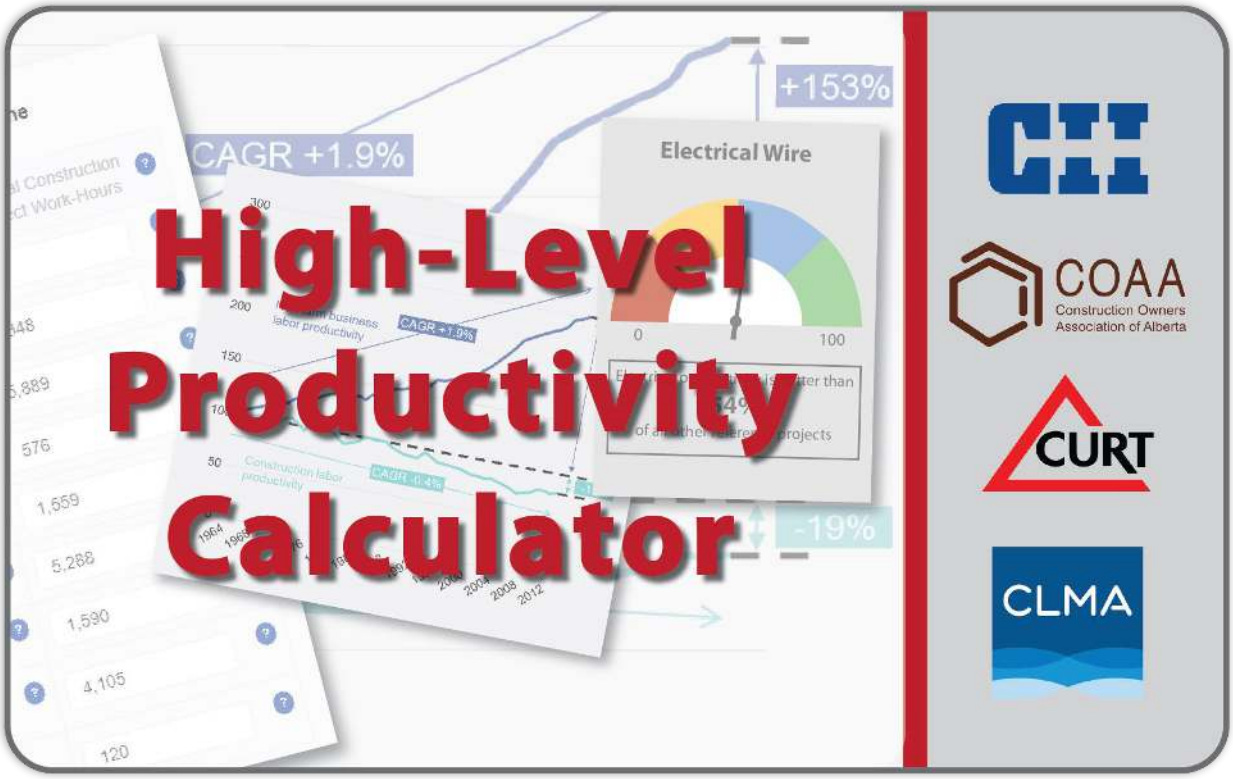
Productivity Calculator User Guide



Introduction

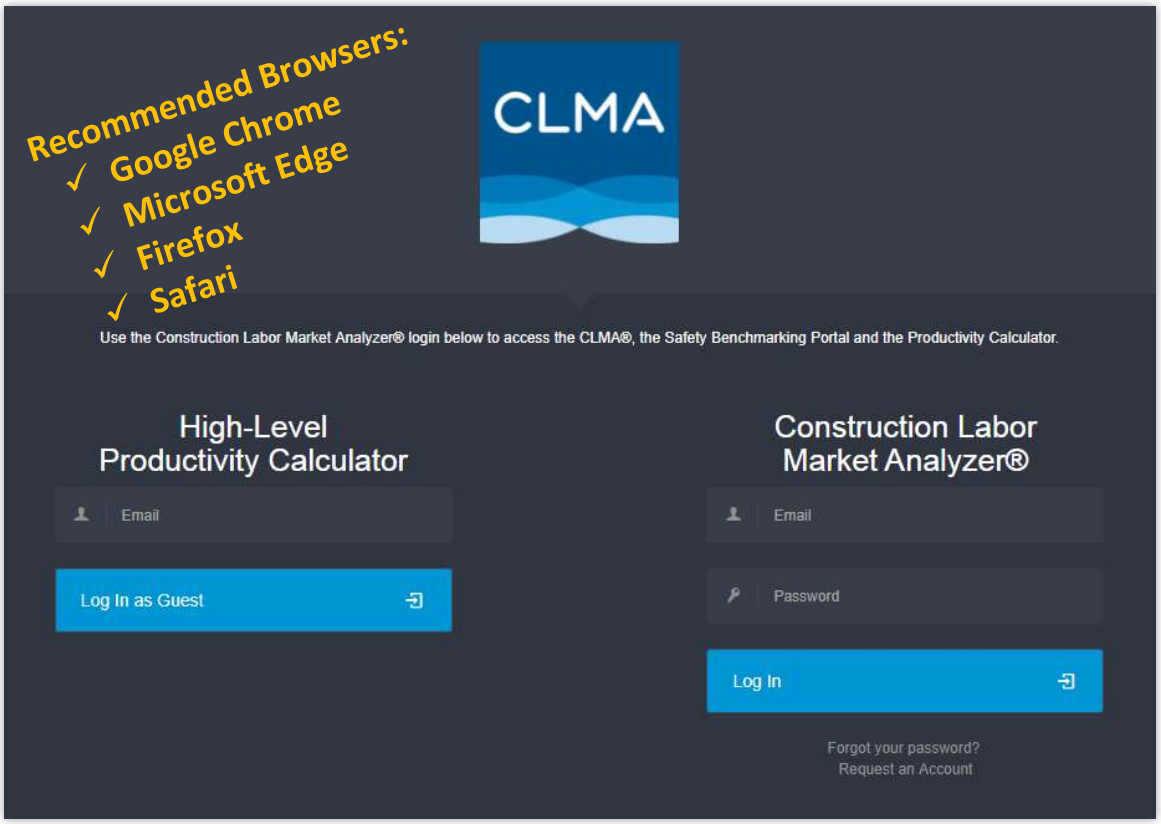
The High-level Productivity Index (HLPI) is a single project score that benchmarks your project's productivity versus other projects in North America. This index, developed by **CII** and **COAA**, and launched in collaboration with **CURT** and **CIR**, is available through this free online prototype. Note that while you can benchmark any capital project, the system's baseline relies on industrial data to generate benchmarks.

