Working together

PCL operations join forces to build major projects

ALSO INSIDE
Starting smart builds success
Building Information Modeling
Training: the future of excellence
What is ethanol?
- High-octane, alcohol-based fuel additive produced from grain, including wheat. Ethanol-blended fuels increase octane ratings, reduce tail-pipe emissions, and protect vehicles from gas-line freezing.

Minnedosa Ethanol Plant Facts:
- capable of annually producing 130 million liters of ethanol and 130,000 tons of Distillers Dried Grain with Solubles (DDGS), a high protein feed supplement
- construction required over 1.1 million hours of employment and at the peak had more than 500 workers onsite

Table of contents
Working together ... 2
Building success by starting smart... 4
Building Information Modeling ... 6
PCL in Abbotsford ... 8
Balboa Theater Renovation... 9
Training: the future of excellence ... 10
Quarter Century Club ... 11
Two of these unique internal joint ventures demonstrate that our experts in buildings, civil infrastructure, and heavy industrial can get together to deliver projects the PCL Way.

Sound Transit Link Light Rail Project Section C755
Seattle, Washington

A perfect match was made in Seattle when our PCL Civil Constructors Inc. team from Tampa, Florida brought their unique segmental bridge construction expertise north to work with the PCL Construction Services, Inc. team from Seattle. The two operations are so diverse that a formal internal partnering process was set in motion that resulted in a team culture of accountability, reliability, cost-efficiency, quality, and timeliness.

Using the expertise wisely

Initially, the PCL Civil team focused on constructing over five miles of access roads, with the PCL Seattle team following close behind with piers and foundation concrete. PCL Civil, meanwhile, took advantage of Seattle’s existing supplier relationship to cast the precast segments for the bridge structure.

As the foundations for the structure were constructed, the erection of the precast segments followed — a process mastered by the PCL Civil team and supported by the Seattle team. In all, almost 2,500 precast segments were installed, using a combination of both span-by-span and balanced cantilever construction processes.

PCL Seattle simultaneously was working on the 154 Street station and other requirements for the project. In the end, a brilliant new segment to the Sound Transit Light Rail line was born.

“We were impressed by how the builders from two PCL groups from opposite ends of the country worked so collaboratively with each other. From the outset, we realized that this was a combined PCL effort with each group having respect for the expertise that the other group brought to the project.” — Henry Cody, Deputy Construction Manager, Sound Transit
In the PCL family of companies, we believe part of our winning formula is the expertise and experience we have in understanding and developing solutions for our clients’ construction vision long before a shovel hits the dirt.

Building success by starting smart

To remain competitive in the North American construction industry, builders are constantly looking to find ways to meet clients’ construction needs when they get to site. In the PCL family of companies, we believe one of our superior services is the expertise and experience we have in assisting our clients long before construction begins.

Industry-leading preconstruction services
From the first day we become engaged with a client, our people welcome the challenge of offering the very best the construction industry has to offer in preconstruction services.

It’s much more than getting onsite and figuring how to best build it there; it’s really about understanding the underlying root of the project objectives and goals, and using our resources to meet them.

How do we do it?
Collaboration, collaboration, collaboration …
It’s about being committed to firstly understanding our clients’ business and, secondly, understanding what our clients are planning to build to support or grow their businesses.

PCL builders apply their extensive knowledge of construction and current market conditions to make suggestions, evaluate alternatives, and offer solutions that will exceed our clients’ expectations — solutions that fit realistically within our clients’ budgets and timeframes.

And … we bring a North-America wide team to join our clients’ teams: we bring the resources of the entire PCL family. Any one set of PCL builders in any specific PCL office has convenient access to the experience and expertise of more than 3,000 PCL professionals working out of twenty-eight major office locations across North America. Added is that our organization’s intranet is a diamond mine of best practices right at the fingertips of our builders.

Getting in on the design phase early
By being included as early as possible in the design phase, we can fully understand the project challenges and offer suggestions that complement the objectives. Those suggestions come from years and years of construction experience that have ultimately saved our clients time and money.

This value-added service sets up the construction plan to be proactive in avoiding pitfalls and costly changes during construction.

It provides solid, accurate advice so that our clients can make sound, realistic business decisions ahead of time rather than during the construction process. As a result of our early dedication to collaborating with our clients and their project teams, we are there to assist with some of the most critical project decisions.

Once the large issues are identified, analyzed, and discussed through this proactive understanding process, the team incorporates the required materials, systems, and elements into the process efficiently, with full understanding of any impact to the functional or aesthetic design.

