



**COMPASS**  
INTERNATIONAL INC.

# 2024 GLOBAL CONSTRUCTION COSTS

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Introduction to Global Construction

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## General Notes

**APPLICABLE TO SUMMARY LEVEL DETAILS OF VARIOUS COUNTRIES THAT ARE DETAILED IN THE FOLLOWING SECTION. NOTE THAT DATA POINTS RELATE TO 2024**

1	Capital City of Country
2	Area of Country
3	Population of Country
4	Gross Domestic Product of Country (GDP)
5	GDP per Head
6	2024 Inflation Rate (Average of consumer and construction inflation):
7	VAT / GSA / TVA / IVA Tax Rate (High end rate – usually 2 or 3 lower rates are utilized by tax authorities):
8	Freight - percentage of FOB Equipment / Material cost, for ocean freight from USA to specified country, consider adding 3% and 3% for transporting from ex-works to sea port and from sea port to site: / Typical number of ocean freight days from US East or West Coast port to specific country.
9	Country exchange rate V's US \$ 25th July 2023:
10	Import duties / tariffs of FOB Equipment / Material costs expressed as a percentage: Note A refers to <a href="http://www.ita.doc.gov">http://www.ita.doc.gov</a> or <a href="http://www.usitc.gov">http://www.usitc.gov</a> or various embassy trade desks for exact value. Note B <a href="http://ec.europa.eu">http://ec.europa.eu</a> or <a href="http://www.usitc.gov">http://www.usitc.gov</a> or various embassy trade desks.
11	Architect / Engineering hourly billing rates in US dollars (note these are lower end rates, rates in capital and or major cities can be as much as 50% more):
12	Billing rate for Skilled worker working on facilities designed to local – indigenous standards and specifications (note these are lower end rates, rates in major cities can be as much as 20% - 40% more). Rates include payroll taxes & profit, they exclude supervision, construction equipment, small tools, consumables & general conditions. These items typically range between 35% and 65%.
13	Skilled Worker – Onshore skilled worker all-in rate ( skilled worker all-in rate for onshore chemical - refinery / LNG / power facility, owned and funded by a major Western - Japanese petroleum / chemical company or Fortune 500 type Manufacturing company, skilled worker possibly living in remote camp - provided with accommodation, daily meals and transportation to jobsite, note this skilled worker would be following work practices utilized by major Western - Japanese petroleum company or Fortune 500 type Manufacturing company performing work in North America or Japan following OSHA type safety practices (typically the Preliminaries / Division 1 costs are substantially higher than indigenous construction practices, skilled worker all-in rate could in some cases be 15% - 35% higher than rate indicated in # 12 above). Offshore skilled all-in rates can be anywhere from 3.5 – 7.5 time higher than onshore rates indicated above, cost such as transportation, helicopters, floaters, safety, time off and temporary accommodation are some of the issues that drive these costs up. Note these are lower end rates, rates close to major cities can be as much as 20% - 30% more. Rates include payroll taxes & profit, they exclude supervision, construction equipment, small tools, consumables & general conditions. These items typically range between 35% and 65%.
14	Un-Skilled worker working on facility designed to local / indigenous standards (note these are lower end rates, rates in major cities can be as much as 50% more). Rates include payroll taxes & profit, they exclude supervision, construction equipment, small tools, consumables & general conditions. These items typically range between 35% and 65%.
15	Local Engineering Productivity V's USA Gulf Coast – Houston:
16	Local Worker Productivity V's USA Gulf Coast:
17	Local Location Factor V's USA Gulf Coast: The above location factor represents a North American / Western European Manufacturing company completing a facility in this country ( if this is a first time CAPEX project in this country – the engineering / procurement / construction endeavor will initially experience a steep learning curve as the project navigates its way through local import regulations and various local / national permitting issues): add 0.03 – 0.05 points to above, if the Owner and the selected EPC firm that is engineering, procuring and constructing the facility has built or has existing operating facilities / operating units already in country (that have gone through this initial learning curve) use the location factor indicated:
18	Local Bulk Material Factor V's USA Gulf Coast (does not include cable and instrumentation devices):
19	SF \$ Cost of Warehouse (75%) / Logistics / Admin Center (25%) Unit prices are +/-25% accurate, A/E costs included in unit price, excludes land purchase and racks and warehouse equipment (to convert Square Foot (SF)cost values to M2 multiply SF by 10.76)
20	Construction Equipment / Plant Hire Rental V's USA Basis of 1.00, refer to Construction Equipment list and day rate costs throughout the following section:

## Argentina

### FACTS IN BRIEF

Official name: Argentine Republic
Currency: Pesos
Population: 46.25 (2023 est.)
GDP: \$625 billion (2023)
Population growth: 0.90% (2022 est.)
GDP per Head: \$12,350 (2024)
Capital: Buenos Aires 3.50 million
Exports: \$56 billion f.o.b. (2020 est.)
Language: Spanish
Imports: \$66 billion f.o.b. (2022 est.)
Area: 2,766,900 km <sup>2</sup>
Weights/measures: Metric
Type of government: Federal republic
Chief products: Beef, Minerals, cereals, timber,
Life expectancy: Male: 72.7 years
Female: 80.3 years
Unemployment: 11%-14%

### ECONOMIC FORECAST

Minerals of all kinds, timber and farm products: Argentina has a young well-educated labor market; it is one of the top five economies in South America. Economic growth is sluggish; the country is recuperating from the global financial crisis. Construction activity will be down from previous years. High unemployment at between 11% and 14%, inflation at 15% to 25% will remain as major challenges in 2024. GDP is forecast to be in the 1.9% to 2.3% range in 2024. Political and economic issues continue to impact Argentina; this will continue in 2024. The Argentine Peso has experienced a major drop in the last 12 months. Look for this to continue in 2024.

### ARCHITECTURAL / ENGINEERING RATES

The rates that follow are “all in” hourly job rates for various construction professionals and are appropriate for 2024. They include employees’ salaries, workers; compensation insurance, social security payments, health insurance premiums, unemployment insurance, vacation and holiday payments, establishment charges, overhead, mark-ups, and profit.



The rates shown are for the Buenos Aires area and reflect individuals with at least 10 years experience.



## Argentina

### ARCHITECTURAL/ENGINEERING RATES

SKILL	LOW US \$	HIGH US \$
Architect	40	75
Mechanical engineer	42	77
Electrical engineer	45	80
Designer	30	55
Site manager (does not include temporary living allowance)	38	68

• **NOTE:** the above professional construction hourly bill out rates are appropriate for residential / light commercial construction facilities. For individuals working in the process / chemical / refinery construction sector use the following rates:

SKILL	LOW US \$	HIGH US \$
Senior Project Manager (20 years experiences)	55	100
Mechanical engineer (15 years experiences)	45	80
E&I engineer (15 years experiences)	50	88
Designer	32	58

### ENGINEERING PRODUCTIVITY / DESIGN WORK

The following figures show a range of productivity values: (1) Washington, DC (2) Houston Texas, and (3) Buenos Aires, Argentina. The productivity factors are compared against a U.S. basis of 1.00 – Washington DC, engineering labor working on producing the necessary design deliverables for a midsize petro-chemical / manufacturing facility (say \$10 – \$50 million).

REF. #	LOCATION	PRODUCTIVITY VALUE
1	Washington, DC	1.00
2	Houston, TX	0.95
3	Buenos Aires, Argentina	1.15 – 1.25

### CONSTRUCTION LABOR HOURLY RATES

The following are “selling rates” for skilled and unskilled construction workers; these are the hourly billing rates that a contractor would charge an owner. The rates include base wage rate, insurance, fringes, burdens, holidays, small tools, and training levies, plus all applicable overhead and profit. They have been adjusted to reflect 2024 rates.

	LOW US \$	HIGH US \$
Skilled worker	18.00	29.00
Unskilled worker	13.00	19.00

### APPROXIMATE COST OF BUILDINGS/FACILITIES

The following square-meter and square-foot values include all materials, labor, plant, general conditions, overhead, and profit. Excluded from the costs are owners’ costs such as furniture, equipment, land purchase, design fees, and major items outside the facility’s footprint. These values have been adjusted to reflect 2024 pricing levels.

TYPE OF FACILITY		LOW US \$	HIGH US \$
Warehouse / Distribution Facility	SF	38	77
Ditto	M2	409	829
Factory / Industrial Bldg	SF	40	88
Ditto	M2	430	947
Office / Admin Bldg	SF	70	150
Ditto	M2	753	1,614

### LOCATION FACTOR

- For chemical/process/manufacturing construction projects with a high content of imported engineered equipment and construction materials: **0.96**
- For buildings/facilities/civil-type construction projects with high content of locally produced engineered equipment and construction materials: **0.92**

If the above project is for a “first of its kind” building / facility (first construction effort in country will experience a steep learning curve) add 0.03 – 0.05 points to above. If company has built or has operating facilities / operating companies already in country use above values.