The project HLPI is based on craft labor productivity data (hours & installed quantities) for 8 disciplines:

- Concrete
- Structural Steel
- Piping
- Piping Insulation
- Electrical Wire & Cable
- Instrumentation
- Equipment
- Modules & Pre-Assembled Skids

Since each disciplines' productivity (measured in hours per unit installed quantity) is measured in different units, a statistical treatment is used to convert them into unitless numbers (more specifically, these are converted into Z scores, which indicate how far your discipline score is from the average). Once these unitless numbers are calculated, a weighted average aggregates them into a single HLPI score. The HLPI is a number between 0 and 100 – the higher the number, the better the project productivity.

Productivity Calculator User Guide



www.myCLMA.com/productivity-calculator

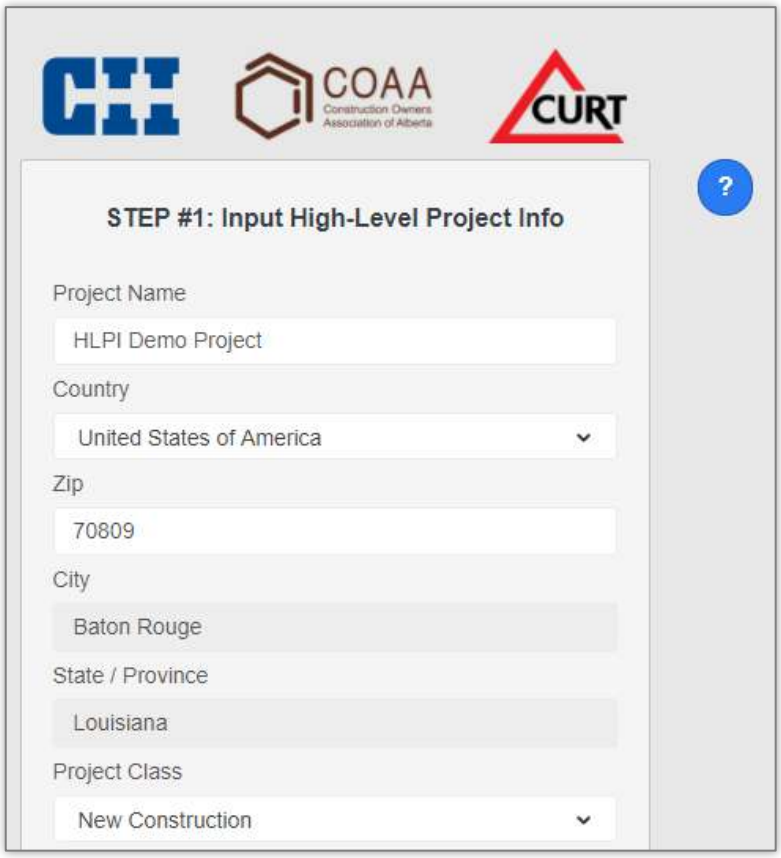
How to Access the HLPC (Use ONLY Chrome, Edge, Firefox or Safari Internet browsers):

1. If you already have a CLMA® account, login on the right side of the access page and begin by accessing the Productivity Calculator feature on the left navigation. If this is not active, contact the CLMA Service Team at service@myCLMA.com. **Do NOT use Internet Explorer as it will not allow full use of the HLPC features & modules.**

2. Set up a guest account…
    a. Input your email address on the "Log In As Guest" side of the access page.
    b. Accept the Terms & Conditions and Anti-Trust policies – confidentiality is our highest priority.
    c. Provide basic contact information and get started.
    d. NOTE: With your guest account, you can access the HLPI and benchmark up to 5 projects – be sure to print or screenshot your report each time you use the application as your report will be lost after you navigate away from the report page. After 5 projects, a full account must be set up and approved.

3. Set up a full CLMA® account…
    a. Click "**Request An Account**" and complete the easy steps to set up your account.
    b. Your account will be approved by the Admin within 24-48 hours; however, to expedite this, contact the CLMA Service Team at service@myCLMA.com.
    c. If you need to convert your guest account to a full account, contact us service@myCLMA.com.
    d. Your full account will enable you to retain your projects and reports.