We also realize significant cost savings through accurate cost analysis, innovative and efficient construction plans, and enhanced schedule control. (You can read more about our increasing use of Building Information Modeling on the following pages for more detail on our process.)

Consulting with our own
PCL also offers our clients the services of an internal Peer Review Team of seasoned construction professionals who challenge the proposed construction process and plan to ensure we are building the project in the most effective and cost-efficient manner possible. Our Peer Review Team’s constructability advice leads to the design being developed into a workable construction plan. This review has become standard with any large PCL project and is included in our preconstruction service.

Moving on to the construction phase
Our clients maximize their investment in PCL’s preconstruction services when the natural progression from preconstruction to construction can be overlapped within the PCL family. Our early involvement in the project continues to deliver added value when we are selected to perform design-build or construction management services.
The PCL Construction Services, Inc. (Hawaii) and Nordic Construction, Ltd. joint venture team saved our client more than $22 million on the original contract value of $303 million by providing more than a hundred value engineering ideas during the preconstruction phase of this luxury condominium project in the Hawaiian Islands. The ideas included steel stud roof trusses instead of structural steel; alternate window, door, and trim manufacturers; an alternate light-fixture package; and Trane vertical closet heat pumps instead of outside air units. The team also advised our client to centrally locate the electrical room to minimize conduit runs.

“PCL was hired for preconstruction services on the Kapalua Bay Project after completion of 60% CD’s (construction documents) based on their extensive experience and did not disappoint. The project was substantially over budget when subcontractor pricing was secured and that is when PCL went to work. In working with subcontractors and utilizing their own vast data base of cost and material information, PCL brought to the table value engineering savings of approximately 40% of the initial over-run, of which 23% was subsequently approved by the Joint Venture and implemented into the construction documents. During the process, PCL first looked to the “behind the walls” items focusing on more efficient ways to simplify building/site structures and MEP (mechanical/electrical/plumbing) systems. These items realized the most significant savings and allowed the project to maintain the “touch and feel” items which actually drive marketability and sales of the units.” —Rob Centra, Regional Project Director, The Ritz-Carlton Development Company

The PCL Constructors Canada Inc. (Toronto) team coaxed PCL legend Michael O’Malley out of retirement to provide his vast office tower construction expertise to lead the preconstruction team in challenging preliminary plans and evaluating alternatives and solutions that could help save time and money. Thanks to this planning, PCL was able to pre-buy all of the glass saving approximately $10 per square foot of glass on this 1,775,000 square-foot project.

“PCL continuously demonstrates their commitment to adding value to our projects and the RBC Centre is no exception. Another example is the recent addition to the Toronto Eaton Centre that included retail and parking space, as well as the Ryerson School of Business. PCL provided two separate GMP’s (guaranteed maximum price) for the project (one to Cadillac Fairview and one to Ryerson) and was able to meet significant preconstruction challenges through value engineering a 10 per cent reduction in project cost, which enabled us to receive budgetary approval to proceed.” —David Handley, Senior Vice President of Project Management, Cadillac Fairview Corporation Limited

RBC Centre  Toronto, Ontario
Client: Cadillac Fairview Corporation Limited
Contract value: $304 million

The Residences & Ritz-Carlton Club at Kapalua Bay
(Nordic/PCL, A Hawaiian Joint Venture)
Lahaina, Hawaii (Maui)
Client: Kapalua Bay, LLC
Contract value: $364 million
“PCL’s implementation of the BIM 3D modeling tool proved to be instrumental in assuring the successful expansion of Memorial Hospital Central. The expansion on our existing site was complex by nature and the schedule was constrained by key milestones. I’m not sure if the schedule would have been met without the careful planning of the project team and the utilization of the modeling tool. I believe by using the BIM tool, potential delays were eliminated and cost associated with re-work was saved.” —Greg Gauna, Director of Planning, Design, & Construction, Memorial Health System

Building Information Modeling

Bringing our clients’ projects to life virtually to save time and money.

Build it twice, first virtually and second actually

In the PCL family of companies, we are quickly becoming known for our ability to virtually build a project before construction starts using a process called Building Information Modeling (BIM) [also referred to as Virtual Design Construction (VDC), construction modeling, and other names].

BIM is a software tool that enables our experts to build a digital representation of the project in the virtual world. By using this model to simulate the design, construction, and operation of a project, we are able to optimize the cost, time, and quality before a shovel is put into the ground, avoiding conflicts and issues, and delivering the project on time and on budget. This effectively allows us to “build the project twice”, once virtually and second actually.