### CONSTRUCTION LABOR PRODUCTIVITY

- **Good:** 1.20
- **Average:** 1.45
- **Bad:** 1.75

### CONSTRUCTION EQUIPMENT

CONSTRUCTION EQUIPMENT / PLANT HIRE RENTAL*	USA COST PER 8 HOUR DAY	ARGENTINA COST PER 8 HOUR DAY
Backhoe -F.E. Loader (JCB or similar)	308.43	
Bulldozer 50 kW	657.24	
F.E. Loader 2.5 CY/2 M3	491.93	
Hydraulic Crane 20 Ton lifting capacity	932.93	
Bobcat mini F.E. loader	332.80	
Welding machine diesel 200 A	151.74	
<b>COST PER DAY</b>	<b>2,875.07</b>	<b>DISCOUNT USA VALUES BY 80-90%</b>
* excludes driver, includes routine maintenance, excludes fuel, includes mob/de-mob costs		

### INFLATION

- **2006:** 8.9%
- **2007:** 7.5%
- **2008:** 8.5%
- **2009:** 9.0%
- **2010:** 8.5%
- **2011:** 8.0%
- **2012:** 11.0%
- **2013:** 11.0%
- **2014:** 10.1%
- **2015:** 17.5%
- **2016:** 20%

- **2017:** 20% - 35%
- **2018:** 15% - 25%
- **2019:** 20% - 30%
- **2020:** 15% - 22%
- **2021:** 9% - 16%
- **2022:** 15% - 20%
- **2023:** 50% - 85%
- **2024:** 40% - 60%

### TAXES/TARIFFS IMPORT DUTIES

The value-added tax (VAT) rate is 21% or 10.5% it depends on the item being imported into Argentina; the duty is based on the sum of the CIF value. Argentina is a member of Mercosur (as well as its neighbors Brazil, Uruguay and Paraguay), Mercosur the 4th largest free trade area in the world. For additional tariff information go to [infoleg.mecon.gov.ar](http://infoleg.mecon.gov.ar) Argentina implemented the MERCOSUR Common Nomenclature, which is aligned with the Harmonized System of Nomenclature and is utilized for tariff classification, import duties can range from 5 – 20%. Argentina’s Government website is [www.argentina.gov.ar](http://www.argentina.gov.ar)

### CURRENCY EXCHANGE RATES

The following were the exchange rates for the Argentina Peso on July 25th, 2023:

EURO:	UK POUND:	US DOLLAR:
250.50	285.50	230.25

### Argentina DATA TABLE

1. Local Bulk Material Factor vs. USA Gulf Coast (Houston = 1.00): 0.87 – 0.95
2. Major Cities: La Plata, Santa Fe, Cordoba, Rosario,
3. Major Sea Ports: La Plata, Rosario, Buenos Aires
4. Government website: [www.argentina.ar](http://www.argentina.ar)
5. Government Statistics Office: [www.indec.mecon.ar](http://www.indec.mecon.ar)
6. Electricity: 220 v 50 Hz
7. Freight from USA: 7.5% – 10.5% of Major Equipment or material cost / 20 - 25 days



Ministry of Reconstruction, New Communities  
Housing and Utilities, Manial, Cairo  
1 Ismail Abaza St., Kasr El Aini, Egypt  
Telephone (20) 2 355-3468 or 355-7978  
Fax (20) 2 355-7836

Chamber of Engineering Industries  
Downtown Cairo  
13 Sheriff St., Egypt  
Telephone (20) 2 392-1238, Fax (20) 2 392-1238

General Authority for Investment (GAFI)  
8 Adly Street, Cairo, P.O. Box 1007, Egypt  
Telephone (20) 2 390-3776, Fax (20) 2 390-7315

American Chamber of Commerce in Egypt  
Cairo Marriott Hotel  
Suite 1541, P.O. Box 33 Zamalek, Cairo, Egypt  
Telephone (20) 2 340-8888

U.S. Commercial Service  
8 Kamal el-din Salah Street, Garden City, Egypt  
Telephone 202 – 355-7371, Fax 202 – 355-8368

