

CUSTOMER PROJECT PROFILE:

Lease Crutcher Lewis

Using BIM to speed design & construction & eliminate wasted effort

COMPANY PROFILE:

NAME | Lease Crutcher Lewis

INDUSTRY | General Contractor

LOCATION | Seattle, WA

PROJECT | Bio-Med facility build-out in existing facility

SOLUTIONS THEY OFFER THEIR CLIENTS:

Lease Crutcher Lewis delivers construction services of exceptional value for their clients in the following market sectors:

- Biotech & Laboratory
- Office & Corporate Headquarters
- Community
- Financial
- Health Care
- Historic Renovation
- Single Family Homes (Holyoke Fine Homes)
- Hospitality & Recreation
- K-12 Education
- College & University
- LEED & Sustainable
- Manufacturing & Technology
- Multifamily Housing
- Parking Garage
- Retail & Restaurant

BACKGROUND: Lease Crutcher Lewis was founded in 1886 in Great Falls, Montana by N.T. Lease. He formalized the company in 1886 with the help of business partner H.S. Leigland. "Lease & Leigland" soon became the premier construction firm in the state. Civic buildings were a focus and source of pride in the early years. N. T. established the enduring values for the company that includes commitment to the community and to one another.

Upon N.T. Lease's death in 1929, son Howard S. Lease acquired his share of the company. He moved the business to Seattle in 1939 and continued the legacy of building landmark projects such as the still-used main terminal at Sea-Tac Airport. Howard, a University of Washington graduate, was active in the community and the Association of General Contractors.

Generations three and four of the family joined the ranks in the second half of the century. Jim Crutcher, Howard Lease's son-in-law, signed on in 1957, and Bill Lewis, Lease's grandson and current company president, came aboard in 1978. Over the years the company became strong in a variety of markets including medical, biotech, office buildings and higher education. The firm also expanded into Portland in 1993, where it has excelled in the education market. Throughout the Northwest, Lewis leads the industry in sustainable construction, with 42 LEED projects to date.

SUMMARY: The spotlight project was a build out of 25,000 square feet, including cGMP-compliant manufacturing spaces (with Class 10K and 100K clean rooms), support spaces, and offices. This phase included a new 14,000 square foot structural steel mezzanine. MEP was design-build.

This plan included a complex move of the manufacturers operations between four locations, all dependent on FDA's approval process for medical device production and storage facilities. Virtual Design & Construction / Building Information Modeling (VDC/BIM) helped to speed the design and construction process, eliminated wasted effort, and provided the certainty Lease Crutcher Lewis needed to succeed.



AUTODESK® SOLUTIONS USED:

AutoCAD®
Revit® Architecture
Autodesk® Navisworks



"Our migration to modeling with Revit, as opposed to drawing with lines, circles, and arcs has given us the ability to better validate design, budget, and work plans by building the project virtually in the computer prior to breaking ground. "

Mark King
Manager of Virtual Design
Construction/BIM Services,
Lease Crutcher Lewis

CHALLENGE: The team was challenged by an aggressive design and construction schedule with a complicated project in an existing, operating facility. Lewis looked to VDC and BIM as a tool to assist in meeting the challenge in four ways:

1. Design Validation: During design, Lewis modeled the new architectural partitions, ceilings, and casework and the existing exterior walls and roof structure of the new build-out spaces as a way to visualize and verify the construction documents. Through this process they identified several design issues and rectified them well ahead of construction, avoiding errors and delays in the field, and saving time and money.

2. 3D Spatial Coordination: Lewis worked closely with its subcontractors to model and coordinate the existing structure and proposed MEP systems. This was accomplished by integrating models completed by five different companies using five different software packages. Web meeting technology was utilized by the team and all members participated from their home office. By doing so, the detailing and construction team saved valuable travel time and was able to develop constructable solutions to complicated systems routing, thus greatly reducing costly RFI's and potential errors.

3. 3D Model to Survey: Once the walls were laid out in Revit we exported them to AutoCad and sent them to Ryan Lopeman to import into his Carlson survey software. This involved changing the units from architectural to engineering, rotating the building to orient it properly and moving a grid intersection to 1000, 5000 in the model so that Ryan could tell northing units from easting units. Ryan then imported the file into his total station and used it to layout the footing locations, column lines and interior walls.

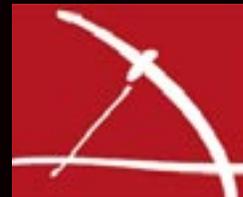
4. Concrete Detail Drawings: The foundations and footings were modeled in 3D with Revit and transmitted to the field for layout and construction. This process involved combining design information from several drawing sheets and RFI's into a single source drawing for our crews to build from.

THE SOLUTION: Autodesk® Revit® was utilized to quickly and accurately model the building components. The model was then provided to the Mechanical/Electrical/Plumbing team in AutoCAD® format to use as a basis for their system models. Navisworks® Manage was used to successfully aggregate all of the model files and complete the spatial coordination on the complex, fast tracked project in five online meetings over the span of three weeks.

THE RESULT: The project was completed 2 days early and on budget (despite the building permit for the 2nd phase being four weeks late), resulting in another satisfied client for Lease Crutcher Lewis.

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