How BIM adds value

Preconstruction services

The visualization and communication opportunities that result from using BIM are the most significant during this phase.

By combining BIM with PCL’s estimating, scheduling & planning tools and expertise, and previous project experience and knowledge, we can ensure that we optimize the project’s design, construction, and operation with respect to cost, time, and quality — adding value at every step of a project’s lifespan.

BIM also helps manage risk for each stakeholder. This is accomplished by collaboratively defining each of the project-specific risks, developing a strategy for managing each of these risks, and communicating these strategies with each stakeholder.

Project shown: Memorial Hospital, Colorado Springs, Colorado
It is a centuries-old truth in construction of any kind, from home renovations to the building of the architectural wonders of the world: if you could do it all over again, you would do something different. Using traditional construction methods, there always is a better way after-the-fact, and perhaps those alternative methods would be less expensive if you did it all over again. Furthermore, in projects that are not simple, it has historically been almost impossible to foresee all the twists and turns necessary to turn a large and complex construction vision into reality.

Also true in the construction of large commercial building, civil infrastructure, and heavy industrial projects is that you never really get to build the same project twice. Each project is essentially a prototype — a distinct structure on its own, different in some way than anything built before it.

“By incorporating schedule, manpower, and billings to the 3D model built during preconstruction, PCL provided us with a powerful tool helping our entire team understand the complexity of the project. This was also a very valuable component to our lenders package helping them grasp the scope and cash flow requirements for our project.” — John Wallace, Senior Vice President of Construction, Western Region, Joseph Freed & Partners

Want to find out more about how PCL is using BIM to help clients save time and money without sacrificing quality and safety? Contact a PCL company near you.
PCL's front-end work on the Abbotsford Regional Hospital and Cancer Centre, the first public-private partnership hospital built in British Columbia, is a great example of how PCL builds partnerships with clients that last.

PCL’s performance on the new Abbotsford hospital leads to more local work

The PCL Constructors Westcoast Inc. team in Vancouver has set another sparkling example of how PCL works with its clients to form lasting partnerships built in mutual respect and trust. The partnership with the Access Health Abbotsford team, and, ultimately, the City of Abbotsford on the Abbotsford Regional Hospital and Cancer Centre has led to PCL becoming part of the fabric of the Abbotsford community. The PCL Vancouver team is now the design builder for the Abbotsford Cultural Centre, Museum and Art Gallery, the Abbotsford Community Recreation Centre, and the Abbotsford Entertainment and Sports Centre.

How do we build partnerships that last?

We believe that PCL builders are not only some of the most talented construction professionals in the industry; they are also some of the most stand-up people you will ever meet. The key is that our people live century-old PCL values of honesty, integrity, respect, and passion for what they do. In a 100% employee-owned organization like PCL, our clients are really working with PCL owners — owners that are invested in the past, present, and future performance of our organization.

FACTS: Abbotsford Regional Hospital and Cancer Centre (LEED Silver certification)

- encompasses approximately 680,000 square feet distributed over five levels on approximately ten hectares of land
- three hundred beds serving 150,000 people in the Abbotsford area and up to 330,000 in the Fraser Valley

Going above and beyond

In a solid partnership with people truly invested in the cause, sometimes it takes one of the partners going above and beyond to help the other out. So when the City of Abbotsford’s decades-old granite cenotaph needed to be moved to its new home in Thunderbird Square near City Hall, our partners at the City knew who to ask. PCL Vancouver donated the extra time and equipment required to dismantle, lift, and move the cenotaph to its new location and re-set the historical monument once it was there. Now that’s building a partnership.
PCL believes that the restoration of historical structures is an important contribution to preserving and respecting history — so much so that we have developed a reputation across North America for a special interest in national, state, and provincial treasures.

The famous Balboa Theatre in San Diego’s Gaslamp district is one of our latest historical preservation and restoration projects. This architectural marvel of the past is an important landmark and one of the centerpieces of the historic redevelopment of San Diego.

We updated the existing five-story structure with basement and 1,339-seat audience chamber to today’s building standards while carefully preserving the historic fabric of the original theater. The initial demolition and structural retrofit phases accommodated new stairwell and elevator hoist way openings in the existing concrete and hollow clay tile structure.

State-of-the-art audio/visual, stage rigging, theater lighting, and hoisting systems were installed along with new building mechanical systems. New theater seating replicating the original seating was also installed at raised tiers to allow for better viewing angles.

To meet the historic preservation standards set for the Balboa Theatre, the exterior and interior ornamental plaster and existing, historically significant windows, doors, and ornamental metal railings were restored.

