

We Love COMPLEX PROJECTS

CASE STUDY

**ADVANCED
MANUFACTURING**



FIO AUTOMOTIVE PLANT EXPANSIONS
STRATFORD, ONTARIO

**Maple 
Reinders**

FIO AUTOMOTIVE PLANT EXPANSIONS

Stratford, Ontario



PHASE 1 | Maple Reinders was engaged to Design-Build a 60,000 sf expansion to the FIO Automotive stamping plant in Stratford, Ontario. This first phase included press foundations for two 800 tonne and one 2,500 tonne AIDA stamping presses as well as an underground scrap conveyor system connecting all three pits.

PHASE 2 | After successful completion of the first stamping expansion, Maple Reinders was engaged to Design-Build a second 60,000 sf stamping expansion. This second phase extended the underground scrap conveyor system beneath two new hot stamping presses and one 500 tonne stamping press.

PHASE 3 | Maple Reinders was contracted to complete two separate additions to FIO's automotive manufacturing plant. The first addition consisted of a 29,000 sf warehouse expansion for storage of finished products while the second consisted of a 6,000 sf crib/utility room that included a new compressor pad, loading dock modifications, and a scrap metal bin storage area.

PHASE 4 | In the most recent project at FIO, Maple Reinders was responsible for increasing their stamping footprint by 73,000 sf. This phase consisted of one new 3,000 tonne press foundation within the operating building and one new 1,200 tonne press foundation within the expansion footprint. Careful planning was required to allow FIO to continue to operate while performing construction within the operating manufacturing plant. This phase was awarded the Ontario General Contractors Association Industrial Award.

FAST FACTS

CLIENT

FIO Automotive Canada

MARKET SECTOR

Advanced Manufacturing

SQUARE FOOTAGE

228,000 sf expansion over four phases

CONTRACT TYPE

Design-Build

CONSULTANT

Tacoma Engineers

CHALLENGES & SOLUTIONS

The FIO project presented unique challenges which the Maple Reinders team had to overcome to ensure successful, timely delivery to our client:

CHALLENGE - WORKING IN OPERATING PLANT

FIO's new 3,000 tonne press required foundations systems up to 7m below finished floor level which was constructed between their main building and crane rail columns. An active production line to the north of the construction area remained continuously operational.

SOLUTION

The project team was required to ensure the operation of FIO's facility was not impacted while construction tasks such as excavation, shoring, backfilling, forming and concrete placement was completed. Concerns such as interior air quality, noise levels, air pressures and construction access/staging added to the complexity of the project.

Our team developed an innovative solution to the method of hoarding systems within the existing facility for the 3,000 tonne press construction using a tube and clamp system with membrane tie-in on the walls, roof and ceiling systems. The existing HVAC system was modified and tied into the enclosure system to ensure fresh air supply and the ability to exhaust the space. Shoring systems were required due to the tight construction space within the existing facility. Multiple types of shoring, including caisson/secant pile as well as pile and wood lagging, were integrated into the project. Multiple drill rigs and mast sizes were required due to the overhead clearances and existing facility's structure.

CHALLENGE - INTERNAL SURVEYING AND MODELS

Surveying and tie-in of multiple phases, incorporation of an existing press, conveyor and building structure was also required by the project team. Tolerances on the project were critical to the overall success of the project ensuring that the client's assemblies of the presses, conveyor and AGV systems could take place without impact and meet their manufacturing specifications. Structural beam tolerances, sole and leveling plate tolerances, and concrete finishing tolerances around the bolster rails and destack areas were also required.

SOLUTION

On-site surveying was required from the onset of the project through the design and initial construction stages of the shoring to ensure that the design conditions matched the site conditions allowing the foundation design and clearances required to construct the 3,000 tonne press. Collaboration between the surveying contractor, Maple Reinders' in-house virtual design and construction team and multiple structural trades were required to meet the high tolerances for embedded components necessary for the 3,000 tonne and 1,200 tonne press assemblies.



CHALLENGE - SCHEDULE PRESSURE

Deliverable dates were under constant pressure during the government-mandated Covid shutdowns. The delivery schedule of the equipment imported from Japan and other areas of the world needed to be maintained to avoid delays in the deliverable date for our client.

SOLUTION

The schedule was compressed with rigorous overlap and coordination. FIO's trades constructed the conveyor systems as well as the press installation and assembly itself. Sequencing and staging were addressed with alternate solutions to access the facility, including customized structure, and entrance doors within the exterior wall of the existing facility. Coordination meetings with subtrades and specialty contractors were an ongoing requirement to ensure that the schedule was maintained throughout the construction of the 3,000 tonne press.

Maple Reinders Constructors Ltd.

TYPICAL CONSTRUCTION MANAGEMENT PRE-CONSTRUCTION PROCESS

Your involvement is important, and Maple is with you every step of the way

Proposal is submitted, design team is assembled, and a contract with Maple Reinders is signed. Owner input/approvals are solicited to work toward site mobilization and construction start.

Maple handles all permits and approvals to keep the project moving

Following preliminary regulatory consultation, Maple Reinders manages the Site Plan Approval and Building Permit processes.



REGULATORY PROCESS



OWNER INPUT / APPROVALS



PROJECT
VISION

PRE-CONSTRUCTION TIMELINE



MAPLE REINDERS
STARTS
CONSTRUCTION



DESIGN PROCESS

We work with you and the consultant team to realize your vision

Design is refined from concept up to 100% construction drawings, which will also inform the budget.



BUDGET PROCESS

Refining and value engineering as we go, Maple delivers the project at the best price

Maple Reinders prepares iterative budgets (Class D to Class A) sharpened from +/- 20% variance up to final tender and fixed price.



FOOD & BEVERAGE



SELF-STORAGE



ADVANCED MANUFACTURING

OVER 50 YEARS OF INTEGRITY IN BUILDING EXCELLENCE

DESIGN

CONSTRUCT

MANAGE

OPERATE

FINANCE

MAINTAIN

CAPACITY TO MAKE IT HAPPEN

150+

Projects delivered

Maple Reinders has expertly completed over 150 Construction Management projects.

\$1B+

Worth of Projects

Maple Reinders has built more than a billion dollars worth of projects under the CM model.

130

National Accounts

Whether through CM or another delivery model, our clients trust us to get it done.

Building and Civil Expertise

Commercial | Food & Beverage | Industrial & Advanced Manufacturing | Institutional | Multi-Residential | Organics Waste Management
Process Mechanical | Self-Storage | Transportation | Water/Wastewater Treatment | Waterway Structures & Hydro Power



Get Us Working for You

To learn more about the many ways we've helped clients realize their vision, please give us a call.

KEN KAMMINGA,
Senior Account Manager

905-821-4844
KenK@maple.ca