F&S

F&S Forms & Surfaces
Waterproofers (P)Ltd.

Forms & Surfaces Waterproofers Pvt Ltd have at their command
a group of skillful and dedicated workforce who have performed
to the best of their capability and at times, beyond the call of duty

- *Amit Sharma (ONDEO Degremont Ltd)*

ABOUT US

Forms and Surfaces Waterproofers Pvt Ltd constituted in the 1980's is the pioneer contractor, service provider of certified Waterproofing of Terrace, Basement Sunken Area, Swimming Pool, Sump and Waterproofing Overhead Tanks. We present modern services to strengthen columns, beams, performing soil stabilization works and all types of repair and rehabilitation works like sealants, cementations, waterproofing materials, caulking guns, etc. for the construction industry.

Our endeavour is to provide expert solutions for the various needs using high tech equipment and cutting edge supplies with adequate provisions for a safe, secure environment having no impact on quality of works undertaken. Certified for our exemplary services by our customers we continue to explore new possibilities with the opportunities as emerging in the industry. With a clientele including the Indian Air force, Larsen & Toubro, DLF to name a few; each project has brought with it a sense of accomplishment and satisfaction completing them in record time and as quoted by Amit Sharma of ONDEO Degremont Ltd to the "best of (their) our capability and at times, beyond the call of duty".

Innovation has been the strong point of our emergence in the market as one of the best service providers in our domain; with manpower sourcing from multi-cultural backgrounds our colleagues are well equipped to meet the demands of the various works as undertaken, ensuring and exceeding expectations while maintaining the highest quality.

The first to use polysulphide sealants for the Delhi Mathura concrete highway (under IRCON) and IAF runways (Adampur), by availing the best resources we have always maintained a high level of integrity and initiated the most advanced approach as required to meet the growing wants in the field of infra-structural development today.

We strive to meet all the individual needs and requirements of our customers and are proud of our integrity, professionalism and commitment towards excellence.

MD's Message

"Excellence is the aspect our enterprise has always pursued and attained, be it management or customers and more importantly in all the endeavours past, present or the continuing future. From the moment of conception to the aspiration, each and every one of our ventures, goals and expectations are achieved through our carefully speculated measures.

India with its unprecedented growth has been a point and mark of our evolution from local, national to global markets. By always developing and maintaining the integrity of our work we have paved not just new industry values but also long standing goodwill. Initiating and adapting the latest available technology along with a specialised group of experts is what keeps us prepared and ahead in our standards.

All our customers, contractors and employees are treated with the upmost trust and honesty which makes Forms & Surfaces waterproofers a complete unit that not only provides services but in a many ways contribute efficiency and principles as required in the global scenario today."

Projects

L&T

Along with L&T a technology, engineering, construction and manufacturing company, one of the largest, most respected companies in India's private sector we have completed various projects and have ongoing projects, some of the works included:

- Shastri park DMRC building
- ITC haridwar factory
- Honda Siel car factory Bhiwadi which included all major water proofing works
- Bangalore international airport 1.6lac meters total joint sealant application including construction joints
- Hyderabad international airport 1.5 lac meter. Rcc repair was done in the above airport to prevent further cracks on the surface using Low viscous epoxy grout
- Approx 2.5 lac meter joint sealant and construction joint work done in Delhi international airport
- Under ground water tanks at terminal2 in Delhi airport and lift pits at the new terminal

- Hyundai R&D center in Hyderabad
- Serene county L&T info city Housing colony
- Cuddapah Zuari cement factory (underground hot air tunnels)
- IntelCity IT park
- Phoenix, UBS IT Park
- ICICI corporate office (Hyderabad)
- P&G factory, Bhopal
- Honda siel cars, Bhiwadi

Soil Stabilisation works with L&T included the Honda siel cars, Bhiwadi also P&G factory Bhopal.

DLF
- Infinity towers lift pit at Gurgaon

Simplex
- Sonia Vihar water treatment plant 640MLD. (Delhi JAL Board project).
- Dalmiya cement factory, Trichy.

Ondeo Degremont
- Cauvery 3RD phase water treatment plant TK Halli, Kanakpura near Bangalore

ITC
- ITC Badrajalam paper factory in Andhra

SMCC
- Yamaha Corporate office (Terrace water proofing)
- India Steel (waterproofing job)

Max Hospital with SS construction
- Waterproofing Max hospital Patparganj, Delhi
- Max Hospital, Shalimar Bagh

Pidilite Industries
- Adampur IAF runway repair and filling Poly sulphide in expansion and construction joints.

