# Case Study: Asheville-Buncombe Technical Community College – Asheville, NC

## Campus-Wide LiDAR Scanning & Scan-to-BIM Documentation

**Client:** AB Tech Community College & LS3P
**Location:** 340 Victoria Road, Asheville, NC
**Project Type:** Educational Campus / Higher Education Facilities
**Project Size:** 16 Buildings | Approximately 500,000–600,000 SF
**Completion Date:** November 27, 2025

## Project Overview

Quantum Reality Capture (QRC) was engaged by LS3P to provide comprehensive LiDAR scanning and Scan-to-BIM services for Asheville-Buncombe Technical Community College (AB Tech) in Asheville, North Carolina. The project included 16 campus buildings consisting of classroom facilities, administrative offices, and student services buildings totaling approximately 500,000–600,000 square feet across the campus. The objective of the project was to create highly accurate digital documentation of existing campus conditions to support long-term planning, renovation initiatives, and future capital improvement projects. QRC utilized advanced LiDAR scanning technology to capture both interior and exterior building conditions and translate the collected data into scalable BIM deliverables and coordinated documentation packages.

## Project Challenges

Large-scale educational campuses present unique documentation and coordination challenges due to the size, complexity, and operational nature of the facilities. The AB Tech project required accurate documentation across 16 separate buildings, efficient coordination between multiple campus stakeholders, minimal disruption to active educational operations, consistent data quality across varying building types and ages, accelerated project timelines, and scalable BIM deliverables suitable for future campus-wide initiatives. Managing field operations while maintaining accuracy and efficiency across multiple active facilities required a highly organized and strategic reality capture workflow.

## QRC Solution

QRC implemented a structured LiDAR scanning and Scan-to-BIM workflow designed to maximize efficiency, consistency, and accuracy across the entire campus. Using advanced reality capture technology, QRC performed comprehensive interior and exterior LiDAR scanning across all 16 campus buildings. Strategic scan planning and mobile workflows enabled efficient data collection while minimizing disruptions to students, faculty, and campus operations. Collected scan data was registered and processed into survey-grade point clouds with rigorous quality assurance procedures implemented throughout the project lifecycle. QRC then translated the processed data into an LOD 200 Revit model representing existing campus conditions. In addition to BIM modeling, QRC delivered coordinated site plans, floor plans, reflected ceiling plans, exterior elevations, and roof plans to support future campus renovation and facility management workflows.

## Results & Impact

Completed within an accelerated 30–45 day timeframe, the AB Tech campus-wide reality capture initiative provided LS3P and Asheville-Buncombe Technical Community College with highly accurate, scalable digital documentation across the entire campus. The resulting LiDAR datasets and BIM models enabled stakeholders to improve campus planning and project coordination, reduce field verification and return site visits, streamline renovation and capital improvement workflows, establish reliable digital records of existing conditions, and improve collaboration between architects, engineers, and facility teams. By leveraging advanced LiDAR scanning and Scan-to-BIM technology, QRC helped create a strong digital foundation for future campus development while reducing uncertainty, improving efficiency, and accelerating project decision-making.

## Technology Used – XGRIDS Lixel L2 Pro

The XGRIDS Lixel L2 Pro handheld LiDAR scanning system was utilized throughout the project to rapidly capture high-density point cloud data across the campus with exceptional speed, mobility, and accuracy. Combining LiDAR sensors, visual cameras, IMU technology, and AI-powered SLAM processing, the Lixel L2 Pro enabled real-time spatial mapping and accelerated local data processing capabilities. The lightweight handheld workflow allowed QRC to efficiently navigate classrooms, administrative offices, student service buildings, and exterior campus environments while minimizing disruption to daily operations. The technology significantly reduced field collection time, accelerated Scan-to-BIM workflows, minimized return site visits, and improved overall project efficiency for this large-scale multi-building educational facility documentation project.

## Deliverables

• Survey-grade registered point clouds
• LOD 200 Revit model
• Coordinated site plans
• Floor plans
• Reflected ceiling plans (RCPs)
• Exterior elevations
• Roof plans
• Quality-controlled digital documentation package

## About Quantum Reality Capture

Quantum Reality Capture (QRC) specializes in LiDAR scanning, reality capture, drone mapping, and Scan-to-BIM services for the architecture, engineering, construction, education, and real estate industries. QRC delivers highly accurate digital documentation solutions that help clients reduce risk, improve coordination, and make informed project decisions through advanced reality capture technology and scalable BIM workflows.

---