

Introduction to Building Technician Case Studies

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Purpose: Provide a clear, organized overview that helps students and professionals understand how case studies are used to develop building technician skills.

1. What Is a Case Study?

Aspect	Description
Definition	A detailed, real-world example that illustrates a specific problem, the actions taken to resolve it, and the outcomes.
Goal	Bridge theory and practice; show how technical knowledge, tools, and decision-making are applied on the job.
Typical Elements	• Background & context • Problem statement • Methodology/approach • Tools & equipment used • Results & lessons learned • Recommendations for future work
Why It Matters for Technicians	• Reinforces problem-solving habits • Highlights safety and code compliance • Demonstrates communication with stakeholders (owners, engineers, inspectors) • Provides evidence for performance reviews or certifications

2. Structure of a Building Technician Case Study

1. Title & Project Summary

Concise phrase + one-sentence snapshot (e.g., “HVAC Retrofit in a 30-Year-Old Office Building”).

2. Background

- Building type, age, location, occupancy.

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- Relevant systems (HVAC, electrical, plumbing, fire protection).
- Stakeholder objectives (energy savings, code upgrade, tenant comfort).

3. Problem Statement

- Specific issue(s) to be addressed (e.g., “Excessive temperature variance on the 5th floor”).
- Measurable symptoms (temperature readings, energy bills, fault codes).

4. Methodology / Approach

- **Site Assessment** – walkthrough, data collection, instrumentation.
- **Diagnostic Tools** – infrared thermography, multimeters, pressure gauges, BMS data logs.
- **Analysis** – comparison to design specs, code requirements, manufacturer guidelines.
- **Solution Development** – options considered, cost?benefit analysis, risk assessment.

5. Implementation

- Step?by?step actions performed by the technician (e.g., “replaced failing VFD, balanced ductwork, calibrated thermostats”).
- Safety procedures followed (lockout/tagout, PPE, permit verification).
- Coordination with other trades or contractors.

6. Results

- Quantitative outcomes (energy reduction %, temperature variance ?, fault codes eliminated).
- Qualitative outcomes (tenant satisfaction, reduced maintenance calls).
- Comparison to baseline metrics.

7. Lessons Learned

- What worked well?
- Unexpected challenges and how they were resolved.
- Recommendations for similar projects.

8. References & Appendices

- Drawings, data sheets, code citations, photos, test reports.

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3. How to Analyze a Case Studies

Step	Action	Tips
1. Identify the Core Issue	Pinpoint the primary technical problem.	Look for the “Problem Statement” and supporting data.
2. Map the Diagnostic Process	List the tools and tests used.	Ask: <i>Why was this tool chosen?</i>
3. Evaluate the Solution	Break down each corrective action.	Consider cost, time, and compliance factors.
4. Measure the Impact	Compare pre? and post? implementation data.	Use percentages or ratios for clear comparison.
5. Extract Transferable Knowledge	Note principles that	