**General Information**

<http://www.eco-web.com>

<http://ape-org.eg>

## El Salvador

### DATA TABLE

1. Type of Government: Republic
2. Capital: San Salvador 650,000
3. Major Cities: Santa Ana, San Miguel, Apopa
4. Population: 6.9 million
5. Area: 21,000 sq km
6. GDP: \$28.90 billion
7. GDP per Head: \$5,800
8. Inflation Rate: 3.8% - 5.1%
9. Time : - 1 EST
10. VAT / Sale Tax : 13%
11. Exchange Rate: 9.05 Colon
12. Freight from USA: 6.5 – 9.5 / 20 days
13. Local freight: 2% - 3% of material / equipment purchase price
14. Government website: <http://www.casapres.gob.sv>
15. Import duties: Refer to website mentioned above under General Notes, note 10
16. Electricity: 115 v – 60 Hz
17. Telephone code: 503
18. Professional Architect / Engineer / Accountant / Purchasing Agent etc.: See below
19. Skilled Worker rate: See below
20. Unskilled worker rate: See below
21. Worker Productivity vs. USA Gulf Coast (Houston = 1.00): 1.30 – 1.60
22. Location Factor vs. USA Gulf Coast (Houston = 1.00): 0.91 - 0.94
23. Local Bulk Material Factor vs. USA Gulf Coast (Houston = 1.00): 0.88 – 0.93
24. Major Sea Ports: Acajutla, Puerto Cutco

#### Salvadoran Association of Engineers and Architects

Address: PQ59+274, Av. Napoleón Viera Altamirano 632,  
San Salvador, El Salvador Phone: +503 2263 3905



### EL SALVADOR

The El Salvador construction sector is forecast to grow to between \$4 and \$6 billion in 2024.

The main categories of construction:

- Housing / Apartments / Residential Construction Approx. 40% to 45%
- Commercial Construction (Shopping Centers / Hotels / Offices / Warehousing Approx. 11% to 14%)
  - Manufacturing / Industrial / Oil & Gas / Chemical Facilities / Pipeline Construction Approx 11% to- 15%
- Civil / Infrastructure / Transportation / Highway Construction Approx. 14% to 19%
- Power / Energy / Utilities / Transmission Construction Approx 10% to 15%
- Government / Institutional / Public Buildings / Airports / Rail Station / Military Construction Approx. 4% to 6%

## Hourly Wage Rates

#	WAGE RATES (BILL OUT RATE RANGE – EXCLUDES GENERAL CONDITIONS / PRELIMINARIES / SITE ESTABLISHMENT ADD 17% TO 25% TO CAPTURE THESE COSTS)	\$ LOW	\$ HIGH
1	Architect / Civil Engineer / Site Manager / Field Engineer / Construction Manager / Site Accountant / Quantity Surveyor / Procurement Staff	29	42
2	Foreman Skilled Worker (Electrician Pipefitter / Welder / Carpenter / Mason)	14	19
3	Skilled Worker (Electrician Pipefitter / Welder / Carpenter / Mason)	13	17
4	Un-Skilled Worker / Laborer	10	12

## Building / Facility Costs

INCLUDES ALL MATERIALS, LABOR, CONSTRUCTION EQUIPMENT, PRELIMINARIES, GENERAL CONDITIONS, OVERHEAD, MARKUPS, AND PROFIT

#	TYPE OF FACILITY	SF / LOW	SF/ HIGH	M2 / LOW	M2 / HIGH
1	Airport Terminal 2 – 3 Floors 400,000 - 700,000 SF	152	235	1,631	2,526
2	Apartments (Class B/C) 3 – 6 floors not public housing	127	175	1,363	1,886
3	Apartment public housing 3 – 6 floors	92	101	994	1,089
4	Food Production / Dairy Facility 70,000 SF	53	71	570	764
5	Hotel 3-6 floors 100,000 SF-2 - 3 star - suburban location	172	205	1,855	2,201
6	Manufacturing / Facility / Factory 2 Floors 75,000 SF	50	75	536	808
7	Office 3 Floors 45,000 SF suburban location	171	202	1,844	2,178
8	R & D Facility (College – Basic Research) 2 Floors 65,000 SF	178	203	1,911	2,190
9	W-House Refrigerated 80% / Admin 20% / 80,000 SF	50	69	536	741

for lump-sum bids. It is usual practice for the successful bidder together with his or her selected trade contractors to finalize and complete the detailed engineering/ design effort.

The hourly rates that follow are “all in” job rates or selling rates for various construction professionals. The rates are appropriate for 2024. The hourly rates include employee salaries, workers compensation insurance, social security payments, health insurance premiums, unemployment insurance, vacation payments, overhead costs, office facilities, utilities, supervision, and profit. The rates shown are appropriate for the Paris area and apply to individuals with a minimum of 10 years experience. The rates do not include temporary living expenses or travel costs.