IRCON

- Delhi Mathura concrete Highway (poly sulphide application)

Among other projects are the:

- Waterproofing & Renovation done for Sacred Heart Cathedral, Delhi
- Polysulphide work at Hyatt regency and Le Meridian, Delhi
- Silicon and PU coating at NTPC building, Noida
- The entire British council Division, Delhi with Mr Charles Correa (architect)
- Ananth Technology IT park
- Anchor Panasonic work under SMCC, Daman
- Taj hotel Dwarka, Delhi

We were the first to use the MRF manufactured PU coatings for our works as required.

Clients

Components

Civil

AREA
PLINTH AREA

Plinth area is the built up covered area of a building measured at floor level of any storey. Plinth area is calculated by taking the external dimensions of the building at the floor level excluding plinth off-sets, if any courtyard, open areas, balconies, cantilever projections are not included in the plinth area. Supported porches (other than cantilevered) are included in the plinth area.

AREA

The following shall be included in the plinth area:

1. All floors area of walls at the floor level excluding plinth off-sets if any.
2. Internal shafts for sanitary installations provided these do not exceed 2 sq.m. in area, air-condition ducts, lifts etc.
3. The area of barsaties and the area of mumty at terrace level.
4. Area of porches other than cantilevered.

The following shall not be included in the plinth area:

1. Area of loft.
2. Internal sanitary shafts provided these are more than 2 sq.m. in area.
3. In enclosed balconies.
4. Towers, sunshades, domes etc. projecting above the terrace level, not forming a storey at the terrace level.
5. Architectural bonds, cornices etc.
6. Sunshades, vertical sun breakers of box louvers projecting out.

FLOOR AREA

Floor area of a building is the total area of floor-in-between wall and consists of floor of all rooms, verandahs, passages, corridors, staircase room, entrance hall, kitchen, stores, bath and latrines (WCs) etc. Sills of doors and openings are not included in the floor area occupied by walls, pillars, plaster and other intermediate supports are not included in the floor area. In short, floor area is equal to plinth area minus area occupied by walls, for deduction of wall area from plinth area to obtain floor level.

The area shall be included:

1. Door and other openings in the wall.
2. Intermediate pillars and supports.
3. Plasters along wall excluding 300 sq.cm. in area.
4. Flues which are within walls but following shall be excluded from the wall area.
   a. Plasters along walls not exceeding 300 sq.cm. in area.
   b. Fireplace projecting beyond the face of wall in Living room.
   c. Chullah platform projecting from the face of walls in kitchen.

The floor of each storey and different types of floor should be measured and taken separately. The floor area of basement, mezzanine, barsaties, mumties, porches etc. should be measured separately.

CIRCULATION AREA

Circulation area is the floor area of verandah, passages, corridors, balconies, entrance hall, porches, staircase etc. which are used for movements of persons using the building, the circulating area of any floor shall comprise of the following:

a. Verandah and balconies.   b. Passages and corridors.   c. Entrance hall   d. Staircase and mumties   e. Shafts for lifts.

The circulation area may be divided into two parts:

1. Horizontal circulation area

Horizontal circulation area of a building is the area of verandahs, passages, corridors, balconies, porches etc. What are required for the horizontal movement of the users of the building. This may be 10% to 15% of the plinth area of the building.

2. Vertical circulation area

Vertical circulation area of a building is the area or space occupied by staircase, lifts and the entrance hall adjacent to them which are required for the vertical movement of the users of the building. This may be 4% to 5 % of the plinth area of the building.

CARPET AREA

Carpet area of building is the useful area or liveable area or lettable area. This is the total floor area minus the circulation area (Verandahs, corridors, passages, lifts, entrance hall etc) and many other non useable areas as bath, W.C., Air conditioning room, etc. For office building, carpet area is the lettable area or useable area, and for residential building carpet area is the liveable area and should exclude the kitchen, pantry, stores and entrance to other rooms which are not used for living purpose.

The carpet area of a building or any storey shall be the floor area excluding the following:

a. Sanitary accommodation (bath & WC)   b. Verandah.   c. Corridors and passages.
d. Kitchen and pantry   e. Stores in domectic buildings   f. Entrance hall and porches
g. Staircase and mumties   h. Shafts for lifts   i. Barsaties   j. Garages   k. Air conditioning ducts and air conditioning plant room.

The carpet area of an office building may be 60% to 75% of the plinth area of the building with a target of 75%. The carpet area of residential building may be 50% to 65% of the plinth area of building with a target of 65%.

For a framed structure, multi-storeyed building, the area occupied by walls may be 5% to 10% of the plinth area (3% of external wall and 2% for internal walls) for ordinary building without the plinth area.