Productivity Calculator User Guide



Step #1: Input High-Level Project Info

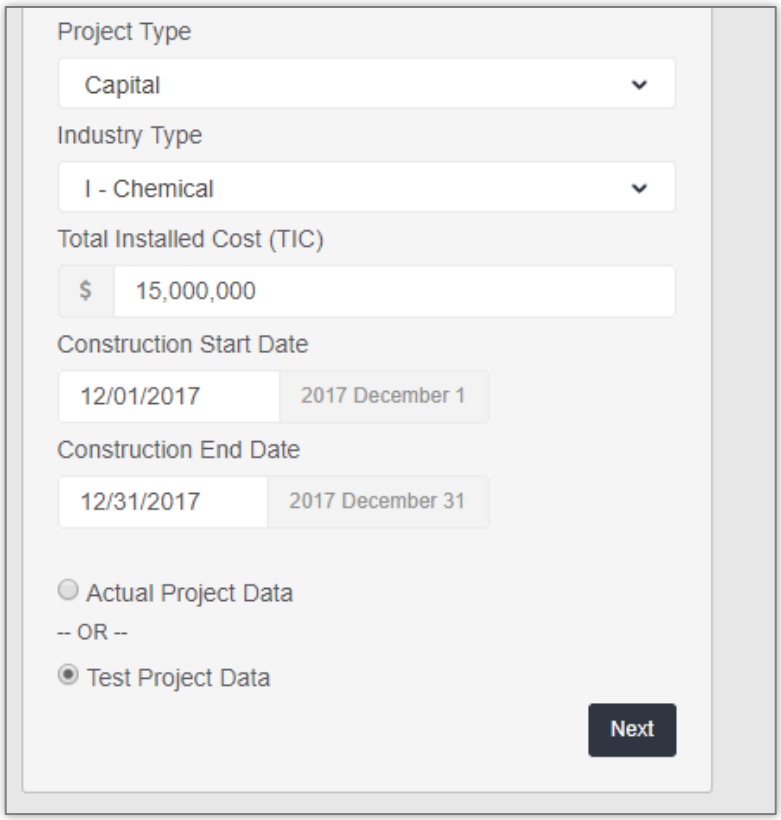
General project information…

- Project Name
- Project Country (currently only the United States and Canada)
- Project Zip Code
- Project Class – Capital, Turnaround, Maintenance

All fields are required

Data submitted through the system is validated before storing in the database for future inclusion in the statistical population.

Project data Excel template is displayed below and may be downloaded at www.myclma.com/productivity-calculator



Step #1: Input High-Level Project Info (cont.)

General project information…

- Project Type – Capital, Turnaround, Maintenance, Annual Capital Program
- Project Total Installed Cost
- Project Start/End Dates

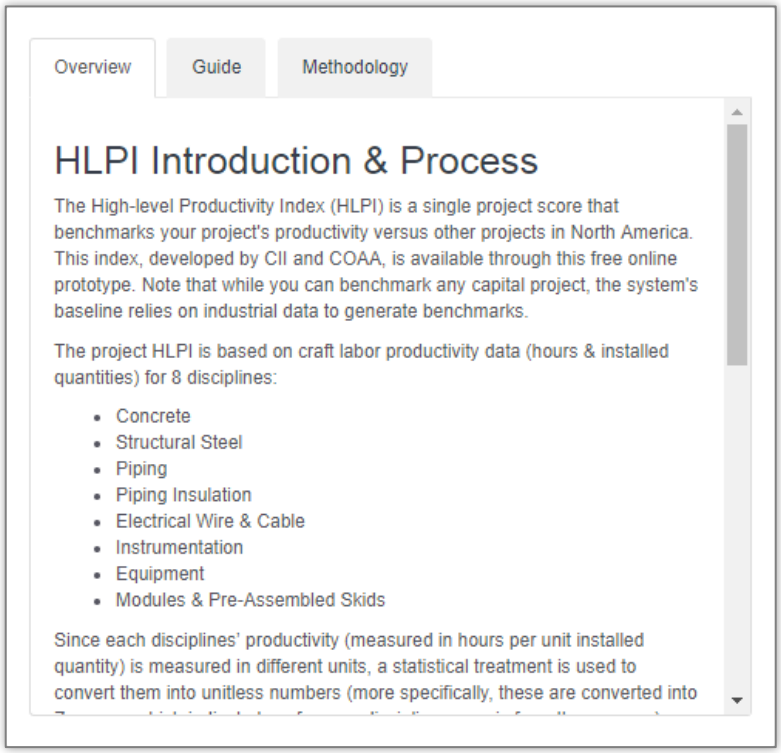
All fields are required

Data submitted through the system is validated before storing in the database for future inclusion in the statistical population.

If you are testing the application and entering invalid test data, check "Test Project Data", which flags the data as temporary and it will not be validated or used statistically.

Choosing “Actual Project Data” retains the information for validation and future access.