Two live waterfalls built into the ornamental plaster walls within the audience chamber were reconditioned to working order. The original painting on the theater’s grand drape and valance was also replicated, and even a rare 1920’s-era Wonder Monton Organ, one of five of its kind, was restored to its original glory and installed for use.

Owner: The Redevelopment Agency of the City of San Diego
Construction Managers: PCL Construction Services, Inc. (San Diego)
Design: Westlake Reed Leskosky
PCL Contract Value: $18 million
Construction Schedule: May 2006 to January 2008

History of the Balboa Theatre
The Balboa Theatre in San Diego’s Gaslamp district, originally built in 1924, was the city’s first big downtown theater built to showcase motion pictures. The theater was also equipped with full stage facilities for vaudeville performances. During the 1920s and 30s, the theater enjoyed sustained success, but later fell to slower times and an eventual shutdown. PCL’s restoration of the historic Balboa Theatre resulted in the early 2008 opening of the facility as a performing arts venue designed to house diverse programs of local, national, and international performances, as well as community, corporate, and convention gatherings.
The halls of PCL’s North American operating locations are busier than ever these days, thanks to the successful roll-out of our Foundations for Operational Excellence training course. This flagship offering from PCL’s renowned College of Construction is an innovative way of developing our bright young stars in the midst of a tight labor market, while simultaneously giving them the foundational skills they need to carry out PCL’s dedication to excellence on our jobsites. With over 1,500 graduates to date (and counting), the course has been so successful that it is being further implemented in PCL operations across North America.

The course is targeted at employees with between six months and three years of PCL experience, and its centralized delivery format ensures that consistent messages about ethics, safety, quality, productivity, and other topics are communicated to every attendee. It is a way to address the need for more mentors for our ever-increasing numbers of new hires, and it is a boot-camp initiation that gets everybody on the same page about what it means to be part of one of North America’s largest general contracting organizations. More importantly, according to our graduates, it’s worth the four-day investment at the beginning of their PCL careers.

“I have been in the industrial business for thirty years, and not one company has ever shared the complete process that evolves from bidding a job to closing one. I am proud to be involved with a company that is willing to share all this information with employees.”

“The course was excellent and taught me a great deal about what I don’t know. I have a long way to go, but at least now I have a target.”

“What a phenomenal package of information on project procedures and the PCL way! Not only will this help new employees but it will help me mentor those coming up behind me.”

Foundations for Operational Excellence is just one of the latest additions to our extensive library of training courses that have effectively developed our people into the best the industry has to offer. The recently introduced PCL: A Culture of Integrity Code of Conduct course, for example, is a mandatory session for every PCL employee. Attended by over 2,900 salaried, hourly, and student employees to date, the Code of Conduct course is our effort to ensure that everyone in the PCL family of companies is actively engaged in our commitment to ethical business practices.

With an ongoing dedication to training, mentoring, and improving our team, the PCL Way has become synonymous with industry excellence.
Experience and tradition

Our diverse and experienced group of construction professionals is pleased to be of service to you across continental North America, the Hawaiian Islands, and the Bahamas. The tradition continues as we introduce you to our 2007 PCL Quarter Century Club inductees, celebrating twenty-five years of service with PCL. There are now 393 members in PCL’s Quarter Century Club.
PCL FAMILY OF COMPANIES

Our operations are carried out by a number of independent companies which operate in different construction markets or geographic areas.

Buildings

Our full-service buildings operations support the work of project sites across North America. This network of construction professionals rises to the challenges associated with our extensive buildings portfolio, bringing added value to every commercial, institutional, educational, and residential project. While we’re better known for our larger projects, such as airports, sports facilities, and office towers, we also excel at smaller unique projects, such as renovations, restorations, and repairs.

Industrial

Our industrial companies, which are located strategically throughout North America, respond to the unique construction needs of our clients in the petrochemical, oil and gas, refining and oil sands, mining, and power and cogeneration industries. In addition to offering Construction Management services, we offer a full range of general contracting services, specializing in mechanical, civil, and electrical construction; pipe and vessel fabrication and module assembly; and piping and plant shutdowns/turnarounds.

Civil

By nature, civil work is geographically diverse and extremely demanding. This has made us versatile civil builders — equally at home building on land or over water, in busy cities or in remote areas. Our civil teams possess the ingenuity and the experience needed to undertake any civil structure imaginable — from bridges, overpasses, tunnels, and interchanges to water-treatment facilities, pipelines, and light-rail transportation projects.