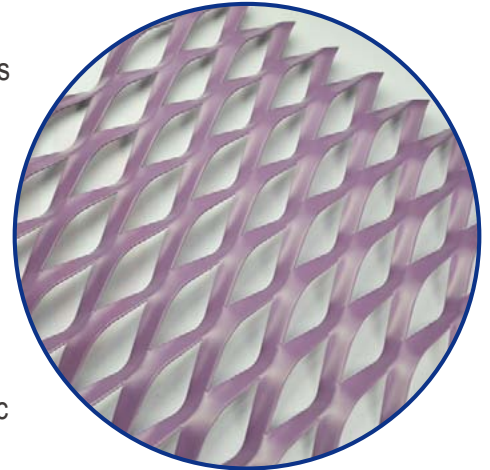
1. Quantity of sheets required.
2. Type of material: Aluminum, carbon steel, stainless steel, or galvanized.
3. Thickness or gauge of material.
4. Standard or flattened.
5. Mesh reference.
6. Sheet size (list SW first and then LW). Example: 4' SW × 8' LW.
7. Tolerances (if required).

# DECORATIVE EXPANDED METAL

## "Decorative expanded metal offers aesthetic appeal solution in your architectural and decorative demands."

**Expanded metal** is a versatile product that has countless applications throughout industry. Made from various materials, it is rigid, non-ravel piece of metal that is slit and stretched in the expanding process, making it greater strength to weight ratio than solid sheet steel.

Expanded metal comes in four basic types: standard expanded metal, flattened expanded metal, decorative expanded metal and expanded metal grating. The versatility of expanded metal makes it ideal for industrial, commercial and domestic applications.



Decorative expanded metal is favored by more and more architectural designers as mechanical requirements in design are not the only things to be concerned, aesthetic appeal of the product takes more predominance.

### Features of decorative expanded metal

- Openings permit free flow of light, heat, sound & air.
- It won't unravel when cut, unlike woven wire mesh.
- Available in a variety of mesh configurations and decorative patterns.
- A wide range of colours and openings.
- Cost effective and environmentally friendly.
- Raised surface is slip resistance and also ideal for walkways.
- Light weight is ideal for outer wall hanging
- Durability and low maintenance.

### Specification

- **Materials:** mild steel, stainless steel, aluminum; precious materials such as brass, copper, titanium and platinum are also available.
- **Surface treatment:** galvanizing, painting, powder coating, polishing, anodizing, etc.
- **Hole patterns:** diamond, hexagonal and customized patterns against order.
- **Sheet width:** 2' – 8'.
- **Sheet length:** 2' – 10'.

# DECORATIVE EXPANDED METAL

## RAISED EXPANDED METAL

### Material – Aluminum

Style	Overall thickness (inch)	Strand width (inch)	Sizes of design (inch)		Sizes of openings (inch)		Open area (%)
			LWD	SWD	LWO	SWO	
3/16" .032	0.068	0.032	0.125	0.207	0.437	0.166	52
1/2" .051	0.158	0.051	1.200	0.500	0.937	0.375	70
1/2" .081	0.186	0.081	1.200	0.500	0.938	0.375	60
3/4" .051	0.200	0.051	2.000	0.923	1.175	0.813	90
3/4" .064	0.200	0.064	2.000	0.923	1.660	0.823	75
3/4" .081	0.305	0.081	2.000	0.923	1.688	0.750	74
3/4" .081L	0.200	0.081	2.000	0.923	1.680	0.750	76
3/4" .081H	0.300	0.081	2.000	0.923	1.688	0.750	69
3/4" .125	0.305	0.169	2.000	0.923	1.688	0.687	68
3/4" .188	0.400	0.188	2.000	0.923	1.350	0.590	61
1 1/2" .051	0.200	0.051	3.000	1.330	2.400	1.225	88
1 1/2" .081	0.240	0.081	3.000	1.333	2.500	1.187	85
1 1/2" .125	0.300	0.125	3.000	1.333	2.500	1.187	79