Productivity Calculator User Guide

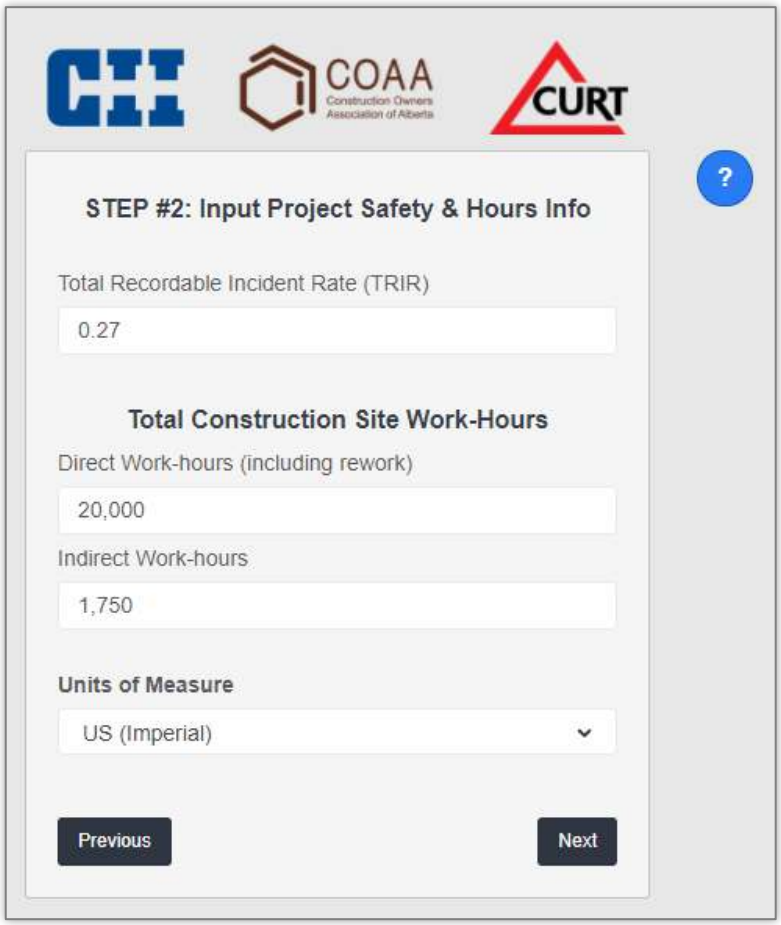


User Assistance

Anywhere in the HLPC application where a blue circle containing a question mark is visible, information to assist the user is available.

Click on the blue circle for a small modal window which contains information related to that particular data request.

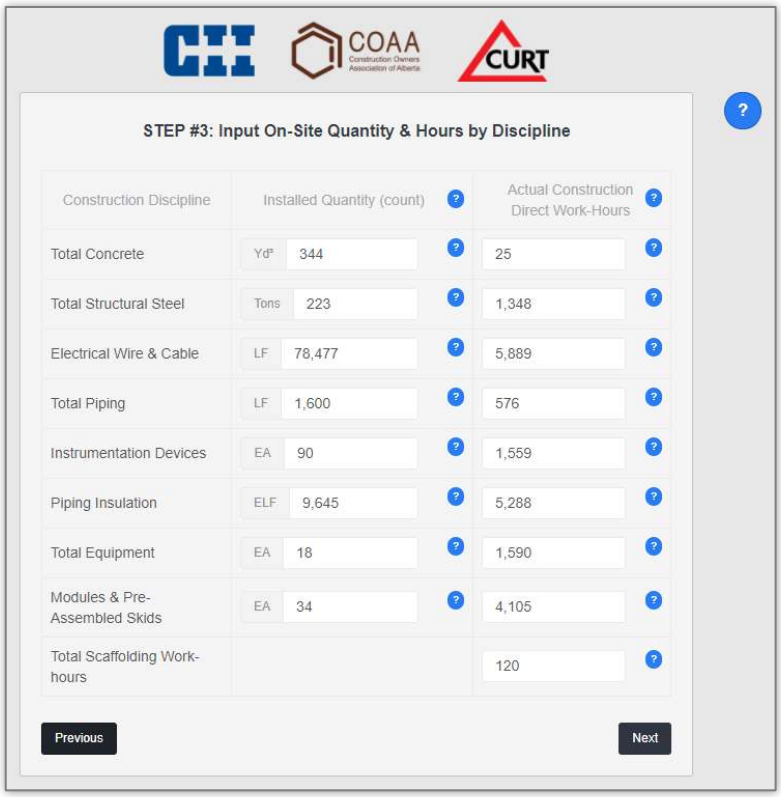
For the large blue circle, as shown to the left, more general information is available such as an overview, user guidance and the report calculations methodology.



Step #2: Input Project Safety & Hours

- Total Recordable Incident Rate (TRIR)
- Total direct work-hours, including rework
- Total indirect work-hours
- Select units of measure. All subsequent quantities will be asked in the selected unit system. Please be mindful of the units being used. This is preset by default when you choose the country, but you can change if needed.

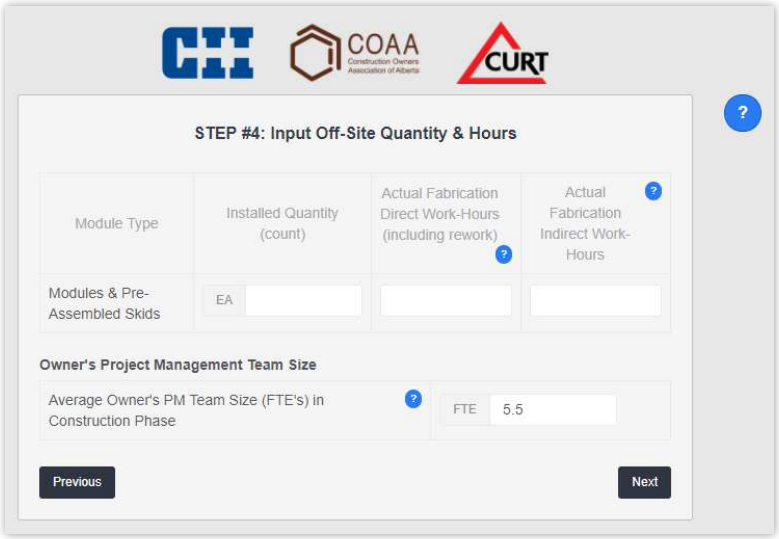
All fields are required



Step #3: Input On-Site Quantity & Hours by Discipline

- Quantities and hours for up to 8 disciplines. If you did not perform or do not have data about certain disciplines, leave the corresponding cells blank. Do not enter zero in either the quantity or hours fields.
- Quantities should reflect installed quantities and should not include rework quantities (quantities removed or wasted due to rework).
- Reported workhours should reflect actual worked hours (rather than planned hours) and include any hours spent on rework.