• **France: in Euros US\$ 0.92 / Euro July 25, 2023**

French professional workers typically work 37.5 – 39 hours per week and receive 5 – 6 weeks paid vacation, they are also entitled to 9 – 11 public holidays, hours worked per year = 1,600 – 1,650.

SKILL	EURO LOW	EURO HIGH
Senior Project Manager (25 years experience)	150	200
Project Manager (10 years experience)	125	175
Mechanical Engineer (15 years experience)	110	150
Chemical Engineer (15 years experience)	110	150
C/S/A Engineer (ditto)	105	140
E&I Engineer (ditto)	125	160
Estimator / Q.S. (ditto)	85	120
Planner (5 years experience)	80	115
CAD Operator	55	70
Purchasing Agent (10 years experience)	65	110
Contracts Manager / S/C Administrator	100	130
Admin / Document Control	45	65
Construction Manager (20 years experience)	115	140
Architect (10 years experience)	120	160

## Construction Labor

### “ALL IN” SELLING RATES FOR SKILLED AND UNSKILLED CONSTRUCTION WORKERS

CATEGORY	LOW	HIGH	AVERAGE
Workers compensation insurance / fringe benefits			
Federal /state unemployment			
FICA (social security / OAP)			
Vacation / Holidays			
BAR / Liability Insurance / general expenses			
<b>TOTAL (ADJUSTED)</b>	<b>85%</b>	<b>125%</b>	<b>90% - 110%</b>

### ENGINEERING PRODUCTIVITY DESIGN WORK:

The following figures show a range of productivity values: (1) Washington, DC (2) Houston Texas, and (3) Paris, France. The productivity factors are compared against a U.S. basis of 1.00 – Washington DC, engineering labor working on producing the necessary design deliverables for a midsize petro-chemical / manufacturing facility (say \$10 – \$50 million).

REF. #	LOCATION	PRODUCTIVITY VALUE
1	Washington, DC	1.00
2	Houston, TX	0.95
3	Paris, France	1.05

### CONSTRUCTION LABOR HOURLY RATES

The rates shown on the previous page are 2024 “all in” selling rates for skilled and unskilled construction workers. The rates indicated are the hourly billing rates that a contractor would charge an owner or end user for work carried out on either a time and material basis or the “all in” grossed up labor rates contained in his or her bid.

### CONSTRUCTION MATERIAL COSTS

The values indicated below are a sampling of construction material costs applicable to a midsize commercial or industrial project. The data are from

## Construction Material Costs

### MID-SIZED COMMERCIAL OR INDUSTRIAL CONSTRUCTION PROJECT

#	BULK MATERIAL	QTY	SI UNIT	LOCAL COUNTRY UNIT COST IN US \$	TOTAL IN US \$	USA UNIT COST IN US \$ SI UNIT	TOTAL IN US \$
1	Blocks (Concrete 8" x 16" x 4")	5,000	Each	2.03	10,131	2.00	10,008
2	Bricks (Common ) 1,000	15	1000	668	10,024	521	7,821
3	Bricks (Facing ) 1,000	10	1000	775	7,748	717	7,172
4	Cement in bags	150	Ton(M)	316	47,407	323	48,391
5	Conduit 2" / 50 mm rigid galv steel	1,000	M	25.68	25,683	26.62	26,620
6	Instruments 4 # 2" / 4" CV (8 #), 12 # (F/P/T) Devices	20	Each	5,527	110,549	5,204	104,089
7	Copper pipe 0.50" / 12 mm L	1,000	M	7.47	7,469	8.12	8,119
8	R M Concrete 3500 PSI / 25 MPa	350	M3	175	61,398	178	62,129
9	Sand / Stone 1.5" diameter / Imported fill / Hardcore (Average)	2,500	Ton(M)	43.25	108,117	28.36	70,903
10	Stainless steel 304 pipe 1" / 25 mm	1,000	M	15.80	15,803	20.19	20,193
11	Steel pipe A-53 1" / 25 mm diameter	1,000	M	14.31	14,311	14.72	14,716
12	Steel Reinforcement (not installed)	50	Ton(M)	1,915	95,761	1,478	73,897
13	Structural Steel (Fabricated not installed)	50	Ton(M)	2,332	116,605	3,006	150,296
14	Valves (Ball) 4" diameter 150 #	25	Each	915	22,878	872	21,795
<b>TOTAL</b>					<b>653,884</b>		<b>626,150</b>
<b>NOTE:</b> Metric Ton = 2,205 lb • Long Ton = 2,240 lb (L) • Short Ton = 2,000 lb (S) • Metric Tonne = 1,000 kg /2,205 lb							

