Bulk Materials Handling
Sector Profile
# Table of Contents

## CMC ENGINEERING GROUP LTD
- Introduction 1.0
- Our People 2.0
- Our Strengths 3.0

## CMC ENGINEERING AND MANAGEMENT LTD
- CMCEM's Services 4.0
- CMCEM's Experience 5.2
- CMCEM's Experience - Bulk Materials Handling 5.2
- CMCEM's Contacts 6.0
Introduction

CMC Engineering and Management Ltd. is an employee-owned engineering consulting firm specializing in design processing engineering, procurement, project management, as well as operational needs of the bulk material handling, grain, wood pellets, feed and cruise ship industry and operational needs of the food and grain industry.

The company was founded in 1990 by a group of senior material handling and grain industry engineers based in Vancouver, BC. Since its inception, CMC Engineering Group Ltd. has continued to evolve, expanding and diversifying its consulting and project management services in response to the evolving needs of the industry.

The company’s engineering services are highly integrated with its logistics, food processing, material handling and automation software development services.

CMC Engineering Group Ltd. continues to be a highly respected and innovative consulting and project management firm within the malting, feedmill, grain handling and emerging value-added sectors of the grain and biomass industry.
Lucio B. Sacchetti  
President and Chief Executive Officer  
CMC Engineering Group Ltd. and CMC Engineering and Management Ltd.

Mr. Sacchetti is responsible for the creation and management of this unique, highly qualified and multi-disciplinary CMC Engineering Group Team.

He brings over forty years of experience in integrated plant design and construction, including all of the phases - from planning, design, construction and commissioning - and the overall project management associate. His particular strengths lie in upgrading and automating material handling facilities, in particular grain handling and processing plants, to maximize efficiency and reliability, with a net end result of significantly reduced operating costs.

He has previously held a diversity of senior management positions in the engineering consulting sector, and has taken charge of many comprehensive and complex projects from conceptual planning through to plant commissioning and start-up. His achievements in this sector, ranging from junior engineer to Vice-President of a larger engineering firm, are notable.

Michel Vander Noot  
Vice-President  
CMC Engineering and Management Ltd.

Mr. Vander Noot oversees all technical aspects of the company.

Having been involved in the design and implementation of large projects since 1973, his experience covers a wide variety of projects including full industrial facilities, custom designed machinery, new installations, retrofits and maintenance.

His strength lies in the ability to provide solutions tailored each individual application. Maintainability, constructability, cost, and performance are all considered during development and implementation of the processes.

Mr. Vander Noot is also in charge of the development of CMC's custom designed passenger gangway systems for the cruise ship industry. These gangways, in use in both North America and Europe, allow for the rapid and safe transfer of passengers to and from vessels. They operate in an unattended manner and adapt themselves to a wider range of vessels than previously possible.
Our Strengths

Services offered by the company cover all phases of project work from pre-feasibility studies, technical due diligence reports, through design, management, and on to final implementation. A unique feature of the company is its wide variety of disciplines offered: pre-feasibility studies, technical/economic feasibility studies, PPP agreements in various forms of delivery, operating and capital cost analysis, total engineering services, basic process design, and application software for overall facility management systems.

The principals and key personnel of CMC Engineering Group Ltd. have considerable experience both in their own individual fields of expertise, and also in working as a team on some of the most innovative projects in the agrifood sectors on six continents in the last twenty-two years.

Average projects (capital expenditures) for CMC Engineering Group Ltd. personnel are in the $20 million to $40 million range, and have ranged from under one million dollars up to the $110 million, with the largest project of $250 million executed in India for the GOI for food grain storage and logistics.

Average projects in the provision of studies and reports throughout the world have ranged from $100,000 to over $2.5 million.

The principals and key staff of CMC Engineering Group Ltd. have been recruited and organized to offer the following attributes:

◆ The ability, based on proven experience, to confidently undertake complex and extensive projects requiring multi-disciplinary operations.

◆ The ability to define the required resources and then to properly manage them even under difficult conditions.

◆ The ability to recognize when changes are required and when they are not, and to adapt successfully to these conditions.

