



How to Calculate a Location Factor (LF)

Location factors (LF) are a fundamental product of any Estimating / Cost Engineering Consulting organization supporting industries with global assets and capital projects. Location Factors are an important tool / method in deciding the future concept / cost of Industrial / Energy / Oil & Gas or Commercial capital projects at the start of the initial feasibility consideration phase. An LF should be utilized for a Class 5 Estimate or an early Front End / Pre-Feed Feasibility study. It is typically the 1st step in the cost-estimating process when little or no project definition is available.

Here Is an Example of How LFs Work:

A recently constructed EV Battery Plant constructed in the USA costs \$300 million...what would a similar plant cost in (for example) Poland? Utilizing the USA value of \$300 million x 0.94 (which is Poland's LF), the facility would cost \$282 million in Poland; the accuracy of this estimate is in the +/- 35% range. A lot of unknowns still remain, however, it is a starting point in the estimating journey, which might take 2 or 3 estimating efforts to be approved by upper management (after a good amount of engineering, 40% to 60% is completed, and the scope of work is developed, which might take 3 to 9 months to complete).

An LF is a total project / all-encompassing calibration factor (multiplier) for converting all of the EPC capital project cost components of a described EPC capital construction project scope of work from one specific geographic location to another geographic location. For example, a facility located in the USA to a location in Poland (in the example above).

LFs are established at the very front end of a capital project life cycle. The Scope of Work (SOW) has not been established, the capital projects definition might be less than 5%. An LF is generally considered in the industry to be a Class 5 estimate with an accuracy of +/-35 % at best. An LF is perhaps the first step in the estimating process; it might take 2 or 3 additional estimates (the overall SOW, engineering needs to be developed, specification need to be developed, plot plans need to be established and the contracting approach needs to be planned) before Final Investment Decision FID / AFE Approve for Expenditure.

A Basic Headline of the Location Factor Process Embraces the Following Issues:

- Utilizing the cost of a completed facility in a base / benchmark location (location 1)
- Compiling an equivalent cost estimate in new / potential locations (location 2)
- Calibrate equivalent cost estimate with foreign materials, labor rates, productivity differentials, general conditions / preliminaries, etc.
- Stipulate basis and date of exchange rates utilized and projected inflation rates
- Determine detailed Architectural, Engineering, Procurement, Construction Management, Project Management / Control costs
- Incorporating ocean freight, import duties, any temporary camps, VAT, local taxes, and any other unique overseas country issues.

Divide location 1 by location 2 and the resulting value will be the appropriate Location Factor.

Compass International provides unbiased Location Factors / calibration factors for instantly translating construction-related costs of Industrial / Energy / Manufacturing / Commercial Facilities from one location country to another country.

Compass International completes 4 surveys each year. We contacted more than 100 countries' construction communities that include Architects, Engineers, EPCs, Contractors, and key Vendors to determine the latest construction material costs, labor billing rates, productivity metrics, detailed design costs & other related construction costs. We are networked with more than 30,000 LinkedIn members, which provides a rapid and cost-effective method of collecting real-time construction cost data. When the survey is completed, we compile each country's current LF.



Compass International has been tracking location factors of 100+ countries for the past 25+ years! Our newly released 2024 Global Construction Cost Database includes data on 100+ country's Location Factors, Productivity Factors, Benchmarks, Construction Labor Rates, SF / M2 Facility Unit Costs, Construction Material Costs, and much more!

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Refer to A & B Below for Each of the 125 Countries We Track and Report On:

A - Industrial / Chemical / Process / Manufacturing type facilities - such as Refineries, Power Plants, Chemical Facilities, Pharma / Bio & EV Facilities, utilizing a high % of imported process equipment such as reactors, heat exchangers, compressors, and the like, that are usually subject to host countries import duties.

Historical Cost Distribution benchmark related to (A) above:

1. Construction Labor 24%
2. Bulk materials (Concrete / Stone / Steel / Piping / Insulation / Paint) 25%
3. Major Equipment / Process items (Columns, Reactors Pumps, Compressors) 20%
4. Field In-Directs / Preliminaries / Temporary Site Establishment 12%
5. Engineering / Detailed Design / Procurement / Construction Mgmt. 13%
6. Fees /Taxes / Import Duties & Freight 6%

Unknown Factors Related to Location Factors:

- Buildings / facilities - architectural & structural drawings have not been developed
- Major process equipment and utility equipment are in their very early development stage; weights and sizes are preliminary at best
- The initial facility footprint / plant layout is subject to modifications
- Building finishes and material of construction are still unknown
- Specifications are unavailable
- Soil analysis report is unavailable; foundations & perhaps piling requirements are unknown
- Operating pressures and temperature have not been developed, and piping wall thicknesses - schedules / major equipment materials of construction are unknown

Location Factors are not intended to be used when preparing appropriation-quality estimates (i.e., Class 3 or better estimates).

Wrap-Up

Compass International provides unbiased Location Factors / calibration factors for instantly translating construction-related costs of Industrial / Energy / Manufacturing / Commercial Facilities from one location country to another country. One thing is for certain, LFs will be questioned by Upper Management and other construction professionals, the fact is that 10 different estimators will produce 10 different LFs, hopefully at the end of the day they will be reasonably close to each other.

John McConville CCP - Owner – Compass International Inc.

B - Buildings / Commercial Facilities / Civil Projects - such as Hotels, Schools, Warehouses, Offices, Apartments, and Highways utilizing a high % of local materials with minimal imported materials.

Historical Cost Distribution benchmark related to (B) above:

1. Construction Labor 26.5%
2. Bulk materials (Concrete / Stone / Steel / Piping / Insulation / Paint / Finishes) 27.5%
3. HVAC / Elevators / Electrical / Security Equipment 17%
4. Field In-Directs / Preliminaries / Temporary Site Establishment 11.5%
5. Architectural & Engineering / Procurement / Construction Mgmt. 12.5%
6. Fees /Taxes / Import Duties & Freight 5%

Issues That Impact Location Factors:

- Differing wage rates
- Different productivity
- Skilled worker availability or lack of
- Has the workforce been adequately trained on latest construction methods and safety issues?
- Can the workforce operate / use power tools
- Material costs
- Differing procurement method / host country stipulations
- Field in-directs / preliminaries
- Construction equipment utilization
- Lack of serviceable construction equipment
- Different construction codes
- Language differences
- Remote locations needing temporary camps
- Insurance differences
- Other project-specific issues



Visit our website below to view details of our 2024 Global Construction Cost database as well as our 7 other newly released 2024 Construction Cost Databases for that hard to find data that you have been searching for!

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