## 222. | GENERAL NOTES: FRANCE

SKILL	EURO (LOW)	EURO (HIGH)
Carpenter	35.00	50.00
Mason	35.00	50.00
Pipefitter	34.50	52.00
Electrician	35.00	53.00
Unskilled Work	23.50	34.00

a number of projects in the Paris metropolitan area. The values include delivery to site. They exclude TVA or VAT tax and do not include any overhead or profit add-ons to the installing contractor. The values shown are approximate and should be utilized on that basis. Premiums of 10-20% should be added to the prices indicated for small quantities. Similar discounts can be had for sizable quantities. Costs are valid for year 2024.

French bulk materials on average are 2% - 4% more expensive than their US equivalent. Engineered bulk items such as motor controlled valves, instrumentation devices etc; tend to be 4% - 6% more expensive in France than in the USA as of January 2024.

### APPROXIMATE COSTS OF BUILDINGS / FACILITIES

The cost values shown below include all material, labor, construction equipment, overhead, and profit. The values exclude land purchase; value added tax, parking areas, extensive landscaping, design fees, owner-provided equipment, furniture, and fixtures. The values were obtained by dividing the cost of the completed facility by the gross square meters of the buildings and facilities. They are approximate and should only be used for budget or conceptual esti-

## Costs of Building Facilities

### FRENCH SF / M2 FACILITY UNIT COSTS IN US \$'S

#	TYPE OF FACILITY	SF / LOW	SF/ HIGH	M2 / LOW	M2 / HIGH
1	Airport Terminal 2 – 3 Floors 400,000 - 700,000 SF	189	330	2,033	3,546
2	Apartments (Class B/C) 3 – 6 floors not public housing	194	371	2,087	3,992
3	Apartment public housing 3 – 6 floors	145	219	1,563	2,360
4	Food Production / Dairy Facility 70,000 SF	140	223	1,510	2,398
5	Hotel 3-6 floors 100,000 SF-2 - 3 star - suburban location*	221	365	2,374	3,925
6	Manufacturing / Facility / Factory 2 Floors 75,000 SF	84	170	899	1,828
7	Office 3 Floors 45,000 SF suburban location*	209	335	2,246	3,607
8	R & D Facility (College – Basic Research) 2 Floors 65,000 SF	215	348	2,316	3,749
9	W-House Refrigerated 80% / Admin 20% / 80,000 SF	100	196	1,073	2,114
10	W-House/ Logistics Center 80% / Admin 20% 40,000 SF **	81	132	874	1,416

\* 5 - 15 miles from city center

\*\* excludes racking / bar coding / warehouse equipment



mates. The high values should be used for projects located in downtown areas of major cities and for projects that utilize high-quality specifications, materials, and installation methods. The values have been adjusted to reflect 2024 pricing levels and are based on projects in the Paris area.

- **French SF / M2 Facility Unit Costs in US \$'s** (indicated in chart below)

### LOCATION FACTOR

The factors shown below are used to quantify the cost differences for specific construction methods in different locations. Use of the factors involves either (1) estimating the proposed project on a U.S. basis (2) knowing the cost of a particular U.S. facility (often a Gulf Coast project is the model). The U.S. estimate is expressed as a base index of 1.00. Location factors typically reflect disparities in construction materials and labor rates, productivity differentials, equipment costs, importation of materials and capital equipment, design costs, exchange rates, freight costs, taxes, and import duties. The purchase of land and inflation are excluded from the location factor. The following location factors are applicable for France:

- Chemical/process/manufacturing facilities (utilizing some imported equipment): **0.98**
- Building/facilities/civil projects (utilizing local materials): **0.95**

For example, if a recently completed industrial project was built in the U.S. for US \$5,000,000, the cost of a similar facility in France would be US \$5,000,000 x 0.98 = US\$4,900,000. A building or facility to be constructed in France, estimated on a U.S. basis to cost US\$10,000,000, would be budgeted at US\$9,500,000.

