How ALEC Construction **Cut Multi-Trade Layout Time by 73%** on a Major Integrated Resort **with the XR Projector**

PROJECT BACKGROUND

Project: Integrated Resort Complex
Location: Ras Al Khaimah, United Arab Emirates
Type of Project: High-Precision Multi-Trade Layout
Key Actors: ALEC Construction, ALEMCO (MEP Contractor), Sitech GULF (Distributor), Mechasys (XR Projector Manufacturer)

73%
TIME SAVINGS

5-in-1
UNIFIED MULTI-TRADE LAYOUT

100%
ACCESSIBLE TO ALL TRADES

CHALLENGE

ALEC Construction encountered a critical workflow bottleneck while delivering an integrated resort complex in the United Arab Emirates. The design required the **seamless integration of five distinct trades**—including Gypsum, MEP, and Secondary Steel—within **complex, high-density zones**.

Analysis revealed that manual setting-out would necessitate a fragmented, 22-hour sequential cycle per room, requiring five separate team mobilizations. Furthermore, architectural features such as curved corridors rendered standard chalk lines inadequate; every grid offset became a potential clash point, making traditional layout methods impossible to execute with the required precision.

SOLUTION

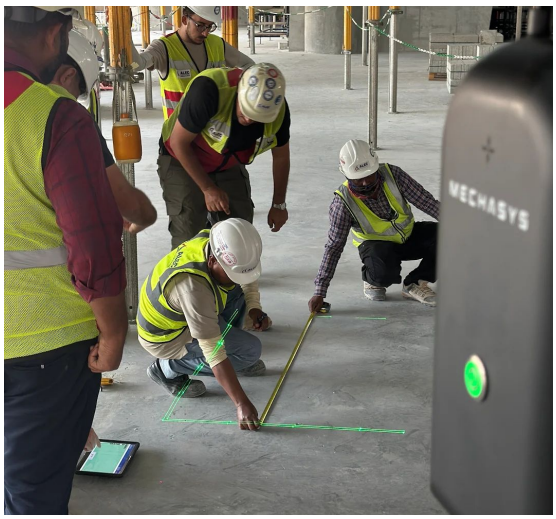
To overcome these constraints, ALEC Construction streamlined the multi-trade workflow by deploying the XR Projector in coordination with Mechasys. Operated via tablet by a foreman, the system **instantly projected multiple service layouts**, replacing guesswork with digital precision.

Crucially, the team utilized the system's optimized stationing using control lines and control points to navigate the site's intricate curved corridors. This ensured seamless, **millimetric alignment on complex walls and ceilings**—areas where traditional layout methods lacked the definition to succeed.

RESULTS

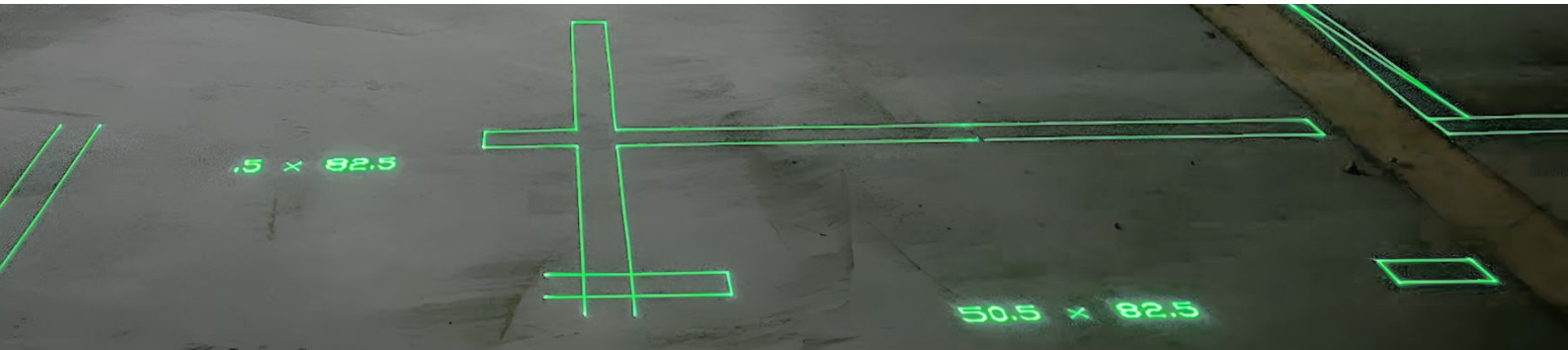
The operational impact was immediate. ALEC achieved a 73% reduction in layout time, **compressing a fragmented 22-hour coordination cycle into a streamlined 6-hour execution.**

This efficiency stemmed from a strategic shift to a trade-led layout model. By reducing the dependency on specialized surveyors, ALEC consolidated the layout work of multiple subcontractors. Even at conservative regional labor rates, this translates to significant project-wide savings by eliminating the hidden costs of rework and waiting times. Crucially, **instant validation of complex multi-trade intersections** secured the schedule against costly errors.



