

## PRODUCTION FACILITY FEASIBILITY GUIDELINE

**A breakdown of common components and pricing plans for a complete Locrete Production Facility**

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**A guideline for establishing a production facility.**

**Prepared on:**

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*A disclaimer applies that the prices, components list and basic requirements serve only as a guideline and are not an official quote or final list of components and requirements. An official quote will be delivered upon written request containing a final list of all required components and their relevant prices. Locrete Industries or its affiliates bears no responsibility or liability for the information presented herein.*



## PRODUCTION FACILITY – COST + SPECS SUMMARY

Summary of all different elements of production facility. Detailed explanations of all information contained can be found in relevant sections.

### FACILITY BUDGET ESTIMATES:

*Initial investment:* USD 3.75 – 5 million

### WAREHOUSE DESIGN + CONSTRUCTION:

*Warehouse construction (included):* USD 1 million

*Land dimensions (l x w):* 200 m x 50 m

*Production hall (l x w):* 180 m x 21 m

### MACHINES, EQUIPMENT + COMPONENTS:

*Estimated price:* USD 2 million

### LABOUR REQUIREMENTS:

*Total personnel:* 27 workers

### PRODUCTIVITY RATES + COSTINGS:

*Production capacity:* 220,000 m<sup>2</sup> per year

### PRODUCTION LICENSE:

*5-year license* USD 500,000

*Annual renewal (post 5-year license):* USD 50,000



## INTRODUCTION

Locrete is a precast, prestressed building system that is cost efficient and renders structural, functional and aesthetic qualities.

The Locrete Building System is best utilized in the construction of housing projects, schools, public facilities, infrastructural facilities and other applications that require an affordable, precast solution geared for speed of construction, structural integrity and minimizing costs to the end user.

Locrete Industries Holding, the company qualified to transfer the technology for establishing Locrete facilities around the world, is extending every effort to provide the best opportunities to interested investors to assist in starting, constructing and operating these facilities.



## LOCRETE FACILITY – BUDGET ESTIMATE

A typical Locrete factory consists of these different facilities: a warehouse, casting beds, batching and mixing plant and a stockyard.

The warehouse construction, with all pertaining civil works for tensioning pits, casting beds and batching plant facility, is estimated at USD 1 million.

The initial expected investment will range between USD 3.75 – 5 million. The main elements include:

#	Item	Estimated cost
1	Land cost	<i>Variable</i>
2	Construction of warehouse + facilities	USD 1,000,000
3	Machinery + equipment (incl. shipping & insurance) + commissioning of factory	USD 2,000,000
4	Licensing fee per Production Facility (valid for 5 years)	USD 500,000
5	Working capital for 6 months	USD 250,000

The initial investment may vary depending on the required production capacity. The price of land is a matter particular to individual countries, so initial investment may vary once that is factored in.

An economically viable project requires a facility of 12 casting beds, 160 metres in length each.



## WAREHOUSE DESIGN + CONSTRUCTION

The size of the Locrete Production Facility depends mainly on the required production capacity, as well as the level of automation in the factory.

Locrete is produced to order and so the facility will not require large storage facilities for stock. Transportation from the production facility to the construction site is preferably outsourced. No construction or construction contracting returns are included in this study.

The basic requirements for a typical factory and its facilities include:

### LAND:

<i>Minimum length (recommended):</i>	200 linear metres
<i>Minimum width (recommended):</i>	50 linear metres

### PRODUCTION HALL + FACILITIES:

<i>Length (recommended):</i>	180 linear metres
<i>Width (recommended):</i>	21 linear metres
<i>Area (recommended):</i>	4200 m <sup>2</sup>
<i>Casting beds, number:</i>	12 beds
<i>Casting beds, length:</i>	160 linear metres
<i>Casting beds, width:</i>	1.45 linear metres / bed
<i>Offices:</i>	400 m <sup>2</sup>
<i>Labour facilities (if required):</i>	250 – 300 m <sup>2</sup>
<i>Laboratory:</i>	60 m <sup>2</sup>
<i>Stockyard:</i>	5000 – 7000 m <sup>2</sup>
<i>Spare-parts storage:</i>	150 m <sup>2</sup>
<i>Batching + mixing plant:</i>	1000 m <sup>2</sup>

### GENERAL REQUIREMENTS:

<i>Electrical supply:</i>	3 phase, 250 kVA peak consumption
<i>Water supply:</i>	120 m <sup>3</sup> / month
<i>Road access:</i>	Tarmac access to main road



## MACHINES, EQUIPMENT + COMPONENTS

The machines, equipment and facility components listed below are the basic requirements for the commercial production of Locrete. They are directly purchased from Locrete by the investor(s) through an international Letter of Credit. The numbers listed may be modified depending upon the future plans for expansion and/or the diversity of production.