If the above project is for a “first of its kind” building / facility (first construction effort will initially experience a steep learning curve as it navigates through governmental / local issues) add 0.03 – 0.05 points to above location factors. If company has built or has operating facilities already in country, use above indicated location factors:

### UNIT PRICES (LABOR & MATERIALS, INCLUDES O/H & PROFIT)

DESCRIPTION	UNIT	\$COST
Excavate for foundation n/c 1.5M	M3	15-25
Reinforced concrete foundation (MPa 30) incl. rebar & formwork	M3	390-760
Block wall 9" thick	M2	95-165
PCC wall 3" thick	M2	150-265
Curtain wall / window system	M2	485-850
Single door c/w frame & hardware	No	675-900
FP system	M2	23-37
EPDM Roofing System	M2	22-34

## Construction Equipment / Plant Hire Rental

**EXCLUDES DRIVER, INCLUDES ROUTINE MAINTENANCE, EXCLUDES FUEL, INCLUDES MOB/DE-MOB COSTS**

EQUIPMENT / PLANT HIRE RENTAL	USA COST PER 8 HOUR DAY	COST IN FRANCE PER 8 HOUR DAY
Backhoe -F.E. Loader (JCB or similar)	308.43	
Bulldozer 50 kW	657.24	
F.E. Loader 2.5 CY/2 M3	491.93	
Hydraulic Crane 20 Ton lifting capacity	932.93	
Bobcat mini F.E. loader	332.80	
Welding machine diesel 200 A	151.74	
<b>COST PER DAY</b>	<b>2,875.07</b>	<b>DISCOUNT USA VALUES BY 2 – 3.5%</b>

## LABOR PRODUCTIVITY

The following figures show a range of productivity values: (1) good, (2) average, and (3) poor. The productivity factors for France are figured against a U.S. value of 1.00, based on open-shop (i.e., non-union) labor working at a midsize petrochemical facility on the Texas Gulf Coast.

## PRODUCTIVITY RANGE

- **Good:** 0.95
- **Average:** 1.10
- **Poor:** 1.40

Thus, using the average value of 1.10, a task that took 2,000 man-hours to complete in the U.S. would take 2,200 man-hours to perform in France.

Factors that can contribute to good productivity include good access to the work area, an experienced work force, adequate supervision, no extreme weather conditions, specifications that are not overly complicated, and materials and equipment that are close at hand. Factors that can contribute to poor productivity include overcrowded or tight working areas, limited education and construction skills of the labor force, extreme weather conditions, inadequate or poor supervision, complex work items or sophisticated specifications, fast-track construction requirements, extensive overtime, materials and equipment not stored close to the work area, and small or scattered elements of work.

## COUNTRY REGIONAL COST VARIATIONS

The percentages indicated below reflect price differentials between major areas of France. These percentages can be used to calibrate the square-meter and square-foot cost shown previously.

ADMINISTRATION/REGION	-/+ %
Bordeaux	-3 to -5%
Dunkirk / Lille	-2% to -5%
Lyon	-2% to -5%
Marseilles	-2% to -6%
Nice	-2% to -3%
Paris	0
Reims	-2% to -5%
Toulouse	-2% to -3%

## INFLATION

The following are annual increase in consumer prices. Price increases for construction materials and labor have been marginally lower than those shown:

- **2000:** 1.1%
- **2001:** 1.5%
- **2002:** 1.5%
- **2003:** 1.7%
- **2004:** 1.5%
- **2005:** 1.8%
- **2006:** 3.7%
- **2007:** 2.1%
- **2008:** 2.8%
- **2009:** 2.7%
- **2010:** 1.3%
- **2011:** 1.3%
- **2012:** 1.6%
- **2013:** 1.4%
- **2014:** 1.4%
- **2015:** 0.9%
- **2016:** 0.4%
- **2017:** 0.4%
- **2018:** 1.3%
- **2019:** 1.8%
- **2020:** 1.7%
- **2021:** 1.2%
- **2022:** 1.9%
- **2023:** 6.8%
- **2024:** 4.2%

## TAXES/TARIFFS/IMPORT DUTIES

A Value added tax (VAT), or taxe sur la valeur ajoutée (TVA), is levied on imported goods on entry into France. This tax is in many ways similar to a sales

/ specification from list below and multiply by calculated square footage by the appropriate SF/ M2 cost value. Modify for location by selecting city location factor indicated on the following pages (regional Cost variations). The following Facility / Building costs are specified by cost model size in S.F. together with number of floors in U.S. dollars per square foot / M2 by Facility / Building for each category of building, the expected accuracy of the units is +/-15%.