At least one discipline must be entered and both data fields for that discipline must be completed.



Step #4: Input Off-Site Quantity & Hours

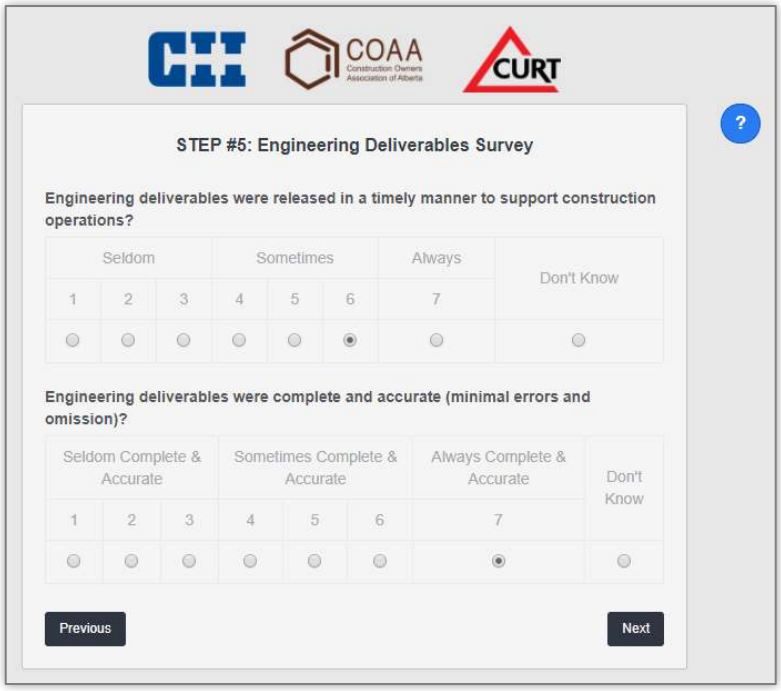
- Number of modules and pre-assembled skids

  This field is optional

- Project management team size

  This field is required

NOTE: Data reported for safety, engineering quality, modules and pre-assembled skids, scaffolding hours, and project team size will not currently affect your productivity index; however, they will help over time to assess correlations between these factors and productivity levels.