Note: The plinth area, floor area, circulation area, carpet area etc. should be measured or taken separately of each storey or floor.

Floor Area Ratio = Total covered area of all floor / Plot Area

Weight and Measures

Weight

10	miligrams	=	1 centigram
10	centigrams	=	1 decigram
10	decigrams	=	1 gram
10	grams	=	1 dekagram
10	dekagrams	=	1 hectogram
10	hectograms	=	1 kilogram
100	kilograms	=	1 quintal
1000	kilograms	=	1 metric tonne
200	miligrams	=	1 carat

Length

10	milimetres	=	1 centimetre
10	centimetres	=	1 decimtre
10	decimetres	=	1 metre
10	metres	=	1 dekametre
10	dekametres	=	1 hectometre
10	hectometres	=	1 kilometre

Capacity

10	mililitres	=	1 centilitre
10	centilitres	=	1 decilitre
10	decilitres	=	1 litre
10	dekalitres	=	1 hectolitre
10	hectolitres	=	1 kilolitre

Volume

1000	cu. milimetres	=	1 cu. centimetre
1000	cu. centimetres	=	1 cu. decimetre
1000	cu. decimtres	=	1 cu. metre

Area

100	sq. milimetres	=	1sq. centimetre
100	sq. centimetres	=	1sq. decimtre
100	sq. decimetres	=	1sq. metre
100	sq. metres	=	1sq. dekametre
100	sq. dekametres	=	1sq. hectometre
100	sq. hectometres	=	1sq. kilometre

Strength Requirement of Concrete

Concrete mix	Equivalent controlled concrete	Compressive strength on 15cm cubes, minimum at	
		7 days [kg/sq.cm]	28 days [kg/sq.cm]
1:1:2	M250	210	315
1:1/4 :1/2	-	195	290
1:11/2:3	M200	175	265
1:13/4:31/2	-	160	240
1:2:4	M150	140	210

Note:

1. For plain CC, six cubes for every 10 cum. of concrete to be taken and for less than 10 cum., no cubes be taken.
2. For RCC, for every 45 cum. and part thereof the concrete laid, six cubes to be taken ignoring any part less than 15 cum.
3. Minimum cylinder compressive strength (15 cm dia & 30 cm height) = 0.8 comp. strength specified for 15 cm cubes.
4. Minimum comp. strength for 10 cm cubes = Comp. strength on 15cm cube + 10% (in case any comparative result is not available).

5. The strength of any individual cube should not vary by more than 15% of average strength of the set of three cubes tested.

Slumps to be adopted

Work	Slump in mm	
	Vibrators used	Vibrators not used
Plain Cement Concrete:		
Mass concrete in foundation, footings, retaining walls and pavements	10-25	50-75
Thin sections of floorings less than 75mm thickness	25-40	75-100
Under water concretings (actual slump to be decided by the Engg-in-charge)	-	100-180
Reinforced Cement Concrete:		
Mass concrete in RCC foundations, footings and retaining walls	10-25	80
Beams, slabs and columns simply reinforced	25-40	100-125
Thin RCC section or section with congested steel	40-50	125-150

Conversion Factors

Quantity	Imperial Unit	Metric Unit	Imperial to Metric Unit	Metric to Imperial
Length	Inch (in)	Milimeter (mm) or Centimeter (cm)	1 in = 25.4 mm	1cm = 0.394 in
	Foot (ft)	Centimeter or meter (m)	1 ft = 30.5 cm	1m = 3.28ft.
	Yard (yd)	Meter (m) or kilometer (km)	1 yd = 0.194 m	1m = 1.09yd.
	Furlong (fur)		1fur = 201 m	1km = 4.97fur
	Mile	kilometer (km)	1 mile = 1.61 km	1km = 0.621mile
	International nautical mile (For Navigation)		1 mile = 1852m	1m = 3.28ft.

Quantity	Imperial Unit	Metric Unit	Imperial to Metric Unit	Metric to Imperial
Volume	Cubic inch (in^3)	Cubic centimeter (cm^3)	$1in^3 = 16.4cm^3$	$1\ cm^3 = 0.0610in^3$
	Cubic foot (ft^3)	Cubic meter (m^3)	$1ft^3 = 0.0283m^3$	$1m^3 = 35.3ft^3$
	Cubic yard (yd^3)	Cubic meter (m^3)	$1yd^3 = 0.765m^3$	$1m^3 = 1.31yd^3$
	Bushel (bus)	Cubic meter (m^3)	$1bus = 40.0364m^3$	$1m^3 = 27.5bus$
Force	Pound - force (lbf)	Newton (N)	1lbf = 4.45N	1 N = 0.225lbf
	Ton-force (tonf)	Kilonewton (kN)	1tonf = 9.96 kN	1kN = 0.100 tonf
Velocity	Mile per hour (mph)	Kilometer per hour (km/h)	1mph = 1.61km/h	1km/h = 0.621mph
	Knot (kn) (for navigation)		1kn = 1.58km/h	