- Specification A Facing with concrete block back-up
- Specification B Stucco on concrete block
- Specification C Ribbed concrete block
- Specification D Pre-Cast concrete panels
- Specification E Insulated metal panels
- Specification F Tilt-up concrete panels
- Specification G R.C. frame cast on site
- Specification H Curtain wall / metal & glass panels

- Specification I EIFS / Dryvit wall panels

Note: A/E fees 5%-10% and CM fees 2.5%-5% need to be added to the above values. Owner costs such as furniture, equipment, land purchase, owner in-house engineering, landscaping, parking areas, and major items outside the facility's footprint also need to be considered and added if deemed necessary.

## MATERIAL COST BENCHMARKS

MATERIAL	UNIT OF MEASURE	US \$
Cement (bulk)	Ton	310
Sand	Ton	25.75
Stone, 3/4 dia.	Ton	25.85
Ready mixed concrete, 3000 PSI	Cy	120
Reinforcing steel, mild steel	Ton	1,385
Common bricks	1000	490
Facing brick, average quality	1000	690
Solid concrete block, 8" X 16" X 8"	Each	1.95
Structural steel shapes	Ton	3,050
Plywood, exterior, 8' x 4' X 1/2"	Each	65.45
Particle board, 8' X 4' X 5/8"	Each	41.85
Timber, 2" X 8" spruce	Lineal. ft	1.99
Fiberglass shingles (Class A fire rating)	Ft2	0.75
Single ply membrane (EPDM) roof	Ft2	1.62
Float glass, 1/4" thick, clear tempered	Ft2	9.15
Gypsum drywall plasterboard, 1/2" thick	Ft2	0.65
Interior latex semi gloss paint	Gallon	32.35
Sliding vinyl patio door, 6' X 6'8", with insulated glass	Each	725
Copper pipe, 3/4" dia., type M	Lineal. ft	3.95
Pipe, PVC/DWC schedule, 40 2" dia.	Lineal. ft	2.90
Pipe, CPVC Hot/cold water, 4" dia.	Lineal. ft	4.35
Pipe, Black steel, 1" dia.	Lineal. ft	9.15
Electric metallic tubing, EMT conduit, 1" dia.	Lineal. ft	2.95
Main breaker, 100 AMP, 20 space	Each	141.15
Fluorescent light fixture, 4' X 2', with 2 lights, 40 watt.	Each	230

STATE	TAX (%)
Ohio.	5.75
Oklahoma.	4.5
Oregon.	0
Pennsylvania.	6
Rhode Island.	7
South Carolina.	6
South Dakota.	4.5
Tennessee.	7
Texas.	6.25
Utah.	4.7
Vermont.	6
Virginia.	5.3
Washington.	6.5
West Virginia.	6
Wisconsin.	5
Wyoming.	4
CANADA PROVINCES impose QST/GST/PST & HST tax Average Check with each Province	
Alberta	5
British Columbia	12
Manitoba	13
New Brunswick	15
Newfoundland & Labrador	15
Northwest Territories	5
Nova Scotia	15
Nunavut	5
Ontario	13
PEI	14
Quebec	14.975
Saskatchewan	10
Yukon	5

## INFLATION / COST (COMPASS) INDEXES

**Base year is 1980:** The following historical database is a measure of inflation / escalation that has occurred in the process industry since 1980.

In addition to the state sales tax, a number of cities and towns apply additional taxes to the purchase of materials. These percentages can range from 0.5% - 2% of the purchase price of the material.

The U.S., like its main trading partners, imposes tariffs and import duties on materials and equipment imported into the country. These duties can range from 0% to as much as 15%. Individuals that need

YEAR	MATERIAL / LABOR INDEX INCREASE
1980	5.3%
1981	4.6%
1982	4.6%
1983	4.2%
1984	2.4%
1985	1.8%
1986	1.8%
1987	2.7%
1988	2.8%
1989	1.8%
1990	0.7%
1991	1.8%
1992	3.4%
1993	3.2%
1994	3.1%
1995	2.2%
1996	1.8%
1997	1.4%
1998	1.5%
1999	1.2%
2000	1.8%
2001	1.8%
2002	1.9%
2003	1.0%
2004	1.8%
2005	3.6%
2006	3.7%
2007	3.9%
2008	3.8%
2009	0.9%
2010	1.7%
2011	2.6%
2012	2.8%
2013	2.3%
2014	2.5%
2015	2.7%
2016	2.3%
2017	2.1%
2018	2.6%
2019	2.7%
2020	2.6%
2021	1.4%
2022	3.6%
2023	7.5%
2024	3.7%