### Material – Stainless steel 304

Style	Overall thickness (inch)	Strand width (inch)	Sizes of design (inch)		Sizes of openings (inch)		Open area (%)
			LWD	SWD	LWO	SWO	
1/2" #20	0.164	0.080	1.200	0.500	0.937	0.437	70
1/2" #18	0.164	0.087	1.200	0.500	0.938	0.438	77
1/2" #16	0.164	0.087	1.200	0.500	0.938	0.438	70
1/2" #13	0.225	0.119	1.200	0.500	0.875	0.313	58
3/4" #18	0.200	0.106	2.000	0.923	1.750	0.813	89
3/4" #16	0.200	0.106	2.000	0.923	1.750	0.813	85
3/4" #13	0.200	0.107	2.000	0.923	1.688	0.750	78
3/4" #9	0.300	0.161	2.000	0.923	1.563	0.688	67
1 1/2" #16	0.220	0.115	3.000	1.333	2.750	1.250	89
1 1/2" #13	0.220	0.116	3.000	1.333	2.625	1.250	86
1 1/2" #9	0.280	0.155	3.000	1.333	2.500	1.125	75

# DECORATIVE EXPANDED METAL

## Material – Carbon steel

Style	Overall thickness (inch)	Strand width (inch)	Sizes of design (inch)		Sizes of openings (inch)		Open area (%)
			LWD	SWD	LWO	SWO	
3/16" #22	0.086	0.050	0.500	0.200	0.437	0.166	60
3/16" #20	0.090	0.050	0.500	0.200	0.437	0.166	57
1/4" #20	0.125	0.073	1.000	0.255	0.719	0.172	45
1/4" #18	0.125	0.073	1.000	0.255	0.719	0.172	43
5/6" #18	0.170	0.094	1.000	0.333	0.688	0.188	60
1/2" #20	0.124	0.072	1.200	0.500	0.938	0.438	80
1/2" #18	0.155	0.088	1.200	0.500	0.938	0.438	77
1/2" #16	0.157	0.086	1.200	0.500	0.938	0.375	71
1/2" #13	0.182	0.096	1.200	0.500	0.938	0.313	58
3/4" #16	0.186	0.099	2.000	0.923	1.750	0.813	85
3/4" #13	0.195	0.096	2.000	0.923	1.688	0.750	78
3/4" #10	0.282	0.144	2.000	0.923	1.625	0.750	77
3/4" #9	0.300	0.148	2.000	0.923	1.563	0.688	68
1" #16	0.182	0.096	2.400	1.090	2.063	1.000	86
1" #14	0.225	0.122	2.400	1.090	1.563	0.875	75
1" #12	0.225	0.109	2.400	1.090	1.563	0.907	78
1" #10	0.375	0.155	2.400	1.090	1.563	0.750	62
1" #7	0.550	0.275	2.400	1.090	1.563	0.576	45
1 1/2" #18	0.140	0.067	3.000	1.330	2.625	1.313	93
1 1/2" #16	0.211	0.107	3.000	1.330	2.625	1.250	89
1 1/2" #14	0.242	0.097	3.000	1.330	2.625	1.188	85
1 1/2" #13	0.215	0.104	3.000	1.330	2.500	1.188	86
1 1/2" #12	0.225	0.109	3.000	1.330	2.375	1.112	83
1 1/2" #10	0.289	0.137	3.000	1.330	2.500	1.188	85
1 1/2" #9	0.295	0.142	3.000	1.330	2.375	1.125	75
1 1/2" #6	0.425	0.201	3.000	1.330	2.313	1.000	63
2" #10	0.312	0.164	4.000	1.850	3.438	1.625	86
2" #9	0.325	0.149	4.000	1.850	3.375	1.563	86

# DECORATIVE EXPANDED METAL

## FLATTENED EXPANDED METAL

### Material – Aluminum

Style	Overall thickness (inch)	Strand width (inch)	Size of design (inch)		Size of openings (inch)		Open area (%)
			LWD	SWD	LWO	SWO	
3/16" .032	0.028	0.060	0.218	0.438	0.078	0.313	43
1/2" .051	0.040	0.091	0.500	1.270	0.313	1.000	57
1/2" .081	0.060	0.103	0.500	1.270	0.313	1.000	57
3/4" .051	0.040	0.114	0.923	2.120	0.750	1.813	73
3/4" .064	0.051	0.122	0.923	2.130	0.750	1.780	72
3/4" .081L	0.070	0.134	0.923	2.215	0.687	1.750	70
3/4" .081H	0.070	0.172	0.923	2.120	0.688	1.750	63
3/4" .125	0.095	0.180	0.923	2.120	0.625	1.750	55
3/4" .188	0.170	0.205	0.923	2.130	0.484	1.593	60
1 1/2" .051	0.040	0.120	1.330	3.090	1.095	2.750	80
1 1/2" .081	0.055	0.144	1.333	3.150	1.063	2.750	75
1 1/2" .125	0.080	0.190	1.333	3.150	1.000	2.750	65