<b>1 Casting beds</b>	<ul style="list-style-type: none"><li>+ Standard number of casting beds is 12 rows.</li><li>+ Beds must be cast accurately, levelled and polished, cast with reinforced concrete with side rails, harnessing chains, tensioning pits and counter-pressure rails.</li><li>+ Details and inserts will be provided to investor once an agreement has been signed.</li></ul>
<b>2 Batching + mixing</b>	<ul style="list-style-type: none"><li>+ 20 m<sup>3</sup> / hour batching plant comprising mixers, cement silos, aggregate silos, weighing belt, lifting belt or bucket, water tanks and admixture tanks.</li><li>+ All silos and structure of the batching plant can be locally manufactured, as per Locrete specs.</li><li>+ Silo filters, coupling flanges and cement feeding motors and screw are to be supplied by machine manufacturer.</li></ul>
<b>3 Strand stressing</b>	<ul style="list-style-type: none"><li>+ Tensioning devices for prestressing wire strands.</li><li>+ Comprising of pneumatic pressure pump, strand stressing jacks and clamps.</li></ul>
<b>4 Casting machine</b>	<ul style="list-style-type: none"><li>+ Locrete casting machine, specially designed for the production of Locrete elements.</li><li>+ Comes with built-in device required for producing elements to required sizes.</li></ul>
<b>5 Curing system</b>	<ul style="list-style-type: none"><li>+ System for curing Locrete elements on beds after casting.</li><li>+ Comprising of steam generating boiler, steam pipes and removable tarpaulin cover units OR hot air flow in coffer.</li></ul>
<b>6 Lifting machine</b>	<ul style="list-style-type: none"><li>+ Motorised mobile clamping + lifting machine, specially designed for dealing with Locrete elements.</li></ul>
<b>7 Dispatcher + cleaner</b>	<ul style="list-style-type: none"><li>+ Comprising of strands dispatcher, bed cleaner and oil-brushing device required for preparation of casting beds.</li></ul>
<b>8 Concrete transport</b>	<ul style="list-style-type: none"><li>+ Comprising two overhead cranes, capacity of 10-tonnes and 5-tonnes respectively, spanning 20 metres.</li><li>+ Concrete buckets, steel rails, electric cables and one forklift</li><li>+ Can make do with one 10-tonne crane, depending on required production capacity.</li></ul>
<b>9 Miscellaneous</b>	<ul style="list-style-type: none"><li>+ Water pumps, air compressors, lab equipment, utilities networks and safety gear should also be accounted for, as well as vehicle requirements (forklift, skid loader).</li></ul>

The cost of the required machinery and equipment is estimated at USD 2 million.



## LABOUR REQUIREMENTS

#	Personnel	Required #
<i>Production + marketing office</i>		
1	Facility + production manager	1
2	Administrative assistant	1
3	Architect	1
4	Draftsman	1
5	Purchasing + inventory officer	1
6	Quality control officer	1
7	Accountant	1
8	Marketing + sales officer	1
<i>Factory floor</i>		
9	Foreman	1
10	Maintenance technician	1
11	Control room operator	1
12	Control room assistant	1
13	Lab technician	1
14	Casting machine operator	1
15	Cutting & stacking operator	1
16	Bed cleaning, wire dispatching + tensioning	3
17	Strapping + loading	2
18	Batching + mixing	1
19	Electrician (technician)	1
20	General labourers + security guards	3



**PRODUCTIVITY RATES + COSTINGS**

#	Description	Production rates		
		275 days / year	8 hours	Hourly
1	7 hours per bed with 1 hour reserve (in m <sup>2</sup> ):	220,000 m <sup>2</sup>	960 m <sup>2</sup>	120 m <sup>2</sup>
2	13.3 linear metres in each square metre of Locrete on casting bed; total per year in linear metres (lm):	2,926,000 lm	10,640 lm	1,330 lm
3	Average square metre of Locrete in cubic metre is 16.1 (16.1 m <sup>2</sup> = 1 m <sup>3</sup> ). 1 m <sup>3</sup> of concrete renders 17.7 m <sup>2</sup> of slab elements and 15.6 m <sup>2</sup> of wall elements. Average walls and slabs per year is 16.1 m <sup>2</sup> / m <sup>3</sup> of concrete. Allowing adjustment of 5% of total for waste (in m <sup>2</sup> ):	14,348 m <sup>2</sup>	52 m <sup>2</sup>	6.5 m <sup>2</sup>
4	Double-shift production, 16 hours, 250 days (in m <sup>2</sup> ):	352,000 m <sup>2</sup>	1,408 m <sup>2</sup>	88 m <sup>2</sup>
5	Volume in m <sup>3</sup> , 16 hours, 250 days	22,957 m <sup>3</sup>	92 m <sup>3</sup>	5.74 m <sup>3</sup>

Production, transportation and installation costs are detailed in the attached price template. Prices are based on the Kuwait market and are subject to fluctuation. These figures may change but they give an adequate idea of expected costs, selling price and potential profit.





## **PRODUCTION LICENSE**

In order to set-up and operate a Locrete production facility, or produce Locrete in an already existing facility, a fee of USD 500,000 must be paid for a production license. This license will remain valid for the first 5 years of production after which it may be renewed annually – subject to brand and quality assurance audits conducted by Locrete or its appointed representative – for a fee of USD 50,000 per licence, per facility.

The Locrete Production License is issued to a specific production facility and a named owner (either individual or company) and must be purchased for every facility used to produce the Locrete system or for every Locrete casting machine purchased. Licenses are not transferable and must be issued to each individual facility, regardless if owned by the same company or person.

A sample agreement is included in this guideline for review.