Quantity	Imperial Unit	Metric Unit	Imperial to Metric Unit	Metric to Imperial
Area	Square inch (in^2)	Square centimeter (cm^2)	$1in^2 = 6.45cm^2$	$1cm^2 = 0.155in^2$
	Square foot (ft^2)	Square centimeter (cm^2) or Square meter (m^2)	$1ft^2 = 929cm^2$	$1m^2 = 10.8ft^2$
	Square yard (yd^2)	Square meter (m^2)	$1yd^2 = 0.836m^2$	$1m^2 = 1.02yd^2$
	Perch (p)	Square meter (m^2)	$1p = 25.3 m^2$	$1m^2 = 0395p$
	Rood (rd)	Hectare (ha)	$1rd = 0.101 ha$	$1ha = 9.88rd$
	Acre (ac)	Hectare (ha)	$1ac = 0.405ha$	$1ha = 2.47ac$
	Square mile	Square kilometer (km^2)	$1sq.Mile = 2.59km^2$	$1km^2 = 0.386sq.Mile$

Quantity	Imperial Unit	Metric Unit	Imperial to Metric Unit	Metric to Imperial
Pressure	Pound per square inch (psi)	Kilopascal (kPa)	$1psi = 6.89kPa$	$1kPa = 0.145 psi$
	Atmosphere (atm)	Kilopascal (kPa) or Megapascal (MPa)	$1atm = 101kPa$ $1MPa = 9.87atm$	$1MPa = 0647 ton/in^2$
	Ton per square inch (ton/in^2)	Megapascal (MPa)	$1ton/in^2 = 15.4 MPa$	$1mb = 0.0295in Hg$
	Inch per mecury (in Hg) (for meteorology)	Milibar (mb)	$1in Hg = 33.9mb$	$1 mb = 100Pa$
Power	Horsepower (hp)	Kilowatt (kW)	$1 hp = 0.746kW$	$1kW = 1.34hp$

Quantity	Imperial Unit	Metric Unit	Imperial to Metric Unit	Metric to Imperial
Density	Pound per cubic inch (lb/in^3)	Gram per cubic centimeter (g/cm^3) = tonne per cubic meter (t/m^3)	1lb/in^3 = 27.7 g/cm^3 1lb/in^3 = 27.7 t/m^3	1g/cm^3 = 0.0361 lb/in^3 1t/m = 0.0316 lb/in^3
	Ton per cubic yard	tonne per cubic meter (t/m^3)	1ton/yd^3 = 1.33 t/m^3	1t/m = 0.752 ton/yd^3
Energy	British thermal unit (btu)	Kilojoule (KJ)	1 Btu 1.06KJ	1KJ = 0.948 Btu
	Therm (for electrical energy)	Megajoule (M) Kilowatt hour (kWh)	1therm = 106 MJ = kWh = 3.60MJ	1MJ = 9.48x10^3 therm

Quantity	Imperial Unit	Metric Unit	Imperial to Metric Unit	Metric to Imperial
Mass	Ounce (oz) Pound (lb)	Gram (g) Gram (g) or kilogram (kg)	1oz = 28.3g. 1lb = 454g.	1g. = 0.-353oz 1kg = 2.20lb
	Stone	Kilogram (kg)	1Stone = 6.35kg.	1kg = 0.157stone.
	Ton	Tonne (t)	1 ton = 1.02t	1t = 0.984 ton
Temperature	Degree Fahrenheit (^{o}F)	Degree celsius (^{o}C)	^{o}C = 5/9 (F-32)	^{o}F = 9/5 (C+32)

Contact Us

Website:

http://www.formsnsurfaces.com/

Email:

formsandsurfaces@gmail.com | contact@formsnsurfaces.com

Phone:

+91 98101 61480 | +91 93120 70455

Address:

2nd Floor, 19/17, Old Rajinder Nagar

New Delhi - 110 060

Plot No. 34, Venkateshwara Encl, Qutabullahpur, Secunderabad

Hyderabad - 500 855

By using innovative methods, skilled labour and hard work, the contracted job was completed in record time to our complete satisfaction.

- Air Cmdo (Air Force Station Adampur)

F&S