> **The XR Projector demonstrated exceptional accuracy across all services—on floors and ceilings—proving significantly faster than a Total Station. Based on this performance, it is recommended for deployment on all future projects.**
>
> **- Kelvin Motlhabi, Project Lead**
> ALEC Construction

SCAN TO WATCH FULL VIDEO



MECHASYS

COMPARATIVE ANALYSIS

The true power of Projected Reality is realized when scaled across the integrated resort's monumental scope. By optimizing the entire digital-to-field workflow, the system identifies and resolves bottlenecks before the team even steps onto the slab. Data gathered from productivity measurement reports shows a 73% reduction in labor, proving that millimetric accuracy no longer demands a schedule premium. This operational shift effectively converts thousands of hours traditionally lost to coordination into active, clash-free production.

HIGH-PRECISION CURVILINEAR MULTI-TRADE LAYOUT

		Traditional Method	XR Projector
Initial Data	Scope (Multi-Trade)	Gypsum - MEP - RCP - Secondary Steel - Finished Walls	
	Team Composition	5 Separate Subcontractors	1 Internal Lead
Productivity	Workflow	Fragmented (Start/Stop)	Continuous (All Trades)
	Layout Speed Factor	-	3.7x
Time	Total Layout Time Per Room (Man-Hours)	22	6
	Time Saved Per Room (Man-Hours)	-	16
	Net Productivity Gain	**3.7x**	

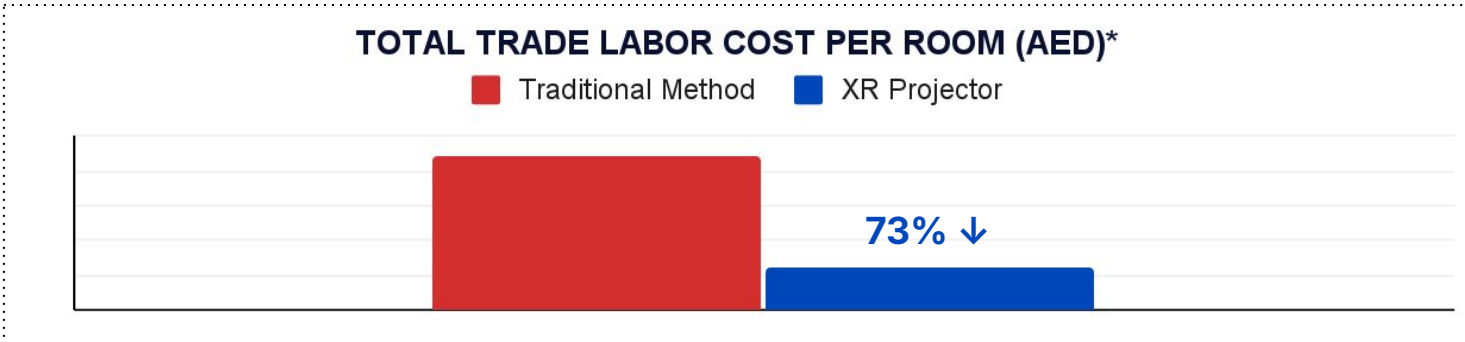


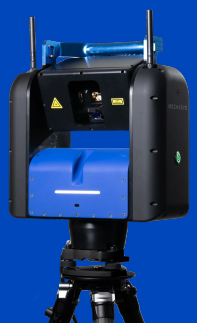
**Chart represents actual data drawn to scale. Absolute values have been redacted for confidentiality.*

COLLABORATORS

ALEC Building Excellence — **Delivery Lead**

ALEMCO ELECTRO-MECHANICAL CONTRACTING — **MEP Contractor**

SITECH SITECH Gulf Global Positioning Systems LLC — **XR Projector Distributor**



Learn more at
mechasys.ca

mechasys.ca info@mechasys.ca

Follow us !