### Material – Stainless steel 304

Style	Overall thickness (inch)	Strand width (inch)	Size of design (inch)		Size of openings (inch)		Open area (%)
			LWD	SWD	LWO	SWO	
1/2" #20	0.033	0.091	0.500	1.260	0.312	1.000	60
1/2" #18	0.040	0.093	0.500	1.260	0.313	1.000	68
1/2" #16	0.050	0.093	0.500	1.260	0.313	1.000	60
1/2" #13	0.080	0.132	0.500	1.260	0.250	1.000	56
3/4" #18	0.040	0.118	0.923	2.100	0.750	1.813	77
3/4" #16	0.050	0.118	0.923	2.100	0.750	1.813	75
3/4" #13	0.070	0.120	0.923	2.100	0.625	1.750	74
3/4" #9	0.119	0.160	0.923	2.100	0.563	1.688	64
1 1/2" #16	0.050	0.124	1.330	3.150	1.063	2.750	83
1 1/2" #13	0.079	0.124	1.330	3.150	1.000	2.625	79
1 1/2" #9	0.119	0.165	1.330	3.150	0.938	2.625	76



# DECORATIVE EXPANDED METAL

## Material – Carbon steel

Style	Overall thickness (inch)	Strand width (inch)	Size of design (inch)		Size of openings (inch)		Open area (%)
			LWD	SWD	LWO	SWO	
3/16" #24	0.019	0.057	0.200	0.520	0.085	0.459	41
3/16" #22	0.024	0.057	0.200	0.520	0.085	0.459	40
3/16" #20	0.029	0.057	0.200	0.520	0.085	0.459	39
1/4" #20	0.030	0.086	0.255	1.030	0.094	0.688	47
1/4" #18	0.040	0.086	0.255	1.030	0.094	0.688	40
5/6" #18	0.040	0.099	0.333	1.030	0.172	0.813	45
1/2" #20	0.029	0.070	0.500	1.260	0.375	1.000	72
1/2" #18	0.039	0.109	0.500	1.260	0.281	1.000	69
1/2" #16	0.050	0.103	0.500	1.260	0.250	1.000	60
1/2" #13	0.070	0.122	0.500	1.260	0.250	1.000	57
3/4" #16	0.048	0.115	0.923	2.100	0.750	1.750	75
3/4" #14	0.061	0.119	0.923	2.100	0.688	1.813	70
3/4" #13	0.070	0.119	0.923	2.100	0.688	1.782	73
3/4" #10	0.070	0.160	0.923	2.100	0.637	1.755	68
3/4" #9	0.120	0.164	0.923	2.100	0.563	1.688	63
1" #16	0.048	0.115	1.090	2.560	0.875	2.250	77
1" #14	0.070	0.125	1.090	2.560	0.790	2.000	80
1" #12	0.085	0.156	1.090	2.560	0.785	2.000	74
1" #10	0.110	0.160	1.090	2.560	0.750	1.900	58
1 1/2" #16	0.048	0.123	1.330	3.200	1.063	2.750	82
1 1/2" #14	0.060	0.138	1.330	3.200	1.063	2.750	82
1 1/2" #13	0.070	0.138	1.330	3.200	1.063	2.750	80
1 1/2" #12	0.085	0.116	1.330	3.200	1.296	2.625	85
1 1/2" #10	0.110	0.188	1.330	3.200	0.900	2.560	63
1 1/2" #9	0.110	0.175	1.330	3.200	1.000	2.563	77

# DECORATIVE EXPANDED METAL

## Application

The versatility of expanded metal makes it have countless applications in architectural, commercial, industrial, building and other industries, ideal decorative applications include:

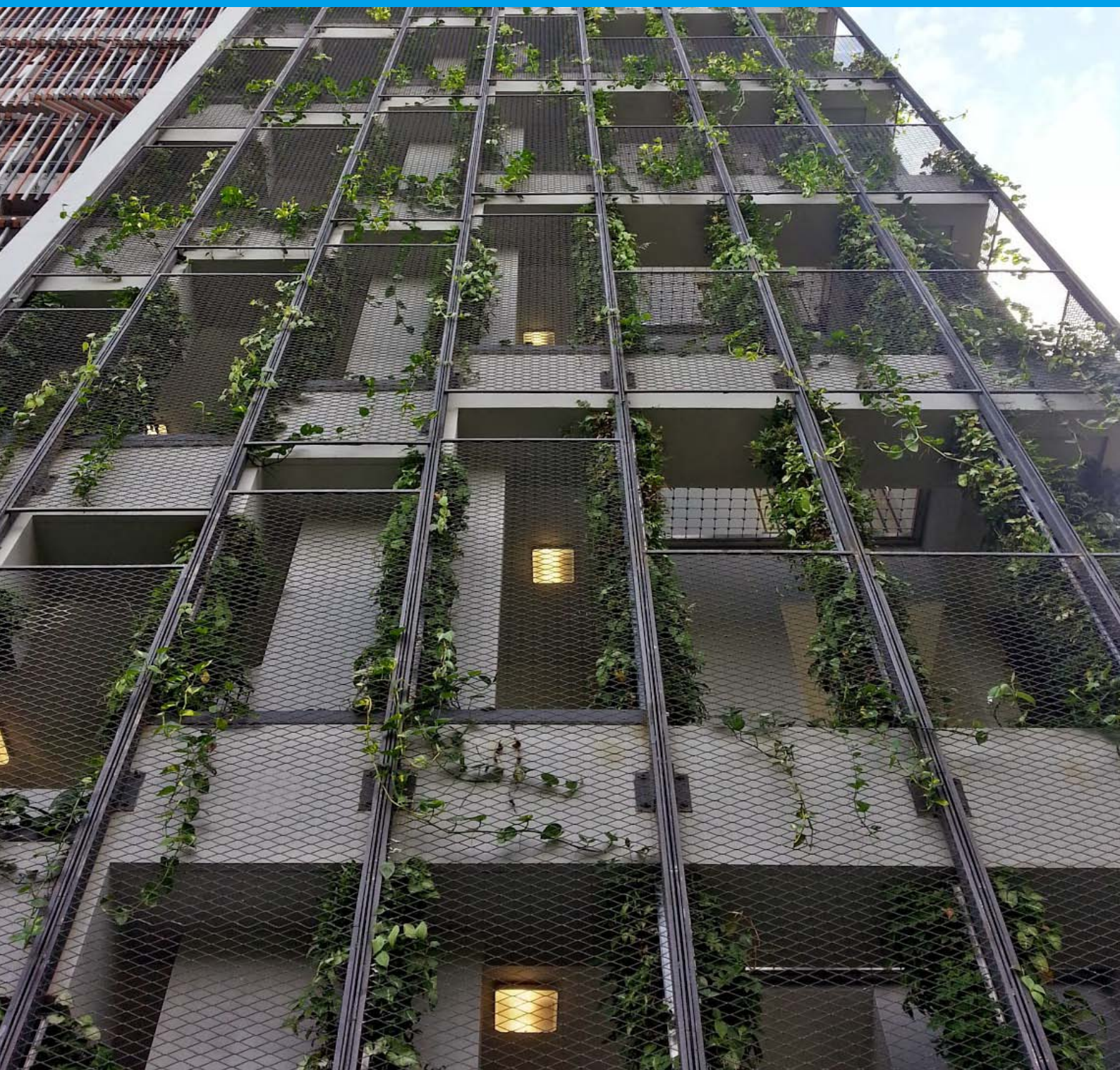
- Cladding • Balustrades • Room decoration • Patio furniture • Fencing • Interior partitions
- Infill panels • Machine guards • Sun screening • Exhibition stand • Air intake screens
- Ceilings • Transportation shelters • Speaker grilles





# DECORATIVE EXPANDED METAL

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