◆ The ability to blend into the client’s operations in order to best represent the latter’s interests during the execution of the work.

CMC Engineering Group Ltd. specializes in the engineering of industrial facilities, particularly bulk material handling and logistics, food processing plants, and industrial plants.

CMC believes in supplying superior and comprehensive services to its clients, and in providing leadership and taking responsibility for the overall development and performance of the end product.
CMCEM’s SERVICES

Technical-Economic Feasibility Studies
- Definition of Objectives
- Identification of Appropriate Technology
- Opportunities for Technology Enhancement
- Process Research and Development
- Technology Risk/Benefit Appraisals
- PPP Agreements in Various Forms of Delivery
- Due Diligence / Technical Audits

Business Analysis and Planning
- Cost Management
- Procurement and Expediting
- Contracts: preparation and administration
- Schedules: preparation and monitoring
- Organizing and Manpower/Staffing
- Quality Control
- Regulatory Compliance

Project Planning, Conceptual and Preliminary Design
- Project Objectives
- Define Scope of Work
- Estimates and Budgets
- Schedules
- Contracts Strategy

Design Engineering
- Evaluation of Alternative Design
- Concepts
- Identify Impact of New Technology on Conventional Total System/ Facility Designs
- Cost/Benefit Studies
- Evaluation of Environmental and Regulatory Compliance Factors
- Detail Comparisons of Primary Alternatives
- Identification of Time and Cost Objectives

Project and Construction Management
- Construction Engineering
- Contracts Administration
- Schedule Monitoring
- Construction Cost Control
- Quality Control
- Field/Site Services Management

Services offered by the firm include all phases of project development, from inception through to full implementation, including:

- Pre-feasibility Studies
- Due Diligence Technical and Financial Reports
- Technical / Economic Feasibility Studies
- PPP Agreements
- Conceptual Planning
- Preliminary Design
- Project Planning
- Project Management
- Design Engineering
- Management Systems
CMCEM’s SERVICES

- Site Accounting
- Claims and Extras
- Control
- Negotiation

Plant Automation
- Power Distribution
- Motor Control Centers
- Field Instrumentation
- PLC Systems
- Human-Machine Interfaces
- Operations Automation
- Operations Support Data Systems

Services offered by the firm include all phases of project development, from inception through to full implementation, including:

- Pre-feasibility Studies
- Due Diligence Technical and Financial Reports
- Technical / Economic Feasibility Studies
- PPP Agreements
- Conceptual Planning
- Preliminary Design
- Project Planning
- Project Management
- Design Engineering
- Management Systems
CMC Engineering and Management Ltd.’s initial consulting assignment was to study new business opportunities for Vancouver Wharves Ltd.’s bulk cargo rail receiving and shiploading facility.

CMC provided both marketing and capital investment input into Vancouver Wharves’ long term planning process. This process led to a decision to invest in efficiency enhancement of the existing bulk cargo business, and to invest in the specialized material handling facility required for the agribusiness, specialty crop, shiploading market.

CMC was selected to design a new rail yard to accommodate 115 car unit trains, and a new agriproduct bulk rail receiving, weighing, storage, and shiploading facility.

Products to be shipped by the new facility included:

- Sulphur and other bulk chemicals,
- Ore concentrates,
- Agri products including alfalfa cubes, malt, peas and beans, and other grain commodities.

Achievement of the objectives for product handling costs required innovative design solutions to the rail yard design. Spiral loop tracks were designed to provide sufficient track length to continuously unload up to 115 car trains in a very limited area.

Services Provided:

- Conceptual design for restructuring rail handling for Berths 1, 2, 3, 4 and 5.
- Project management and preliminary engineering of infrastructures for Berths 1 to 5.
- Preliminary and detailed engineering for new specialty grain handling facility.
- Preliminary and detailed design of loop track rail yard and infrastructures for Berths 4 and 5.
CMCEM’s Experience

5.2

<table>
<thead>
<tr>
<th>Project:</th>
<th>Grain Transportation and Terminal Cost Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client:</td>
<td>Canadian National Railway</td>
</tr>
<tr>
<td>Location:</td>
<td>Winnipeg, Manitoba, Canada</td>
</tr>
</tbody>
</table>

CMC Engineering and Management Ltd. is providing transportation cost and terminal cost analysis for grain movement to the west coast.