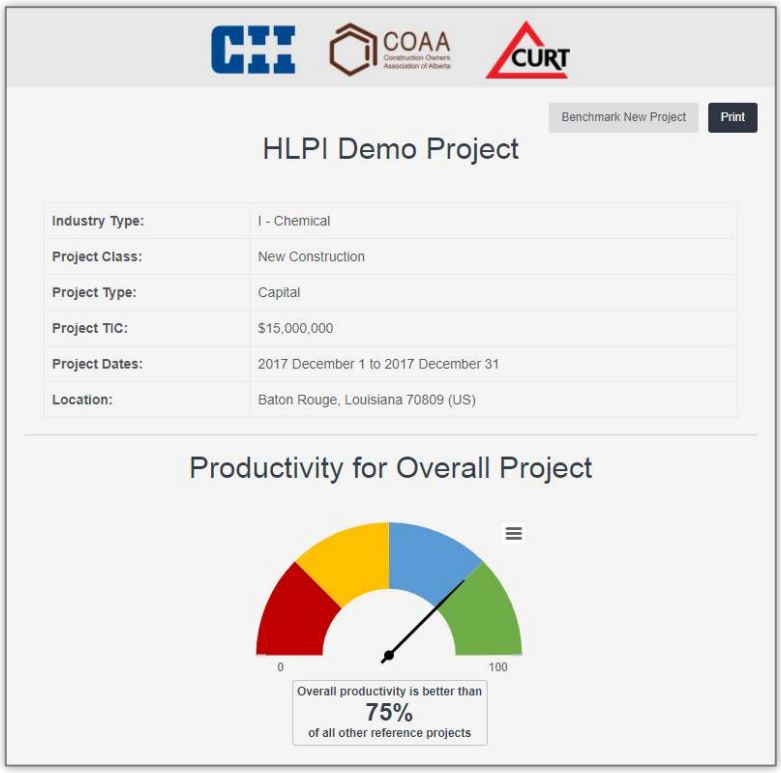


Step #5: Engineering Deliverables Survey

- Timing and quality of engineering deliverables

  This field is required

Productivity Calculator User Guide



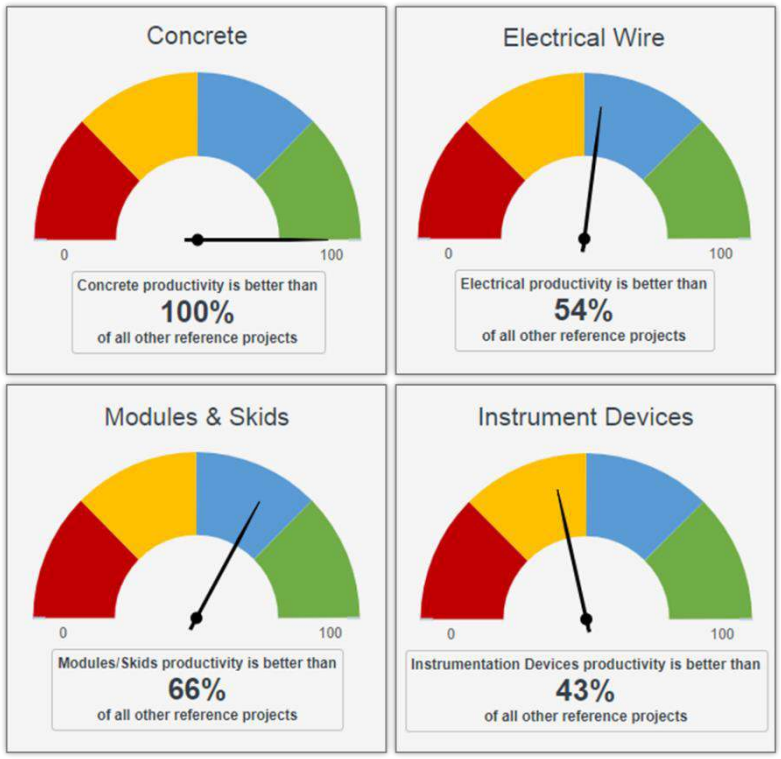
Report Generation & Display

The report will summarize the project information provided during the survey process.

The report will provide gauge charts to indicate how your project overall compares to the database of validated projects.

If you accessed the HLPI as a guest, your data and report will NOT be retained for future access. Be sure to print this report, save it as a PDF and/or make screenshots for your records.

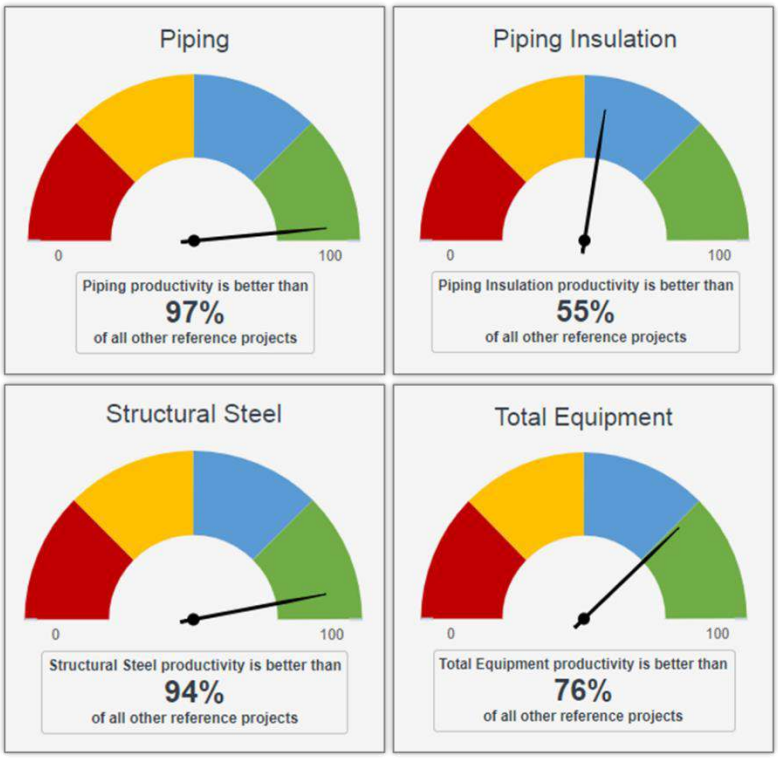
A full CLMA® account enables retention and retrieval of your data and reports.



Report Generation & Display

The report will provide gauge charts to indicate how each discipline submitted for your project compares to the database of validated projects.

Productivity Calculator User Guide



Report Generation & Display

The report will provide gauge charts to indicate how each discipline submitted for your project compares to the database of validated projects.

Project Safety & Hours Info

Total Recordable Incident Rate (TRIR):	.27
Direct Work-hours (including rework):	20,000
Indirect Work-hours:	1,750