- A number of terminal models were developed to compare handling cost in the Pacific Northwest.
- This is an ongoing assignment.
CMCEM’s Experience

5.2

Bulk Materials Handling

<table>
<thead>
<tr>
<th>Project:</th>
<th>Dock Upgrading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client:</td>
<td>Ports Canada</td>
</tr>
<tr>
<td>Location:</td>
<td>Port of Churchill, Manitoba</td>
</tr>
<tr>
<td>Capital Cost:</td>
<td>$10 million Cdn (total project)</td>
</tr>
</tbody>
</table>

Senior personnel of CMC Engineering and Management Ltd. was responsible for the detailed engineering of this project.

Services Provided:

- Detailed design for new caisson foundations to stabilize the existing dock.
- Detailed design of new fenders for the dock.
- Upgrade of the dock surface.
- Construction supervision.
CMCEM’s Experience

**Bulk Materials Handling**

<table>
<thead>
<tr>
<th>Project:</th>
<th>Barge Unloader and Shipping System Upgrade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client:</td>
<td>Bunge Corporation</td>
</tr>
<tr>
<td>Location:</td>
<td>Destrehan, Louisiana, USA</td>
</tr>
</tbody>
</table>

CMC Engineering and Management Ltd. was retained by Bunge Corporation to assist as specialist consultants to review and make improvements to their Barge Unloader and Shipping System Upgrade.

- This work is now in progress.
- The barge unloading consists of a system capable of handling 3,000 tonnes per hour and shipping 2 x 1,600 tonnes per hour.
CMC Engineering and Management Ltd. was contracted to develop innovative means to recapture lost storage and to upgrade the throughput capacity of Alcan’s Kitimat plant alumina handling system.

As part of its Kitimat plant-upgrading project, Alcan addressed some long-term problems with its alumina handling facility. CMC was awarded a contract in October 2000 to develop concepts that accomplished the following:

- Rejuvenate alumina silos to minimize ‘dead’ alumina storage.
- Minimize or eliminate alumina agglomeration within the silos.
- Remotely control/automate silo discharge gates and valves.
- Improve the consistency and repeatability of alumina blending from silos.
- Improve alumina inventory management/tracking capabilities.
- Prevent water from coming into contact with alumina.
- Prevent alumina dust from being released into the environment.
- Improve the self-cleaning capabilities of alumina screening devices.

CMC visited the Kitimat Works between October and December 2000 to conduct site surveys and investigate these issues. A number of working meetings were held with Alcan stakeholders to present/discuss remedial concepts suggested by CMC. The final reports included general plans, recommendations and budgetary pricing for:

- Cleaning out and modifying the existing alumina silos.
- Upgrading belt scales.
- Replacing belt conveyors with air slide conveyors.
- Modifying existing air slide conveyors.
- Repairing water leaks in silos and conveyor tunnels.
- Replacing alumina screeners.
- Improvements in the automation..
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMC Engineering Group Limited</td>
<td>300-1160 Douglas Road, Burnaby, British Columbia, Canada, V5C 4Z6</td>
<td><a href="mailto:info@cmceml.com">info@cmceml.com</a></td>
</tr>
<tr>
<td>Tel: (604) 294 6483</td>
<td>Fax: (604) 294 0457</td>
<td></td>
</tr>
<tr>
<td>Mr. Lucio Sacchetti</td>
<td>President &amp; C.E.O.</td>
<td><a href="mailto:lsacchetti@cmceml.com">lsacchetti@cmceml.com</a></td>
</tr>
<tr>
<td>Mr. Michel Vander Noot</td>
<td>Vice President, Electrical Engineering</td>
<td><a href="mailto:mvandernoot@cmceml.com">mvandernoot@cmceml.com</a></td>
</tr>
</tbody>
</table>