On-Site Quantity & Hours by Discipline

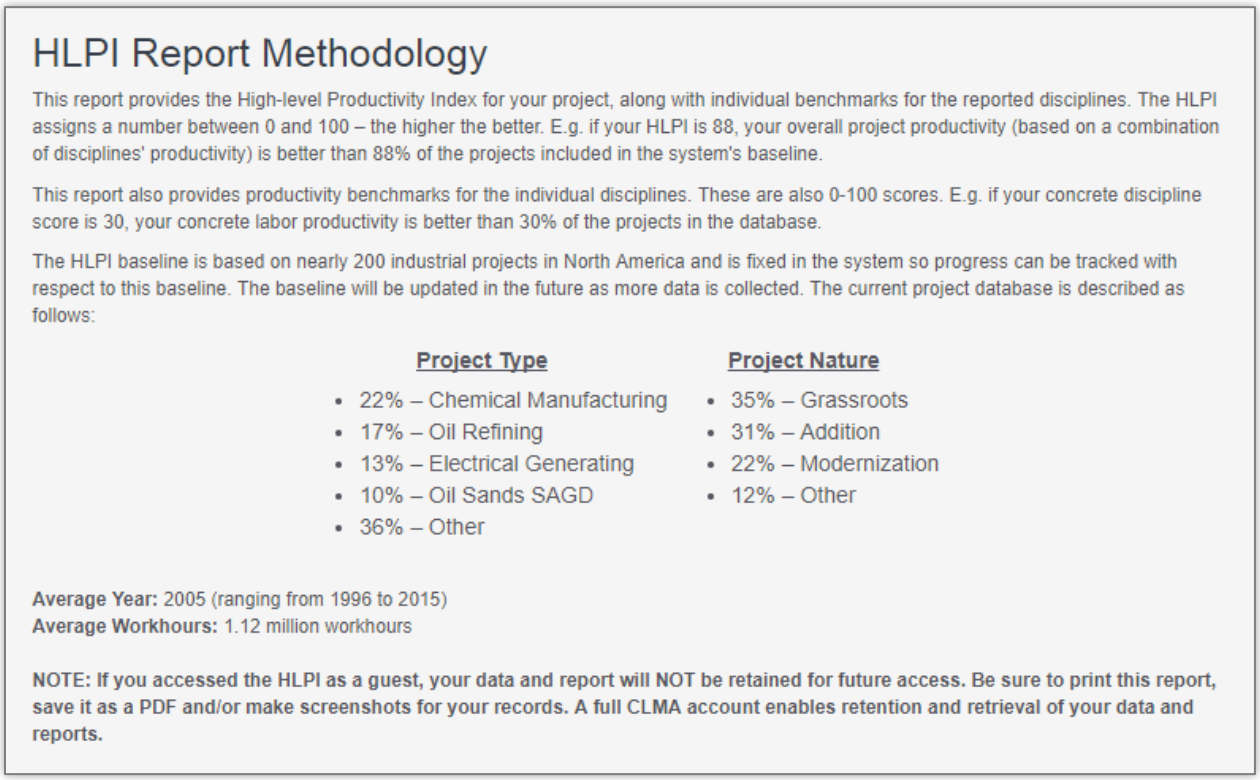
Construction Discipline	Installed Quantity	Actual Construction Direct Work-Hours
Total Concrete	344 Yd³	25
Total Structural Steel	223 Tons	1,348
Electrical Wire & Cable	78,477 LF	5,889
Total Piping	1,600 LF	576
Instrumentation Devices	90 EA	1,559
Piping Insulation	9,645 ELF	5,288
Total Equipment	18 EA	1,590
Modules & Pre-Assembled Skids	34 EA	4,105
Total Scaffolding Work-hours		120

Off-Site Quantity & Hours

Average Owner's PM Team Size (FTE's) in Construction Phase	5.5

Report Generation & Display

The report will summarize the project information provided during the survey process.



HLPI Report Methodology

This report provides the High-level Productivity Index for your project, along with individual benchmarks for the reported disciplines. The HLPI assigns a number between 0 and 100 – the higher the better. E.g. if your HLPI is 88, your overall project productivity (based on a combination of disciplines' productivity) is better than 88% of the projects included in the system's baseline.

This report also provides productivity benchmarks for the individual disciplines. These are also 0-100 scores. E.g. if your concrete discipline score is 30, your concrete labor productivity is better than 30% of the projects in the database.

The HLPI baseline is based on nearly 200 industrial projects in North America and is fixed in the system so progress can be tracked with respect to this baseline. The baseline will be updated in the future as more data is collected. The current project database is described as follows:

Project Type
- 22% – Chemical Manufacturing
- 17% – Oil Refining
- 13% – Electrical Generating
- 10% – Oil Sands SAGD
- 36% – Other

Project Nature
- 35% – Grassroots
- 31% – Addition
- 22% – Modernization
- 12% – Other

Average Year: 2005 (ranging from 1996 to 2015)
Average Workhours: 1.12 million workhours

NOTE: If you accessed the HLPI as a guest, your data and report will NOT be retained for future access. Be sure to print this report, save it as a PDF and/or make screenshots for your records. A full CLMA account enables retention and retrieval of your data and reports.

Report Methodology

This report provides the High-level Productivity Index for your project, along with individual benchmarks for the reported disciplines. The HLPI assigns a number between 0 and 100 – the higher the better. E.g. if your HLPI is 88, your overall project productivity (based on a combination of disciplines' productivity) is better than 88% of the projects included in the system's baseline.

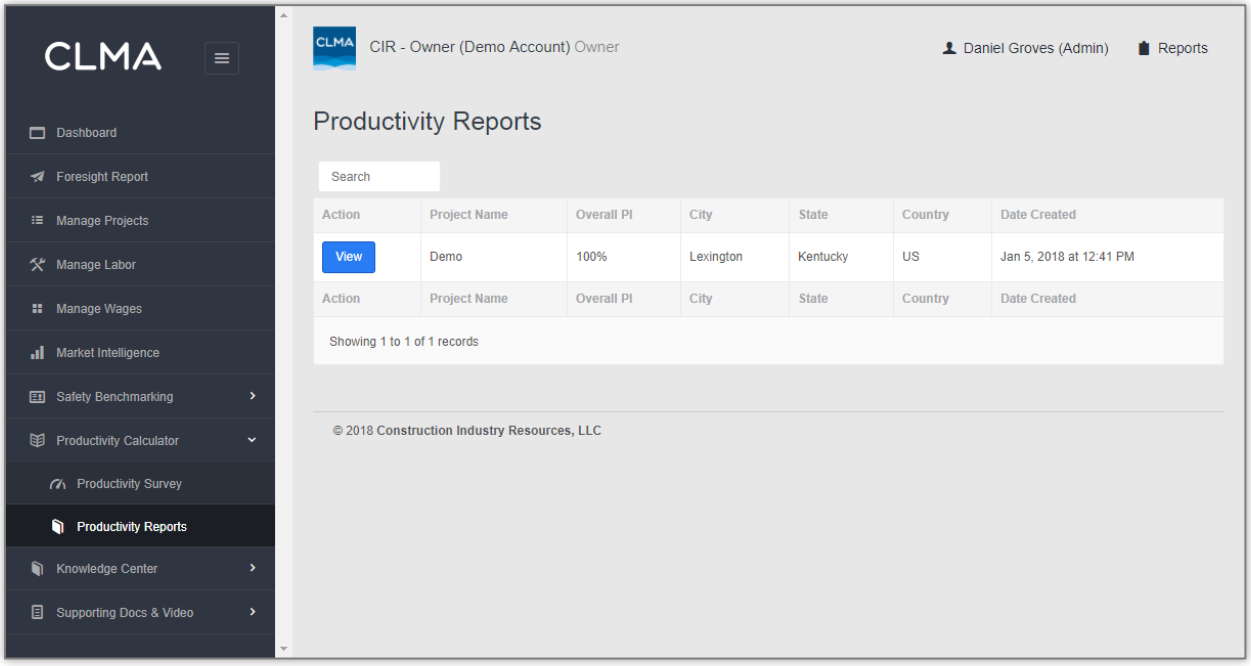
This report also provides productivity benchmarks for the individual disciplines. These are also 0-100 scores. E.g. if your concrete discipline score is 30, your concrete labor productivity is better than 30% of the projects in the database.

The HLPI baseline is based on nearly 200 industrial projects in North America and is fixed in the system so progress can be tracked with respect to this baseline. The baseline will be updated in the future as more data is collected. The current project database is described as follows:

Project Type	Project Nature
22% – Chemical Manufacturing	35% – Grassroots
17% – Oil Refining	31% – Addition
13% – Electrical Generating	22% – Modernization
10% – Oil Sands SAGD	12% – Other
36% – Other	

Average Year: 2005 (ranging from 1996 to 2015)

Average Workhours: 1.12 million workhours



Project Data Retention

With an approved CLMA® account (even a basic account with free HLPC access), if the project data entered was designated as "Actual Project Data", each project submitted is retained, and the resulting reports be accessed via the "Productivity Reports" button in the left navigation pane.

In addition, if you have a full CLMA® account, with access to the "Manage Projects" feature in the left navigation, each project entered is set up initially. To complete the project setup process, locate the project in this module, click "Edit Project" under the "Action Button", complete the setup process and your project will be ready for additional analysis, including labor risk analysis, safety performance tracking and total project excellence tracking, which enables a more detailed level of productivity benchmarking. This functionality is currently only available in the U.S.

Future Phases

Everything described in this document above represents Phase 1 of the HLPC. Around mid-2018, we plan to begin the next phases of the HLPC, which are expected to include, minimally, the following features and capabilities…

- Full project capability for Canada and other parts of the world
- Highly granular benchmarking
    - By country, state, region, zip code
    - By specific industry segments
    - By capital vs. maintenance/turnaround project types
    - By project size (TIC$)
- All CLMA® modules will be fully and dynamically interactive so that data entered in one module populates across all related modules…
    - Project Management
    - Labor Risk Analytics
    - Productivity Tracking (Project Excellence)
    - Productivity Calculator
    - Safety Benchmarking

Productivity Calculator User Guide

The following project data Excel template is recommended for organizing data prior to input and may be downloaded at www.myclma.com/productivity-calculator. This file may also be used to submit a project for entry.

HLPC Project/Data Submission Form

Complete Column B and submit the Excel file. Green shaded cells contain picklist options.

Data Description	Data Field	Data Guidance
Company Name		*Text*
First Name		Text
Last Name		Text
Email		Email Format
Project Name		Text
Country		U.S. or Canada
State or Province		Text
City		Text
Zip Code		U.S. or Canada Format
Total Installed Cost		Whole Number
Project Class ID		Picklist
Project Type ID		Picklist
Industry Type ID		Picklist
Project Status ID		Picklist
Start Date		mm/dd/yyyy
End Date		mm/dd/yyyy
Project Total Recordable Incident Rate (TRIR)		Up to 2 Decimal Places
Direct Work Hours		Whole Number
Indirect Work Hours		Whole Number
Measurement System		Picklist: Metric or Imperial
Onsite Total Concrete		Whole Number (Yd³ / M)
Onsite Total Concrete Work Hours		Whole Number
Onsite Total Structural Steel		Whole Number (Tons / MT)
Onsite Total Structural Steel Work Hours		Whole Number
Onsite Electrical Wire		Whole Number (LF / LM)
Onsite Electrical Wire Work Hours		Whole Number
Onsite Total Piping		Whole Number (LF / LM)
Onsite Total Piping Work Hours		Whole Number
Onsite Instrument Devices		Whole Number (EA)
Onsite Instrument Devices Work Hours		Whole Number
Onsite Insulation Piping		Whole Number (ELF / MLF)
Onsite Insulation Piping Work Hours		Whole Number
Onsite Total Equipment		Whole Number (EA)
Onsite Total Equipment Work Hours		Whole Number
Onsite Modules Skids		Whole Number (EA)
Onsite Modules Skids Work Hours		Whole Number
Onsite Total Scaffolding Work Hours		Whole Number
Offsite Modules Skids		Whole Number (EA)
Offsite Modules Skids Direct Work Hours		Whole Number
Offsite Modules Skids Indirect Work Hours		Whole Number
Full-time Equivalents (FTEs)		Up to 2 Decimal Places
Engineering deliverables were released in a timely manner to support construction operation?		Satisfaction Scale Picklist
Engineering deliverables were complete and accurate (minimal errors and omission)?		Satisfaction Scale Picklist

Construction Industry Resources www.myCLMA.com Page 1 of 1